Marine Commission Invokes NOAA, Urges Refitting of Nation's Ark

A high-level federal commission proposed the creation of a well-funded new government agency last week to enable the United States to make more effective use of the oceans. Taking its inspiration from the Book of Genesis, the Commission on Marine Science, Engineering and Resources chose the name NOAA (National Oceanic and Atmospheric Agency).*

In its first and final report, entitled "Our Nation and the Sea," which was issued on 11 January, the commission concluded that present federal marine activities had grown "largely without plan" and were characterized by "disarray." The commission concluded that the only way to meet the objectives which it had recommended was to create a strong new civil agency with adequate authority and resources. It said that the federal money expended on civilian work in the oceans should be more than doubled by the late 1970's to reach an average annual expenditure of almost $2 billion.

The commission recommended that the new agency, NOAA, should be composed initially of the U.S. Coast Guard, the Bureau of Commercial Fisheries plus the marine- and anadromous-fisheries functions of the Bureau of Sport Fisheries and Wildlife, the National Sea Grant Program, the U.S. Lake Survey, the National Oceanographic Data Center, and ESSA—the Environmental Science Services Administration. ESSA is composed of the Weather Bureau and the Coast and Geodetic Survey, along with other environmental agencies.

Initially NOAA would have about 320 seagoing ships and 55,000 employees (mostly in the Coast Guard). Its research arm would consist of ESSA's 13 physical environmental science laboratories, the Bureau of Commercial Fisheries' 15 marine biology laboratories and six technology laboratories, and the five coastal laboratories of the Bureau of Sport Fisheries and Wildlife. NOAA would thus take over much, but not all, of the present federal civilian activity pertaining to the oceans, but would exclude the considerable amount of work done by the Navy and the Maritime Administration.

"A Wet NASA"

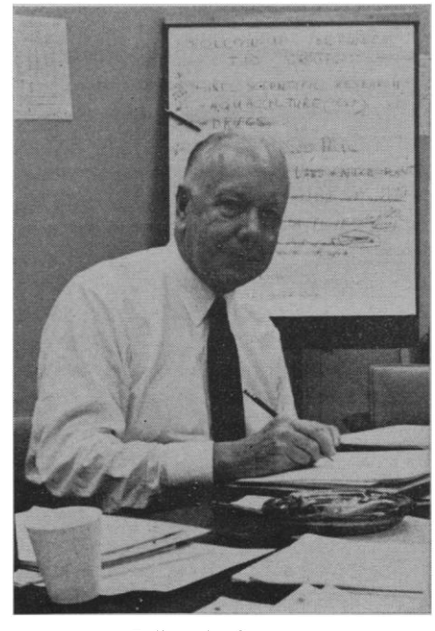
The commission's recommendation that a new marine agency be established came as no surprise. The idea of a "wet NASA" has been afloat for a long time, as a device for trying to bring the same kind of attention to exploration of the oceans that has been given the probing of space. At a press conference, commission chairman Julius A. Stratton of the Ford Foundation said he hoped that NOAA would not be called a "wet NASA." One observer quipped that it wouldn't be big enough to be called that and could more suitably be termed a "drip-dry NASA."

But even though the commission does not propose inauguration of massive crash programs like NASA's, its proposal for a new federal agency to be composed of parts of several existing departments is sure to create at least a small hurricane of protest in the various bureaucracies and, to a lesser extent, in Congress. The Department of Transportation (which was not represented on the commission) is sure to be reluctant to give up control of the highly respected Coast Guard; the Department of Commerce, no doubt, likes having ESSA; and the Interior Department is disinclined to relinquish its control of fisheries. Nothing so hurts the ego of a bureaucrat as having part of his bureau taken away from him. Also, bureaucracies establish close ties with their authorizing committees in Congress, and some congressmen are bound to squawk if a new agency deprives them of some jurisdictional authority.

The Commission on Marine Science, Engineering and Resources was created by an act of Congress in June 1966. President Johnson appointed the commission members in January 1967, and they have been working on their report for the past 2 years. Congress ordered the commission to study "all aspects of marine science in order to recommend an over-all plan for an adequate national oceanographic program that will meet the present and future national needs."

When the commission members were originally appointed there was some criticism in the scientific community because scientists thought industry was too well represented on the commission and science not well enough. Although the report contains a good deal about the need for greater attention to scientific research, it will not allay the suspicions of some scientists. One scientific observer said he thought the report slighted the role of biology and chemistry.

