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letters

schools. Further, it is not possible, under local contracts, to pay higher salaries to teachers of specialties that are in short supply. Some of the certification requirements for teachers mean that often eligible and knowledgeable individuals cannot be employed on a part-time or substitute basis, even if appropriate salary and merit rewards were available. While these problems are only a few of those that exist in our elementary and high-school systems, they nevertheless are central problems that merit serious consideration by the individual state education associations and the American teaching profession and their union representatives.

L. J. LANZEROTTI

New Vernon, New Jersey

8/82

How many nuclear warheads?

Your correspondent, James Phillips (May, page 131), is right to draw attention to the different philosophic bases of the governments of the US and USSR. They should not be overlooked in the debate on nuclear weapons. However, I wonder if he will allow me to make an addition to his conclusion (my addition in *italics*): "to increase our defenses to the point at which we can sustain a first strike and still defeat the aggressor, *without unnecessarily increasing the number of weapons beyond that point.*"

I would suggest that the addition is appropriate because a further increase in nuclear weapons both increases the risk of war due to accident and also raises the level of military confrontation and tension and, hence, increases the likelihood of conflict.

If the addition is accepted, we come to a matter of numbers. In the USSR there are some 260 cities of more than 100 000 inhabitants¹ or, say, some 1000 towns of over 20 000 inhabitants.² Suppose that, to "defeat the aggressor" it is considered sufficient (and surely it is excessive) to lay waste to all of these towns, then the present US submarine force alone is more than adequate to the task. "Under normal peacetime conditions, about half of the US ballistic missile submarine force—a total of about three hundred and twenty launch tubes—is at sea at any one time."³ Each missile carries an average of some 8 warheads and almost all the submarines are expected to survive a first strike. The present submarine force with some 5000 nuclear warheads answers Phillips' requirements, with a fair margin for error.

On the other hand, in view of the fact

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that the US has now some 30 000 nuclear weapons (figures for numbers of nuclear weapons are available from a wide variety of sources that are in substantial agreement, for example reference 3), perhaps I can rewrite Phillips conclusion again: "to reduce the number of nuclear weapons held by the US to the point at which it can sustain a first strike and still obliterate any enemy, but not continue to hold numbers far beyond the point."

References

1. United Nations Demographic Yearbook.
2. Extrapolation from data in ref. 1.
3. Nuclear War: What's in it for you? Ground Zero (Pocket Books, 1982).

J. A. EADES
University of Illinois
Urbana, Illinois

6/82
THE AUTHOR COMMENTS: J. A. Eades misunderstood my literal use of the terms "defeat" and "defend." I owe him a clarification. The constitutional-mandated functions of the US government include repelling attacks, establishing justice and defending the lives and freedom of the population. By "defenses" I mean protective defenses such as shelters, relocation and methods of intercepting weapons directed against us as well as the modern equipment necessary to disarm an aggressor. By "defeat" I mean the disarmament and capture of the offending parties so that they may be brought to justice. Nuclear devices can be effectively used to further both of these ends.

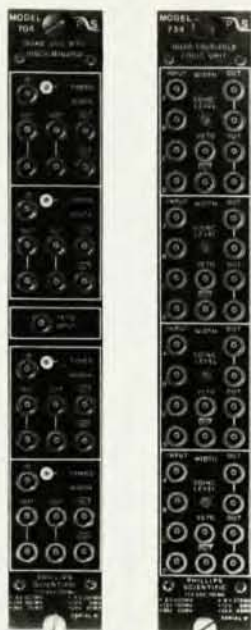
I'm afraid I disagree with almost all of Eades' assumptions and suggestions. We have no way of knowing in advance exactly what the extent of the damage to our forces will be in the event of an attack. After careful examination of Eades' current letter and the one in the January issue, I am left with very little hope that we would agree on what constitutes a "fair" margin of error. One small bomb can destroy a Trident sub along with the 192 low-yield warheads the sub carries. In addition, small devices such as those carried by subs are not very effective against hardened military installations.

This brings us to the "matter of numbers." I clearly stated in my letter that I saw no strategic benefit in the targeting of civilians. The suggestion that we could "lay waste to all of those towns" and "obliterate" civilians leaves me both disappointed that Eades did not read my letter carefully before responding, and shocked that an educated citizen of an Allied nation could casually suggest the deliberate mass destruction of civilians in response to the actions of a government over which they have no control.

J. H. PHILLIPS
Austin, Texas □

7/82

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