FLYING

BY GILBERT GROSVENOR

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President and Mrs. Roosevelt like air travel. It will be remembered that they flew together from Albany to Chicago, when the President was nominated, to make his speech of acceptance before the Democratic Convention.

What a change since the President's mother, Mrs. James Roosevelt, as a girl of eight, sailed with her mother, Mrs. Delano, in a clipper from New York to China, a voyage around Cape Horn that lasted four months!

Lewis and Clark, with a modern plane, could have made their two-year trip from St. Louis to Oregon and back in two days!

How air speed thus wipes out time and distance is common knowledge. We all know that men, mail, and express fairly whiz through the air day and night. We hear the planes roar overhead; but since they touch earth only here and there, at airports outside the cities, not all of us realize the swift, huge growth of air traffic. Official figures are almost incredible.

To-day air mail carried is five times what it was six years ago. The number of air passengers has multiplied 62 times, and express carried is 35 times what it was in 1927.

Not only is all America served, from Alaska to Argentina, but all Europe likewise has its net of air lines, with long-distance routes stretching from London to South Africa and India, from Marseille to Indo-China, and from the Netherlands, about 8,200 miles to Netherland India—so to say nothing of the airship Graf Zeppelin making scheduled round trips between Germany and Brazil.

It took nearly three centuries to cover our country with roads and tracks on the ground. In little more than a decade some 28,000 miles of airways have been plotted and largely marked along their routes with lights and signs.

For use of the 7,136 licensed civilian planes and 18,539 pilots that fly these elevated railways of the sky, more than 2,100 airports and landing fields now dot the United States. Some are lonely desert stations at emergency landing fields; others, owned by cities or private concerns, are commodious and ornate.

The latest airway map of the United States shows 35 scheduled airway companies. Many routes parallel the railways. Some take bold short cuts. Some are transcontinental; others run north and south, as from Seattle to San Diego, or Chicago and New York to Miami (p.634).

On our domestic routes and connecting foreign lines, planes are flying about 150,000 miles a day. Two-fifths of this travel is at night. For the past few months, despite hard times, about 42 per cent of all passenger seats have been sold.

It cost an air passenger about 15 cents a mile to ride in 1929. Since then fares have been steadily reduced. Now the rate throughout the United States averages the same as first-class train fare plus Pullman charge.

TRAVEL BY AIR GROWS IN POPULAR FAVOR

Less than 20 years ago air-passenger service was unknown. A pioneer flying boat carried sight-seers on scheduled trips over the 17 miles between Tampa and St. Petersburg, Florida, for a few weeks early in 1914. So far as Federal records show, that was America's first regular air-travel line.

Last year scheduled air lines in the United States carried more than half a million paying passengers. About 1,500,000 more flew on sight-seeing trips over cities, in private planes, and on other non-scheduled flights.

Though each year sees more traffic by air, the rapid increase in passenger travel is of most significance. It proves that the public's former lack of full confidence in airplanes is disappearing.

Many ride the air, of course, for the sheer pleasure of flying and the scenic delights that are afforded by a transcontinental voyage, or by such a trip as that over the Florida Keys, along the Grand Canyon, or from Los Angeles to Portland.

But it is no longer the mere novelty and thrill of flying which sells most air tickets. Among the commuters who habitually ride the express planes between such busy airports as Washington and Newark, Kansas City and Chicago, or San Francisco and Los Angeles, there are naturally some
FRANKLIN D. ROOSEVELT, AS PRESIDENT-ELECT, ABOUT TO BOARD AN AIRPLANE

With Mrs. Roosevelt and his son, Elliott, the Governor of New York, left Albany by plane for Chicago to receive formal notification of his nomination for the Presidency.

"joy-flying fans," newlyweds, schoolgirl vacationists, and leisurely sight-seers. But a count of noses shows that most air travelers to-day are bent on business; they are doctors, lawyers, bankers, editors, merchants, engineers, salesmen—in fact, the same classes who ride the railway trains.

One instance serves to show how business men are using air service advantageously. An official of a Toledo corporation recently made a seven-day air trip to Chicago, Cheyenne, Denver, Salt Lake City, Los Angeles, San Francisco, Portland, Seattle, Vancouver, British Columbia, and return. At some of these points his local agents met him at airports for conferences between planes. The surface journey would have taken 13 days longer.

Work as you fly is the rule of Will Rogers, Senator MacAdoo, Ramsay MacDon-ald, and other busy executives. Most planes are equipped with table, typewriter, and compartments for reference papers and books. Parts of this article were written in a Curtiss Condor plane between Miami and Washington.

Tourist flyers are also increasing. To Havana, Nassau, and the West Indies alone go more than 1,500 passengers a week. Fifty per cent of these are women; about 3 per cent are children in age anywhere from a week old to 12 years, when they pay full fare.

NO AGE LIMIT

Nor is there any apparent age limit. One recent 79-year-old passenger on a trip around South America, William H. Gannett, of Augusta, Maine, has more than 100,000 air miles to his credit.

A married couple, 76-78 years, were passengers over the Andes. A baby girl, flying to Rio de Janeiro from Miami, had spent much of her 72 days of life in the air.

One recent coast-to-coast passenger carried by United Air Lines was a six-weeks-old boy. He flew from Seattle to New York in 31 hours and seemed to enjoy his
sky ride. When another infant was being flown east from Los Angeles, the pilot kindly sent radio calls to stations ahead to have special baby food ready when the plane halted.

A recent check of United Air Lines passengers shows that 60 per cent were officers of corporations, 20 per cent were sales officials, engineers, and other representatives of corporations, and the rest miscellaneous travelers. This seems to indicate that business men have turned to the airplane because it speeds up transaction of affairs and conserves time and money. Sixty per cent of 784 corporations, each capitalized at $100,000 or more, have executives and representatives using airplanes regularly, according to a survey of those companies.

Members of the staff of the National Geographic Magazine have totaled 50,000 miles of air travel during the past year. They have saved time and expense by so doing.

