

the real pilots literally fall all over themselves with joy.

Straight as a die drove Lindbergh for Mitchel Field, swiftly he dropped alone and made a beautiful landing before the long row of hangars. Before the frantic thousands who swarmed out on the turf could reach and grab him a car had picked him up and whisked him to where a Loening amphibian stood chuckling on a half-closed throttle. In another instant he was in the ship, off the ground, and headed back to the naval parade that was forming to greet him in the lower bay.

Over the Narrows again, land and sea went mad while the packed sky turned itself inside out with joy. Swift Curtis Hawks with a top speed of 185 miles an hour twisted and cavorted in the brilliant sunshine. Stunt ships of all kinds flipped in half-loops or nosed down with half-cut motors in steep dives that made their wires scream. Spirals, tail spins, and Immelmans they did while their motors roared or droned as the gas was cut on and off.

Every thrilling and awe-inspiring trick of the skilled flier was put on by half a hundred stunt-crazed men up there in

the bright sunshine. Civilian and service flier each in his own degree of skill performed, stunting their heads off. It was not for the shouting people down there along the crowded shores and in the packed streets, but for one lone young man who had just tumbled out of the landed amphibian and was going aboard the city's flagship.

This aerial performance kept up while the naval parade steamed solemnly up the bay and the city from the Battery north went vociferously insane. High overhead in the sunny blue air little knots of planes climbed for the ceiling and then tumbled, spinning and looping and side-slipping, toward the earth, hoping that in the middle of the city's gigantic reception "Lindy" might cast a weather eye aloft now and then to see what his buddies were doing in the air.

To Lindbergh's mother during the city's welcome it was suggested that her son must now be thrilled even more than in Paris or Brussels or Washington. She tactfully agreed, and added simply: "But I know him. He would rather be talking to a group of aviators in a hangar some place." This sentiment would unquestionably have been

re-echoed by every flier that spun and cavorted overhead that day.

Meanwhile the city's welcome rose to a full-throated crescendo of sincere heart-felt enthusiasm that verged close to tears. Heroes come and go, but there was something about Lindbergh's whole exploit that seems to have put it in a class apart. Perhaps the deciding factor was an instinctive realization of what those airmen up above knew.

Here was one popular idol upon whom there was no slightest taint of commercialism, no taint of self-seeking, of conceit, or of insincerity. Here was one hero for whom they could let their enthusiasm go completely wild.

Back in hangars scattered around the outskirts of New York, tired, grease-streaked pilots sprawled at ease, their stunts over, listening to the radio. "Slim" was now at the City Hall, making a speech. And the speech was just like him—plain, simple, and sincere. In this severest test of all for a neophyte he rang true. His fellows in the craft grinned, happy and content. "He talks just the way he flies," they murmured, tersely, "He's a good kid. 'Slim' Lindbergh is the real thing."

What Lindbergh Is Doing for Aviation

By WALTER HINTON

NOTHING in aviation, no single achievement, no combination of aerial events since the Wright brothers made the first mechanical flight twenty-four years ago, has had such influence on the public mind as Charles A. Lindbergh's lone dash from New York to Paris. In this really stupendous and magnificent popular reaction to his heroic feat we shall find much that is practical and enduring.

For the first time flying has become a reality to Americans; and not only to Americans, but to the masses the world over. That is why, when the public acclaims him a hero, the aviation people are actually more appreciative, more specific in their laudatory remarks, and as utterly unstinted in their praise of him as the most callow hero worshiper who struggles to get near enough to touch him or claw at his face and paw him over, simply because he is Lindbergh, idol of the hour. In the aeronautical world Lindbergh is not a creature of the moment. He is a sign which marks the turn of the road for aviation, a symbol flashing through space for a

few brief hours—to awaken the universe, bring all people to a realization of the possibilities of human flight.

When the Wrights got into the air at Kitty Hawk, North Carolina, on that cold December day in 1903, five witnesses who saw them do it hastened to flash the astounding news to the rest of the world; but the newspapers at first refused to print the story. It was unbelievable. It could not have happened. When it was proved beyond a doubt, the vast majority accepted it as a matter of fact and did not become excited. They took it for granted; and they have been taking aviation for granted ever since.

