



# planes

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OFFICIAL PUBLICATION OF THE AIRCRAFT INDUSTRIES ASSOCIATION OF AMERICA

## 'U.S. MUST NOT DELAY AIR BUILDUP'—SHORT

### Emergency Fleet Of 308 Airliners Ready for Action

In event of war or national emergency, U.S. airlines have 308 giant transports ready to turn over to the military services on 48-hour notice.

These modern aircraft are capable of transporting more than an entire division of troops or more than 5.75 million pounds of vital cargo from coast-to-coast in less than 12 hours.

#### Support MATS

On military stand-by under direction of the Government's Defense Air Transportation Administration, the airline planes would give wartime or emergency support to the Military Air Transport Service's more than 1,300 transport aircraft.

Availability of the airline stand-by fleet means a saving of millions of dollars to the military and the taxpayer. The planes alone, if it were necessary for the Services to purchase them, represent an outlay of close to \$348 million. And to this figure can be added the millions of dollars which the military would have to spend for hangars, ground equipment, spare parts and skilled personnel if these planes of America's private industry were not available.

#### Airlift Capacity Up

In actuality, this Civil Reserve Air Fleet represents only 40 per cent of the capacity of the airlines. But it is capable of providing an airlift four times greater than that furnished by the scheduled airlines at the time of Pearl Harbor—and release of the planes to the military could be done without seriously disrupting normal air traffic.

All of the planes which make up this fleet are four-engined transports introduced to commercial flying since (See MILITARY, page 2)

### Test Pilots Go Long Way To Check New Airplanes

Test pilots at a major aircraft plant flew 3.7-million miles in 1953 to check new production models and for engineering test purposes.

This distance is equal to a trip around the world every 58 hours during the year.

The 38 pilots and co-pilots employed by the company made a total of 9,180 flights in the twelve-month period—an average of more than 25 flights each day.

### Queen's Air Travels Cover 15,000 Miles On Global Journey

The airplane has enabled Britain's young Queen Elizabeth to see more of the British Empire than any other reigning monarch in history.

Although the world tour of the Royal couple will not end until the middle of May, the Queen and the Duke of Edinburgh have already used air transports for over 15,000 miles of their journey, which has taken them to seven countries of the British Commonwealth.

And American-built transports have played a major role in this spectacular trip — being used for more than 95 per cent of the distance flown.

When the Queen and her entourage left London in November, they flew 3,600 miles in a U.S.-built four-engined transport to Newfoundland and Bermuda. After a brief visit, they flew in the same aircraft to Jamaica in the British West Indies.

A voyage by sea through the Panama Canal took the young couple to the South Pacific and Fiji, where (See QUEEN, page 4)

### House Armed Services Chairman Calls for Strong National Air Policy

By

HON. DEWEY SHORT  
Republican of Missouri  
Chairman, House Committee  
on Armed Services



REPRESENTATIVE DEWEY SHORT

One of the nation's leading authorities on national defense, House Armed Services Committee Chairman Short plays a major role in the formulation of U.S. military policies.

Nothing has restrained the forces of Communism from plunging the world into cataclysmic war more than have the military and industrial might, coupled with the moral force, of the United States.

With the increasing emphasis in our military buildup directed toward the creation, maintenance and exploitation of modern air power, the future peace of the world and security of the nation rest to a large degree upon the superiority of our military air services—and their capability of deterring aggression.

In building this strength, we must not delude ourselves that we can match the hordes of Russia and her satellites man-for-man, gun-for-gun—or even plane-for-plane. I have repeatedly asserted, and fervently believe, that *quality of weapons* will always prevail against mere masses of men.

#### World War II Experience

In World War II, you will recall, Japan surrendered with 3,000,000 soldiers based on her home islands. She surrendered because our air forces and Navy had literally burned up and blasted to bits her major industrial and population centers. The destruction—and the victory—both in Asia and in Europe were achieved not by numbers of men but by modern and up-to-date weapons.

It is just this qualitative superiority which we must retain for our air strength in the future.

Any review of our air power status thus must take into account the progress made by the Soviet Union.

#### The Soviet Menace

Where do the Russians stand today?

Since World War II, the Soviets have steadily increased the volume of their military aircraft production, and are scheduled—according to my best information — to reach their peak production by the middle of this next summer.

Already, we are informed, they have 40,000 military aircraft, compared with a strength of about 30,000 for the United States today.

