

kill not only scholarships but the whole bill weakens the position of those opposed to scholarships; they would lose the votes of an uncertain number of fence-sitters who do not oppose scholarships strongly enough to take the chance of voting against them if doing so involved even a small risk of their being blamed for killing the whole bill.

The compromise is not a bad one for the Administration supporters: it slightly lessens the chance of their getting the scholarship provision into the final bill, but the chances were pretty slim anyway; on the other side, it does assure that there will be a roll-call vote on scholarships, which, whether it carries or not, might provide the Administration with useful material for the fall campaign.

Meanwhile, it is not at all clear yet whether the Senate will accept the grants now included in the House bill, particularly in view of the probable refusal of the House to accept the scholarships in the Senate bill. A good deal will depend on how important the religious issue becomes. Under the House bill, the construction grants would be available to all colleges, public and private, and there is a good deal of opposition to this as a violation, or possible violation (there are no clear Supreme Court precedents for judging this point), of the separation of church and state.

#### **Drug Reform**

All of the problems of the education bills are pretty much in the routine of getting controversial legislation through Congress. Senator Kefauver's drug reform bill, though, has gotten itself into a more unusual kind of situation. The subject of the Kefauver bill, regulation of the drug industry, would normally be the concern of Senator Hill's committee on Labor and Public Welfare. Kefauver is chairman of the Antitrust and Monopoly subcommittee of the Judiciary Committee. Having completed a long series of hearings on possible abuses of economic power in the drug industry, his committee was permitted to write a bill based on his findings, even though the bulk of the bill has only an indirect bearing on questions of antitrust and monopoly.

The Administration would like a bill that applies to the drug industry generally—that is, to patent medicines, vitamins, and such, as well as to prescription drugs. The most important

of the provisions the Administration wants is one to require proof of efficacy as well as the presently required proof of safety for drugs placed on the market. Kefauver has such a provision in his bill, but until very recently he and his staff had been giving the impression that the language was intended to apply only to prescription drugs, apparently because they wanted to avoid being accused of going beyond their already tenuously expanded jurisdiction. The Administration, though, announced itself well satisfied with Kefauver's wording, on the grounds that, whatever the bill's intended meaning, in fact it clearly applied to all drugs, not just prescription drugs, and that if it was enacted into law it would give the Food and Drug Administration the powers it was seeking.

Now Kefauver concedes that the provision means what it says, but this leaves something of a mystery about:

1) Why Kefauver encouraged a contrary impression until the Administration position forced the issue into the open.

2) Why the Republicans on the committee, generally critical of Kefauver's handling of the hearings, never forced the question into the open.

3) Why the manufacturers of non-prescription drugs never forced the question into the open.

For Kefauver, the main reason apparently was, as suggested above, that he did not want to get overtly into an area which does not even have a remote bearing on the problems of antitrust and monopoly his subcommittee is authorized to study. For the Republicans, apparently they simply felt that nothing useful would be accomplished by pressing the point, while allowing it to lie quietly would strengthen their hand when they came to demand, as they very probably will, that the bill be sent to the Labor and Public Welfare Committee for further study before it is put to a final vote on the floor of the Senate. The Republicans on the subcommittee have made it clear that they feel Kefauver's whole procedure and the bill he has produced are unsound in many ways, and this contention, of course, is strengthened by the fact that provisions exist that would profoundly affect the nonprescription drug industry even though Kefauver never bothered to hear any testimony on what the provisions would mean either for the affected industry or for the public.

The industry seems to have kept

quiet for much the same reasons, augmented by the obvious fact that they would be hard put to oppose the efficacy provision, even though it could easily have very unpleasant effects on companies selling medicines directly to the public. After all, after the prescription drug industry had accepted the efficacy provision, even though its drugs can be taken only under the supervision of a licensed physician, it became awfully difficult for the patent medicine people to argue that drugs sold directly to the untrained public should not be at least as strictly supervised.

#### **Explanations to Come**

So on all sides there has been almost a conspiracy of silence of the subject, and it is going to be amusing to see how everyone explains himself when the bill comes out of the judiciary committee and into open debate on the floor of the Senate.

The abundance of complications, meanwhile, raises a serious doubt over whether there is time to get a bill through the current session. What might possibly save the bill is that a number of the proposed reforms have very wide support and will produce easily explainable benefits for the public, so making the bill a particularly attractive one to push in an election year.—HOWARD MARGOLIS

#### **Fellowship Jungle: NASA Arrives on Graduate Science Scene; Hearings Due on Technical School Bill**

The Administration is putting some thought into the development of "guidelines" for the great variety of graduate science and engineering fellowships offered by federal agencies.

Among the President's science advisers there has been concern for some time over the haphazard growth of federal activities in this field. The concern was heightened last week when the National Aeronautics and Space Administration announced its first venture into direct support of science and engineering education, a trial program of \$2 million in fellowships for 100 predoctoral students at ten universities. The program, which NASA said will be "considerably increased" after the initial results are evaluated, is the agency's own creation, set up to help NASA meet its massive needs for highly specialized manpower. Under the prevailing practice, NASA did not have to

consult with the White House or other agencies when it decided to do something about its manpower problems, nor did it have to take into consideration the complexities involved in working out some balance between the professional inclinations of students and the nation's overall scientific and engineering manpower needs.

