of the Berkeley revolt, the special circumstances may not have been the decisive ones. It is true that relatively few large urban universities are as physically compact as the Berkeley campus, and few have an open plaza daily traversed by so many students or so inviting for political rallies. Few universities have quite so many part-time, occasional, or nonstudents identifying quite so closely with the campus. Relatively few universities have student political leaders quite so radical, or a student body quite so willing to be drawn into a protracted political struggle. Perhaps few universities have administrations that could be made to appear quite so intransigent as the administration at California. But almost all universities have a rising number of student radicals willing to confront their administrations with issues and tactics similar to those which the Free Speech Movement posed for Berkeley. And almost all universities, public and private, have a history of tension with their neighbors or their benefactors that, if provoked, could explode in similar fashion. In the past few months there have been smaller-scale student rebellions in New York (at St. John's and Brooklyn), at Yale, at Kansas, and in several other universities across the country. There are certain to be more. Unless ways are found of dealing with them—refraining from obstructing the students' rising concern for civil rights and liberties, and perhaps giving them an increased role in formulating the rules governing their universities—more "Berkeleys" could conceivably arise.

At Berkeley now, efforts are being made to recover the situation and stabilize the campus. After the December sit-ins the students were allowed almost unrestricted political freedom, and many people feel that the apparent absence of rules was responsible for encouraging the experiment with obscenity. Chancellor Meyerson appears to be trying to restore orderliness, even at the risk of his initial popularity with faculty and students. He has issued new rules redefining the limits of political activity and restricting the degree to which nonstudents will be allowed to participate. The new rules may restrain the tempo and alter the character of campus politics somewhat, without provoking outright defiance on the part of the students. What nobody can say for sure is whether the damage to the university community and to its relations with the state is already irrreversible.

—ELINOR LANGER

## Oceanography: House Subcommittee Encourages Use of Merchant Ships To Gather Data on the High Seas

The recently released record of a morning's hearings before a House oceanography subcommittee reveals an unusual example of persistence by a congressional committee in advocating a particular mode of research and a novel instance of congressional staff members serving as observers and participants in a scientific enterprise.

Titled "Oceanography—Ships of Opportunity,"* the hearings before the oceanography subcommittee of the House Merchant Marine and Fisheries Committee dealt with a project designed to show whether the American merchant marine fleet can be used to gather oceanographic data without hindrance to normal operation of the vessels.

The hearings, held 22 January, were cast in the form of a seminar to discuss what subcommittee chairman Alton Lennon (D–N.C.) called an "interesting experiment" conducted last fall. Under review was a voyage of the merchantman S.S. *Java Mail* across the North Pacific, which Lennon describes as an attempt "to determine whether or not oceanographic data could be collected for merchant ships on a truly not-to-interfere basis."

Called Project Neptune—Pacific, the effort was sponsored by the Office of Naval Research with the collaboration of the Naval Missile Center at Point Magu, Calif. (which provided a mobile lab and scientific personnel), the General Motors Research Laboratories at Santa Barbara, and the American Mail Lines, Ltd., of Seattle. The committee appears to have acted as a kind of broker in the project by helping to bring the principals together.

The oceanography subcommittee was formed in 1959 at a time when the oceanography budget was expanding and congressional committees were vying for jurisdiction.

"Our subcommittee soon became interested," said Lennon, "in the possibility of the greater use of the merchant fleet for the collection of oceanographic data. The National Academy of Sciences Committee on Oceanography advised us that worldwide surveys, ocean surveys, were prime essentials to any concerted research program."

The subcommittee maintained its interest and looked for ways to learn whether the idea was feasible.

"The use of the S.S. *Java Mail* last fall was the test," said Lennon. "Committee staff members of our subcommittee participated to a rather large degree in an observatory capacity, and they advised our committee that this worked exceedingly well, and it proved the merit of this particular concept; that it showed the way to make a greater and immediate advance in our oceanographic programs by freeing our new, specialized oceanographic research ships to do advanced work while these existing 'ships of opportunity,' as we refer to them, collected the basic survey data."

A strong proponent of the ships-of-opportunity idea has been Sidney Galler, head of the biology branch of the Office of Naval Research, who has been interested in finding more efficient and less expensive means for obtaining bio-oceanographic data which the Navy needs.

The use of ships of opportunity for gathering scientific data actually has a history which dates back to the earliest days of the U.S. Navy. The Navy Oceanographic Office, for example, is running a 4-year program using Military Sea Transport Service ships to make bathythermograph readings. The Bureau of Commercial Fisheries has been getting systematic records of seabird sightings from some commercial ships to gain information on the fisheries. Project Neptune was different in that an effort was made to determine whether much more extensive and sophisticated work could be done.

The voyage of the *Java Mail* covered 17 days in October, in which the ship traveled from Seattle to Yokohama and then to Hong Kong. On board were members of a four-man scientific party which included two Ph.D.'s, and also two committee staff members. They were John M. Drewry, an attorney who is chief counsel to the full committee, and Paul M. Bauer, consultant to the committee, an engineer who teaches earth sciences as an adjunct professor at American University in Washington. It is worth at least a footnote in the annals of Congress-science relations that the two staff members went along and then gave the committee their assessment of the project.

