

ing into complete disuse. The portions of ARL that have been transferred more or less intact to the appropriate development laboratory have remained physically in place. In some cases, equipment has been moved into ARL by the development laboratories themselves, and the AFWAL staff is located there.

Many scientists at ARL and CRL are pessimistic about the future of in-house research as the result of the laboratory restructuring. A commonly voiced opinion at ARL was that within the development laboratories the atmosphere was so oriented toward development and engineering that the largely splintered research groups from ARL would inevitably be diluted. The lack of clearly defined research groups, the tendency to judge performance on short-term results, and other institutional pressures would all work together to reinforce the natural tendency to solve immediate problems first and let research lag behind as a lower priority activity.

Also expressed was the fear that many highly qualified scientists would leave the Air Force because of what they considered an atmosphere not conducive to doing research. As a result, the Air Force would be

deprived of a technical expertise that, as the self-described most technological of the services, it badly needs, because even the minimum in-house competence needed to intelligently buy technology for the Air Force might not be left. It is said that, even in the past, costly mistakes have been made precisely for this reason; individuals with the technical competence to ask the right questions were not available.

ARL researchers also wondered whether the reliance primarily on university and industrial scientists to develop all new technology was wise, pointing out that only in-house scientists employed by the Air Force would have prime loyalty to and a continuous interest in Air Force problems. Moreover, in an organization of primarily buyers and flyers, there would be no one to translate the new knowledge generated outside into a form usable by the Air Force.

Perhaps the most bitter comments were reserved for what ARL people consider the rather sloppy manner in which the restructuring has been managed. Letting employees learn that they may lose their jobs on a TV newscast smacks of poor personnel relations at best. Even supervisors and labor-

atory heads did not know much more than their employees at first. And scientists say that a succession of contradictory rumors, memos, and explanations from Washington caused a general state of confusion for weeks. In fact, it was only in May that a group at Wright-Patterson tasked to draw up specific plans for the reorganization there finished its report.

These criticisms may be to some extent self-serving. But equally, there is a conflict between the managerial philosophy now prevalent within the Air Force, which sees research as something you can turn on or off and buy or not as the need arises, and the interests of in-house researchers (or contractors for that matter), who need a relatively stable environment in which to work. The fashionable notion that the Air Force does not need as much in-house research expertise as before may or may not turn out to be true. In the meantime, many scientists are unhappy over their own fate and fearful that the Air Force may take a long time to recover from the mistake of having destroyed its in-house research capability before the alternative has been fully proven.

—ARTHUR L. ROBINSON

## Outer Continental Shelf: Congress Weighs Oil Needs and Environment

Ever since early 1974, when President Nixon announced a big program of outer continental shelf (OCS) oil leasing in the Atlantic and Pacific "frontier areas" as a key part of "Project Independence," many in Congress have felt that existing laws are inadequate to cope with a massive development of OCS oil and gas resources. To the extent that recoverable reserves can indeed be found, the extraction of the oil and gas would bring economic benefits, to be sure. But it would also have some severe adverse impacts. From Alaska to California and from Maine to Florida, many state and local officials have become highly concerned at the prospect of such impacts, and they have let their senators and congressmen know it.

Besides the usual worries about oil spills and polluted beaches and estuaries, there has been a fear that the coastal states and communities will be unable to plan for and properly accommodate the expected surge

of OCS-related onshore activities, such as the construction of drilling rigs and platforms, the laying of pipelines, and the building of storage tank farms, refineries, and petrochemical complexes. State and local planning processes could be overwhelmed, and the "front-end money" needed to provide new schools, sewers, roads, and the like might often be in desperately short supply.

In response to these concerns, Congress has begun acting on some major new legislation, but whether it will complete its work before the offshore oil rush is well under way is still an open question. In July, the Senate passed two bills. One would amend the Coastal Zone Management Act of 1972 to establish a Coastal Energy Facilities Impact Fund. The other bill—and the more controversial—would amend the Outer Continental Shelf Lands Act of 1953 to revise substantially the rules and conditions for OCS development, in part

with a view to giving the coastal states and local governments a far better chance to have their say and be heard than is now afforded them. Under the OCS bill, the Ford Administration might well be kept from maintaining the fast pace with which it has been trying to bring on OCS frontier-area production as one of the two new major sources of domestic oil remaining (the other being the North Slope of Alaska).

