AIA planes

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PLANE OUTPUT SINCE KOREA: 'OVER 10,000'

Aircraft Industry Will Lead Nation In Hiring During Coming 17 Months

Under present military aircraft production schedules, the nation's plane manufacturers will hire more Americans in the next 17 months than any other U.S. industry.

The aircraft payroll is expected to rise to approximately 875,000 by January, 1954. Present employment is approximately 640,000.

By the first quarter of 1954, the industry will have more than tripled its pre-Korean War work force, it is estimated, with aircraft or aircraft equipment being manufactured in at least 33 states.

Estimates on manpower requirements are based on Aircraft Industries Association figures, and on results of a Labor Department survey of the industry's manpower needs.

Critical Skills

Biggest shortages today are in engineering, scientific, and highly-skilled categories. Most manufacturers expect to be able to fill their needs for semi-skilled and unskilled workers without difficulty, although continued shortages are expected in some cities.

Requirements for all types of engineers, metallurgists, mathematicians, chemists and other professional workers will continue unabated throughout the buildup period. Among semi-professional workers most urgently needed are engineering aides, all types of draftsmen, and electronic technicians.

Skilled workers in greatest demand are jig and fixture builders, tool designers, tool and die makers, machinists, aircraft mechanics, engine mechanics, machine tool operators and sheet metal workers.

The national shortage of all these skills already has forced aircraft builders to rely heavily upon training programs and upgrading of skilled workers.

Will Hire Over 235,000

Industry manpower experts expect actual hiring by aircraft companies in the next 17 months to exceed 235,000 inasmuch as workers lost through normal turnover also will have to be replaced.

These manpower estimates do not reflect the total U.S. industrial employment resulting directly from the aircraft production program, it has been pointed out. For example, manufacturers of such aircraft components as magnetos, spark plugs, electric starters, piston rings and other engine accessories are not included in aircraft industry manpower estimates. The same is true of manufacturers of castings and forgings for aircraft engines.

'Copter Lift Forecasts Future Commuter Travel

Citizens of Los Angeles got a preview recently of the way commuters will travel in the future when 10 Marine helicopters from Santa Ana —45 miles away—landed 120 aviation writers in the heart of their city.

The helicopters made their journey in only 30 minutes while the same distance requires two hours by automobile. The mass airlift — a highlight of the Aviation Writers Association's national convention — was accomplished in two waves — each helicopter carrying six persons.

Aircraft Production Time Lag Reflected In Military Spending

In the first two years of the Korean War, less than one dollar of every $14 appropriated by Congress for national defense was spent for military planes — although one of every four dollars was earmarked for aircraft procurement.

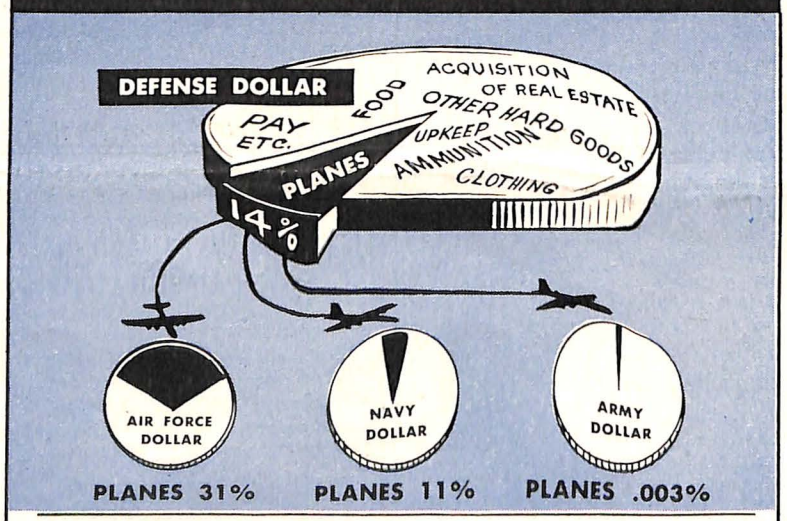
Indicative of the long-range planning required of Congress and the military services is the fact that the $27.9 billion authorized by Congress up to July 1, 1952, for buying military planes *cannot be spent in less than a four-year period.*

During the first two years of the Korean War, the major part of actual expenditures by the military went for personnel and for maintenance of existing equipment, a recent analysis of appropriations shows.

