plain that their appeals for help have generally gone unheeded in the PHS and the Department. The situation is said to be somewhat improved since Anthony J. Celebrezze succeeded Abraham J. Ribicoff as HEW secretary, but NIH is not expecting to attain salvation through the good offices of its departmental superiors. "They are concerned that we are in trouble," one NIH official commented recently, "but that's because trouble is a nuisance, and they're for peace at any price."

As a result, whatever is going to be done politically for NIH will in large part have to be done by NIH itself, but, unless the preparations have been exceedingly well cloaked, it seems that nothing much is in the works. Not only is it difficult to find many congressmen who have even a vague notion of what NIH is doing, but it is also difficult to see any effort by NIH to tell its story to the general public. NIH is extremely cooperative with writers who come its way looking for information about medical research, but, in its usually demure fashion, it makes little effort to initiate contact with the public through the press. It does not have to emulate the space agency's practice of deluging the press with news releases every time an astronaut is fitted for a new helmet, but again, within the boundaries of good taste, it could legitimately tell the nation about the useful and interesting work that it is doing. One measure of its failure to do this is that it is a rare layman who knows what "NIH" stands for; at the same time, it is a rare one who doesn't know what "NASA" stands for, although it would not be difficult to make the case that of the two, NIH is the more deserving of the public's gratitude.

Press Activities

Some of this reserve undoubtedly arises from the fact that parts of the press have an appetite for "scientific breakthroughs" and a reluctance for letting the details get in the way of a good story. Many scientists have had their fingers burned and their reputations clouded by fantastic popularized accounts of their work. As a result, there is a tendency to keep the press—which means the public—away from many research activities. Unquestionably, there are grounds for wariness, but the quality of science writing is changing a lot faster than many scientists seem to realize. Many newspapers and magazines are now staffed with well-trained, responsible science writers who can be trusted to present an accurate and interesting description of what is going on in the laboratory. The apparent failure to recognize this is another measure of NIH's poor approach to communicating with the public that is footing the bill. NIH responds when it is asked for information, but it seems to think that there is something unsavory or dangerous about going out and blowing its horn. A more reasonable proposition, however, is that in the current competition for national support, silence is the most hazardous choice.—D. S. GREENBERG

Scientists on Space: Senate Group Hears Criticism and Support for Manned Lunar Landing Program

The Senate Aeronautical and Space Sciences Committee served as a forum this week for what was probably the freest and most far-reaching public discussion to date of the scientific community's attitude toward the space program.

In large part, the hearings originated from concern over anti-space rumblings among scientists and the determination of the committee's new chairman, Clinton Anderson (D.–N. M.), to give the committee a more effective role in space policy deliberations. Under its late chairman, Robert Kerr (D.–Okla.), the committee was never accused of raising any hard questions about NASA.

The most biting attacks on the lunar landing program were raised by Philip H. Abelson, editor of *Science*, and Polykarp Kusch, chairman of the Columbia University physics department.

While agreeing that a manned lunar landing should eventually be carried out, Abelson argued that "most of the important scientific questions concerning the moon and other planets could be studied soon at relatively low cost employing unmanned vehicles." Furthermore, he said, while it is claimed that "vast frontiers of knowledge" will be opened by putting a man in space, "no one has delineated any impressive body of questions which are to be studied."

"Making man a part of the scientific exploration of space has two important drawbacks," he continued. "It increases costs and it will probably slow down, at least for some years, the pace of getting valuable results. . . . Our recent Mariner II probe to Venus cost a few tens of millions. To send man on a comparable mission might cost a hundred billion dollars and could not be done for years."

Abelson also raised questions about the emphasis that NASA is placing on scientific research. "One of the most puzzling aspects of the NASA Program," he said, "is the continued failure to land electronic equipment on the moon. After a trajectory of more than 100 million miles, Mariner II scored a fine success in exploring Venus. Why can't we hit the moon, which is comparatively in our own backyard? Why was there insufficient backup of the five Ranger vehicles which failed? I have the feeling," he added, "that scientific exploration of the moon has been accorded a low priority, that the Apollo program is distorting scientific priorities and at least indirectly slowing progress."

Kusch, too, said that manned space exploration is a legitimate eventual goal, but he questioned the high priority that has been assigned to landing men on the moon and returning them in this decade. And he suggested that earthly needs, "the preservation and repair of our continent," might be a more appropriate goal for a national effort on the scale of the moon landing.

"I do not think that the present space exploration effort can be justified on the grounds that it will have a visible effect on the lives of people other than through the pride they may feel in its achievement or the vicarious sense of adventure that they may experience."

"It is my belief," he continued, "that the present space program attempts too much too fast. There is not enough time for profound thought, for imagination to play over the demanding problems that occur. . . . I find it difficult to believe that the exploration of space is a more compelling goal than the exploration of the planet that we inhabit. My very real sympathy for the space program does not extend to a belief that it should be the overriding national effort at this time."

Speaking in support of the present space effort, Simon Ramo, vice chairman of the board of directors of Thompson Ramo Wooldridge, Inc., argued that the nation has the resources to support a large space program and that, in the context of the cold war, it cannot afford to drop

behind. He warned, however, that the requirements for the space program should be carefully measured against other national needs, and that adjustments should be made when necessary.

