Letters

Research: Vexatious Issues between Government and University

In "Bureau of the Budget cost sharing and effort reports" (Letters, 17 Feb.) Lang has correctly identified several problems of concern to research administrators and the university community, but I feel he has misconstrued both the reason for and possible consequences arising from submission of time and effort reports.

Regardless of how one looks at the realism of the reports or the means by which the Circular A-21 requirements are met, the fact remains that the reports are accounting "tools" and have precious little to do with the technical aspects of the investigators' work. The people who receive the reports are generally far removed in both area of responsibility and background from the government technical staff members who are in a position to follow the investigators' work on a professional level. Thus, the need to obtain data related to the proper stewardship of public funds should not be interpreted as a "threat to unfettered research and academic independence." That such threats are inconsistent with national policy may be seen in President Johnson's desire "to insure that our programs for Federal support of research in colleges and universities contribute more to the long run strengthening of the universities and colleges so that these institutions can best serve the nation in the years ahead. . . . Under this policy more support will be provided under terms which give the university and the investigator wider scope for inquiry, as contrasted with highly specific, narrowly defined projects" (*1*).

Closer to the operational level, the Bureau of the Budget clearly recognizes the problems raised by Lang, as evidenced by its thought-provoking study "The Administration of Government Supported Research at Universities" (March 1966). Greenberg's (News and Comment, 29 Apr., p. 624) review of the report is pertinent: " . . . its principal significance is that, with one major qualification, it emerges as decisively pro-science in addressing itself to the historic problems of reconciling the scientists' insistence upon independence and freedom with the government's insistence upon careful accountability of public funds." The report is a major step toward resolving some of the more vexatious issues in the working relationships between the government and the university community.

In a broader sense we are still in the process of adjusting to the precipitous rise of science in the past 20 years as a significant factor in government and society. Dupree expresses well one of the consequences for the scientist: "Society faces a serious problem in digesting science as an integral part of its structure. But this is not a completely new problem or one more intractable than many others. Scientists can still seek solutions which recognize internationalism, the pursuit of knowledge for its own sake, and individualism, but they must seek them in the same context as the rest of mankind" (*2*). Participation in the current forums on the role of science in government is an effective way of seeking these solutions. Lang's suggested curtailment of research activities is not.

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References

1. "Statement of the President to the Cabinet on strengthening academic capability for science throughout the nation," 14 Sept. 1965.
2. A. H. Dupree, *Ann. Amer. Acad. Polit. Soc. Sci.* **327**, 19 (1960).

Certain appropriation bills passed by Congress beginning with fiscal year 1966 and continuing for fiscal year 1967 provide that "none of the funds provided herein shall be used to pay any recipient of a grant for the conduct of a research project an amount equal to as much as the entire cost of the project." The Bureau of the Budget, which was given the task of determining the extent of participation in the cost of such programs by educational institutions, came out with general guidelines. However, the whole situation remains most uncertain, with federal agencies imposing many different cost-sharing formulas, some of them incompatible with the budget structures and policies of the participating institutions.

Without in any way taking issue with the concept of cost sharing, I would like to consider the present law in terms of how it may best be applied.

For several years prior to passage of the new legislation, universities and other educational institutions had been urging Congress to permit federal agencies to pay full indirect costs by removing the former 20 percent limitation. I believe it was the intent of Congress, in instituting the new cost-sharing concept, to provide educational institutions with long needed financial relief by increasing federal participation in the costs of research. If such was the case, the intent of Congress is being thwarted by some of the research-funding agencies, since the cost-sharing formulas which they have promulgated, even though intending to provide for full recovery of indirect costs, actually require financial participation by an educational institution at the same level as formerly, or even higher.

Furthermore, the method of calculating cost sharing is in some cases very involved, making it difficult for faculty members who serve as principal investigators to conform to requirements, and sometimes even for the university administration to do so.

Whatever form new cost-sharing arrangements between federal agencies and universities take, the policies and budget structures of the latter should be safeguarded. The following principles, none of which appears to be inconsistent with the law, would seem to be appropriate in this respect:

1) Perhaps the simplest method would be to spell out the cost-sharing arrangement in the original proposal, by listing the items in all budget categories to determine total cost, and then indicating the proposed percentage to be contributed by the institution. The remaining cost would be requested from the federal agency. This need not be a constant percentage contribution for all projects. Variations would permit adjustment to individual circumstances.

2) Each institution should have the option of cost sharing on a project

basis, either at a uniform percentage for major organizational units within the institution, or at a uniform overall percentage for the institution, or in any reasonable combination.

3) Under a uniform-percentage plan for a major organizational unit, or for the institution as a whole, the contribution agreed to for any given period of time should be met in total, but not necessarily at the same percentage ratio for each grant, so long as some contribution is made in each case.

4) In some cases, the nonfederal contribution will be furnished from a source other than the educational institution. This might be in the form of services, materials, or funds. It should be possible for contributions to be furnished under any budget category, either in total or in part, at the discretion of the institution.

5) While it seems reasonable for Bureau of the Budget cost principles to be applicable to federal contributions, they should not necessarily apply to nonfederal contributions, particularly if a third party is involved.

6) Approval of government agencies should not be required for committal of nonfederal funds.

The solution to the problem is so simple it is hard to understand why some agencies make it so difficult and continue to thwart the wishes of the Congress.

