years by following the recommendations of the highly influential Fogarty and his subcommittee and topping administration requests substantially. The House voted $2.4 billion for the Public Health Service, nearly $100 million more than was requested.

As usual, the National Institutes of Health received a large share of the increase—some $74 million, which brought the NIH budget for fiscal 1967 to a record level of almost $1.4 billion. Some $30 million of the increase would go to bolster NIH research-grant funds. The committee also acted to relieve the pinch on construction funds for health research facilities. In the committee report on the bill the cutback in construction funds to $15 million was termed "completely unrealistic," and a recommendation for appropriations of $50 million was accepted by the House.

In its report, signed by Fogarty, the committee took the administration to task on research policy, and in the process may have made some important policy itself. The report says, "Not only does the budget make no allowance for initiating or accelerating research where there is both a clear national need and a reasonable promise of success, but a close examination reveals that in the critical items for grant support of research it does not even make adequate provision for sustaining the momentum of already existing programs."

In what very well may be a landmark statement the committee accepts the legitimacy of a 15-percent-a-year upward creep in the cost of research and, interestingly for a congressional document, cites a National Academy of Sciences document as authority for what might be called the Fogarty formula (see pages 1356 and 1357).

In the debate on the appropriations bill on 4 May, Fogarty also made a statement which should warm the hearts of university finance officers. He said that HEW has misinterpreted Bureau of the Budget regulations on cost sharing on grant-supported research projects. Last year Fogarty was instrumental in changing the requirement that institutions administering federal grants be paid 20 percent of direct costs as indirect costs for the proviso that the federal grant may not equal the full cost of the project.

The object was not only to banish payment of a specific percentage on all projects, no matter how varied, but also to "avoid having federal agencies become involved in elaborate and expensive accounting and auditing procedures or in endless arguments about what is and is not admissible as an allowable cost." The same provisions were written into grants awarded by the Department of Defense and Independent Offices agencies, and the Bureau of the Budget, after a long gestation period, issued regulations to cover the new policy.

Now, said Fogarty, "HEW seems to think to comply . . . it must require detailed statements of planned expenditures and exercise control over the funds which institutions contribute to grant-supported research projects."

"It was certainly not," said Fogarty, "the committee's intent to create an accountants' paradise that the HEW regulations will bring into being."

Finishing up his red-tape cutting statement of congressional intent Fogarty said, "The important considerations for the selection of a research project for federal support should continue to be the quality of the research to be performed and its relevance to agency programs, not arbitrary cost-sharing requirements."

For education and health research it seems likely to be a better year than many expected. In the realm of science policy there are encouraging developments for those who can afford to say it's not the money but the principle of the thing.—JOHN WALSH

Sea-Grant Colleges: Idea Gains Adherents

Some excellent germinal ideas have been sown on Capitol Hill only to languish or die for want of the painstaking cultivation required for their growth into government programs. Supporters of the "sea-grant college" concept, however, scarcely could have hoped for it to receive greater attention than it has been getting. This idea is simply that selected institutions would receive federal grants and contracts to enable them to foster practical advances in oceanography somewhat in the manner that the land-grant colleges, by education, research, and extension work, have encouraged advances in agriculture. Although it is too early to predict congressional endorsement of the sea-grant college idea, the interest and support it has aroused in academic, industry, and government circles seems to augur well for its future.

A special Sea Grant Colleges subcommittee, headed by Senator Claiborne Pell, Rhode Island Democrat, is said to have virtually completed its work on the sea-grant bill. However, no more is expected at this session than adoption of the measure by the subcommittee, the parent Labor and Public Welfare Committee, and possibly by the Senate itself. Companion measures to the sea-grant college bill introduced in the Senate by Senator Pell last August have been offered by several members of the House of Representatives, but there is little prospect of House action before the next Congress, at the earliest. The Senate action, though it would not carry over to next year, would be an earnest of congressional interest.

The interest of the academic community already is manifest. Last October 224 persons attended a 2-day conference, at Newport, Rhode Island, on the sea-grant college concept. Most of those attending were from universities or from oceanographic institutions such as Scripps and Woods Hole, although a number of representatives of companies interested in seafood production or marine engineering also were present. Among the academicians at Newport was Athelstan F. Spilhaus, dean of the University of Minnesota's institute of technology, who, in a speech in September 1963 before the

American Fisheries Society, was the first to propose the sea-grant college idea (wider interest in the idea resulted from an editorial, written by Spilhaus, in *Science*, 4 September 1964).

Spilhaus and nine other participants were assigned to a committee which would "distill" the ideas of the Newport conference. "A sea grant college would be an institution of higher education devoted to increasing our nation's development of the world's marine resources through activities in the areas of education, research, and public service," they later wrote. "A sea-grant college would specialize in the application of science and technology to the sea, as in underwater prospecting, mining, food resources development, marine pharmacology and medicine, pollution control, shipping and navigation, forecasting weather and climate, and recreation uses. It would relate such application to the underlying natural sciences, which underlie social sciences as they are affected by, and in turn affect, the occupation and exploitation of the sea."

