"the advancement and diffusion of the knowledge of physics."

A contrary strain in the thinking of many scientists is that which was most clearly brought forward in the symposia of March 4: that science and technology appear to be getting out of hand and that the future of mankind may be in serious jeopardy from the careless exploitation of our knowledge about nature. It appears that most scientists are willing to acknowledge that they, in the practice of their profession, do carry some sense of public responsibility; but if this is really so, if there are only a few callous souls who are content to say, "I only do the research; it is someone else's worry how the product may be used," then there arises the very real question of what means and mechanisms should be employed to study and to exercise the lines of flow between the world of abstract scientific knowledge and the world of living men.

It is probably clear that I am leading up to some proposal that will attempt to get the APS involved with public issues, and I can already hear the rebuff, "I am in sympathy with your goals but please do it someplace else." To be sure there are a few organized groups, and a few inspired individuals who work to advance the cause of humane rationality in the land of science-politics. But these few "someplace else" are too small, too weak, too partisan to command the respect of a whole country, given all the powerful obstacles that must be encountered; and so I, for one, conclude that if the great problems are left to "someone else," they will not be solved. I believe that the scientific profession—concerning itself as a profession—must take up the public responsibility of looking at its own products with an appropriately critical eye.

The American Physical Society was incorporated in 1914. The past half century has witnessed an enormous growth in science; but even more important than size is the new vision of the interrelationship between science and society. It is no insult to the founders to say that what seemed complete and proper in that very distant time is just not adequate today, and it should be not too great a burden to place on all scientists today the request to consider and find a new collective statement of their professional purpose.

Thus I call upon the Council of the APS to declare an "open season" for consideration of changes in the statement of the object and purpose of the Society. (Legally, since members have no voting power, only the Council can amend the Articles of Incorporation.) Let us dedicate a "year of reappraisal," with a tide of letters to PHYSICS TODAY and to the Council, special discussions and debates at our regular meetings, and ultimately some pulse taking of the whole membership so that a broadly developed new formulation may be constructed to guide us in the turbulent future.

CHARLES SCHWARTZ
Berkeley, California

New polarized-electron source

Stimulated by the brief review article on polarized electrons by Prof. B. Bederson (November, page 87), I write this letter to bring this subject more fully up to date. There is another way to produce an intense source of polarized electrons. A description of this new method can be found in a recent CEAL report.[1]

The method employs polarization transfer from state-selected and mechanically confined hydrogen atoms (as in hydrogen maser at Harvard) to low-energy free electrons (trapped magnetically) through the mechanism of elastic spin-exchange collisions. Without going into details (which can be found in the report) the envisioned experimental arrangement should yield 10^{11} electrons per pulse with electron polarization, $P \gtrsim 0.9$. The pulse duration will be variable and in the range 1–100 microsec. This pulsed device would operate with a variable repetition rate of up to 1000 Hz. The net average intensity would therefore be 10^{14} electrons per second. For a source energy of about 100 keV the emittance properties would be comparable to those of present thermoionic electrons sources used with most linear accelerators.

The final device (or a modified version of it) could be useful in atomic, nuclear and high-energy particle physics. It is in fact the first device that would provide enough intensity to make nuclear and high-energy-particle scattering experiments warranted. Initial development of this device started in 1965 and a prototype has been constructed. The experiment is

in the last stages of preparation.

The two most promising sources discussed by B. Bederson are the sources based on low-energy elastic electron scattering from mercury and optically pumped helium afterglow. Although these sources are interesting, because they are direct current sources they have the disadvantage in that they are incompatible with present-day linear accelerators. They may be useful if and when cryogenic linacs are developed. However, even then their average intensity is several orders of magnitude less than that of ours (not to speak of a lower polarization factor). It appears that their usefulness outside of low-energy physics is doubtful.

RAYMOND J. KRISCIOKAITIS
CEA-Harvard University

Reference

1. Raymond J. Krisciokaitis and Wu-Yang Tsai, CEAL-1050, Harvard University, 1969), (submitted to the Physical Review).

Drafted scientist

Many readers besides myself have become somewhat accustomed to reading published accounts of the effects of the draft on graduate enrollments and availability of young professional physicists. It would seem to me that our scientific community should just as ardently concern itself with the immediate and long term consequences suffered individually by the drafted scientists themselves. Two years of military "service" should not be considered as simply an independent segment of activity, after which the individual is returned, unaffected, to pick up where he left off. For example:

Without any change whatever in my professional responsibilities as a Research Associate at a Mid-western institution, my local draft board served notice that my deferment was no longer available to me. I then accepted an offer to become a "draft-deferred" civil-service physicist for the Army Materiel Command at Aberdeen Proving Ground, Maryland. I sold our home, moved family and baggage to Aberdeen, and received a draft notice four days later.

I am now permanantly assigned, along with several hundred other scientists and engineers, to the Army's Science and Engineering Program and working for an agency of the Army