

letters

etary Medium, Natl. Acad. Sciences, Am. Geophys. Union, 28 April 1960.

3. A. V. Baez, J. Geophys. Res. **65**, 3019 (1960).

ALBERT V. BAEZ
Greenbrae, California

9/85

Comment sections

The addition of comment sections to APS journals in recent years can only be applauded as a way of fostering communication among physicists. However, one cannot help but notice that many of the comments take the form of either criticism of another party's work or a reply to such criticism, and in many cases arguments offered by the respective physicists are mutually exclusive.

I find this disheartening for two reasons:

► General conclusions drawn from any line of properly conducted scientific enquiry should be observer independent.

► It puts the burden of deciding the issue squarely on the reader, who often has neither the time, specialized knowledge, nor access to unpublished information needed to do the job properly. This is especially true of comments on *Physical Review Letters*, which are ostensibly intended for the general physics community as opposed to specialists in given fields.

To be sure, well-informed people can have legitimate differences of opinion on complicated (or even simple) matters. In situations where the experimental or theoretical picture is in a state of flux, this is in fact unavoidable. Yet, because all comments and replies to them are seen by all concerned parties (including editors) prior to publication, the occurrence of so many instances where the two camps disagree so fundamentally is an indication that physicists are using the comment sections to talk past each other instead of to each other.

JEFFREY J. HAMILTON
University of Maryland
College Park, Maryland

1/86

THE APS EDITOR IN CHIEF REPLIES: I am sorry that Jeffrey Hamilton finds the form of our comment sections in *Physical Review* and *Physical Review Letters* so "disheartening." I hope that his views are not shared by the majority of our readers. His objection, it seems, is that this practice places "the burden of deciding the issue squarely on the reader" in evaluating which side, if either, is "right" when opposing views are published.

This "burden," of course, is precisely the point of the comment sections of our journals: Lacking a *deus ex ma-*

china who may know the "real" truth, only the readers are qualified to judge "right" from "wrong" in matters of basic physics. I know of no better way of resolving such altercations, which are a natural concomitant of working near the threshold of knowledge, than by exposing all sides of the issue and letting the active physics community decide. Nor is it inappropriate that the subtleties of such arguments and counterarguments may well not be transparent to those without "specialized knowledge." The general physics community cannot be presumed to be sufficiently close to the cutting edge in every field to be able to judge between the competing views of experts.

Hamilton should also realize that our published comments and replies are not simply letters to the editor. Critical comments are sent first to the authors criticized for reply or possible private settling of disputes. If there is no success in the latter route, both comments and replies are sent to outside referees for evaluation, just as for any other submitted paper. The referees are asked to judge the acceptability of the comment or reply by the usual standards of importance, correctness, style, need for revision and so forth, and no comment or reply is ever published without a positive recommendation from one or more impartial referees. Sometimes comments are published without replies because referees do not judge the reply acceptable. (No reply can be published, however, without the corresponding comment.) The process, as can be attested by many who have been personally involved as "commentors" or "commentees," is sometimes long, turgid and acrimonious. It is never, as Hamilton thinks, a simple procedure that physicists use "to talk past each other instead of to each other." One might hope that physics would be "observer independent," as Hamilton feels it should be, but then it would be a lot less fun!

DAVID LAZARUS
Editor in Chief

2/86

The American Physical Society

Strategic Defense Initiative

I wish to express my opposition to the Strategic Defense Initiative. I believe it will prove to be one of the gravest errors of US policy yet made. Worse, the policy makers in Congress know not what they do, because they are not getting a straight story from US scientists. This is true in spite of Representative Marilyn Lloyd's recent assertion (PHYSICS TODAY, October, page 9) that it is "our job to get the best information from the technical community," stated in a context suggesting that Congress is getting it, and her suggestion that we

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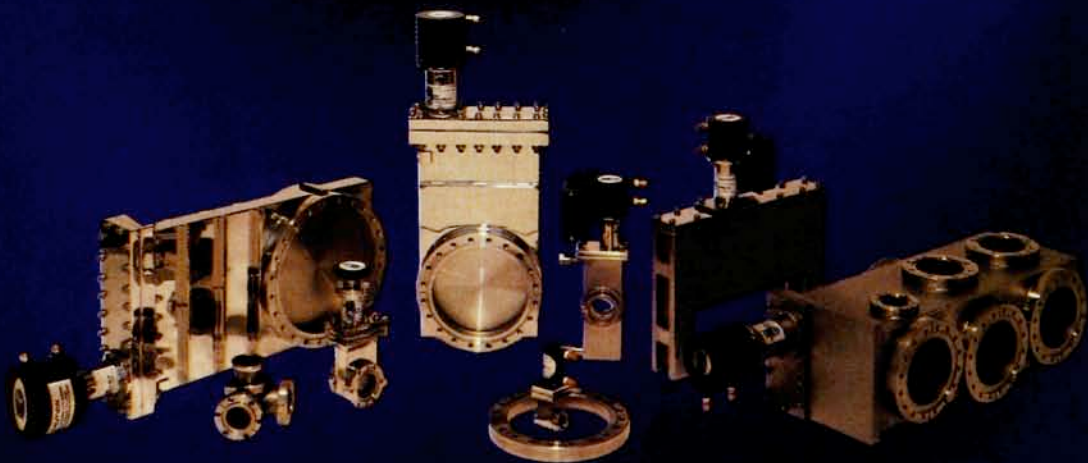
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letters

"let the politicians worry about whether the politics are outrunning the technology."

