



planes

Vol. 5, No. 5, December 1949

OFFICIAL PUBLICATION OF THE AIRCRAFT INDUSTRIES ASSOCIATION OF AMERICA

'COACHES' BRING ERA OF MASS AIR TRAVEL

Many Different Types of Planes Required Today

U. S. aircraft manufacturers are called upon to build numerous types of military planes — each type designed to serve a particular kind of mission or purpose. Out of the experiences of the war and of postwar engineering and aeronautical advancements, all these types are steadily being refined and improved.

For the Air Force, for instance, the industry produces at least 16 distinct types of planes, exclusive of several strictly research ships which are not classed as an actual part of the military equipment complement. Similarly, there are at least eight distinct types of planes manufactured for the Navy, although the Navy does not break down its types into as many categories as the Air Force.

To understand better the multiple roles of aircraft in present day military practice, here is a thumbnail description of the various Air Force types:

Air Force Types

Bombers: Heavy, medium and light—the classification being determined by range rather than weight. The heavy bomber has an effective radius sufficient to attack strategic targets on the Eurasian continent from bases in this hemisphere. Medium bombers have half that effective range.

Fighters: The all-purpose fighters as a type are disappearing to be replaced by specialized types. The penetration fighter is designed for bomber escort and fighter-bomber attacks in support of ground troops. The interceptor is a high-speed, high-altitude, fast-climbing airplane; its mission is to knock the attacking enemy from the skies. The night fighter's specialized purpose is obvious and it also serves in inclement weather. Due to the highly specialized nature of the work, these airplanes require extensive electronic equipment to locate and attack the target, as well as precision teamwork between pilot and radar operator.

Big Loads, Long Range

Transports: The heavy transports carry major items of Army equipment weighing up to 50,000 pounds for extended ranges, while the mediums will drop and re-supply the Army's airborne divisions. The assault transport is built for take-offs and landings on short, obstructed fields.

—See PLANE TYPES page 4—

New Military Aircraft Procurement

FISCAL 1950 APPROPRIATIONS COMPARED WITH 1949

AIR FORCE

1949 \$2,045,000,000
FOR NEW AIRCRAFT (APPROXIMATE)

1950 \$1,250,000,000 ACTUALLY AVAILABLE
\$435,000,000 FROZEN

Total Appropriation for New Contracts: \$2,217,000,000

NAVY

1949 \$903,000,000
FOR NEW AIRCRAFT

1950 \$681,600,000
APPROPRIATED



The chart above shows roughly the status of Congressional appropriations for new military aircraft procurement. After Congress voted funds for a 58-group Air Force, President Truman "froze," or placed in reserve \$435,000,000 intended for the purchase of new planes. Question marks on the 1950 chart indicate the amounts newspaper reports have asserted Defense Secretary Johnson will slice off in his economy program—expected to be up to \$300,000,000 for the Air Force alone. Reports on the likely cuts in funds for new naval aircraft are conflicting.

Profits for Businessmen, Farmers Built With Use of Private Planes

Businessmen and farmers of today have found a common solution to problems occasioned by the air age—they fly.

In a current survey conducted by the Personal Aircraft Council, Aircraft Industries Association, business executives, farmers and ranchers attribute to their use of personal aircraft a general expansion of business operations and particularly in the agricultural field, opportunity for greater participation in social and civic activities.

Remarkable Record

Thousands of personal and executive aircraft ranging from two-place planes to multi-engined transports are achieving a remarkable record of utility and safety in the hands of these non-professional operators.

The Council survey, results of which are summarized in a booklet, "Plane Utility," brought forth responses from 110 varied business occupations in addition to the agricultural segment.

William B. Belden, assistant counsel, Republic Steel Corporation, and chairman of the Corporation Aircraft Owners Association, commenting upon the results of the survey, stated:

Great Utility

"There could be no more substantial testimonial to the growing importance of personal aircraft in the daily operations of industry and commerce than the underlying theme of 'utility' running through the numerous comments quoted in this booklet.