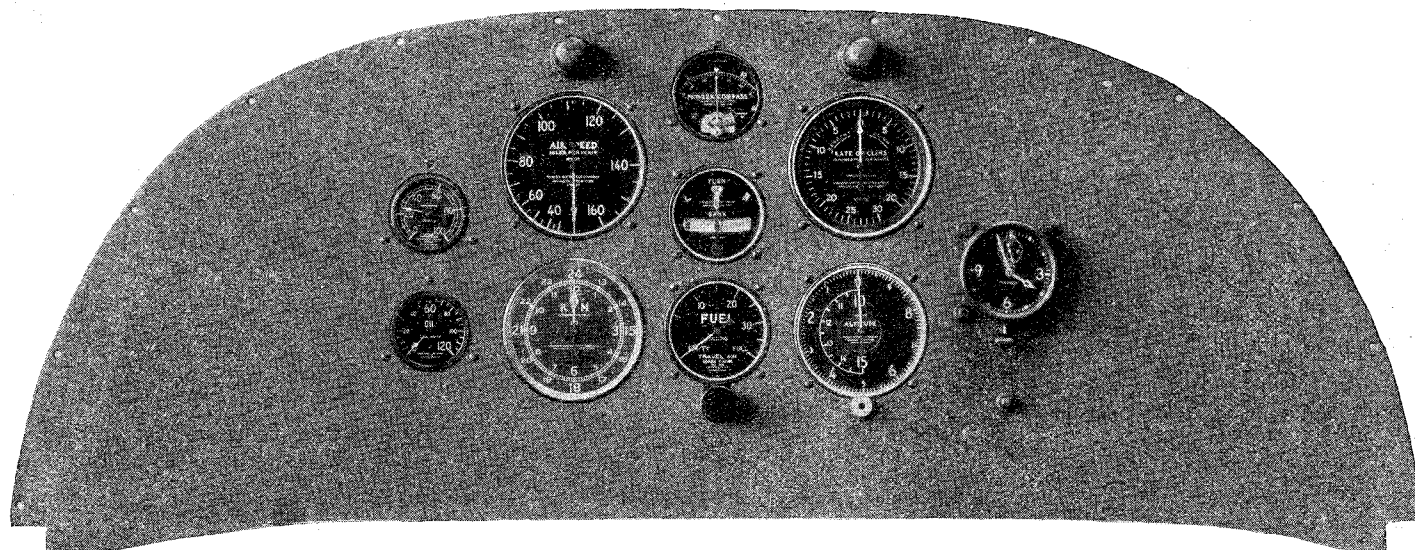
It has not been a personal thing with most people; all very well for acrobats, daredevils, and crazy inventors, but for the ordinary and sane citizen, nothing doing. He could see a machine cleaving the air at two or three miles a minute and congratulate himself that he had both feet on the ground.

Airplane development attained its first great impetus during the war. But war is an exotic state of affairs to most of us. We plunge into it as we would enter a

pest-house to fight an epidemic, in an effort to save ourselves. We are glad when the scourge has passed. Everything related to war, all the implements and tools, and very often the heroes, are forgotten or at least pushed into the background of the public mind. Aviation suffered that fate immediately after the Armistice.

Despite all that has been done, written, and told about the miracle that is flight, people generally have refused to accept it, take it into their minds, and treat it as they do the radio, motor car, or any of the other scientific marvels to which they have become accustomed. But Lindbergh has changed all this: his flight lasted 33 hours and 30 minutes. It will live forever.

The aircraft industry immediately after the Armistice had one hundred million dollars' worth of airplane and motor contracts canceled by the Government—in this country. Plant facilities, trained workmen, limitless stores of materials, complete laboratory facilities, mammoth workshops, and engineering staffs just getting into their stride—all



Photograph from Pioneer Instrument Company, Inc.

Here's what an aviator has to watch. This is the instrument board from the plane which won the Second Ford Reliability Tour. The dials, reading from top to bottom, left to right, are as follows: oil temperature indicator, oil pressure gauge, air speed indicator, tachometer, indicator of Pioneer Earth Inductor Compass, turn and bank indicator, fuel level gauge, rate of climb indicator, altimeter, clock

were here, dispersed in some twenty communities of the United States, ready to be used in peaceful effort.

Millions of dollars were placed at the disposal of the manufacturers and engineers.