Speed, beyond any doubt, is man's chief reason for riding in airplanes. In pioneer days the bullwhacker goaded his ox team to gain another half mile per hour; stage drivers lashed their galloping four-horse teams and changed to fresh horses every few miles. With steam came competition among parallel railways, to cut out grades, curves, and all possible stops, to gain more speed. The same race for speed is apparent now among competing air lines.

**AIR SPEED INCREASES**

From a cruising rate of 75 miles an hour we have seen planes become faster and faster; some now average 150 and more miles per hour, depending on winds. Today you can fly the 200 miles between Washington and Newark airport (for New York City) in 80 minutes; from San Francisco to Los Angeles, 348 miles, in one hour and 58 minutes.

Between New York and Los Angeles the air-passenger schedule is less than 25 hours eastbound and 25 hours westbound, as compared with three days and eleven hours by rail. New planes carrying mail
and express parcels may cut these times nearly in half within twelve months.

With more speed, bigger and better planes bring more comfort. Divested of all circus thrills, to-day’s efficient machines, reliable pilots, and the businesslike methods of highly organized air transport companies make flight across the continent no longer a novelty. Planes run on time cards like trains.

Symptoms of nervousness, once seen among passengers as planes took off or landed, have about disappeared. So says the “flying hostess” who serves your lunch as you fly, brings you chewing gum and ear cotton, something to read, or tilts back your chair, turns out your lamp, and pats your pillow for you when night comes.

The flying hostess is credited with having done much to increase the number of women air passengers. One of these young ladies, a former New York school teacher, has flown—on duty—a distance of more than 150,000 miles. The total number flown by 12 hostesses on one line in the past two years amounts to more than 1,500,000 miles. The dean of flying hostesses has covered 278,000 miles! The popularity of this new vocation for women is shown by the 15,000 applications for such jobs, so far received by one company.

“Passengers take air travel for granted now,” said one hostess. “They ask fewer questions; some seldom even look out the windows.”

**LETTERS RIDE THE SKIES FASTER**

Man first sought to send mail by air in 1870, when beleaguered Paris cast balloons adrift in the wind carrying letters to the outside world. One balloon carried 500 pounds of letters. This service, of course, depended much on chance. Mail was just as likely to land in enemy territory as among neutrals. Some of these balloons were never heard of again.

In 1911 experiments with mail-carrying planes were made in India and England. In September of that year, on Long Island, New York, America’s first official trials were also made. Earle L. Ovington, with his Queen monoplane, was named air-mail...
AÉRIAL PASSENGER TRAFFIC DEFIES THE DEPRESSION

A trimotor passenger plane awaits travelers at the American Airways station at Newark. This terminus accommodates most of the lines carrying passengers to and from New York's metropolitan district, which includes Newark, Jersey City, and other near-by places. One airline flies shuttle planes between New York and Washington every hour; frequently the traffic requires two planes for a scheduled run.
JUST IN TIME TO CATCH THE SKY-LAND EXPRESS!

Two modern voyagers consult the bulletin board at a Pan American Airways terminal, Miami, Florida, for information about the arrival and departure of the more than 100 large passenger ships of the air operating between the United States, Central and South America.

carrier and covered a regular route between Mineola and the flying field, only ten miles away. He carried many thousands of letters and post cards during this week’s experiment.

It was not until 1918, however, that money granted by Congress was actually used to set up an experimental air-mail route between New York and Washington. Yet, since 1926, air mail has increased by more than 1,500 per cent.

It was 433,649 pounds then. In 1931 it had reached a total of 9,643,211 pounds. It declined slightly in 1932 because of higher air-postage rates and hard times.

Out of every dollar the Post Office spends, only 2.1 cents goes for air mail, paid for by the mile. More than half that is regained from the postage.

Last year the public bought more than $10,000,000 worth of air stamps, besides using many ordinary postage stamps, marking the letters “by air mail.”

AIR-MAIL COST DECREASING

The cost per mile flown on air-mail routes has been steadily decreasing. In September, 1931, the cost per mile averaged 67 cents. In the same month of 1932 the cost had decreased to 58 cents a mile. When these figures are considered, along with the total miles flown by air-mail carriers over their lines with and without mail, the present rate is about 55 cents per mile, and is expected to drop to 50 cents a mile this year.

Mal B. Freeburg, who flies for the Northwest Airways, Inc., is the first air pilot to be honored with the Mail Flyers’ Medal of Honor, recently authorized by Congress for heroism or extraordinary achievement.
A SEAPLANE ARRIVING AT PORT BELL, LAKE VICTORIA, AFRICA

Imperial Airways, Ltd., of Great Britain, provides service on regular schedule over the following routes: London-Paris, London-Zurich, and London-Brussels-Cologne, as well as over its important Empire routes: London-Delhi (India), to be extended to Australia in 1933 and eventually to China and Japan; London-Cairo, and London-Capetown, down through Africa. This company is cooperating with Pan American Airways and with French air-transport interests to develop an air line between Europe and North America.

On April 12, 1932, Pilot Freeburg, with Copilot Joe Kimm, departed from St. Paul, Minnesota, for Chicago. The plane carried six men and two women passengers, in addition to a load of mail.

Flying at about 2,000 feet in ideal weather, Freeburg suddenly experienced a terrific jolt. He cut the switch just as one motor broke loose from its moorings. Not knowing for a moment what its effect would be on the other motors, the pilot cut all the switches.

Then he found that the fallen motor had lodged on the left landing gear struts. Again Freeburg switched on the other two motors and still had an altitude of about 1,800 feet.

His next thought was to get rid of the loose motor; but, as he was flying over a thickly settled farming district, he was apprehensive that it might fall on a house.

So he pointed his ship over the Mississippi River and maneuvered his plane so that the useless motor fell off on an island he had picked out! He then turned the plane around and flew back to Wabasha emergency landing field.

Damage to the landing wheel was such that it would not turn, and its tire was cut open. Yet he made a safe landing.