Total Air Force, Navy and Army

(See TIME LAG, page 2)

MOST OF DEFENSE DOLLAR GOES FOR UPKEEP



In the first two years of the Korean War, the major portion of military expenditures went for such items as pay, food and clothing of military personnel and upkeep of existing equipment and facilities. Although one of every four dollars appropriated by Congress was earmarked for military aircraft, less than 14% of expenditures have thus far been used to buy planes. The reason: the long lead-time on aircraft and complex components. The proportion of defense spending for aircraft will rise in the near future; but even so, a major share of the defense dollar will continue to go for upkeep and maintenance of military personnel and equipment.

'PLANES'

Airframe Weight Will Still Go Up After Unit Peak

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

The aircraft industry has delivered more than 10,000 military planes to the nation's air arms in the two critical years since hostilities began in Korea. The over-all monthly production rate has increased by more than four times, and production of fighters and bombers for the Air Force has been multiplied by five times.

Equally important, these heavier and more powerful aircraft incorporate the latest improvements—giving them increasingly greater qualitative superiority. Because designs were not frozen two years ago when the mobilization program started, today's aircraft fly much higher, can fight at distances farther from their bases, and can fly faster than ever before. They can carry more powerful armaments, and their cargoes of destruction can be delivered with unprecedented accuracy on enemy targets.

Target Date: 1955

Unless work stoppages or materials shortages intervene, aircraft output this year will substantially meet existing schedules. These goals, established early this year, after budgetary limitations caused a revision in programming, call for a production level capable of equipping a 143-wing Air Force and proportionate Naval air arm by the end of fiscal 1955.

The aircraft industry, since Korea, not only has multiplied fighter and bomber deliveries to the Air Force by some five times—but, measured in airframe weight, has increased monthly fighter deliveries more than six times and bomber deliveries more than seven times.

This industry, however, is not producing as many planes this month as it could build, nor do the current schedules indicate that it will be called upon to produce to the limits of its capacity in the near future.

Under the limited mobilization program, only a portion of the total U.S. productive capacity has been directed to the task of building military equipment. In the aircraft manufacturing field, there has been a series of reductions in planned production schedules. These reduc-

(See 10,000 PLANES, 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.

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Why Airplanes Cost More

The planes the aircraft industry builds in the next few years will cost more money than they do today.

This is true despite constant improvements in aircraft manufacturing efficiency, cost-reduction accomplishments of the industry, and new time-saving techniques. The signposts pointing to higher costs are clear—and the reasons for higher costs are apparent. In coming months, the aircraft industry will have to pay more for the manpower, materials and tools with which modern military planes are built.

Since the beginning of 1941, the year the United States entered World War II, hourly labor costs have risen 143%. In the past two years, the effect of hourly wage raises alone has been to increase present aircraft labor costs by almost $300 million per year. Moreover, the rise in fringe benefits during the same two-year period has added another $100 million—pushing additional labor costs to some $400 million annually.

At the same time, materials costs have spiralled and give no promise of a changed price trend. Aluminum, a basic aircraft metal, recently was allowed a price ceiling increase averaging about 5.5%.

In the past few weeks, too, we have seen the price of carbon steel rise $5.20 per ton. As a result, alloy and stainless steels—harder to produce and essential for aircraft and engine production—will cost aircraft manufacturers an estimated $12 more per ton.

This rise in steel prices not only jumps the cost of steel used directly by the aircraft industry. It also increases costs of producers of rubber, glass, plastics and other materials used by the aircraft industry. In turn, these costs will be passed along to plane builders.

For example, it has been reported that higher steel prices will mean that the cost of heavy presses, needed for the production of jet-propelled aircraft, will rise 10% to 15%.

Officials responsible for procuring the nation's military equipment already are discovering that they can purchase fewer planes than planned with appropriations of the past two fiscal years.

