the White House Office of Science and Technology, in cooperation with the President's Science Advisory Committee and the Federal Council on Science and Technology, has become a coordinating point and a clearing house for federal relations with science. Virtually all proposals involving federal support of scientific activities pass through these channels en route to the Bureau of the Budget. Where it is felt that there are gaps in existing programs, the advisory bodies exercise the power of initiative. For example, the fellowship proposals that have been incorporated into the federal budget originated with a PSAC panel that was called together to examine future supply and demand for scientific manpower; the question of which federal agency is responsible for what in monitoring radioactive fallout was adjudicated at the White House advisory level; similarly, the burgeoning oceanography program, with its multi-agency participation, has been subjected to scrutiny by these advisers. Sometimes the issues are trivial, and sometimes they are of major significance; sometimes the White House influence is decisive, and sometimes it has no visible effect, as was the case when the Office of Science and Technology argued for employing an earth rather than a lunar orbit technique in NASA's moon-landing program. OST contended that, since the military potential for space appears to be in the near-earth regions, an earth orbit in the lunar program would help develop techniques that could be adapted for military purposes. That was the "big picture" approach to management of scientific resources. NASA simply argued that it's cheaper and faster to employ a lunar orbit. Ultimately NASA won.

Well-established agencies, with close ties to Capitol Hill, are not always inclined to share the "big picture" approach of the White House. Nevertheless, on a broad range of issues, from fish flour to the supersonic transport, the executive branch has taken effective steps to make certain that left and right hands are in close communication as they shape scientific policy. However, Congress, for a variety of real and manufactured reasons, has not remotely begun to move in the same direction. Its apparatus for dealing with science is pretty much unchanged from the days when the federal R&D budget would not have covered the electric bill at Oak Ridge.

Perhaps the most significant thing about the federal involvement with science is that, with few exceptions, the government has reached into the scientific community for advice on what to support and how to support it. The result is that, until recently, the scientific community—through a grand complex of advisory bodies—has written the rule book, particularly on the now controversial issue of accountability for research funds. However, as the science budget has grown, so has congressional concern over whether the country is getting what it's paying for. It isn't enough for the scientific community to answer that research is essentially an uncertain, unavoidably wasteful process that defies the cost-accounting techniques developed for nuts-and-bolts contractors. The Congress is unhappy—hence the current dispute over NIH's accounting practices—and, in matters of this sort, it is able to turn its unhappiness into concrete regulations. In the matter of education and other facets of science, the easy course for the scientific community is to wail and moan about congressional inadequacy for judging these issues. The difficult, but more productive, course would be for the scientific community to collect its evidence and state its case. Fortunately, the National Academy of Sciences, through its Committee on Science and Public Policy, is moving in this direction. If it fulfills its aspirations, both science and government are likely to be better off for its efforts.—D. S. GREENBERG

Civil Defense: Make Haste Slowly Is Watchword of Current Strategy on Fallout Shelter Program

The sight of a dozen congressmen changing their minds on the basis of evidence is a newsworthy event in itself, and when the subject at hand is one as riddled with technical uncertainties and political difficulties as civil defense, the event is more notable still. The unanimous decision of a House Armed Services subcommittee to support the Administration's request for an expanded fallout shelter program is remarkable in many ways, for 6 weeks ago, when the subcommittee opened its hearings, prospects for the program looked exceedingly dim.

Part of the negative atmosphere in which the hearings opened was planned. Because the proposed program would involve the government for the first time in the actual construction of fallout shelters in buildings that would require modification to provide them (the present program is limited to marking and stocking spaces in buildings that offer suitable shelter without special construction), a new authorization from Congress is needed. The Armed Services Committee and the Office of Civil Defense were agreed that civil defense had been battered about by Congress long enough without receiving much policy guidance from it, and that a broad review which candidly faced all the technical, strategic, and moral questions that the program has encountered would do much to reduce both congressional and public confusion. Accordingly, the subcommittee counsel, Philip Kelleher, became the devil's advocate, and the hearings opened with an exhaustive document detailing —with some conviction—the charges against civil defense. Kelleher's report served as the target for rebuttal by Assistant Secretary of Defense Steuart Pittman and the scores of scientific, political, religious, labor, business, and other leaders assembled to testify on behalf of the shelter program.

That far, at least, the hostility to the shelter program that appeared to dominate the early days of the hearings was planned. But it was also in part accidental, in that the hearings began at precisely the moment when the city of Portland, Oregon, chose to end its participation in the government program altogether—a move which set off a wave of speculation about grassroots alienation from policies made in Washington. And the hostility was in part instinctive, since the dozen members of the subcommittee shared with many of their fellow congressmen the feeling that civil defense was something of a boondoggle psychologically as well as, perhaps, financially.

On point after point, however, as the hearings progressed, the subcommittee found itself being persuaded that the proposed program was neither morally invidious nor psychologically damaging; that since it offered fallout, rather than blast, protection it would probably not force any changes in Soviet military strategy; and that it would not make our allies (who recently agreed in a NATO resolution that fallout protection offers reasonable opportunities for saving lives and should be encouraged) feel insecure about America's intention to protect them. Instead, the subcommittee, apparently to its own surprise, concurred

in estimates made by the Department of Defense that a nationwide fallout shelter system might save between "25 and 65 million people in a wide range of hypothetical nuclear attacks," and it found itself, in the words of its chairman, Edward Hébert (D.-La.) unwilling to "play God" or to "pass judgment on the lives of tens of millions of people."

