Dr. Harry Grundfest, of the Rockefeller Institute for Medical Research, called for a cooperative effort on the part of scientists in working out and submitting plans for war research projects. Such an effort by the members of the New York Branch of the association has already brought most satisfactory results. Of these projects the first two to be submitted have already been approved and work has been begun under OSRD authorization. He reported the suggestion that college courses in organic chemistry be reorganized to permit the synthesis by students of chemicals which are likely to become scarce. This project and the scheme for lease-lend of scientific apparatus which has been worked out by the Purdue Branch of the association are other excellent examples of the work which can be accomplished by collective planning.

The discussion which followed served only to emphasize the fact that biologists as a group are dissatisfied with their present relatively inactive part in the war effort. The view that biological and medical research should be "frozen" for the duration was severely criticized; on the contrary, the importance of forming groups for the immediate purpose of planning and organizing war research was repeatedly stressed.

J. E. HAWKINS, JR.

HARVARD MEDICAL SCHOOL

REPORTS

FIRST REPORT OF THE WAR POLICY COMMITTEE OF THE AMERICAN INSTITUTE OF PHYSICS

REPRESENTATIVES of U. S. Government agencies, institutions of learning, the press and various national associations are turning more and more frequently to the American Institute of Physics for information, advice and cooperation from physicists as a national group. These appeals present opportunities for national service. It falls within the designated scope of the institute to grasp such opportunities, but in order to do so it must first clearly understand the place of the science and the profession in the affairs of the nation and the world. Then it must accept the responsibility of speaking with authority about physics, of reflecting truly the wise consensus of physicists.

The war has brought new problems and rapid changes. It has placed physics in an important position; in fact, its present and potential contributions may well have a profound effect on the course if not the outcome of the war. The institute has thereby acquired the responsibility of keeping abreast of changes, and of presenting to those concerned with the applications of physics and the use of physicists in the war effort a currently valid and accurate portrayal of the science and the profession.

To meet these necessities the institute established a War Policy Committee for Physics, with power to direct the "external" activities in which the institute engages on behalf of the profession. The members of the committee are: Dr. Oliver E. Buckley, president of the Bell Telephone Laboratories; Dr. Karl T. Compton, president of the Massachusetts Institute of Technology; Dr. Homer L. Dodge, dean of the Graduate College, University of Oklahoma; Dr. R. C. Gibbs, chairman of the department of physics, Cornell University, and Dr. Paul E. Klopsteg, president of the Central Scientific Company, *chairman*. Dr. Henry A. Barton, director of the institute, is secretary of the committee.

There follows a report of certain conclusions and recommendations of the committee:

(1) PROFESSIONAL STATUS OF PHYSICISTS

Recent developments in technical and industrial trends have brought physicists into a position of importance in industry not heretofore existing. The present situation requires a more clear-cut definition of "physicist." The War Policy Committee has adopted the following definitions as a basis and guide for its work, and they are recommended to the Founder Societies for adoption:

(a) A *physicist* is one whose training and experience lie in the study and applications of the interactions between matter and energy in the fields of mechanics, acoustics, optics, heat, electricity, magnetism, radiation, atomic structure and nuclear phenomena.

(b) To qualify as a *professional physicist* one must have had at least eight years of training and experience in physics. Toward this experience four years of formal collegiate education with major emphasis on physics may be credited, year for year, if it leads to a bachelor's degree, five years if it leads to a master's degree, and seven years if it leads to a doctor's degree, from a recognized institution. Years of teaching of physics in a recognized institution may be credited as years of experience in physics. By a *recognized institution* is meant one which appears in the list of institutions approved by the Association of American Universities.

(2) TRAINING IN PHYSICS FOR THE WAR

New tools of war have been devised which can swing the tide of victory. They utilize results of research in electronics, electric waves, acoustics, mechanics and optics. Physicists have devised these new tools, engineers have shaped them for manufacture, and manu-

facturers are producing them. Men are needed to make the best use of them, to test and maintain them, to improve them and to devise new ones. These men are of many kinds, from high-school graduates to doctors of philosophy, but one thing they must have in common—knowledge of the fundamental laws of physics on which the operation of these tools depends.

Training in physics for all these operations and at all these levels is urgently needed.

(3) EMPHASIS UPON THE STUDY OF PHYSICS

Even before the war the place of physicists in industry was becoming increasingly recognized. This is made evident by available statistics concerning the growing number of physicists employed in industrial laboratories, and the expanding membership lists of national societies in the field of physics. In the last two years, as a result of war requirements, the need for physicists, as compared with other professions, has grown very rapidly. Recent estimates indicate that the need is now growing at the rate of 1,500 to 2,000 per year, and that the current annual supply from schools is no more than 500. The need referred to applies to individuals having five or more years experience in physics in the sense of Section 1 (b) above (*i.e.*, at least one year of study or experience after the bachelor's degree). It does not include the much larger need for individuals well enough prepared in mathematics and physics for training in technical war operations. This need has been officially estimated at more than 100,000. The War Policy Committee considers this a very conservative estimate.

Accordingly, it is urged upon officers and faculty members of high schools, colleges and universities to recommend immediately that students enroll in courses in fundamental physics and their prerequisites in mathematics, whatever the stage in the student's educational career. The recommendation should be made only to students who possess natural aptitude for these studies. Such guidance for the student will to a marked degree increase his value to his country in this critical time.

Advisers of students may wish to point out to the latter that the study of physics (irrespective of any post-war career) is immeasurably helpful in any walk of life, because such study improves the ability to understand the new physical environment which man is creating for himself, and which, far more even than now, is bound to exert a major influence upon social, political and economic trends.

Moreover, great new developments now appearing behind the veil of war secrecy are, beyond all possibility of doubt, establishing the basis for unprecedented peace-time applications of physics in industry. Some of the greatest of these are along lines not yet developed as branches of engineering. They give promise of opening large and fruitful fields for the useful and profitable employment of those well equipped with a broad, fundamental training in physics.

The committee recommends to high schools that they emphasize mathematics through trigonometry and that in teaching physics the aim should be to give a well-planned, thorough course in the fundamentals of the subject. Unless the high school is properly equipped to offer specialized training in the applications of physics, it should leave this to the higher institutions.

To colleges and universities the committee recommends making provision for the most advanced courses for which students are qualified and, where facilities are suitable, the establishment of intensive courses, with laboratory practice, in electronic devices and high frequency circuits.

(4) SPECIAL TRAINING OF PHYSICISTS

Since the demand for physicists exceeds the supply which can be expected from the normal operations of schools and colleges, this committee endorses the program of special agencies operating to supplement this supply.

(5) USE OF PHYSICISTS

The need for physicists in the total war effort is so vital, and the demand so greatly exceeds the supply, that it is essential that every available individual trained in physics be placed in a position in which full use is made of that training. The committee therefore would strongly endorse the adoption of any policies and regulations by the Selective Service System, personnel divisions of the Armed Services and other government agencies concerned to achieve this end more effectively.

SPECIAL ARTICLES

THE BIOCHEMICAL SPECIFICITY OF SULFANILAMIDE AND OF OTHER ANTIBACTERIAL AGENTS

EVIDENCE was given from this department[1] which led to the hypothesis that the antibacterial action of sulfanilamide was due to its competitive inhibition of enzymes which normally interacted with *p*-aminobenzoic acid or a closely related substance. The antag-

[1] D. D. Woods, *Brit. Jour. Exp. Path.*, 21: 74, 1940.