Already he had radioed the flying headquarters at St. Paul about the accident. A relief plane was dispatched to Wabasha, where the passengers and mail
AND NOW THE "TRAFFIC COP" OF THE AIRWAYS!

With this light the operator can flash a beam of red or green for several miles, indicating to the pilot whether the way is clear, either for landing or for taking off.

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AN 82-YEAR-OLD PASSENGER ARRIVES FOR A BIRTHDAY PARTY

Declaring that "air travel is the most interesting way of going from one end of the country to the other," this enthusiast flew to Newark Airport from her home in Los Angeles to attend the birthday party given by her son.
ALHAMBRA AIRPORT, A FLYING FIELD FOR LOS ANGELES AND VICINITY

Like the long-familiar "railroad crossing" signs, warnings against airplanes in motion and propellers revolving on planes at rest are now erected about many airports.

POWERFUL BEACON LIGHTS AID NIGHT FLYING ON FEDERAL-LIGHTED AIR LINES

These are the world's strongest airway lamps, a double beam of about 1,780,000 candlepower being thrown from each end of the beacon, which revolves three times a minute instead of the usual six. They are visible in clear weather at 50 miles. If a lamp should fail, a new one is immediately inserted, automatically, by a clever lamp-changing device.
THE PILOT'S CABIN OF A CURTISS CONDOR PASSENGER PLANE

At the panel's top, nearest the pilot's eye, are these flying instruments: horizon, compass, directional gyro, altimeter, air-speed, bank-and-turn, and rate-of-climb indicators. At left, Howard C. Stark, famous for his development of instrument flying.

were transferred, and the trip was continued to Chicago.

One of the significant features of this occurrence is that during all this trouble Freeburg was talking into his radio phone, advising St. Paul of what was happening—while it was happening—and explaining what he was attempting to do.

AIR TRAFFIC WITH LATIN AMERICA

Air-mail service to Latin America is a good example of what planes now achieve.

To-day a letter by air can go from New York to Buenos Aires, be answered, and that answer got back to New York in about the time boat mail takes merely to sail from New York to Argentina.

New York mail to Puerto Rico, in the West Indies, flies there in 24 hours and less. That is 2,650 air-line miles, or 50 miles farther than from New York to Los Angeles.

Seas are wide, jungles are thick, and mountains are high along the far-flung
Pan American Airways routes. For years travel between the Americas and around South America was costly and tedious for those who made these trips to promote our commerce with these Latin lands.

Even when Pan American Airways began its little 110-mile air line from Key West to Havana, making the trip in one hour instead of six by boat, passengers were few and far between. Air rides were still thought a bit adventurous.

That was only five years ago. Since then, in our air traffic with Latin America, planes have flown more than 51,000,000 miles and thousands of passengers have patronized the air lines that now link us with 31 countries in the Western Hemisphere.

The airplane has been the means of hurling in one swift jump all the geographic and climatic difficulties which heretofore handicapped inter-American travel. Mexico City is within five hours of our border; Havana and Nassau within one and two hours; Jamaica and Haiti within seven hours; the Panama Canal Zone and every country in the Caribbean area within two days; the most distant capital of South America within seven days.

More than twenty United States firms have contracted with Pan American Airways by the year for carrying their entire field staffs around Latin America. This works both ways. Five South American countries report many more of their merchants are coming to the United States now than before air lines were opened. "Nearly 80 per cent of our passengers," says a company official, "are sales executives or sales representatives traveling on commercial missions."

COST COMPARABLE TO STEAMER FARES

With the tremendous savings of time in their favor, air fares have been consistently lowered until to-day they are close to levels of first-class steamer fares. Pan American’s equipment is different from any encountered in the United States. For the most part it is marine craft, big multi-motored flying boats, including three four-engined, 44-passenger
A COMMODORE PASSENGER SEAPLANE TAXIES UP TO THE AIRPORT DOCK AT PORT-AU-PRINCE, HAITI

Seaplanes of this line depart from Puerto Rico in the morning, stop to refuel at Port-au-Prince and Nuevitas, on the north coast of Cuba, and reach Miami, 1,200 miles distant, in the evening.

BAGGAGE OF AIR PASSENGERS BEING PASSED BY HAITIAN CUSTOMS INSPECTORS

These Caribbean seaplanes also haul much express, sometimes including such odd items as live chicks, anteaters, honey bears, monkeys, birds, dogs, and cats (see text, page 616).
"Clipper Ships." The Clippers are the most comfortable and luxurious flying sea craft in daily use (see pages 629, 638).

Whether it is diphtheria antitoxin for some remote mining camp, serum to combat meningitis in Central America, or doctors and nurses needed where an earthquake has struck, planes serve now as speedy relief agents.

Only one day after the earthquake in Nicaragua, seven planes of the Pan American Airways arrived there from Miami, Cristóbal, and Mexico City with doctors, nurses, medicine, and food supplies.

Then there was Belize, in British Honduras, struck by the worst hurricane in its history. Just before the storm a radio operator, noticing the barometer's sudden drop, spread the alarm. Hardly had he flashed the news to Miami when the hurricane hit Belize and destroyed it. Later the operator got Miami and told his tragic story. Soon a relief plane roared over Belize; it could not land, but it dropped medical supplies to the shattered city.

GIVING WINGS TO ERRANDS OF MERCY

 Barely had the quakes ceased in Los Angeles and Long Beach before anxious relatives in New York and Boston were flying westward to the stricken cities. No longer do shipwrecked sailors adrift at sea watch only for "a sail." Now help may come from up in the air. Ten men drifted helplessly in an open boat, miles from shore, in the Caribbean. A seaplane pilot passing overhead saw them, but could not come down because he had 22 passengers. However, he sent a radio message to the mainland which brought a rescue party.

Not a day passes now that the airplane, together with its ally the radio, does not play some part in the exciting drama of distress and delivery.

Snowbound in the mountains north of Las Vegas, New Mexico, eight miners, a woman, and a small child faced starvation. So deep was the snow that no one on the ground could get through to them in time to save their lives.

