Mohole: Senate Is Asked To Restore Funds

Six weeks ago the House of Representatives cut off the money for Mohole, the long-controversial ocean drilling project of the National Science Foundation (*Science*, 13 May). An appeal to the Senate was immediately mounted by a handpicked rescue party, with the consequence that the decade-old Mohole saga has been further enriched by some few hundred pages of congressional colloquy.

For example, there was the testimony of Grover E. Murray, chairman of the U.S. National Committee on Geology. After 16 days snowbound with two Russians, he emerged with the "personal feeling that the Russians are doing the best they can to beat us to the Mohole. . . ." But he and others agreed that firm evidence is lacking, and beyond some warnings about prestige and humiliation, they were all vague about the "tragic" implications of the Russians' getting there first.

Then there was Senator Daniel K. Inouye, whose interest in Mohole apparently dates from the selection of a drilling site near his own state of Hawaii. The Senator warned that the "civilian economy is already crippled by shortages of some critical materials. . . ." Mohole, he suggested, might contribute to relieving the shortages. Another geologist, Harry Hess of Princeton, offered the news that the Mohole drilling platform could be used to raise disabled submarines. Frederick Seitz, president of the National Academy of Sciences, warned that if the costs of the Vietnam war, which were alluded to by the House Appropriations Committee as grounds for cutting out funds for Mohole, "cause us to weaken our scientific efforts by our own actions, we could rapidly become the paper tiger to which the Chinese Communist leaders have referred in their propaganda." And Philip Handler of Duke University, the newly elected chairman of the National Science Board, was favorably impressed by the fact that the cost estimates had risen from $40 million a few years ago to what is now described as a "firm" $127.1 million. "It is a sign of the courageous management of the Foundation and of the participating technical organizations," he explained, "that they insisted on maintaining the technical integrity of their designs regardless of cost increases which they recognized might jeopardize the budgetary acceptability of this program."

And then there was Senator Gordon L. Allott, of Colorado, who concluded that "we have been given a snow job that is almost unbelievable."

Allott's colleague, Senator Warren G. Magnuson, chairman of the Senate Independent Offices Appropriations Subcommittee, which was the forum for the Mohole appeal, took a different tack. Magnuson, a founding father of the Foundation, sounded sympathetic to Mohole, but he lamented that "we don't seem to receive much help from the scientific community on the question of priorities." Senator Allen J. Ellender, of Louisiana, had a bit of advice for the Mohole proponents: "If you can get the military into this, you can get all the money you need. Just work on the military." Ellender said he was sympathetic to the project but was concerned about the unforeseen rise in costs. To which Handler replied: "Science is not predictable. That is the fun of it." Said Ellender, "That is the word. The fun of it." And he advised Handler that hard and fast cost figures were a necessity if the Senate subcommittee was to appeal to its House counterpart for a reversal. "The reason I am asking to do this," Ellender explained, "is because I am hopeful we may be getting the House to agree with us if we should come to a conclusion here. And unless you can tie it down you may get zero."

Just what NSF will get for Mohole will not be known before mid-July, which is the earliest expected date for Magnuson's subcommittee to issue a report. But the project is in very deep trouble—which may account for the rescue party's willingness to hold forth Mohole as a panacea for virtually everything but poison ivy. As things now stand, NSF has expended, or has bills for, a total of $21 million. And it has made commitments to spend another $33 million, although it can legally get out from under a good deal of this. The effect of the House action was to deny a request for $19.7 million to continue construction of the ocean-going platform into the fiscal year which began this month. Work is now under way in San Diego, and the platform is scheduled for completion at the end of 1967. Under the present schedule, the self-propelled, self-stabilizing platform would do some preliminary drilling for about 6 months and then would be set over a site 14,000 feet deep near Hawaii. There it would drill for 2½ or 3 years, with the object of piercing the earth's crust and digging out pieces of the mantle where it is believed to be most accessible, some 17,000 feet below the ocean floor.

Perhaps the most notable characteristic of the hearing was the manner in which the scientific proponents and the Mohole-weary senators managed to talk past each other. No senator, including Allott, who is the leading senatorial skeptic on the issue, doubts the scientific merit of Mohole. What the senators were saying was that public funds are involved and that the record shows that past cost estimates were wildly inaccurate. The present estimate of $127.1 million "is quite a jump" from the $15 million figure that was presented in the early days of Mohole, Allott said to Leland J. Haworth, who inherited the Mohole controversy when he became NSF director in 1963. "Yes," replied Haworth. "However, that $15 million was, if I may use the word, a guess, made not on the basis of any engineering estimates or anything of that sort."

To which Allott replied—making it clear, however, that the event preceded Haworth's appointment—"when members of the Government come in and testify to this committee about the cost of a project, we are not presuming that they are guessing."

