

PUBLIC HEALTH

Saves Manpower

Daily doses of sulfadiazine have cut down rheumatic fever, pneumonia, scarlet fever and sore throats for soldiers and sailors.

► HOW SMALL daily doses of sulfadiazine protected soldiers and sailors from rheumatic fever, pneumonia, scarlet fever and streptococcus sore throats, with an enormous saving in effective manpower and money, was reported by Col. W. Paul Holbrook, of the Office of the Air Surgeon, and Comdr. Alvin F. Coburn, of the Navy's Medical Corps, at the meeting of the American Medical Association.

"Our army of 7,000,000 troops spent in excess of 14,000,000 days in the hospital last year because of common respiratory diseases," Col. Holbrook stated. "In addition to this time, there were the inevitable number of complications and deaths as well as additional millions of man-days lost from duty. If our experience with sulfadiazine prophylaxis holds true, it is a conservative estimate that 50 to 75% of this tremendous loss could be prevented."

At a single Naval Training Station, Comdr. Coburn reported, it is estimated that the liability for just four respiratory infections, scarlet fever, rheumatic fever,

pneumonia and tonsillitis or pharyngitis, was 1,671,171 man-days and \$15,000,000 in salaries and pensions for disabilities. The figure for man-days covers 557,057 days lost by the patients plus the time of the two well persons whose services are required to care for each man on the sick list.

Part of the Navy's long term program for controlling streptococcal infections now is mass prophylaxis with sulfadiazine. Prophylactic doses of this drug, he reported, have been given continuously to 250,000 Naval trainees between December, 1943, and April of this year. A small dose, one gram daily, is adequate, he reported, to check a well-advanced streptococcus outbreak, to check a streptococcus outbreak at its onset, and to protect 85% of susceptible recruits from implantation with bacteria that cause disease of the nose, throat and lungs, with their often disabling results such as the heart damage that follows rheumatic fever. This last, though not usually considered a respiratory disease, in most cases follows streptococcus infection.

The only untoward effects of the mass sulfadiazine prophylaxis, Comdr. Coburn said, were quickly-disappearing rashes in about four out of every thousand and dangerous constitutional disturbances in one out of 100,000.

He emphasized the fact that while a short course of sulfadiazine prophylaxis checks an outbreak of meningitis, for prophylaxis against streptococcus infections the sulfadiazine must be given every day continuously.

Among recruits with a high occurrence of infection, the sulfadiazine prophylaxis was estimated to save 343 man-days per 1,000 per week, Comdr. Coburn reported to the meeting.

At one recruit camp with a complete turnover of personnel every four to six weeks, half the men were given sulfadiazine prophylaxis during the investigations of its effects and the other half was not. Sick call visits for respiratory symptoms among the untreated group were twice that in the treated group. Respiratory sickness requiring bed care in the untreated group was about three times that in the treated group. Infections probably caused by streptococci in the untreated group were 11 times that in the treated, and frank (or definite) streptococcus infection in the untreated was 24 times that in the treated.

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AERONAUTICS

Bomb-Like Gun Package Now Attached to Planes

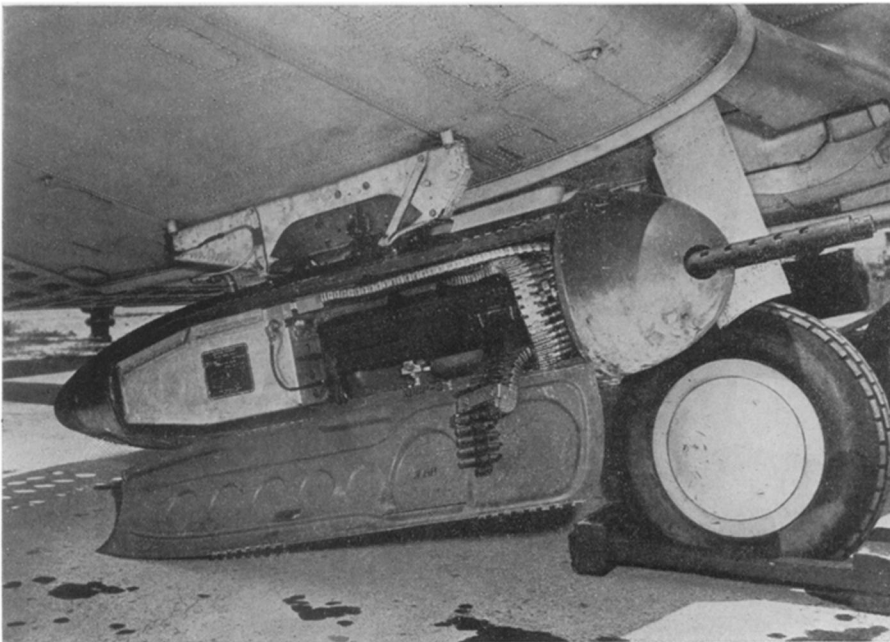
► A NEW self-contained machine gun package that is hooked on under the wings of a plane like an ordinary gasoline tank is the latest secret weapon to be revealed by the U. S. Navy.