The White House science advisers readily concede that NASA has legitimate grounds for concern when it compares the availability of manpower with its requirements, and, on balance, they feel that more money for education is preferable to less. What is motivating the interest in guidelines is the scramble among federal agencies for the fairly limited number of students qualified for graduate science and engineering programs. In a context of free choice, it is at best a difficult matter to steer students into fields where a need is expected to exist, but out and out competition among agencies concerned only with their own needs works against whatever rationality can be brought into the system.

In addition, there is concern about the dilution of quality as more money becomes available to expand the programs. Most of the programs are directly administered by universities, and since a fellowship requires a fellow, there have been complaints that when promising candidates are not available, the doors are opened to the second rank of candidates.

The problem of funds exceeding talent is of course not a universal affliction in graduate science education; a number of the so-called prestige institutions point out that they have plenty of good candidates for whatever federal funds may be forthcoming. But further down the line this does not appear to be the case. According to an administrator who describes his own institution as "good but definitely not of the first rank," the abundance of federal money "has put us in the position of giving fellowships to the best people we can get, and, frankly, we realize at the outset that some of them are a waste of our time and the government's money."

#### **"Competitive" Program**

In the absence of any government-wide approach to graduate fellowships, NASA had put forth a program that one of its officials described as "competitive without going overboard." It provides a stipend of \$2400 for a 12-month year, plus an annual expense allowance

up to \$1000, and reimbursement to the university for "tuition, fees, and other expenses involved in the program." The "other expenses" will be decided upon by NASA and the universities, with nothing but NASA's concept setting a ceiling.

A brief look at the marketplace shows that while NASA is not outpricing the whole field, it has placed itself in a pretty good competitive position. The National Institutes of Health offers its predoctoral students a mere \$1800 for the first year, unless they happen to have a spouse, which qualifies them for another \$500, and children, compensated for at \$500 each. There is also the possibility of a special allowance of up to \$500 a year.

The Atomic Energy Commission, on the other hand, offers its fellows in industrial hygiene \$2500 a year, but rates spouse and children at only \$350 each. The spouse and children of fellows in the AEC's nuclear science and engineering program are worth \$500 each, but the fellow himself gets less than the industrial hygiene man, the stipend running from \$1800 to \$2200. None of these, however, comes close to the AEC's special fellowships for advanced training in health physics, which provide an annual stipend of \$4000, plus \$400 for each dependent.

Since everyone today is for space research and science education, NASA's arrival on the education scene is not likely to be scrutinized for legislative underpinnings, which NASA's lawyers say have to be inferred, since the Space Act of 1958 says nothing about education. The justification, they explain, lies in an act passed about 5 years ago which says that federal agencies authorized to conduct research may award grants and contracts to nonprofit institutions of higher learning. "Since you can't have research without researchers," said one NASA attorney in response to an inquiry, "the program to train researchers is perfectly sound."

The task of bringing some order into federal support of science and engineering study has a fairly high priority for attention when the new Office of Science and Technology goes into operation. (The Executive reorganization plan establishing that office has received a favorable reception in Congress and seems to be assured of acceptance.) Although thoughts about establishing some guidelines are still in the early stages, the direction they are taking seems to be toward an informal

understanding among all agencies that the problems of developing scientific manpower are too complex and important for *laissez faire* to be the guiding rule.

#### **Congress Uninterested**

The need exists for direction to come out of the Executive department since Congress shows relatively little interest in how federal funds are dispensed for the upper ranges of education, especially in scientific fields. A number of congressmen who regularly scrutinize and usually oppose proposals for federal aid to the elementary, secondary, and undergraduate levels, were unaware of NASA's \$2 million pilot program and showed little interest in it when it was brought to their attention. Their unemotional approach to this aspect of federal aid to education rests largely on the government's long involvement with specialized higher education. This got under way in 1862, when the Morrill Act set up the land-grant colleges to further the mechanical and agricultural arts, and it has been continued through the federal government's reliance on universities for research, which has inevitably involved graduate student researchers. Congressional support for these programs has been relatively easy to obtain, since tradition favors it and the connection between graduate science and the nation's defense interests is easy to establish. In addition, the sums involved are relatively small, since large numbers of students are not involved, and the highly sensitive issue of local control is not involved.

At the lower levels, however, Congress has always chosen to scrutinize each education proposal, and majorities have not automatically accepted the proposition that assistance for the top of the educational pyramid makes little sense without an effort to provide money to improve the supporting layers. As a result, NASA's easy entry into the graduate science field stands in sharp contrast to efforts in recent years to inject federal money into the elementary, secondary, and undergraduate levels.

#### **Technical Education**

One of the least explored areas in the current concern over shortages of specialized manpower will be gone into next month when the House Education and Labor Committee holds hearings on a bill (H.R. 10396) to expand the out-

put of science and engineering technicians.

