educators. However, the problem is one that only money can solve."

Federal support for graduate students has continued to increase, though not by great leaps. For example, during the 1966–67 academic year, 4150 students—most of them in EMP fields—will be supported by NSF traineeships. The number supported by the traineeships will rise to 5100 in 1967–68, provided Congress approves the new NSF budget.

Universities have submitted a new round of proposals for traineeships, and NSF is now studying them to determine the number needed beyond 1967–68. The traineeships program, now in its third year, is a new departure for NSF, which has emphasized the awarding of fellowships to the most talented students. NIH, on the other hand, has long followed a policy of supporting large numbers of qualified candidates for graduate degrees through training grants, as well as supporting the exceptionally able by fellowships.

In the next academic year an additional 6000 graduate students will be supported by fellowships awarded under the Office of Education's National Defense Education Act. Thirty-four percent of the students will be in the physical sciences and engineering. NDEA fellowship awards, of which there were only 3000 for the current academic year, will be increased to 7500 for the 1967–68 if Congress provides money for the number already authorized.

John W. Ashton, director of the Office of Education's graduate programs, believes that by the academic year 1969–70 the number of qualified graduate students will be large enough to justify increasing the NDEA fellowship awards to 10,000 a year. Ashton also would like to see special 1-year fellowships provided for students who have left graduate school after completing all their doctoral-degree requirements except their dissertation.

The Office of Education (OE) is considering a proposal to lengthen the fellowships from the present 3 years to 4 or 5 years, the period needed by most students to complete Ph.D. requirements. The wisdom of this is still being debated, however. "I rather like the idea of the universities sharing in the responsibility of supporting graduate students," Ashton said. "So I'm afraid my attitude [toward the proposal for 4- or 5-year fellowships] is somewhat equivocal."

Ashton noted that OE already has abandoned its old policy of requiring that a fellowship run through three consecutive years. Now the fellowship can be spread over 5 years, with the student and his university arranging for his support for 2 years.

Several other agencies, such as the Atomic Energy Commission and the Department of Health, Education, and Welfare (as distinct from OE), are supporting students in EMP fields. However, the only large fellowship program other than those conducted by NSF and OE is that sponsored by the National Aeronautics and Space Administration (NASA). Some 3100 graduate students are now studying under NASA fellowships at 152 colleges and universities. An additional 1335 fellowships, for study in space-related fields (including the life sciences), will have been awarded by next fall. The number of NASA fellowship awards is expected to decline somewhat in 1967–68.

Federal support for graduate study may become critical to the continued growth of student enrollments. The surprising growth in the number of degree candidates in EMP fields makes it clear that support from nonfederal sources has been more important than the Gilliland panel realized. But the Office of Science and Technology believes that nonfederal support will not increase rapidly beyond current levels. Moreover, OST observes that, even now, many first-year students must depend heavily upon research assistantships instead of concentrating their energies on meeting degree requirements. The result is that their graduate studies are unduly prolonged.

In addition to recommending greater student support, the Gilliland panel recommended increasing "cost of education allowances" for institutions. These allowances, of $2500 per student under NSF and NDEA programs, are supposed to fill the gap between the student's fees and the true cost of his education. The panel, using OE figures, said that the allowance should be $3380 per student in mathematics and physical sciences and $4020 per student in engineering. This recommendation has not resulted in favorable action, however, and the allowances remain unchanged at $2500.

Progress has been made toward fulfillment of the panel's recommendations for federal support for the development of graduate facilities used in EMP fields. The federal share of the program proposed by the panel would have been $125 million a year for fiscal 1964 through 1966. Federal funds actually spent for this purpose amounted to $42 million for 1964 and $69 million for 1965. Last summer OST estimated that another $76 million would be spent during fiscal 1966.

Science development grants by NSF in fiscal 1965 totaled about $27.4 million, with all but a few million going into EMP fields. Another $40 million in development grants are expected to be made this year, and for fiscal 1967 NSF is asking Congress for $45 million which would be awarded in such grants. Graduate facilities grants in EMP fields under the Higher Education Facilities Act in fiscal 1965 totaled about $16 million (*Science*, 26 November 1965). These programs are likely to continue as long as important needs in graduate education are unmet.

The goals set by the Gilliland panel for the production of well-trained EMP personnel reflected not so much an estimate of student and market demands as an estimate of what was attainable. The panel had to bear in mind the limited capacity of graduate programs to absorb rising enrollments. Many institutions already are having to struggle to meet the new demands on their programs in EMP fields. For example, one Midwestern university plans to add 25 new members to its mathematics department over the next several years, and is wondering where it is going to find them.

As enrollment pressures continue to mount, the problem of reconciling the accommodation of large numbers of students with the need to maintain high program quality will grow increasingly serious. In time, the focus of concern may have to shift from increasing the graduate school's capacity to absorb and support more students who are "qualified" in terms of today's criteria to establishing increasingly selective admission standards.—LUTHER J. CARTER

Meeting Notes

Travel grants for a limited number of participants in the **Pacific science congress** are available through the National Academy of Sciences–National Research Council. Funds are being provided by several government agencies for tourist-class air travel to the meetings, which are scheduled 22 August to 10 Sepetmber. Application deadline: *21 February*. (Pacific Science Board, Office of the Foreign Secretary, NAS–NRC, 2101 Constitution Avenue NW, Washington, D.C. 20418)