Policy Forum

Government and Quality in Science

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In the mid-1970s the scientific community succeeded in averting the threat of rigid, legislative control of recombinant DNA research. Recently a similar threat has arisen (though with much less public anxiety) over the issue of fraud in science. While Congress has exaggerated the problem, it has been justified in criticizing the weak responses of some of our institutions. In fact, scientists have even stronger reasons than legislators to wish to deter fraud—while also protecting the atmosphere responsible for the current spectacular biomedical advances. For this purpose two academic associations jointly prepared an excellent set of guidelines (*1*). Nevertheless, some scientific organizations have overreacted to the intimidating atmosphere created by some congressional hearings, and they have expanded the problem by inviting the government to be involved with style in science as well as with fraud.

In the first step in this direction, a lawyer at the National Institutes of Health insisted on replacing the term "fraud" by "misconduct." This vaguer term is troublesome. If we have to use it, we should agree that it refers only to falsification and to plagiarism; misconduct should not casually fold in questions of quality or of error.

This overlap has already appeared, in the charter of two new offices: an Office of Scientific Integrity (OSI) within NIH (which is clearly needed) and an Office of Scientific Integrity Review at the Department of Health and Human Services. Their specifications include "promoting high standards of laboratory and clinical investigations in science through a prevention and education program." The law has thus crossed the critical line between fraud and matters of scientific judgment. And even though the recently announced rules for the new offices have defined misconduct appropriately, and have not addressed the issue of quality, the presence of that charge to the new offices, and their need to placate Congress, may yet tempt them to become involved in increasingly detailed management of the practice of science.

A report of the Institute of Medicine (IOM) encourages this temptation (*2*). It described very well a number of "sloppy" practices, including hasty or fragmented publication, honorary authorship, rewards for volume rather than for quality of publication, and inadequate supervision of trainees. It concluded, very reasonably, that these practices are more prevalent and cause more harm to science than outright fraud. However, the recommended solutions raise serious questions.

In particular, the report requested a special NIH office to encourage institutions to ensure high standards in research by developing appropriate mechanisms, including formal instruction in research ethics and monitoring of the supervision of trainees. Although the report emphasized that the institutions should be responsible for specifying and enforcing the mechanisms, it also would give teeth to the "encouragement" by the NIH office: only institutions that had developed such procedures could submit grant applications.

The intent of the IOM committee, to raise standards and to retain the ultimate responsibility within the universities, is admirable. But the proposed role of the government seems politically naïve: to make institutions do what they wish, as long as they do something. The report also failed to discuss possible costs of the new bureaucracies—for example, in tensions between faculty and administration, in increased research overhead, and in further discouraging students from entering careers in science.

Scientists deal with problems of quality all the time and in many capacities. And they are aware that Congress and the public are concerned about how well their community conducts itself. We need now to allow this community to respond to this heightened awareness.

It might also be useful to search for the deeper roots of the problem—for example, to examine the cultural patterns that have made sloppiness and fraud much more prominent in some fields than in others, and—even more—to examine our pattern of funding. For while this pattern has advanced research remarkably, it has also created an army of dependents, who derive primary income as well as research support from their grants and are increasingly insecure as the level of funding has become excessively unstable. With many truly excellent investigators under desperate pressure to renew grants, the pressure to cut corners is bound to grow.

In addition to trying to dig beneath the surface of the problem, scientists should help the public to understand that the term "science" covers many kinds of activities. Routine analyses may follow prescribed standards, but the challenging search for hidden truths is unpredictable; it inevitably involves errors; and it requires the same kind of freedom as art. It also requires that scientists be sensitive to abuses of that freedom. Science is an imperfect but phenomenally successful process, and it would be tragic if well-intentioned reactions to its imperfections, or to public misconceptions, should impose constrictive standards (*3*).

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REFERENCES

1. The Association of American Universities and the Association of American Medical Colleges.
2. Institute of Medicine, *The Responsible Conduct of Research in the Health Sciences* (National Academy Press, Washington, DC, 1989).
3. I thank H. Schachman and R. Schimke for helpful comments.