The original aim of Project Neptune –Pacific was simply to test equipment and procedures and to determine whether the activities of the oceanographers would create problems with the

* Copies of the hearings (Serial No. 89–1) may be obtained from the Committee on Merchant Marine and Fisheries, U.S. House of Representatives, Washington, D.C. 20515.

crew, or interfere with the operation of a merchant ship. However, Dr. Clinton H. Maag, head of the life sciences department at the Point Magu Naval Missile Center, who was in the scientific party on the *Java Mail*, told the committee, "we have come back with a relatively large volume of data, especially large when one considers the actual investment in the cruise" (about $14,000).

The crucial question was whether oceanographic work could be done while the *Java Mail* was traveling at normal cruising speeds (above 15 knots); oceanographic research vessels usually either lie to or move very slowly when collecting samples or data. The work had to be done without requiring the ship to slow or alter course and without interfering with the crew.

In addition to sowing drift cards and bottles, the scientific party took salinity samples, made continuous surface-temperature measurements, and collected zooplankton with a "jet net," a high-speed sampler with an intake designed to minimize water turbulence. According to the scientists, they picked up samples of zooplankton and larval animals at 16 knots and found 75 percent of the samples in "excellent" condition.

The development of suitable instruments and rapid collection devices is a key factor in realizing the ships-of-opportunity idea. The jet net seems to point the way, and so does an "expendable bathythermometer," which detaches itself from a float after being cast overboard and then transmits data, via a wire, as it sinks to the bottom of the sea. Advocates of the ships-of-opportunity concept admit that much needs to be done with instrumentation, and they hope that industry will be motivated to step up R & D in this sector by the voyage of the *Java Mail* and by Project Neptune–Atlantic, now in the offing under the aegis of Florida Atlantic University, Boca Raton.

Research ships of opportunity appear to have special appeal to marine biologists, many of whom tend to see themselves cast in the role of stepchildren in the family of oceanography. They complain that deep-water research voyages are too often planned to suit the requirements of those who do physical and chemical oceanography at the expense of the seagoing biologists.

While ships of opportunity may in fact provide splendid platforms for research in fair weather and foul, the use of such ships would seem to be only half the battle. At the hearing James M. Snodgrass, head of special development at the Scripps Institute of Oceanography, indicated this as a mild caveat in what was otherwise a morning of unrelieved optimism. Feasibility of the ship-of-opportunity he viewed as demonstrated, but he noted the importance of the quality of instruments.

"This, perhaps in a major way," he said, "accounts for our slowness in being able to start, since it is only at the present time that suitable instruments have in fact been available. They are by no means perfected at the moment, but they are workable and quite practicable and usable. This in a way has opened up the basic concept of expendable or disposable instruments. It is in fact a major change in the availability of tools which the oceanographer has at his command. I think without question this new concept is so significant that it will require a great deal of rethinking of our methods of operation, and further, it changes our basis of costing out the system.

"We have entirely new relationships which we must think about. All of this, of course, underscores the necessity of careful planning. It is quite obvious that a major ship-of-opportunity program, assuming it gets underway, could, without proper direction, literally flood scientific laboratories with plankton samples. This is rather easily done. It would be disastrous.

"We need careful planning. The ship-of-opportunity program needs to be a part of a system operation, integrated with the necessity for collecting data. We must have a need for the data, and a valid use for it. We do not wish to collect data for data's sake."

—JOHN WALSH

## De Gaulle: President of France Calls for a Harder Line in Behalf of French in International Science

President Charles de Gaulle has ordered French scientists and diplomats to the barricades in the cause of the use of French at international scientific meetings.

De Gaulle first dispatched a letter to the French Academy of Sciences in which he reportedly took French scientists to task, saying, "It is indeed deplorable that the French language, so remarkably suited in its clarity and precision to the expression of scientific thought, is too often betrayed even by those who should insure and require its use."

He followed this up on 30 March with a letter to the foreign ministry ordering the gentlemen of the Quai d'Orsay to insist on French translations of all working documents at international scientific meetings.

The Washington *Post*'s man in Paris, Waverly Root, suggests that de Gaulle was encouraged to take pen in hand by the academy itself, which recently passed a resolution lamenting "pressures applied by certain international organizations . . . in favor of the English language alone." The academy has lately been striving to purge scientific French of coined words and words which have infiltrated from other languages, particularly English.

De Gaulle's concern about the fortunes of the French language is an understandable one for a military man and politician who is also a formidable prose stylist, as his memoirs prove. And there is precedent for the international use of French in its history as the language of diplomacy.

But his action is sure to be interpreted as another swipe at the Anglo-Saxons (his term for the British and Americans) and attributed to the same motives which prompted him to blackball Britain for membership in the Common Market, refuse to sign the limited test ban treaty, torpedo the idea of a multilateral nuclear fleet, push trade and diplomatic ties with the Chinese Communists, go his own way on Southeast Asia, and cash in dollars for gold and call, apparently, for a return to the gold standard, all to the considerable discomfort of the Anglo-Saxons.

As this was written, neither the French embassy in Washington nor offices which deal with international science in the State Department and other agencies had word of any specific measures contemplated to promote equality of French in international scientific affairs.

Any hopes that de Gaulle may have for a sudden rise in status for French as a language of science, however, appear to be quixotic. By the practical test of numbers of articles in the scientific journals of the world—generally accepted to be a rough indicator of scientific activity—French is far outstripped by English and Russian and in many fields of research seems to be