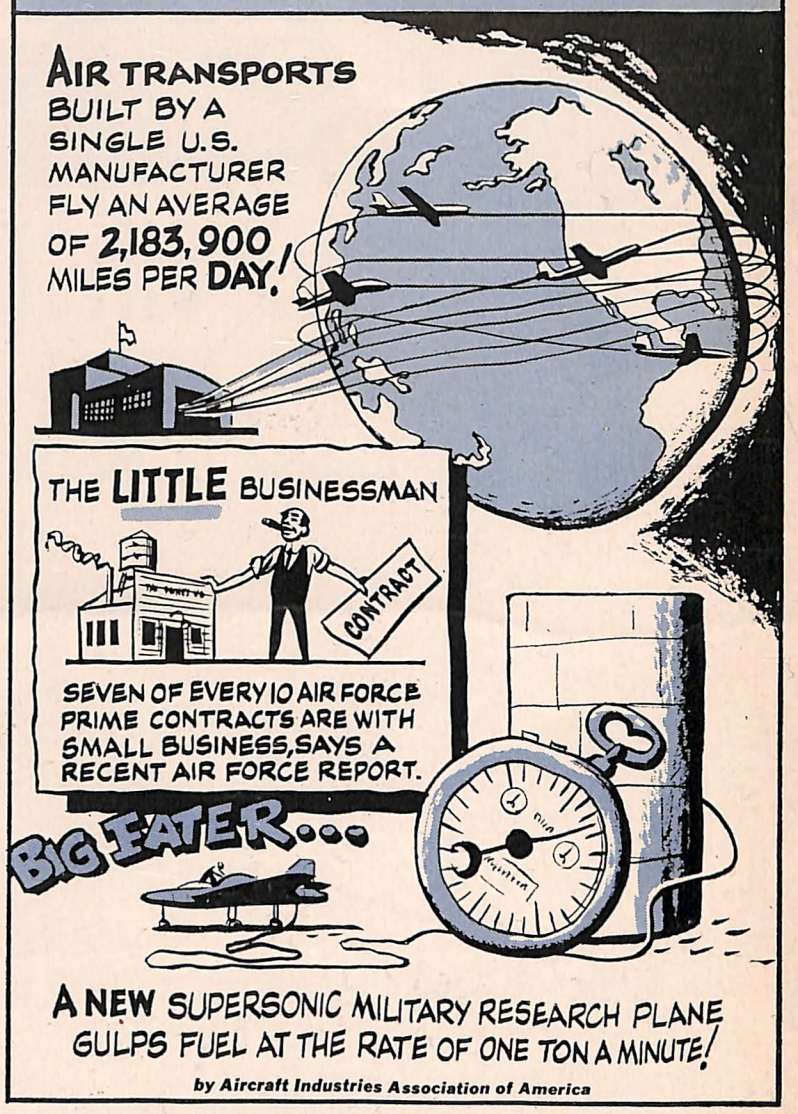
No matter how unpalatable, these are facts we must face and conditions with which we must live in the immediate future.

In this inflationary storm, however, there is a strong and positive force working to prevent an unrestrained rise in aircraft costs. This active force stems from the nature of the U.S. aircraft industry, composed of a large number of highly competitive individual companies, each bidding freely for production contracts.

In such an environment of free enterprise and free competition, there remains an overriding and constant incentive on the part of industry to build better products at lower costs and consequent lower prices. Free American enterprise is based upon the premise of reward to the low-cost, efficient producer.

It is unfortunately true that the nation is experiencing a broad-scale rise in the costs of the ingredients of production. The American public is assured, however, of constant efforts by the aircraft industry to make each air power dollar buy the world's biggest aircraft bargain.

PLANE VIEWS



Time Lag Reflected In Defense Spending

(*Continued from page* 1)

expenditures during the two fiscal years 1951 and 1952 totalled only about half of appropriations. Spending was some $56.8 billion, while appropriations amounted to $112.5 billion.

In the first two years of the war, approximately 51% of Air Force expenditures went for military personnel, and for upkeep of facilities and equipment. An additional 15% was spent for major procurement other than aircraft, and for acquisition and construction of real property. Remainder of expenditures is broken down as follows: 31% for new aircraft, 3% for research and development, and 2% for contingencies and miscellaneous expenses.

Navy, Army Spending

For the Navy, slightly over 55% of expenditures went for military personnel and for maintenance of equipment and facilities. A little over 11% of spending was for military aircraft, and the remainder went for such items as ship construction, conversion of ships, ordnance, etc.

