

Letters

Quality of Intramural Research

In his 21 March Perspective (p. 1351), Frank Press lists the federal government intramural laboratories and proposes that the basic research supported by them be opened to competitive grant funding applications by university and other investigators, similar to the procedures now in effect for extramural federal support. He also appears to advocate that intramural investigators be free to compete for extramural awards in the same areas, something they are currently not permitted to do. Any implication that intramural research is of lower quality and lacks the vigorous review of the extramural grant programs is wrong on both counts. In the health-related agencies, comparisons of quality, if anything, have favored the intramural programs; and these programs *do* have systematic peer review.

The largest concentration of intramural laboratories are those of the National Institutes of Health (NIH) and the Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA). These laboratories constitute the world's premier health research facility. Its investigators have repeatedly received the highest recognition for scientific research, including four Nobel prizes. Internal government analyses reveal that the productivity of individual investigators (number of published papers or highly cited papers per dollar invested, or both) substantially exceeds that of researchers supported by all nonintramural mechanisms including extramural grants.

The peer review system of the intramural research programs of ADAMHA and NIH is implemented by boards of scientific counselors for each institute. These counselors are distinguished scientists from outside the agency that funds the intramural program, usually from universities and medical research institutes, who serve on the boards on a rotating basis, providing a detailed on-site examination of each of the intramural laboratories at regular intervals. The intramural programs set up laboratories on the basis of scientific management decisions and the advice of the board of scientific counselors. The laboratories are then reviewed by the board for their soundness of scientific priorities, strategy decisions, and productivity at intervals of 3 to 4 years. Ad hoc members are added to the board when additional expertise is needed for review of specific laboratories. These reviews are in place of the application, site visit, and study section functions of the extramural review process. The emphasis of the scientific coun-

selors' review is much more on the productivity of the lab and its recent work than on the details of individual projects proposed for the immediate future. This system can give stable, long-term support to scientists whose work, although showing adequate signs of progress, may not have tangible results in a 3- to 5-year period.

The continuity of the boards and the depth of the intramural programs allow for ample comparisons between laboratories, as well as between intramural and extramural laboratories in similar program areas. Within each intramural program, there is intense competition among laboratories for resources, and within institutes there are allocations to be made between intramural and extramural programs.

When one considers the administration of federal funds, a major current concern is not whether there is sufficient competition for intramural funds, but whether the peer review process for extramural funds has become too costly and cumbersome. This issue can best be considered when there is a basis for comparison. It is extremely useful to have more than one national system of peer review awarding research monies. In the biomedical sciences, the two federal systems of support (intramural and extramural), the many federal agencies providing funding, and the very large private foundations, such as the Howard Hughes Institute, are all in competition with one another to produce the most outstanding science. We should be studying the differences between these systems, and the reasons for their successes, to identify the strengths and weaknesses of each. It would be unwise to have a single set of procedures based on a priori judgments; competition among systems is an important check on one of them going awry.

ELLIOT S. GERSON

*Office of Science, Alcohol, Drug Abuse,
and Mental Health Administration,
Rockville, MD 20857, and
Clinical Neurogenetics Branch,
National Institute of Mental Health,
Bethesda, MD 20892*

Response: Gershon's letter and my Perspective both go to the same issue: the rational allocation of limited resources. He suggests that optimality can be attained by multiple review mechanisms; I suggested that we can achieve this goal by judging basic research, wherever done, with a common instrument, namely, peer-reviewed open competition.

I doubt that the excellence of NIH/ADAMHA reviews of its intramural research and the ability of these agencies to integrate basic research and application into an overall strategy pertinent to their mission

extend generally to the some 700 federal laboratories. In any case, my Perspective will have served its purpose if it stimulates other suggestions for ensuring that the opportunities for basic research are open to creative people, wherever they happen to work.

FRANK PRESS

*National Academy of Sciences,
Washington, DC 20418*

Issue Numbers and Librarianship

Since the dawn of librarianship, librarians have worried about their image. For every bunned and bespectacled spinster, you'll find a dozen information specialists who crop their hair, dress in costumes native to countries other than their own, and in their real lives scale K-2 or frequent swingers' clubs.

There is, however, a method for immediately identifying the librarians in any group of cabaret dancers or hitchhikers: provide incomplete information in a bibliographic entity.

And, of course, that is what *Science* has done. Quite frankly, I hardly noticed the little moon above the i. That is a matter of art and thus subject to infinite discussion and disagreement (I simply know what I like). But I must add my voice to the cries of outrage issuing from librarians coming out from under cover to protest the removal of the issue number from the new cover. You have added, according to my calculations, 1 hour and 17 minutes of processing time on an annual basis to my library technician's work load, as she hunts for and records on visible file, cards, and cover, the four-digit issue number. And heaven knows how many precious hours of scientific research will be lost as investigators try to match issue numbers to covers which give no indication that they even exist.

I could expand on this theme, yea, even unto the distant horizons to which my profession of information manager enables me to see. But I have already spent 11.5 minutes writing this, 7 minutes discussing "The Dot" with the scientific staff of this laboratory, and nearly 10 minutes typing this, as my clerk went home half an hour ago. Besides, my work day is over too, and I have to go check my lobster traps.

So please save us some time. Put back the issue number.

