

## PHYSICS

# Electricity Book Ready

Pre-induction training book on Fundamentals of Electricity is being distributed to high schools all over nation to aid war effort.

► HIGH schools of the nation are being sent through official channels copies of a new pre-induction training book, "Fundamentals of Electricity" written by Dr. Morton Mott-Smith, Science Service physics writer, and published jointly by Science Service and the Westinghouse Electric & Manufacturing Company.

Designed to allow the speedy instruction of high school boys and girls, as well as older men and women, in the fundamentals of electricity so necessary in actual war and production, this book follows a course officially recommended by the War Department for introduction into all high schools.

Thousands in school and in evening classes are expected to study this 68-page book. Thousands more will use it for home study. The book contains 200 figures, 50 photographs and directions for 73 experiments. The text is divided into 40 lessons and followed in each case by 4 to 19 review questions. Anyone can read the lessons with understanding because the ideas are simply expressed and the necessary technical terms are fully explained.

One feature of the book is that practically all the experimental material required can be found around the house or home work shop or secured from the scrap heap. The reader is told how to make the necessary apparatus from such odds and ends.

Magnetism, induction, lightning protection, batteries, resistance, heat, light, generators, motors, transformers, and telephones are but a few of the many subjects covered in this textbook.

In a statement appearing on the cover of the book, James P. Mitchell, director of the Industrial Personnel Division, Headquarters of the Services of Supply, War Department, says:

"In modern mechanized warfare, electricity plays an important role. After the war, electricity will affect our lives in a thousand ways. A thorough understanding of this great unseen force by every high school student in America will be of immediate assistance in hastening the war's end, and also contribute to the building of a finer peacetime world."

In order to make this book available to the largest number of people as an aid to the war effort, Science Service is distributing it on a non-profit basis. Single copies may be obtained postpaid by sending 15 cents in coin or stamps to Science Service, 1719 N Street, N. W., Washington, D. C., and asking for a copy of Fundamentals of Electricity. Schools and study groups may obtain 10 copies postpaid for a remittance of \$1.

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## AERONAUTICS

## Expansion of Air Forces Is Exhausting Instructors

► THE RAPID expansion of the Army Air Forces is putting such a strain on flying school instructors that if they do not get more rest their health and efficiency will deteriorate.

This is the conclusion of a study of fatigue among instructors at Randolph Field reported by Capt. John E. Dougherty, Medical Corps, Army of the United States, in *War Medicine* (March), published by the American Medical Association, in cooperation with the medical sciences division of the National Research Council.

One of the instructors himself summed up the situation as follows:

"We have twice as many students, and the diversified training has increased about twofold, which should require about twice as much time to explain the maneuvers; however, we have only half the ground time to do it in. The students are not getting as thorough instruction and cannot progress as rapidly as they should. The instructors are tired and cannot give the students the attention they deserve."

The study of twenty instructors picked at random showed:

The younger instructors were slightly less affected than the older ones. Periods of greatest stress occurred when day and night flying were necessary. Seventeen of the twenty required one or two hours' additional sleep. The instructors felt tired all the time and especially in the late afternoon. They were more irri-

table toward students, friends and wives, less patient with the students, less concerned about the students' progress, and were less alert mentally and more careless, frequently finding themselves "in dangerous situations which under former conditions did not occur."

Lower blood pressures, low results of the Schneider test and heterophoria were also observed in many of the instructors studied.

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## POPULATION

## Drafting Young Married Men Endangers Future Manpower

► DRAFTING young married men may produce very serious results in terms of future manpower, especially as this war with Japan probably won't be our last. This warning is given by Dr. Constantine Panunzio of the University of California (*Scientific Monthly*).

"The United States and Japan will face a manpower situation somewhat similar to that which France and Germany faced in 1940," states Dr. Panunzio. Wanting us fully to realize the problem which vitally concerns the future of our nation, he continues, "Even if we should deal Japan a knockout blow now, in the next generation we may be obliged to confront a nation with an even greater manpower than it now possesses."

About three-quarters of all births occur to fathers between the ages of twenty-three and thirty-seven, Dr. Panunzio points out. In the United States, where our population is fast becoming stationary, it is a serious matter to call any considerable number of young married men to war. We must avoid laying the foundation for a manpower shortage.

At the beginning of the last war all Frenchmen of military age were called. A million fewer babies were born in France during this period, a loss which contributed to France's downfall in 1940. Germany also suffered a decided decrease in babies during the war years, but unlike France, she made up for it by a rapidly-growing population.

England's far-sighted policy during the last war was designed to encourage child-bearing. Married men were deferred until 1916, and allowances were made for wives and children. In this manner she was able to sustain her birth-rate to a remarkable degree, and this extra strength may have been a decisive factor in her resistance against Germany.

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