Army expenditures for aircraft over the past two years amounted to only 3/10ths of 1% of total Army spending.

Outlay by the military services for planes during the first two years of the Korean War, as indicated in the U.S. Budget for 1953, was as follows: Air Force $5.9 billion; Navy $1.8 billion; and Army $66 million. This constitutes some 13% of military expenditures—about $7.8 billion.

During these two years, however, the military services placed contracts for $25.7 billion worth of planes. This fact points up the time element in aircraft production, procurement and planning. In the first years of a buildup period, coming after several years in which military aircraft production facilities have been allowed to deteriorate for lack of orders, tooling up and preliminary base-building requires several years.

Long Component Lead Time

Explaining the reason for this lapse of several years between Congressional appropriations and actual expenditure of the funds, industry and military experts point to the fact that orders have to be placed far in advance—not only for airframes and engines, but also for complex components which often have longer lead-times than the planes themselves.

One of the biggest problems in scheduling production is the fact that hundreds of components—such as landing gears, tires, oxygen equipment, machine guns, etc.—must be ordered and delivered on schedule to prevent disruption of production lines and delays in furnishing equipment to the armed forces.

Plane Equipment Must Work Faster Than Human Brain

The increasing need for complicated "pilot protection" devices in aircraft—a primary factor contributing to cost and complexity of modern military planes—was illustrated recently by the Navy's announcement that a research plane has flown faster than 1,200 m.p.h.

Theoretically, if two pilots flying at 1,200 m.p.h. emerged from a cloud on a collision course about a mile and a half apart, and were looking directly at each other, they wouldn't see one another before they crashed head-on. They would be traveling faster than the speed of human nerve impulses.

Planes Surpass Man

With each new advance in speed and performance of sonic and supersonic aircraft, there have come requirements for intricate mechanical, hydraulic and electronic devices necessary to compensate for failure of the human element.

The electrical and electronic gear alone in the cockpit of one jet aircraft today is equal in complexity to the combined circuits of a city power system, a radio broadcasting station, a television broadcasting station, and the fire control system of a battleship.

Without the aid of this complex equipment surrounding the pilot, human survival would be impossible. In this sense, the machine has surpassed the man.

In actual combat in Korea, for example, jet pilots today are flying at altitudes of 40,000 feet—some eight miles above the earth. At this altiture, the temperature is some 60 degrees below zero. The pressure is about two pounds per square inch.

Protective Devices Essential

Without elaborate protective devices, the pilots of these planes would die within minutes. Artificial atmosphere must be provided. Pilots must be enclosed in pressurized compartments, and must have pure oxygen forced into their lungs under pressure.

Their bodies must be cooled or warmed as the temperature changes —and scores of other installed devices must provide for their physical volume, weight and comfort.

Other automatic devices must be installed to control the aircraft in the split-second phases of aerial combat, when human reactions are too slow to control either plane or guns.

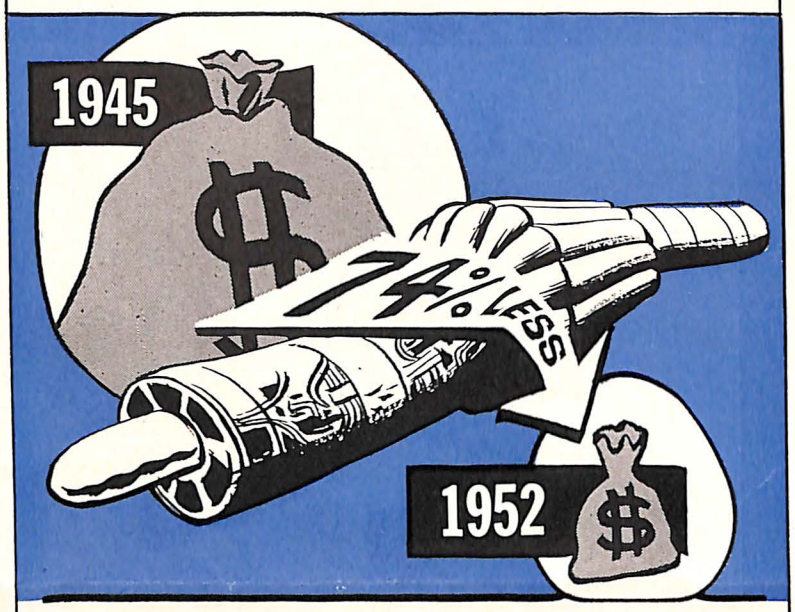
Effectiveness of such complex equipment is reflected in the eight-to-one record of combat kills amassed by a leading U.S. jet fighter in Korea over the MiG-15.