(See SHORT, page 3)

**The Goal: MODERN AIR POWER**

11,000 JETS TODAY →

20,000 JETS BY JUNE 1957

Today, only one-third of U. S. active military aircraft are jet-powered.

By June, 1957, the Air Force, Navy and Marine air forces will have more than 20,000 jet aircraft—well over half of the total active planes at that time.

'PLANES' Source: Aircraft Industries Association

## 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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### The U.S. Aircraft Industry—

## Air Arsenal of Freedom

During World War II, the United States became known as the Arsenal of Democracy—its vast productive capacity geared to produce the weapons needed to win a great global conflict.

The Arsenal of Democracy was dismantled, however, when the victory was won. Orders for military equipment were cancelled wholesale. Many aircraft plants were closed. Those that remained were reduced to a fraction of their wartime production, and were threatened by lack of orders with bankruptcy.

Millions of dollars of aircraft production facilities, built at heavy cost by American tax dollars, were lost. Demobilization cost the nation heavily—both in dollars and in military strength.

Our air leadership was placed in jeopardy, not as a matter of national policy, but through default.

The Communist attack on South Korea alerted the nation to the dangers of unpreparedness—and to the fact that the only road to maximum security and economy in building our defenses lies in consistent and long-range planning.

It has taken us four years to reconstitute the U.S. aircraft industry, to bring it to the point where, once again, it stands prepared to support the free world's air forces in the struggle against Communism.

In these four years, the U.S. aircraft industry has become the Air Arsenal of Freedom—manufacturing the aircraft required to deter atomic attack and to preserve a hard-won peace.

In this task, U.S. manufacturers are joined by those of other free nations—England, Canada, Australia, France, Italy, Sweden, Belgium, The Netherlands, and others.

But—just as America has been forced to shoulder the heavy burden of leadership among peace-loving nations—so the American aircraft industry has become the keystone upon which the entire free world's air defenses must rest.

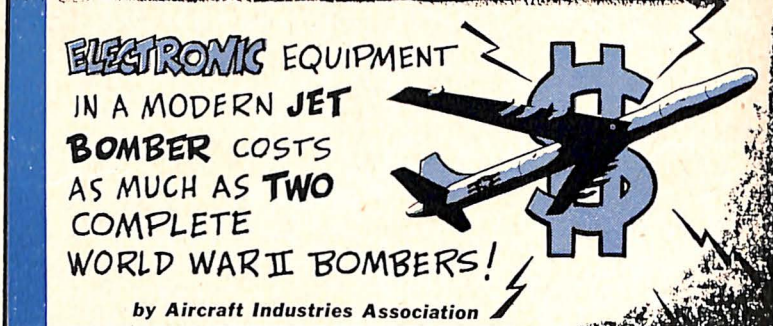
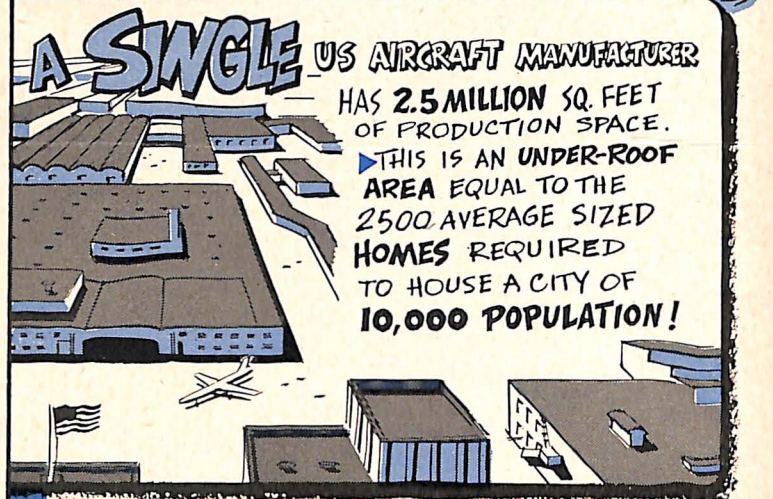
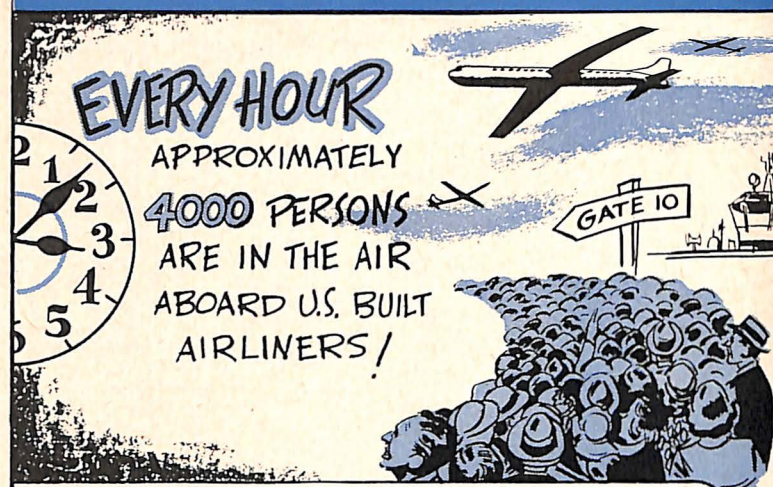
In aircraft production capacity, in facilities, in manpower and in experience, American aircraft manufacturers exceed those of any other free nation—and probably the entire combination of free nations. The British are generally considered to have the largest aircraft manufacturing industry outside of the Soviet Union or the United States. Yet, roughly three times as many persons are engaged in aircraft production in this country as in England. About 10 times as many Americans are building aircraft as are working in the aircraft industry in Canada, our ally to the North.