Publicity campaigns were conducted on an unprecedented scale. Experts in coaching the public mind into acceptance of almost any kind of propaganda worked night and day for years. Engineers made fancy designs. Motors were improved. The Government placed all its resources at the disposal of the men trying to sell aviation to the public.

The Army, Navy, and Marine Corps spent millions on new planes and sent their aviators to the ends of the earth on startling, heroic attempts to do something that would impress the public. Machines were flown into each large community. Lecturers were sent out to preach the new religion of transportation and National defense by way of preparedness in the air. The Post Office Department procured all the funds that Congress would allow, wheedled the Army out of a hundred cast-off military machines, and our young Americans flew these old crates back and forth across the country on the air mail routes; in all kinds of weather, through storms that tied up terrestrial transport, and under conditions that most of us dislike to even think about. They died, too, some of these pilots, a sacrifice to the new era.

Young men went into the game of flying—it was then a game and a reckless one—against the advice of the elders. New air lines distributed free tickets for flights, and the recipients re-

fused to fly. Aviation had tumbled out of the clouds of hopeful development into a vicious circle. Without public patronage there could be no funds available for the necessary experimentation and research work necessary to develop the airplane into a safe, comfortable, reliable, and paying vehicle. Three times in the last nine years American aviation has been so far below par that the most optimistic saw no hope for it. I am told that identical conditions have prevailed in other countries.

But it did survive, largely through the encouragement of the governments. Abroad they subsidized their aeronautical ventures. Here the Government encouraged inventors to develop new planes and engines. They purchased equipment, drew up specifications, and gave them a mark to aim at; then paid them for their work. They progressed. The air mail was developed in similar fashion, the Post Office Department literally supporting its Air Mail Service on the taxpayers' money until it finally commenced to support itself.

But the civilian air lines have been having a hard struggle; the manufacturers have been relatively poor. Planes built by twos and threes in this country, where high standards of wages and other conditions make imperative quantity production in all things, could not be sold at reasonable prices. Picture the development of the motor car if only four or five customers bought a certain design each year.

There would be no warrant for the Government to lay out highways, for the States to spend millions on improved roads, for the young college student to enter the field of automotive engineering.

That has been the situation. Now Lindbergh appears.

To the public he made no expensive preparations. He was not surrounded by staffs of engineers, advisers, and a group of bankers underwriting a very expensive project; at least in the public mind he had none of these handicaps to popularity.

On his arrival in Paris, alone, he shocked the world. Even the crowds at Le Bourget, I am told by one who was there, did not believe that Lindbergh was coming. Nine out of ten there at the Paris airport thought that this was Yankee bluff. The Nungesser-Coli tragedy, the Levine-Bertaud fight, the commercialized activities of the promoter, and other accidents in connection with the transatlantic flight had disgusted people who looked upon such a venture as a sporting proposition completely sullied by some persons and turned to tragedy by accidents.

Lindbergh came out of the West, unheralded. He took off alone in a plane that had not been touted about in the papers as an extraordinary model of flying craft. The public saw in it just another airplane, which it is, in fact. The engine is a good one; everybody knows that, because the Chamberlin-Acosta flight of more than fifty hours aloft proved it to be a fairly perfect piece of machinery. Until Lindbergh's arrival in Paris the world looked upon his adventure as a daring, sporting thing. For two or three days Americans thought of him as the hero of a successful sporting venture; then their feeling changed.

Back of the thought that Lindbergh had accomplished one of the most re-

markable feats in history there developed a public recognition that it would have been impossible without a good flying-machine. I heard a man express it thus:

"He kept his engine going for more than thirty-three hours; and I told my wife that I would not like to keep my motor car running that long. It wouldn't be much of a car after that, with the engine running thirty-three hours."

Gradually, people began to realize that if one man can fly for thirty-three hours they themselves might be able to do it for a few hours. If one young man can be taught to fly such a trip with only a few years of training, why they, too, might learn to fly. If engines can be built as reliable as Lindbergh's Wright air-cooled motor, then other engines can be so built; and flying is much safer than supposed. If an airplane can carry hundreds of pounds of fuel and fly more than 3,600 miles without stopping, then other machines surely can fly as far as most of us desire to travel.

If Lindbergh's airplane cost less than \$15,000, including all his preparations for the flight, then a small airplane should cost less. It is beginning to get somewhere within reaching distance of the average motorist. And people say: "We shall have to begin looking into this flying business."