The gun packages are longer and more cigar shaped than a 2,000 pound blockbuster. They weigh more than 350 pounds each. The main reason for using these guns is to increase the fire power of planes.

The new units are attached to the under part of the wing by sway-braces, the same as are used for bombs, so that the plane may carry bombs, auxiliary gasoline tanks, or the new machine gun packages without substantial alteration.

Although the new gun packages are not intended to be dropped after the fire power is exhausted, as in the case of detachable gas tanks, they may be jettisoned, or dropped, like gas tanks in an emergency when a quick get-away is necessary.

Details of the caliber of the gun and



PACKAGE GUN—This machine gun is attached to the underside of the wings of Navy warplanes for added firepower.

the amount of ammunition each of these gun packages carries is still withheld by the Navy.

The new and deadly weapon was developed by the Navy, with the coopera-

tion of the Douglas Aircraft Company. Facts show that two gun packages can increase the fire power of some types of aircraft as much as 100%.

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PSYCHIATRY

Three-Day Schizophrenia

This combat disease has all the symptoms of ordinary schizophrenia, with hallucinations even more frequently. Disappears quickly.

➤ "THREE-DAY schizophrenia," a mental illness reported by medical officers in this war, was described to the meeting of the American Psychopathological Association in a report by Comdr. Francis J. Braceland and Lieut. Comdr. Howard P. Rome, medical officers of the U. S. Naval Reserve.

This new combat disease affecting young people has all the symptoms of schizophrenia, which is the most common of mental illnesses. Minds are confused. The men hear imaginary voices and see things that are not there. These hallucinations occur even more frequently than in ordinary schizophrenia. But

within three to five days, the illness disappears and the men are well again.

Rest and a nerve-quieting drug bring about "miraculous changes in very short periods of time," the Navy doctors reported.

Despite the fact that this three-day illness is brought on by combat or other trying conditions of stress, it is probable that its development depends more on the background personality than on the type of duty, the officers explained. Some individuals, it would seem, are predestined to develop this type of mental illness if or when circumstances are difficult enough to precipitate it. This dis-

ease probably occurs in civilian life but generally is not seen by a psychiatrist.

The number of cases of mental disease (psychoses) of all sorts is far below that in civilian life, the Navy doctors emphasized. Of those Navy cases who do have to go to a mental hospital, 65% are discharged from the hospital, free of symptoms at the end of three months and another 20% are discharged at the end of the next three months. This is a very high and rapid recovery rate.

Most of the men who must be discharged from the Navy for mental or emotional reasons do not have any mental disease but are merely unsuited for military service, the report states. In the group who had to be discharged for inadequacy and emotional instability, 90% would get along all right in civilian life, and whether they will ever require psychiatric treatment will depend on later events, the officers said.

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CHEMISTRY

Heat-Resistant Plastic Retains Strength and Shape

➤ A NEW heat-resistant plastic that can withstand boiling, and dry heat as high, has been announced by the Monsanto Chemical Company.

Developed by Dr. Reid Forgyce and Dr. David T. Mowry, the new plastic has already found wide use in war work, particularly radar, radio and other military electronic equipment where materials of light weight, suitable electric and great heat-resistant properties are needed. It is also being used for surgical instruments, since it can be sterilized.

Dr. Charles Allen Thomas, director of Monsanto central research laboratories, describes the new plastic as "a thermoplastic, readily moldable in standard molding machines, and combining high resistance to heat with resistance to strong, corrosive chemicals, excellent electrical insulating properties, and high rigidity and strength."

The new thermoplastic is a synthetic co-polymer containing carbon, hydrogen and nitrogen. Officers of the Monsanto Chemical Company are withholding any additional information about the new plastic, including its exact chemical composition, pending action on patents. The plastic has been given the commercial name Cerex.

After the war, a wide range of civilian applications are possible, wherever heat-resistant qualities are in demand, such as in dishes and utensils.

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HEAT RESISTANT—Dr. Reid Forgyce and Dr. David Mowry illustrate the advantages of the new plastic, Cerex. Here you see two combs which have been dipped into boiling water. The one on the right is of ordinary plastic, the other of Cerex.