"It is extremely gratifying to those of us who saw, early in the post-war era, that the dominant role of aircraft in the war pointed the way to an equally dominant role in peace. The founders of the Corporation Aircraft Owners Association were not concerned in any way with the aircraft industry. They were customers who felt that by joining together they could

—See PROFITS page 2—

Sen. Johnson Predicts Big Airline Gains

Written especially for Planes

By

Honorable Ed C. Johnson
Democrat, Colo., Chairman
Interstate and Foreign Commerce
Committee
U. S. Senate

The glamorized "air age" is showing definite signs of becoming as much a part of the lives of the American people as the "automobile age" did a generation or two ago. One of the most significant developments in aviation during the past year has been the great forward strides taken by the scheduled airlines to make air travel available through the so-called "air coach" services to great masses of people who previously have not been able to afford it.



Senator Johnson

Air transportation has far outdistanced all competitors in the element of speed. Absolute safety in the air is a goal which is coming rapidly into an actuality. Furthermore, air travel is now on its way to becoming the most economical mode of passenger transportation.

Through air coach service the airlines are at last reaching the mass transportation market which consists of millions of people previously unable or unwilling to pay the high cost of pullman-type air service.

40% New Passengers

One airline testified that its surveys indicate that 40% of its air-coach passengers would not have traveled by air if it were not for the low fares. Similar statements have been made with even higher percentages by practically every non-scheduled operator who has appeared before our committee.

Air coach service was unknown before 1948. In the fall of that year, applications for domestic coach fares were filed with the Civil Aeronautics Board by many domestic airlines. In September 1948, one of our big airlines became the first scheduled international carrier to adopt this plan. It installed seating capacity, eliminated free meals and other frills,

—See "JOHNSON" page 4—

PLANES

Planes is published by the Aircraft Industries Association of America, Inc., the national trade association of the manufacturers of military, transport, and personal aircraft, helicopters, flying missiles and their accessories, instruments and components.

The purpose of *Planes* is to:

Foster a better public understanding of Air Power and the requirements essential to preservation of American leadership in the air;
Illustrate and explain the special problems of the aircraft industry and its vital role in our national security.

Publication Office: 610 Shoreham Building, Washington 5, D. C.

New York Office: 350 Fifth Avenue, New York 1, New York.

Los Angeles Office: 7660 Beverly Boulevard, Los Angeles 36, California.

ALL MATERIAL MAY BE REPRODUCED—MATS OF ALL CHARTS ARE AVAILABLE

Aircraft In Our Economy

By DeWitt C. Ramsey (Admiral, U.S.N., Ret.),
President, Aircraft Industries Association

It is becoming well understood that as President Truman once declared, "It is vital to the welfare of our people that this nation maintain developmental work and the nucleus of a producing aircraft industry capable of rapid expansion to keep the peace and meet any emergency." However, the public probably does not yet realize that the aviation industry has now become a significant and permanent part of the nation's business economy in addition to performing its primary role in the national defense.

The era when aviation might have been considered only a hobby or a casual activity for a few enthusiasts has long since passed. Aviation in all its diverse aspects is now a vital part of our lives and commerce.

The manufacturing industry in itself is a sizable part of the economy, contributing to the business and welfare of every part of the nation. In the month of September, 1949, according to Department of Labor statistics, the aircraft and parts industry, with its 258,000 employees, ranked fifth in the number of employees in the entire durable goods manufacturing segment of our economy and ranked second in the transportation equipment manufacturing field. Among these durable goods manufacturers exceeded by the aircraft industry in employment level were manufacturers of communication equipment, household furniture, fabricated structural metal products and the iron and steel foundries.

Indeed, in at least eight states in various parts of the country aircraft and parts manufacturing is the principal employer, or near the top of the list. These are California, Texas, Washington, Kansas, New York, New Jersey, Connecticut and Maryland.

But the impact of productivity in this industry is not localized. The effect spreads down through various tiers of subcontractors and suppliers in every state. Innumerable small business firms find outlets for their skills and products by supplying the aircraft and commercial aviation industries and their related activities such as research and development laboratories, airport installations, communication networks and meteorological stations. A single plane builder recently reported placing 100,000 separate purchase orders to obtain thousands of tons of materials needed to build the planes required in one fighter order.