But for plucky Army pilots, Lieutenants J. A. Miller and C. J. Brockdiss, who flew over the miners' camp and dropped food from a Curtiss Condor bomber, the storm-bound party would have perished. The food was packed in securely wrapped burlap bags, each weighing 100 pounds.

Five such bags of food werefastened to the bomb shackles at March Field, Riverside, California, and flown east to New Mexico—away back into the hills, far from lighted airways and landing fields—and then released, right over the starving miners, and dropped just as bombs are dropped.

Banks Save Time and Interest Charges by Using Air Transport

To many of us not in the business, a bank is a place to deposit money or cash a check. We may not stop to think how much banks traffic one with another, sending documents and money from city to city, even across the seas.

To move such cash and securities, banks now make increasing use of air mail and air express.

In Latin America especially, where rail and steamer routes may be indirect or connections infrequent, air service is a godsend to commerce. Millions in cash and bullion, bonds, and other valuable documents are carried by Pan American Airways. Here a new form of negotiable paper, the "air draft," originating in Argentina, has come into popular use.

In the United States the use of air transport by banks and bond houses is a matter of daily routine. In 1931 alone, it is estimated that about seven billion dollars' worth of financial paper was flown into New York.

"When Secretary of War George H. Dern was Governor of Utah last year," says an officer of United Air Lines, "that State made a bond issue. The Governor signed it and departed for the Democratic Convention at Chicago. Then it was found that a printer's error had invalidated the whole issue. Another was printed, and rushed from Salt Lake City to Chicago by air. Again the Governor signed the bonds, for delivery to purchasers just before the legal deadline.

"While the incident of these bonds was a bit spectacular, securities worth many times their value fly in and out of Chicago every month."

To save interest by cutting the time it takes to send checks, drafts, and notes for collection and credit; to rush funds to banks or others in need; or to hasten valuable documents that may catch a mail ship about to sail—all these are reasons why banks patronize air lines.
MANEUVERS OF MILITARY PLANES DISCLOSE MAJESTIC AERIAL VIEWS

GIANT NAVY PATROL PLANES ARE DWARFED BY KAUAI'S GREEN PALISADES

There are few safe harbors on this breaker-encircled "Garden Isle" of the Territory of Hawaii. Its northern slopes often rise from the water's edge to more than 3,000 feet. Kingsford-Smith, in the Southern Cross, commenced the second stage of his first crossing of the Pacific when he hopped from Barking Sands, near here, for the Fiji Islands, in June, 1928.

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THE GLACIAL CHARACTER OF THE YOSEMITE IS APPARENT FROM ON HIGH

Ground smooth by the action of prehistoric ice sheets, rock faces of the Merced River Valley shine in the sunlight as if freshly polished. Even Liberty Cap, at the left, which towers 1,759 feet above the base of Nevada Falls, shows the effect of Nature's gigantic grindstone. The crest of the Sierra Nevada is in the distance.
THE U.S.S. "LEXINGTON" EMERGES FROM HER ENVELOPING SCREEN OF SMOKE

The smoke screen is most successful in comparatively calm weather, for it is soon dissipated by strong winds. The crew has moved all airplanes on the flight deck forward, so that the carrier's brood of fighting planes, scouts, and torpedo planes still in the air may land on her afterdeck. The ship's head is always pointed into the wind when receiving planes.
HER AIRPLANES SECURED FOR SEA, U.S.S. "SARATOGA" LEADS THE FLEET SOUTH FOR A CRUISE

Mechanics are always busy tuning and testing motors, to forestall forced landings. Seventy-eight airplanes are carried on each of the large carriers, with repair shops and a complete stock of spare parts. There is an elevator deck for transferring airplanes from the flying deck to the hangar space below. The insignia—red ball and white star in a blue circle on the wings—identifies United States military planes.
LIKE A CLOUD OF GIANT MOSQUITOES, NAVY AIRPLANES ROAR ACROSS SAN PEDRO HARBOR

The fog bank, which clings to the Pacific's surface, follows roughly the contours of the coast, but leaves a narrow band of silvery water close to the shore. The mole which extends to the left from Point Fermin protects the harbor.
TO THESE HIGH-FLYING ARMY BOMBERS PIKES PEAK SUGGESTS A SERIES OF GIANT MOLHEILLS

Due to the elevation of the surrounding country and to the many higher mountains in Colorado, Pikes Peak (14,110 feet) is not impressive from the air. The rugged eastern face of the mountain is shown in this view with the white line of the cog railroad climbing up from the lower right. The top of the mountain is the blunt cone on a level with the lower wing of the right airplane. In the far distance is the Continental Divide in the main range of the Rockies.
MAN-MADE FOG, NOT THUNDER CLOUDS

During a recent fleet review, Navy airplanes laid a smoke screen. To do this, liquid is pumped out of the planes in a steady stream, and when it comes in contact with the air it forms smoke or vapor. Three scouts have taken up the smoke screen where another group of planes left off.

VIII
NAVY SCOUTS MANEUVER IN PERFECT SQUADRON ECHELON ABOVE THEIR MOTHER SHIP

A forced landing far from the carrier would be serious, for rubber flotation bags, inflated by the pilot after he lands in the water, would keep the plane afloat only a few hours. Two destroyers usually accompany a carrier to aid luckless planes. A battleship is on the horizon.
PARACHUTES WOULD BE OF LITTLE AVAIL IF ENGINES STOPPED IN THE GRAND CANYON

The Army bombers are flying through the deepest part of the canyon. North Rim Lodge, just out of the picture to the left, is more than a mile above the muddy Colorado River. The dark patches are cloud shadows which accentuate the rich red and purple coloring of the canyon. On the horizon is the Painted Desert and beyond the Navajo Indian Reservation.
NAVY AIRMEN MAP THE GLACIERS AND COASTLINE OF ALASKA

Using amphibians, which can alight on sea or land, and aerial cameras, the Navy in recent years has cooperated with the United States Geological Survey in making up-to-date charts and maps of Alaska. The expedition is over Twin Glacier Lake.
TINY FISHING BOATS RIDING A PACIFIC SWELL LOOK LIKE FLIES ON A CORRUGATED TIN ROOF

