AERONAUTICS

B-29 Superfortress

Half again as large as the B-17 Flying Fortress, this new battleship of the air carries a greater bomb load faster than any other plane in the world.

See Front Cover

➤ THE B-29 Superfortress, the U. S. Army Air Forces' latest battleship of the air, carries a greater bomb load and flies faster, farther, and higher than any other plane in the world.

Facts about this heavy bomber announced by the War Department show that it is half again as large as the B-17 Flying Fortress. It has a wing spread of 141.2 feet, a fuselage 98 feet long and when it rests on the runway it is as tall as a three-story building, 27 feet.

Four engines with 8,800 maximum horsepower thrust it through the air at speeds in excess of 300 miles an hour, and the largest propellers ever produced by mass production, four blades of 16.5 feet diameter, apply this greatest power a plane has ever had.

The range of the B-29 is not revealed but it is known to be well in excess of the 700 mile radius of combat operation credited to the B-17. The bomb load is also still a secret, but it is known to be larger than the 6,000 pound load the Flying Fortress carries. Its practical altitude can extend above 30,000 feet, more than six miles in the air.

The B-29 has more fire power than most planes in use today. Announced armament includes multiple 50 caliber machine guns and 20 millimeter cannon. These are installed in power turrets.

The slender tapering wings, set far behind the elongated nose, are built for speed and range. The wings carry greater loads of fuel and bombs than any wings ever built.

The new B-29 is nearly all-electrically operated. With the exception of the hydraulic braking system, every piece of moving equipment is operated by an electric motor or cable controlled by the co-pilot and flight engineer.

Dual tires, the first used on any airplane, are used on the tricycle landing gear. The great weight of the bomber makes a dual tire nose wheel essential so that the gear will operate satisfactorily, even if one tire blew out.

The development of the B-29 was conducted in greatest secrecy during the past four years. Bell, Martin, and Fisher Body Division of General Motors joined forces with Boeing to produce this larger, faster bomber. The B-29 Superfortress is the result of making a magnified and improved composite of the Aircobra, Marauder, and Flying Fortress.

Today, B-29's are being produced in large numbers in the greatest manufacturing program ever put behind a single implement of war, involving six of the largest aircraft factories in the United States.

Science News Letter, June 24, 1944

PUBLIC HEALTH

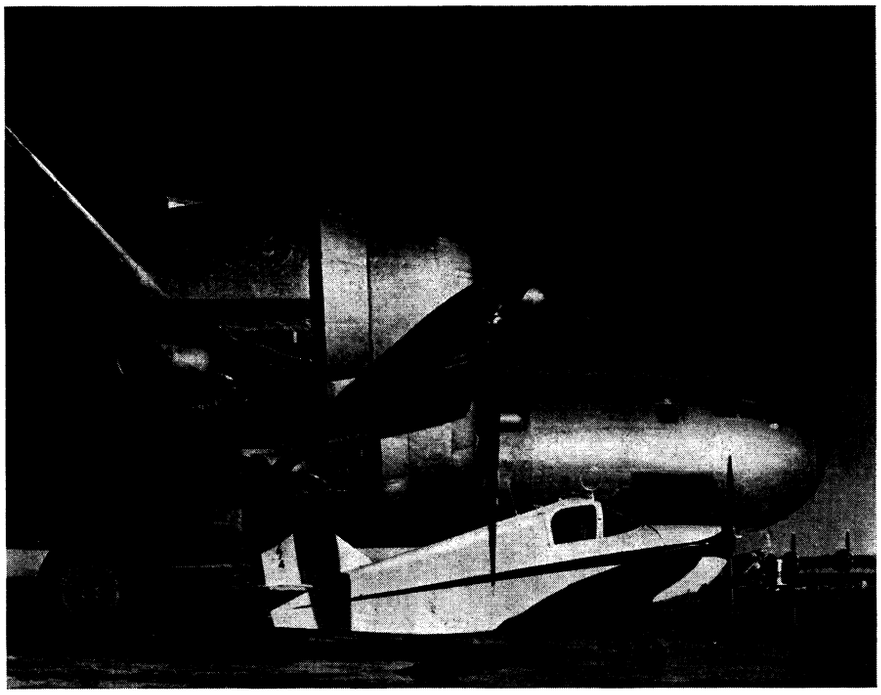
Children Will Receive Protection Against Measles

➤ MEASLES protection will be available to America's children, and grown-ups too, if necessary, through a by-product of blood donated by patriotic citizens all over the country to the Red Cross for the nation's fighting men.

