

medical manpower shortage in different areas, Dr. Harvey B. Stone, of Baltimore, declared at the Congress on Medical Education and Licensure held in Chicago under the auspices of the American Medical Association.

As vice-chairman of the directing board of the War Manpower Commission's Procurement and Assignment Service for Physicians, Dentists, Veterinarians and Nurses, Dr. Stone reported that well over 2,000 physicians have now been relocated.

Some unsolved problems still exist, he said, but added that "on the whole it may fairly be said that this issue which at first seemed so forbidding has met with a large measure of success."

Recruiting physicians for the armed forces has been only one part of the Procurement and Assignment Service's activities, he pointed out. With the aid of the U. S. Public Health Service and the state and county medical societies, areas of "alleged or suspected" medical manpower shortage were investigated and the findings were reported to the central office.

At the same time, the same groups, particularly the field force of Procure-

ment and Assignment Service, were on the alert to find and persuade doctors to relocate. Communities were stimulated to make relocation attractive by arranging for living and office quarters. State licensing boards cooperated by easing the legal difficulties of men moving across state lines. In the future certain financial difficulties will be eased by recent Congressional action in placing a substantial sum of money at the disposal of the U. S. Public Health Service to aid relocations.

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Disease Death Rates Low

➤ DEATH RATES from disease among our present far-flung fighting forces are not only lower than those in World War I but lower than the annual death rate in the Army during any one of the last ten years of peace, Brig. Gen. James Stevens Simmons, U. S. Army, declared at the Congress on Industrial Health held in Chicago under the auspices of the American Medical Association.

We have been able to develop our present great military force with such rapidity and mobilize industrial workers

to support it only, he is convinced, because we were armed with efficient methods and facilities for the prevention of disease.

Continued protection of health in this country and abroad, in his opinion, is essential to Allied victory and world recovery. He expressed the hope that eventually, through the development of preventive medicine in its broadest implications, it will be possible to prevent that most pernicious of all diseases, war itself.

The greatest difficulty in developing the Army's health program, he said, was the inability to get enough adequately trained personnel to carry it out. Only 160 malaria control officers were available on the basis of requisite training at the outset of the war. There were only 200 acceptable bacteriologists, only 63 suitable food and nutrition specialists and only 136 biochemists. Many of these could not be called without danger of breaking down the organization needed to protect civilian health.

The Army was obliged, therefore, to give short training courses in various aspects of preventive medicine. After the war, thousands of these men will go back to civil life partly trained for public health work and with great field experience. In addition, a large proportion of the troops will go back convinced of the importance of preventive medicine. As a result, he said, the nation faces a great opportunity to continue the health education of these individuals and to place the public health of the United States on a broader, firmer basis than has been achieved by any nation in history.

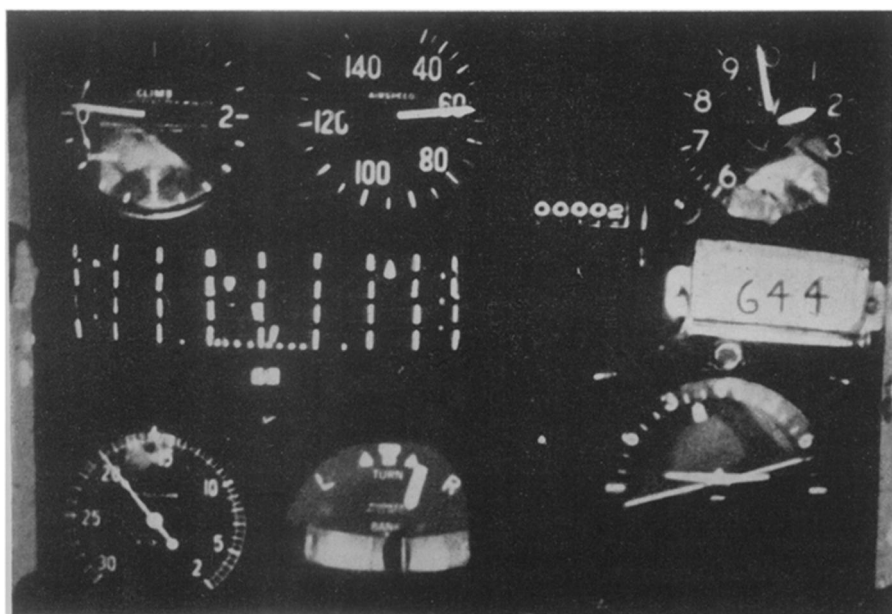
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AERONAUTICS

4F Men to Be Trained As Flyers in Experiment

➤ CAN 4F men learn to fly? Just what constitutes a physical handicap in flying will be learned experimentally as one of the research programs of a new Institute of Aviation Psychology, soon to be opened at the University of Tennessee.