The commission places heavy emphasis on support for marine technology, especially for fundamental technology. At one point the report notes, "The commission's concern with technology appears throughout this report"; at another, "Arrange-



Julius A. Stratton

* The chairman of the Commission on Marine Science, Engineering and Resources is Julius A. Stratton of the Ford Foundation. The vice chairman is Richard A. Geyer, head of the department of oceanography at Texas A & M University. Other commission members are David A. Adams, commissioner of fisheries, North Carolina Department of Conservation and Development; Carl A. Auerbach, professor at law, University of Minnesota; Charles F. Baird, Under Secretary of the Navy; Jacob Blaustein, director, Standard Oil Company; James A. Crutchfield, professor of economics, University of Washington; Frank C. DiLuzio, former Assistant Secretary of the Interior for Water Pollution Control; Leon Jaworski, a Houston attorney; John A. Knauss, dean, graduate school of oceanography, University of Rhode Island; John H. Perry, Jr., president, Perry Publications, Inc.; Taylor A. Pryor, president, The Oceanic Foundation; George E. Reedy, former press secretary to President Johnson and president, Struthers Research and Development Corporation; George H. Sullivan of General Electric Reentry Systems; and Robert M. White, administrator of ESSA; Samuel A. Lawrence is the Executive Director of the commission staff. The report will be available from the U.S. Government Printing Office, Washington, D.C. 20402, by 1 February.

ments for marine science are well established. . . . In contrast, there is no strong civil marine technology program." The commission says that marine science has become "Big Science" and that U.S. efforts "are limited by inadequate technology."

Of the total $8-billion increase which the commission urges for federal expenditure in the marine sciences during the decade of the 1970's, it advocates that $1.7 billion be spent for "fundamental technology," $1.53 billion for applied "specific technology," $1.875 billion for "national projects" which include some technological components, and $1.84 billion for "research and education."

In its recommendations on research, the commission proposed "that a small group of institutions, including the present leaders in ocean research, be designated by the Federal Government as University National laboratories . . . and equipped to undertake major marine science tasks of a global or regional nature." At another point in the report the commission listed institutions such as the Scripps Institution of Oceanography, the Woods Hole Oceanographic Institution, and the Lamont Geological Observatory as "a major national investment around which the Nation's marine science program must be built."

The commission also recommended that "coastal zone laboratories" be established in connection with academic institutions, to engage in scientific investigation of estuarine and coastal-zone processes, and that the Sea Grant College and Program Act of 1966 be amended to permit grants for the construction and maintenance of vessels and other facilities. The commission also thinks that the state of aquaculture is at a low level as compared to that of other countries and urges more research in this area.

Continental Shelf Laboratories

Among the highly intriguing projects backed by the commission are an experimental, submerged, nuclear power plant to be placed on the continental shelf, and a proposal to build laboratories on the continental shelf. Such laboratories, the commission said, could be placed on the shelf bottom in areas of high concentration of mineral and biological resources. These centers would include living and working quarters for 15 to 150 men and would be given logistics support through various methods, including the use of "submersibles capable of mating with the undersea laboratory."

One of the most controversial sections of the commission's report is its recommendation on the extent of each nation's legal access to its continental shelf. The commission argues that the United States should take initiative on securing international agreement to redefine the continental shelf for the purpose of the Convention on the Continental Shelf. "The seaward limit of each coastal nation's 'continental shelf' should be fixed at the 200 meter isobath, or 50 nautical miles from the baseline for measuring the breadth of its territorial sea, whichever alternative gives it the greater area for purposes of the Convention." Those interested in mineral extraction from the continen-

More Grad Students Liable to Draft

A survey by the Scientific Manpower Commission indicates that nearly half of all male graduate students in the sciences will be eligible for the draft in the coming months. This year's June baccalaureates in the sciences and first- and second-year science graduate students are expected to be prime targets, since deferments for graduates, except in the medical sciences, were discontinued in February 1968 and because draft officials have decreed that older men in the 18 to 26 age bracket should be inducted first. Third-year students are generally less vulnerable, since draft rules have held that any student in his second or subsequent year after 1 October 1967 may retain his 2-S exempt status.

The Scientific Manpower Commission, a private nonprofit corporation, polled 2290 departments of Ph.D.-granting institutions on the draft status of male graduate students in science; it received responses from 1237 science departments, which represent about half of the Ph.D.-granting science departments in the United States. Results show that about 45.6 percent of all first- and second-year full-time male science graduate students in the United States, excluding foreign nationals, are potentially liable to induction in the coming months of this year. (A full-time graduate student is defined as any person engaged entirely in study, teaching, or research in a graduate department.)

Among full- and part-time U.S. male graduate students in science, the survey indicates that as many as 47 percent of all students who are paid to do university-sponsored research are potentially liable to induction. Among students who are paid to teach, as many as 50 percent are draft liable. It appears that although many full- and part-time science graduate students are assigned teaching responsibilities, fewer than 9 percent have obtained occupational deferments. According to present regulations, draft boards may not consider for occupational deferment any full-time graduate student who may also be engaged in part-time teaching. However, there are no restrictions against granting occupational deferments to graduate students who do not carry full academic loads, but who are engaged in either research or teaching. A local board can provide an occupational deferment to any part-time student whose teaching or research is considered essential to the national health, safety, or interest, or to the community. The report shows that part-time teaching assistants apparently have a better chance of obtaining occupational deferments than part-time research assistants. It also shows that the fields of physics and chemistry have the highest percentage of students given occupational deferments.

