after the Findlay committee had made its report. Townes termed the Findlay group "a good committee" and said he expected to rely on its recommendations.

As of this writing, the Findlay committee has not yet met to discuss the reflecting satellite. "Maybe we should work faster on this," Findlay said, "but it's not really an active project. They're a long way from being committed." He reported that he had sent out his initial findings to his committee about the first of December and had received only one or two comments in reply. Findlay said his committee was likely to finish its study within a month, and added that, because of the press and public interest, "maybe we'll have to be a little more formal." The group is scheduled to hold its first meeting to discuss the space mirror in Washington on 6 February. Findlay said his committee would not judge the worth of a reflecting satellite or ask NASA for "all the facts" about such a project but, rather, would attempt to judge its effects on astronomy and other scientific concerns. NASA has cooperated fully in providing all the relevant facts for such a determination, he said.

The Findlay committee was created several years ago to study Project West Ford, in which several hundred million copper needles were orbited as an experiment to establish a jam-free communications network. At the time, astronomers expressed fears, which proved unjustified, that West Ford would interfere with their observations.

Since the initial concern over the space mirror, NASA has apparently been successful in reassuring many astronomers and other scientists. Although recognizing the validity of astronomers' concern about a reflecting satellite, Townes maintains that "NASA is considerate of the needs of astronomers; the national government is not likely to do anything to seriously damage astronomy. Even if it were put up, the 'dish' wouldn't be a serious problem."

Other scientists are more skeptical. William Liller of the Harvard College Observatory said he was worried about the possibility of orbiting space reflectors. Although one satellite might not be especially detrimental to astronomy, he said, the launching of that satellite might have a "foot-in-the-door effect" and increase the possibility that other space reflectors would be orbited.

Edgar Everhart said he was now more concerned about a "proliferation" of satellites than about the orbiting of one particular satellite. He argues that the orbiting of even one satellite would be "using space for warfare purposes," thus violating the intention of the recent space treaty (*Science*, 16 December). Everhart said he is worried that such satellites cannot be serviced in space or brought down and that they thus pose the danger of running out of control and randomly reflecting light onto areas of the world where it is not desired.

"This satellite is such an awful thing for astronomers, it's like thinking about nuclear bombs," Everhart said, "There is a tendency for astronomers to put their heads under blankets, go about their jobs, and not think about it."

One of the astronomers who has communicated his concern to NASA, G. C. McVittie of the University of Illinois, said that one reason he asked for an explanation is his expectation that American astronomers will be beseiged with critical questions about the reflecting satellite from foreign colleagues. Such a confrontation could take place when the International Astronomical Union meets at Prague in August. McVittie said that several astronomers were assured in late December by Henry Smith, deputy director for NASA's physics and astronomy programs, that their observations would not be adversely affected by the orbiting of a space mirror.

NASA maintains that there has been no decision to begin any kind of final study on a reflecting satellite project. But such assurance does not guarantee that a space mirror will not be eventually orbited by the United States. Townes said that a reflecting satellite should not be ruled out and that it might be launched "fairly rapidly" once the decision was made.

A space mirror might be tempting at any time, but the Vietnam war could provide special impetus to the project. Astronomers and other scientists will be paying special attention to NASA and the Department of Defense to determine whether they detect the first glimmerings of a new kind of earth-circling object.—BRYCE NELSON

Oceanography: Will LBJ's New Study Panel Make Its Mark?

Six months ago Congress, trying to gain initiative in influencing government policy in oceanography, passed the Marine Resources and Engineering Development Act of 1966 (*Science*, 10 June 1966). President Johnson, despite some sentiment among his advisers that he should veto the measure, signed it. However, it was not until last week that the President appointed the study commission for which the act provides. The commission will be a companion body to the marine council, made up of cabinet members or their representatives, established by the act as a temporary group to advise the President on oceanographic policy. The commission's performance may provide an interesting, if inconclusive, test of the usefulness of such study panels.

The commission's responsibility is to recommend an "adequate national marine science program" and an appropriate government organizational structure to carry it out. In fact, the commission is expected to recommend the establishment of a new agency to give greater focus and impetus to nonmilitary marine science activities.

The new 15-member body is chaired by Julius A. Stratton, chairman of the Ford Foundation and former president of the Massachusetts Institute of Technology. Stratton had no voice in the selection of the other members. Just a few days before the commission's membership was announced he was persuaded by Vice President Humphrey, chairman of the Marine Council, to take the chairmanship. On the commission, in addition to Stratton and a few other university scientists, are two lawyers (including a professor of international law), a professor of economics, three federal officials, a director of state fisheries, and four businessmen.

One of the latter, George Reedy, head of a small research and development firm in Washington, was Johnson's first and perhaps most harried press secretary. A long-time friend and associate of the President, Reedy possibly will give the commission an informal line of communication to Johnson. Four members of Congress, including the chief sponsors of the marine act, Senator Warren G. Magnuson (D–Wash.) and Representative Alton Lennon (D–N.C.) will sit on the commission as advisory members.

For most, if not all, of the commission members* oceanography is not a new interest. For example, John H. Perry, besides being a Florida publisher, is a manufacturer of small submarines. James Crutchfield, University of Washington economist, is a co-author of a sharply critical analysis of the National Academy of Sciences' 1964 report "Economic Benefits from Oceanographic Research."