That one sentence sums up what Lindbergh has done for aviation. He has made the whole world turn about, take its eyes off the ground, and commence thinking about aviation. His modesty—brother pilots term it sheer decency on his part—continues to make people think well of aviation. His every utterance is picked up and reflected upon by every newspaper reader. There has never been anything like this desire of men, women, and children to read every word that Lindbergh says. And what he says is continuing to have a mighty influence on the public feeling toward the airplane.

Lindbergh says that flying is as safe as anything else. It must be true; he should know. He says that aviation is going to be within reach of everybody. He knows. He says that anybody can fly. He is the authority.

The reader has seen what happened to radio when the public commenced thinking seriously about it. Largely, radio is entertainment so far as the public is concerned. Here we have something vital. It is transport, and all of us depend upon transport. The best minds in the aircraft industry are so astonished at the public reception of this flight that they refuse to place a limit on the last-

IN response to requests The Outlook here republishes this prophetic poem.

The poem was written when its author was an undergraduate at Harvard and was awarded the Lloyd McKim Garrison prize. Millions of copies of this poem have been printed during the years since its first appearance in The Outlook in 1910. It is to be found in the author's collection of verse, "Mothers and Men," published by Houghton Mifflin Company, and in numerous anthologies.

The Conquest of the Air

By HAROLD T. PULSIFER

With a thunder-driven heart
And the shimmer of new wings,
I, a worm that was, upstart;
King of kings!

I have heard the singing stars,
I have watched the sunset die,
As I burst the lucent bars
Of the sky.

Lo, the argosies of Spain,
As they ploughed the naked brine,
Found no heaven-girded main
Like to mine.

Soaring from the clinging sod,
First and foremost of my race,
I have met the hosts of God
Face to face:

Met the tempest and the gale
Where the white moon-riven cloud
Wrapt the splendor of my sail
In a shroud.

Where the ghost of winter fled
Swift I followed with the snow,
Like a silver arrow sped
From a bow.

I have trailed the summer south
Like a flash of burnished gold,
When she fled the hungry mouth
Of the cold.

I have dogged the ranging sun
Till the world became a scroll;
All the oceans, one by one,
Were my goal.

Other wingéd men may come,
Pierce the heavens, chart the sky,
Sound an echo to my drum
Ere they die.

I alone have seen the earth,
Age-old fetters swept aside,
In the glory of new birth—
Deified!

ing results. But this they know, as having already occurred.

Bankers are beginning to see in the airplane a medium of investment similar to railroads, steamships, and motor cars. Within three weeks after the Lindbergh flight sufficient capital was made available here in the United States to finance almost any kind of aeronautical project. The pity of it is that many of these projects will be foisted upon the public, which cannot recognize the fakes apart from those worth while. I know of a half-dozen new promotion schemes which cannot succeed. I certainly would not invest my money in any transoceanic airplane line—not at this time. There is no evidence that I have yet seen which convinces me that airplanes flying across the Atlantic under present conditions can carry sufficient loads to pay a profit—not at least until a perfect, infallible system of floating airdromes is set up all the way across, and planes have been developed to pay the expense of operation, procuring patronage, and, most important of all, taking care of the depreciation, which is heavy, the risk which is not to be slighted, and the overhead cost, which will be in the class of railroad and steamship development. A skilled organization must be trained in the hard school of experience before commercial flights across the Atlantic, with stops every four hundred miles, are successful.

Aside from that, and forgetting the fake promotion schemes, every move inspired by Lindbergh's flight must benefit the people. There is no question but what the airplane is now practical as a cargo carrier; and I am sure that before many months have passed we shall see it equally practical, because it will be safe, as a passenger machine. The technical knowledge is available, trained engineers and responsible builders are at hand; they have been forced to wait for inspiration on the part of the public. Lindbergh has created it.

Thousands of college students have besieged the aeronautical industry, seeking jobs that will place them in the way of realizing a career in the air. Every schoolboy is now dreaming of air travel, of flying, just as Lindbergh dreamed for years until he was able to make it a fact. The flying schools are enrolling ten times the students that formerly came their way. Schools and colleges are hastening to rig up aviation courses. This work was set in motion about a year ago by the Daniel Guggenheim Fund for the Promotion of Aeronautics, and several colleges have well-equipped aeronautical branches. The others must come to it.