Putting the Airplane to Peacetime Uses: THREE TYPES OF AMERICAN-BUILT AIRPLANES

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Free Balloon Just Leaving the Ground. This Picture Was Taken from Another Balloon at Fort Omaha, Neb.

Putting the Airplane to Peacetime Uses

America Must Decide Whether Aviation Is to be a Minor Branch or the Chief Recourse for Defense---Progress in Mapping Aerial Lanes of Travel

WITH promises of transcontinental aerial routes, transatlantic flights, and even a trip to the north pole, aviation today is much in the same position as a pilot who has climbed to an amazing altitude, lost himself in the clouds, and is reluctant to descend for fear of a crash Aviation's spectacular development during the war produced results far beyond the dreams of its most optimistic supporters, and this success has sent many of these well-meaning agitators into a mild form of intoxication.

Incidentally the public loses sight of the big factor in the development of aviation in this country—Congress and the General Staff. For, since under Government auspices our sudden and phenomenal progress in the air has come, so with the Government rests the hope of its future. The Government now controls the production of planes and engines, the training of pilots, and the licensing of fliers. Through the Government has been rearoused the inventive genius of Americans who have produced notable additions to the aerial contributions of England, France, and Italy, such as Glenn Martin, Grover Cleveland Loening, La Père, Christmas, and others. The Liberty engine, produced by the United States Government, was undoubtedly the big individual aviation success of the war, either here or abroad. Today the Government, through the army and the navy and Marine Corps, owns or controls all the flying paraphernalia in the United States—engines, planes, shops, fields, hangars, and machines—and in the Division of Military Aeronautics has an organization which is daily giving evidence of an intelligent endeavor to put flying on an efficient peacetime basis.

The manner in which this preliminary ground work and these preliminary air service plans are now being worked out immediately concerns the present and will make for the future success of aviation, but these plans cannot be completed unless Congress and the General Staff so will.

And in this connection it is well to keep in mind that the air service is composed of about 98 per cent. reserves and 2 per cent. regulars; that the credit for what success has been accomplished in our air service must go largely to the reserves, officers and men; that the air service is decidedly a stranger in the regular army establishment. If the army is to operate this service in the future, two ways are open; either cut it down to a few thousand men and planes and make it a small part of the army or operate it as a separate organization, under the Secretary of War, fully manned and equipped for this service. The first is sure to check aviation's development, the second, strong and progressive, will encourage its development and make it of value to the nation.

This situation has aroused much speculation in Washington, overseas, and in every other place where flying is discussed. The rivalry between the regular and the reservist is outcropping in it. It has not loomed before the public, because the attention of the people has, in addition to being distracted by impossible promises of aerial performances, been focused on such things as the ultimate disposition of the railroads; the discussion at the peace table; the fate of the Kaiser; the meaning of "the freedom of the seas"; the effect of the peace terms on England and on her being mistress of the seas.

New American-Built Loening Two-Seated Monoplane Capable of a Speed of 145 Miles an Hour.

To those who can see the possibilities of aviation in the United States it is easy to picture a battle between a sea fleet and an air fleet, in which the sea fleet will be decidedly at a disadvantage and badly beaten. It is also easy to picture the futility of a foreign foe's attacking or landing on the coast line of these United States, with modern, well-equipped air fleets to oppose it. Some of the practical men even go so far as to say that a perfectly developed peacetime air service, elastic enough to be used for defensive purposes, would make unnecessary a standing army of the proportions now being figured on. These men believe that, if the United States put its energies and ingenuity at work in the air, it would solve, once and forever, this perplexing problem of a universal training, a large standing army, and big military budget for the nation's defense. Consequently, the air service finds itself before the General Staff as a contender, rather than as a supplicant, a lusty rival rather than an amateur, and before Congress as a Big New Idea for public service.

If American pilots returning from service overseas have different opinions on some things, they are unanimous on one; that is, this country of ours offers the greatest flying courses in the world. These boys know, from experience on both sides of the Atlantic, from observation, and from actual contact with fliers of France, England, and Italy. The United States has great stretches of space, wide areas, chains of landing fields linking the principal communities in all directions, richly varied terrain, and no limit to the number or length of air lanes. In the United States we can fly the year round and in all seasons. By riding the air lanes of Canada on the north and Latin America to the south the possibilities of the future are even greater. These airmen from overseas also tell us that England, France, and Italy, with comparatively restricted areas for flying and with a limited number of landing fields—and small ones at that—are going rapidly ahead in the development of aviation; that these Europeans see the great possibilities of a wonderful future.

In passenger and fast express service over long-distance routes lies the hope of that future. What may eventually come about is now being demonstrated by English, Italian, and French manufacturers and pilots, especially the English and Italian, in the carrying of heavy loads for long distances; notably, the recent flight to India and the express Channel passenger service.

For the present our air service must confine itself to the preliminary ground work, air mapping, charting of air lanes, in developing planes and engines for long-distance cross-country work, and particularly must there be worked out the problems of control of planes for protection of the pilot, his instruments, and the engine, that flying may be done in all kinds of weather. In the meantime, and going along hand in hand with this development, there exists a useful field of activity for the airplanes and one of great service to the Government.