The House of Representatives has taken no action yet on either of the Senate bills, and its committees will have to move expeditiously if any legislation is to be enacted this year. Meanwhile, the Administration, which has in the main opposed the OCS-related initiatives on Capitol Hill as unwanted and unneeded, has been moving step by step toward the first frontier-area lease sale, now scheduled for October. This sale, embracing 1.6 million acres off southern California, is regarded as recklessly premature by officials such as California Governor Edmund G. Brown, Jr., and Los Angeles Mayor Tom Bradley. Representative John M. Murphy (D-N.Y.), chairman of the two committees having jurisdiction over the Senate-passed bills, has made an urgent appeal to President Ford, asking that the plunge into frontier-area sales be postponed for 90 days to give the Congress time to act.

The California sale may indeed be de-

## A New Coastal Society

The Coastal Society, a group made up of scientists, engineers, lawyers, and others, has recently been formed in an effort to improve understanding among the now large and diverse body of professionals concerned in one way or another with the problems and conflicts arising in the coastal zone. Some of the organizers believe that present conflicts over energy development along the coasts would be less acute if the various fields and disciplines dealing in coastal matters had been less isolated from one another and from government policy-makers.

The Coastal Society will hold its first annual conference on 24 to 26 November in Washington, with OCS oil leasing policies billed as one important topic of discussion. The president of the society is M. H. Schwartz, who is director of Information Systems at the Energy Research and Development Administration. The society's address is P.O. Box 34405, Bethesda, Maryland 20034.

layed, either by court action or by second thoughts on the part of President Ford and his energy advisers. But if, despite all challenges, the Administration goes forward with the California sale as planned and proceeds to other scheduled sales, up to 7 million acres of frontier-area tracts may be under lease by the end of 1976.

After the California sale would come a December sale covering 1.8 million acres in the eastern Gulf of Alaska. This region was identified last year in an OCS study by the Council on Environmental Quality as one of exceptional hazards because of threats such as raging winter storms, earthquakes, and tsunamis. The Gulf of Alaska offering is near the top of the list of frontier-area sales because the oil industry ranked its potential as second only to that of the Gulf of Mexico, where offshore wells have been producing oil and gas since 1938.

The six OCS sales scheduled for 1976 include a second sale for the Gulf of Alaska and three sales covering parts of the Mid-Atlantic, North Atlantic, and South Atlantic frontier areas, together with two new offerings for the Gulf of Mexico. Leasing would continue in 1977 and 1978 at the same fast pace of six sales a year, each covering 1 million acres or more. Since federal OCS leasing began 23 years ago, nearly 12 million acres have been leased altogether, with by far the greater part of this acreage in the Gulf of Mexico. Now, under the accelerated program, another 10 million acres or so might be leased in little more than 3 years.

The significance of the Senate bills can only be understood in light of the current OCS leasing procedures. As these procedures now stand—and they have undergone major changes in response to the requirements of the National Environmental Policy Act of 1969 (NEPA)—several distinct procedural steps are involved in opening up the frontier areas.

First, an environmental impact statement has been prepared on the overall accelerated leasing program and public hearings have been held on that statement. Then, in the case of each frontier province where leases are to be offered, there is the usual "call for nominations" whereby the Department of Interior asks industry and the public to recommend tracts to be included in the sale (or excluded, as the case may be).

Interior then selects the tracts for the proposed sale, and prepares a draft environmental impact statement for circulation among interested federal and state agencies and private groups. After a public hearing, the statement is revised and reissued in final form. No sooner than 30 days after issuance of this final statement, the Secretary of Interior decides whether to proceed with the sale as tentatively sched-

uled, and whether terms of the sale should include any unusual stipulations or restrictions to protect the environment. If he decides to proceed, and the presumption seems to be that he will usually so decide, the sale follows a month later. The successful bidders can then begin exploratory drilling on the basis of geophysical and other data collected prior to leasing.

