News and views

SCIENTIFIC MANPOWER

ACS CALLS FOR NATIONAL ACTION

Under the pressure of the Korean and Cold Wars, the Selective Service System is rapidly gathering momentum in its program of calling up the organized reserves and drafting men into the armed forces. Meanwhile, and although there has been common acceptance of the vital role of science and technology in military preparedness, no effective means of preventing the wasteful use of the training and skills of scientists are yet formally operative nor even indicated as an early probability.

The American Chemical Society, in a resolution adopted by its board of directors during the Society's Chicago meeting in September, has vigorously proposed that immediate steps be taken to insure that full use may be made of the nation's trained scientific personnel in the present emergency. The resolution, a copy of which was wired to President Truman by Ernest H. Volwiler, president of the ACS, and by Charles A. Thomas, chairman of the board, asks that an agency of the Government be designated and empowered to coordinate a national scientific manpower program designed to channel scientific talent into directions that will most usefully advance the national effort. The program as suggested would be developed with the cooperation of representatives of the various scientific societies together with those of the branches of the armed forces, and a cordial invitation was extended to other scientific organizations to join with the Chemical Society in forming a working committee for this purpose.

Dr. Thomas, executive vice president of the Monsanto Chemical Company in St. Louis, was later quoted as declaring that "it should be clearly understood that no blanket deferment of chemists and chemical engineers, or scientists in general, is suggested." What is essential is that trained manpower be used effectively, he continued, for "the whole public welfare—in fact, possibly our very existence as a nation—depends upon a proper and prompt resolution of this problem."

In his presidential address to a general assembly of the ACS, Dr. Volwiler amplified the Society's position in the matter. "The wholesale induction of skilled scientists for straight combat or police duty is a critical waste of abilities that are a precious resource of this nation," he said.

"Regarding the drafting of scientists," he continued, "we of the American Chemical Society recommend:

"1. That key scientists in industry, in government, and in universities remain at their posts to carry through the total mobilization of our nation which is required.

"2. That scientists in the armed forces be used to the highest degree in their primary fields of scientific education and training.

"3. That outstanding science students be deferred by means of a quota system to complete their training before they are called into the armed forces."

PRIMARY STANDARDS

ATOMIC VERSUS ARBITRARY DEFINITIONS

Standards of physical measurement, a scattered assortment of artificially defined constants that has been a familiar source of commercial and conversational frustration, were in their beginnings invented for reasons of local convenience and have had essentially only one other thing in common: they cannot be reproduced independently. The uniformity requirements of industrial practice which called for the standardizing of many things, measurement among them, led inevitably in many countries to the establishing of great national laboratories equipped to reach ever finer and more accurate means of measurement. Elaborate procedures were developed to insure that standards remain the same from one time to another, and in the case of the prototype meter and kilogram preserved at Sèvres, France, for instance, as well as with duplicates in the possession of other nations, great care amounting to the most elegant incubator treatment has been exercised to avoid even the most minor variations which might be induced by changes in temperature or other external conditions.

In a somewhat separate category because it is less arbitrarily defined than the primary standards of weight and length is the time standard, the mean solar day, which depends upon the earth's rotation as it is observed astronomically. Time measurements are nevertheless limited in their accuracy by irregularities in the rotation of the earth, a defection that has until now been of little serious concern but which may be expected to become increasingly troublesome in the future.

Following developments in interferometric techniques, microwave spectroscopy, and in other fields, proposals have been advanced that the primary standards now in international use be replaced by others which will depend upon certain invariable properties of atoms or molecules, the advantages being that such standards could readily be reproduced and that there would be no need for the physical protection of prototypes. The July 29th issue of *Nature* contains an article written by R. D. Huntoon and U. Fano of the National Bureau of Standards in Washington which presents a hopeful basis for the further discussion of changes in this direction.

In the case of length measurements, the authors point out, means have been found to increase accuracy by adopting the characteristic wavelength of the radiation emitted by certain atoms as the primary standard and thus omitting meter-bar comparisons, a principle that was endorsed by the 1948 International Conference of Weights and Measures. They add that preliminary measurements reported by the Bureau of Standards, the National Physical Laboratory of Great Britain, and the International Bureau of Weights and Measures permit