Scheduled U. S. domestic and international airlines this past fall were employing some 78,500 people. Domestic lines were providing service to 705 U. S. cities, large and small; carrying 43½% of the total first class travel market as against 39% in 1948 and only 13% in 1945. They estimate that in 1950 they will carry at least 46½%.

Private flying, with almost 100,000 personal aircraft being used in this country, has changed the lives and occupations of thousands and is contributing more and more to commerce, agriculture, industry and the development of our resources. More than 100 different types of business concerns are using private and executive transport aircraft. Transportation of cargo by air, both in scheduled and non-scheduled service, has become a big major business enterprise.

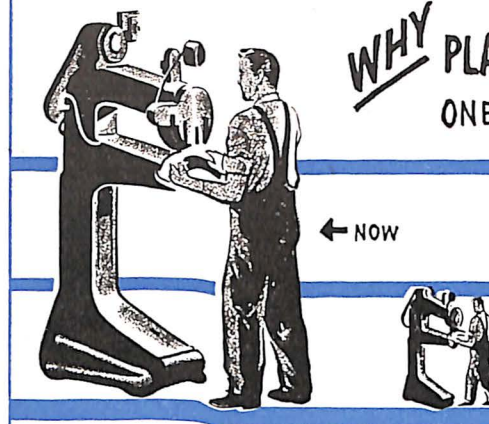
Fixed base operators—alert small companies providing important air services in nearly every city and town of the U. S.—constitute another sizable activity of inestimable business value.

Research, employing some of the best brains and skills of the country, is constantly being pressed forward.

Although standing as the vital bulwark of air power, without which there would be no national security, the aircraft industry does not exist solely to forge and machine weapons of war. This industry and its operational counterparts, commercial and private aviation, have taken their places of growing importance in the business economy of our country.

PLANE VIEWS

from A.I.A.

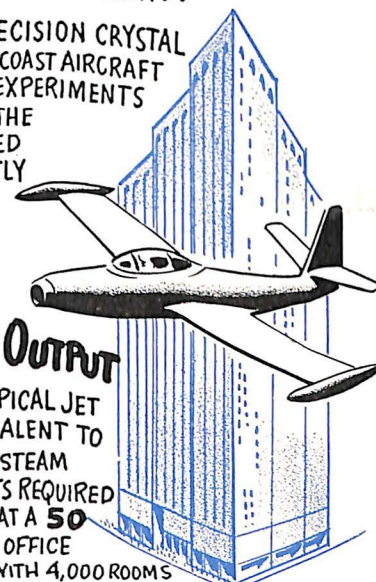
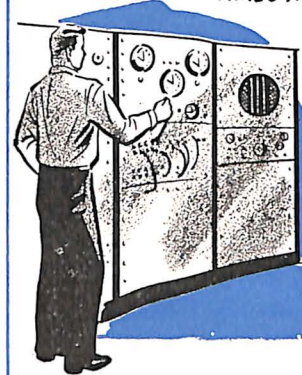


WHY PLANES COST MORE
ONE EXAMPLE: UNIT

TOOLING COST IS
3 TIMES GREATER
THAN DURING THE
WAR BECAUSE OF
SMALLER ORDERS

AN ERROR OF ONE SECOND IN 31 YEARS!

IS ALL THAT IS ALLOWED IN A PRECISION CRYSTAL OSCILLATOR DEVELOPED BY A WEST COAST AIRCRAFT MANUFACTURER TO TIME INTRICATE EXPERIMENTS WITH GUIDED MISSILES. HEART OF THE "TIME MACHINE" IS A FINELY POLISHED CRYSTAL WHICH VIBRATES AT EXACTLY
100,000 TIMES A SECOND!



HEAT OUTPUT
OF A TYPICAL JET
IS EQUIVALENT TO
THAT OF STEAM
PLANTS REQUIRED
TO HEAT A **50**
STORY OFFICE
BUILDING WITH 4,000 ROOMS

PROFITS

(Continued from page one)

benefit mutually through the exchange of operational and other data, and also could serve American industry as a whole by stressing the importance of company-owned aircraft in today's business world."

