

Letters

Federal Graduate Aid: Crucial Changes and Cutbacks

In "Federal graduate aid: Down but not out" (26 June, p. 1559), John Walsh notes "signs that the Administration is veering away from a policy of changing the primary form of direct federal support to graduate education from fellowships and training grants to guaranteed loans." This is a crucial matter and one about which we are not confident. For every hopeful sign that might be cited, there are others to justify pessimism. In particular, the sentiments quoted from Presidential Counsellor Moynihan's letter to Harvard President Pusey are now 2 months old and apparently superseded by more recent decisions in the Bureau of the Budget. The drastic cutbacks in fellowships and traineeships by several federal agencies are consistent with plans for major changes in the funding of graduate education; we are alarmed by the probable consequences if present supports are abandoned and a loan program substituted. What follows is an attempt to summarize our concerns in order to stimulate wider debate.

First, such a loan program might well produce a sharp decline in the number of individuals going into graduate study. Few graduate students would be eager to assume a debt which could range to \$25,000 for a 4- or 5-year graduate education, and the interest on a loan of that magnitude would be an added burden. Certainly, such an indebtedness would be particularly unappealing to students from low income families, but even those from middle and high income backgrounds would be reluctant candidates since many are financially independent of their parents and face an uncertain financial future. In fact, family income criteria are almost certain to make applicants from all but low income families ineligible for loan assistance. Moreover, the salary potential of most Ph.D.'s is much less than that of other professionals such as phy-

sicians or lawyers. Unless an individual is independently wealthy there is a distinct possibility that he will elect those fields where the anticipated payoff is much greater, thus producing a major change in the distribution of students to fields—and for the wrong reasons.

Second, while we note Walsh's statement, "there is at least a *prima facie* supply-and-demand argument for cuts, since Ph.D.'s are facing a job squeeze unprecedented since before World War II," we take issue with the implied conclusion that this applies to all Ph.D.'s across the board or that a major change in the mechanism of graduate support is required to make adjustments. In anthropology, psychology, and sociology there is a well-documented need for increasing numbers, given recently projected deficits by both the Bureau of the Budget and the National Research Council. And even in those fields where manpower reductions might be advisable, this can be accomplished more efficiently and with more control over standards by selectively reducing the number of fellowships and traineeships available. While we see some advantage in having the individual graduate student free to select his school and field independently of the availability of university-controlled training funds, we are concerned that the national manpower needs in the long run are much too important to be left to the vagaries of such a procedure. Rather, we would insist that allocations of resources for the development of manpower should be based upon a national manpower policy. A change from a grant to a loan system would take an important element of control out of the hands of those who are in a position to make decisions about the priorities for the future. Furthermore, a supply and demand philosophy may be as inimical to quality in education as it is to quality in television.

Third, quite apart from graduate students, graduate schools would almost certainly suffer a major blow in the

shift from grants to loans. Because graduate training produces a national rather than local resource, the government has helped to defray the costs by providing overhead funds to accompany student grants. The change to a loan system would probably involve the loss of this overhead to universities. This would require a complete rethinking of the *modus operandi* of most institutions and may be the ultimate blow at a time when the university is being assailed from all sides.

We fear that a change from a grant to a loan system could wreak havoc in higher education. We would like to see the issue debated at length to insure that all of its implications are explored and understood prior to further change in government policy.

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One's Own Yogurt

In light of the report by Curt Richter and James Duke that rats fed wholly on commercial skim milk yogurt develop cataracts from the excess of galactose in the commercial product (12 June, p. 1372), readers may be interested in the following directions for making their own yogurt. I have made two batches in the past week and find I like the homemade version much better. The first time I used "low fat" (2 percent) milk, and the result was a bit too thin. The second time I used whole milk (3½ percent fat), and the result was very satisfactory, though still thinner than the commercial product.

Ingredients: 1 quart milk, 2 tablespoons "starter" (commercial yogurt).
Utensils: Saucepan, crockery bowl and cover, dish towel, two heavy towels.
Directions: Bring milk to a boil, *slowly*, over low fire. It must not boil over. The *instant* it boils, pour into crockery (not metal) bowl. Cool until a little warmer than lukewarm. Pour ½ cup of milk into a bowl and blend into it two heaping tablespoons of commercial yogurt. Stir well, and then blend this mixture

into remaining warm milk. Now cover crockery bowl with dry dish towel; then put on crockery bowl cover; and finally completely wrap bowl in two heavy Turkish towels. Store in warm place for at least 7 hours (or overnight). Remove towels and cover. Blot up any liquid that has formed on top of yogurt. Spoon out three heaping tablespoons and place in glass (not metal) jar, storing in refrigerator until needed as starter for the next batch. Add salt to remaining yogurt and store in glass jar in refrigerator. If you prefer a sharper tang, the leavening time should be lengthened. [From W. Atiyeh, *Scheherazade Cooks!* (Channel, Manhasset, N.Y., 1960)].