In the somewhat more than 50 years since the airplane was invented in the United States, this nation has produced more planes than any other in the world—including the Soviet Union—and total U.S. aircraft production approaches that of the rest of the world combined.

U.S. manufacturers also have built more *jet* airplanes than any other nation in the free world. Our engine manufacturers have produced more jet engines—and these engines have flown more hours—than have products of any of our allies.

The aircraft produced by the Air Arsenal of Freedom today stand guard at bases in the continental United States and throughout the free world's periphery. They are essential first-line elements of the air forces of every major U.S. ally, as well as our own air services. Upon their quality—and upon the quality of the planes to be delivered by this industry in the future—depends to a great extent the future peace of the world.

## PLANE VIEWS



### Military Could Use 308 U.S. Airliners On 48-Hour Notice

(Continued from page 1)

the end of World War II. Most of them have already been modified for installation of essential military equipment. This would include such items as emergency life-saving equipment, and identification and communications devices.

With slight additional modifications all of them could be assigned to transoceanic runs.

Besides these planes which have been definitely earmarked for emergency duty under MATS, an additional 23 have been designated as a contingency reserve to serve as replacements in the event of mishap to planes in the original fleet or in case any of them should be sold to foreign buyers.

Two types of newer transports, larger and faster than those presently listed, are now flying for the airlines and will soon become a part of the reserve.

### PLANE FACTS

- Approximately 40 of the 87 tactical squadrons in the Air National Guard will be equipped with jet aircraft by next June.
- Use of a new air inspection gage for turbine bucket blades in a late-model jet engine will result in annual savings of \$13,500, an engine manufacturer reports. The device checks 13 machining dimensions and completes final inspection in one positioning of the bucket. Formerly, six individual gages were required.
- U.S. business planes flew more than three million hours in 1953.
- Landings and take-offs handled by CAA airport control towers during 1953 totalled an estimated 17-million, compared with 15.8-million in 1952.
- The prototype of a new 550-m.p.h. jet transport plane represents a private investment by its manufacturer of more than \$15-million.

# SHORT SEES SAVINGS IN CONSISTENT AIR PLAN

(Continued from page 1)

More ominous, the USSR today has a fleet of at least 1,000 long-range bombers capable of delivering atomic bombs (and also thermonuclear devices, which they may possess) on the continental United States.

In the past, the Russians have lagged in the design and development of strategic bombers, while placing great emphasis on the creation of advanced tactical air weapons—fighters, interceptors and light bombers.

Such is no longer the case. The latest reports from behind the Iron Curtain indicate that the masters of the Kremlin are focusing increasing attention on the development of late-model, long-range strategic bombers.

## Soviet Advances

With these facts at our command, and with the knowledge that the Soviets are far more skilled scientifically and technologically than we believed several years ago, we cannot become complacent about any temporary advantages we may hold in development of military air weapons.

Air readiness over the long haul cannot be maintained through sporadic effort or inconsistent endeavor. It takes *time*—months and years of time—to build complex and advanced aircraft for our armed services, to train the flyers who will man these planes, and to attain combat readiness for air units.