Charles Rose of Roseland, Arkansas, president of the National Flying Farmers Association, commented in similar vein.

A Civil Aeronautics Administration survey recently published under the title "Aircraft Use in 1948" shows a substantial increase in business flying as "the most encouraging aspect of the 1948 private flying picture."

2½ Million Hours

Business flying, which includes not only flying for corporate or executive purposes but flying by individuals, including farmers on personal business, totaled 2,576,000 hours, compared with 1,966,000 hours in 1947. This was a gain of 31%, and marked the second consecutive year that business flying has registered the largest proportionate gain of any type of flying.

Approximately 32,110 aircraft were engaged in business flying. This was 36% of the total.

Among those operating their own planes in business are representatives of:

Aluminum Boats, Alfalfa Dehydration, Advertising Displays, Architecture, Automobile Dealers, Advertising Agency, Bakery Equipment, Bookstore, Biologist, Building Contractors, Brewers, Banking, Beverages.

Chain Manufacturer, Cheese, College, Canning, Fuel, Chain Re-

tail Food Stores, Chemicals, Candy, Concrete Products, Commission Agents, Dental Supplies, Decorations, Dyestuffs, Department Stores, Dentists, Drainage Contractors, Engineer, Electronics, Fishing Tackle, Funeral Directors, Furniture, Fibres, Farm Implements, Feed Brokers, Facing Veneer (Building).

Glass Manufacture, Grocery, Hydraulic Lifts, Heating Equipment, Hotel Advertising, Hotel Operating, Insurance, Ice Manufacturing, Investments, Lumber Manufacturing, Logging, Lawyers, Lawn Mower Manufacturer, Locker Plants.

Railroad Suppliers

Meat Cutters, Monuments, Motel, Meat Packing, Mining, Mushroom Growers and Cannery, Malt Manufacturers, Machine Tools, Match Manufacturers, Motor Transportation, Missionary Work, Newspaper Publishing, Oil Field Equipment, Oil Producing, Petroleum Products, Paint Manufacturers, Physicians, Photography, Pipeline Manufacturer, Planing (Wood), Paper Manufacturing, Plumbing, Plastic Molders, Protective Packaging Materials, Plows.

Railway Cars and Supplies, Restaurant and Store Equipment, Roofing, Radio Equipment, Real Estate, Road Construction, Restaurants, Roller Bearings, Sheet Metal, Sanatorium, Sanitary Ware, Spark Plugs, Sales Engineers, Steel Castings, Sawmills, Surgeons, Shippers, School Superintendent, Tanners, Tool Manufacturers, Telephone Company, Thermostat Manufacturers, Textiles, Theaters, Threaded Fasteners, Textile Machinery, Trucking, Wood Preserving, Water Treating Equipment.

Services Now Move All Patients by Air

A new global air ambulance service is safeguarding the lives of Americans in uniform, the Military Air Transport Service has announced. Not only are emergency cases being rushed by air to base hospitals in this country but all patients able to fly now return in a matter of hours or days rather than through slow weeks by rail and ship.

Swiftness of air evacuation is of immense benefit to the morale of ill or injured servicemen. In addition, their chances for recovery are enhanced. They can receive specialized medical treatment one to three months earlier than if they came aboard a hospital ship.

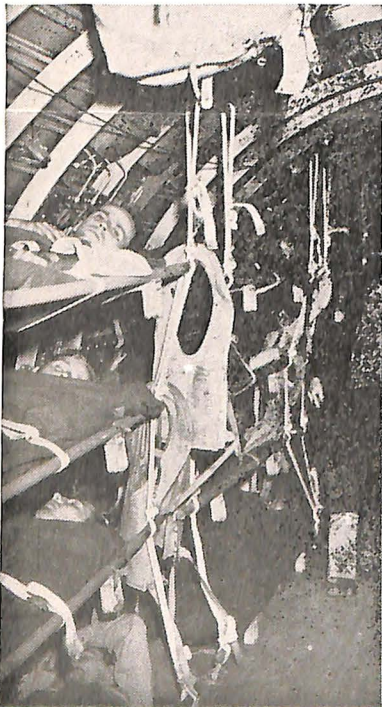
Another consideration also entered into the decision by the Secretary of Defense and the Joint Chiefs of Staff to transport patients by air. Studies revealed that 21 times more critically scarce medical personnel are needed for surface evacuation. For example, a doctor could make 10 flights from Japan in the time required for one sea voyage to the United States.

