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LETTERS

European Research Institutes

Alun Anderson asserts that a "U.S. juggernaut overwhelms [a] divided European elite" in molecular biology research (Science in Europe, 24 Apr., p. 460). He may be right. However, part of his evidence is a graph of "world ratings" (p. 460) that uses data from the Institute for Scientific Information's (ISI's) "Science Indicators Data Base." These data and their interpretation are open to doubt.

In the graph, quality is defined as "mean citations per paper (1981–1991)." This is fine, but what is a paper? Anderson has informed us that "70 journals dedicated to molecular biology and genetics only" were screened electronically at ISI; excluded were "papers published in *Science*, *Nature*, and the *Proceedings of the National Academy of Sciences*." The result of such a screening might say something about the ability of researchers publishing in those 70 journals, but it does not allow one to rank the institutes where these researchers work.

Two examples from the Federal Republic of Germany illustrate our point. The Max-Planck-Institut für Biochemie, which is fifth in the ranking, is shown to have produced only 35 molecular biology papers per year. The Deutsches Krebsforschungszentrum is eleventh, with only 27 papers per year. These giant research institutes have been profoundly misrepresented, and we hope these dubious ratings will not influence European science policy-makers.

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Response: Herbertz and Müller-Hill are, of course, correct that the data published in *Science* do not take into account all papers published by the universities and research institutes that were listed. Most research institutions—and this is especially true for universities—pursue a wide variety of topics, and their research staff publishes in a number of different fields. The figures in *Science* were meant to estimate research performance only in molecular biology and genetics, as measured by average citations per paper. The question is, how does one isolate such papers for hundreds of research institutions from among the hundreds of thousands of papers they have published? The scheme used, admittedly a convenience, allows sets of journals to define distinct fields. Using such a system, unfortunately, does not permit papers published in several high-impact multidisciplinary journals to be included in the analysis. This bias, however, works against all institutions.

The numbers that Herbertz and Müller-Hill would have liked to see for several German research institutions focusing on the biological sciences are as follows (*1*).

Institution	Papers 1981–92	Citations 1981–92	Citations per paper
Universität zu Köln*	703	17,722	25.21
Max-Planck, Martinsreid-Munich†	3,363	52,225	15.53
Max-Planck, Berlin‡	1,200	17,901	14.92
Deutsches Krebsf., Heidelberg§	5,064	66,198	13.07

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Because all these institutions pursue only biological research, a rough comparison of their citation impact scores can be made. Even then, however, it should be noted that the Deutsches Krebsforschungszentrum (German Cancer Research Center) also publishes articles well outside of molecular biology and biochemistry, which perhaps explains why its average is the lowest of the group (molecular biology and genetics papers exhibit some of the highest average citation rates in the sciences). Moreover, the Institut für Genetik at the University of Cologne (Universität zu Köln) has been isolated from the university as a whole on the basis of the addresses listed on the papers. To the extent that authors have omitted the designation "Institut für Genetik" from their addresses, these papers would not be represented in the counts.

Policy-makers should certainly be aware that citation data always require informed interpretation and are meant to supplement other types of evaluation and not substitute for thoughtful assessments.

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REFERENCES

1. *Science Indicators Data Base* (Institute for Scientific Information, Philadelphia, PA, 1981 to June 1992).

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The Federal Budget and Special Interests

Recent News & Comment columns (see 18 Sept., p. 1619) have reported that efforts to increase federal funds for research and development (R&D) were headed for the "brick wall" separating and capping domestic and defense spending in the federal budget. Further, in the scramble for domestic funds, science would suffer at the hands of such programs as Medicare and Medicaid, which Congress is unlikely to cut.

These reports appear to have been based on comments of congressional staff persons, many of whom see their jobs in terms of the special interests with which their committees happen to be involved. Unhappily, congressional committees can be expected to take such narrow views of the federal budget, but the R&D community, along with the higher education lobby, ought not take that approach. Such an approach (i) makes the R&D and higher education communities just two of many special interest pleaders; (ii) puts science at odds with some powerful and legitimate concerns, at a time when R&D and higher education are in dire need of some effective allies to help make their case for public support; and (iii) adds to the fragmentation of the body politic and to the refusal to deal with the base on which the budget wall rests—annual deficits.

The outcome of the 1992 election, by itself, will neither ease the paralysis caused by countless claims competing for shares of shrinking budgets nor encourage effective action to reduce deficits and free up resources for the future. The directions of future federal policies could be determined by groups of special interests that move beyond fragmentation and put together new alliances in support of particular policy options. Such alliances can be organized around short-range, self-serving aims as well as around long-range goals looking to the future well-being of society.

Given that the R&D and higher education communities, by definition, ought to be concerned about the quality of the future, and that both groups need allies to help advance their agendas, the communities should give high priority to working with other special interests to create a progressive alliance. They could start by viewing aging organizations as potential allies rather than powerful competitors for public funds.

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UV Light Exposure and HIV Replication

The Research News article by Brigid M. Wallace and Jill S. Lasker (28 Aug., p. 1211) raises the possibility that exposure to ultraviolet (UV) light can activate the human immunodeficiency virus (HIV) by mechanisms that involve chromatin unwinding, with subsequent activation of HIV genes integrated in the eukaryotic cell genome. A second mechanism by which exposure to UV light could be detrimental in HIV-infected individuals is suggested by three recent observations that are seemingly independent. First, it has been