## LETTERS

### The Late MUA from Harvard

My efforts to obtain institutional compliance with the NIH guidelines for recombinant DNA research in my laboratory began in November 1976—19 months ago. In December of last year, during an open hearing at NIH to consider the revised guidelines, it was brought to public attention that an appropriate MUA (a memorandum required by NIH in which the institution and the investigator affirm that recombinant DNA experiments are being conducted in accord with the guidelines) was not on file at NIH. NIH promptly stipulated that no funds from my NIH grant could be used for recombinant DNA experiments pending a thorough review of the subject. This stipulation and other allegations have received exaggerated attention by the press.

By late December 1977, the Dean of Harvard Medical School (HMS) appointed an ad hoc University Faculty Committee to investigate the circumstances that led to the decision by NIH to stipulate their funding of my research. This committee's report, known as the Bloch Committee Report, was released on 17 April 1978 and is available from the Dean's office at HMS. This report represents the efforts by an assembly of distinguished and busy men, who covered an enormous volume of material. It identifies the broad outline of the controversy and the role of the HMS Recombinant DNA Committee, the Harvard administration, NIH, and myself. In specific terms the report confirms much of my perception of the events. The following referenced comments may be verified from the Bloch Committee Report.

1) At all times the experiments in my laboratory were conducted safely and in accord with the NIH guidelines, both while they were being developed and after they went into effect (p. 6, par. 2; p. 13, par. 3).

2) The nature of our recombinant DNA experiments was known to the officials at NIH (p. 5, par. 1 and par. 2; p. 6, par. 3; p. 7, par. 2; p. 15, par. 1).

3) Although our work on SV40 and CLMV ended in June 1976 (p. 5, par. 3; p. 13, par. 3), even this work took place under conditions that met the developing NIH requirements, including P3 containment in the case of work on SV40 hybrids (p. 5, par. 2).

4) On 12 November 1976, I submitted an MUA to the HMS Recombinant DNA Committee for P1, P2, and P3 work in order to comply with the NIH requirements (p. 7, par. 2).

5) As was common practice at the time, I continued P2-level work while this MUA was pending in the HMS biohazard committee, believing it to be quite permissible to do so (p. 6, par. 3; p. 13, par. 4).

6) I did not receive a formal reply to my 12 November 1976 MUA from the committee until after 15 June 1977, even though I had written to the chairman of this committee urging him to give me a decision (p. 14, par. 3; see also my letters of 5 April 1977 and 14 June 1977). In numerous unrecorded verbal communications, I repeatedly urged him to make a formal decision. There is no way of documenting these communications to him, or his to me.

In sum, I believe that there is evidence that my work was conducted safely, responsibly, and in accord with the agreed-upon guidelines, and further, that I made a continuing effort to arrange an MUA to be filed with NIH by HMS. However, this paper did not reach NIH on time, although an appropriate MUA did reach them on 9 December 1977. The Bloch Committee Report goes on to deal with the questions of exactly how and why the MUA did not reach NIH on time. I do not entirely agree with the committee's perception of certain events, or with their allocations of blame. However, I do agree with the committee's report that none of the parties involved is blameless.

The stipulation by NIH has now been in effect 6 months, and it is not reasonable to continue to argue over rights and wrongs that may never be completely clear. This 19-month affair has consumed a giant portion of my time and taxed the efforts of my co-workers, colleagues, and officials at Harvard and NIH. The visible and invisible costs have been very high. Perhaps we should now stop and consider these events in a larger frame: this issue has turned on a late piece of paper, not on a violation of the containment required by the guidelines. Should we not keep this fact in perspective and redirect our energy toward the advancement of biomedical science?

I was gratified to learn recently from officials at NIH that the stipulations on my grant will be removed. This decision was based upon their assessment of these events.

Until now, I have made no public statement regarding this controversy surrounding the late MUA. My silence has distressed my friends, whose support and encouragement can never be properly acknowledged in words.

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### A Navy Without Fuel?

Even though the articles by Deborah Shapley (News and Comment, 21 Apr., p. 282; 19 May, p. 741) intimate that all is not well in the U.S. Navy's shipbuilding program, I believe one very basic question is still unanswered. From where is the Navy to obtain fuel for its ships of the future, especially if we find ourselves in a conflict with the Soviet Union or one of its allies? If history is any precedent, ships now being designed will have to be used well into the 21st century. Why then do we continue to design and build ships powered with fossil fuels?

Information comparing fossil-fuel resources in the Soviet Union with those in the United States shows how vast the differences are. Oil pumping–rate data indicate that U.S. rates peaked in 1970 and declined until the 1977 influx of Alaskan oil; Soviet rates have continued to climb each year. Whereas the pumping rate of crude oil plus natural gas liquids was about 4 million barrels a day larger in the United States in 1970 than in the Soviet Union, the rates have now shifted so that, in 1978, the pumping rate in the Soviet Union is 1 million barrels a day larger than the U.S. rate. At present the United States uses far more oil than it pumps domestically; the Soviet Union is still a net exporter of oil.

Natural gas discoveries in western Siberia during the past two decades have increased Soviet resources tremendously. At current extraction rates the Soviet Union has a known 100-year supply of natural gas compared to at most a 15-year supply in the United States. The Soviet Union also has huge reserves of coal. If Soviet estimates are correct, the Lena coal field in eastern Siberia alone contains about as much coal as all known U.S. coal deposits.

Because of its large existing supply of fossil fuels the Soviet Union can continue to build ships that are fueled by oil, but the United States does not appear to be able to afford that luxury. If the Navy plans to use its ships and submarines on extended missions in the early 21st century, it must have the fuel to power them. Only uranium appears to have guaranteed availability at that time. Why then does the Navy appear reluctant to exploit the nuclear option for ships to be used in the 21st century? Although the initial cost for a nuclear-powered ship is larger than that for a fossil-fueled ship, a navy without fuel is useless.

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