Flow of patients is, of course, extremely small compared to the mass air evacuation of the wounded during the war. Where today only about 1,600 sick men a month will fly, the astounding total of 1,391,696 casualties were flown from battle areas between 1942 and 1945.

Conservation of critically scarce medical personnel, consolidation of medical facilities, savings of en route and duty time lost and the morale factor of rapid transportation to specialized base hospitals within the U. S. all were points in favor of changing from surface transportation.

MATS is using as hospital aircraft planes with pressurized cabins. There is no time when a man wants to be among his own people more than when he is ill. MATS has provided the shortest way home.

Comfort—and Speed



Military Air Transport Service has equipped its hospital planes with litters such as those shown here to transport patients in comfort.

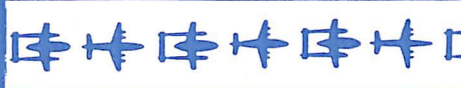
U. S. TROOP CARRIER STRENGTH

15 AIRBORNE REGIMENTS

WE
HAD DURING
WORLD
WAR II



109 TROOP CARRIER SQUADRONS



WE
HAVE
NOW

6 AIRBORNE REGIMENTS



BUT ONLY 18 TROOP CARRIER SQUADRONS



"PLANES"

SOURCE: ARMY FIELD FORCES

Air Quotes

"Surely the ramparts we must now watch closest are in the sky. We now know, in this atomic age, that any weakness in the air will invite disaster.

"We now know that our military weakness, and that of our Allies, invited the aggression that started the last war.

"It is clear that we are not repeating two mistakes we made after World War I.

"First, we no longer seek peace through self-inflicted military weakness.

"Second, we no longer doubt the importance of air power as an instrument of modern warfare.

"No longer is there any question as to whether America is determined to remain militarily strong in the air, so long as military strength is necessary for national security and world peace.

—W. Stuart Symington,
Secretary of the Air Force



Symington

Sensitive Brake Device Averts Plane Skidding

Automobile drivers will want to borrow a new gadget developed by airplane builders.

One of the biggest aircraft companies has developed an airplane brake attachment which automatically prevents wheel skidding.

The device acts as a regulator on the airplane's normal hydraulic brakes. Skid detectors in the "hubs" of the landing wheels consist of small flywheels in which electrical contacts act to cut off, by solenoid operated valves, the brake pressure just short of a skid, and re-apply it when a near-skid condition ends.

A valuable safety device, the anti-skid mechanism also minimizes wear on tires.

Facts and Figures

A new Air Force two-engined assault transport plane can carry a useful load greater than its empty weight.

A helicopter operating firm has been given a year's contract to patrol the huge Bonneville, Washington, power system.

The U. S. airline which holds foreign air mail contract No. 1 has been operating 20 years without a fatality or serious injury to a passenger or crew member.

Aircraft manufacture requires more mechanical engineers than any other industry. It employed about 16% of the total in one recent year, according to the Bureau of Labor Statistics.

The slogan of the Iowa Aeronautics Commission is: "Time flies. Why don't you?"

The Commerce and Industry Association of New York City has set up a special Air Commerce De-

More Planes Needed In Airborne Forces Gen. Devers Asserts

Strong recommendations that the U. S. Air Force should build up its troop carrier strength and be prepared to move large airborne armies if necessary were made in a recent report by General Jacob L. Devers upon his retirement as commander of the Army Field Forces.

General Devers held that present troop carrier strength, in number of planes available, is pitifully inadequate and should be built up "to a figure more in consonance with airborne requirements."

