

PLANES

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AIR POWER HAS CHANGED GEOGRAPHY...

...Aviation has forced fundamental changes

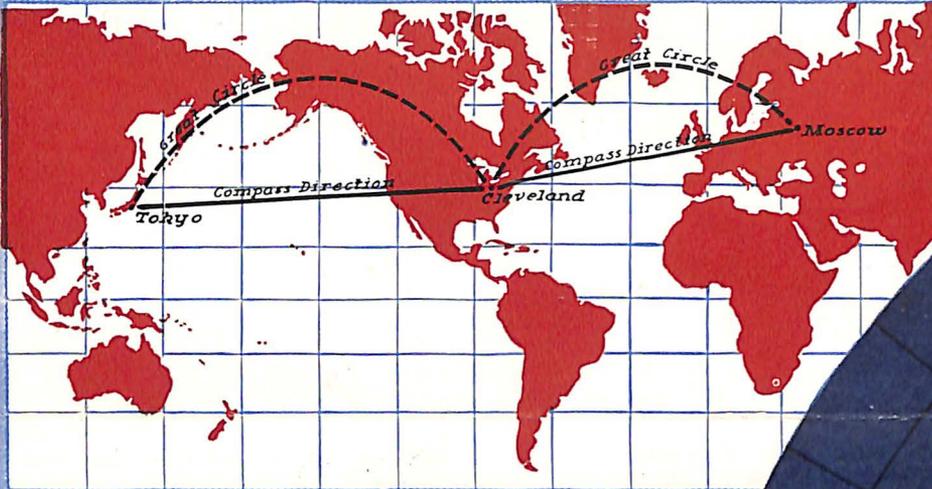
in man's thinking!

Aviation's shrinkage of time and distance has brought the countries of the world closer to each other than were the principal cities of the U. S. 50 years ago.

Impact of American ingenuity on this shrinkage of the world is pin-pointed by the National Aircraft Show in Cleveland, where the ultimate in American aircraft and equipment is on display this month.

Inside this issue of PLANES is an Air Age color map of our world, suitable for framing.

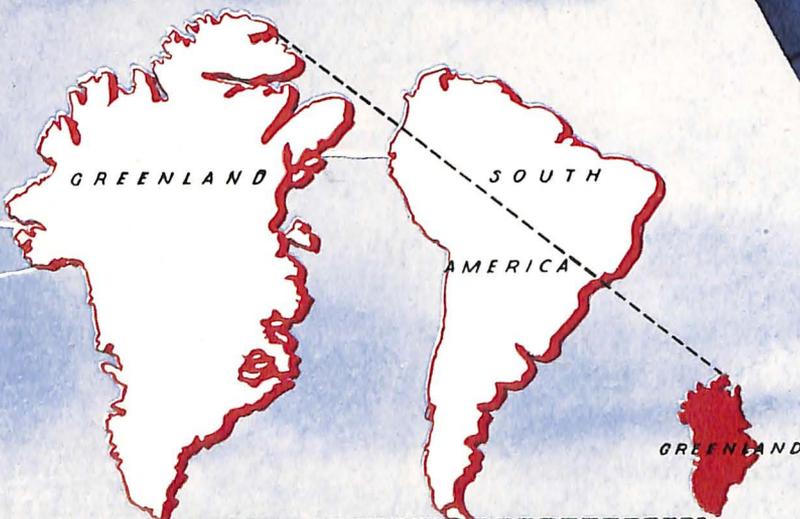
This air map, an "orthographic projection", gives a more accurate view of the world than does the mariner's map. Until now, man's geographical thinking has been based on the distorted view presented by the Mercator projection of the mariner's map.



A straight line is not the Shortest Distance Between Two Points

Above is an example of the false notions created by Mercator maps. It appears that the shortest route between Tokyo, Cleveland, and Berlin is via the straight lines. Actually, the shortest route is by the curved lines. Similarly, a straight line, east-west air route from Chungking to New York would cover 12,100 miles, while the curved line, great-circle route between these cities covers only 7,580 miles.

- Best proof that the world is lop-sided when viewed through the eyes of a surface-minded geographer is the Mercator distortion of Greenland. Maps made for surface travel show Greenland as large as South America, yet, as shown below, it is hardly more than one-ninth as great.



Air Power Today

GENERAL CARL A. SPAATZ,
Commander in Chief, Army Air Forces:

"Push button warfare has not arrived, except in the headlines. Air Power is still the first, the main and the last element of defense. Air Power determines our country's position in the Air Age. By its very existence it gains time for the world to settle down, and for the evolution of the international peace machinery. We must keep it efficient."

VICE ADMIRAL A. W. RADFORD, U.S.N.,
Deputy Chief of Naval Operations (Air):

"Technological progress in aeronautical science has enabled air to assume the dominant, offensive role in the exercise of sea power. Recent war experience amply demonstrates this fact. The proposed size and composition of Naval Aviation reflects general recognition of the importance of Naval Aviation to national security."

Explanation of Map

This map of the Northern Hemisphere is constructed on what is known as an "orthographic projection". This view of one half of the world places the reader at a point of infinity out in space, directly over the North Pole.

Because it is a geometric impossibility to show on a flat surface the true relationship of areas on a spherical surface, this map is only an approximation of the truth. But it presents one of the most accurate pictures of our world from the point of distances, directions and relative size of water and land masses.

