via media to the pilgrim. But our concluding contribution is from the frankly "electragonist" camp, where Drs. Eccles, Katz and Kuffler analyze the potentials peculiar to the neuromuscular junctional region with the aid of modifications imposed by curare, eserine and the ingenious use of the muscle impulse itself, back-fired against the junction. The conclusion is significant that endplate effects are depolarization effects, and so germane to the classical excitation process.

The Protean physiology of muscle can provide in this single volume hardly more than a sample antebellum cross-section. Yet to secure it can have been no light task. The succinct treatment of the parts minimizes the lack of an index; and the format, uniform with other numbers, continues the tradition of a finely wrought series.

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REPORTS

SECOND REPORT OF THE WAR POLICY COMMITTEE OF THE AMERICAN INSTITUTE OF PHYSICS[1]

REVIEW OF FIRST REPORT

IN its first report[2] issued on May 1, the War Policy Committee of the American Institute of Physics explained the reasons for its existence and discussed matters of policy of concern to physicists as follows:

(1) Professional status of physicists—definitions of "physicist" and "professional physicist."

(2) Training in physics for the war—its strategic importance.

(3) Emphasis on the study of physics—as justified by war and post-war needs of the nation.

(4) Special training of physicists—required for the war.

(5) Use of physicists—the importance of making full and efficient use of trained men in physics.

FURTHER REPORT ON MANPOWER

Since publication of the first report, the War Policy Committee has devoted special attention to the national manpower situation in physics. The situation has the proportions of a national emergency and is, the committee believes, coming to be recognized as such by the Army, the Navy and the War Manpower Commission. The emergency may be stated as follows:

(1) The design, production, operation and maintenance of new physical instruments of warfare are essential to the successful prosecution of this war. (Examples: submarine and aircraft location, improvement of anti-aircraft fire, automatic fuses, signaling devices, magnetic mines, etc.)

(2) The need for more physicists for these purposes is large and urgent.

(3) The number of physicists in this country is small, only about 7,000, and a substantial portion of these are already engaged in direct war work, leaving much too few to provide physics training for Army and Navy personnel and those needed for war research and production.

(4) Training of physicists is not an easy or short-time process.

(5) Unless prompt, effective measures are taken the shortage of physicists will be disastrously acute and no adequate program for training new physicists can be effected.

To meet this emergency the committee urges the Army, the Navy and the War Manpower Commission to take the following steps:

(1) Arrange for teacher training to provide for the very great amount of physics teaching which will be needed, not only in producing physicists, but in connection with training programs of the Army and Navy in which it is essential to convey some knowledge of physics to over 200,000 men and women within a year.

(2) Revise the situation of physicists with respect to Selective Service so as to assure students and teachers of physics the possibility of continuing their work without uncertainty.

(3) Provide loans, scholarships or other assistance to well-qualified students who need aid to continue their training in physics.

(4) Any men in the Army and Navy with physics training who are not actually employing that training in their work should be transferred to positions where physicists are now urgently needed either by detail or discharge.

(5) Start a public relations program as to the meaning of physics and its importance in the war, this being necessary to secure public approval and understanding of the necessity of the preceding four steps.

TEACHING LOAD 1942–43

The committee has studied plans of the Army and the Navy to enlist a large fraction of next year's college and university students in training programs to be carried on at the institutions. The programs include the Army Enlisted Reserve and the Navy V-1 program. The services rely on these programs to provide large pools of officer material and can be expected to make every effort to recruit them to the necessarily large enrolments to meet the essential

[1] July 19, 1942.
[2] SCIENCE, May 15, p. 508.

needs. The Navy program requires a substantial course in physics; the Army program is such as to increase above normal the number of students electing physics. On the basis of joint announcements of the services and conferences with their representatives, the committee has estimated that the teaching load in college grade physics will in 1942–43 be from two to three times the highest ever before sustained. This teaching load will fall on faculties necessarily depleted for war research and, in some instances, wastefully dissipated through the direct action or indirect influence of the Selective Service Act and the lack of knowledge in some local boards as to the importance of physics and its wartime role.

The committee welcomes the very specific directives which have been issued by Selective Service Headquarters, but urges that high officials of the Army and Navy issue statements emphasizing the necessity for students and teachers to continue their present work and affirm that in so doing the individuals concerned are performing the highest and most patriotic duty open to them. Such public statements, as well as occupational deferment policies, should particularly include graduate students, since these students are already contributing heavily to the teaching of physics and are being drawn more and more into war research.

Whatever actions may be taken by federal authorities (and some are known to be in preparation) designed to lessen the prospective shortage of teachers, the committee is convinced that they can not be wholly adequate. The committee, therefore, urges college and university administrations and faculties to use every expedient they can devise to prepare for the coming flood of enrolments in physics courses. This advice is all the more urgent in view of the fact that the war research programs must continue to expand and that additional faculty members will have to be called away from their teaching duties.

SPECIAL ARTICLES

RELATIONSHIPS OF THE HIGHER ARSENIDES OF COBALT, NICKEL AND IRON OCCURRING IN NATURE

THE interrelations of the higher arsenides of cobalt, nickel and iron has long constituted a mineralogical problem. An extended series of studies has been conducted in an attempt to arrive at a better understanding of this group. In this investigation minerals from numerous localities have been examined microscopically and by means of x-rays, and as many as possible of the compounds have been produced synthetically. Some time will necessarily elapse before a complete report is published. In the meantime, it is hoped that this brief account may provide a useful outline.

Previous attempts at synthesis reveal few claims to the production of the higher arsenides of these metals. Many of the conclusions reached are also in doubt, since the experiments were carried on more than a quarter century ago, and the materials produced were identified without the aid of either the reflecting microscope or x-ray diffraction. In the absence of such methods it was neither possible to establish the homogeneity of the product nor to identify the phases obtained.

The present investigation has been carried on in the mineralogical and x-ray diffraction laboratories of the Department of Geology at Columbia University. The author takes pleasure in expressing his sincere appreciation for the unfailing encouragement, advice and helpful criticism of Professor Paul F. Kerr, of this institution, at whose suggestion the investigation was undertaken. The method of synthesis employed throughout has been that of dry fusion. X-ray powder diffraction methods utilizing both Debye and Bohlin-Phragmen cameras with iron radiation have been employed in the determination of the homogeneity of the product, in the identification of the phases present and in the correlation of the synthetic and natural material. The x-ray data have been confirmed in many cases by the use of the reflecting microscope.

Orthorhombic Arsenides RAs_2

Safflorite	Rammelsbergite
Löllingite	Pararammelsbergite

Synthetic equivalents of rammelsbergite, pararammelsbergite and löllingite have been for the first time identified with the natural minerals by means of x-ray diffraction. The synthesis of "safflorite" was unsuccessful except when iron was employed in addition to cobalt, this cobalt-iron material giving a diffraction pattern of the safflorite type. Patterns of natural safflorite and the synthetic cobalt-iron compound are similar to those of löllingite. Furthermore, no orthorhombic diarsenide of pure cobalt has been reported in nature nor has it at any time been prepared synthetically. All analyses of the mineral safflorite are high in iron. Safflorite should be redefined as a cobaltiferous löllingite and has doubtful merit as an independent species.

Isometric Arsenides

RAs_2	RAs_3
(*Smaltite)	Skutterudite
(*Chloanthite)	Nickel Skutterudite
(*Arsenoferrite)	Iron Skutterudite

*(Discredited)