Who is Eligible?

The committee said it was not suggesting the establishment of new schools, colleges, or universities, but rather the development of state and private institutions "already deeply involved in the study of marine sciences" as sea-grant institutions. This concept, of supporting chiefly those institutions already heavily committed to oceanography studies, has been accepted in part in the revised version of the Pell bill, which calls for federal assistance to institutions having "major programs of education, public service, and research" devoted to increasing the use of marine resources.

However, to broaden the spectrum of eligible institutions, the bill provides also for support to "other sea-grant programs designed to achieve the gainful use of marine resources." It seems evident that this language does not resolve what promises to be perhaps the most difficult problem of any sea-grant program established: developing criteria for distributing the none-too-plentiful funds (for the first 3 years there would be $10-, $15-, and $20-million authorizations) in such a way as to make a significant impact.

The fact that grants or contracts could be made to, or with, virtually any kind of group or organization, including corporations, engaged in the development of marine resources makes the problem of selection all the more difficult. Not everyone agrees that private corporations should be eligible for assistance. The National Education Association, for example, feels that no profit-making organizations should come under the bill's coverage. "The education community is becoming increasingly concerned with the weakening of the proper educational functions of the public and other non-profit institutions by the invasion of private profit-making interests into the field of government tax-supported research and education," the NEA has said.

Other provisions of the bill which are related to grants and contracts would seek to stimulate nonfederal support of oceanography and to ensure wide geographic distribution of the federal funds. Sea-grant funds could cover no more than two-thirds of the total cost of a project. Not more than 20 percent of the funds could go to recipients in one state. Inland institutions as well as those along the sea coasts could qualify for assistance. In fact, programs aimed at the investigation and development of resources in the Great Lakes could be supported.

Senator Pell had proposed originally that the sea-grant program be financed by a 10-percent levy on all bonuses, rentals, and other revenues paid to the federal government for leases granted under the Outer Shelf Lands Act. Such a levy would yield at least $10 million a year now, and more later. However, it has been decided that it would be expedient to give up the idea of this levy and look to the usual appropriations process for the program's financing. The administration was opposed to the levy, and the senators and representatives who sit on the appropriations committees tend to regard such financing devices as an evasion of their authority.

A strong research program in engineering and applied sciences will be required in a sea-grant college if a strong educational program is to be maintained, the Newport conference committee emphasized. On the other hand, it has been with some groping and uncertainty that the Pell subcommittee has decided that the sea-grant program should be administered by a research-supporting agency, the National Science Foundation. At his recent hearings, Senator Pell expressed concern that NSF might stress research, especially basic research, at the expense of those aspects of the sea-grant program which are aimed at the use of marine resources. "This bill is supposed to be to help get more fellows going into the fish business," Pell remarked to Randal M. Robertson, NSF's associate director for research.

Pell said NSF's purposes were so "high or esoteric" that getting the agency to administer the sea-grant program might be "somewhat like asking a portrait painter to be a wall painter."

Under existing law, NSF, which in the President's proposed fiscal 1967 budget, is allocated $43 million in oceanography funds (including $19.7 million for Mohole, which Congress may cut out), already can support education programs in the marine sciences as well as basic research in those fields. The Pell bill would permit NSF to support applied research in oceanography. "We would welcome a specific assignment in the area of academic research, basic and applied, and of education," Robertson told Pell. But he added that the Foundation did not want responsibility for activities involving the development of practical systems for exploitation of the marine environment.

Whatever NSF's preferences in the matter, the Pell bill would give the Foundation responsibility for the entire sea-grant program. The measure does indicate that if a new agency should be created to consolidate programs for marine resources development, the sea-grant program should be transferred to it. Meanwhile, existing agencies with an interest in oceanography would be expected to assist NSF with the sea-grant program if requested.

ICO Supports Sea-Grant Idea

Robert W. Morse, assistant secretary of the Navy for research and development and chairman of the Interagency Committee on Oceanography (ICO), has said that ICO supports the sea-grant college concept and favors having NSF administer the program. "The considerable experience of the Foundation in the interaction of the academic community and the federal government makes NSF the best agency to administer the bill," Morse said. "We do feel strongly that members of ICO—particularly Navy, Commerce, and Interior—have essential

roles to play and also should provide advisory services to the Foundation."

These agencies and ICO itself (or any successor coordinating body) would be consulted by NSF, according to the Pell bill. Moreover, a national advisory council appointed by the President from among private citizens prominent in marine science and technology would advise the Foundation on policy matters as well as on who should receive grants and contracts.

