invited—a refusal which may come either from the country of origin of the physicists or from the host country.

Such a list might be made reasonably complete by asking all physicists from all countries to contribute any instances that come to their attention. Physicists who felt that they had been injustly included might always write a letter to ask for redress. This approach would leave little room for polemics.

HENRY BLUMENFELD
*3/83* *Gif-sur-Yvette, France*

## Nuclear arsenals

The article "The Nuclear Arsenals of the US and USSR" by Barbara Levi in March (page 43) claimed the Soviet SS-20 has a CEP on the order of 400 m. A source was referenced for the data. I find two problems with this number: First, the International Defense Review 8 (1979), page 1308, reports a CEP of 100 m or less for the SS-20; second, if the SS-20 had a CEP of 400 m there would be no incentive to build the Pershing II, because the Pershing 1A has a CEP on the order of 400 m. Thus the only advantage the SS-20 would have is the MIRV warheads and some range, if indeed this is an advantage. I believe a deeper study will reveal that the great incentive to develop the Pershing II came about because the SS-20 has a CEP of 100 m.

The March issue, while not enjoyable to read, was very informative and contains basic knowledge that most who want to be informed should know.

ROBERT I. HILDEBRAND
*US Army Tank Automotive Command*
*3/83* *Warren, Michigan*

THE AUTHOR REPLIES: The unclassified literature contains a range of estimates for the characteristics of Soviet and American nuclear weapons. For consistency throughout my article, I chose to cite estimates from one widely respected source—The Military Balance 1981–82, published by the International Institute for Strategic Studies.

Even if the SS-20 were known definitively to have a CEP of 100 meters, I would not agree with Robert Hildebrand as to the incentive to develop the Pershing II missile. The increased range of the Pershing II is surely at least as important as its greater accuracy. The capability of this missile to reach targets within the USSR has both political and military impact.

BARBARA G. LEVI
*4/83* *Contributing Editor*

## Graduate-school announcements

Because of the ever-more-outlandish size and shape of graduate-school announcements, I fear we must include departmental bulletin boards in Garrett Hardin's "Tragedy of the Commons." The ridiculous extent that most institutions have gone to now makes it impossible for any one school's poster to be recognized or found for later reference on a bulletin board.

We have recently established a policy of tossing any announcements we get that exceed the standard $8\frac{1}{2}'' \times 11''$ format into a cardbroad box in the SPS room; they never get to the bulletin boards. By being just a little creative (staple five sheets together) I'm sure graduate schools can figure our how to catch a student's eye and still not use half a bulletin board. Anyday now I expect to get one that will have a request to be plugged in as well as posted.

WILLIAM HESSE
*Randolph-Macon College*
*4/83* *Ashland, Virginia*

## Classical orbits in QM?

I am interested in obtaining information or references pertinent to the construction of classical orbits within the context of quantum mechanics. In particular, the use of wave packets for the hydrogen-atom system to represent an orbit in the sense of celestial mechanics (semimajor axis, eccentricity, inclination, and so on) is of especial concern to me. If a reader could direct me to the appropriate references for such computations, I would very much appreciate it.

LAURENCE G. TAFF
*Lincoln Laboratory*
*4/83* *Lexington, Massachusetts 02173*

## Public image

Soon after my arrival at the APS meeting in Los Angeles, a lady in one of the local shops asked if I was with the convention. When I said yes, she asked, "are you all physical therapists or what?" If the purpose of the name of the society is to reflect the nature of its membership to outsiders, then this is one more point against remaining "physical."

BRYAN H. SUITS
*University of Pennsylvania*
*4/83* *Philadelphia, Pennsylvania*

## Scientists in defense work

The community of physicists has questioned whether serious scientists should get involved with the defense and military establishment of the US. Many have answered in the negative and dissociated themselves from anything to do with weapons or war. We would like to argue that this is wrong.

We start with two premises on which there is general agreement, we hope. First, society as we know it, maybe humankind as a whole, is in grave danger today because of the possibility of nuclear war. Second, some policies will avert the danger while others could result in mutual destruction. The task of finding the ways that may prevent disaster is not at all simple; it is filled with uncertainty, with technical and political controversy.

Many defense policies are based on the development of new technology by the government and its use for military applications. Recent examples are some proposed defense systems whose feasibility, desirability, price and implications are controversial. But decisions on these and other programs (and the allocation of budgets) *will be made* and we will *all* have to live with their long-range consequences whether or not we participate in them. It should be obvious that we need the best scientific talent to take part in the evaluation and decision making. This in turn requires that scientists actively seek participation, use an appreciable fraction of their time to become thoroughly familiar with the technical, strategic, and political aspects of some particular program and then use their knowledge, insight, integrity, broad outlook, and influence to help make wise decisions. We do *not* expect total commitment in the style of the Manhattan Project, nor brilliant ideas that save the world. Rather we hope to see informed debate on the subjects of national defense (and maybe some consensus) as opposed to the emotional "four-legs-good, two-legs-bad" arguments that have dominated public discussion.

Such a commitment from the scientific community would not, we believe, compromise its integrity and objectivity. If some of our best scientific talent stands aloof from the hard and "dirty" questions, lesser minds will rush in and preempt the making of policy. We believe that everybody who has the ability has a moral obligation to help minimize the dangers to all of us.

ABRAHAM SZÖKE
*Fremont, California*
ABRAHAM GOLDBERG
*5/83* *Livermore, California*

## Schramm's grad student

I'm writing to say I enjoyed (April, page 27) David Schramm's whimsy—I hope *before* somebody complains that his grad student is female.

BETSY ANCKER-JOHNSON
*General Motors Corporation*
*4/83* *Warren, Michigan* □