

# Letters

## Jobs in Science: A Vanishing Market

Philip Handler, president of the National Academy of Sciences, is quoted (1 May, p. 556) as testifying to a House subcommittee in February that the "widespread apprehension" that we have produced more scientists than we can usefully employ "rests on a few anecdotes which have spread over the country with respect to a few theoretical physicists who could not find employment." This statement creates a false impression of the present state of affairs. . . . We do not have data on national statistics regarding the job prospects for scientists, but we have no reason to believe that the situation here at the NASA Electronics Research Center (which is to be closed 30 June) is atypical.

Although it has been publicized that there will be a transfer of a "valuable nucleus of highly skilled scientists and engineers" from NASA-ERC to the Department of Transportation (which is taking over the new physical plant on 1 July), it appears that many of the most highly trained researchers will not be transferred because their specialties have not been included in the DOT program.

During the 4½ months since the announcement of the closing of the Center, these research scientists have been actively looking for new positions. As of mid-May, only 20 out of a total of 64 professionals (including 47 Ph.D.'s), in two of the major research laboratories of the Center had succeeded in obtaining firm offers of employment; those in the younger age category have been more successful. Inquiries to "name" universities and to dozens of smaller and less well-known schools reveal that most are flooded with applications for employment. It is not uncommon to be told that "we already have more applicants than we can properly screen." The industrial picture is much the same. Government positions are practically unobtainable because of massive cutbacks.

The situation is far different from that implied by Handler. His caustic interpretation of the 1 percent unemployment figure in the NAS survey seems unjustified. The same article

points out that postdoctoral fellowships have jumped from 6 percent in 1958, to 25 percent in 1967, to 46 percent in 1969, a fact which undoubtedly enhances the employment statistics for new graduates. These statistics create a false impression of the overall employment picture. It is clear that the situation is serious and that rapid action is needed to prevent irreparable damage to this country's scientific capability.

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\* This letter was also signed by seven laboratory and branch chiefs at the Electronics Research Center.

W. E. Meyerhoff (Letters, 22 May) blamed the government's draft policies for a large decrease in graduate physics enrollment which he says will have a damaging effect on the teaching and research functions of the universities. While it is unfortunate that present policies can result in the interruption of a man's graduate work, the blame for disruption in the university functions must be placed primarily on a system in which the teaching and research functions of the university have been relegated to graduate students. Many faculty members have been content to contribute little more than their names to the research papers of their graduate students, and a major portion of the most demanding teaching responsibilities in problem sessions and laboratories has been assigned to students. It is hardly surprising that a readjustment in the level of graduate enrollment will cause some difficulties.

The possibility of a decrease in graduate enrollment, because of the draft or other reasons, ought to be examined in relation to the current employment situation for Ph.D.'s. Although an NRC study (22 May, p. 930) found no significant unemployment at present among physics Ph.D.'s (though a more recent survey by the American Physicists Association found a high unemployment rate), a report in the June issue of *Physics Today* leaves little room for doubt that the employment expectations of a substantial fraction of today's students will not be met. Thus, it appears that a reduction in the num-

ber of graduate students could be very desirable, and faculty members will have to take on the tasks which lately have been performed by students. Many faculty members are able to contemplate with equanimity the prospect that young Ph.D.'s will be turning to the junior colleges and high schools for employment. With equal equanimity I contemplate the return of the faculty to the classrooms and laboratories of our universities.