The Mohole proponents made frequent reference to the costs of the space program—over $5 billion next year, as compared with a paltry $19.7 million sought for the drilling venture. But it might as well be recognized that basic research exists in a peculiar political environment, one that in large

part consists of faith rather than firm conviction. What the country spends on lipstick or rocketry has almost nothing to do with what the Congress is willing to spend to underwrite the curiosity of the basic-research community. The very nature of basic research makes it difficult to promise anything more than the probability of a payoff, but this perhaps makes it all the more important to demonstrate that this uncertain process will at least be conducted with prudent concern for the taxpayers' money. The Mohole business is a very sorry episode, and it isn't made any cherrier by all sorts of imaginative afterthoughts as to why the taxpayers will benefit from what is fundamentally a very costly effort to answer a question that, although of major scientific importance, is actually of interest to a relatively small number of people. Clearly, there are cheaper and faster ways to develop oil drilling technology than by building the Mohole platform, but the supporters of the project now argue as though black gold from the ocean's depths is a major justification for the project. And when a witness told the Senators that one dividend of the platform would be the ability to measure how much rainfall there is in the ocean, he was probably quite fortunate to get back nothing more than Allott's incredulous inquiry, "You are not going to run a $45-million platform around the ocean to discover that?"

—D. S. GREENBERG

Wilderness Act: Great Smoky Plan Debated

Some conservationists, noting the efforts of the National Park Service to accommodate the swarms of visitors attracted to the national parks, have been afraid that the service may become engrossed in a numbers game—measuring its success more by the number of visitors who pass through the park gates than by the quality of its stewardship as a protector of natural areas and wildlife. This fear accounted in part for the eagerness of most conservation groups to have the Wilderness Act of 1964 apply to the national parks, which historically have had wilderness protection as an important part of their mission, as well as to the national forests, which are made up primarily of multiple-use areas valued as much for their timber harvests as for their conservation and recreation potential. It is still much too early to judge whether or not the Wilderness Act will in fact provide greater protection for the parks. But one can predict that, because of the act, the Park Service will be pressed as never before to perfect and defend its management planning and philosophy.

In a sense, that philosophy and that planning were on trial at recent hearings on the Park Service's wilderness area proposals for Great Smoky Mountains National Park. The hearings, held 13 and 15 June at Gatlinburg, Tennessee, and Bryson City, North Carolina, on opposite sides of the park, placed in bold relief the conflicting demands that play upon the Park Service. With a few local exceptions, conservation groups were strongly opposed to the Park Service plan, which would place 247,000 acres of the 512,000-acre park in six different "wilderness" areas and have a new transmountain road cross the west end of the park through a wide corridor separating three of the areas. The conservationists supported the plan advanced by the Smoky Mountains Hiking Club, of Knoxville, Tennessee, which would reserve 350,000 acres as wilderness and forbid construction of any new public roads in the park's backcountry. On the other hand, spokesmen for local and state governments and business interests supported the Park Service plan enthusiastically.

Witnesses opposing this plan sometimes spoke sourly of local business and political leaders as people who, for a dollar, would surrender Great Smoky to rushing, mindless hordes of motoring tourists. "Simplicity is a vice only to those who would peddle something expensive to replace it," said one. Proponents of the Park Service plan sometimes let it slip that they regard the conservationists as selfish zealots. "Surely the 95 percent have a right to enjoy that which the five percent would keep locked up," said one. "It reminds me of one religious group petitioning the Lord to keep all the others out of heaven."

In seeking to reconcile the competing claims of the conservationists and those who would open up Great Smoky and other parks to heavier public visitation, the Park Service is at times hiking along trails which lead it knows not whither. Competent observers within the Park Service and the Department of Interior concede that the Service never has built up the scientific research capability which would enable it to foresee more clearly the consequences of important management decisions affecting the parks.

This is well illustrated by the Service's master plan for Great Smoky, which includes the proposed transmountain road as a dominant feature. Investigation of the ecology of the area to be traversed by the road is far from complete, and just what the road's effects would be no one really knows.

The Park Service has emphasized that the government, by a 1943 agreement with local and state authorities in North Carolina, committed itself to build a road around the north shore of Fontana Lake in exchange for a road that was to be flooded by the waters impounded by TVA's Fontana Dam. The transmountain road has been proposed by the Service as an alternative to the lake shore road, which, by slashing across ridges, would require a number of destructive cuts and fills.

According to the Park Service, the transmountain road, by following natural contours along most of its route, would "avoid undue damage to superlative park values" and alleviate severe traffic congestion on highway 441, the existing transmountain road that was built before the national park was established. State and local officials have accepted the Park Service proposal, which still awaits the approval of Secretary of the Interior Stewart L. Udall.

Although some conservationists agree that it would be better to construct the transmountain road than the north shore road, most are as hostile to one as to the other. Indeed, the Park Serv-