LETTERS

Accelerator Site

Recently the Nuclear Science Advisory Committee recommended to the Department of Energy (DOE) and the National Science Foundation (NSF) that a proposed 4-billion-electron-volt electron accelerator be constructed and operated by the Southeastern Universities Research Association (SURA). The recommendation was based to a large extent on the superior design conceived and executed by James McCarthy and his associates at the University of Virginia (News and Comment, 27 May, p. 929; 10 June, p. 1133).

Since that recommendation was submitted, supporters of the Argonne National Laboratory (ANL) have sought to "adopt" the Virginia-designed accelerator and are using their influence in DOE and Congress to urge that ANL be authorized and funded to construct and operate the SURA machine. The accelerator design proposed by Argonne was not recommended by the DOE-NSF committee.

SURA is a vital organization. The 23 university members have contributed more than half a million dollars in resources over the past 4 years to enable SURA to enter the competition for this new facility and submit a scientifically sound proposal. This effort represents an excellent example of how universities, as a major national resource, can collaborate to serve our national interests—in this case the leadership of the United States in nuclear science.

It would be tragic in consequences if this effort were subverted and McCarthy's winning design were awarded to a laboratory that was unsuccessful in the competition.

The integrity of U.S. science is at stake.

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It is a credit to American science that the scientific community was able to put together such a distinguished panel to review the merits of the proposals for the proposed multi-GeV (billion electron volt) electron accelerator. I congratulate them and the faculty of SURA, who developed a very good proposal. I have already stated to the Nuclear Science Advisory Committee (NSAC) that I will back wholeheartedly the proposal eventually chosen. Our primary concern is to make sure the facility finally built is one that will contribute most to American science.

The Board of Governors for Argonne National Laboratory, after reviewing the report of the NSAC panel, recognized that even the most hard-working, conscientious, and discerning groups sometimes reach incorrect conclusions and believes that has happened in this instance.

Let me explain why. The NSAC panel stated that "both designs are feasible . . . either could very well form the basis for an extremely powerful national facility" and gave three reasons for recommending the SURA proposal: (i) the consortium has pledged a number of new professorships; (ii) SURA's Linac Stretcher Ring (LSR) design could be more easily extended to 6 GeV; and (iii) provided that the beam current specifications are downgraded, the LSR is believed, "although not unanimously," to be a more "conservative" design. We felt and continue to feel that these justifications either (i) do not follow logically from the report, (ii) fall outside the initially stated criteria, or (iii) exceed the proper purview of the panel. The last two reasons given appear to be at variance with the recommendations made by the NSAC Subcommittee on Electromagnetic Interactions (the Barnes committee), established to recommend the optimum parameters for a national electron accelerator. These were the criteria to which the Argonne team devoted its design efforts. Their design is the only one that met these criteria.

The panel raised questions concerning the Argonne design. These centered around the stability and alignment of the sector magnets, possible beam-centering errors, and the effects of quantum fluctuations in synchrotron radiation at higher energies. However, alignment and stability goals for GEM (the Argonne design) have been achieved at existing facilities. The growth in beam size from quantum fluctuations is well understood quantitatively and has been shown by calculations to lead to negligible beam losses up to 4 GeV. Indeed, for an upgraded accelerator of the GEM design operating at 6 GeV, beam losses from quantum fluctuations can be safely absorbed. Not all the calculations and experimental evidence supporting these points were available to the panel during its deliberations.

The offer of tenured professorships was given as a major reason for recommending the LSR proposal. Wherever this facility is located, it will generate new faculty positions.

It is incumbent upon the scientific community to use available funds in a prudent and responsible manner. The Department of Energy's own Energy Research Advisory Board recognized this fact when it recommended that DOE direct work to the existing multiprogram laboratories "in lieu of establishing new laboratories." The NSAC panel notes that at Argonne there exist a trained design and project management staff, senior accelerator physicists and engineers having considerable experience, many user support services, and a variety of buildings and facilities. It notes further that Argonne is a half-hour from O'Hare airport.

Of SURA it says, "little in-house engineering or technical help is available to them. . . . The SURA project, if approved, would be based at a new laboratory having no established reservoir of scientific, engineering, technical, or administrative staff," in essence a "green site." The panel also recommends that a different site be considered.

It is legitimate to ask that these issues be considered further. Those ultimately entrusted with making this decision, so important to nuclear physics, the scientific community as a whole, and the American taxpayer, must be confident that there has been full and complete discussion of all issues. The goal is obtaining the highest quality of science at the lowest cost. Argonne is committed to that goal.

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Ownership of Computer Program

The recent article by Gina Kolata relating to ownership of the copyright to the Symbolic Manipulation Program (SMP) developed at Caltech under the leadership of Stephan Wolfram (News and Comment, 27 May, p. 932) is both incomplete and inaccurate as to several details, as might be expected for its being researched largely, if not exclusively, by long-distance telephone.