ALISON BAKER

*Library, Jackson Laboratory,
Bar Harbor, ME 04609*

Response: When I was 10 years of age, Miss Gildersleve of the San Mateo Public Library was a goddess who encouraged my

dream to read all the books in the library. She could, however, be stern. Thus, displeasing a librarian ranks alongside displeasing Genghis Khan on my list of nightmares. The issue number appears on the Table of Contents page, only one flip away from the cover, and as I have recently put magazine designers on the same pedestal as librarians, I shall stay with the current arrangement for awhile. Besides, Miss Gildersleve kept adding books as fast as I could read them, so a little connivance in getting librarians to read our Table of Contents may be just retribution.

In response to other letters, we are earnestly trying to solve the problem of the mailing label marring our covers.

—DANIEL E. KOSHLAND, JR.

Punctuated Equilibrium: From the Other Side

It is most irregular, but I appear to be the medium by which the shade of Francis Galton wishes to respond to Stephen Jay Gould (Letters, 25 Apr., p. 439). Finding both secretaries and word processors in markedly short supply on the other side,

Galton respectfully requests that Gould and others reread Galton's earlier letter to *Nature* (4 May 1871, p. 105), merely substituting "punctuated equilibrium" for "Pangene-sis." Galton feels that his views, thus amended, will be shared by many evolutionary biologists.

Since some readers may not have ready access to copies of *Nature* from over a century ago, Galton's letter is repeated below (1).

I do not much complain of having been sent on a false quest by ambiguous language, for I know how difficult it is to put thoughts into accurate speech, and again, how words have conveyed false impressions on the simplest matters from the earliest times. Nay, even in the idyllic scene which Mr. Darwin has sketched of the first invention of language, awkward blunders must of necessity have occurred. I refer to the passage in which he supposes some unusually wise ape-like animal to have first thought of imitating the growl of a beast of prey so as to indicate to his fellow-monkeys the nature of expected danger. For my part, I feel as if I had just been assisting at such a scene. As if, having heard my trusted leader utter a cry, not particularly well articulated, but to my ears more like that of a hyena than any other animal, and seeing none of my companions stir a step, I had, like a loyal member of the flock, dashed down a path of which I had happily caught sight, into the plain below, followed by

the approving nods and kindly grunts of my wise and most respected chief. And now I feel, after returning from my hard expedition, full of information that the suspected danger was a mistake, for there was no sign of a hyena anywhere in the neighborhood. I am given to understand for the first time that my leader's cry had no reference to a hyena in the plain, but to a leopard somewhere up in the trees; his throat had been a little out of order—that was all. Well, my labour had not been in vain; it is something to have established the fact that there are no hyenas in the plain, and I think I see my way to a good position to look out for leopards among the branches of the trees. In the meantime, *Vive Pangenesis!*

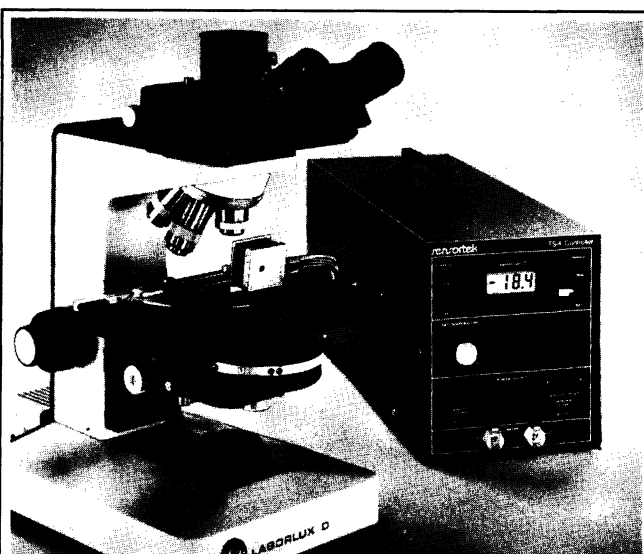
This is highly metaphorical, of course, and I'm not sure that I fully understand it all yet. But I can report that Galton seemed agitated over trusted leaders who took pride in having others pursue their ambiguous, untested ideas for over a decade to an inconclusive end.

ROBERT B. ECKHARDT

Department of Anthropology and Graduate
Program in Genetics, Pennsylvania State
University, University Park, PA 16802

REFERENCES AND NOTES

1. It can also be found, with the background to the matter, in W. B. Provine, *The Origins of Theoretical Population Genetics* (Univ. of Chicago Press, Chicago, IL, 1971).



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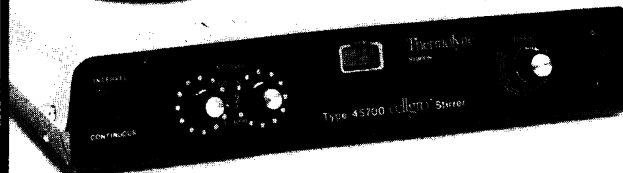
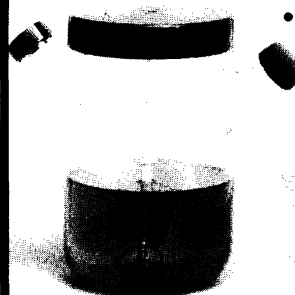
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