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EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. See also page 1709, *Science*, 29 December 1967. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE 6-1858.

## Damage to Graduate Education

In this year of budget slashes there is growing distress over the curtailment of important research activities. The losses will be serious, but more serious will be the disruptions in graduate education.

Some research will be delayed or postponed. Some will be stopped short of completion, thus hope of socially useful or scientifically valuable returns on the money and effort already spent will be cut off. We have had big swings in federal financing before, and by now should have learned that they are wasteful. Only last year the number of new fellowship and traineeship awards from federal funds was suddenly reduced by 30 percent. In 1957, funds for the Air Force Office of Scientific Research were cut 50 percent. Some work had to be stopped in mid-course, and many people spent much time attempting to minimize the damage. One point that surely should be driven home in all official considerations of the current budget reductions is that sudden changes are costly. The same number of dollars, if spread more evenly through time, would accomplish more than can be achieved by boom-and-bust fluctuations.

Yet financial retrenchment now seems necessary. An unbalanced budget, expensive foreign commitments, and the threat of inflation require a tax increase. Congress requires an accompanying reduction in expenditures. Some of the reduction will come from funds that otherwise would be available for science and higher education. In the present situation we cannot claim that all research studies must have top priority and immediate attention. Some of the losses can be made up later, and some must be accepted as a consequence of the need to devote available funds to other purposes.

More serious and more difficult to make up later will be the losses in graduate education. More than three-fourths of the research assistants in colleges and universities are paid from federal sources; cuts in research funds will reduce the number of research assistants who can be employed. More than a third of all graduate fellowships are provided by federal agencies; fellowship funds will also be cut. (Pending reassessment of its resources and obligations, the Department of Health, Education, and Welfare has stopped making new fellowship and traineeship awards.) The discriminatory shortsightedness of current Selective Service policies adds to the difficulties. We must expect a sharp drop in the number of graduate students and, a few years hence, a decrease in the number of earned doctorates. A totally unwarranted portion of the immediate burden of the nation's problems will fall on a small group of the ablest young men and women in the country, and for years to come the nation as a whole will pay the price for letting that happen.

There will be some compensatory increase in graduate enrollment later, but experience of World Wars I and II indicates that a sharp drop in doctoral degrees is not compensated for by higher numbers later. In the most rigorous fields, in which one part or level builds most directly on preceding parts, it is very difficult for a student to return to graduate studies after a hiatus of 2 or 3 years. Physics is likely to suffer a greater relative loss than any other field.

Final congressional action on most appropriations bills is still in the future, and many agency decisions on how to allocate their reduced funds are yet to be made. But it is clear that substantial reductions must be planned for. In deciding how the reduced amounts can best be used, one important criterion will be the extent to which the adverse effects on graduate education can be minimized.—MILTON HARRIS, *Chairman of the Board of Directors, American Chemical Society*, and DAEL WOLFLE

# Science

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Milton Harris and Dael Wolffe

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