

LETTERS

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the reason for the correlation, it is clear that high atmospheric CO_2 is accompanied by high global temperature. In fact, theory provides a ready explanation for this relationship—the greenhouse effect: Were it not for atmospheric CO_2 , the mean temperature at the Earth's surface would be substantially below zero.

The conclusion is inescapable: If we increase the atmospheric CO_2 concentration, the temperature will rise. The exact form this warming will take at different locations is of course extremely hard to predict. For this very reason it is essential that we take swift and sweeping measures to drastically reduce our greenhouse gas emissions. As Edith Borie points out (July 1991, page 82), the side benefits of such a policy—a cleaner, richer and healthier environment—will more than pay for the development of the requisite new technology.

Reference

1. R. Houghton, G. Woodwell, *Sci. Am.*, April 1989, p. 36.

ALISON CAMPBELL

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9/91

Raphael Kazmann, in his reply to the letters of Richard Alley, Charles Bentley and Edith Borie, cites as evidence that the Earth is not warming up but cooling down the revised "Plant Hardiness Zone Map" of the Department of Agriculture. He states that "the 1990 map shows that the zones in the 1965 map are now 5–10 °F colder." The revised Hardiness Zone Map was based on much more information than the old one.¹ Thus to conclude that any zone is colder would necessitate a comparison of the two data sets, not just the zone maps. Also, the new map is based on data from 1974 to 1986 only. Therefore we cannot conclude from this map what the relative temperatures of the zones are now.

Reference

1. J. Ruttle, *National Gardening*, July 1990, p. 26.

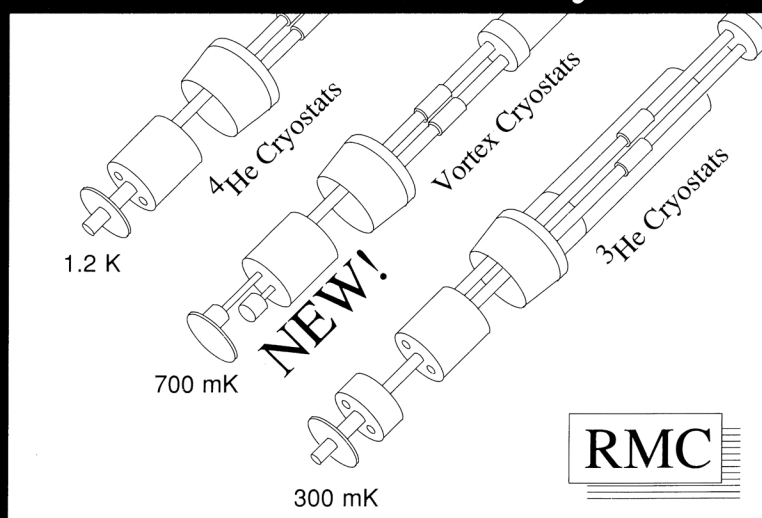
MARILYN BOYSEN

8/91 University of California, Santa Cruz

Advice to Foreign and Following Speakers

I truly enjoyed reading James C. Garland's "Advice to Beginning Physics Speakers" (July 1991, page 42), but I want to add a point for those of us not fortunate enough to have English as our first language. Garland dis-

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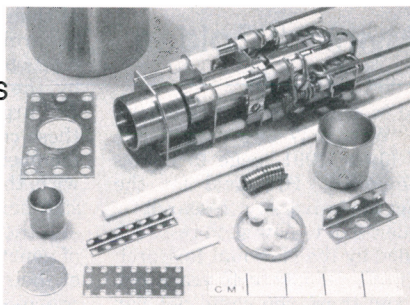
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courages people from writing out their talks and then reading them, with which I fully agree. For those who are not native English speakers, however, it is a good idea to write out the talk—and then throw it away. That way one has to think over the grammatical structures, synonyms and so on and saves oneself (and the audience) the embarrassment of knowing what to say but not knowing how. Besides, this method also works as a length check. (You quickly get used to converting pages to minutes.)

The credit for this advice goes to Thomas Timusk of McMaster University, to whom I have been grateful ever since.

