

AERONAUTICS

Super-Bombers Coming

Flying battleships predicted by Gen. Arnold will, he says, make cross-Atlantic round trip without refueling but carrying full load of bombs.

► PRESIDENT ROOSEVELT'S warning to the peoples of the battered Axis powers that there's even worse to come if they don't surrender now receives specific backing from his Army Air Forces chief, Gen. H. H. Arnold, who tells of giant planes carrying half-load lots of more-than-blockbuster bombs, in *Army Ordnance*.

These flying battleships, which Gen. Arnold says will be able to deliver their massive loads of devastation clear across the Atlantic and fly home again without refueling, will be armed for defense with cannon of a caliber larger even than the 37-millimeter that some American fighters now carry. These guns will operate on an entirely new principle, details of which are of course not yet disclosable. They will be mounted in multiple turrets operated from a central aiming position, analogous to the fire-control system of present-day battleships. The new gunsight will be as revolutionary as the present bombsight.

The plane will have "eyes" that will help guide it to its target or warn and plot the course of enemy interceptor planes.

The present bombers, which the promised new super-bomber will render obsolete, are given a liberal meed of praise by Gen. Arnold. Their defensive armament of .50-caliber machine guns, with which Flying Fortresses and Liberators fairly bristle, is the most formidable carried by any bombers in the world. It was a real stroke of foresight on the part of our ordnance designers, the air chief declares, that provided us with this highly effective weapon, which fires two-ounce slugs at a rate of 800 a minute and outranges enemy 20-millimeter cannon, in advance of our actual need for it.

Effectiveness of our demolition bombs was greatly increased by improvements in methods of manufacturing their casings, which hold them together while they penetrate deep into overhead earth or concrete protection, so that their heavy explosive charges detonate with earthquake-like results.

Fragmentation bombs, such as have lately destroyed many enemy airplanes on the ground, are made on a simple

but highly effective pattern. Square rod iron is bent into a spiral coil, like the springs on a car wheel. Within this is a core of TNT. When this explodes, the coil is broken into 1,000 to 1,500 short chunks, which are hurled in all directions at twice the speed of a rifle bullet. At 200 feet these deadly fragments will cut through airplane wings, gas tanks, tires, radiators and control mechanisms. No human being standing anywhere near has a chance against this deadly iron hail. The Japs are said especially to dread American fragmentation bombs.

Science News Letter, September 11, 1943

MILITARY SCIENCE—PSYCHOLOGY

Infantry's Comeback Seen As Psychological Victory

► INFANTRY is still final boss of the battlefield. Pre-war anticipation that everything would be mechanized, and that the man on foot would have no chance against airplanes and tanks, have not been realized. This is the thesis of a lead editorial in the *Infantry Journal* (September).

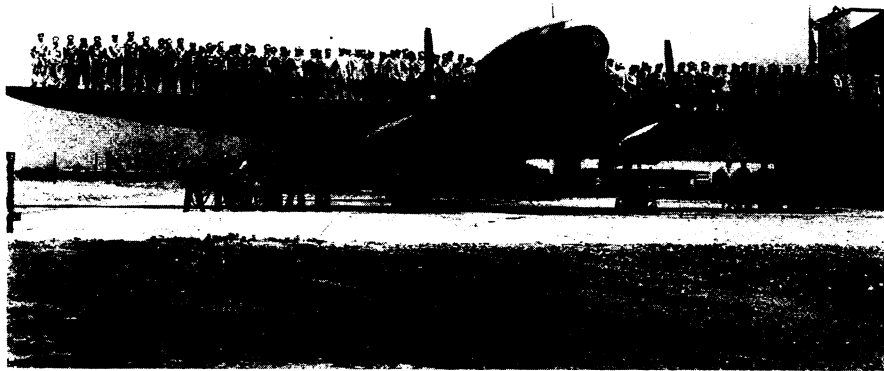
Infantry's comeback, the *Journal* indicates, has involved a psychological as well as a military victory, for the claimants of all-annihilating power for the newer weapons had created lurking doubts in the minds of all but experienced soldiers concerning the value of the foot soldier under present-day combat conditions:

"To repeat and repeat that infantry was a dead arm might not affect the spirit of the soldier with experience, but it was almost bound to impede the building of the esprit that makes a fighting unit and the morale that sustains a fighting soldier as he goes into battle."

In the editor's opinion, the extravagant claims advanced, especially by proponents of air power, "could all have been made without attacking the older means. They could have been spread just as widely without insisting that only the new in war counted for victory and that all that was old was useless."

His own experience in battle, on fronts all the way from the Solomons to Sicily, have convinced the infantryman of the fallaciousness of these facile arguments and of his own tough, surviving value. The *Journal* continues:

"The infantryman who had any doubts soon learned that he was no second-rater. He learned that modern warfare calls for the utmost effort in every sphere where man can fight, and that if an army is weak in any one sphere and the opposing army is not, no possible amount of strength in the other spheres can make up for that weakness. (*Please turn page*)



WING SPREAD—As a graphic demonstration of the size of the great Curtiss Commando (C-46) cargo plane, 100 soldiers posed on the 108-foot wing span. The C-46 is powered with two 2,000 horsepower engines and weighs about 50,000 pounds fully loaded.