The Institute will be supported by the U. S. Civil Aeronautics Administration and the Tennessee Bureau of Aeronautics and will be administered by the National Research Council's Committee on Selection and Training of Aircraft Pilots. The committee will have the cooperation of Dr. Dean R. Brimhall, director of research of CAA, and a spe-



FLIGHT RECORD—In a research program of the new Institute of Aviation Psychology and the Civil Aeronautics Administration, experiments will be conducted to learn just what constitutes a physical handicap in flying. A special movie camera will record the way the student handles his controls, at the same time that a record is made of the actions of the plane. This is a typical photograph of an instrument panel, showing what the plane is doing and the position of the controls at the same time. The instrument in the center at the left shows the position of the throttle, aileron, flipper and rudder by means of small arrows, top to bottom.



CANNED PATTERN—Besides the movies taken of the student 4F flyer and his plane's instrument panel (shown in picture on facing page) in the research program of the Institute of Aviation Psychology, records will also be made on a magnetic voice recorder of what the instructor says to the student. The girl above is using a ground model of the wire recorder which also serves as a playback machine for recordings made in the air on the lighter model on the left.

cial project committee of the University of Tennessee.

"Through this Institute, and we hope others like it, we will avoid the unfortunate cessation of basic and practical research in aviation psychology which occurred at the close of the last war," Dr. Brimhall said. "The Institute will be unique in its use of human guinea pigs who, in return for the opportunity of free flight instruction, will be required to take training under conditions which will make it possible to determine the effect of various teaching methods upon the acquisition of flying skill. Some of the student pilots, who will be drawn from residents of Knox-

ville and vicinity and trained at the University airport, will be men rejected for physical reasons by the armed services. This will provide an opportunity for the exact experimental determination of what constitutes a physical handicap in flying."

A special motion picture camera will be used at the Institute to record the way the student flyer handles his controls and this record will be compared with a simultaneously made record of all the movements of the plane. It will also be compared with what the instructor says to the student, as recorded on a magnetic voice recorder.

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PHYSIOLOGY

Fighting Men Need Water

Cannot be conditioned to exist on only one quart of water daily in desert and jungle warfare. Minimum of 7½ quarts a day is needed on Sahara Desert.

➤ FIGHTING in the steaming tropics, or on shadeless desert expanses where the mercury climbs to 100 degrees Fahrenheit or over, men in the armed forces perspire excessively, losing on an aver-

age at least seven quarts of water a day. According to old-time theory, men could be hardened to get along under such conditions on as little as one quart of water a day. Present-day research has

revealed, however, that no physical conditioning can suppress the water requirement of the body, and that this loss must be fully replaced by drinking water.

How much water our fighting men require for survival is now graphically illustrated in maps prepared by the Research and Development Branch of the Quartermaster Corps of the War Department.

At average temperatures of 82 degrees Fahrenheit and below, where little exercise is involved, one quart of water a day will suffice, the maps indicate. Above that temperature, however, man's requirement increases in proportion to his activity and the relative climatic conditions.

Northern Africa was mapped out for July, its hottest month, in relation to its water requirements. Of this area, the eastern part of the Sahara Desert has the highest recorded temperatures, and a daily minimum of 7½ quarts of water is required there for men engaged in maneuvers. The only hotter place in the world, according to officially recorded temperatures, is Death Valley in California.

Daily water requirements for areas surrounding the Sahara Desert are as follows: for a temperature range of from 94 to 97 degrees Fahrenheit, 6½ quarts; 91 to 94 degrees, 5½ quarts; 87 to 91 degrees, 4½ quarts; 82 to 87 degrees, 3½ quarts.

To determine whether men adrift at sea have a fighting chance to obtain enough rain water to keep them alive until rescued, required rain catchment areas on their rafts and lifeboats have been charted on seasonal maps of the oceans. In some cases, during certain seasons, absence of rainfall in ocean areas completely erases any hopes of survival. These fatal areas include an area along the eastern coast of Africa and the western coast of India, including the Red Sea and the Persian Gulf; and smaller areas off the west coast of South America, and off the West Coast of Australia. During the summer, some parts of the Mediterranean Sea do not receive any rainfall, but because of the relatively small area involved, survivors have a good possibility of reaching land before dying of thirst.

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There is only a little over one ounce of calcium in 20 gallons of sea-water, yet out of this low concentration shellfish build their shells.