KATALIN KAMARÁS

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9/91

The article by James C. Garland on advice to physics speakers was so good that I made it required reading for my geology graduate students. I'd add a corollary, however, to his advice "Never, ever speak past your allotted time." If the speaker before you has gone over, the audience will be sympathetic to your plight, but will nevertheless be impatient and resentful just on general grounds, even if you don't compound the previous speaker's error. In other words, you inherit some of the resentment caused by the previous speaker. Therefore if you *really* want to make friends and get an audience behind you, find a way to shorten your talk enough to put the session back on schedule. If your presentation seems slightly shaky as a result, you will still be viewed as so generous and professional that all will be forgiven.

JUDITH TOTMAN PARRISH

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8/91

The Mythical 'Golden Age' of Grants

N. David Mermin's Reference Frame column "What's Wrong with Those Grants" (June 1991, page 9) brings back memories. His ideal for the financing of university research is almost identical to how such research was funded by the National Research Council in Canada 30 to 40 years ago.

Then and there you could not pay student support out of your operating grant; instead scholarships, bursaries and postdoctoral fellowships were awarded directly to the recipients in a separate scheme. You could not use your operating grant to travel; there were separately administered travel grants. You could pay for equipment

used in research, and expendable materials, naturally, but the university paid for postage, telephone calls and photocopying (as it existed then). There were no summer salaries from grants and no overheads to universities. Grants were awarded by peer review, but at the national, not the local, level. Needless to say, there were other sources of funding for items that did not fit into the "small science" mold.

Also needless to say, things are not the same in Canada now as they were 35 years ago, but have moved in many respects closer to the American system. The problem is this: Does this change represent progress? Or is it a "decline and fall?" Or is David Mermin looking wistfully back at a golden age before "the whole system veered off down the wrong track"—a golden age that never really existed and was never really golden?

J. M. DANIELS

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Obit Selective on Shockley's Race Ideas

The June 1991 issue of *PHYSICS TODAY* (page 130) contained an obituary of William Shockley by Morgan Sparks, Lester Hogan and John Linville. Among fulsome praise for Shockley's scientific achievements, the authors mention, in a single paragraph, his "unpopular" views on correlations between race and social performance. They acknowledge that he devoted many years and tremendous effort to discussing these correlations. It is a pity therefore that they did not apprise readers of the nature of his views.

Shockley thought that "Nature has color-coded groups of individuals so that statistically reliable predictions of their adaptability to intellectually rewarding and effective lives can easily be made and profitably be used by the pragmatic man-in-the-street. An urgent moral issue underlying these considerations is this: If those members of our black community with the least percentage of Caucasian genes are both the most prolific and the least intelligent, then a form of genetic enslavement is the destiny of their next generation."¹ Shockley proposed to counter such a "dysgenic trend" by making welfare payments contingent upon voluntary sterilization. He suggested that "unwed mothers can transmit genetically controlled antisocial behavior traits" and argued that this was the cause of the growth of social problems. He approved of the sterilization of "mental

defectives" and did not think that a lesson to be learned from Nazi history is that eugenics is intolerable. These arguments were repeated in public over a period of at least ten years.

Shockley's views had much in common with those of Arthur Jensen, Hans Eysenck and Cyril Burt (later found to have faked his results), all of whom he cited and corresponded with. The ideas of this group were used by conservatives in the 1970s to criticize equal opportunities programs and justify government funding cutbacks. Although the tone and direction of the arguments have changed somewhat, a similar process is occurring today—for instance, under the cover of the "political correctness" issue.

Given Shockley's appalling ideas, as well as their political context then and now, I find it extraordinary that Sparks, Hogan and Linville should simply refer briefly and obliquely to his ideas as "unpopular." I should hope that they were, and remain so.

Reference

1. W. Shockley, *Rev. Ed. Res.* **41**, 375 (1971).

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7/91

An E-Mail Message from Mozart

I just got an e-mail message from Kazan containing, among other things, a request that I forward the following letter to the editor of *PHYSICS TODAY*:

In a recent book review (June 1991, page 108) my good friend Philip W. Anderson says, "It is even possible for David Mermin to *complain* about the universe being boring quantum mechanics all the way down (*PHYSICS TODAY*, November 1990, page 9)." While Mermin does complain a lot, in this case he actually said that the success of quantum mechanics all the way down to where we've got is "a triumph." It was I who expressed disappointment at this state of affairs. Neither of us finds quantum mechanics boring.

May I also take this opportunity to state as emphatically as I can that I am not now nor have I ever been a pseudonym for Neil W. Ashcroft.

William A. Mozart

The author of the letter has been abroad for some time now, trying to raise funds for the SSC. He says the Tatars are wild for Waxahachie but a