letters

while, dare I say exciting, member societies of the American Institute of Physics, and I have no doubt that Strassenburg contributes in a major way to this situation.

I am one of a number of overseas physicists who value membership of the AAPT. I cannot attend conferences and other meetings, and yet I am more than satisfied with the returns I get from my dues. There are a few bargains left in life these days; surely the *American Journal of Physics*, PHYSICS TODAY, *The AAPT Announcer*, and so on, all for $22.00, must be one of them!

But more than this, there is an air of enthusiasm, exploration, innovation and pride in the subject of physics and the teaching of it that emanates from the pages of the various AAPT publications, which I personally find refreshing and invigorating. At a time when it is fashionable to "knock" physics (or science in general) from within the profession, from students and from the world at large, it is indeed gratifying to see that the subject is alive and growing, not only in *The Physical Review*, but also in the classroom and teaching laboratory.

Perhaps the greatest contribution that the AAPT is making is to emphasize that high-school and college teaching are just as "respectable" and significant as applied or pure research. The community of professional physicists in my own country have not yet learned this vital lesson.

Arnold Strassenburg deserves our gratitude for his very significant work in all these areas.

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Non-hazards of fusion

B. L. Cohen's letter (November 1974, page 15) suggests that routine tritium emissions from fusion power plants would be significantly greater than those currently permitted by AEC regulations for fission power plants. "Can anyone really believe," asks Cohen, "that 10^5 times as much tritium can be handled without releasing more to the environment?"

Cohen's rhetorical, if not specious, question (the answer is "yes"—see below) may prove to be irrelevant as well. Despite the disclaimer that "we know very little of the form fusion reactors will eventually take," his 10^5 ratio tacitly assumes a reactor that utilizes a 50-50 tritium–deuterium fuel mixture and breeds a new triton for each one burned. There is every reason to believe that second (or *n*th) generation reactors will operate on deuterium alone.[1] Tritium formed in D-D reactions would remain in the reactor cycle to be burned; there would be no net production of tritium. More remote possibilities, involving lithium and boron isotopes, might eventually provide tritium-free cycles.

In the case of D-T reactors, two independent studies of conceptual fusion plants predict tritium emissions that are of the order of[2] or less than[3] the limits applicable to fission plants. To decrease the emissions further would require only an incentive to do so and the capital investment for providing additional barriers against tritium permeation.

The literature on projected environmental effects of fusion power is substantial and growing. Physicists who are concerned about environmental matters would do well to explore that literature before firing broadsides at a technology with such immense potential for contributing to the solution of the world's energy problems. A 1968 letter to *Science* from F. L. Parker[4] presented an argument remarkably similar to Cohen's; a retraction, signed by Parker and D. J. Rose, was published two months later.[5] Recently an activist group, which is opposed to the development of fusion power, has begun to quote Parker's *first* letter as an example of what respected scientists think about fusion.

Henceforth, one supposes, they'll be citing B. L. Cohen's opinion as well.

References

1. R. F. Post, F. L. Ribe, Science **186,** 297 (1974).
2. A. P. Fraas, H. Postma, "Preliminary Appraisal of the Hazards Problems of a D-T Fusion Reactor Power Plant," Oak Ridge National Laboratory Report, 1970.
3. V. A. Maroni, in "A Fusion Power Plant," (R. G. Mills, ed.) Princeton Plasma Physics Report, chapter 15, 1974.
4. F. L. Parker, Science **159,** 83 (1968).
5. F. L. Parker, D. J. Rose, Science **159,** 1376 (1968).
6. Anonymous, "The Dangers in Nuclear Fusion," Bulletin of People Against the Atom, 166 Second Avenue, New York, N.Y. 10003, undated.

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Corrections

February, page 33: Reference in first column, next-to-last line should be "5,6" not "5,3." In figure 1 add "1 MeV" midway between "1 keV" and "1 GeV."

—page 34: The lifetime of 6.8 microsec should apply to the first excited state of Ta^{181}, shown in color.

—page 35: In figure 3, the laser and its first mirror images should be equally spaced from the mirrors; in figure 4 the point for Ir^{191} should lie on the slanting red line. □