As they near shallow water close to the coast of Panama, huge deep-sea waves, relics of a recent storm, are transformed into waves that have crests, but little or no troughs. A light breeze is blowing diagonally across the larger waves to produce a cross-chop. Three Army bombers, escorted by a training ship, are proceeding from Albrook Field, Canal Zone, to David, Panama.
A SQUADRON OF SWIFT OBSERVATION PLANES MANEUVERS OVER GOVERNORS ISLAND AND MANHATTAN

The Hudson River (at left) is dotted with tugs, barges, and ferries and lined on both sides with the docks of ocean-going vessels from all parts of the world. To the right of Manhattan is the East River. The Empire State Building, tallest in the world, is dimly visible in the distance beyond New York's financial skyscrapers. A Staten Island ferry streaks off to the left on its way from the Battery.
A TRAINING PLANE HOOKS ON TO THE "AKRON" HIGH OVER BAY HEAD, NEW JERSEY

In her airplane compartment this airship had room for five fighting planes, which were hoisted through a T-shaped hatch beneath and hung up like hats on a rack inside. The engines of the Akron were within the envelope, as on a surface ship, and drove the outside propellers. The radiators for an apparatus to condense moisture from the exhaust may be seen above the propellers. This photograph was taken near where the airship went down, April 4, 1933.
MOUNT CLEMENS, MICHIGAN, PEEPS THROUGH THE CLOUDS BENEATH A SQUADRON OF PURSUIT SHIPS

HEELS OVER HEAD AT THE "PULL, OFF"

The officer climbed out on the lower wing to the outer strut and, holding on with one hand, pulled his rip cord. Instantly he was jerked off backward as if by a giant's hand, falling head down. When the parachute has opened fully, his fall will be broken and he will swing back and forth for a time like a pendulum.

XVI
“How safe is air transport?” asked bankers when the idea was new. The answer is significant. In all the years of air mail operation, less air mail has been lost or destroyed than sank with the steamer 

**Vestris.**

**AIRCRAFTS AND THE GEOGRAPHY OF NEWS**

At the climax of the Sino-Japanese conflict in 1932, when Shanghai smoked with battle, airplanes helped serve newspaper readers and theater-goers with pictures of the fighting. When a transpacific liner carrying the first photographs entered the Strait of Juan de Fuca, seaplanes intercepted it to take the pictures and rush them to Seattle, whence other planes flew them to San Francisco, Chicago, and New York. Aside from printed material, no items appear more often in the air express than do motion-picture newsreels and news photographs. News agencies are among the air lines’ best customers, in their keen competition to serve a news-hungry public. Motion pictures and photographs of every newsworthy happening are flown to all important points.

By their very nature, advertising and newspaper services find their fortunes tied up with air transport. News-gatherers were among the first to charter special aircraft in “scooping,” and 1932 saw many leading papers using their own planes.

An example of modern speed comes from a Milwaukee newspaper. It sent a plane to get pictures of a distant forest fire. Though caught in smoke and forced to fly low, the photographer worked fast, took in the whole panorama, and sped back to his paper—with 15 minutes to spare from his five-hour time limit.

**STRANGE CARGOES RIDE THE AIR EXPRESS**

A press of the leading newspaper in Tampico, Mexico, broke down, and the nearest source of replacement parts was Fort Wayne, Indiana.

A 240-pound shipment was rushed to Chicago and placed aboard the “Overnight Flyer” to Texas, and from there by another plane to Tampico. In 48 hours the press was in operation, a delay of a week having been avoided.

It is unlikely that planes may ever compete with ground vehicles in moving ordinary freight.

But light, valuable objects, or perishable things on which shippers can afford to pay an extra price for speed, now go in astonishing variety by air. Here are some strange cargoes that lately rode the planes out West:

Two queen bees were flown from Fresno, California, to Medford, Oregon, via air express. Duck feathers fly from Pasadena, California, to Hartford, Connecticut.

Artificial eyelashes, 8,000 of them, were flown from New York to Los Angeles for the use of movie stars.

Cataract masks used in delicate eye operations were flown from Chicago to Portland, Oregon.

Seventy pounds of sand went by air express from Cheyenne, Wyoming, to Chicago for construction-analysis purposes. Related accessories, for 1933 model automobiles were flown from Detroit to the Midwest and the Far West.

A Denver radio station went off the air with a disabled transmitter, but 12 hours later repair parts reached the Colorado capital from Chicago by air. Famed Olympia oysters, packed in dry ice, landed in Chicago, air express, 24 hours from Seattle.

**AIR TRANSPORT FINDS MANY USES**

Bows and arrows and bridal veils, diamonds, gold bullion and smoke detectors, gardenias and gas guns, even bats and hatching eggs, wing through the air to meet odd whims of a world where time and space yield to man’s mechanical genius. The American-owned United Sugar Companies of Mexico used planes to bring insects’ eggs from Cuba to Sinaloa in a fight to exterminate another insect that was eating the cane.

Flowers cut in California early in the morning are worn by New York brides and debutantes the following day.

The life of Mrs. William E. Borah, at Boise, Idaho, was threatened with parrot fever; to treat her, serum was rushed by air express from Washington.

Officials of a State fair in Sacramento, California, found at the opening of the exposition that their stock of toy balloons was inadequate. In 19 hours they got a new supply by plane from Chicago.

Some air-line planes carry express in cooperation with the Railway Express Agency’s Air Express Division, the pick-up and delivery affiliate of United Air

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A PLANE DISPATCHER OF THE TRACKLESS SKIES

The operating chief is shown at his control board. By colored electric-light signals, he directs the landing and leaving of all planes at the Grand Central Airport, Glendale, California.

Lines, Western Air Express, National Parks Airways, Northwest Airways, Kohler Aviation Corporation, and Rapid Air Lines. The network of air lines served by this combination totals nearly 12,000 miles; through rail connections, all cities in the country have the advantage of speedy air-express service.

