Letters

Chemical Science and Technology

Philip H. Abelson, in his editorial "Federal support for chemistry" (22 Feb., p. 847), states clearly what should be a cause for national concern: "In proportion to its contribution to the advancement of other sciences and its contribution to the economy, chemistry is the most underfunded of all the natural sciences." In contrast to some other areas of science, chemistry is an enormously productive component of the U.S. economy, making contributions to a $185-billion-per-year industry and providing over $12-billion-per-year surplus from foreign trade.

So central and pervasive are chemical science and technology to our society that basic chemical research is in real danger of being taken for granted and being neglected at home when it is facing increasingly strong competition overseas. The economic consequences of having the U.S. chemical industry go the way of steel and automobiles would be catastrophic. Loss of our favorable balance of trade in the "smokestack" industries of heavy chemicals would be serious enough as America joins the ranks of debtor nations. Less obvious is the risk of losing our potentially strong position in many of the future "hi-tech" industries that are heavily dependent on a national infrastructure of chemical science.

The National Research Council's report being prepared under the leadership of George Pimentel is expected to present an authoritative discussion of the present state of chemistry and an extensive list of targets of opportunity for future development. The "Pimentel report" is based on the contributions of hundreds of American chemists in academia and industry and should be taken as the best available consensus of the chemical community regarding its intellectual frontiers and the economic opportunities that lie beyond them.

American makers of policies and budgets should realize that we are not alone in appraising where the opportunities in chemistry lie. The British Science and Engineering Research Council has completed a study of "future opportunities" in chemistry (*1*) that identifies many of the same targets listed in a preliminary briefing to the Office of Science and Technology Policy about material being prepared for the final version of the "Pimentel report" (*2*). The report of a Japanese task force (*3*) comes to the same conclusions.

These independent checks on the findings of the "Pimentel report" are, of course, interesting evidence of our common perceptions of where we stand in advancing our understanding of chemical processes. Beyond that lies the message that, if the American government is unable, or unwilling, to provide realistic support for chemical sciences, there are foreign competitors who will eagerly assume as much of the leadership in chemistry as we are willing to forfeit by parsimony or default.

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1. J. Albery, *Chem. Brit.* **20**, 413 (May 1984).
2. *Chem. Eng. News* **62**, 8 (2 January 1984).
3. A. Anderson, *Nature (London)* **312**, 485 (1985).

Benefits of a Science Department

Daniel E. Koshland, Jr.'s editorial "A Department of Science?" (8 Feb., p. 589) raises two thought-worthy concerns about the possible creation of a cabinet-level Department of Science. The idea that budgetary and administrative uniformity may have an adverse effect on the sustained progression of scientific research is indeed intriguing. However, on closer scrutiny of the implications inherent in the institution of such a high-level agency, it is readily apparent that the beneficial aspects of such a move far outweigh any comparable disadvantages.

First, I disagree that the "internal consistency" present within a singular Department of Science would somehow lead to the inevitable suppression of individualistic styles of scientific inquiry. In reality, few scientific advances occur within the context of administrative "untidiness." In fact, just the opposite appears to be true in the vast majority of cases. A cohesive Department of Science, appropriately staffed with competent scientists, would be in a much better position to reliably evaluate the relative potentialities of the various scientific entities.

Second, an efficient coordination of scientific research efforts does not necessarily imply sacrificial trade-offs between equally beneficial endeavors. Budgetary restraints in the form of a more centrally administered allocations system can be successfully instituted within a framework of objective criteria. The budgeting process needs a high degree of standardization in order to ensure equity for all lines of research with respect to their varying degrees of societal importance.

In short, the establishment of a cabinet-level Department of Science would be an extremely significant step in the promotion of scientific investigation as a top priority in the United States. For many of us in the field, this would be a step that is long overdue.

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Chimpanzee Colony

Jeffrey L. Fox, in his News and Comment article "Saving chimps for research" (26 Oct., p. 423) concerning the national chimpanzee management plan, mistakenly states the needed annual production figure of the proposed National Chimpanzee Breeding Colony as "about 300 animals." The planned annual production figure is actually about 50 animals, of which about 30 would be made available for research. The remainder would be retained as potential breeders. The total population of the colony would be from 300 to 350 chimpanzees.

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Erratum: In the legend for Fig. 2 of the report "Evidence for a detrimental effect of bicarbonate therapy in hypoxic lactic acidosis" by H. Graf *et al.* (15 Feb., p. 754), the symbols for $NaHCO_3$ and NaCl were interchanged. The symbol for $NaHCO_3$ should have been ▨, and the symbol for NaCl should have been □.

Erratum: In the report "Mississippi deltaic wetland survival: sedimentation versus coastal submergence" by R. H. Baumann *et al.* (8 June 1984, p. 1093), the coordinates for Barataria Bay and for Fourleague Bay were incorrect. They should have been, respectively, 29°30′N, 90°W, and 29°20′N, 91°10′W.