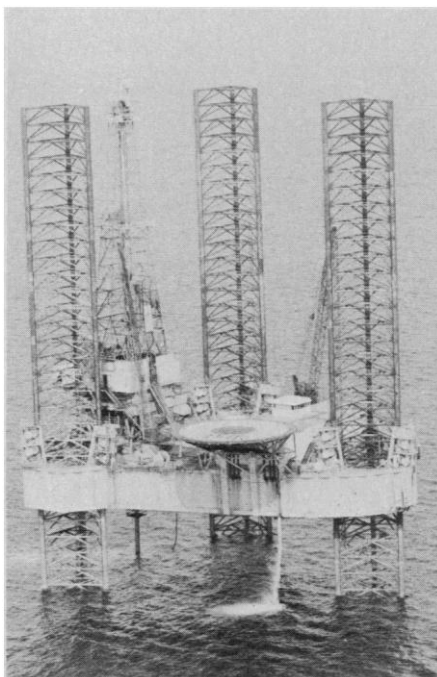
If there are no court injunctions or other special difficulties, a bit over a year is taken up with the preliminaries to a sale. After the sale, another two or three years normally elapse before oil or natural gas are discovered (many leases are, of course, unproductive) and a production plan is approved by Interior. Then, a production platform must be ordered and put in place, and this also requires a year or two. Altogether, allowing for the completion of production wells, as many as eight years may elapse from the call for nomination to the time oil actually begins to flow.

By its amendments to the OCS Lands Act, the Senate would modify the procedures described above by separating exploration and development into more distinct phases. At the time of sale, bidders would be given to understand that even if oil is found, they will not be allowed to produce it if the environmental consequences or other adverse impacts of such production are found to outweigh the benefits.

The assessment of risks versus benefits would come once the leaseholder completes exploratory drilling and submits his production plan to Interior, to the governors of potentially affected coastal states, and to a regional OCS advisory board if the governors have formed one (with themselves the voting members). The Secretary of the Interior could then tentatively approve those parts of the plan pertaining to activities confined to the OCS and, on the strength of such approval, the leaseholder could decide to order the production platform despite the at least outside chance that final approval would eventually be denied. Depending on whether leaseholders would indeed elect to run this risk, the new procedural steps might delay production either not at all or by a year or longer.

The preparation and circulation of an environmental impact statement on the production plan would almost certainly be necessary. Also, state and local authorities would be evaluating the plan in terms of its compatibility with their own plans developed under the Coastal Zone Management Act (CZMA), which provides that once a CZMA plan has received Washington approval, all federal actions and programs ordinarily must be consistent with it.

Furthermore, under the OCS bill, if a governor or regional advisory board asked that a production plan be disapproved, the



A mobile "jack up" drilling rig used in OCS oil exploration. [Photo by U.S. Geological Survey]

Secretary would have to accept this recommendation unless he determined that to do so would be contrary to the "national security or overriding national interests." Even earlier, at the preleasing stage, the governors and the regional board would have this qualified right of disapproval with respect to the size, timing, or location of a lease sale.

If the Senate OCS bill provided for nothing more than outlined above, it would be a potent measure. But it goes further by directing Interior to carry out an experimental exploratory program of its own, by requiring leaseholders to give Interior (on a confidential basis) their "interpretative" findings as well as other data bearing on the possible extent of oil and gas resources, and by establishing an offshore Oil Pollution Settlements Fund and imposing strict liability for spills.

Potent though it is, the bill was passed by a vote of 67 to 19, which is one measure of just how strong the feeling in the coastal states is about the need to control OCS development. In part, the support for the bill reflects the fact that more and more senators are now becoming aware that, while the OCS oil and gas resources will at best be equal to only several years' total U.S. oil demand, most of the environmental and community assets that reckless or overhasty OCS development would threaten are good for the long term if protected.

The Senate amendments to the Coastal Zone Management Act, first adopted in mid-July and then incorporated in the OCS bill when it was passed a few weeks later, are intended to complement and reinforce the OCS measure by authorizing the Coastal Energy Facilities Impact Fund. This fund, which is cynically regarded by some people in the oil industry as "bribe money," would be authorized to disperse up to \$250 million annually for 3 years. Of the annual total, \$50 million would be available for coastal zone planning related to energy facility siting, while the remainder would go to help coastal states "reduce, ameliorate, or compensate for net adverse impacts or to provide public facilities and services made necessary by the energy facility or resource development activity."

The coastal zone management bill, though not the OCS bill, also contains three important additional funding authorizations. One would increase funding for coastal zone planning in general—that is, planning not necessarily related to energy facilities—to \$50 million a year, up from the \$39 million authorized for the current year. Another would authorize up to \$50 million annually for five years to acquire or to ensure access to beaches and coastal islands. The third would authorize \$5 mil-

lion a year for the planning and implementation of interstate compacts.

