

—two gliders and the tug—could be saved.

Disadvantages of this system which exist at present must be met by the designers, Mr. Loening pointed out. No aircraft as yet has been specifically designed as the tug plane. Problems are those relating to lowering fuel and engine power requirements for the tug

and still getting the glider off the ground; desirable weight and load for glider to facilitate picking up and insuring against too fast a landing; resistance to tow lines; and more crew cost as each glider requires a pilot until such time as radio and electronics developments permit automatic control from the tug plane to pick up and release a glider.

*Science News Letter, November 13, 1943*

## PUBLIC HEALTH

## Health of Armed Forces

**Members of the services of the United States, including WACS, WAVES, and SPARS, are in excellent health. Malaria, dysentery are chief Army problems.**

► MEMBERS of the armed forces quartered in the United States and the WACS, WAVES and SPARS are in excellent health, the Office of War Information reports on the basis of a survey of service records.

Overseas, the health record is also excellent. Malaria and dysenteries are the chief problems in land combat conditions. The Navy has had some trouble with infectious jaundice and with filariasis, the tropical disease which, when it becomes chronic, leads to elephantiasis. Fewer than seven cases per 100,000 men in the Navy, however, have been infected with this parasitic disease which is spread by mosquitos. No mention of any of these cases of filariasis having progressed to the elephantiasis stage appears in the OWI report.

Our armed forces overseas are better off so far as malaria is concerned than those of our enemies or any other armies operating in the same theaters as our Army, Army and Navy officials believe. The Army's malaria rate for overseas units in 1942 was about 30 per 1,000 men and so far in 1943 the annual rate is about 80 per 1,000. This increase is because of increased war activity in malaria areas. The Japanese, it is stated, failed to make adequate preparations against malaria, and consequently their troops are suffering from it much more acutely than ours.

Sickness or non-battle injuries kept an average of slightly more than 3% of the Army personnel in this country off duty at any given time during 1942. Abroad, the rate, even including battle casualties, was slightly lower. The Navy's corresponding "non-effective" rate was about 2% in 1942, also a record low. For 1943, Army figures show a continuation of the good health picture.

Veneral diseases in the Army and Navy are being held to low figures. In the United States, the Army's rate for men treated this year stands at about 40 per 1,000 men per year. The Navy's rate is 33 per 1,000.

"In this class of diseases there is a wide divergence," OWI states, "between the major branches and the women's services. Fewer than one in 10,000 women in the uniformed services has been admitted to treatment for venereal diseases.

"Of some 1,100 WACS released for disability in a 10-month period, only one was discharged because of syphilis and only one because of gonorrhoea."

About 25% of the WACS released for disability were released because of defects or ailments peculiar to women. About 45% were released for neuropsychiatric disorders, but many of these disorders, it was stated, would probably not be considered abnormal in civilian life. Separate health records are not kept for WAVES and SPARS but it is stated their health problems, except for venereal diseases, are much the same as those for the men.

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## MILITARY SCIENCE-ETYMOLOGY

### Do You Know a Fuse from a Fuze?

► FUSE OR FUZE? We were all confused too. It seems that the Army's Ordnance Division uses "fuse" for a device that times the explosion of a projectile by means of a powder train; "fuze" for a purely mechanical device to set off the big bang. Despite confusion, Science Services refuses to depart from this Army usage.

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## ORDNANCE

### Fuzes on 20-Pound Bombs Tested in New Wind Tunnel

► FUZES for 20-pound fragmentation bombs are now tested in three-foot tunnels with gales of from 300 to 800 miles an hour to simulate wind currents encountered by falling bombs. The tunnels are in use at the Westinghouse Appliance Division plant at East Springfield, Mass.

The bombs in which these fuzes are used explode and scatter fragments upon striking the earth. Premature explosion is prevented by the timing fuze which has a bow-like vane on its tip that revolves as the bomb falls. After a predetermined number of revolutions it loosens a safety device, which in turn releases the firing pin to strike explosive portions of the bomb when it hits the earth.

To test a fuze in the new tunnel, it is placed in the path of compressed air fired from a cylindrical tank. The air when released whirls the vane and releases the safety device. The action is recorded by a beam of light on a photoelectric cell, released as the safety device falls off.

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**TESTING BOMB FUZE**—A fuze for a 20-pound fragmentation bomb is being installed in the path of a man-made gale to determine how the fuze would perform when dropped by an American airman. Wind tunnel tests such as this at the Westinghouse East Springfield plant provide a constant check on the quality of fuzes produced.