grow large enough to warrant departmentalization by discipline.

In creating an exclusively graduate natural sciences institution, the people at the Oregon Graduate Center are well aware that they are departing from the academic norm. The example of the Rockefeller University in New York City has some relevance to the Oregon Graduate Center, but Rockefeller became a university from a position of existing prestige and wealth. In setting up this unusual graduate center, Benedict said that he had learned some surprising things. For instance, he remarked that he has yet to find any procedure in existence for the accreditation of graduate schools.

Benedict hopes to admit a few graduate students in the autumn of 1968 and grant the Center's first Ph.D. degree by 1974. He has said that the Center will be able to give degrees in chemistry before it is able to grant them in physics, a judgment given further credence by the fact that, so far, the Center has been able to recruit only chemists for its faculty. Benedict feels that the next 2 years will be a crucial time of development for the Center. He does not think it wise to solicit funds from other private sources, from foundations, or from the federal government until the Center develops successful, continuing programs on its own.

Benedict believes that the Center must elicit financial backing from the Portland area before gaining support from national sources. During his year in Portland, he has been able to discuss the Center in speeches before several influential Portland groups, including the City Club and the Chamber of Commerce. In July, the *Oregonian*, one of the West's important newspapers, carried an editorial sympathetic to the Center. In an interview, Hatfield commented, "Don Benedict has been the right man; he is sensitive and diplomatic and brings prestige to the job." Board chairman Diack said that Benedict "has made a great impact on the community. If we can bring in faculty members like we have so far, the community will rally behind us."

Obviously, Portland will have to rally behind the Center if it is going to achieve some of the high hopes which have been proclaimed for it. Benedict told the Portland Chamber of Commerce last October that "The Center will attract the sort of developments that occurred around MIT, Caltech, and Stanford. When the NASA of the future wants to build a large new research center, we want it to be built here." Benedict also spoke of the Center attaining academic quality "equivalent to Stanford, Caltech and MIT." Certainly, it will take great effort before the Oregon Graduate Center attains such heights. Benedict notes that the Center "started with $2 million, a building, and lots of enthusiasm." Except for the beginning of a faculty, it has not had enough time to acquire much else.

Before it begins to achieve its ambitious goals, the Center will have to overcome several built-in problems. First, because of financial and political considerations, the Center has had to confine itself to a narrow disciplinary base. The Center may be too specialized to attract some of the high-quality scientists and students it desires. Doubts about the limitations of the academic base were expressed by some of those concerned with the founding of the Center. This disciplinary narrowness creates practical difficulties. For instance, the Center will have to hire language tutors from Portland State so that its students can pass Ph.D. language requirements.

A second danger is that the Center's reliance on local funds may make it difficult to establish its intellectual independence from industry, a problem which some, including Hatfield, think is a serious one. The Center has already made plans to hold summer conferences for which industry support will be solicited. "These summer conferences will enable me to raise money," Benedict said. "Industries back these things like they back motherhood."

Attracting adequate funds is, of course, the Center's primary long-term problem. Benedict estimates that, within a few years, the Center's program will cost from $3.5 million to $4.5 million annually, about $1 million of which will have to come from gifts. The Center will probably need $3 million for buildings when it moves to a larger site. "It is easy to say that we should have $25 million in endowment," Benedict said, "and we don't have it yet."

The Center's principal financial "angel," Howard Vollum, said in an interview that there is "a commitment by Tektronix to continue funding the Center, but we may not be able to fund it to the extent we have in the past." Board chairman Diack states that there is "plenty of finance for the next 2 or 3 years." Although Diack thinks the Portland business community does not now feel a financial commitment to the Center, he believes that there will be such a commitment when the Center proves itself successful.