There is a particularly unfortunate statement that requires refutation, namely, "Wolfram was given an ultimatum: Resign from the company or resign from the university." This statement is simply not true. There was no ultimatum and, in

fact, Wolfram's position on the board of directors of the Computer Mathematics Corporation (CMC) was not contrary to Caltech policy.

A recent article in *Physics Today* (May 1983, p. 66–68) is more accurate about this aspect of the matter. What actually happened was that, in May 1982, I sent Barry Barish and Wolfram a memorandum stating that "I have decided that it is not appropriate to license use of . . . [SMP] . . . to the CMC organization because there is a conflict of interest between your continuing financial interests in the company and your participation on behalf of Caltech in the preparation and distribution of the program." Wolfram (unlike Barish) chose not to give up his financial interest in the company and subsequently sent me a letter of resignation to be effective when a licensing agreement with CMC was completed.

With Wolfram's concurrence, terms for a mutually acceptable licensing agreement were worked out between CMC and Caltech before my acceptance of Wolfram's resignation.

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The article was prepared on the basis of both personal and telephone interviews, as well as a variety of documentary material, including Roberts' memorandum.—Eds.

Action on Fraud

The continuing discovery and disclosure of research frauds (News and Comment, 27 May, p. 936) demands immediate action. The abstracts, journal papers, and book chapters of the fraudulent investigators should be identified and flagged in the computerized data bases in which they have been entered and notification sent to all individuals and medical libraries subscribing to the journals in which they appeared. "Erratum" slips are periodically issued by journals and book publishers, so a mechanism to do this is available.

The Emory University report on the John R. Darsee case concludes "that 7 of 10 papers and several book chapters . . . contain problems and need to be withdrawn from publication or corrected. One of the papers, published in the New England Journal of Medicine, may have been entirely 'fictitious' " (*1*). It is up to all of us—scientists, physicians, researchers, medical librarians, and publishers—to insist that some action is now taken in order to protect future literature searches and research.

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References

1. F. Butterfield, *New York Times*, 19 May 1983, p. A18.

Chemistry and the Law

I have read with interest the recent editorial by Anna J. Harrison entitled, "Scientists and engineers in the world of lawyers, legislators, and regulators" (13 May, p. 669). Her comments with respect to the interaction of scientists with the legal and legislative process are all quite valid. She suggests that it might be worthwhile considering the formation of a section of AAAS devoted to the analysis of barriers to effective participation of scientists and engineers in courts and at legislative hearings.

It might be useful for AAAS members to know that the Division (probationary) of Chemistry and Law was recently established by the American Chemical Society, which is concerned with such matters as well as with regulatory affairs, patents, and other topics related to the chemical-legal interface. Should any AAAS members desire information about this probationary division, they should contact its membership chairman, Shirley B. Radding, 2994 Cottonwood Court, Santa Clara, California 95051.

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Radon in the Home

The "collision" between the desire to make houses near-airtight to save heat and the desire to minimize the accumulation of the radioactive gas radon mentioned by C. L. Osterberg (Letters, 17 June, p. 1226) is avoidable. Two solutions are available. The owner of an existing house can install an air-to-air heat exchanger that will ensure a steady input of fresh air and recovery of heat from the outgoing air. The designer of a new house can arrange for the collection and storage of an especially large amount of solar energy—enough to not only supply the entire wintertime heat need of the house but also to make up the heat loss associated with ample fresh air intake. Very recently a way has been found to provide such a generously large solar energy intake without incurring room overheating on warm sunny days and without increasing construction cost (the small added expenses of collection and storage are offset by savings from having no furnace, oil tank, radiators, woodstove, or chimney). Both of these solutions have been documented in the last year (*1*).

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References

1. W. A. Shurcliff, *Air-to-Air Heat-Exchangers for Houses* (Brick House, Andover, Mass., 1982); *Saunders Shrewsbury House* (W. A. Shurcliff, Cambridge, Mass., ed. 3, 1983).

Acronyms and Abbreviations

In attempting to read the recent reports in *Science* (and other journals) concerned with proto-oncogenes in vertebrate cells (POVC's), their expression in various types of neoplasia (VTN), and their potential roles in normal cell growth, differentiation, and development (NCGDD), I find myself slowing perceptibly after the first paragraph or two of introduction as I attempt to decode the acronyms and other abbreviations (AOA's) with which these reports are so richly larded. By the second page I find the thicket so impenetrable that the temptation to skip over to the final summarizing paragraph is almost irresistible.

Is there anything that can be done to render these POVC papers more intelligible to the uninitiated reader, who is otherwise quite interested in VTN's and their relation to NCGDD?

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Correction

In Jean L. Marx's briefing "Bar Harbor investigation reveals no fraud" (News and Comment, 17 June, p. 1254), the report of the investigating committee was incorrectly quoted to have said that Hoppe "cannot rule out the possibility that the embryos were switched before implantation." What the report actually says is, "Nevertheless, he [Hoppe] could not rule out the possibility that deliberate switching of young mice in experimental litters took place."