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letters

that while the University of Texas is indeed at Austin (and has, parenthetically, a simply terrible basketball team), the University of Houston is not the Houston branch of UT. UH and Texas A&M are, as is UT, funded through the State of Texas but are otherwise independent. The Aggies would not, for example, enjoy the description "University of Texas at College Station." We understand the Northeastern proclivity to view our Texas Regents as a sort of collective (monolithic) Petro-daddy; but we must point out that while the universities here are healthy, they are autonomous. Our improvement in physics is therefore independent of Austin's and reflects a significant growth in our own university and in the support for science which it continues to provide.

ED V. HUNGERFORD
SIMON C. MOSS
LOWELL T. WOOD
*University of Houston
Houston, Texas*

5/83

Talking to the world

To thirty minutes of freshman physics:

- add a piece of portable apparatus such as a laser, or an electrostatic generator, or a dewar of liquid nitrogen
- add a few "feelies" to pass around, such as a microprocessor chip, or some single-crystal tin whiskers, or a model of a communications satellite
- thin with a few historical notes (see the encyclopedia), and for spice
- add some biographical anecdotes or eccentricities, and finally
- sprinkle liberally with humor.

Serve briskly over a fifty minute period on any occasion. Adequate for ten to one hundred. Aging with practice will improve the bouquet.

This recipe is the essence of successful communication with any subset of nonfreshmen-physics students—that is, with nearly the whole world!

At a time of national concern about the declining quality of education in general, and the declining quality of science teachers specifically, I think it is appropriate to call on the professional societies and their membership to offer support. The declining interest in the physical sciences as an academic major and professional occupation would seem to demand such assistance. I have in mind a new kind of society activity. While not new on an individual basis, I think it would be a new endeavor for a professional society. The basic idea is to encourage scientists to talk to the world about their own technical interests, about their experiences as scientists, about current developments in technology and basic

research, about technology in the news, and about the history and the future of science. Many forums await the "technical" speaker. Secondary schools, high schools, colleges (yes), girl scouts and boy scouts, community-service organizations, churches, clubs, PTAs and many others encounter frequent situations where they would welcome a scientist as a speaker.

Scientists speaking about their own profession have assumed credibility. They have instant leverage with their audiences. If only they can converse in pseudo-lay language and shed some understanding on a small area otherwise off-limits to the nontechnical world, they will earn the respect and gratitude of their audiences. Here children in their formative years can be inspired, and parents of school children can be influenced. The image of science and scientists can be improved only by scientists. It has been left too long to the nontechnical media.

The role for professional societies could be to provide assistance in preparing talks on science and technology for the nontechnical audience. Topical outlines, demonstration kits, historical information, and biographical sketches could be prepared for society members to assist and encourage their participation as speakers. A means could be found for sharing experiences relative to what works and what does not work with nontechnical audiences.

The need is clear. Can you image twelve years of education without a glimpse of the gleam of science? The problem is to encourage busy scientists to leave their laboratories briefly and discuss, without the use of integral signs, why there are two rainbows—perhaps someone in the audience had not noticed. Professional societies have the talent, and I think they need to assist in sharing it.

ED SICKAFUS
*Ford Motor Company
Dearborn, Michigan*

6/83

Once more an education crisis

Upon reading the editorial (page 128) in June on the crisis in education, one cannot help feeling (however much one may sympathize with what the editorial suggests): "Here we go again!" The tone is very much like that which was heard about 1958, when, as it was believed, an earlier crisis in education in science (or an earlier phase of the same crisis?) appeared.

It is common experience that, when the panic button is pressed, people react by doing the wrong thing. In retrospect, I suggest, we can see that people's responses to the crisis twenty-five years ago, however well-intended,

failed to accomplish their purpose.

The reason, upon a little thought, is apparent. One reaction to the panic button, for instance, was to get the best minds working on curricula. That is fair enough; but the best minds are human minds. Naturally, they tend to ride their own hobby-horses. So we see students who know the words about Lorentz transformations, but can hardly do things with Newton's laws.

Again, a panacea was thought to lie in better experimental equipment; and there is no denying that some was needed. But again, consider human nature. If money is available, things will be offered for sale to get that money. So catalogs have become filled with complicated gear, which the students simply do not understand, while in many cases it is harder and harder to get the simple, understandable things. An example is the proliferation of lasers. The laser is a useful tool; but when it moves from being a tool to being an idol to be worshiped, it is time for someone to call a halt.

Nor can I pass by the remarks about the involvement of governments in education. It is not my place, as a friend but not a citizen of your country, to hold forth on political matters. But I suggest that universal experience shows that government interference spoils everything it touches; nor is there any reason to suppose that it would be any different with education.