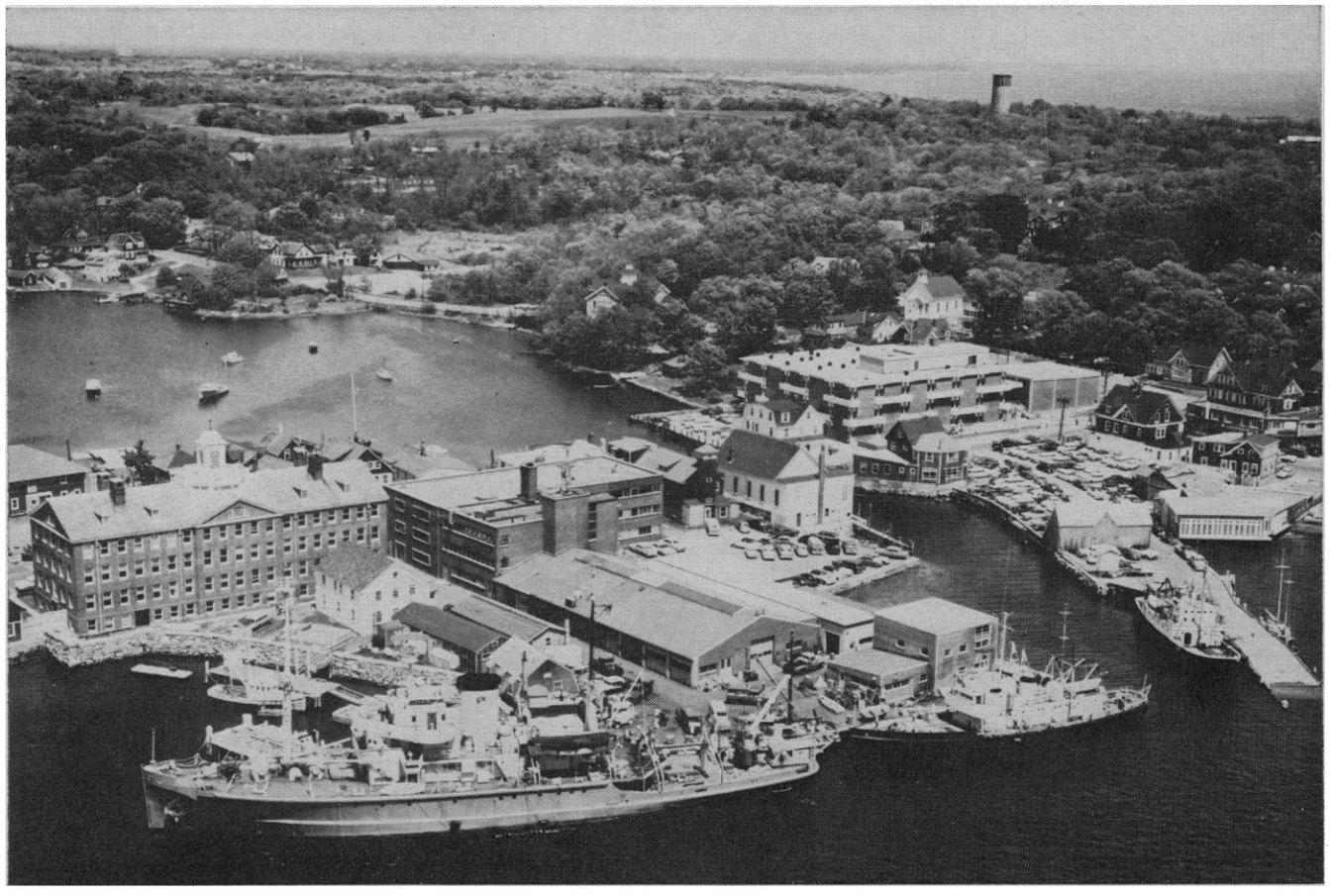
Some Portland educators think that Portland State College is destined to become a university within a few years and that the Oregon Graduate Center may gradually merge with Portland State. For the present, the Center has committed itself to helping facilitate study of the physical sciences at Portland State, Reed College, and the other colleges in the area. During the next decade, Portland scientists will be looking with interest to determine whether the Center can become a first-rate educational institution. Observers throughout the country will be watching to see if the Oregon Graduate Center helps Portland attract the science-based industry which many community leaders feel this city sorely needs.

—BRYCE NELSON

Oceanography: Woods Hole and MIT Pool Their Resources

Woods Hole, Mass. Feeling the competition for brain power from newly flourishing university-affiliated centers of oceanographic research, the Woods Hole Oceanographic Institution (WHOI) is collaborating with the Massachusetts Institute of Technology in an unusual, if not unprecedented, venture in American graduate education. Woods Hole and MIT are initiating a program in which a Ph.D. degree will be conferred jointly, in the name of both institutions.