The two Senate bills may get a generally sympathetic reception in the House, but certain provisions are likely to go by the board. The one for an experimental federal program of OCS exploration is sure to be weighed skeptically. This program, which many feel could grow into a multibillion-dollar effort of dubious efficacy, has an influential sponsor in Senator Henry Jackson (D-Wash.), chairman of the Interior Committee. But even Jackson was not able to sell it in committee; although he later managed to have it included by floor amendment, he succeeded only narrowly, on a 46 to 41 vote.

The Energy Facilities Impact Fund may also prove controversial in the House. The concept of a fund to help coastal states and communities cope with impacts directly related to OCS development has wide support. But, under the Senate Bill, assistance would be forthcoming in the case of *any* energy-related activity. Environmental lobbyists already are concerned about this because they see it as a possible inducement for the state and local governments to encourage the siting in the coastal zone of refineries and other energy facilities that could go elsewhere. Also, congressmen from inland regions may see no reason why, if the assistance is not to be tied to OCS development, noncoastal states should not benefit as well.

The ultimate fate of the pending OCS and coastal zone legislation may depend on whether President Ford is willing to go along with it. If he hangs tough and opposes it, by White House lobbying and maybe even by a veto, he could perhaps kill it. But one plain fact the President will have to consider is that public opinion in the coastal states, some of which are critical to his reelection, seems very much on the side of tighter controls on OCS development and a greater voice for the states in OCS decisions.—LUTHER J. CARTER

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## RECENT DEATHS

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**Siegfried S. Meyers**, 66; former professor of physics, Madison College; 16 July.

**Judith G. Pool**, 56; professor of medicine, Stanford University School of Medicine; 13 July.

**Carl O. Sauer**, 85; professor emeritus of geography, University of California, Berkeley; 18 July.

**Joseph F. Scheuer**, 56; former professor of sociology, Fordham University; 19 June.

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## APPOINTMENTS

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**Martha Peterson**, president, Barnard College, to president, Beloit College. . . . **Jerry E. Hudson**, vice president, Pepperdine University, to president, Hamline University. . . . **Duane Leach**, dean, College of Idaho, to president, Northern Montana College. . . . **Edward A. Lindell**, dean, College of Arts and Sciences, University of Denver, to president, Gustavus Adolphus College. . . . **John S. Lore**, vice president, Nazareth College, to president of the college. . . . **John M. Driscoll**, vice president for academic affairs, Villanova University, to president of the university. . . . **Alton I. Sutnick**, associate director, Institute for Cancer Research, to dean, Medical College of Pennsylvania. . . . **Patrick E. McCarthy**, chancellor, Massachusetts Board of Higher Education, to chancellor, University of Maine. . . . **Vivian T. Stannett**, professor of chemical engineering, North Carolina State University, to dean, Graduate School at the university. . . . **Richard B. Marsten**, director of communications and data management, National Aeronautics and Space Administration, to dean of engineering, City College, City University of New York. . . . **Clarence L. Ver Stegg**, professor of history, Northwestern University, to dean, School of Engineering at the university. . . . **Charles C. Lobeck**, associate dean for clinical affairs and graduate medical education, Medical School, University of Washington, to dean of medicine, University of Missouri. . . . **William E. Laupus**, chairman, pediatrics department, Medical College of Virginia, to dean, Medical School, East Carolina University. . . . **William V. Stauder**, chairman, earth and atmospheric sciences department, St. Louis University, to dean, Graduate School, at the university. . . . **J. Fletcher Osterle**, professor of mechanical engineering, Carnegie-Mellon University, to chairman, nuclear science and engineering at the university. . . . **Frank M. Yatsu**, vice-chairman, neurology department, University of California School of Medicine, San Francisco, to chairman, School of Medicine's department of neurology, University of Oregon Health Science Center, Portland. . . . **Donald H. Harter**, professor of neurology and microbiology, College of Physicians and Surgeons, Columbia University, to Charles L. Mix professor of neurology and chairman, department of neurology, The Medical School, Northwestern University.

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*Erratum:* The title of the Nobel Lecture of George Palade (1 August, p. 347) should have been "Intracellular aspects of the process of protein secretion."