This coordination of air and rail services to reach points not directly on airways has greatly stimulated express commerce. Air-express transport was much coordinated in 1932. Up to that time many lines flew independently, with no provision for the transfer of shipments from one line to another. Then six lines joined in an association known as General Air Express; this now results in service to more than 125 key cities in the Union, and a substantial increase in the volume of goods carried.

One new feature of air express is a door-to-door pickup and delivery service, performed by telegraph messengers. Shippers telephone their calls for a boy; he comes for the package, takes it to the plane, and at destination another boy with a side-car is waiting to make delivery.

Fur coats, jewelry, foodstuffs, racing forms, radio tubes and transformers, paints and lacquers, new styles in clothing and millinery, sea foods, airplane parts, advertising matrices and plates, toys, big machinery parts, electric-light globes, securities and records—these few items serve to illustrate the diversity of air-express shipments.

In one plane from Colombia came marmalade, monkeys, and wasps—all to satisfy the curiosity of scientists.

Our flying Clipper ship, sailing above the Caribbean, carried cardboard coops of tiny chicks for Trinidad—thousands of them, each chick in his own little chicken coop. Every time the plane stopped the cabin was filled with the noise of chicken chatter.

AIR EXPRESS SPEEDS FOREIGN TRADE

Returning from the Amazon Valley, one plane brought lizards and tiny tropical fish. No cargo seems too small—or too large.

Pieces of machinery weighing 800 pounds and yeast shipments amounting to nearly a ton rode one plane.
THE AIR MAIL FROM CAPE TOWN, SOUTH AFRICA, ARRIVES AT LONDON

British flyers hold the present records for speed, 407 miles per hour; for altitude, 43,976 feet; and for nonstop, 5,340 miles.

LUNCHEON IS SERVED ALOFT ON A COAST-TO-COAST LINER

Cooking is done in the air on the larger seaplanes. On the land-liners food, already prepared, is taken aboard and kept hot till mealtime. On some lines planes halt for meals.
In New Guinea a British concern moved a whole mining town by air—mills, dredges, supplies, and all.

International air express speeds trade with foreign markets. One company has carried more than 10,000,000 pounds of cargo and mail, with a 99.81 per cent "on time" record. Most of that was routine. In emergencies, such swift, prompt air service is doubly valued.

A cannery in a remote section of Alaska was disabled at the onset of the salmon run. That night a radiogram to San Francisco resulted in a 200-pound part being placed aboard a plane bound for Seattle. It reached there the next morning and was transferred to a waiting steamship. At Juneau the part was put in a plane and hurried to the cannery.

The cost of this emergency shipment was negligible in contrast to the potential loss involved by the inactivity of the canning plant during the peak of the season.

Sending emergency parts for American machinery in South America is frequent. One 350-pound crank shaft flown to Quibdó, Colombia, saved a company 30 days of idleness, at $2,800 per day, that would otherwise have resulted from the breakdown.

In the United States 350 or more private planes are used in business and industry, not only in oil, power, and similar fields, but by insurance companies, publishing houses, and department stores. One wholesale drug firm keeps its plane ready day and night to make emergency deliveries of serums and antitoxins.

MANY NEW DEVICES MAKE FLYING MORE COMFORTABLE

Of the 2,000-odd airports in this country, 619 are commercial. Once, however, when no landing field was available, an engineering company delivered an order of typewriters by parachute!

What a miraculous change since 200 boy riders—using 500 horses—carried mail before 1840 from New York to New Orleans at the dizzy rate of 14 miles an hour!

Even to our everyday speech, the advent of air traffic has added new words and phrases. We hear of take-offs, hops, riding the beam, low and high ceilings, blind or instrument flying, bailing out, artificial horizons, etc. Such air-travel terms tend to become commonplace, as are other terms used in golf and motoring.

Rapid gain in air traffic, especially during recent years of business retrenching, is much due to many new aids to air navigation which now make flying safer.

Chief among these are lights along the airways; radio-range and radio-marker beacons; the two-way radiotelephones, by which a pilot in the air may talk with airports along his route; and a greatly improved weather-report service, radioed at regular intervals to pilots in the air.

Imagine yourself riding up front with a pilot on a night flight over a modern illuminated airway, and you will understand just how these aids to aerial navigation do their work.

You take off, let us say, from Richmond for Atlanta. As you rise above the lights that flood the field, a clerk sends a message out over teleprinter circuit which may say:

"Plane GH-4, Pilot Gill at controls, left Richmond at 9 p.m., for Atlanta."

That message, flashed ahead, is automatically written by receiving machines at strategic points along the route you are to fly. By means of it, ground stations on your route can check your progress.

No sooner are you high in air and pointed on your course than you see in the distance a flash of white light. That is your first beacon. People on the ground see it as a revolving searchlight, sweeping a beam low above the horizon six times a minute.

As the light continues to turn and the beam moves to one side, out of line of the pilot's vision, a red light suddenly shows, flashing a dot-dash code signal. That signal tells the pilot exactly where he is; for each beacon has its own identifying dot-dash, and this one indicates that the light you see is the first of ten beacons on the 100-mile stretch of route you are now flying.

When this red code place-signal snaps off, the revolving white light is seen again. As each red signal-light has its own name in dots and dashes, the pilot has only to refresh his memory by a glance at his strip map for that section of his route.

Flying on over this first light, you may see ahead, if the night is clear, three, four, or perhaps even five more lights. Standing ten miles apart, they illuminate your path like street lamps along a city boulevard.

If the night be so dark that you can see only one light ahead, the pilot, with his
CHRISTMAS ALONG THE AIRWAYS

A ton of holiday air mail and express was loaded into this tricylinder plane of the Transcontinental and Western Air for its long trip across the United States. The huge plane, with its three 450-horsepower motors, is seen at the Kansas City Municipal Airport, on its run between Los Angeles and New York. It makes the cross-continent trip, with mail, express, and passengers, in 24 hours (see text, page 387).

switch thrown and his radio-beacon receiver at work, depends on the beacon's aid in steering. Through his ear phones he listens to the signals coming from the beacon transmitter back at Richmond airport. As long as he sticks straight on his course, all he hears is one long "dash" sound after another; but if he wanders off to one side, he gets "A," or dot-dash in Morse code; if to the other, he gets "N," or dash-dot.

