Letters

Reprints: A Proposal

The current practice whereby the purchase and distribution of reprints of a scientific report are the responsibility of the author should, in our opinion, be abolished. We propose that the distribution of reprints should be administered by the publisher of the journal in which the article appeared (or by a third party), and that the cost of a reprint and its distribution should be paid by the person desiring the reprint.

The present arrangement, in which the author purchases several hundred reprints and mails these to the senders of reprint-request cards, is expensive for the author and consumes much of his time (or that of his secretary), time that could, one feels, be more productively spent. One's irritation mounts when one reflects that the reprint dispatched may never be read. The degree of interest or need of the person seeking the reprint cannot be ascertained by the legibility of the handwriting on the card. Reprint collectors probably outnumber stamp collectors. Moreover, the scientist who has great interest in a reprint must compete for the limited number of reprints with the reprint collector. If the author is away or has moved, neither the interested scientist nor the collector is served promptly—if at all.

A scheme which might remedy these several ills is as follows. The author would hand over the responsibility for distribution of reprints of his article to the publisher of the journal and state this in a footnote to his article. Either the publisher or a third party appointed by the publisher would distribute the reprints, selling them by any convenient method, such as a stamp arrangement, at a price which would include the cost of both the reprint and its distribution. Reprints would be available from the distributor for research and teaching use, and not for commercial purposes, unless permitted by the author. The price of a reprint would have to be less than for a photocopy, but at present this generally is the case, even with the profit most journals make on the sale of reprints to authors. Moreover, reprints are generally less bulky and of better quality than photocopies, and photocopying service on immediate demand is not now available to all laboratory workers.

Such an arrangement would free the author from labor and a considerable financial burden. It should be more rapid and efficient for both interested scientist and collector, as the reprints would be handled by an agency which would operate full time. It could be a source of profit for the distributing agency. At the end of each month, the agency could mail the accumulated reprint-request cards to the author, if desired, so the author might know whether his article was selling well, and to whom. The author would of course also be at liberty to purchase a small number of reprints.

We propose, therefore, that the publishers of our scientific journals or other commercial agencies offer such a service to the scientific community and that scientists abolish a tradition which arose as a matter of courtesy in a small group of scholars but now constitutes a costly source of irritation.

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Scientist-Astronauts: Applications Invited

The Manned Spacecraft Center of the National Aeronautics and Space Administration recently began a program which will lead to the selection of a group of scientists to participate in astronaut training. During the next 2 months we hope to reach all the potentially qualified people in the United States who are interested in taking part in the nation's space flight missions as scientist-astronauts. It is our intention to select between 10 and 20 young scientists who hold great potential and have distinguished themselves in their particular fields of endeavor.

We will accept applications until 1 January 1965. The minimum qualifications include (i) a bachelor's degree and (ii) a doctorate in the natural sciences, medicine, or engineering, or the equivalent in experience. The National Academy of Sciences will review the academic and scientific qualifications of applicants to determine whether they meet the second requirement and to evaluate their relative excellence.

For further information, prospective applicants should write to Scientist-Astronaut, P.O. Box 2201, Houston, Texas 77058.

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Basement Science

In "Basement science: What happens when a do-it-yourself scientist looks to Washington for support" (30 Oct., p. 621), D. S. Greenberg describes a problem that many young scientists face at the end of their graduate school education. A scientist who is strongly motivated toward doing a particular type of research, as Fox apparently is, is likely to encounter more difficulties than a less highly motivated scientist. Theodore Caplow and Reece J. McGee in *The Academic Marketplace* (Wiley, New York, 1958) imply that the university is not necessarily an ideal environment in which to do basic research. Likewise, in *The Organization Man* (Doubleday, Garden City, N.Y., 1957) William H. Whyte, Jr., points out some of the difficulties such a strongly motivated individual would find in an industrial environment.

I find much to admire in Fox's answer to a situation which receives little public attention.

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. . . Perhaps Greenberg meant to shock the scientific community for reasons that are not apparent to me. As a one-time basement scientist and now an "upstairs" or legitimate (?) scientist, I can barely sympathize with Fox or his problems. I was always able to

borrow equipment for use in my basement from sympathetic university professors at three different universities. Some of the studies resulted in publishable material. As an upstairs scientist now in a university, I occasionally have interested people like Fox—perhaps younger and certainly not so well educated—working in my laboratory evenings and weekends. I can see no reason why his mentors Arthur W. Thomas, Lucy Hayner, and Polykarp Kusch could not underwrite and foster his studies by supplying some equipment and even funds.

Without condoning the actions of granting agencies, I would say that Fox's desire to be "independent" to the point of isolation precludes his desire to continue his research. Perhaps he wants to have his cake and eat it too.

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Standardized Tests: A Third Possibility

La Fave's suggestion (Letters, 9 Oct., p. 171) that "objectively" scored essay tests be used as alternatives to multiple-choice examinations has merit but overlooks another suggestion he mentions later, namely problem solving. He suggests the virtue of a "problem-solving attitude," but he does not explicitly suggest a problem-solving activity.

Those of us who are experienced in teaching engineering students are aware of the value of problem solving as a student exercise and as an examination technique. Perhaps it is a suitable alternative to the multiple-choice–essay dichotomy. In a problem-solving activity on an exam, a student is given certain data and is required to use the relevant portions of the data to work to the answer requested. The final answer usually consists of a number and some qualitative designation—215 apples, 3.14 cm, 3.14 cm^2. While most problems of this sort have more than one possible method of solution, there are not usually more than two or three suitable ways to solve for the requested answer. Problem solving as a testing technique is neither "multiple choice" nor "essay," but combines some of the better features of each.

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