Air Age Forecast

Twice as many Americans will be flying on the nation's airlines in 1960 as were transported in the record year of 1951, says the Civil Aeronautics Administration.

The Government agency predicts that 40 million passengers will be carried annually by the airlines by 1960.

JET POWER COSTS SLASHED!



Cost of jet engines per pound of thrust drops rapidly with volume output and industry's cost reduction accomplishments despite inflation on all labor and material costs. Cost per pound of thrust in a typical jet engine today is only 26% of 1945 cost.

PLANES SOURCE: Typical Jet Engine Manufacturer

PLANE FACTS

• More than 1,412 firms (nearly three-quarters of which are small businesses) are subcontractors and suppliers of parts for a single U.S. aircraft plant currently building a jet bomber. These subcontractors and suppliers are located in 28 states.

• There are more aircraft in operation per square mile in Korea than any other place in the world today. During a recent period at a single Korean air base, planes averaged a take-off or landing at intervals of every minute and a half to two minutes.

• From June 13, 1951, through June 30, 1952, aircraft assigned to MATS' Airways and Air Communications Service flew 5,414,440 miles in every area of the globe where the USAF operates, including Korea, *without a single accident.*

• Use of titanium instead of aluminum or stainless steel in various parts of a new transport plane scheduled for production next year is expected to result in a weight saving of 300 pounds per plane.

• Almost half-a-million persons throughout the world use the Universal Air Travel Plan, a charge-account system enabling air transportation to be purchased on credit.

New Tool Speeds Output Of U.S. Guided Missiles

Guided missile production at a U.S. aircraft plant has been speeded through use of a new drilling machine capable of drilling 26 holes in a missile fin in only 36 seconds.

The machine eliminates 83% of the labor previously needed to drill holes in the leading and trailing edges of a missile fin.

Air Quotes

"We must not forget that, by the late summer of 1954, five years will have elapsed since the Soviet Union's first atomic explosion. Given the benefit of knowledge and experience pirated from the Germans, plus the secrets gained from the Fuchs betrayal, the Soviet Union should have been proceeding faster during the first five years of their atomic program than we did.

"This being so, the Soviet Union should have by mid-1954 a sufficient number of atomic bombs to *sustain* an atomic offensive. That word '*sustain*' is very important. It is probable that the Soviet Union already has enough atomic bombs on hand to arm an atomic attack of considerable force; but at this stage in the development of their stockpile, such an effort would probably consume their supply and might not produce decisive results.

"By 1954, however, their atomic stockpile should be large enough to arm succeeding attacks if the first should fail. Unless effectively opposed and countered, such an attack could neutralize our own ability to retaliate, and at the same time could seriously cripple certain key centers of productivity upon which we depend for ultimate victory in war." —*Lt. Gen. Thomas D. White, Air Force Deputy Chief of Staff, Operations.*

PLANES QUIZ

Seventy per cent score on this quiz is excellent. Sixty per cent is good. Answers on Page 4.

1. The average per-pound cost of electronics—one of the most expensive items in today's military aircraft—is: (a) $46; (b) $25; (c) $34?

2. More professional engineers are required to design and build America's high performance, intricately complex aircraft than are needed in any other single U.S. industry. The ratio of engineers to other employees in the aircraft industry today is: (a) one engineer to every 30 other workers; (b) one to every 15 other workers; (c) one to every 10 other workers?
3. More bystanders on the ground are killed by bicycles than by airplanes. True or false?
4. The system used to heat pilot and equipment at high altitudes in a new Navy interceptor is capable of heating: (a) 10 three-room houses; (b) 30 six-room houses; (c) 20 four-room houses, in zero weather?
5. The system of Federal air routes—70,000 miles long — would stretch nearly three times around the earth at the equator. True or false?
6. Civil airports play a vital national defense role as supplemental bases for military air operations. Military aircraft are now based at: (a) 55; (b) 300; (c) 156, civil airports?
7. Radar equipment alone in one of today's night-fighters weighs 1,100 pounds—one and a half times the weight of the original Wright Brothers plane, including its pilot. True or false?

