demic year. Previously, scientists had to wait to fly to McMurdo in October or November at the beginning of the Antarctic summer.

With the building of many new facilities at McMurdo and plans to replace the under-ice station at the South Pole (which is gradually being crushed by the weight of the ice), it is obvious that the United States plans to continue its Antarctic research program for the indefinite future. In view of current international suspicion, it would seem impossible for either the United States or the Soviet Union to discontinue Antarctic research unilaterally while the other was doing it, even if the nations eventually concluded that it was of little scientific value.

Most research done in Antarctica is organized on a national basis, but there is some of the kind of international cooperation encouraged by the Antarctic Treaty. Individual scientists conduct research at the Antarctic stations of other nations. There is usually at least one American scientist at a Soviet station, and a Soviet doing research at a U.S. one. There is U.S. scientific instrumentation at Vostok, and the Americans make an annual flight to that Soviet station, which is marked by a great party and camaraderie. The United States occasionally inspects the stations of the Soviet Union and other countries, as permitted by the Antarctic Treaty. So far, the Soviets have cordially declined all invitations to inspect U.S. stations.

The Antarctic Treaty itself may be one of the greatest monuments of Antarctic scientific research. This treaty, which became effective in 1961, has already served as a model for the treaty providing for the peaceful uses of outer space. It is certainly conceivable that, at some future date, the provisions of the Antarctic Treaty could serve as guidelines for an agreement governing research in the Arctic. Fortunately for scientists, the Antarctic Treaty has helped thwart any sharp international disputes over territorial claims in the southernmost continent. Future generations may believe that the research done here was of great value, but they are just as likely to remember Antarctic science as an important causal agent in a process of political agreement and international accommodation.

—BRYCE NELSON

Federal Labs: White House Study Urges Closer University Ties

The government will soon issue a series of recommendations designed to promote closer relations between academic institutions and the hundreds of laboratories owned and operated by federal agencies.

In general, the recommendations do not call for anything that does not already exist in one way or another, such as joint or visiting appointments, cooperative research programs, special university courses for federal employees, and access to federal equipment by university researchers. The aim of the recommendations is simply to build upon and expand the patchwork of arrangements that have evolved between many universities and various federal in-house research centers. But the recommendations come from an especially influential source, the Federal Council for Science and Technology (FCST), an interagency, subcabinet body of federal R & D officials that is part of the White House science advisory apparatus. Because of the source of the recommendations and the apparent potential for further cooperative ties between universities and federal laboratories, the FCST designs could be of considerable importance for the nation's scientific and technical enterprise.

First of all, and probably most important, they could give many universities access to costly research and training facilities that are now far beyond their reach; such access could be of great value in a time of booming costs, competition for qualified faculty, and a slowdown in direct federal support for university research activities. And, second, it is widely felt that close academic ties might help to freshen the stuffy, regulation-bound atmosphere that is often associated with government laboratories, especially those tied to missions that have been bypassed by technological or political missions. The prevalence of these conditions, and the effect that a whiff of academe might have on them, is open to question, but a widely held view is that such exposure would be good, at least for the federal labs.

Having successfully passed through a round of agency review, the FCST recommendations are said to be scheduled for publication in the near future. Once this is done, they will stand, not as fiat, but rather as guidelines which federal agencies will be encouraged to follow in developing policies and practices. Thus, the full effects will probably be a long time in coming, but there is no doubt about the intended objective; it is, simply, to promote a great deal of human traffic, both ways, between the academic world and the government's own research centers.

Starting from the premise that academe and government can do a great deal for each other in research and training, an FCST "task group" conducted examinations of 75 federal research and development installations, plus one federal contract facility (the National Center for Atmospheric Research, at Boulder, Colorado). And the committee came to the conclusion that nothing short of scientific utopia prevails in the federal laboratories that have close ties with universities. In such places, it euphorically reported,

> . . . one senses a purpose, an alertness, an enthusiasm, a striving for excellence, a dedication, a feeling of accomplishment coupled with unlimited potential contribution, a vibrant participation at the advancing frontiers of science, an excitement, a sense of life and involvement. This atmosphere, fostered by close association with the academic world, highly desirable and not easily attained, was seldom transmitted to the task force in laboratories lacking close university relationships. It seems clear that a close working relationship with universities is a definite plus to a Federal R & D laboratory.

In a look at the reasons why some federal research centers send their employees to universities and bring uni-

versity people to their laboratories, the study concluded: "The most important reason, cited by nearly 90 percent of the laboratories, is to update the skills and generally increase the competence of the laboratory's professional staff—'to stay competitive,' as one laboratory director phrased it." The second-ranking reason, cited by 60 percent of the laboratories, was that "education and training programs are viewed as a recruitment aid." Finally, about one-third of the laboratories expressed the belief that close ties with universities were desirable because they produced beneficial, though often long-range, effects contributing to scientific and technical knowledge, education, and institutional development.

