

sity science faculty at Orsay and the government nuclear research complex at Saclay. Certainly efforts are afoot to build more "bridges" between the universities and the *Grandes Ecoles*.

Students of the *Grandes Ecoles* were not conspicuous at the barricades. They

were not, however, immune to the ideas that brought students and teachers into conflict with the police. *Polytechniciens*, for example, have been working with reform-minded professors on proposals for change in the Ecole Polytechnique. These proposals are soon to be made

public and similar work is going on inside other schools including the National School of Mines. The results of these efforts will show, in the months and years to come, whether there really was a "May revolution". . . .

—JOHN WALSH

Oceanography: Who Will Control Cobb Seamount?

A civilian consortium is promoting, with the personal interest of the Navy's top antisubmarine warfare officer, an oceanographic research project that calls for establishing U.S. jurisdiction over a piece of the ocean bottom located in international waters. Although the project is described as basically scientific in intent, one of the arguments advanced by the consortium is that the legal claim should be firmly established in anticipation of efforts at the United Nations to internationalize the sea bottom.

The object of this interest is Cobb Seamount, an extinct submerged volcano located 270 miles (435 kilometers) due west of the state of Washington. Discovered in 1950, Cobb Seamount is a scientifically important and geologically unique form which rises from a 9000-foot-deep (2743 meters) basin

to within 112 feet (34 meters) of the surface. Of the known and extensive seamounts in the northeastern Pacific, Cobb rises closest to the surface, well within the photic zone, also close to the contiguous United States, and yet still retains a basically undisturbed deep ocean environment.

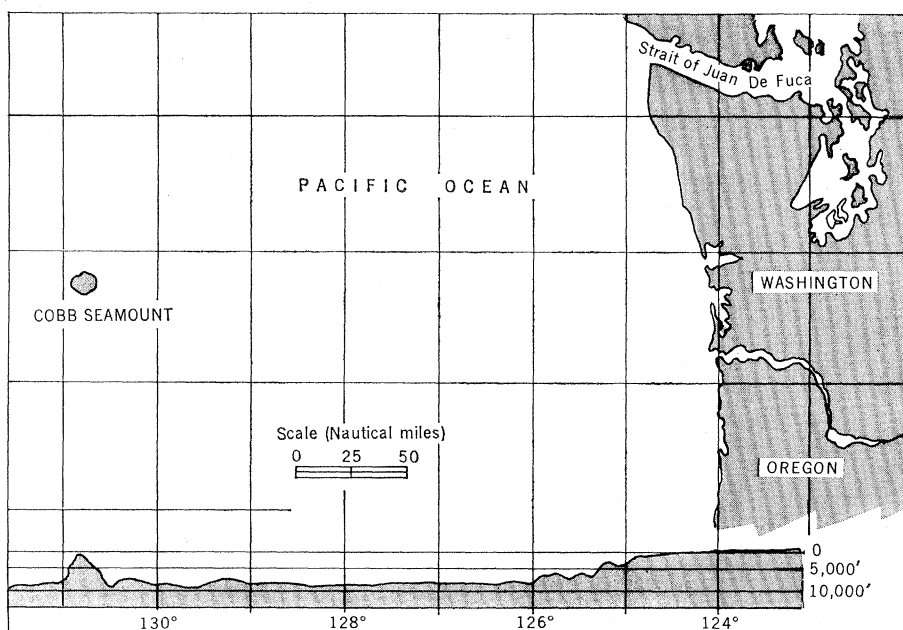
Claiming that Cobb Seamount is strategic to our national security and rich in scientific data and research possibilities, the consortium, consisting of the University of Washington, Honeywell Inc., Battelle-Memorial Institute, and the Oceanic Foundation of Hawaii, is now proposing to establish a U.S. claim of exclusive rights to Cobb by occupation; historically this has been the method by which nations have established sovereignty over unclaimed land areas. As stated in a brochure prepared by the consortium, "It is con-

ceivable . . . that . . . occupation may at some point be considered sufficient to establish a limited claim of exclusive rights. At least it would seem to be sufficient to stop other nations from claiming such exclusive rights."

Vice Admiral Turner F. Caldwell, Jr., director of U.S. Navy Anti-Submarine Warfare Programs, before a recent meeting of the Undersea Technology Industry Clinic, also expressed particular interest in Cobb Seamount. Stressing that he spoke as an individual rather than reflecting official Navy views, Caldwell called it an "ideal" location which "would furnish an excellent means for developing legal concepts of utilization and occupation of real estate at the sea floor." Besides the interest expressed by Caldwell, the Naval Underwater Warfare Center has also made a preliminary evaluation of the Seamount for a possible manned-in-bottom base, and a number of similar studies have been proposed.