First, of course, there is the carrying of mail, the parcel post, and urgent light express matter. This is being attempted now by the Post Office Department, but it is evident that little preliminary study had been devoted to the numerous aspects of the problem, and that the service is not maintained uninterruptedly. But despite many failures there has been attained a considerable success. Airplane carrying of mail is practical, and as soon as the necessary steps have been taken for establishing air mail routes they will be flown—except in particularly bad weather—with a reasonable degree of regularity.

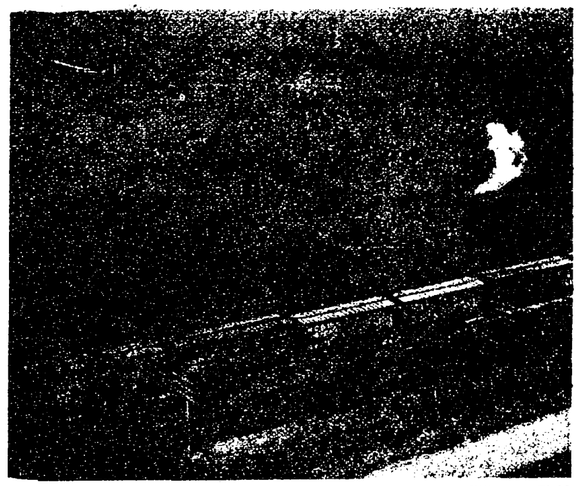
The Bureau of Forestry has use for planes in operating fire patrols, and with dirigible balloon auxiliaries in carrying fire-fighting crews and landing them in small clearings. As it is today these fire fighters have to go many miles round about, over mountains and almost impassable streams, canyons, and swamps to get into action and to stop a sweeping forest fire. Much valuable time is lost between discovery of the fire and getting crews on the job to fight it. The consequence is an enormous loss of valuable timber. In this service the plane would be used for observation. The wireless telephone, another development in connection with the air service, would be used in communication between the observer and the ground stations.

Other uses to which the planes could be put at once are making photographs and air maps for the Coast and Geodetic Survey, explorations, boundary lines and surveys, reclamation and development of swamp areas, scientific and research work, and the development of national parks. The photographic section of the air service has already demonstrated that complete and true to scale map pictures can be made from the air of great areas in a remarkably short time. The mosaic map recently made of the City of Washington is a perfect survey and shows not only the streets, avenues, and park lines, but the terrain as well, giving in minute detail the picture of buildings, trees, streams, grades, depressions, and elevations. And the whole operation was completed in a little more than two hours. By actual ground survey such a piece of work would have occupied the best attention of engineers for not less than a year.

The preliminary steps in all these activities have been taken. Army planes manned by army pilots and observers and photographers are flying in squadrons of from three to eight machines from as many as twenty-five fields in the South and Southwest, in all directions, mapping and charting routes for the future, finding landing fields, and arousing public interest in the building of others.

Comparatively few localities, even with the great amount of cross-country flying that has been done, have had favorable opportunities for viewing flying machines closely. Planes have passed over the heads of most persons and gone from sight. The air mappers are under orders, therefore, to give exhibitions at each stopping place, describe the flying machines and engines to the inhabitants, take the mystery out of flying and make it simple and plain to all. Low-powered training planes only are used for this purpose, no machines formerly used for long-distance bombing being included in these early operations. Most of the training machines carry tanks holding only about an hour and a half's supply of gasoline, and are the type flown at our training fields for instructing cadets.

A good example of air mapping and the charting of air routes is the flight made on Dec. 4, 1918, by five planes from the Rockwell Training Field, San Diego, Cal., under the leadership of the field commanding officer, Major Albert Smith, for the purpose of laying out a course from the Pacific to El Paso, Texas. This is considered one of the most difficult air



Airplane Dropping a Bomb Alongside a Moving Freight Train Near Ellington Field, Texas. The Train Could Have Been Hit Easily, if This Had Been Desired.

lanes in the Southern transcontinental flights. The planes were taken from the squadron used in training. None of them carried more than an hour and a half's supply of fuel. They went across the mountains, losing one machine in a fog which had to put back. The rest pushed on, soaring high above the desert; arrived at El Paso, and asked permission to come on East. This being given, they kept going, making the journey in hour-and-half hops, like giant grasshoppers, and eventually they reached the Atlantic Coast with a complete mapping record and some valuable air pictures. Their course, roughly, was a line running through El Paso, Deming, San Antonio, Houston, New Orleans, Mobile, Montgomery, Americus, Ga., to the coast.

It was on a Monday morning some three weeks ago that one of the longest cross-country flights in formation was participated in by twenty pilots from Scott Field, Belleville, Ill., when they flew an equal number of planes to the Aviation Repair Depot at Speedway, Indianapolis. Each of the planes had already had more than 250 hours of flying to its credit and all had been condemned. The object of the trip was to take them, under their own power, to the shops for a complete overhauling. The flight was made in two formations, the first one leaving the ground at 9:30 A. M. and arrived at its destination, a distance of 250 miles, three hours and fifteen minutes later. Three of the machines had engine trouble en route, but the minutes spent in repairs were not deducted in figuring the elapsed time.

