

physics background would be most useful, and even though I plan eventually on a career in medical research.

I agree that a physics education is both enlightening and ennobling (and like Nedder, I maintain my APS membership), but one must still buy the groceries and pay the rent. While it is acknowledged that all PhD physicists will not be able to obtain employment in their field, it is assumed that most of them will be able to obtain engineering jobs in fields related to their area of training where they will be able to use their expertise. This is a good assumption for solving one's conscience, but there is no hard evidence that it is actually the case. We simply do not know what happens to those physicists who are forced to leave physics, but it is likely that many are forced to take rather menial positions for a person of their educational level. I would suspect that a physics education might prove even less useful to a taxi driver than to a physician.

ROBERT J. YAES
11/83
Brooklyn, New York

Scientists versus philosophers

The difference between scientists and philosophers, emphasized by Helier J. Robinson in "A theorist's philosophy of science" (March, page 24), can be accounted for by Darwin's theory of survival of the fittest.

Science survives better when airies and earthies cooperate, whereas philosophy survives better when they compete. Historically, at least, that would appear to be the empirical conclusion. Theoretically, it might be explained by noting that philosophy is largely thought, and it may actually progress better when philosophers jolt each other, as depicted on page 25. Scientists, on the other hand, are lured on by the mystery of the unknown, and need less prodding to stay on the right track.

From what is going on in the world, one would think that the leaders of nations are philosophers rather than scientists, and that there would be much more cooperation if scientists took over. Such a population inversion in Russia would place the refuseniks on top, and they would then undoubtedly cooperate completely in allowing the Kremlin to leave the country.

All roads lead to the March editorial (page 168), in a sense, when real thought is given to exactly why the refuseniks are not allowed to leave. Soviet strategists obviously fear that some of them may become Einsteins and Fermis, contributing to the defeat of the Soviet Union in war. This in turn implies that the Soviets contem-

plate war during the active lifetimes of the refuseniks, so there is great danger that World War III could start around 1990, fifty years after the start of World War II, consistent with the well-known theory that worldwide political and economic cycles tend to run in fifty-year periods.

Robinson may not have pointed out a weakness in philosophy (disagreement among earthies and airies may be its mainstay), but he may have pinpointed why world orders cannot be based on philosophical differences, and why scientists must cooperate (as on page 32) to achieve global harmony despite individual differences.

KENNETH J. EPSTEIN
3/84
Chicago, Illinois

Military strategy

As an ordinary citizen with only a very modest knowledge of foreign affairs, psychology of nations and military technology and strategy, I am finding it difficult to understand what the optimum policy for the US should be to avoid nuclear war and yet preserve our liberties. Many distinguished authors have written on the subject. All give highly convincing arguments for their theses, but disagreement among them is common. Each implies disaster if his recommendations are not followed. Consequently, it would be very helpful toward resolving confusion if authors would include, and editors would require, discussion of the following three subjects in any analyses:

Historical comparison. This is a form of experimental test of the proposed theory—imperfect, but the best realistic test we have short of implementation or catastrophe. Would a similar policy as advocated by the author have worked in an earlier era? (Of course adjusted for the era.) For example, would a weapons freeze have worked in the 1930s to contain the Nazis? Or, how often has disarmament helped the democracies? How often hurt them? Has excess armament by itself provoked war in the past?

Effect of proposals on adversary. Suppose the author's thesis is in fact adopted by the US. As a consequence, will our adversaries be more or less likely to cooperate toward reduction of tension and aggression? In particular, of course, will the Russians see disarmament, freeze proposals and so on as weakness and then be more likely to make new Afghanistans, Angolas, Ethiopias, Polands, Hungarians, Czechoslovakias, East Germanys, Estonias, Latvias, Lithuania, Finlands and so on? Or, in contrast, will the Russians find our arming as provoking and dangerous to them and risk yet more

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