The need for more and better technicians has not been determined with any precision, but it is generally agreed that they are in short supply; the scarcity, according to a number of persons who have surveyed the problem, is an impediment to the most efficient use of the nation's scientists and engineers. What is not generally agreed upon, however, is the best means of turning out the needed technicians.

The technicians bill, offered by Congressman John Brademas (D-Ind.), seeks to develop a technical training program wholly apart from any connection, direct or indirect, with vocational training programs, which have lately branched out heavily into the technical training field under a provision of the National Defense Education Act.

The U.S. Office of Education's Division of Vocational Training, which administers the NDEA program, writes off the Brademas proposal as a needless duplication of its program. According to the division, under its NDEA-supported program 620 institutions were participating in one way or another, some \$47 million had already been expended, and, last year, over 48,000 students were enrolled for training.

The Brademas proposal, which has enlisted considerable support in industry and government, offers its respects to the NDEA program but insists that it is aimed at developing an altogether different creature from the NDEA technician. The intent of the bill is not to graft technical training programs onto existing vocational schools and junior colleges but to set up "college level" or post-high school institutes in association with engineering and other professional schools that will turn out technicians with a good theoretical grounding in their subjects.

Brademas says, for example, that the type of engineering curriculum he has in mind for technicians would roughly approximate the first 2 years of a full engineering course. The mechanical technology curriculum suggested by the Division of Vocational Training follows the full engineering course to some extent, but offers less than half as many hours of mathematics, while putting heavy emphasis on specialized courses. The date for the hearing has not been set, but it is expected to take place in the latter part of May.—D. S. GREENBERG

## Announcements

A federal system of **regional technical report centers** has been established to increase the accessibility of unclassified scientific and technical reports produced by the Department of Defense, the National Aeronautics and Space Administration, and the Atomic Energy Commission. Planning and operation of the system will be the responsibility of the Department of Commerce's Office of Technical Services; funding and other assistance will be provided by the National Science Foundation through its Office of Science Information Service.

The 12 institutions where they are situated are Georgia Tech; M.I.T.; John Crerar Library, Chicago; Southern Methodist University; University of Colorado; Linda Hall Library, Kansas City, Mo.; U.C.L.A.; Columbia University; Carnegie Library of Pittsburgh; University of California (Berkeley); University of Washington; and the Library of Congress.

### Television

*Sixty Hours to the Moon*, ABC-TV; 29 April, 7:30 P.M. (E.D.T.). Outline of America's future space exploration. Astronauts Glenn, Shepard, and Carpenter, along with various space scientists, will preview Carpenter's forthcoming three-orbit flight, the 18-orbit flights scheduled for late fall and 1963, the two-man, week-long Gemini space voyages, and the three-man Apollo moonshot. Latest developments on re-entry, rocket engines, fuels, medical problems, and weather and communication satellites will be explained.

### Meeting Notes

The Diabetic Institute of America is soliciting original articles on **industrial, medical, and scientific aspects of diabetes** for presentation at the East-West Diabetic Workshop, to be held 27 to 30 May in Chicago. (B. R. Hurst, 1646 Pittsfield Bldg., 55 E. Washington, Chicago 2)

An advanced study institute on **algae and man**, sponsored by the North Atlantic Treaty Organization, will be held from 22 July to 11 August in Louisville, Ky. The NATO institute, the first

to be held in the United States, will cover taxonomy, cytology and genetics, physiology and biochemistry, ecology, primary productivity and algae culturing; and the impact of algae on human activities. (Daniel F. Jackson, Potamological Institute, University of Louisville, 3005 Upper River Rd., Louisville 7)

Technical papers on any phase of **communications** are being solicited for presentation at the 2nd Canadian Symposium on Communications, sponsored by the Institute of Radio Engineers. Deadline for submission of 350-word summary, subject title, and short biographical note: 1 June. (IRE, 1 E. 79 St., New York 21)

### Courses

The following **summer courses** will be offered at Case Institute of Technology:

*Relation of systems engineering to process control theory* (4–22 June); applicants should have background in mathematics, including linear differential equations.

*Application of digital techniques to military and engineering control problems* (18–29 June); the science of logical design of such control systems will be stressed.

*Theory and techniques for applying tunnel diodes in electronic circuits* (20–31 Aug.); prerequisites include background in transistor and physical electronics. (CIT, University Circle, Cleveland 6, Ohio)

The University of Michigan's **engineering summer conferences**—a series of 26 intensive, 1- and 2-week non-credit courses in rapidly developing fields of technology—will begin during June. A descriptive brochure is available on request. (R. E. Carroll, Engineering Summer Conferences, Univ. of Michigan, Ann Arbor)

Teachers and research workers desiring an intensive introduction to **celestial mechanics** are invited to attend the 1962 Summer Institute in Dynamical Astronomy, to be held from 25 June to 3 August in New Haven, Conn. Tuition for selected participants from industry is \$100 per week; tuition is free for those from government. Accepted college and university teachers will receive stipends based on the number of