

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