"The feeling of pride in essential accomplishment now inspires large numbers of American infantry units that have fought in Africa, Europe, and the Pacific. It is a battle pride that touches every infantryman still on the way to his

first experience of combat. The pride in fighting skill of every infantryman who has now seen fighting and knows the vital importance of his own war job can be shared by every combat soldier who is still at work perfecting his skill."

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PUBLIC HEALTH

Health at 50c Weekly

Good medical and health care for all is possible and practical, de Kruif reports after study of the Kaiser set-up.

➤ THE BEST scientific medical care, complete in every detail, for every man, woman and child in America at a weekly cost to them of 50 cents each is possible and practical for the immediate future, Paul de Kruif reports on the basis of a study of Henry J. Kaiser's medical plan.

The report appears in the form of a book, *Kaiser Wakes the Doctors*, (Harcourt, Brace).

Dr. de Kruif (he is a Ph.D., not an M.D.) admits taking pains not to let his natural enthusiasm for the subject run away with his scientific judgment. This is apparent in the unusually restrained style. Not until near the end of the book does the typical de Kruif emotional appeal reach its full pitch. At that point most readers, probably including many physicians, will be in tune with the author.

The book tells first about how Mr. Kaiser and his able medical director, Dr. Sidney Garfield, put into effect a program of complete and expert medical care for Kaiser workers on a financial basis so sound that the cost of building and equipping hospitals and other facilities as well as running them is covered.

It tells how these two practical dreamers conquered the opposition of medical societies in California and Washington by: 1. showing that the medical care given the Kaiser workers was up to the best standards of medicine available anywhere; 2. showing that the individual physician practicing by himself, no matter how hard he tried, could not possibly give such care at a price the common man could pay; 3. showing that such health centers as Kaiser's workers had, replicas of the Mayo Clinic for the common man, would be free from bureaucratic control by any government agency; 4. showing that, as the center developed, funds would accumulate, in the nature of real profits, which could be used for sup-

porting research in the field of medicine.

The financial end, a headache to most doctors, is managed, when the plan is applied to industrial workers, by industry with the workers having a voice in the management, but, as Dr. de Kruif quotes Mr. Kaiser:

"You, the doctors, have got to personnel it. You're the only ones who know how to staff it. You've got to set up the scientific standards, hold every doctor to them. You'll have complete control of your personnel."

So far, the Kaiser plan for super-medical service within the pocket-book range of the common man applies only to Kaiser workers and, through the California Physicians' Service, to their families.

Extending it to other large industrial groups would not be difficult since the management and financial backing would be readily available. Extending it even to workers in small industries, white collar workers in small towns, farmers in remote rural areas, in fact to the common man everywhere, is not impossible, according to the de Kruif-Kaiser-Garfield thinking. Such groups, they believe, could band together to create health centers for themselves, getting financial support until they are self-supporting from bankers. For the encouragement of the bankers, a government Medical Loan Agency, like a medical RFC, to guarantee 50% of any losses, is suggested.

These Mayo Clinics for the common man, as Dr. de Kruif terms them, would be for persons of small or moderate incomes. They would not keep doctors from treating wealthy patients as they do now. Dr. de Kruif believes, however, that very many specially trained doctors, particularly the younger ones and those who will return to civilian life after the war, would be delighted to have an opportunity to practice high grade scien-

tific medicine without worrying over finances—their own or their patients'.

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MEDICINE

Treatment Recommended For "Dural Poisoning"

➤ IF YOU WORK in an airplane plant or some other industry in which aluminum alloys were used, you may have heard about the condition popularly called "dural poisoning." This takes three forms: 1. The worker gets a splinter of the metal in his skin after which inflammation sets in and an abscess may form; 2. A driller gets a puncture wound which closes easily, but leaves an aftermath of painful, tender inflammation and swelling under the surface; 3. A relatively few workers, about four to six per 1,000, get eczema, itching or other skin disease from contact with the light metal dust. A test pilot who took up a new airplane, it is reported, had a sliver of light metal penetrate his lip causing a severe inflammation.

The magnesium in the alloy is specifically responsible for the characteristic disturbances, Dr. Ludwig Teleky, of the Industrial Hygiene Division, New York State Department of Labor, declares. When the magnesium gets into the body tissues it decomposes the water, as potassium and sodium do. As a result, cavities form in the tissues and bubbles of hydrogen gas develop in the cavities. The magnesium hydroxide which is produced as part of this chemical reaction is apparently absorbed by the tissues.

Splinters of light metal alloys, Dr. Teleky also points out, have many small barbed hooks which can be seen under the microscope. These stick in the wound, and attach themselves to the skin and clothing. Splinters of iron, steel, copper and other heavy metals and of pure aluminum are much smoother and these metals almost never cause inflammatory reactions.

Many injuries from light metal splinters heal in a short time with no ensuing disability. In some cases, however, the splinter may disable the worker for from 10 to 14 days or longer. Workers with duraluminum or other light metal alloys should seek prompt medical attention for any injury or scratch of the skin to avoid the more serious results of such injury. Although the doctor will decide what is the best treatment in each case, Dr. Teleky suggests the following: 1. Removal of all splinters that can be seen; 2. Use of hydrogen peroxide, since as