

unusually serious, emphatic statement on a life-and-death issue by requiring more or less sacrifice of its many signers.

The first paragraph of the pledge states that SDI "is a step toward the type of weapons and strategy most likely to trigger a nuclear holocaust." If Newton really agrees with that understated paragraph, we do not understand how he can justify giving either direct technical aid or indirect, but real, political support to the program.

We disagree fundamentally with the moral tone of Zumbulyadis, in that we believe no one deserves to die of either AIDS or nuclear war, no matter how "aberrant" his behavior. His analogy is utterly false in that AIDS is now killing people and, unlike nuclear war, may be substantially curable by technical means. Star Wars presents us with a clear choice: destabilizing war preparations, fraudulently sold as a "Peace Shield" cure, versus sincere international negotiations, which offer some hope of prevention. The two approaches are in direct, not hypothetical, conflict.

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1/86

Journal policy

Two unfortunate practices seem to be getting more common in physics journals. The first is to cite a book without giving page numbers. Even in a book with a good index it can be time consuming to find a reference. In some books it is impossible. There may be a few cases in which a reference is to an entire book, but in most cases the lack of a page reference is inconvenient at best, and at worst makes the citation useless.

The second practice is reporting the results of computer calculations without giving any idea of how these were obtained. A paper reporting the results of an analytic derivation would not be accepted for publication if no details of the derivation were given. The same should be true for a numerical calculation. The algorithms used should be discussed in sufficient detail in the paper itself or in references that the reader can understand how the results were obtained. A reader with access to appropriate computing facilities should be able to reproduce the results. Even if a technique is well known, reference to the literature takes little space and would be helpful to a reader who is new to the field.

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1/86

Editorial policy

I must take exception to the use of the PHYSICS TODAY Editorial page for the advocacy of one physics discipline over another, as was done by George Field in the April issue (page 144). At present the largest portion by far of the budget of the Office of Space Science and Applications goes to astronomical missions. Cost overruns in these missions have prevented the start of new initiatives such as the International Solar Terrestrial Program, the Comet Rendezvous and Asteroid Flyby missions and TOPEX, the three unnamed missions that are vying for a new start with the Advanced X-Ray Astrophysics Facility. These three missions are well conceived and will return excellent science. They deserve the support of the physics community as much as AXAF does. We should do everything we can to support NASA and all its programs rather than advocate one over the other, especially in the Editorial pages of PHYSICS TODAY.

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6/85

Math anxiety and physics

Sheila Tobias's "Math anxiety and physics: Some thoughts on learning 'difficult' subjects" (June, page 60) raises an interesting issue. Some students become immobilized by anxiety and need to be encouraged simply to get started. Perhaps the anxiety that physics students experience when confronted with a problem to solve is similar to the anxiety that keeps a writer from putting down that first word. I instruct my students to follow these specific steps:

► Draw a diagram. Use the diagram as an extension of your memory; put all the given information on the page. It is easier to remember information when it can be retrieved visually, and the mind is freed up for more creative thinking.

► Write down the most general equations that apply to the category of problem involved. For example, for motion problems:

$$\begin{aligned}x &= x_0 + v_0 t + 0.5 a t^2 \\v &= v_0 + a t \\a &= \text{constant}\end{aligned}$$

► Find the values of the variables in the general equations. This is the step that usually entails the most difficulty and requires the most understanding. Expect there to be more than one unknown and to have to solve simultaneous equations to evaluate them.

► Solve the algebra.

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8/85

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