During World War II the U. S. had 15 airborne regiments, some of which played vital roles in the capture of Germany, and 109 troop carrier squadrons—or about 1,500 planes. Today the U. S. can count six airborne regiments but only 18 troop carrier squadrons—a mere 250 planes.

General Devers pointed out that the present troop carrier force could transport no more than 2,364 men and about 3,000,000 pounds of equipment, roughly equivalent to one airborne regiment. To move an airborne division (about 13,000 men and 11,000,000 pounds of equipment) 910 of the medium troop carrier planes now in use would be required, he said.

The retiring general also urged that continuing study be given to the problem of reducing the weight of infantry equipment to make foot troops completely air transportable. To be prepared for the supplying of large airborne operations, he urged the study of logistical support for a four-division airhead.

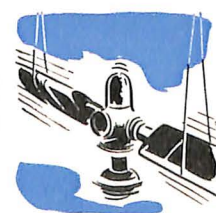
partment to provide service in every branch of the aeronautical field—domestic and international airline operators; plane builders and affiliated manufacturers.

Fuel consumption in the currently biggest U. S. four-engined passenger aircraft in airline operation is 467 gallons per hour. Normal fuel capacity is 7,790 gallons stored in nylon cells in the craft which weigh nearly a ton less than conventional containers.

PLANES QUIZ ✈️

Seventy per cent score on this quiz is excellent. Sixty per cent is good. Answers on Page four.

1. Commercial airline operations were begun as early as (a) 1920; (b) 1922; (c) 1926?



2. Speed record set in the national air races 40 years ago was (a) 60 miles per hour; (b) 100 miles per hour; (c) 47 miles per hour?

3. In testing a propeller blade, how many vibrations a day are imposed upon it: (a) 100,000; (b) 1,000,000; (c) 10,000,000?

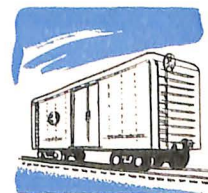
4. In the U. S., scheduled air mail flights now serve directly (a) 420 cities; (b) 507 cities; (c) 600 cities?

5. The solo long distance flight record in a small plane is still held by Charles A. Lindbergh. True. False.

6. An airplane was first used for transporting medical patients in (a) 1910; (b) 1920; (c) 1930?

7. The record number of people carried across the Atlantic in one plane flight is: (a) 103; (b) 90; (c) 54?

8. The bomb bay of America's biggest bomber can carry a load equal to that of: (a) one railroad freight car; (b) three (c) four cars?