8. One U.S. manufactured jet engine, weighing only 4,000 pounds, develops (with afterburner) the equivalent power of three 3-unit diesel passenger locomotives. True or false?
9. Most passengers traveling on U.S. airlines' low-fare (tourist) flights are men. True or false?
10. How many cities in the U.S. are now serviced by scheduled U.S. airlines?

More Than 10,000 Planes Built Since Korea; But Production Is Still Rising

(*Continued from page* 1)

tions are the result of an evaluation by top mobilization planners of the nation's economic, civil and military needs. They represent a compromise which has obviated the necessity of imposing a substantial cut in the production of civilian goods. To build the world's largest air arms would have required the nation's manufacturing energies be directed primarily, and in some fields exclusively, toward military production.

Peak in December

Despite the so-called "stretch-out" in aircraft production goals announced some eight months ago, the aircraft industry is still accelerating its output—and is scheduled to build more planes each month until next December. At that time, it is expected that unit production will reach a peak rate of some 1,000 to 1,100 planes per month. Output of airframe weight, however, will continue to rise for several months after that, as production of some types of liaison and training planes is completed and as deliveries of the heavier fighters and bombers increase.

As this expansion continues, the aircraft industry will need more engineers and skilled labor. Materials problems are certain to arise, as they have in the past during every phase of the mobilization effort. Production difficulties, design changes, procurement policies—all will present problems which can be solved readily only through the closest cooperation between the military, other governmental agencies, and industry. As we complete the tooling-up phase and the delivery rate of end items increases, we must maintain even greater vigilance against relaxation and complacency.

Production Goals

The peak military aircraft production rate of 1,000 to 1,100 planes per month, scheduled to be reached at the end of this year, will enable our military air arms to achieve their strength goals by the required date.

Minor modifications in the projected production curve have been made by revisions in schedules for individual models, some of which will be phased out and others put into production as developmental work progresses. In the aggregate, however, these changes will have little effect on the total number of planes to be produced for the U.S. military services, and in addition will provide a greater number of high performance planes at an earlier date.

Industry's Problems

In view of the heartening fact that aircraft production has not fallen behind current schedules, it is important that the American people understand the immediate problems of the aircraft industry in working to meet these objectives.

As previously indicated, schedules have been reduced when their achievement would have meant serious inroads upon the civilian economy or upon civilian supplies of materials, manpower and production facilities. The industry cannot cope with such changes in schedules without adding substantial increments of cost to the manufacturing operation. This in turn adds to the cost of the end product.

Long-Range Plan Best

More important, schedule fluctuations prevent efficient long-range planning which could achieve great economies in the use of materials and in other production operations.

Certainly the most economical and most logical approach to the problem of providing our air arms with adequate quantities of superior aircraft is to establish specific long-range targets. With these fixed goals, and adequate priorities for production resources, the aircraft industry can deliver the world's best military planes in the numbers and at the times required.

Airborne Cowboys Ride Herd On Atomic Clouds

The Atomic Energy Commission has discovered a new use for airplanes — riding herd on clouds of radioactive dust.

Planes take off after each atomic bomb test, circling through radioactive clouds with devices for measuring radiation intensity. Other planes fly only a few feet off the ground, checking radioactivity both in the air and on the ground.