The study noted many instances where universities and federal laboratories have pooled efforts and resources for special purposes. Thus, it points out that, in 1966, NASA's Ames Research Center and Stanford University produced a summer course on the methods of teaching systems engineering. Taught jointly by Ames and Stanford personnel, it drew an enrollment of faculty members from universities throughout the country.

But the study also noted, somewhat cryptically, that "there is a noticeable tendency on the part of some universities to withdraw from cooperative educational endeavors with Federal laboratories, affecting both after-hours educational programs and the university's regular advanced degree programs. Some universities that in the past cooperated in setting up extensive after-hours programs, are currently reluctant to extend them or to participate in similar new programs with other laboratories. In at least one case a university is withdrawing completely from an extensive program of many years standing, thus precipitating a crisis at the affected Federal laboratory." No details are offered on this particular case.

The study noted that "strong" laboratory directors often find ways to circumvent "unrealistic" directives that impede cooperative programs with universities, but that half the laboratories studied cited difficulties with manpower ceilings, approximately one-fourth reported that funds "were insufficient for an optimal educational activity," and about a third complained of delays and difficulties in getting approvals from headquarters.

The FCST recommendations state, "As a matter of policy, federal organizations should take the initiative, where feasible and suitably related to the agency mission," in promoting joint research and training activities with universities. They call for various steps to encourage federal employees to engage in study and research at universities; in line with this, it is recommended that increased use be made of the Government Employees' Training Act, and that federal laboratory directors be given greater authority, as well as funds, for conducting training programs for their staff. Also, the FCST calls for legislation that would permit establishment of a government-wide program of visiting appointments, in universities and federal laboratories, without financial loss or fringe-benefit complications for the persons involved. Noting that the need for meeting development deadlines often eats up travel funds that are supposed to be available also for basic researchers in mission-oriented laboratories, the study urged the Office of Science and Technology (OST) to "promote fuller understanding by top administrative officials as to the vital necessity of maintaining scientific interchange through attending professional meetings. . . ." And the report recommends that OST and the American Council on Education examine the reasons why some universities are reluctant to engage in collaborative programs with federal research centers.

It is difficult to fault any of the recommendations, but perhaps a comment is in order regarding the process that led to their formation. As is typically the case with pronunciamentos that emanate from the labyrinthine regions of the White House science advisory complex, the FCST study, which is probably of no small import for American science and technology, was cooked up without any public notice that it was in the works. (A draft copy of the report was made available to *Science* by a source outside the FCST.) It is not inconceivable that representatives from universities might have had

Hindsight Study Adds Kind Words for Basic Research

The final draft of Project Hindsight, the Defense Department's study of the scientific and technological origins of modern weapons systems. includes a lengthy defense of the "less measurable" benefits of basic research, according to an official in DOD's Office of Research and Technology.

The final report emphasizes the training value of basic research for practitioners of applied and developmental research and points out that basic research often takes several years to show up in technology.

On the other hand, Hindsight has not altered its conclusions, stated in the interim report (*Science*, 18 Nov. 1966), about the role of research in DOD programs.

The interim report included judgments that: (i) contributions from basic undirected research to military needs have—since 1945—been small; (ii) utilization of research findings has been accelerated when the practitioner has been working in areas related to military technology; and (iii) production of timely knowledge is achieved best when DOD funds and manages its own programs.

Although Hindsight's final draft was completed in October, DOD reported that "due to higher priorities" the project has not been thoroughly reviewed, and that it will not be released until middle or late spring.

Begun in 1962, Project Hindsight was conducted by a team of scientists and engineers under the direction of Colonel Raymond S. Isenson, an engineer with long experience in technological planning for the Army. His staff undertook the study in order to identify the contributions of science and technology embodied in 20 major weapons systems. Each contribution was termed an "event," and efforts were then made to identify the contributors, cost, source of funds, motivation, and pathway to eventual incorporation into the weapons system.—F.C.

something to say about relations with government laboratories if they had known the subject was under study. Some such representatives were consulted in the course of the FCST study, but that is quite different from telling the world at large that the subject is under review, and thus opening the way for interested individuals to make known their views. It of course can be argued that Congress holds the power of ultimate review of executive policies, and that it can blow the whistle if it is so inclined. But the fact of the matter is that policies of the type involved here are generally beneath congressional notice. The effect of this process, then, is that a relatively obscure executive committee, working in a closed room, has prepared a grand design which, upon publication, will stand as a policy statement of the U.S. Government. In this instance, all concerned will probably agree that it is a worthy policy. Nevertheless, while it may be good for science, it's still a funny way to run a democratic government.—D. S. GREENBERG