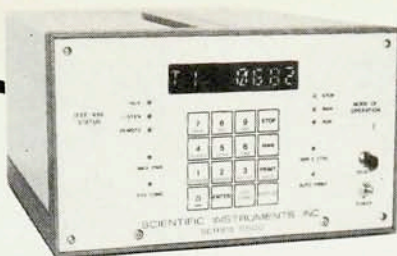
Lest I be entirely negative, let me offer some (maybe) positive thoughts. What should be done?

First of all, consider an observation common to most teachers of science. There are those students who want to get ninety-nine per cent so as to get into medicine. They work hard, and achieve much. Does this not suggest that in many cases the lack is one of motivation?

But the students may not be wholly to blame for any such lack. Are the things we offer them things that anyone would really want to learn? Is anyone really interested in spending six months with things sliding on inclined planes? If we offer things that the students perceive as desirable to know, would that in itself not help much about motivation?

A second problem is that there is a Gresham's law in studies as well as in economics: Bad studies tend to drive out good ones. Universities, as well as high schools, are full of things that do not belong in an institution of learning at all. There is no need to name names; everyone will be able to think of examples.

What we can do, then, and should do (but probably will not) is to set our own house in order, and to urge and encourage that things be set in order on a wider scale. If this were done, I suggest



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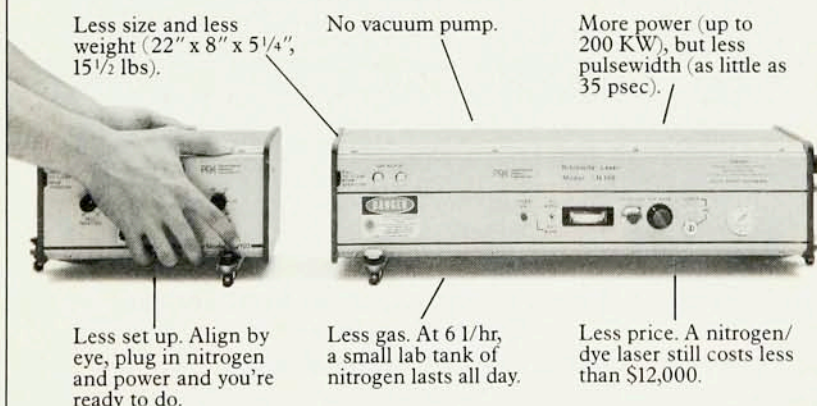
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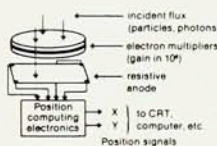
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letters

that many of the problems would solve themselves.

H. L. ARMSTRONG
Queen's University
Kingston, Ontario

6/83

Perhaps a clue to "the crisis in high-school physics teaching" can be found by comparing the latest (6th) edition of *Physics* (Physical Science Study Committee) with earlier editions. Missing is the chapter "What is Physics," together with any discussion of orders of magnitude and scaling arguments. (In effect, Chapters I through IV of the first edition are no longer there.) The latest edition starts right with the business of motion along a path ($d = vt$ and so on). And though these deletions may make it easier for school-of-education graduates to teach "physics" using the book, I am afraid it means that much of what I believe to be physics will never be taught.

JAMES E. FALLER

Joint Institute for Laboratory Astrophysics
6/83
Boulder, Colorado

More on Turkish repression

In May 1982 (page 130) you published my letter drawing attention to the imprisonment of the Turkish physicist Yeter Göksu-Ögelman. Ögelman had been accused by the military authorities of having been president of the "Progressive Women's Association" of Ankara in the 1970s. The authorities alleged that such a body was an illegal organization.

E. Timms, of Caius College, Cambridge, a brother-in-law of Ögelman, has now given me the follow-up. He states that, according to a report in the (UK) *Times* of 13 January 1983, the following situation exists in Turkey:

Since September 1980

- ▶ 28 000 have been jailed by the military courts, for between one and thirty-six years, as political prisoners
- ▶ 10 000 detainees are awaiting trial
- ▶ 7000 further people are under investigation
- ▶ 3000 of those on trial face the death sentence.

Ögelman, whose case was followed by Amnesty International, was jailed for eight months without trial in a prison where the temperatures reached 105°F in the shade, and with three to a bed. She has now been acquitted and is now attempting to reapply through the courts for re-instatement in her university teaching post. (Several hundred university teachers are included in the above figures.)

Governmental repression is still practiced 350 years after Galileo was brought before the Inquisition and

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