care of animals, and compliance with rules for the use of human subjects in research. It is for disposal of hazardous waste, radiation safety, laboratory safety, the fuel to heat research laboratories, electricity used to run the instruments, and lighting, cooling, and exchanging air as necessary for the conduct of research. It is for campus security, libraries, the backbone of campus computer networks, and secretarial support for researchers. It is for compliance with government-mandated regulation of university research. These activities are neither optional nor frivolous. Almost 80% of indirect costs is used to support bench science. Much of it is mislabeled as administrative costs.

Second, a 55% indirect cost rate means that, at most, slightly more than one-third of grant costs are indirect costs. Perhaps the following example can serve as a useful explanation.

A $100,000 grant is composed of direct costs of $64,520 and indirect costs of $35,480. The indirect cost rate is applied to the Modified Total Direct Costs, not to total grant costs. Hence the indirect cost rate is 55%, but actual indirect costs are only slightly more than one-third of the total, or $35,480 ($64,520 × 55% = $35,480).

Further, in a typical grant, some of the direct costs do not have the indirect cost rate applied against them. This means that reimbursement is less than in the illustration above. For example, subcontracts over $25,000 and instruments are removed when applying the rate. That is where the term "Modified Total Direct Costs" comes from.

Additionally, many grants are legislatively or otherwise restricted to lower rates of indirect costs. Typically, the mix of grants that permit reimbursement at the full indirect cost rate and grants that allow less reimbursement is such that universities are actually reimbursed at an effective rate of about 23% of total costs with regard to all federal grants in a university's portfolio.

At the National Institutes of Health (NIH), indirect costs as a percentage of total grant costs have been the same, about 31% each year, for more than 10 years. This indicates that for every dollar a university receives from NIH for research, the university spends $0.31 for indirect costs; of that amount, $0.25 (80% × $0.31 = $0.25) is for essential support of bench science and $0.06 for administrative costs.

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DOE Lab Competition?

The last paragraph of Andrew Lawler's News & Comment article "White House ponders increase for DOE labs" (11 Nov., p. 963) implies that there is a competition between funding for basic research at Department of Energy (DOE) facilities and the programs for environmental cleanup and applied research. The distinction is not, however, clear-cut. The facilities (combustion research, neutron scattering, and synchrotron radiation) funded by the DOE's Office of Basic Energy Sciences are an important part of that program's contribution to industrial research and development in the United States. More than 100 industrial corporations use these facilities for research defined by their own goals. These corporations range from the giant multinational companies that have major research facilities to one-person ventures. The importance of the facilities to these companies is evidenced by their instrumentation contributions, worth many tens of millions of dollars over the past two decades, as well as by their significant continuing expenditures for experimentation at the facilities. It is an appropriate role for government to allow such industrial use of facilities that are very large and very expensive and depend on

the expertise of the national laboratories.

Similarly, the facilities are becoming increasingly important for the development of clean-up strategies for environmental situations that have been difficult to manage. There are many cases where the scientific issues that underlie the interaction of toxic materials with the environment are poorly understood and where bringing some science to bear might greatly increase the effectiveness of clean-up work or sharply reduce its cost. For example, samples of mixed waste from the nuclear weapon production sites (for example, Fernald and Hanford) are regularly brought to the Stanford Synchrotron Radiation Laboratory for x-ray absorption spectroscopy analysis. Such analysis, which provides information about the ionic states of toxic elements, as well as the nature of their bonding to their neighbors, is expected to lead to new treatment protocols.

For both the industrial and the environmental researchers, a major shortcoming of these facilities is their limited operations schedule. The proposed funding initiative would provide major increases in operating time at these facilities for a relatively small fraction of their total operating budgets, for the reasons cited in Lawler's article.

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Sunlight and Melanoma: An Answer from MTS1 (p16)

The incidence of malignant melanoma has been increasing for several years at a rate of 5% per year, probably as a result of changes in lifestyle. The etiology of such a tumor is a controversial topic. Despite the evidence of a peculiar incidence of the disease in fair-skinned populations, no convincing data are at present available about the relation between melanoma development and sunlight exposure (*1*).

Recently, the demonstration of a peculiar pattern of p53 gene mutations has been reported in some sun-related skin tumors, in particular in squamo- and basocellular carcinomas by Brash *et al.* (*2*) and in atypical fibroxanthoma by our group (*3*). In these neoplasms a high frequency of C:G to T:A mutations at dipyrimidine sites, together with tandem CC to TT transitions, were detected. This pattern of mutation constitutes a sort of hallmark of ultraviolet (UV)-

Proposed Constitutional Amendment

A proposed amendment to the AAAS Constitution will be considered by the AAAS Council at its 19 February 1995 meeting. The Council now has the authority and responsibility to elect Fellows, but no matching authority to revoke Fellow status. At its meeting on 4 December 1992, the Committee on Council Affairs endorsed the following amendment to Article VII, Section 1, of the Constitution enumerating the duties of the Council. It would be added as a new provision (i).

> *To consider, on a proposal by the Committee on Council Affairs, the revocation of Fellow status of an individual who has been so elected from among members of the Association.*

The current provision (i) would be relettered (j), and current provision (j) would be relettered (k).

This information about the proposed amendment is published in accordance with the Association's Constitution. Article IX calls for publication of any proposed amendment at least 30 days prior to the Council meeting at which it will be considered. If the Council approves the amendment, it will be submitted to the AAAS membership for mail ratification during the 1995 general election.

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