Through the joint program, Woods Hole, which has never awarded degrees, expects to attract first-rate graduate students, without offering the variety of courses in science, languages, and



WOODS HOLE OCEANOGRAPHIC INSTITUTION: The principal research vessels, *Chain* (left) and *Atlantis II* (not shown), can each carry a scientific party of 25. Graduate students are eligible for "ship time."

other fields which otherwise would be necessary. MIT, in return for providing the essential background courses, will have ready access to a fleet of research vessels and laboratory facilities which no academic institution would have the means to duplicate.

It is by no means unusual for universities to have graduate students do thesis work at research institutions such as Brookhaven, Argonne, or Oak Ridge, where they have access to costly experimental equipment and special expertise. By sharing responsibility in the conferring of degrees, however, WHOI and MIT will collaborate in an unusually intimate way. A joint Woods Hole–MIT education committee will have overall responsibility for establishment of academic standards, approval of courses, and appointment of subcommittees on admissions, student financial aid, examinations, and other matters. The program will begin this fall, provided the Massachusetts State Board of Higher Education approves WHOI's request for degree-granting authority.

Although it ranks as one of the world's preeminent oceanographic institutions, Woods Hole fears that, without a steady infusion of able graduate students, its intellectual vigor and competence will decline. In the fall of 1964, Arnold B. Arons, physics professor at Amherst, drafted a memorandum expressing the views of the WHOI trustees' education committee, of which he was a member. As Arons noted, when WHOI was established, in 1930, very little high-quality oceanographic research was being done in American universities, and that little was widely dispersed geographically and handicapped by lack of research vessels and other facilities.

In those early years, WHOI provided research tools and a "common meeting ground" for a diverse group of investigators from the colleges and universities. Following World War II, however, WHOI emerged as a self-contained entity with a permanent staff and diversified research program; at the same time, high-quality programs of oceanographic research were being developed on a number of university campuses.

"Thus," said Arons, "while university programs have been growing and flourishing, the institution which played a role in their birth has developed a primary concentration in research by its permanent staff with only a tenuous involvement in teaching and training young investigators in the field. As a result, more and more of the young people coming into oceanography make their entry through programs in the universities, and Woods Hole receives little of the vigor and vitality that able and imaginative young people bring with them in their formative years."

Originally, Woods Hole had hoped to establish a joint Ph.D. program with Harvard as well as MIT, and to later develop similar programs with still other universities. The programs with MIT and Harvard were to be complementary. While the one with MIT will be concerned with ocean studies in the physical sciences, the program with Harvard was expected to involve primarily studies in the life sciences. For the moment at least, fulfillment of these plans has been frustrated. Harvard appears unwilling to break precedent by awarding degrees with another institution.

Harvard's Committee on Educational Policy (CEP) discussed the joint degree proposal last spring, but decided to lay it aside indefinitely, and no recommendation to the faculty was made. Although Harvey Brooks, vice chairman of the CEP, says the proposal isn't dead, it seems clear that its pulse is very, very weak.

An alternative would be for WHOI to accept advanced graduate students and confer degrees in its name alone. Such a course would be open to WHOI under the degree-granting authority sought from the state, and in some cases it may be followed. However, the general view at Woods Hole appears to be that joint-degree programs with high-prestige institutions such as MIT and Harvard will attract the ablest students.

"I think it will add prestige to the degree that will be attractive to the best students," says Paul M. Fye, director of WHOI. Moreover, he says, the strength and cognizance of two institutions will be behind the degree.

Woods Hole still hopes to have a joint program with Harvard, but the current thinking is that during the next few years it will be best to concentrate on implementing the plans for the program with MIT. In a sense, MIT was a party to WHOI's consideration of the need to start a collaborative graduate studies program with other institutions well before the joint-degree concept evolved; on WHOI's education committee were two MIT men, Jerome B. Wiesner (the MIT provost) and Carroll L. Wilson (a professor of management).

Plans for the joint-degree program emerged during discussions in 1965 and early 1966 between Fye, several of his associates, and Wiesner and two MIT faculty members. The joint program later was approved by the MIT administration, faculty, and Corporation. In the faculty meeting some questions were asked about how MIT would keep the program under adequate control and supervision, but approval was given with little or no dissent.

Graduate students in oceanography at MIT now number about 50. Not all of them will do their advanced work at Woods Hole. Many of those interested in the theoretical aspects of oceanography, for example, are likely to remain at Cambridge. Nevertheless, accommodating students from MIT, together with those who will continue to come from other institutions, will impose major new burdens on WHOI. While, typically, not more than a dozen doctoral students (and often fewer) have been in residence at WHOI during the academic year, the number of such students is expected to rise to 50 or more in the next 5 years.

