

the peninsula. If Germany is resource-starved, Italy's condition defies description.

Some war supplies for Italy and the Reich both are believed to have leaked through the Allied contraband control, but Rome newsmen are unanimous in agreeing that the quantities were small.

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AERONAUTICS

Lightning Not Menace To Modern Planes

MODERN all-metal transport planes have successfully withstood at least 50 cases of lightning discharges since their introduction five years ago. In no case has there been serious damage to the plane and the risk to flight from this cause is no serious menace, says E. J. Minser of Transcontinental and Western Air in a report to the Civil Aeronautics Authority.

For the aviation industry the General Electric Company has been making a survey of the small holes produced by the lightning strokes and correlating them with laboratory studies on artificial lightning.

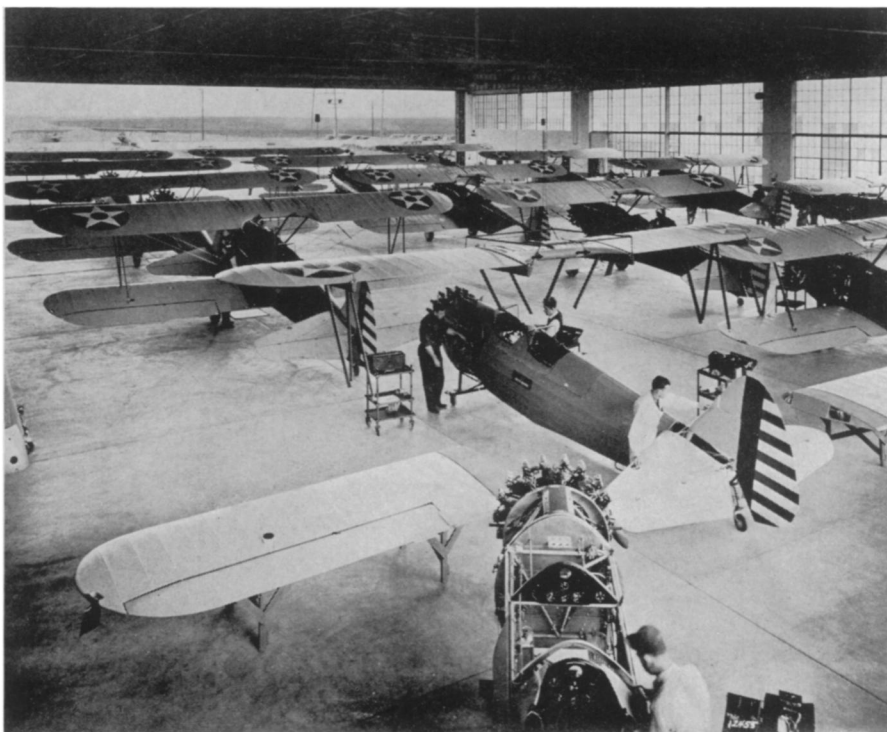
It is found that the cumulus type of cloud that brings summer showers is the most dangerous cloud formation, especially in the temperature zones around freezing: 25 to 35 degrees Fahrenheit.

Zones of positive and negative charges are built up in such clouds, says Mr. Minser, and it is believed that as the metal plane passes through the transition region between these inner cloud zones it acts as a conductor and "igniter" of the lightning discharge within the cloud.

Initial warning to the pilot when flying in a cloud is a strong increase in static and the appearance (at night) of a brush discharge of electricity known as St. Elmo's fire. The static crescendo builds up and ends in the crash (like a shotgun discharge) about the plane.

New pilot rules are helping prevent the lightning hazard. Pilots are cautioned now to avoid instrument flying through cumulo-type clouds especially on a level when the temperature is between 25 and 35 degrees Fahrenheit. Also to drop down and reduce speed when conditions indicate imminence of a lightning strike. And finally to turn on all lights in the cockpit if they must continue the flight in the lightning hazard region. This last rule minimizes the blinding blast of light when the lightning strikes and prevents temporary blindness to the pilot.

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TRAINING PLANES

Advancing toward the open end of the Stearman Aircraft Division of Boeing are these training planes, part of the largest peace-time order ever placed by the United States Government.

AERONAUTICS

British Fighter Plane Has Turrets That Fire Broadside

Unusual Gun Arrangement Gives "Mystery Ships" Superiority But They Are Too Few to Affect Issue

IF LONDON reports are accurate, a rising toll of Nazi warplanes is marking as a success a new British development in air fighting—the mounting of broadside-firing turrets on fighters.

The R.A.F.'s Boulton Paul Defiants, first sent into action a few weeks ago, have won a marked ship-for-ship superiority through their unusual gun arrangement, although the English "mystery ships" are too few in number to affect the issue decisively now, and it should be possible for the Nazis to contrive an adequate defense.

Conventional fighters are armed with fixed guns which fire forward. Bombers carry weapons with a limited field of fire mostly front and rear and designed to deal with the tail-on attack of ordinary

fighters. Both types are thus vulnerable to the broadside fire of a power-driven turret in a plane cruising alongside. The Defiant's bullets, in other words, come from a quarter in which most bombers and fighters are largely blind. All three standard Luftwaffe bombardment types, the Heinkel 111K and Dornier 17 and 215, and Junkers 88, are at present without real protection against attack from the side, for example.

The Defiant's turret, which fires four machine guns, is a development of the R.A.F.'s bomber turret, whose success in defending British bombers convinced the Air Ministry that special fighters should be built around it. The Defiant and the Blackburn Roc, a naval combat ship, resulted. Continued success of these