"A manned space program," he said, "is much more expensive than one without the man. His presence scales up everything, the industrial base, the facilities, the nature of the apparatus, the number of tests to be performed. We should therefore slow down the program and go back to easier, smaller steps without the man if we find that we cannot afford to have a manned program and at the same time do the other things important to our security and national growth. Today it appears we can do all these things, but we should keep a calm watch, and if we find in the future that we have grossly underestimated the requirements, we should not hesitate to review the matter."

In defense of the manned program, Ramo said that "the addition of a human passenger and observer to a total space program is a necessary ingredient. . . . How can we justify a large national space research program whose true objective is scientific discovery across all the spectrum of science if we are going to leave out the life sciences. . . . A space program without a man has much less useful prestige appeal, and it is especially useless to us for prestige purposes if the Russians have already succeeded in making manned space flight the center attraction of the Science Olympics."

Support for the space effort was also expressed by Harry H. Hess, chairman of the space science board of the National Academy of Science. Hess argued that the manned aspects of the space program helped assure public interest and support. ("Remove the goal which appeals to the public and the appropriations go with it.") But he also argued that man has a place in space, not simply to arouse public interest, but to function as a scientific observer: "man can look around and at a glance pick the significant item or anomaly from among the tens of thousands of items which might be examined. In missions far beyond the moon, the need for manned operations increases so that manned lunar landing becomes the training and development ground for later solar system exploration."

Turning to the military implications of space, Hess said that these now appear to be insignificant. "Nevertheless," he said, "we cannot, without grave risk, afford to let others develop parallel capability against the unforeseen needs of the future. Obviously we cannot wait until a crisis arises because we probably cannot meet this type of emergency by a crash program."

Testimony was also given by Lloyd V. Berkner, Lee DuBridge, C. S. Pittendrigh, Martin Schwarzschild, Frederick Seitz, and Harold Urey. Printed transcripts of the hearing will be available, probably next month. They may be obtained without charge by writing to the Aeronautics and Space Sciences Committee, U. S. Senate, Washington 25, D. C.—D.S.G.

Tobacco and Health: Governmental Action Seems Unlikely until PHS Concludes Long, Two-Phase Study

A number of Senators last week sang the evils of tobacco and recommended federal action to discourage cigarette smoking. But, at the governmental level, the tobacco issue is likely to remain frozen until completion of what the Public Health Service expects to be the definitive study on smoking and health (*Science,* 2 November 1962).

The study, which got under way last fall, was initiated by the Administration when it found itself caught between a variety of organizations and individuals demanding restrictions on tobacco and tobacco-state congressmen demanding hands off. In such a spot, the tactical handbook calls for a study, preferably a long one, and the Administration accordingly convened a study, with ground rules designed to forestall any charges of partiality Excluded from the study were "scientists who have already taken a strong public position pro or con" (on the tobacco-health issue). In addition, those who were to be placed on the study committee had to be acceptable to representatives of interested federal agencies, voluntary health organizations, and the tobacco industry. Thus, the committee is beyond reproach, but its very existence has had the effect of dampening the tobacco issue in favor of the status quo, since those who hold that tobacco is not detrimental to health can reasonably demand that government action be withheld pending completion of the study.

Just when that will be is not clear, although the committee is reported to be hard at work, with the intention of producing a report that will be scientifically invulnerable. The first phase of the study is devoted to "a comprehensive review of all available data on smoking and other factors in the environment that may affect health." It was originally scheduled for completion this summer, but now the PHS will only say that the report will be completed "before the end of the year."

When it is completed, the PHS will turn to the second phase, which will deal with "recommendations for action." Deadlines, dates, and personnel for that part of the study are not even being discussed.

The Senate attack on tobacco was led by Frank E. Moss (D.–Utah), who proposed that the Food and Drug Administration be given jurisdiction over tobacco products, along with its present jurisdiction over foods, drugs, and cosmetics. The effect of this change would be to give FDA the authority to require warning notices on cigarette packages, something that government lawyers say is not possible now, since tobacco falls into a jurisdictional no-man's-land between FDA and the Federal Trade Commission. If FDA had the jurisdiction, it is argued, it could require cigarette manufacturers to label their products with such sales-promoting notices as "excessive use may cause death."

It has been contended that the FTC, with its power to regulate advertising claims, could require such notices at present. But the FTC wants the PHS to furnish it with an unequivocal pronouncement on tobacco's health hazards before it enters the legal battle that is sure to follow any attempt to discourage cigarette consumption. In any case, nothing much is going to happen until the PHS study is completed.

—D.S.G.

Congress: "Session of Reckoning" on Civil Rights Affects Prospects of New Vocational Education Bill

In Congress, and particularly in the House of Representatives, the legislative process can be likened to the operation of a venerable machine constructed of a maze of levers and gears, big wheels, cogs and counterweights—and a few cranks—which cannot be fully controlled or even diagrammed. Votes on the floor and more especially in committee are influenced not only by party and regional loyalties and the