## Aircraft Time-Factor

Approximately 10 years are required, for example, between the design concept of a modern bomber and the date on which squadrons equipped with that bomber are ready for action. Research and development alone on such a bomber takes from five to six years; actual production takes another three to four years; and, although crew training can begin while the aircraft is still in production, an additional year is required for unit training once sufficient aircraft are available.

It is pertinent to note that work on the design of our latest medium jet bomber began in 1944; the first production model was not delivered to the Air Force until 1950; today,

we have something over 11 combat wings equipped with this plane; and *not until the end of 1955 will all of the Strategic Air Command's medium bomb wings be completely re-equipped with the bomber.*

## Lessons of Past

During my long tenure in the Congress, I have repeatedly urged awareness of the time-factor in the creation of air power and military strength. Following the demobilization after World War II, I urged that we build toward a 70-group Air Force, considered adequate at that time to fulfill our global commitments. Even earlier, I warned that Korea was the real hot-spot of Asia. Yet, when the Communists swarmed across the 38th Parallel in mid-1950, we were not only caught by surprise—but our Air Force had only 48 inadequately equipped groups to meet the challenge. We had not learned that air power cannot be created overnight in a crisis.

Although we have been engaged for almost four years in a vast effort to rebuild adequate defensive and retaliatory air power, *we are still three years away from attainment of our minimum goals.* We will not have the scheduled 137-wing Air Force, and commensurate modern Naval air strength, until mid-1957.

## Modern Forces Essential

It goes without saying that this buildup cannot be delayed without placing the nation in peril, and—once the force goals are achieved—that we must keep this force intact and modernized through the critical years that lie ahead.

Provision already has been made by the Congress for much of the production and organization required to meet the 1957 goals. Today, we have two tasks: to assure that the buildup continues in the most economical and efficient manner; and to look beyond 1957, planning for the force levels which we shall have in later years.

## Three Points for Air Security

Certainly experience has taught us that three concomitant actions are required to maintain military air strength:

First, we must have sufficient research and development in aviation to guarantee that our forces will at all times be equipped with superior aircraft designs.

Second, we must maintain a level of aircraft production adequate to keep our forces in being 100 per cent modern over the years.

Third, we must organize long-term aircraft procurement at a rate adequate to support at least one year's war effort from existing production lines; and must assure that engineering, production and management teams in the aircraft industry are always capable of rapid expansion in event of emergency.

## National Air Policy

Such sensible planning for defense can, I believe, best be attained if it is placed in the context of a National Air Policy, developed and subscribed to by the Congress and the Executive Department.

It has long been recognized that tremendous economies are possible through consistent programming of

aircraft production. Because of the necessarily high cost of complex modern air power, the Congress must insist, in its present and future examinations of our program, that these economies be attained. This, of course, will place direct responsibility upon the military services and the aircraft industry for a continuation of their efforts to reduce the unit costs of aircraft.

With the cooperation of industry and the military, under such a three-point program endorsed by the Congress and the Executive Departments, we can achieve and maintain the air superiority upon which our national existence depends, and at the same time assure that it is attained at the lowest possible cost to the American taxpayer.

## Modern Aircraft Set Speed Marks Before They're Assembled

It takes time to build the modern jet aircraft that defend America.

These planes, many of which hold world speed and altitude records, are composed of thousands of complex parts required for supersonic combat and high-altitude performance.

But despite the complexity of the production and assembly job, aircraft manufacturers constantly search for better and faster ways to build America's air power.

## New Assembly Lines

As a result, some of the planes set speed records even before they're assembled. For example, at one plant, a new mechanized final assembly line has cut more than 3,000 man-hours per month off the production time for a jet training plane.

With a continuously moving line, curving down one side of a hangar, making a "U" turn, and going back up the other side, the company has increased production efficiency—and cut costs. The new line has 22 separate assembly stations.

## Improved Techniques

Improvements in assembly line techniques are not confined to airframe manufacturers. At an engine plant, a new-type automatic assembly line has increased engine-building capacity by 250 per cent, although the line itself occupies 42 per cent less space than a former assembly area used during World War II. Some of the automatic equipment is up to 500 per cent faster than the best hand work on an identical operation.

The line has a complete conveyor and belt system that moves along progressively from the time parts are taken off the shelves until they're ready to be applied to an engine.

Another engine plant has speeded production with a new 6,600-foot overhead conveyor belt, moving at the rate of 30 feet per minute. Eleven strategically located loading and unloading places serve as stopping points along the conveyor's length.

