

you will continue to "see" it for a little while after it is turned off. During this time it will pulsate rapidly. For this reason, a band of light passed across your field of vision may appear to you like a series of bright stripes. A single flash of

light may appear as a sort of vibration.

This rapid fluctuation in vision has its parallel, Dr. Talbot found, in a volley of multiple electric waves at the point in the brain concerned with perceiving the light.

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#### AERONAUTICS

# Bombers for Allies Could Be Delivered Under Own Power

## All of Five Bomber Types Under Construction Capable of Making Flight by Short Northern Route

**M**ASS transatlantic flight deliveries of American bombers now on order for the Allies are envisioned as blitzkrieg and counter-blitzkrieg in Europe begin eating rapidly into aircraft reserves.

All of the five bomber types now under construction for the Allies, particularly if extra gasoline supplies are loaded, are capable of making the North America-to-Europe flight by the short northern route. The planes could be flown to Foynes, Eire, or directly to England from Botwood, Newfoundland, in summer use since last year as a seaplane base for Pan American Airways and Imperial Airways flying boats. A large landplane field is part of the Botwood base.

Any doubt as to the possibility of such deliveries should now be dispelled as a result of the occupation of Iceland by British forces. The Allies are now in a position to use Iceland as a refueling point for any bombers of whose ocean-spanning ability there is any doubt. The nature of facilities at Reykjavik was not immediately known, but however bad they may be they could be quickly enough improved.

The five bomber types on order include: \$9,000,000 worth of Consolidated 28-5 flying boats, similar to the U. S. Navy's famous PBY patrol bombers. Delivery of these is expected to start this summer. They would be flown to Europe in any event. A 28-5 purchased by England a year ago for test purposes was flight delivered last summer.

France has already taken delivery on most of 100 Douglas DB-7 attack bombers. Extreme range of these 310-mile-an-hour medium bombers can be built up to 2200 or 2300 miles by loading gas in place of military equipment and the normal 1,250-pound bomb load.

The same is true of the 390-mile-an-hour Douglas B-20 attack bombers, of

which several hundred are being built for the Allies and the U. S. Army Air corps. An additional order for at least 1,000, to be built by Consolidated and Boeing under license, has just been placed.

Globe-girdler Howard Hughes flew a Lockheed 14 non-stop to Paris, 3,300 miles, in the summer of 1938 on the first leg of his epoch-making round-the-world-flight. It is therefore expected that the 500 Lockheed Hudson bombers already delivered to Great Britain could have made the journey. A further order for 250 Lockheed bombers, based on an improved Lockheed plane, is currently under negotiation. These can also be flight delivered by filling up the cabin with gasoline tins.

No large four-motored craft have been ordered yet by the Allies, so far as is known. None are expected to be purchased, as many military experts hold that they are not suited to conditions in Europe.

The U. S. Army Air Corps has in service about 350 bombers capable of flight across the Atlantic. These include about 225 Douglas B-18 as derived from the world-famous Douglas DC-3 passenger liner, and about 100 four-motored "Flying Fortresses," 20-ton Boeing B-17 bombardment craft.

The Navy has more than 250 twin-motored patrol bombers, mostly fourteen-and-a-half-ton Consolidated flying boats.

Many of the 215 (at least) 320-mile-an-hour Martin 167W attack bombers ordered by France have also already been delivered, but the rest could similarly be rushed across the Atlantic by air.

None of the high-speed bombers, of course, would be flown at more than a fraction of their top or even normal cruising speeds, in order to cut down fuel consumption and make the ocean flights possible. A probable transatlantic flight

speed for the two Douglas and one Martin models is about 200 miles an hour. A few four-motored Consolidated and Sikorsky ships are also on hand or on order.

A squadron of twin-engined Martin patrol bombers, which can also easily make the hop, were delivered to the Navy during the last year but considerable trouble has been had with them and they were returned to the factory at least for a time.

The weather is now almost ideal for flight deliveries.

Biggest problem the Allies will face in high-speed-under-their-own-power shipment of the anti-Nazi airplanes will be that of securing pilots with adequate experience. American pilots may be hired as "ferry men"—many have already been hired as instructors for the Empire air training program, now getting underway in Canada. These have not had to give up their citizenship as they take no oath of allegiance to Britain. Their work violates no American laws.

American-born pilots are also serving in the Royal Air Force and the Royal Canadian Air Force. These, of course, have given up their citizenship as they had to swear allegiance to the King.

In what way Americans ferrying war craft to Britain would be penalized, American laws are not exactly clear. The neutrality act prohibits Americans from working or traveling on belligerent ships and aircraft or foreign vessels entering the belligerent zone as defined by proclamation of President Roosevelt. Competent American pilots could be found in the ranks of the Army Air Corps.

In an emergency, instructors in the Empire training program could also be put to work on ferrying aircraft across the ocean. But the pilot problem, it was emphasized, is the biggest difficulty to be solved before large scale flight deliveries become possible.

Title to the planes would, of course, have to be transferred to the Allies before the planes leave the U. S. by Allied pilots as has been the case since the start of the war.

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Gold mining is an expanding venture in the Fiji Islands.

Sea ice loses a good deal of its salt as it ages—the salt migrates from the interior.

The world's longest floating bridge, under construction across Lake Washington near Seattle, will be a mile and a quarter pontoon span.