General attitudes toward the legal issues involved in Cobb Seamount vary. While a number of government officials have said that the question of jurisdiction over the sea bottom is "premature," there are those who are anxious to set precedents now. Some groups claim that present government thinking would create a policy of "giving away" the oceans. They point out that the Malta Resolution, a proposal submitted to the United Nations by the Republic of Malta to internationalize the seas, would give the UN exclusive jurisdiction over the resources of the deep seabed, including seamounts; thus they urge the United States to stake its claims now, before the final enactment of this proposal.

Although there are defense-oriented groups within government that wish to see Cobb Seamount and other such sea formations close to American soil under U.S. jurisdiction, official government policy has been one of "open occupancy." The United States recently has been in the process of organizing a 10-year international ocean exploration



decade, and official government policy, stemming from the National Marine Resources Council, is that the United States does not wish to start a race for ocean territory, or to antagonize any of the countries, including the Soviet Union, which have been asked to participate in the decade.

In a recent action which reflects the stated U.S. policy on this issue, UN representative Leonard C. Meeker presented a draft resolution to the UN Ad Hoc Committee to Study the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction. It recommended: (i) that no state claim or exercise sovereignty over any part of the deep ocean floor; (ii) that an international agreement governing exploitation of resources be established as soon as possible; (iii) that the Continental Shelf be redefined to establish a more precise boundary and area of claims.

Meanwhile, though funds are still to be raised, scientific plans for Cobb Seamount under the title, "Project Sea Use" are proceeding, despite government and individual differences in opinion over jurisdiction. The four

principal sponsors, directed by the Washington State Oceanographic Commission, plan a comprehensive exploration program which they hope to initiate for a 2-month period in the summer of 1969, whether they receive government support or not. This project would include an underwater manned habitat located directly on the summit of the mountain, two oceanographic research ships, and one or more underwater research vehicles. In addition, a scientific and environmental services mast would be erected and initially employed during the expeditionary phase in support of basic scientific research. An effort also is underway to seek the cooperation of private and state organizations. Oregon State University researchers have already moored a research buoy on Cobb's summit. Because the summit is close to the surface and the water is of very high clarity, extensive fish populations can be observed. Cobb Seamount also presents an opportunity for conducting ecological investigations and conservation studies because there are few known seamounts in the entire world that reach into the photic zone

and therefore can be populated by algae. It is also thought that continuous, long-term observations of biological production in the open sea could be made from Cobb Seamount, perhaps leading to insights into deepwater food harvesting. Besides scientific research in environmental biology, programs in the atmospheric sciences, chemical oceanography; geological, geophysical, and physical oceanography are being considered as well.

A preliminary schedule has been prepared for the development of the seamount, but one of the big problems will be raising the \$2 million which is needed for financing. The four sponsoring organizations have contacted numerous agencies for financial and program support, but with a tight squeeze on the federal budget, Project Sea Use representatives may have to settle for services and equipment, such as ships, navigation devices, weather facilities, research apparatus, and manpower rather than money. They may also have to look more closely at possibilities for private and regional funding, independent of government support.—MARTI MUELLER

On the Use of Herbicides in Vietnam

A statement by the Board of Directors of the American Association for the Advancement of Science

The serious concern of the scientific community about the consequences and implications of the use of herbicidal chemicals to destroy crops and forest vegetation in Vietnam was reflected in a resolution passed by the Council of the AAAS on 30 December 1966. This resolution stated, in part:

Whereas the full impact of the uses of biological and chemical agents to modify the environment, whether for peaceful or military purposes, is not fully known;

Be it resolved that the American Association for the Advancement of Science:

(1) expresses its concern regarding the long-range consequences of the use of biological and chemical agents which modify the environment;

Pursuant to this resolution, we, the Board of Directors of the AAAS, initiated discussions with representatives of the Department of Defense regarding the use of herbicides by U.S. military forces in Vietnam. In reply to our in-

quiry, the Department of Defense, in a letter (29 September 1967) from John S. Foster, Jr., Director of Defense Research and Engineering, stated that:

As you know, we have considered the possibility that the use of herbicides and defoliants might cause short or long-term ecological impacts in the areas concerned. The questions of whether such impacts exist, and, if they do, whether they are detrimental or advantageous, have not yet been answered definitively, even though these chemicals have been used commercially in large quantities for many years. Qualified scientists, both inside and outside our government, and in the governments of other nations, have judged that seriously adverse consequences will not occur. Unless we had confidence in these judgments, we would not continue to employ these materials.

We note with satisfaction Dr. Foster's statement that our government would not sanction use of these agents in Vietnam were it not confident that they have no serious long-term adverse consequences for the environment.

We have reviewed the Midwest Research Institute report entitled "Assessment of Ecological Effects of Extensive or Repeated Use of Herbicides" sponsored by the Advanced Research Proj-