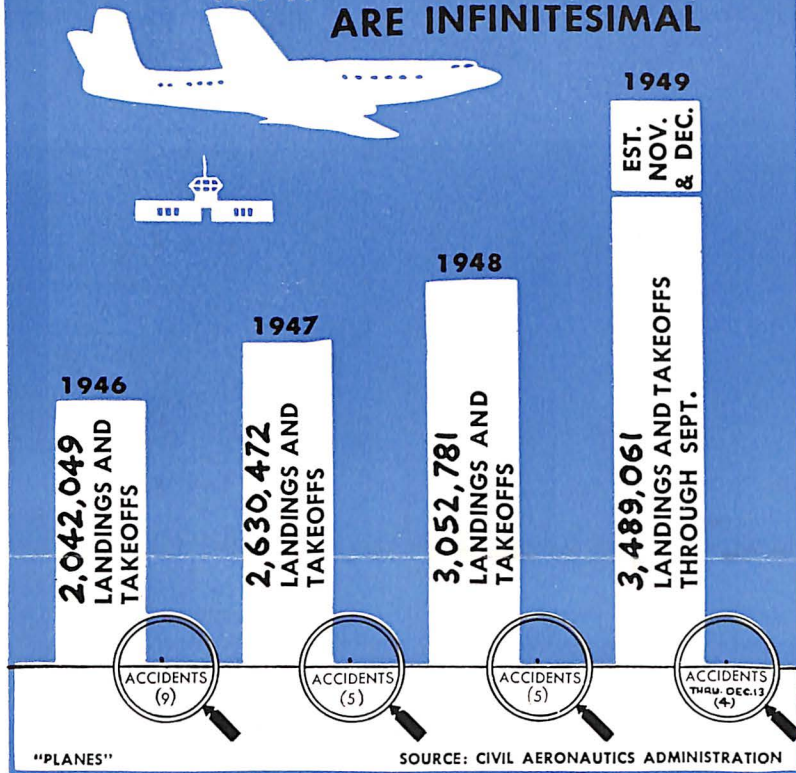


9. The big tricycle wheels on America's biggest passenger airplane can be retracted in: (a) nine seconds; (b) one minute; (c) two minutes?

10. Propellers on our current six-engined intercontinental bombers have a diameter of: (a) 10 feet; (b) 16 feet; (c) 19 feet?

EVERY DAY: Nearly 13,000 Airline Landings and Takeoffs AT CAA-CONTROLLED TOWERS

YET FATAL ACCIDENTS ARE INFINITESIMAL



Percentage-wise, airline accidents are few and far between. The chart above shows a four-year history of airline landings, takeoffs and accidents at major airports where control towers are under the operation of the Civil Aeronautics Administration. There were 107 such airports at the beginning of 1946 and 181 now in operation. Landings and takeoffs of scheduled airline planes at these airports averaged nearly 13,000 a day during 1949. But there are hundreds of other airports where many additional landings are made every day without incident.

Above figures show only those where there are CAA-controlled towers, because accurate reporting facilities are not available for other fields. At the beginning of 1946 there were 4,026 airports and in 1949 the number rose to 6,416 in the U.S. If figures from all fields could be assembled, the percentage of accidents to the number of takeoffs and landings would be infinitesimal.

JOHNSON

(Continued from page one)

and inaugurated a coach-type service between Puerto Rico and New York. Success followed immediately, and the record shows that there was little diversion of first-class passengers to the new coach service.

There is a very definite place in the American economy for the luxury-type service which the airlines always have offered and will continue to offer. But the new concept of coach service, with expanded seating capacity in modern airplanes with modern speeds at fares 40%-50% below the luxury level, means the giving to untold thousands of people the kind of transportation they are entitled to; the type they want; and the type can and are willing to pay for. Travel by air should no longer be certificated for the privileged few only.

Better Utilization

Aside from the fact that coach service is bringing the pleasure and the time-saving aspects of air travel to many new people, another highly important economic factor is involved. As we go forward in this industry, equipment is costing more and more. Through the institution of coach service at off-peak hours—usually at night—the airlines are getting greater utilization out of their equipment and their personnel. One of the big economic wastes that go with a purely luxury system of transportation is thus sharply reduced.

The air services of the United States have come a very long way. There are tremendous opportunities ahead for further growth and improved public service. The airlines and the aircraft manufacturers are moving steadily in that direction.

Fly, Fly to the Fair

Historical cycle in the Air Age: The Kansas State Fair has built a landing strip on the grounds at Hutchinson, Kan., so that farmers, who once drove their horses miles to see an airplane at the fair, now can fly there in their own planes—to see the horses!

Answers to Planes Quiz

- (a) Commercial operations were begun May 17, 1920, by a Dutch airline which is still operating. If first used British World War I planes carrying two passengers in an open cockpit.
- (c) Glenn Curtiss won the Gordon-Bennett Trophy Cup in 1909 with an "amazing speed" of 47 miles an hour.
- (c) Each new propeller blade design is subjected to full-scale vibration testing—often at a rate as high as 10,000,000 vibrations every 24 hours. Stresses are measured at as many as 50 different places on the blade.
- (b) A total of 507 cities are served directly by scheduled flights; most of the remaining 39,500 post offices are within a short distance of these points.
- False. Lindbergh's U. S.-Paris flight in 1927 covered 3,610 miles. The late Bill Odom, in 1949, set a light airplane record of 4,957 miles—which was also the greatest non-stop solo distance flight in history.
- (a) Two Marine Corps and Army flyers in 1910 built at Fort Barrancas, Fla., the first aircraft for carrying patients. They were unable, however, to interest the War Department in providing funds for such a plane.
- (a) On Nov. 17, 1949, in an Air Force transport plane.
- (c) It has 2,300 cubic feet capacity.
- (a) Landing gear is retracted electrically in nine seconds; lowered in three seconds.
- (c).

