

with jurisdiction in scientific affairs. And the panel is only one of the influences on the committee. Nevertheless, it is an effective means for exposing Congress to some of the thinking that is rumbling through the scientific community, and it contributes—but in no way that can be measured—to the potpourri that ultimately results in public laws and expenditures.

The dissent from the administration's plan was offered by W. Albert Noyes, Jr., professor of chemistry at the University of Rochester, in a paper on problems in graduate science education.

Addressing himself to the administration proposal which, in part, calls for increasing the number of Ph.D.'s by substantially enlarging the number of fellowships, Noyes said:

1) "... many of us who have taught undergraduates have a strong feeling that since the war the vast majority of undergraduates qualified to be graduate students go to graduate school."

2) "... since the war there have been far more assistantships and fellowships than there have been competent people to fill them."

3) "Doubling stipends might somewhat increase the number of people who try to get advanced degrees, but on the other hand, it is extremely doubtful whether this procedure would attract any more good students to graduate work in science."

4) "It is doubtful whether attracting a large number of people into science for pecuniary motives would improve science as much as it might seem to. ... I do not wish for a moment to stand up for poor salaries for scientists. On the other hand, great artists, great writers and great research people are not born every day and those who do have great talent and a true love for their work will be hard to discourage."

Noyes added that an increase in Ph.D. candidates will inevitably come out of the expanding college-age population, but to achieve a rapid increase, he recommended encouraging more women to pursue graduate studies; he also suggested that a revision of engineering curricula would inspire more engineers to seek doctorates. However, to achieve a long-term increase, he said, it would be more fruitful to invest in the lower levels of education to make sure that college freshmen have been properly prepared for the undergraduate studies that will qualify them for graduate training.

Administration officials withheld pub-

lic comment on Noyes's remarks, but privately suggested that their proposals have been misread.

They contended, for example, that if financial barriers are removed, the graduate-training time of many part-time students could be substantially reduced, and that, while no thorough studies are available, it is safe to assume that financial problems keep many qualified students from predoctoral studies. They also indicated that they have little regard for the view—expressed by several panel members—that hardship is a beneficial experience.

Noyes's colleagues on the panel seemed to be fairly evenly divided on his views about the immediate impact of the presidential proposals, but they generally agreed that whatever the answer to the manpower problem may be, it will inevitably have to include substantially larger investments in education at the elementary and secondary levels.

Roger Revelle, science adviser to the Secretary of the Interior, said, for example, that he doubted that all qualified and interested undergraduates are now financially able to go on to graduate training in the sciences. "I don't think we are scraping the bottom of the barrel," he said.

On the other hand, Harrison S. Brown, California Institute of Technology, said he shared Noyes's doubts that an expansion of fellowships would draw forth increased numbers of qualified students.

A complete transcript of the panel's discussion is expected to be available in about a month, under the title "Proceedings of the Fifth Panel on Science and Technology." It may be obtained without charge from the House Science and Astronautics Committee, House of Representatives, Washington 25.

In addition to Noyes, Brown, and Revelle, the panel members are Edward J. Baldes, Mayo Clinic; Lee A. DuBridge, California Institute of Technology; Clifford C. Furnas, University of Buffalo; Martin Goland, Southwest Research Institute; Walter J. Hesse, Ling-Temco-Vought; Thomas F. Malone, Travelers Insurance Companies; Clarence P. Oliver, University of Texas; Sverre Petterssen, University of Chicago; Richard J. Russell, Louisiana Coastal Studies Institute; H. Guyford Stever, Massachusetts Institute of Technology; James A. Van Allen, State University of Iowa; Fred L. Whipple, Smithsonian Astrophysical Observatory;

and Maurice J. Zucrow, Purdue University. Harold C. Urey, University of California, San Diego, and Charles H. Townes, Massachusetts Institute of Technology, participated as moderators.
—D.S.G.

Radio Astronomy: TV's Rush for UHF Threatens Use of Channel

Last year Congress passed a bill that required all television manufacturers to equip their sets for the ultra-high frequency band (470–890 Mc/sec). The bill has proved to be a boon for commercial broadcasters, who previously shied away from UHF because it had virtually no audience. But now the commercial rush to fill the UHF band raises a serious problem for radio astronomy, which has found one of the frequencies (channels 608–614 Mc/sec) useful for a broad range of purposes.

The conflict is coming to a head over four commercial applications, now pending before the Federal Communications Commission, for broadcasting on channel 37 in Paterson, N.J. When similar situations have arisen in other sections of the country, the FCC has been able to rearrange its regional frequency allocations to avoid interference with the astronomers' equipment. But in the Paterson case it has indicated informally that there is no possibility of making other frequencies available to preserve channel 37 for radio astronomy.

On the basis of an international agreement to which the U.S. is a signatory, Western European nations have agreed to keep channel 37 clear for radio astronomy.

However, the treaty provision that led them to this arrangement is merely a suggestion, and is not binding on the United States.

In seeking protection for the frequency, a number of radio astronomers have appealed to the White House and the National Academy of Sciences. The prospects for their cause, however, do not appear to be particularly bright.

Under the Kennedy Administration the FCC has tended to be more responsive to the White House's desires, but it is still an independent agency with closer ties to Congress than to the Executive. And though radio astronomy may be one of the exciting frontiers of science, its total constituency probably couldn't swing the balance in one Paterson ward.—D.S.G.