## Air Quotes

"Today's emphasis is actually pointed toward the creation, the maintenance, and the exploitation of modern airpower. Today, there is no argument among military planners as to the importance of airpower. Offensively, defensively, and in support of other forces, it is a primary requirement. Its strength continues to grow, both through increases in combat air units, and through better equipment." — *Admiral Arthur Radford, Chairman of the Joint Chiefs of Staff, December 14, 1953.*

## HEAVYWEIGHT PUNCH

materials in a jet fighter	1st JETS	TODAY
STEEL	7,198 lbs.	20,129 lbs.
COPPER	186 lbs.	513 lbs.
ALUMINUM	9,273 lbs.	19,440 lbs.



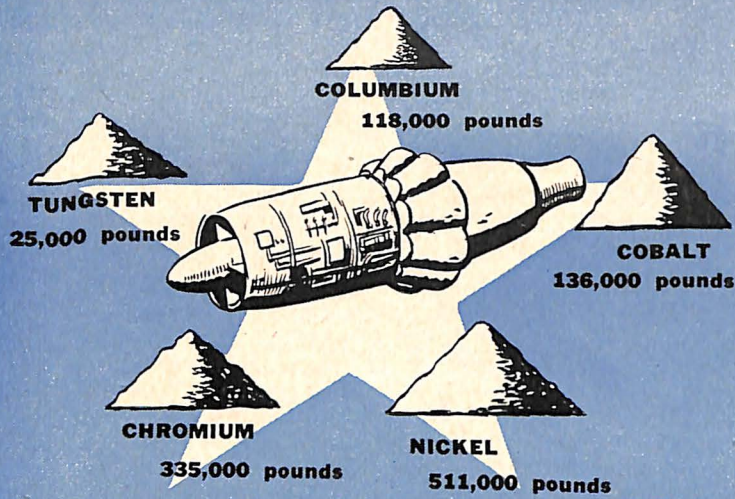
It's a bigger job to build a jet fighter today than it was 10 years ago. These modern fighters take more materials, and cost more, but they fly faster, higher and farther.

'PLANES'

Source: Aircraft Industries Association

## ENGINE BUILDERS SAVE CRITICAL MATERIALS

In ONE YEAR, U.S. aircraft engine builders SAVED:



Shortages of certain critical jet engine materials are among the most serious bottlenecks in mass-production of modern engines. But U.S. manufacturers are working to solve the problem. In one year, conservation efforts resulted in tremendous savings of critical materials. These savings were brought about by (1) design developments, (2) substitution of materials, (3) development of new materials, (4) improved manufacturing methods, and (5) improved procedures for recovery of critical materials from obsolete, damaged or worn-out equipment.

A.I.A.

Source: Semi-Annual Report, Air Force Secretary

## How To Stretch A Dollar

### Longer Engine Life

Joint efforts by a task force of USAF and an engine company's spare parts specialists have saved U.S. taxpayers at least \$15,000,000. They produced a program for cancelling certain spare parts orders which, in light of the greatly increased durability and engine life expectancy, were in excess of usage requirements.

### Salvaging Materials

Savings of \$34,000 and 8,000 man hours are expected this year by a major aircraft company through a new materials salvage plan.

### Substitute Parts

By using 80c fuel nozzles (of the home oil-burner type) in an "expandable" jet engine for powering target drones, a U.S. manufacturer saves \$14.20 per nozzle.

### Improved Methods

An improved method of manufacturing engine fan fairing assemblies in a modern airplane has saved \$34,497.20 on a Government military aircraft contract. A plastic formed part, which requires only two tools to manufacture, replaces a riveted and welded sheet metal assembly, which required 22 tools or fixtures to manufacture and assemble.

### Manufacturing Efficiency

Estimated savings of \$128,000 per year are expected from a new method of fabricating "locating blocks" for heavy bomber parts. The small blocks of solid aluminum, used to check fixtures, hold in place airplane parts such as chords and frames.

## Korean War Death Rate Cut by Use of 'Copters

The Korean War turned the helicopter into a tool of modern medicine.

Without helicopter evacuation, hundreds of United Nations troops would have died of wounds.

But with the speedy and useful 'copters, prompt medical attention was made possible—and the fatality rate for wounded soldiers was cut to less than half the World War II rate.

During the Civil War, 14 of every 100 wounded soldiers died. This figure was cut to 8 in World War I.

In Korea, only two of every 100 wounded died as a result of military action.