SDI is touted as a positive initiative, in contrast to the intrinsically negative policy of deterrence. But any such major DOD policy decision must be evaluated by its potential long-term effects on the arms race and the risk of nuclear war. In this light, SDI is profoundly negative. It is clear that the USSR must reply to SDI by increasing its armaments and developing techniques to defeat SDI. Whether or not the USSR chooses to implement its own version of SDI as well, the US will respond to the increased Soviet strength with a build-up of its own.

On the technical side, most scientists agree, if pressed to think about it, that neither a near-perfect nor an undefeatable system can be developed even though huge sums are spent.

Even while conceding both political and technical arguments against SDI, it is sufficient for some to invoke the inevitable spinoffs from the program as justification for it. They do not stop to consider that there are much more direct routes to realizing the benefits of these spinoffs, or that a different allocation of public funds might provide mankind with even greater benefits.

Scientists have an opportunity to make a statement that can have an unparalleled influence on the future: We can refuse to support SDI. I am a senior scientist at a laboratory operated for the Department of Energy. I have divorced myself from engaging in or promoting SDI work. I encourage others to consider the possibility of doing likewise.

DONALD G. DORAN

Richland, Washington

11/85
LOYD REPLIES: My views on the Strategic Defense Initiative program have not changed since my letter appeared in the October issue of PHYSICS TODAY. Nevertheless I believe that Donald Doran's letter deserves comment from a Congressional perspective.

I reject his argument that "policy makers in Congress... are not getting a straight story from US scientists." I have participated in debate on the DOD authorization bill in the House Armed Services Committee and in consideration of both authorization and appropriation bills containing SDI funding on the floor of the House. Members of Congress constantly receive pro-and-con SDI briefings from the Departments of Defense and Energy, Congressional committee staff, Congressional Research Service staff, industry representatives, university professors and researchers from the national laboratories. In addition the Office of Technology Assessment has performed two SDI-

related studies on ballistic-missile defense and antisatellite weapons, both of which, incidentally, have received much criticism from the more zealous wing of the SDI community. I simply don't see how any policy maker could have avoided getting both sides of the story from this spectrum of information sources.

I also believe that SDI can be a constructively positive element of a policy of deterrence as long as one does not equate that policy, as Doran does, with the doctrine of mutually assured destruction. As with Wolfgang Panofsky's SDI criticism in October, I am troubled by the extent of Doran's blatant technical pessimism and apparent inflexibility with respect to modifying US arms-control policy.

As I noted in my letter, I agree with most scientists that an SDI "missile-defense system would not be completely impenetrable," but that in no way translates to a basis for not going ahead with R&D on missile-defense technologies.

As regards arguments about benefits of spinoffs from SDI, I don't accept the simple transferability hypothesis that the funds might be better spent through "different allocation of public funds," although some of that will undoubtedly take place under the Gramm-Rudman deficit-reduction mechanism. In any event, it does appear that the high-energy physics community's Superconducting Super Collider project will not be a viable candidate for such transfer. However, I do have a strong opinion that focused R&D aimed at specific new components and systems is a desirable way to push technological advances, with corresponding potential for transfer to the civil sector.

In summary I would say that the Congressional debate on SDI has become more rational, while SDI R&D goes forward with some significant achievements and an improved understanding of desirable systems requirements. I, for one, will remain as skeptical about the "captive" contractor who is overly optimistic about SDI's technical prospects as I am of those disciples of MAD whose conventional arms-control wisdom blinds them to the past decade of progress in new defense technologies.

MARILYN LLOYD

3/86

US House of Representatives

Aharonov-Bohm effects

In the January Search and Discovery section, an important reference was omitted from the story (page 17) about Aharonov-Bohm effects in disordered systems. The work of A. Douglas Stone

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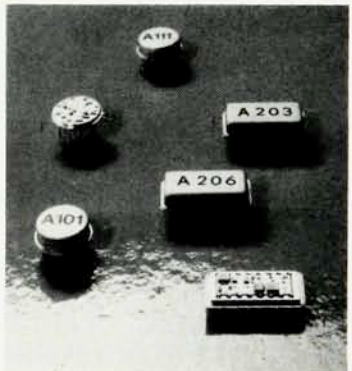
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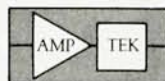
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