APPOINTMENTS

J. G. Moore, Jr.

B. W. Marschner

Joe G. Moore, Jr., executive director of the Texas Water Development Board, to commissioner of the Federal Water Pollution Control Administration. He succeeds **James M. Quigley**, who will become a vice president of U.S. Plywood-Champion Paper Company. . . . **Bernard W. Marschner,** head of the department of mechanical engineering, Colorado State University, to vice president for university affairs at the university. . . . **Sripati Chandrasekhar**, minister of health and family planning, India, to chairman of the newly established International Association for Voluntary Sterilization. **Brock Chisholm**, former director-general of the World Health Organization will become honorary chairman, and **Benjamin Viel**, professor of preventive medicine and hygiene, University of Chile, will become vice chairman of the organization. . . . **Robert H. Simpson**, associate director for meteorological operations, Weather Bureau Headquarters, to director of the National Hurricane Center, ESSA. He succeeds **Gordon E. Dunn**, head of the facility since 1955, who will retire. . . . **Harold Liebowitz**, engineering adviser and head of the structural mechanics branch of the Office of Naval Research, and research professor of engineering, Catholic University, to dean of the school of engineering and applied science, George Washington University. . . . **Lucian Sprague**, deputy director, Hawaii area, U.S. Bureau of Commercial Fisheries, to associate director, medical and natural sciences, The Rockefeller Foundation. . . . **C. H. Van de Hulst**, professor of theoretical astronomy, Leiden, to chairman of the European Space Research Organization. . . . **Melvin N. A. Peterson**, associate professor of oceanography, Scripps Institution of Oceanography, to chief scientist of the National Science Foundation's deep-sea drilling project, which is managed by Scripps. . . . **Arch C. Gerlach**, chief, geography and map division, and incumbent, chair of geography, Library of Congress, to chief geographer, U.S. Geological Survey. . . . **Raymond E. Parks**, chairman of the department of radiology, University of Miami School of Medicine, to associate dean of continuing education at the school. . . . **Frank Clifford**, Yale, 1967, feature editor, *Yale Daily News,* reporter-trainee, *Minneapolis Tribune*, to intern, News and Comment, *Science*. . . . **Frederic W. Nordsiek**, vice president, Sloan-Kettering Institute, to coordinator of research, St. Luke's Hospital Center, New York City. . . . **John K. Major**, staff associate, National Science Foundation, to dean of the graduate school of Arts and Sciences, University of Cincinnati. . . . **Fred H. Felberg**, assistant laboratory director for technical divisions, Jet Propulsion Laboratory, to assistant laboratory director for plans and programs, JPL. . . . **Frank Schroeder, Jr.**, manager of the Water Reactor Safety Program Office, Phillips Petroleum Company's Atomic Energy Division, Idaho Falls, to deputy director of the Division of Reactor Licensing, AEC. . . . **Maurice Griffel**, department of physical biochemistry, University of Pennsylvania, to director of the division of professional education, State Education Department, University of the State of New York, Albany. . . . **Gerold L. Schiebler**, professor of pediatrics, University of Florida College of Medicine, to chairman of the department of pediatrics at the college. . . . **Robert E. Rowland**, associate director of the radiological physics division, Argonne National Laboratory, to director of the division at Argonne. . . . **Raymond L. Bisplinghoff**, head of the department of aeronautics and astronautics, M.I.T., to head of the newly established Research and Technology Advisory Council, NASA. . . . **Richard D. Duke**, director of Urban-Regional Research Institute, Michigan State University, to head of a proposed Environmental Simulation Laboratory, University of Michigan. . . . **E. James Lieberman**, acting chief of the Center for Studies and Family Mental Health, NIMH, to head of the center. . . . **Jerome Levine**, assistant chief of the psychopharmacology research branch, NIMH, to chief of the branch. . . . **Catherine D. Hock**, assistant for special projects, Apollo Reliability and Quality, Office of Manned Space Flight, NASA, to deputy director, Office of Research Implementation, National Highway Safety Bureau, Department of Transportation. . . . **Gerard M. Cahill**, associate general counsel of the Federal Communications Commission will retire after 33 years of government service. . . . **Joseph B. Rogoff**, director of physical medicine and rehabilitation medicine, Jewish Chronic Diseases Hospital, to director of rehabilitation medicine, Beth Israel Medical Center, and professor of physical medicine, Mount Sinai School of Medicine; **Heskel M. Haddad**, assistant attending ophthalmic surgeon and assistant professor of ophthalmology, Mount Sinai Hospital and School of Medicine, to director of ophthalmology, Beth Israel Medical Center; and **Sarah Joffe**, member of the anesthesiology service, Beth Israel Medical Center, to director of anesthesiology at the center, and clinical professor of anesthesiology at the Mount Sinai School of Medicine. . . . **H. E. Riordan**, chief of research for inertial components, Kearfott Systems Division, to director, corporate research center, Kelsey-Hayes Company. . . . **Paul Goldberg**, manager, Energy Storage and Conversion Department, General Telephone and Electronics Laboratories, to director of engineering, Veriton West, Inc. . . . **Clarence R. Carpenter**, research professor of psychology and anthropology, Pennsylvania State University, to consultant to the president of the University of Georgia for one year.