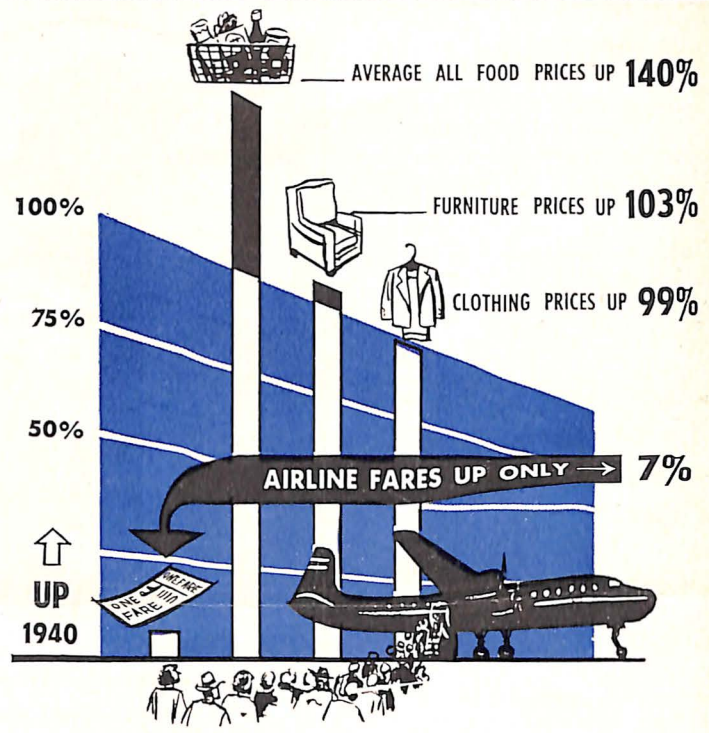
Several hours after each atomic explosion, big transports take off to collect air samples for a 48-hour period within an approximate 500-mile radius of the test sites.

Reports the AEC: Radioactive dust has been carried to all parts of the U.S. but intensity is not sufficient to harm humans, animals, or crops.

Answers to Planes Quiz

1. (a).
2. (c).
3. True. In 1949, seventeen bystanders were killed by bicycles against fifteen (annual average 1946-1951) fatalities to persons on the ground caused by airplanes.
4. (b).
5. True.
6. (b).
7. True.
8. True.
9. False. A recent survey by a representative domestic airline showed that 61% of its low-fare passengers were women while men accounted for 75% of its standard-fare flights.
10. 687. This is the actual number of points from which scheduled commercial airlines operate.

AIR TRAVEL BARGAIN



Regular fares on U. S. scheduled airlines show smaller increase than any individual item listed by the Department of Labor in its Consumer Price Index.

"PLANES"

Vast Fleet of U. S. Business Planes Has Vital Role in National Defense

More Americans than ever before in history are using light utility-type aircraft in business, industry, agriculture and other defense-supporting activities, according to recently compiled industry and Civil Aeronautics Administration figures.

More than four-fifths of the approximately 60,000 private and corporation-owned aircraft operating in this country last year were used for utility transportation by businessmen, farmers, government agents and professional workers.

Lightplanes make up the bulk of this civil non-airline fleet which now outnumbers the combined U.S. airline fleet 42-to-1 and, in 1951, flew nearly 8.5 million hours—triple the estimated total flown by the commercial passenger and cargo carriers.

Statistics on private flying in 1951 (just released by the CAA) reflect the sharp increase in lightplane use for business transportation and utility purposes, and the decline in so-called pleasure or sports flying.

Pleasure Flying Down

For example, executives, farmers and ranchers, operating private planes in the conduct of their businesses, last year flew 2,952,000 hours, an increase of 19% over 1949. Pleasure flying in the same period decreased 34%.

Commercial operators of utility planes for seeding, spraying and dusting crops flew 24% more hours in 1951 than in 1949. Private aircraft for hire (passenger, cargo, charter and air-taxi services) flew 13% more hours.

Industrial use of private aircraft last year amounted to 403,000 hours; civil pilot training accounted for 1,902,000 hours; and planes operated by federal (non-military), state and local government agencies and the Civil Air Patrol flew some 135,000 hours.

Business Use Up

The trend toward increased business and utility use of the light utility aircraft is seen as evidence of the wartime value of such a fleet.

"Nearly every lightplane manufactured at the start of World War II found a military application," according to Joseph T. Geuting, Jr., manager of the Utility Aircraft Council of the Aircraft Industries Association. "At that time, the industry devoted full time to military production, both as prime contractors for light liaison and trainer types and as subcontractors for heavier military aircraft.

"This situation would be repeated in event of another all-out war," he pointed out, "inasmuch as most types of utility planes being built today for civil use are also being used, some with very minor modifications, by the military services. Additionally, an all-out war would greatly increase the demands on the civil fleet of utility aircraft for essential transportation and for civil defense."