Lines on the map dramatize the difference between geography in terms of surface travel and geography by air travel. They show how air routes shorten the distance between continents. Two of the air routes reveal that the distance between Cleveland and Moscow, 4,900 miles, is shorter than that between San Francisco and Tokyo, 5,135 miles. All air line distances are as computed by National Geographic Society.

This map also shows how Air Age travelers go north, rather than east, to reach Tokyo from San Francisco. And a trip from Cleveland to Moscow or from New York to Paris takes one over the North Atlantic and Newfoundland, not eastward.

More and more air passengers and freight will move along these shorter routes. The Arctic will become a major commercial crossroads, and will provide the most logical route for any future military aggressor.

Other important truths shown by this polar projection map are the relative sizes of lands in this hemisphere and their locations with respect to each other.



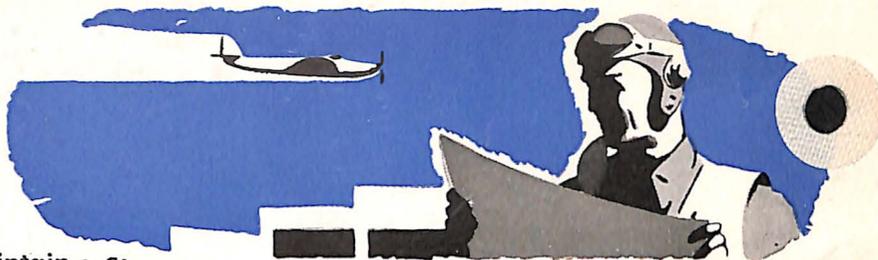
(This material on the polar projection map is adapted from works by the Army Air Forces, the National Geographic Society, "One World, One War," by Richard Edes Harrison, and "The Geography of World Air Transport," by J. Parker Van Zandt.)

Plane Quiz

Five correct is good; eight is excellent.
Answers at bottom of this page.

- Which are the primary requisites of modern Air Power required to discharge our obligations under the United Nations Charter? (a) Up to the minute air forces; (b) a thriving air commerce system; (c) a technically proficient aircraft industry capable of rapid expansion; (d) air-mindedness, including healthy, fully developed personal aviation?
- How many of the 3,000 counties in the United States have approved airports? (a) around 95%; (b) only one-fourth; (c) about 60%?
- With prices and wages everywhere on the increase, air cargo, passenger travel and air mail rates have climbed. True or False?
- How long did it take the U. S. to reach a production rate of 100,000 planes a year, following President Roosevelt's declaration of a national emergency in 1940? (a) one year; (b) three years; (c) six months?
- Military aeronautical research and development, while essential to national safety, yields no social or economic benefits comparable to other scientific work. True or False?
- America's airline passenger travel this year is (a) about double, (b) less than half, (c) six times the traffic volume carried by the airlines in the last peacetime year of 1939?
- Which of the following four revolutionary scientific developments has a direct bearing on future aeronautical development? (a) nuclear fission; (b) television; (c) radar; (d) jet and rocket propulsion?
- Aircraft industry profits on sales during the war were (a) 1.2%; (b) 6%; (c) 20%?
- American plane production during World War II outstripped the Axis by approximately (a) 32,000, (b) 85,000, (c) 96,000 planes?
- Which of the following, according to the National Planning Association, is primarily responsible for design of improved aircraft? (a) Government research laboratories; (b) Armed Forces; (c) Aircraft Industry?

AIR POWER: Safeguard for Permanent Peace Basic Principles to Assure It



Maintain a Strong Permanent Air Force with Superior Equipment, Adequately Trained Personnel



Facilitate Orderly and Economic Expansion of Domestic and International Air Transportation



Encourage Nation-Wide Private Flying, Aviation Education and Public Air-mindedness



Preserve a Progressive Aircraft Industry Based upon Continued Technological Superiority

HOW AIR POWER HAS CHANGED GEOGRAPHY

For many generations, world relationships have been keyed to circuitous and slow-paced routes of surface travel. Forbidding vastness of oceans, and surrounding land masses with their mountains, has isolated nations and peoples. Today, air travel banishes natural barriers of terrain and sea and nations are only hours apart.

Dramatizing this conquest of natural barriers during 1946 were the flights of the Navy's "Truculent Turtle" non-stop 11,236 miles from Australia to Columbus, O., and that of the Army's "Pacusan Dreamboat" non-stop from Honolulu to Cairo via the Arctic.

Air Power has forced a change in geographic thinking. People must view all countries of the world as neighboring nations on the sea of air, and must see their relationships in terms of air miles, air travel time, and via air routes

1. All modern authorities recognize that adequate Air Power depends on all four. 2. (c). About 60%. 3. False. Cargo rates have fallen sharply and new air freighters offer to reduce ton-mile rates still further—as much as 60%. In 1945, passenger rates dropped nearly 15% to 4.35¢ per mile. In October 1946, air mail postage was reduced to 5¢ per ounce. 4. (b). Three years. It is recognized as the greatest

production achievement in history. 5. False. Military development has contributed importantly to every great improvement in planes and air travel. Increased safety, speed, and comfort of air travel is attributable in part to military research and development. 6. (c). Six times. 7. All of these scientific marvels now are being applied directly in aeronautical developments or are being explored in the laboratories to perfect

aviation applications. 8. (a). 1.2%. 9. (c). Combined production of Germany and Japan was 133,800, while the U. S., with a late start, turned out 230,200. 10. (c). The industry is responsible for the design and development of new aircraft. Government's laboratories are concerned with pure research for new scientific knowledge. The Armed Forces evaluate new equipment for military use.