The protection will be given by a substance called gamma globulin, separated from blood plasma by Dr. Edwin J. Cohn of Harvard University. (*See SNL*, May 27) The globulin can be used either to prevent measles or to modify the attack so the patient is not very sick but develops resistance to further attack. The American Red Cross, functioning as coordinator, will assist in transferring the measles preventive from the manufacturers to state and local health departments. These will pay the cost price and distribute the material without charge.

Announcement of this latest development of the blood donation program comes from the Navy Department with a detailed progress report by Vice Admiral Ross T. McIntire, Surgeon General of the U. S. Navy.

Fully a year before Pearl Harbor the Navy's Bureau of Medicine and Surgery began the project which has yielded gamma globulin for the prevention or modification of measles; concentrated serum albumin for saving lives threatened by shock from battle wounds; fibrin film and fibrin foam which are proving valuable in surgery of battle wounds, espe-



HIGH ALTITUDE BOMBER—Towering above a single engine reconnaissance plane is the giant four-engine Boeing B-29 Superfortress, equipped to carry the heaviest load of bombs, faster and farther than any other plane. Used recently in a heavy bombing of Japan, the B-29 will soon be hammering away in war theaters.

cially brain surgery; and blood grouping globulins essential in blood typing procedures before transfusions.

First aim of the program was to develop a concentrated protein for treatment of shock that would be lighter weight and less bulky than blood plasma. The mobile nature of Naval and Marine operations and the need to conserve space in all types of ships, planes and land vehicles, dictated this need. It was filled when, in 1940, Dr. Cohn perfected a process for separating the protein fractions of blood plasma and Capt. Lloyd R. Newhouser, of the Navy Medical Corps, developed a satisfactory dispensing package for the albumin which was to replace plasma in many cases.

When, after months of painstaking tests of the albumin as a shock-reliever, the Navy finally let contracts to manufacturers for processing it, a foresighted clause was included directing them to store at low temperatures the plasma fractions which remained after the albumin was removed. As a result, the various by-products of albumin processing were available as soon as their usefulness was established.

Cooperating with the Navy in the program which has developed these valuable products for Navy, Army and, now, civilian use, are the National Research Council and the Committee on Medical Research of the OSRD.

Science News Letter, June 24, 1944

PUBLIC HEALTH

Penicillin for Syphilis

Large-scale treatment undertaken for disease in the early stages at more than 50 rapid treatment centers. Already successful for gonorrhea.

➤ LARGE-SCALE use of penicillin in the treatment of early syphilis is being undertaken by the U. S. Public Health Service and a number of state health departments, Medical Director J. R. Heller, Jr., Chief of the Public Health Service Venereal Disease Division, announced.

Selected patients with early syphilis will receive penicillin in rapid treatment centers, of which there are more than 50 in the United States. Thirty-six centers in 18 states are already participating in the penicillin program. The drug has already been successfully used at these centers for treating gonorrhea cases which did not respond to sulfa drugs.

Studies of the effectiveness of penicillin in the treatment of syphilis will be conducted by the Public Health Service in cooperation with the National Research Council.

"This program of penicillin therapy for syphilis is a research as well as a treatment program," said Dr. Heller. "If these studies prove that penicillin is as effective as everyone hopes, we will be armed with a powerful new weapon in the national fight against syphilis."

"The effectiveness of penicillin in the treatment of syphilis has not been fully evaluated," Dr. Heller pointed out. "However, evidence of its possibilities, following the original treatment of syphilis patients by PHS physicians at Staten Island in 1943, is sufficient to warrant its large-scale use in the interest of public health.

"It is of interest that about one-third of all the syphilis patients admitted to rapid treatment centers are infected also with gonorrhea. Penicillin has already proved its value in treating gonorrhea. If it should prove equally as effective in treating syphilis it would be possible, for the first time in medical history, to treat patients with both these venereal diseases with a single drug."

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CHEMISTRY

Fruit Juice Concentrated By New Method

➤ CITRUS FRUIT juice may be concentrated to about one-fourth of its normal volume to save space in storage and shipping by a new method developed by Dr. A. L. Stahl of the University of Florida Agricultural Experiment Station. Housewives, by adding three quarts of water to one quart of the concentrate, will have a gallon of normal juice.

In the method developed by Dr. Stahl, the juices of mature fruit are extracted by reaming, then placed in a constant freezer and frozen to a slush consistency. The water in the juice freezes, while the minerals and other dissolved solids and other valuable parts remain in a semi-liquid state. The partly frozen mixture is then placed in a centrifuge revolving at moderate speed. The action separates the juice from the icy part of the slush.

The process is still in an experimental stage. A pilot plant is to be set up by the State Citrus Commission and the college station to develop commercial production methods.

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