Some of oceanography's "old hands"—leading scientific and technical people who in the past have figured prominently in public discussion of marine science and technology—appear skeptical about the commission's chances of making a large and significant contribution to the shaping of the government oceanographic establishment. It seems, in fact, impossible to avoid the conclusion that the commission runs a risk of being not much more than a minor advisory appendage to the marine council. The council, or at least its chairman and staff, had a major part in screening prospective commission members. Moreover, it will be through the council that the commission's report is transmitted to the President. The council, served by a professional staff of 13, began its work in August and now has a half-year head start on the commission. Catching up may not be easy inasmuch as the commission, with a professional staff of only three, expects to meet just two days a month during the 18-month period allowed it by law for its work. The commission will share quarters with the council and will work with it intimately.

Among the old hands there is concern that the highest level of expertise in ocean science and engineering is not adequately represented on the commission, even though its chairman is a physicist and academic administrator of distinction and its other members are people of achievement. From this viewpoint, the commission study would promise greater results if, through a better selection of members, it were linked more closely to previous study efforts, such as that completed last year by the President's Science Advisory Committee's oceanography panel (*Science*, 22 July 1966). The PSAC panel, chaired by Gordon J. F. MacDonald, U.C.L.A. physicist now on leave to serve as vice president for research at the Institute for Defense Analyses, recommended the establishment of a new environmental science agency which would administer most of the government's nonmilitary activities in oceanography.

The Stratton commission will seek the advice of scientists, such as MacDonald, who have pondered the question of the government's responsibilities and opportunities in marine science and engineering, and of leading oceanographers at universities and at institutions such as Scripps and Woods Hole. "It may take them 18 months just to educate themselves," one of oceanography's elder statesmen observes, however. "I think they're going to have an awfully hard time."

Within the administration the commission is extolled as a new group free of bias and precommitments. Indeed, the omission of the old hands is conspicuous enough for some to surmise that it was deliberate. But the chief considerations underlying the makeup of the new body appear to have been a desire for geographic balance and, especially, the necessity of meeting Congress's requirement that academic, industrial, and governmental (both state and federal) circles all be represented. It was felt, morever, that the academicians appointed should be drawn not just from science and engineering but also from other relevant disciplines, such as law and economics.

However the commission performs, the President is likely to need some competent advice, other than that which Humphrey's council will provide, on the question of the most appropriate governmental structure for oceanography. The new agency envisaged by the PSAC panel would represent mainly a pulling together of the Commerce Department's Environmental Science Services Administration (ESSA) and the Interior Department's Geological Survey, Bureau of Commercial Fisheries, and Bureau of Mines. Proposals of this kind (for which the President's as yet not fully disclosed plan to merge the Commerce and Labor departments possibly will have important implications) automatically stir bureaucratic rivalries. No doubt the President would find it helpful to have the views of a qualified panel made up largely of nonbureaucrats.

Some 18 months hence one perhaps will learn whether the Stratton commission has risen to the challenge or has simply confirmed the cynical view that the true role of government advisory bodies is to support whatever views are arrived at by those responsible for their appointment.

—LUTHER J. CARTER

*Members are Julius A. Stratton (chairman), chairman of the Ford Foundation; Richard A. Geyer (vice chairman), head of the oceanography department, Texas A & M; David Adams, chief of commercial and sports fisheries, State of North Carolina; John H. Perry, of Palm Springs, Florida, president of Perry Publications in Florida; Taylor Pryor, founder of Hawaii Oceanic Foundation; Jacob Blaustein, of Baltimore, a co-founder of the American Oil Company and a former U.S. delegate to the United Nations; James Crutchfield, University of Washington economics professor; Leon Jaworski, a Houston, Texas, attorney; John A. Knauss, director of the Narragansett Marine Laboratory at the University of Rhode Island; George Reedy, former presidential press secretary and now president of Struthers Research and Development Corporation of Washington, D.C.; Carl Auerbach, professor of international law, University of Minnesota; George H. Sullivan, director of life sciences for the Northrop Corporation in California; Robert H. B. Baldwin, Undersecretary of the Navy; Frank C. Diluzio, Assistant Secretary of Interior for water pollution control; and Robert M. White, administrator of the Environmental Science Services Administration. Four members of Congress will serve as advisory members: Senators Warren G. Magnuson of Washington and Norris Cotton of New Hampshire, and Representatives Alton Lennon of North Carolina and Charles A. Mosher of Ohio.

Announcements

The four schools that comprise Joint Oceanographic Institutions Deep Earth Sampling (JOIDES) invite planning advice for a **deep drilling program** scheduled to start early in 1968. The project is designed to obtain samples of earth sediment and shallow core at depths ranging to 20,000 feet in the Atlantic and Pacific. Data and materials produced will be available to scientists, providing that their studies are published promptly. The project will be conducted under an 18-month contract from the National Science Foundation to the Scripps Institution of Oceanography, operator for JOIDES; the other sponsoring institutions are the Institute of Marine Science, University of Miami; Lamont Geological Observatory, Columbia University; and Woods Hole Oceanographic Institution. Additional information is available from the executive secretary of JOIDES, J. H. Stanbrough, Jr., of Woods Hole.