Scientific readiness

IN this issue of *Physics Today* the Science Advisory Committee of the Office of Defense Mobilization presents an important statement on the role of scientists in mobilization, with special reference to that of scientists in academic institutions.

The urgency of our scientific effort in terms both of short- and long-range needs, is indeed a matter of concern, especially to physicists. Essentially the situation may be summed up as follows: On the assumption that the degree and duration of the present emergency are quite uncertain, defense planning involves two phases: (1) bringing our capabilities into immediate readiness, and (2) maintaining this state of readiness for an indefinite period—perhaps for many years.

In its impact upon science and scientists, the present emergency involves the same two phases:

(1) Prompt accomplishment of "operational readiness", in terms of the scientific effort.

(2) Maintaining a maximum state of scientific readiness for an indefinite number of years.

The first phase means immediate assistance to the military on all matters in which scientists may be competent. The second means taking steps to insure that maximum progress will be made in science generally, and that our output of scientific manpower continues to meet the high standards of both quantity and quality that American science has set for itself.

The problem is to accomplish both phases simultaneously. It seems clear that if the needs of the present are to be met satisfactorily without jeopardy to the ability of science to meet the long-term needs of our economy, the military, in consultation with the scientists, must select carefully those projects and programs that have real priority. It would be unwise and in fact dangerous for all scientists to move immediately into applied research and development. Accomplishment of the second phase involves appreciation on the part of both science and the military of the need for stressing fundamental research and education in the interest of over-all progress in science and an increased output of trained scientists.

This is a formidable program indeed and one that cannot be carried out successfully without planning and determination on the part of all concerned. It most certainly cannot be carried out unless we have trained manpower of high quality available in the numbers needed to do the job. At the moment, this factor seems all-important since every analysis shows that the number of bachelors majoring in science will decrease markedly in the coming years. In fact, the evidence is that the interest of students in the natural sciences and engineering seems to be diminishing, both in the colleges and in the secondary schools. This is an alarming situation and one that calls promptly for effective corrective measures. At the very time when in the national interest more scientists are needed, we find that fewer are forthcoming.

If we are to do an intelligent job of maintaining high quality and volume of research and an adequate flow of trained scientists, we should seek to understand the reasons which lie behind the current trend. The question is undoubtedly a complex one, but in any event it is one which should concern physicists quite apart from the present emergency. It is clearly the duty of all of us to call attention to this trend and to the professional opportunities for scientists in the years ahead. Beyond that we should consider what else may be done, such as taking measures to improve the teaching of science, to encourage more students to enter scientific careers, whether for research or teaching, and in every way possible to aid education and research in the sciences.

Alan T. Waterman