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Orlans almost made an important point in the first part of his article "Developments in federal policy toward university research" (10 Feb., p. 665). However, in his anxiety to castigate responsible scientists for trying to say that scientific research is important and is worth supporting, he got his point completely inverted. The conclusion he did assert was that less money for science would bring the opportunity to "reassert standards of research quality."

All responsible scientists believe that quality standards for research should be elevated. But this can only be done by putting more funds into quality projects and less into trivial ones. However, as Orlans points out, the pressures toward low quality have been *forced* on the science-supporting agencies of government by Congressional and Executive insistence on "geographical distribution" and on more "practical results." Thus, no longer is the National Science Foundation, for example, able to allocate its scarce funds solely on the basis of merit. It must support projects and institutions which have as their principal merit only the fact that they are in a "neglected' part of the country. Also, with some 90 percent of the R & D funds now going into applied research which seeks early "practical results," it will make little difference to increase this to 95 percent and thus slice the basic research portion by 50 percent. It will mean only that the basic knowledge and the trained people will *not* be available to do "practical" research tomorrow.

Thus, less money budgeted for basic research will only degrade the average quality still further unless political influences are removed which force the spread of already scarce funds to less meritorious areas. This is the point Orlans should have made. If these political pressures continue to exist, only *more*, not *less*, money for science can elevate the research quality—for only more money will make it possible to give adequate support to meritorious work and still have some left over to "spread the gravy." Granted, this is not a very sensible way to proceed. But if the political pressures continue, it is the only way. Seitz and Handler (as quoted by Orlans) were thus right after all in proposing a 15 percent rate of growth in basic research funds. They were not being selfish or unrealistic—for they did *not* suggest that such a rate be maintained for 30 years, as Orlans implies.

Let us admit that these are difficult times. Let us admit that research expenditures might be decreased if it were only the less worthy projects which were thereby eliminated. But the dilemma of our time is that emphasis on quality is not always the goal of those who pass on appropriations. Let us try to persuade them—not berate the scientists (all of those mentioned by Orlans) who are trying desperately to do just that.

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The following statement for publication was adopted by the Board of Permanent Officers of the Yale School of Medicine:

At a recent meeting, the Board of Permanent Officers of the Yale School of Medicine expressed concern at the increasing number of recent instances in which younger members of our faculty

have been informed by the National Institutes of Health that, although their applications for research support had been given high priority, insufficient funds were available to activate the grants. Promising young colleagues in the basic sciences have been particularly affected.

This nation's greatest scientific resource is the quality of the men and women who conduct research, and the continued excellence of American science depends in the first place on our investment in the potential of young scientists to become the future leaders in their chosen fields. It is essential, therefore, that support be given not only to outstanding research programs conducted by established investigators, but also to the new proposals of qualified young scientists, and that the federal funds available for basic research should be adequate to sustain both types of research effort.

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Ph.D. Language Requirements Modified

As an additional comment to the three letters (30 Dec.) on the subject of the Ph.D. language requirements, may I contribute the information that the faculty of the graduate school of Cornell University last May 6th voted (4 to 1) to abolish the general language requirements for this degree and to allow each of the fields (about 74 authorized to offer Ph.D. programs for majors) to specify what foreign language proficiency, if any, it should require. It was understood, of course, that any professor might insist on having his students learn more languages than the field specified as minimal.

So far as I know, Cornell became the first of the so-called multiversities to adopt this reform. Currently, approximately 22 fields with 18 percent of the graduate students continue to operate under the two-language rule; 29 fields, with 50 percent of the students, have specified one foreign language; and 21 fields, with 32 percent of the students, have none. The largest of the fields officially in the first group are English, civil engineering, psychology, and linguistics; the largest of the second group are chemistry, education, mathematics, and electrical engineering; and in the last group the largest are physics, history, agricultural economics, entomology and limnology, and conservation. I believe more and more fields will eventually shift from the first group to the second and from the second to the third.

So far as I know, everyone on the faculty agreed that a thoroughgoing reading knowledge of two or three major European languages would be an asset for anyone in research or college teaching, even though more and more of the advanced scientific literature is published in English or is soon available in printed translations. However, the facts seemed to be that, for most fields, the information explosion and other modern developments has increased the importance of other areas of study while greatly reducing the actual use of foreign languages. Students generally needed more basic understanding of chemistry, physics, mathematics, statistical methodology, computer science, biology, economics, psychology, or sociology than they were able to get in their undergraduate training or to pick up in 3 to 8 years in graduate school. Even the advantages of having a student learn a second or third language for its effects on broadening his outlooks and sympathies and his appreciation of the modern world as a whole were surely far overrated. This was especially true for the student who, late in his career, was forced to acquaint himself with a language he had every reason to believe he would never use to any extent.

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While serving a term as Associate Dean for Graduate Studies of the College of Arts and Science, I proposed that the University drop any university-wide requirement of foreign languages for the Ph.D. degree, and substitute a policy of departmental option. Miraculously, the proposal passed and we now have a real operational criterion for relevant language requirements. Some departments have none, some have one or two or even three, and some have allowed an option in computing as a substitute for language requirements. The physics department, for instance, has none.

We also have avoided an enormous amount of administrative nonsense that resulted from the fact that passing the language requirement was prerequisite to taking the qualifying examinations. Ph.D. students are now treated in this respect like the adults they should be; if they need languages, they learn them.

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