Even if it gets so thick that at times you see no lights ahead, your pilot may follow his true course by flying his plane so that the long-dash sound predominates in his ear phones. Just as a double check, the long dash is interrupted periodically by a "dash-dot-dash" call, which is Richmond airport. At least every 50 miles along your route you come to a green light. That means an intermediate landing field. But you fly on.

Suddenly the tireless long-dash sound stops in the ear phones and a human voice is heard. It is from a man at the next airport ahead. He states the correct time, what the "ceiling" is, whether it is raining, how hard the wind is blowing, and everything else that will help the pilot to fly in and make a safe landing. The pilot, if he wishes, can talk with this airport ahead, for his radiophone is two-way. He can also talk with other planes. Flying south, a northbound plane passed us—a mile to our left and some 2,000 feet higher. With an extra pair of ear phones, we distinctly heard its pilot conversing with our ship.
IN HELMET, FLYING SUIT, AND PARACHUTE, THIS AIR-MAIL PILOT IS READY TO HOP OFF PROMPTLY ON THE SECOND

United States pilots carried 7,372,220 pounds of mail along 26,893 miles of established air lines in 1932. They flew in all some 33 million miles, for which service the Government paid the mail carriers more than 19 million dollars. Of this sum more than half was regained through the sale of airmail stamps (see text, page 388).

TWO AIR TRAVELERS LAND AT THE FAIRWAY FOR A GAME OF GOLF

Already a few country clubs have landing fields, and the privately owned plane flown for sport is no longer a novelty. Most private planes, however, are used in business or industry—which may range from mineral and timber exploration to high-speed news reporting and making motion-picture thrillers (see text, page 615).
AN AIRPLANE SERVES AS AN AMBULANCE

This six-passenger plane was used to bring a patient from a small town in Pennsylvania to Philadelphia for an emergency operation. At Central Airport, Camden, a motor ambulance was waiting to take him to the hospital.

Weather news, picked up by observers not only along the route, but at points about 200 miles on both sides, is teletyped to the broadcasting stations and put on the air at regular intervals.

As we wing our way on toward Atlanta, on this flight from Richmond, each air station we fly over is on the lookout for us, because they got the teletyped message saying we had started; hence, over each station the pilot makes himself known by radio to lookouts below. Again, then, his position is reported to stations ahead by another teletype message, reading:

"Plane GH-4, Pilot Gill, passed over this station at 10:30 p.m., flying in a southwesterly direction."

All such words about our progress are received automatically by teletype, not only at stations along our route, but back at Richmond, our starting point. As we fly farther from Richmond, its beam gets wider in the air and fades out; as it begins to fade, the pilot tunes in on Greensboro, then Spartanburg, finally on Atlanta, and rides its narrowing beam into the airport.

Planes of the Eastern Air Transport now fly the 1,210 miles from New York to Miami, Florida, in 830 minutes. They leave Newark Airport at 8 a.m. and reach Miami at 9:50 that evening. A fleet of new Curtiss Condors, to carry a payload of 3,200 pounds and cruise at 145 miles an hour, with a top speed of 170 miles, has just been built for this line. Planes in this new fleet will fly this Atlantic Seaboard route in about 600 minutes, or in nearly four hours less time than aircraft in use as this is written.

Similar increase in speed across the continent will be achieved in 1933 by new planes of Transcontinental and Western Air, Inc., or "Lindbergh Line," and of the United Air Lines. Against the present coast-to-coast schedule of some 24 hours, improved craft are designed to make this flight, with mail, express, and passengers, in about 16 hours.
A GIANT WIND TUNNEL, IN OPERATION AT LANGLEY FIELD, VIRGINIA

This huge device, with its two 35-foot propellers, is used to test planes. Its size can be gauged by the man standing in its hornlike mouth. A gale of wind, artificially created inside, is blown against the plane, mounted outside, to show how the plane might act in a real gale. Winds of 115 miles per hour can be produced by this machine.

Planes fast enough to fly between any two points in the United States between dawn and dusk are now the objectives of aircraft engineers. With craft now in use, overnight deliveries of mail and goods can be made from our chief trade centers to points about 1,400 miles away.

But faster planes, now under construction, will in 1933 clip off five or six hours from present schedules, which will add another 1,000 miles to this overnight plane delivery zone.

To handle this growing express business, several aircraft makers are studying designs for a special plane to carry nothing but cargo. To-day express is carried on mail and passenger planes, such goods usually being loaded in the wings of the large multi-motored planes, where there is space for several hundred pounds.

Separate express sheds at airports and fast cargo planes flying on regular schedule, as trade comes to make more use of swift air distribution of the lighter merchandise suited to it, all come into the plans of air-line operators.

Before many years have elapsed, air transport may earn more from freight than from passengers carried. As faster planes, now being built, come into use, so that express may be flown, say, from New York to Portland, Oregon, in one night, the amount of certain goods carried in stock and the methods of their distribution must all be affected.

COMMUTING BY AIR

The extent to which industry and population tended to drift from crowded centers after the advent of motorcars and...
A NEW WIND GUIDE FOR PILOTS AT THE CAMDEN, NEW JERSEY, AIRPORT
Like a giant striped crayfish, this wind tee is set atop a hangar to show the wind’s direction. It replaces the outmoded wind-sock and is visible three miles away.

A 5,000,000-CANDLEPOWER AIRPORT FLOODLIGHT AT CAMDEN, NEW JERSEY
Lured like moths to the flame, these planes made a landing from the dark skies, guided by a giant new floodlight. It has a single lens, similar to those used in lighthouses.
AN ARMY BOMBER AND ITS PROTECTOR

Recent equipment of the Army Air Corps is the Boeing B-9 bomber and the Boeing P-26 pursuit airplane. This is the latest trend in the arms of two important branches of military aviation, bombardment and pursuit. The role of the large bomber is to drop its heavy load of bombs on the enemy; the role of the much smaller and swifter pursuit craft is to ward off hostile air attack upon the bomber.

trucks is a familiar fact in recent American history.