PLANE TYPES

(Continued from page one)

Trainers: Basic and advanced trainers are for the two major stages in the teaching of new military pilots. Another special type has been developed, with the most modern equipment, as a navigational trainer.

Other Types: Special light planes have been developed for liaison and rescue work, as have the Air Force helicopters. Reconnaissance aircraft generally are modifications of bombers or fighters to perform strategic or tactical missions.

Navy Types

Bombers: The Navy, of course, has no extreme range bombers, since its mission does not require them. For purposes of classification, Navy bombers may be broken down into two general types—the land-based patrol bomber and the carrier-based attack bomber. The former has a range comparable to the Air Force's medium bomber, and its mission is to patrol areas where enemy shipping might be encountered and to destroy it.

One type is being adapted for carrier operations. The latter type is a shorter range bomber, equipped with special electronic devices capable of finding enemy shipping, particularly submarines with sufficient bomb or torpedo capacity to destroy the target after locating it. The attack bomber might be a jet aircraft, but present production models are either piston-engine-powered or propelled by a combination of piston and jet power.

Fighters: The accent in the Navy is on the multiple purpose fighter. Navy fighters, are, in the main, designed for support of the task fleet, either as interceptors for defense of the fleet force against attacking enemy aircraft, as troop support fighters for landing operations, or as attack aircraft against enemy waterborne operations. The radar-equipped all-weather fighter is, of course, included.

Partner in MATS

Transports: The Navy's prime transport is the flying-boat type of plane, large aircraft capable of very long range missions with heavy payload. Currently, the flying boat category is confined to one type, powered by conventional, reciprocating engines, but there is a possibility that another, turbo-prop-powered plane might enter the field. The flying boat transport is designed for use as a fleet logistic support aircraft, operating where land-type planes would be of little use.

The Navy, however, is also a partner in the Military Air Transport Service, and as such, still procures and supplies to MATS conventional land-type transports.

Trainers: Navy training types are similar to those of the Air Force. Basic training is taken in a single-engine, two-place counterpart of the Air Force's basic trainer. Advanced training is taken chiefly in older-type operational carrier aircraft, although the Navy, like the Air Force, has a jet trainer.

Other Types: The helicopter has probably seen more use with the Navy than it has with either of the other services. The Navy is procuring one large transport type of helicopter as an assault plane for Marine amphibious operations. In addition, there are three types used for rescue work. The helicopter has also proved itself valuable

AIR FORCE GROUPS

Because of frequent references to "groups" in discussions of air power strength, the following table showing the size of various groups in the U. S. Air Force is given:

| Aircraft | Count |
|---------------------------------|-------|
| Heavy Bomb Group | 30 |
| Medium Bomb Group | 30 |
| Light Bomb Group | 48 |
| Day Fighter | 75 |
| Night Fighter | 36 |
| Heavy Transport | 36 |
| Medium Transport | 48 |
| Tactical Reconnaissance | 54 |
| Heavy Strategic Reconnaissance | 30 |
| Medium Strategic Reconnaissance | 36 |

for ship-shore or ship-ship liaison work. There is also the small, utility transport, an amphibian type capable of longer-ranging ship-shore duty.

A new type of Navy plane is the flying intelligence center, equipped with electronic equipment for early warning work. The Navy has procured a few experimental models of this type of plane, but has not yet put one into large scale production. The existing model of this type is a modification of a transport airplane.

For Marine transport operations, the Navy utilizes a plane similar to the Air Force's troop carrier plane, in fact the same plane with only minor modifications.

Millions of Dollars Saved by Air Transport Over Rail Travel Costs

An Air Force study shows it can save \$5,254,251 in fiscal 1950 if only 20% of its transportation needs are handled by commercial air transport instead of by the railroads.