Although ICO as a whole wants NSF to administer the program, not all the agencies represented on ICO would be pleased to see the Foundation take on the entire task. For example, Thomas F. Bates, science adviser to the Secretary of Interior, told the Pell subcommittee that, while NSF should increase its support of basic research and scientific education in oceanography, major responsibility for programs aimed at exploiting ocean resources should be vested in the Interior Department. Senator Pell was later moved to observe: "I can see a certain avariciousness on the part of the government agencies in handling a program that looks to have the potential for growth that this has."

The sea-grant idea is still a long way from being translated into law, but the amount of interest shown in it perhaps justifies Pell's optimistic mood. The fact that Pell—up for reelection this year—is pushing the sea-grant legislation is itself reason for taking it seriously. Though not one of the Senate's luminaries, Pell has shown a doggedness in his legislative pursuits that on several occasions has paid off. For example, he was the principal Senate sponsor of the Arts and Humanities Foundation bill and the Northeast Corridor Transport Project legislation, both passed by Congress last year.

With continued cultivation and some luck the sea-grant college concept may, a decade hence, be on its way to proving as useful for the development of marine resources as the land-grant college concept has been in fostering improvements in agriculture.

—LUTHER J. CARTER

Announcements

Boston University offers an M.S. program in **science communication** for persons with the bachelor's degree in the physical, biological, or medical sciences, engineering, or mathematics. The program will begin in September, with enrollment limited to about 10 for the first year. It will consist of two semesters of academic work in science and communications areas, followed by a 3-month summer internship with an organization outside the university, and a third semester for preparation of a publishable thesis. Additional information and applications are available from the Admissions Officer, School of Public Communication, Boston University, 640 Commonwealth Avenue, Boston, Massachusetts 02215.

The Moravian Museum, Brno, Czechoslovakia, requests assistance in collecting documents on **Gregor Mendel** and on the history and present state of genetics. Last year the museum's department of genetics opened an exhibition hall honoring Mendel. Thus far, the hall contains a permanent exhibition on the geneticist's life and some papers on his work. Now the museum wants to expand the hall to include reprints, books, journals, photographs, and negatives which can illustrate the progress of genetics as a science and which can point to its future potentials. Especially desired are proceedings from genetics congresses and conferences. Correspondence should be addressed to V. Orel, Head, Gregor Mendel Department of Genetics, Moravian Museum.

A graduate program in **bioengineering**, emphasizing the basic aspects of microcirculation, has been established at the University of California, San Diego, under sponsorship of the department of aerospace and mechanical engineering sciences and the medical school. The program will provide opportunities for research and training, initially, in such subjects as microcirculation, biorheology; and hemodynamics. (B. Zweifach, University of California, San Diego, Box 109, La Jolla)

New York University has initiated a graduate program in **computer sciences** leading to the master's and the Ph.D. degrees. Students will enroll in one of the participating departments: electrical engineering, mathematics, or industrial engineering and operations research. A coordinating committee for the program will help arrange an interdepartmental research program for those interested in overlapping studies. Additional information is available from the Assistant Dean, Graduate Division, School of Engineering and Science, NYU, Bronx, New York 10453.

Grants, Fellowships, and Awards

The American Society for Clinical Nutrition has established the Norman Jolliffe medical student fellowship awards to provide short-term support to students pursuing laboratory studies in **clinical nutrition**. Grants will generally be up to 3 months during the nonacademic part of the school year, with funds going directly to the student. Preference will be given to American students in American medical schools, although awards may be made to "unusually promising medical students from foreign medical schools." Application should be made by the senior investigator or major professor at least 2 months before the anticipated start of the student's research program. No senior investigator may have more than two students receiving the grants in one year. (W. A. Krehl, American Society for Clinical Nutrition, University of Iowa Medical School, Iowa City 52240)

Engineering colleges are invited to nominate faculty members to participate in an **engineering residency program** sponsored by the Ford Foundation. About 150 teachers may spend a year to 15 months in industrial concerns or government installations, starting in June 1967. They will be assigned regular company duties under a senior engineer who will serve as "preceptor." Nominations should be made by deans of engineering schools; they are screened by a committee of advisers from industry, and participants are selected by the Foundation. The Ford Foundation pays for travel to interviews, moving costs of the residents and their families, and other administrative expenses. The companies are responsible for salaries. Nominees must be American or Canadian engineering faculty members, under 40. They should have the Ph.D. or the equivalent, and have taught at least 1 year after receiving the degree. Inquiries are invited from individuals and from companies interested in the program. (C. E. Watson, Ford Foundation Program of Residencies in Engineering Practice, 477 Madison Avenue, New York 10022)

Publications

Information on the responsibilities and rights of **Selective Service registrants** is available in a brochure prepared by the Scientific Manpower Commission. The booklet defines the selec-