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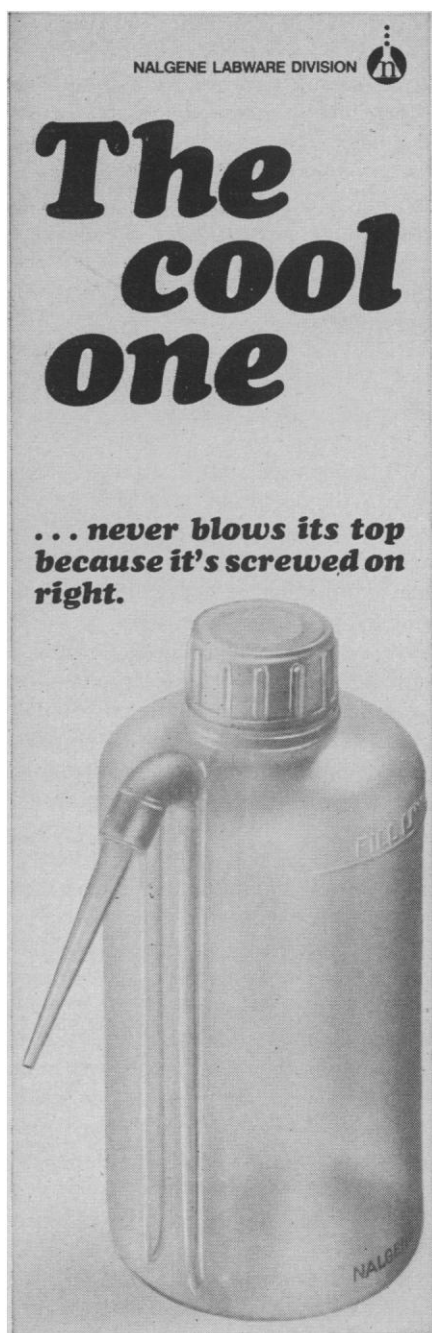
"Employment status of recent recipients of the doctorate" (22 May, p. 930) grossly underestimates the current shortage of jobs for Ph.D.'s. The statistics that 75 percent of the 1968 recipients and 69 percent of the 1969 recipients have found suitable employment are misleading. Your more recent statement (29 May, p. 1124) that "half of the 1968 [University of California] graduates in chemistry, mathematics, and physics were still unemployed 1 year later. Of 76 new Ph.D.'s in chemistry, only 32 had jobs in industry or postdoctoral appointments" gives a more accurate picture of the situation. . . .

Any future survey of doctoral employment should include the employment history of all Ph.D.'s available for employment. This should document not only their current employment status but also their periods of unemployment. The Survey of Earned Doctorates should be modified to account for the following factors:

1) The number of man-years of unemployment experienced by Ph.D. graduates after they are available for employment. A graduate's date of availability for employment is not necessarily the date of receipt of his degree. A student often can take a full-time job while his professors are reading drafts of his dissertation, and his degree might be awarded months after he starts his job. In view of this, the man-years of temporary postdoctoral work after receipt of the degree give an overoptimistic picture.

2) The many slips twixt negotiating with a prospective employer and actually receiving a job offer.

3) The number of graduate students who hold part-time jobs in industry or are on leave from industrial jobs (to which they return full-time after completing their Ph.D. requirements). In a declining job market, the numbers of graduates who are affected by factors



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2) and 3) may be expected to increase.

The National Research Council should have collected the foregoing data before stating, "The evidence does not support the notion that widespread unemployment or malutilization of training and talents exists among recent doctoral graduates."

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Despite the oversupply of applicants for certain jobs in science (Editorial, 15 May, p. 781), biomathematics is one field in which demand still well exceeds the supply.

Since 1963, the biomathematics program at North Carolina State University has finished 29 postdoctoral students and granted 12 Ph.D. and 11 Master's degrees. These trainees, with one exception, had no difficulty in finding challenging, high-paying positions. Most had several opportunities from which to choose. Currently there are 6 postdoctorals and 19 predoctorals in residence. Of the 2 postdoctorals and 4 predoctorals who will complete their training within the next few months, only one has had less than two job offers; one had five. All have accepted positions at salaries that are well above average.

Many of the openings are related to ecological and other aspects of environmental science, but there is also notable demand in the pharmaceutical industry. Inquiries have been received from a variety of biological, medical, biostatistical, and biometrical as well as biomathematical groups at several universities. Capability in mathematical modeling is a prime job requisite. . . .

H. L. LUCAS, JR.

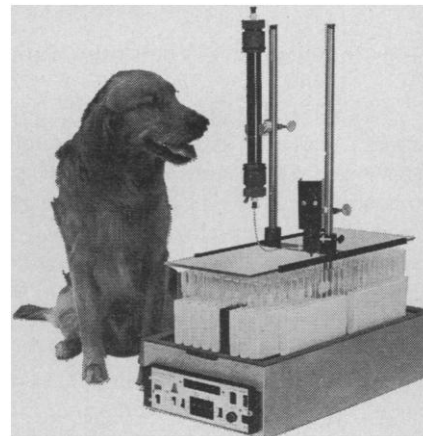
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### Consensus and the Collective "We"

Scientists are being systematically urged to ask their professional societies to take a stand against the war in Indo-China. I wish to point out that the avoidance of such stands is a matter of principle, not just tradition.

If a society to which I belong takes stands on nonscientific issues, it will sooner or later espouse one that is abhorrent to me, forcing me to condone it or resign. Eventually the society will

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