The faculty for the degree program will be drawn from WHOI's research staff, now consisting of about 129 persons holding ranks comparable to professorial ranks at a university. A research staff member who participates in the program will teach a one-semester course every other year and, either in addition to or in lieu of teaching, supervise the research of one or two graduate students.

Encouraged by the growing national interest in oceanographic research, WHOI has made plans for a major expansion of its staff and facilities over the next decade, and in these plans the new graduate program figures importantly. By the late 1970's, WHOI, which now has a total staff of about 500, expects to have 400 scientifically trained people and about 800 support personnel. During the next 5 years perhaps as many as 150 additional people will be recruited because of needs arising from the graduate program.

The new expenditures required by the program are estimated at $1 million a year, of which perhaps 30 percent can be covered by research grants and contracts. WHOI will have to raise $2.5 million to cover the remainder during the first 5 years. Eventually, $17.5 million in additional endowment will be necessary. Much of the expense will stem from the fact that that portion of a researcher's time which is devoted to teaching cannot be paid for with research contract funds.

Of course, the financial burdens associated with the degree program will be eased somewhat by the fact that, for the first time, WHOI will be able

NSF: Senate Cuts Appropriations

The National Science Foundation found it had big problems in important places last week, as a Senate appropriations subcommittee cut heavily into the 1968 budget. If the committee's recommendations are upheld on the Senate floor and in a conference with the House (which appropriated more), the NSF will receive reduced funding for the first time in its 18-year history.

The Senate subcommittee recommended only $459 million for fiscal year 1968—$21 million below last year's appropriation, $36 million below the House recommendation, and $67 million below NSF's original request. The cut is deep, but not as deep as it looks. Because NSF will recover $21 million that was once obligated to the now defunct Mohole project, this year's actual spending will remain—unless there is a compromise in conference—at the level of the past 2 years, $480 million.

There are a number of factors that could plausibly explain the reduction: the rising costs of the war, the proposed surcharge on taxes, the summer's riots and subsequent demands to raise domestic spending. Yet, though these pressures may have influenced the committee, they apparently did not control it. The Department of Housing and Urban Development and 22 agencies were also reviewed by the committee; only NSF had its appropriations reduced below the level recommended by the House.

Almost everyone at NSF professed bewilderment about what had gone wrong on the Hill. The usual questions—distribution of funds between "have" and "have-not" schools, the value of research, the alleged inequities caused by "grantsmanship"—were raised. The committee report also asked NSF to submit a survey next year of all publicly and privately financed pure research—though the precise limits of the survey were not specified.

Whatever happened, the committee's action, if upheld, would probably not simply maintain the NSF's present activity. Cash outflows might be the same, but prices are moving steadily upward. "You can't carry on a level program with the same amount of money," said one NSF staff member, "so this really amounts to a reduction."—R. J. S.

to participate in some government grant-in-aid programs for which it has been ineligible in the past. WHOI hopes to receive institutional support grants from the National Science Foundation and some facilities grants from the U.S. Office of Education. The Institution will enjoy another advantage in that, without any large outlay on its part, its students will have access to the unexcelled library of the nearby Marine Biological Laboratory, with which WHOI keeps close ties.

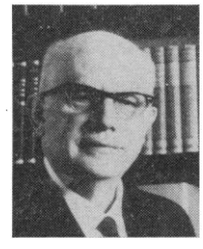
The joint degree program is sure to draw criticism if it should happen that, despite WHOI's assurances to the contrary, most of the available "ship time" on research vessels tends to be preempted by MIT students and well-qualified students from other institutions are often left out. If, however, this pitfall is avoided and the new partnership lives up to its promise, it perhaps will encourage the establishment of similar programs by some other major research institutions and universities, especially in fields where experimental facilities are extremely costly or where research usually cuts across several disciplines.