The Commission estimates that the draft calls for the first 6 months of this year will be at least 168,000 men, with high calls continuing into the summer and early fall. The Department of Defense has announced the February draft call at 33,000 and the March draft call at 33,700. The January call was 28,000.

The Commission's report, *A Survey of the Draft Status of First and Second Year Science Graduate Students (Fall, 1968)* may be obtained for $2 from the Scientific Manpower Commission, 2101 Constitution Avenue, NW, Washington, D.C.—MARTI MUELLER

tal shelf, especially those in the oil industry, often urge a more ample definition of the Continental Shelf.

The commission urged a "strong commitment to a well balanced program of deep ocean exploration during the 1970's." The United States should learn to conduct surface and undersea operations to utilize fully the continental shelf and slope to a depth of 2000 feet, the commission recommended, and should establish a goal of achieving the capability of exploring the ocean depths to 20,000 feet within a decade, and of utilizing these depths to 20,000 feet within the next three decades.

Although the commission report is a long and interesting effort, its omissions will bother some. Due to a lack of time and resources, the commission noted, it was unable to examine the capabilities of the U.S. Navy and Merchant Marine. Also, the Great Lakes receive relatively little attention although they were specifically mentioned in the Congressional act establishing the commission. A more serious omission, perhaps, is that the commission did not concern itself with the question of priorities, either as to marine exploration in relation to other federal endeavors, or as to priorities among its various marine proposals.

Nonetheless, the report is bound to set the stage for a more spirited discussion of national policy in the marine sciences during the coming year. Chairman Stratton, formerly president of M.I.T., has been successful in pulling together an often hard-hitting report from a diverse commission without engendering any formal expression of minority views.

Representative Charles A. Mosher (R–Ohio), one of the congressional advisers for the commission, delivered the commission report to the Nixon forces last week and said, in an interview, that he believes that Nixon puts a "very high priority on the need for a vigorous program" in the oceans. Mosher also said that Nixon planned to reappoint Edward Wenk, Jr., to continue as executive secretary of the Marine Sciences Council. The council was established by Congress at the same time as the commission; the council is an interagency body designed to coordinate and facilitate federal marine activity. The Vice President serves as chairman of this council, and Wenk has assisted Humphrey in this role for the past 2½ years. The council and the commission have maintained separate identities and separate staffs.

Although the commission has attempted to launch its report with something of a splash, many of its major recommendations may sink without even a ripple unless the new President gives them his backing. In exploration of the oceans as well as in other areas of scientific and technical endeavor, Washington waits for the new President to make up his mind, to speak, and to act.

—BRYCE NELSON

Institutional Grants: "Miller Bill" Opens the Debate

The "Miller bill" has become a Washington code phrase for a proposal to supplement federal research grants for academic science with a program of institutional support. Recently reintroduced by Representative George P. Miller (D–Calif.), chairman of the House Committee on Science and Astronautics, this measure has become a principal vehicle for congressional consideration of the needs of academic science and higher education.

The bill was first introduced in 1966 as a courtesy to the National Association of State Universities and Land-Grant Colleges which drafted it. But it languished in the committee files until last year, when Miller and Representative Emilio Q. Daddario (D–Conn.), chairman of the subcommittee on science, research, and development, decided—at the urging of a number of university presidents and others—to hold herings on it. Now Miller and Daddario appear to be strongly behind the bill. Daddario plans to conduct a second round of hearings soon in order to improve the formula for distributing grants under the measure. The bill's chances of passage at this session seem remote, but Daddario says he will try to bring it to the House floor as quickly as possible.

As now revised, the bill would authorize for fiscal 1970 an appropriation of $400 million in grant-in-aid funds, an amount equivalent (by Daddario's calculations) to 20 percent of the federal funds allocated for support of academic science in fiscal 1969. For the years thereafter, the appropriation authorized would equal 20 percent of the preceding year's federal outlay for support of academic science.

It was clear from last year's hearings that the task of devising an institutional grant formula pleasing to all sectors of the higher-education community is not an easy one. The original formula was denounced as flagrantly discriminatory by a spokesman for the junior colleges (many a congressman now has one or more of these in his district), and was even criticized by people from research-oriented universities, which the formula clearly favored.

But the testimony indicated that, by and large, the higher-education community does want some kind of institutional grant program. Such a program was endorsed in principle by all the spokesmen for higher-education associations who testified and by such figures as Leland J. Haworth, director of NSF; Philip Handler, chairman of the National Science Board and heir apparent to the presidency of the National Academy of Sciences; Eric Walker, president of Penn State and president of the National Academy of Engineering; and Donald F. Hornig, President Johnson's Science Adviser.

As the witnesses noted, the blessings bestowed on academic science by federal support of research projects have, of necessity, been unevenly distributed, and even the more favored institutions are now feeling financial stress. A fundamental problem has been that the federal support has not fully covered research costs. An institutional grant program would be expected to provide a new and dependable source of funds for all institutions and allow them greater independence and flexibility in setting their goals. And, as university officials are clearly aware, it might give them better means of commanding the institutional loyalty of professors who now are accustomed to looking solely