Anyone who hasn't tried yogurt and cucumber salad made with fresh yogurt hasn't lived. Slice cucumbers into a bowl with crushed garlic, salt, some crumbled dried mint, pepper, and yogurt.

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Value of Historical Perspective

Lieberman (Letters, 17 Apr.) commented that "the university is not a highway department"—it cannot be expected to solve society's operational problems. Fine (Letters, 5 June) considered Lieberman's letter to illustrate "the very essence of what makes the university nonrelevant to the student," and added "Suffice to say that in the age in which we are now living, *all* of our intellectual resources must be brought to bear on social problems" (*italics his*).

I suggest, in turn, that Fine's letter illustrates a major failure of our educational system—the failure to instill a sense of historical perspective. Most earlier generations faced social problems of a magnitude similar to ours. It may be too much to suggest that if they had devoted all of their intellectual resources to immediate social problems we would still be living short uncomfortable lives in smoky caves, but there can be little doubt that most of our children would still die before reaching maturity, and that it would be impossible to produce enough food for the present population of the earth. We would also lack all of the physical conveniences of modern life, as well as our literary, musical, and artistic inheritance. It is certainly desirable that the

earth's population should share more equally in these physical conveniences and in the ability to appreciate and enjoy this intellectual heritage, and university people should be as involved as other good citizens in trying to further desirable social change. But we should remember that exclusive concern on the part of our ancestors for their contemporary problems would have left us with neither conveniences nor intellectual heritage to share. By the same token, we would fail in our duty to humanity were we to focus exclusively on the immediate social concerns of our own time.

There are short-range relevancies and long-range relevancies. A most important part of man's evolutionary legacy is the ability to value knowledge for its own sake. We have learned from experience, though, that knowledge, however irrelevant it may seem when new, often becomes socially valuable with the passage of time. The university, like other organizations and individuals, can undertake to serve the short-range needs or desires of society in any number of ways, from advising the military to mounting antiwar campaigns. Some direct university attention to immediate problems is desirable. But the things that the university does best it does almost uniquely, and these serve the long-range needs of society. A university of the type that Fine seems to advocate might make some short-range contributions to the solution of specific problems, but it would be a traitor to its long-range social and human responsibilities, as well as to its own tradition. It would no longer be a university. A society that devoted all of its attention and resources to contemporary problems would have no need for universities. Such a society would not deserve a long future and most likely would not have one.

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Global Energy Balance

Mankind consumes energy resources and releases heat to the environment. The release occurs primarily at land masses. The average rate of releases can be compared with the radiation balance of the earth's surface. Previously, I cited the value 1:2500 for the ratio of these quantities (Letters,

19 Dec. 1969), after MacDonald (1). Since the exact meaning of this ratio was not clear to Hammond (Letters, 13 Mar.) who compared the heat energy released by man to the rate at which the atmosphere rejects heat to space, I wish to offer additional discussion to clear the misunderstanding.

Radiation balance at the earth's surface refers to the difference "... between the absorption of solar radiation at the surface and the net radiative emission from the surface" (2). One estimate for this quantity is 68 watt/m² of earth surface (3). The average energy released by man is about 0.02 kcal/cm² in 1 year (4) or about 4×10^9 kilowatts, which converts to 2.7×10^2 watt/m² of land area. The ratio of these two quantities is 1:2500.

Man is capable of perturbing the earth energy balance through modification of the atmosphere, the land and water surfaces, and by injection of heat energy. The quantity of energy called the radiation balance of the earth's surface primarily goes into heating air, evaporating water, and driving meteorological processes. The heat energy which man releases adds to, and perturbs, the radiation balance. Those natural processes which drive energy from the radiation balance at the surface will be modified by man's injection of heat energy into the environment.

Were our understanding of global energy balance sufficiently developed, we could determine the limits within which the effects of heat energy perturbations will remain local and near the surface, rather than cause changes which will propagate to other parts of the system and affect the atmosphere and world climate, and the atmosphere-space energy exchange. We are not there, however, and I view Hammond's suggested example (world population of 20×10^9 , with per capita heat production rate of 20 kilowatts, which implies a rate of adding heat energy of more than 1/20 the radiation balance at the surface) with some alarm.

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References

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