Despite the Armed Services subcommittee's change of heart, the administration's new shelter program is still in the thick of the congressional forest and will not have an easy time finding its way out. The subcommittee's decision is important because the members are resolved to fight for it and because this is the first time civil defense has had such a cadre of informed congressional supporters. But even assuming that the subcommittee's influence, plus the administration's entreaties, leads to approval of the new authorization by the House and Senate, the way out of the maze of authorizing committees leads right to another maze of appropriations committees in both Houses.

Appropriations committees do not always act as if they were members of the same body that authorized particular expenditures, and this is especially true of civil defense in the House. Civil defense appropriations are doled out, not by the subcommittee that has jurisdiction over the armed services (although under Kennedy the Office of Civil Defense became part of the operations of the Pentagon), but by a subcommittee that deals with independent agencies. The chairman of that subcommittee, Representative Albert Thomas (D.–Tex.) is no friend of shelter construction. Only 3 months ago, as chairman of another appropriations subcommittee, he presided over the rejection of a supplemental budget request that would have enabled the Office of Civil Defense to continue, without interruption, its present program of stocking shelters. Between the House and the Senate the supplemental request for $61.9 million got whittled down to $15 million, and this put a crimp in civil defense activities. The difference, about $46 million, has been added to the administration's current request, which now is $346.7 million.

Thus, though the support of the Armed Services subcommittee gives civil defense something of a boost, it is not quite the same as having money in the pocket, and whether the appropriations subcommittee will find itself converted to civil defense is a matter of serious doubt. Of the $346.7 million requested, about $149 million is for civil defense programs already in operation. Of the rest, the major portion, $175 million, is for the new program of shelter-development (*Science*, 7 June), under which the government would assist communities in adding shelter spaces to existing buildings and buildings under construction. An estimated 10 million shelter spaces would be produced this year under the program, in addition to the 70 million that the present effort has produced. The remainder of the request, about $22 million, is in some ways the keystone of the program, for it is to be used to add shelter space to federal buildings, and civil defense officials feel that a clear demonstration of federal leadership will do a great deal to stimulate what has often seemed a lagging public interest in civil defense. Money was appropriated for shelters in government buildings last year, but a question arose as to whether such construction was legal and work was never begun. The new authorization would remove all doubts about legality; whether federal buildings will actually get their shelters depends on whether the appropriation follows.

The motto of the new civil defense program, as Secretary Pittman described it to the Armed Services subcommittee, can be summed up as "walk before we run." Civil defense is no longer to be the subject of "scare" speeches during international crises, as it was during the Berlin crisis in the summer of 1961, and it is not to be developed under a crash program such as the administration wanted to initiate last year. The new strategy is to take one step at a time, to keep pace with congressional and public sentiment. This year's program is designed to slide into a more extensive one (a fact that has not escaped the subcommittee's attention), but it will not automatically do so unless sanctioned by Congress. At the same time, under another provision of the current proposal, civil defense activities will be merged to some degree with existing state and community disaster relief programs, in a clear attempt to transfer fallout from a unique to a more general category of disaster. In sum, the administration's hope is that, as civil defense grows and becomes more flexible organizationally, it will also become more palatable emotionally.

—ELINOR LANGER

Announcements

Graham Phillips DuShane, 52; dean of graduate sciences at Vanderbilt University and former editor of *Science*, July 19.

Dr. DuShane last summer assumed the newly created administrative post at Vanderbilt, in which he was responsible for graduate research in the natural sciences, engineering, and medicine. He also served as head of the department of biology.

He became editor of *Science* and the *Scientific Monthly* in early 1956. The two publications were combined in 1958, and under his editorship circulation of *Science* increased sharply. Among the innovations he made was the introduction of articles reviewing current research in various fields.

A native of South Bend, Indiana, he was graduated from Wabash College in 1930 and received his doctorate from Yale in 1934. From 1936 to 1946 he taught at the University of Chicago and for the decade following was professor of biology at Stanford. He was recognized for his work in amphibian morphology, and at Stanford he is remembered for effective service on faculty committees on educational planning and curriculum.

He was a member of the American Society of Zoologists and the American Association of Anatomists and served on the advisory council of the American Cancer Society. He was a consultant to the life sciences panel of the President's Science Advisory Committee. A fellow of the AAAS, Dr. DuShane was en route to a meeting in Palo Alto of the association's commission on science education when he was stricken fatally with a heart attack in Los Angeles.

Investigators at the National Institutes of Health are requesting physicians' help in projects involving craniofacial malformations in infants and endocrine disorders. Scientists studying congenital **malformations of the mouth and pharynx** associated with respiration and feeding difficulty need young infants with Pierre Robin syndrome and hypoplasia of the mandible, ptosis of the tongue, and cleft palate. They also need cleft palate patients, aged 7 to 12; open bite patients aged 10 to 15; and children with micrognathia, early prognathism, and some types of facial asymmetries. Physicians and dentists who have patients suitable for these studies