Just as illuminating is the log of a flight from Selfridge Field, Mount Clemens, Mich., to Cincinnati, on the day before Thanksgiving, when three ships took off with a thirty-mile wind blowing from the southwest. This was not good flying weather. The temperature at 3,000 feet was about 45 degrees. The visibility was low, due to heavy mists and smoke. The twenty-six miles to Detroit was made by following the tracks of the Interurban Railway for a distance until the Detroit River was reached at 11:56, and Ford was passed at 2:06. From there on the river was followed, inasmuch as the pilots found the sand pits and bars offered excellent landmarks, as they could be quickly seen from the air on account of their curious shapes. Bad weather delayed the squadron two nights and a day at Detroit.

With the weather clearing at 8 o'clock in the morning of Friday, Nov. 29, the three ships took off at 11:40 o'clock and followed the Maumee River through the city and as far as Perrysburg, Ohio. The wind encountered was twenty-five miles an hour from the southwest. During the course of the trip, a few days later, a take-off was made in snow and drizzle, which made the visibility particularly low, and they were forced to fly against a wind of thirty-five miles from the southwest. Landing fields were "spotted" to the east of Lima, and one was chosen which could be used for an airdrome throughout the flying season. In the town the Ottawa River, flowing from west to east, was set down as a good guidepost, likewise the reservoirs to the east of the city.

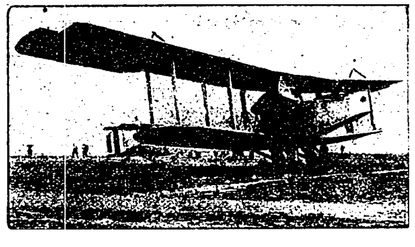
These men, who had started off to do their work in the same prosaic fashion as the driver of an express wagon, got in their machines each morning whether the weather was cold and cloudy with the wind at thirty-five miles, or the sun shining with the wind at twenty miles, or foggy clouds heavy and cold with cross wind. On these extremely cold and cloudy December mornings, when they tested the air, it took a long time to get the motors going—and it was so foggy and dark at Dayton that the juncture of the Mad and Miami Rivers could not be laid out from an altitude of only 1,000 feet. Here the notes made by the air mappers show that just south of Dayton the Miami River describes a huge U. The channel curves to the southwest and then around to the southeast, then turns again to the southwest.

Approaching Cincinnati, smoke clouds were so impenetrable that it was impossible to spot the "T" which marked the golf course of the country club. To a man in an airplane, the missing of one country club is a comparatively small matter if the gasoline holds out, and at 1:51 o'clock the ships came down at the next golf course to find scarcely any gas in the tanks. After regassing, the pilots flew to yet another club, where the cordiality of those present left no doubt of the desire of the Queen City to become a point on an aerial mail route.

Two days later, first circling the city, the men took off in a cross wind, but in weather that was extremely warm for the 7th day of December and the sun bright. At 3,000 feet the temperature was 50 degrees, the wind 30 miles an hour from the southwest. The weather had moderated so much that gloves were unnecessary on the following day, and at 2,000 feet the pilots were above cloud puffs and on top of cloud banks that were rolling in from the southwest before a 30-mile southwest wind. They passed Deshler, Tontogany, and Perrysburg. At this point they noted a monument on the east bank of the Maumee River, which was quite distinct. With favorable winds behind them the remainder of the trip back to the home field up north was made without incident and in about a quarter of the time required to come south when both weather and winds were against them.

By next Spring the work of mapping these air routes and the locating of landing fields will have been extended to the northwest. At least, if it is not interfered with, this is what the army air service plans to do. The flying force will also take the work into the northeast and the Northern Middle West. In short, the whole country will eventually be air mapped; an Air Blue Book created. The air service of the army will thus develop and carry on the work of the United States cavalry, which not so many years ago was riding the country locating the best roads and highways, fords, and bridges. For, as these things are necessary to horses, so are landing fields, gas, and oil supply necessary to the airmen if they are going to be allowed to develop the air lanes of the U. S. A.

THREE TYPES OF AMERICAN-BUILT AIRPLANES



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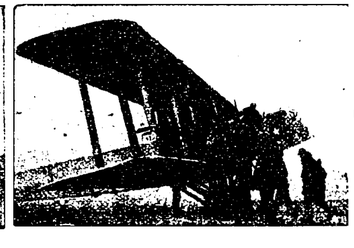
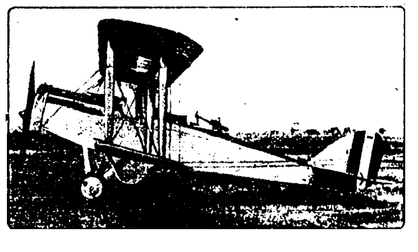


Glenn Martin Day Bomber.



(Photo from Committee on Public Information.)
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