—LUTHER J. CARTER

APPOINTMENTS

S. A. Nabrit

Samuel A. Nabrit, member of the Atomic Energy Commission, to executive director of the Foundation for Aid and Development of Universities in the South. . . . **John C. Calhoun, Jr.**, vice president for programs, Texas A&M University, to chairman, National Academy of Sciences Committee on Oceanography. He succeeds **Milner B. Schaefer**. . . . **Frederick D. Rossini**, vice president of the University of Notre Dame, to president of Associated Midwest Universities, Inc. . . . **Joseph F. Knappenberger**, president of the Haver-Lockhart Laboratories, Kansas City, to president-elect of the American Veterinary Medical Association (AVMA). . . . **Hermann Bondi**, professor of applied mathematics, Kings College, University of London, to director general of the European Space Research Organization. . . . **Benjamin Pasamanick**, associate commissioner for research, State Department of Mental Hygiene, to president and dean of the New York School of Psychiatry. He succeeds **Sandor Rado**, who is to retire. . . . **Kenneth Chapman**, chairman of the chemical engineering technology department, Temple University Technical Institute, Philadelphia, to assistant educational secretary for 2-year colleges, American Chemical Society. . . . **Robert H. Wilcox**, assistant to the executive secretary of the AEC's Advisory Committee on Reactor Safeguards, to scientific representative for the AEC in the newly established liaison office at the American Embassy in Rio de Janeiro, Brazil. . . . **Robert J. Havlik,** research library specialist, Library Services Branch, Office of Education, to director of libraries, Nova University, Fort Lauderdale. . . . **Justin W. Leonard**, chairman of the department of wildlife and fisheries, University of Michigan School of Natural Resources to chairman of the department of conservation at the university. . . . **Don E. Francke**, editor and publisher of *Drug Intelligence,* to chairman of the newly established department of hospital pharmacy, Cincinnati College, and director of pharmacy services at the Cincinnati General Hospital. . . . **John P. Adams**, chairman of the orthopedic section at George Washington Hospital, to chairman of the department of orthopedics at George Washington University. . . . **Arthur J. McEvily, Jr.**, Ford Motor Company, to chairman of the newly established department of metallurgy, University of Connecticut. . . . **Bernard Strehler**, gerontology branch, National Heart Institute, to head of the newly established biological laboratory, Rossmoor-Cortese Institute for the Study of Retirement and Aging, University of Southern California. . . . **Donald McKay**, chairman of the department of pathology, College of Physicians and Surgeons, to chairman of pathology service, San Francisco General Hospital. . . . **Giulio J. Barbero**, director of the Division of Gastroenterology, Children's Hospital and associate professor of pediatrics, University of Pennsylvania School of Medicine, to chairman of the department of pediatrics, Hahnemann Medical College and Hospital. . . . **Roman K. C. Johns**, professor of physics, Loyola University, to head of the department of space technology. . . . **Charles G. Maurice**, acting head of the department of endodontics, University of Illinois, College of Dentistry, to head of the department at the college, and **Bennett Klavan**, acting head of the department of periodontics, to head of the department at the college. . . . **William E. Adams**, Raymond Professor Emeritus, department of surgery, University of Chicago, to assistant director, American College of Surgeons. . . . **William H. Pell**, program director, Applied Mathematics and Statistics Program, National Science Foundation, to head of the mathematical and physical sciences, NSF. . . . **Robert E. Giles**, general counsel, U.S. Department of Commerce, to vice president and general counsel, Pharmaceutical Manufacturers Association. . . . **Genevieve B. Johnson**, professor of public health nursing, South Dakota State University, to dean of the College of Nursing at the university. . . . **Arthur E. Lindner**, assistant professor of medicine, New York University School of Medicine and **Jacobus Louw**, associate professor of medicine, to assistant deans at the School of Medicine. . . . **Sam T. Gibson**, assistant clinical professor of medicine, George Washington University Medical School, to assistant director, Division of Biologics Standards, NIH. . . . **Alfred Weissler**, program chief for physical chemistry, Office of Scientific Research, U.S. Air Force, to assistant director for physical sciences research, Bureau of Science, FDA. . . . **William N. Ellis**, science and technology officer, Office of Regional Development Planning, to science policy consultant to the Ethiopian Government for UNESCO. . . . **Angelos Dellaporta,** associate clinical professor, division of ophthalmology, Stanford University School of Medicine, to head of the division of ophthalmology at the medical school.



E. Witebsky

Ernest Witebsky, chairman of the department of bacteriology and immunology, Schools of Medicine and Dentistry, State University of New York at Buffalo, to head of the newly created Immunology Unit of the School of Medicine, at the university. . . . **James B. Campbell**, research professor of neurosurgery, New York University School of Medicine, to director of the newly established Institute for the Crippled and Disabled at the university.