

attention of chaplains, company officers, instructors, military police, Red Cross and U.S.O. workers, and other special personnel," Dr. Stevenson said. "Heretofore, there has been little that could be done about the man who sits disconsolately in the U.S.O. hut, taking no advantage of its reading or recreational facilities; or about the man who in spite of exceptional intelligence can-

not absorb the training; or the man who drowns his troubles in liquor, or goes A.W.O.L.

"These troubled individuals can now be given help in a mental health unit, if one exists in his camp, and it is significant to note that nearly one-quarter of all the men seen have sought such guidance spontaneously."

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RADIO

## Radio Is at War

**More than 500 factories and small shops are turning out equipment for the armed services. New specifications call for perfect performance.**

➤ MORE THAN 500 factories and small shops, that used to make radio sets and equipment for civilian use, now have some 200,000 employes working day and night turning out communications equipment for the armed forces of America and her fighting allies, Rear Admiral Stanford C. Hooper, U.S.N., told the meeting of the Institute of Radio Engineers.

As a single dramatic example of what quick radio communication means in modern warfare, Admiral Hooper related an incident of the fighting during landing operations at Casablanca. The most formidable French warship putting up resistance was the battleship Jean Bart. An Allied battleship opened fire on her, at a range of 26 miles.

The first salvo scored a hit on her deck, a damaging but not a fatal blow. An observation plane flashed back a slight correction. The next salvo struck the ship at the waterline, immediately putting her out of action.

For military uses, radios must have qualities far beyond the very moderate requirements of peacetime sets, the Admiral reminded his hearers. He said:

"These new specifications reflect the demand for perfect performance; perfect reception by planes flying at twenty thousand feet, battling ice and sleet, as well as the enemy; perfect reception by pitching tanks, hurdling debris and jolting through shell holes in the heat of the African deserts; perfect reception for all our mobile equipment, whether it be in the Battle of Midway, the Aleutians, or the green hell of steaming jungles in the Solomons.

"These specifications call for equipment that must stand up with full efficiency

under all conditions—tropical and Arctic temperatures, rapid changes in altitude, varying humidities, salt spray, hot sun and desert sands. It must be unaffected by the motion of motorized units, ships and aircraft, and the jar and vibration due to gunfire and shell impact. It must be fireproof, especially from the instantaneous hot flame which follows a bomb explosion or proximity to hot metal surfaces. It must carry on during severe icing and snow conditions. It must be rugged to withstand mishandling and operation by inexperienced personnel, and jars due to handling in transit. It must be designed to compromise ruggedness and extreme sensitivity.

"It must be capable of being operated adjacent to various other transmitters and receivers through the roar of battle, through electrical and other noises of ships and planes, and radio jamming. The radiation from tubes must not divulge presence to an enemy. It must be flexible in frequency shifting and power variation in order that shifts from one command or information channel to any other may be accomplished as required, and instantaneously.

"It must be constructed for installation in most limited spaces, with minimum weights, and convenient for operation. It must be instantaneously ready for operation at all times, exactly on the prescribed frequency, and accessible for adjustment and quick repair. Danger of accident due to electric shock to personnel must be prevented. These are but a few examples to show the need of specifications more elaborate than those governing design of commercial equipment."

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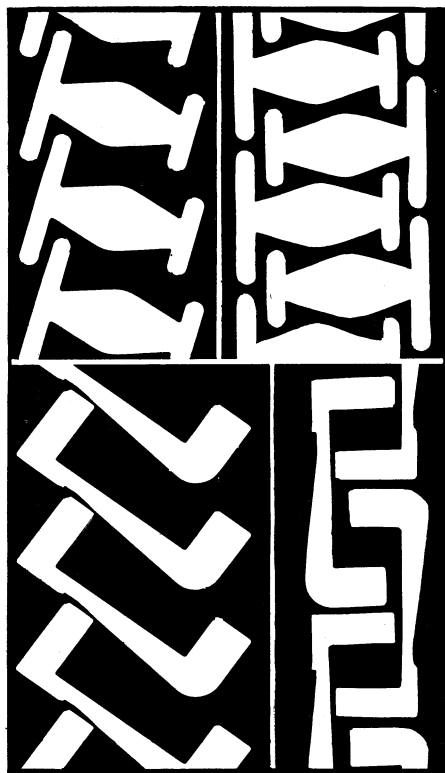
ASTRONOMY

## Victory Ship Named for Designer of Telescopes

➤ A NOTED American astronomer, designer of the 100-inch telescope at the Mt. Wilson observatory and projector of the huge 200-inch reflector now being built for the new observatory on Mt. Palomar, was commemorated in the launching of the Victory ship George E. Hale, just off the ways of the California Shipbuilding Corporation. Dr. Hale's widow, Mrs. George E. Hale of Pasadena, was sponsor of the new vessel.

Dr. Hale died at Pasadena in 1938, at the age of 70 years. Besides planning the most massive instruments ever built for the exploration of the heavens, he carried on researches in solar physics and stellar evolution, and was the inventor of the spectroheliograph, which makes photographs of the sun in the light of a single selected element. He shares the latter honor with a French astronomer, Deslandres.

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**SAVING**—The layouts shown here show how precious metal is being saved in cutting pieces for war production. At the left is the way the patterns have been laid down when metal was more plentiful. At the right are economy layouts worked out by a General Electric Company expert.