

letters

the course serves an essential role. It is a fortunate high school that has a physics teacher who has had more than one year of general college physics! The students are thrilled by contact with the "advanced" topics and contact with working scientists and a working laboratory. If we can reach 250 students per year, there should be 50 universities that can do the same. We urge all physics departments to initiate such programs for their area. For an investment of about 300 man-hours per year, we can touch a significant fraction of the science-oriented, bright high-school students. We at Fermilab will be happy to learn of other plans and to provide more detailed information.

The Fermilab effort is not original and, even if multiplied by 50, will not solve the abysmal collapse of science education in our schools. However, the relatively small and very practical effort can have far-reaching effects on keeping alive that spark which leads students into science.

LEON M. LEDERMAN

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6/82

Backwards photo

The picture of Yukawa and Feynman that appeared in April (page 43) was printed *backwards*. I found this out by trying to read what was on the bulletin board (behind Kobayashi); it didn't make any sense to me until I noticed some other clues. Then I turned the page and, with backlighting, read the four characters; loosely translated, they mean "Urgent Notice."

There are altogether *five* clues, one of which I shall point out: The men's jacket and shirt pockets are on the wrong side. The rest of the four clues I leave as an exercise for the reader.

PETER H. Y. LEE

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5/82

Avoid land-based missiles

In response to the letter by James Locker (February, page 101), which attempts to justify a large number of US counterforce missiles targeted at Soviet missile silos by considering the available options open to us after an initial Soviet nuclear attack on US missiles, an attack which Locker suggests would destroy 80% of US land-based missiles.

Surely the obvious solution is to avoid having any US land-based missiles at all, thus saving ourselves tens of billions of tax dollars and, more important, avoiding the possibility of a Soviet

strike arising from, for example, a Soviet computer malfunction which mistakenly identified a US counterforce first strike from US land-based missiles, an error which could not be identified in the thirty minutes (or ten minutes for missiles based in West Europe) before Soviet land-based missiles would be destroyed.

Without land-based missiles we would still have security in the ocean depths, a multitude of nuclear armed submarines which would still have the capability of exacting a terrible revenge for any Soviet nuclear attack on the US but which do not (as, yet) threaten Soviet missile silos. Land-based missiles cannot *defend* anyone—they simply bring the threat of the extinction of mankind in a nuclear holocaust one step closer.

CHARLES SKINNER

Princeton University
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2/82

Learning how science is done

In your interesting editorial in February (page 128) you concluded by saying that "we can succeed in giving children their own hands-on experience of how science is done and what is meant by a scientific theory." I am dubious that in fact this will be done by means of the existing curriculum development projects, at least in their current form. In your editorial you referred to the ESS project at MIT. There were, of course, similar projects at Berkeley (SCIS and ESS) and within AAAS. But these materials are, unfortunately, receiving extremely little use in American schools. I happen to have heard recently of a survey of elementary schools done by the New Mexico State Department of Education. Of the 88 schools replying, only two were using the SCIS materials and none were using ESS materials.

The classroom problems rest in the difficulty of providing any individualized attention to students and in the difficulty of letting them work as scientists in a "discovery mode." Additional problems come from the fact that many teachers are ill-prepared to bring such an approach to children because they themselves do not understand it. A glance at the courses typically used to train teachers in science indicates that both in quantity and quality they are inadequate to the task.

However, I believe that there is a way that we can move toward a better understanding of science, not only with children but also with a much wider part of our society. This is by putting these and similar materials in a self-contained, highly interactive computer environment in which each student can be immersed in a series of different



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letters

scientific experiences. We have, in fact, developed such material here at the Educational Technology Center with support from the Fund for the Improvement of Postsecondary Education within the Department of Education. I invite your readers to inspect these materials and to aid us in the problems of propagating them widely in our society. We believe that they circumvent many of the problems associated with our older approaches. They fit very well with the increased use of computers, both in the home and in the school.

ALFRED BORK

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5/82

Communism and nuclear war

Henk Wind suggests, untenably, in his letter (May, page 125) that Communism, while "bad" and unworkable, is "not intrinsically evil." As I write this, there sits next to me on my desk a recent issue of *The New Republic*, the finest journal of the liberal persuasion I know of, containing a review, by Richard Grenier, of Anton Antonov-Ovseyenko's new book *The Times of Stalin: Portrait of a Tyranny*. Combining Antonov's evidence with that of Nikolai Tolstoy (in *Stalin's Secret War*) and with what demographic material we have, Grenier concludes that Lenin and Stalin are responsible for the loss of eighty million lives within their own borders (excluding war casualties, of course). That all of this was not a mere accident, as some have claimed, can be demonstrated by reading Lenin's *The State and Revolution*, wherein he defines the "dictatorship of the proletariat":

The scientific term 'dictatorship' means nothing more or less than authority untrammelled by any laws, absolutely unrestricted by any rules whatever, and based directly on violence. The term 'dictatorship' has no other meaning but this....

When he has finished explaining this away, Wind might then cut his teeth on Trotsky, murdered by Stalin's agents for being too "liberal," who once sneered at "the Kantian, priestly, and vegetarian Quaker prattle about the sacredness of human life," which, somehow, millions of Russians "still manage to enjoy...."

But let us give the devil his due: Communism and Nazism are not really comparable. Communism is much worse; it makes Nazism look amateurish. A regime in Russia kills eighty million, one in China at least one hundred million, another in Cambodia

lays waste to an ancient state and liquidates nearly two-thirds of its population, and still another in Vietnam, for the first time in its history, forces a hundred thousand citizens to flee, often in rickety boats. To state, as Wind does, that all of this (to take merely a few examples) is *not* intrinsically evil reveals a bankrupt morality, as bankrupt as that of his fellow Europeans who take to the streets in protest of non-existent American Pershings and cruise missiles and, for the most part, stay cozy and indoors while the Polish army re-Stalinizes its people.

Tyrannies may come and go, but Communism shows no signs of departing. All Communist states have come to power in the violence of war or revolution. And, unlike the governments of Argentina, Spain, Portugal, Turkey, and Greece, not one has ever collapsed or has ever been, or ever showed any prospects of becoming, a democracy. Wind, like many a Western intellectual, is still trapped in a sentimental haze about the "people" and Communist "idealism" when it comes to dealing with the Soviet Union and its puppets. If the Nazis had proclaimed their "ideals" and "good intentions" more loudly, perhaps they, too, would be pardonable.

DALLAS C. KENNEDY II

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Henk Wind is certainly correct to suggest that one way to avoid nuclear war is by the surrender of one of the superpowers to the other. But he does not explain why he proposes that the US and its allies do the surrendering rather than the Soviets.

Almost a century ago, the Austrian economist-statesman, Eugen Boehm von Bawerk, exploded the scientific pretensions of Marxism and characterized it as a "house of cards."¹ Nothing has happened to change that assessment. Indeed, the worst fears of such early Marxian critics as Pierre Proudhon, who foresaw with dread a "St. Bartholomew's Day of property owners," have been fully realized in the Gulag and the massacres of Russia's peasant yeomanry.¹ The Russian "experiment" has been a failure in every department of human concern: economics, politics, and culture; its leaders have created a garrison-bunker state that is a monument to those failures.¹ The claim that socialist triumph is "inevitable" has the same hollow ring as Hitler's boast of a thousand-year Reich.

Whatever the military strengths of the Soviet Union, the fact is that scientific-democratic capitalism has never been stronger than it is today in terms

continued on page 119

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