Letters

No Research Strike at M.I.T.

As signers of a faculty statement which was reported in the News and Comment section of the 24 January 1969 issue of *Science*, we find that your headline referring to the action planned by a group of scientists at M.I.T. as a "strike" is misleading. It is not an action directed toward M.I.T.

The statement issued by this group declares that they intend to halt their research activities for a day and devote this day to a public discussion of problems and dangers related to the present role of science and technology in the life of our nation. The fact that no research work will be done by the participants during this day is a gesture meant to underline the importance of the problems involved.

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Thermal Pollution of Cayuga Lake

Viewed against the background of the prodigious growth expected in the nuclear power industry and its requirements for cooling water, the pamphlet on thermal pollution of Cayuga Lake prepared by Eipper and his associates is an important attempt to educate and to arouse public concern (8 Nov., p. 649). Here in Maryland newly formulated laws require public hearings and specify that the industry must obtain a certificate of public convenience and necessity *prior* to site acquisition and preparation. This will at least provide the opportunity for opposing viewpoints to be heard and, hopefully, will end the current practice of seeking water use permits after site acquisition and preparation, when a denial of the permit is no longer a real possibility. Similar legislation is evidently needed in New York.

For all of its value, there is much that is speculative in the Eipper pamphlet, and I am particularly skeptical of the claim that eutrophication is irreversible. This may be true of the natural process, but there is considerable evidence that it is not true of cultural or man-made eutrophication (*1*). . . .

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Reference

1. A. D. Hasler and B. Ingersoll, *Natur. Hist.* 77, 8 (1968).

Like Eipper, I am concerned about the potentially deleterious effects. . . . However, as a scientist I prefer to be as objective as possible and therefore I agree with Allee, who felt that the Cornell University Water Resources Center should study the total possible effects of thermal discharges to Cayuga Lake. I applaud Allee and his colleagues for the "academic detachment" that *Science* noted in their prospectus for research on the ecological impact of the nuclear plant on Cayuga Lake. . . . Accordingly, I object to the insinuation that the Cornell center entered into this kind of research with New York State Electric & Gas Corporation funding because federal funds were going to be rather short, and the center, in order to make the project attractive, yielded to the power company's interests rather than to the needs of a "long-term academic study."

The center, like other university water research centers, has recognized the need for facts on which to base interpretations that may result in legislation and regulations. If these facts are not available, and if state or federal regulatory agencies are unwilling or unable to fund research projects that would obtain such facts . . . then the center has no alternative other than to seek funds from one or both of the parties maintaining opposing views (the power company or the conservationists), to support a project that will uncover this kind of information. If the project must be modified so that the potential funding source can sell it to its board of directors, this is understandable and permits the work to be done. It certainly does not give the reporter license to imply that this work would therefore be slanted in the direction of benefiting the funding agency —although I admit that this is always a possibility, whether the funding agency is a power company, or one of the federal or state agencies, or even a conservationist group. . . .

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These problems are not peculiar to Cayuga Lake, but are also acute in other areas such as the Columbia River and the Great Lakes. . . . If the heat supply were evenly distributed over an entire lake, changes in the thermal regime are rather easy to predict: lake evaporation would increase in direct relation to additional heat supplied and the temperature of the water surface layer would increase to a level which would produce additional evaporation. Because of the great diffusion of a limited source, the ecological effects of evenly distributed heat would be minimal and it would be difficult to say whether they are detrimental or not. In reality, introduced heat is not evenly diffused throughout a water body. Investigations in the Great Lakes indicate that effects of added heat are noticeable only in the vicinity of a heat source and that the heat distribution pattern depends mostly on the current pattern. Concentration of a large heat supply within a rather limited area will create pronounced local effects. However, these effects would not necessarily be detrimental, but could be used to advantage. Considering the geographical location of the Great Lakes and Cayuga Lake where homes require heat about 9 month per year, one must wonder if it would not be feasible to utilize that free heat to benefit the environment instead of wasting it in cooling towers. With little imagination one can list at least half a dozen ways:

1) *Heated swimming pools.* Cleveland, for the purpose of controlling water quality, built a large natural swimming pool by enclosing a portion of Lake Erie. Based on instantaneous success, plans are under way to build a second, improved pool.

2) *Water farming.* The best fishing grounds in the oceans are usually around upwelling areas where deep water, rich in nutrients, rises to the surface. Discharge of heated water in deeper portions of a lake would produce an upwelling and create condi-