It is conceivable that, in the same way, but to a less extent, the growth of air transport and travel may also tend to change the location of certain industries and the habits of many people. It is easy, as air traffic improves and widens its scope, to think of people living on farms or in country towns and commuting by suburban air lines from a hundred miles or more away with less loss of time than the use of motorcars or suburban trains now involves.

Such commuting is already habitual with some air travelers. "I see the same faces over and over, week after week," said a hostess on a Washington-Philadelphia flight.

So many people sought seats on Washington-bound planes to attend the recent Roosevelt inauguration that extra ships were required to haul the crowds. They flew in "sections," like excursion trains. Races, popular football games, or other events which draw unusual numbers make the same demands for extra planes as for extra trains.

Of the 530,000 who bought air tickets in 1932, as against some 30,000,000 who rode the Pullmans, by far the great majority flew to save time.

MANY "GO AIR" FOR RECREATION

While speed is the final reason for air traffic, there are increasing thousands who travel by air because of the entertainment and recreation obtained by visiting the
TESTING A NEW HIGH-SPEED TRANSPORT PLANE BUILT IN CALIFORNIA

Shaped like some queer insect, with retractable landing gear, this new all-metal plane is designed to cruise at 200 miles, with a top speed of 235 miles, an hour. It has capacity for eight passengers, mail, and baggage.
CURANS AT MACHADO AIRPORT, HAVANA, SEE THEIR FIRST AUTOGIRO

Crowds greeted Capt. Lewis A. Yancey, transatlantic flyer, when he landed his autogiro, since his was the first plane of its type to visit that island country.
CRUISING BY AIR IN THE CARIBBEAN

In cabins larger than Pullman compartments, fitted with soft, roomy chairs, and wide, clear windows, long, unbroken journeys become short, interesting flights. A new city, often a different country, is revealed every two or three hours.

A marvelous new world, revealed by this modern method of transportation.

Everyone now may share the exhilaration of gazing down from heights that formerly were reserved only to those who by great physical exertion and exceptional physique were able to reach the mountain tops. To-day, comfortably seated in an armchair, anyone may soar like the eagle and within a few moments command a panorama even grander than the birds, because planes transport us to much loftier elevations than the birds attain.

The writer and his wife during the past year have thoroughly enjoyed 12,000 miles of air travel in the United States and West Indies on commercial passenger planes. Although we were in the air only 100 hours, we derived a more realistic picture of the geography of the country, of the relationship of great rivers, mountain ranges, plains, cities, and islands, than years of travel otherwise afforded.

From aloft one sees as one piece man-made works too large to comprehend from the ground, and one also beholds glories of Nature which are unsuspected by the earth-bound pedestrian.

Only from the air can one appreciate the magnificence of the blaze of illumination from our great cities at night—New York, Chicago, Los Angeles.

Indelibly stamped on my memory is the continuous procession of gayly lighted towns which we looked down upon during a night flight from Columbus to Kansas City.

One morning we arrived at Wichita to find a temperature of 100 degrees at the landing field. In 30 minutes our pilot climbed above the clouds to take advantage of a fair wind, and the air became so cool that ventilators were closed, overcoats and wraps donned, and the heat turned on. Then, comfortably at 12,000 to 14,000 feet, we continued for several hours to Amarillo.
THE GIANT AIR-LINER, AFTER ALIGHTING ON THE LOVELY BAY OF PORT-AU-PRINCE, IS BEING WARPED TO THE DOCK

REFUELING A CLIPPER SHIP AT SAN PEDRO DE MACORÍS, DOMINICAN REPUBLIC

The advent of this modern means of swift, easy travel has brought remote and romantic Caribbean islands within a few hours of the United States.
and Albuquerque, while all below us were suffering from intense heat.

MOUNTAINS, CANYONS, PLAINS, RIVERS

We passed a river whose water, as seen from the air, was as red as blood—the Cimarron—and for many hours flew within sight of another, the Canadian. Crossing New Mexico and Arizona, we gazed down on mountains, canyons, and plains of many gorgeous hues—brilliant yellow and red terraces, jet-black and purple cliffs, or soft gray and pink slopes. Superb was the aspect of the glorious valley of California, stretching hundreds of miles northward, girt on both sides by stately mountain ranges.

We had dined at Pittsburgh Thursday at 7 p.m., slept from 3:00 to 8:00 a.m. in a Kansas City hotel, and dined in Los Angeles at 9:30 p.m. Friday.

On another morning, when weather conditions were ideal, we left Portland, Oregon, on a United Air Lines mail plane bound for Salt Lake City. So crystal clear was the atmosphere that as we followed the Columbia River from our 8,000-foot elevation we could identify all the famous snow-covered peaks of Washington and Oregon; to our left Mount Rainier, Mount Adams, Mount St. Helens, and even Mount Baker, 200 miles distant; to our right Mount Hood and Mount Jefferson.

From comfortable armchairs we watched a panorama of mountain, valley, and rivers unsurpassed anywhere on the globe.

Soon we were flying over the ocean of golden wheat of southeast Washington; then across the Blue Mountains of Oregon, along the deep, tortuous black canyons of the Snake River; over the hot, brown, barren hills and valleys of Idaho, occasionally relieved by the green, checkereld fields of irrigated communities, to arrive, seven hours from Portland, over the Great Salt Lake.

The lake’s glistening, still, blue waters, fringed with encrustations of salt and reflecting the red, encircling mountains and lazy white clouds overhead, presented a scene of indescribable beauty as we glided down to the city.

To-day plans for regular transatlantic air traffic are fairly well worked out.

From the days of Lindbergh’s stupendous venture, and Byrd’s thrilling flights, we have seen air traffic become a strong, dependable factor in American business.