So rapid was medical attention in Korea, and so excellent, that Assistant Secretary of Defense Melvin A. Casberg has said:

"If I had a choice of being shot down and critically injured on 16th Street in Washington, D. C., or in the main line of resistance in Korea, I would have chosen the main line in Korea. Such professional care we have never had before. We have had top-notch men on patient evacuation with helicopters."

Government records show that 11,231 U.S. women hold valid pilot's licenses.

Of these, 5,101 have currently effective medical certificates. This information comes from Edward E. Slattery, Jr., Chief of the Civil Aeronautics Board's Office of Public Information. Slattery reports that a figure of 16,000 women pilots (which appeared in an article in a recent issue of PLANES) exceeds, by 4,769, the number officially recorded in Civil Aeronautics Administration files.

# Year Book Says Air Industry Broke Peacetime Production Marks in '53

The U.S. aircraft industry established "the biggest peacetime production year on record" during the recent 50th Anniversary of Powered Flight, according to the Aircraft Year Book for 1953, published this month.

With 750,000 workers, the industry produced 12,000 military planes, more than 3,800 utility aircraft, and more than 300 multi-engined transports during the year, the 35th edition of the standard reference work for U.S. aviation reports.

The Year Book is an official publication of the Aircraft Industries Association.

### Review of Activity

Reviewing the industry's 50-year history, Adm. DeWitt C. Ramsey (USN, Ret.), writes in the foreword to the book:

"Since [the Wright Brothers' first flight] in 1903, the U.S. aircraft industry has produced more than 496,000 aircraft of all types, of which 373,000 were for military use and 123,000 have contributed to the development of the world's commercial air traffic."

The publication reports that during fiscal 1953, more people flew into and out of the United States by air than came and went by sea, and that the air transportation industry for the first time employed in excess of 100,000 persons. An average of 44,000 plane movements were handled every 24 hours during the fiscal year by CAA control towers.

With Chicago Midway Airport leading, the 10 busiest towers in the country during the year—according to the Year Book—were Miami,

Wichita, Cleveland, Los Angeles, Denver, Atlanta, Dallas, New York, LaGuardia, and Washington.

The editors (Lincoln Press, Inc., of Washington, D.C.) describe the aviation events of 1953 as "the most spectacular record of achievements in the peacetime history of the nation."

### Reference Material

The Year Book contains complete descriptions and photographs of 38 military aircraft, 14 civil aircraft, and 51 aircraft engines in production during 1953. In addition, it includes biographies of more than 1,300 key aviation executives in the nation, a bibliography of 197 aviation books published during the year in the U.S., and sections on (1) aviation statistics, (2) the Department of Defense, (3) aircraft industry research, (4) the aircraft industry, (5) pictorial highlights of 1953, (6) the Government and aviation, (7) the airlines, (8) utility airplanes and helicopters, (9) planes in production, (10) engines in production, (11) day-by-day aviation chronology for 1953, (12) a complete chronology of U.S. aviation, and (13) official air records.

The Aircraft Year book may be purchased from Lincoln Press, Inc., 511 - 11th Street, N.W., Washington 4, D. C. Price is \$6.

## Queen's Air Travels Cover 15,000 Miles On Global Journey

(Continued from page 1)

they began an air tour of New Zealand and Australia.

In New Zealand, where many hard-to-reach towns were visited by British royalty for the first time, the Queen and the Duke flew over 1,300 miles in specially-equipped American-built planes belonging to the Royal New Zealand Air Force.

The lion's share of air travel came in Australia. There, they flew 10,000 miles in four different U.S.-built transports belonging to the Royal Australian Air Force. Also in Australia, the Royal couple traveled 2,500 miles by highway and an additional 800 by rail. The longest flight while in Australia was the 1,058-mile flight from Adelaide to Kalgoorlie; and the final 334 miles were flown from Kalgoorlie to Perth, where they rejoined their ship to continue the tour to Ceylon.

Three short trips were flown in British-built aircraft. While in the Fiji Islands, the Royal couple took a flying side trip to Lautoka (180 miles), and then to Tonga (450 miles) in a British flying boat. While in New Zealand, they flew 105 miles in a small British-built transport.

### Rugged Jets

An indication of the rugged dependability of modern jet engines is the fact that flying time between overhauls on a late-model jet engine has multiplied more than eighty times within the past five years.

## 'Spray Guns' Spew Flames Half as Hot As Sun's Surface

Almost everyone has seen the spray-guns that painters use.

But few people have heard about their newest counterparts in the aircraft industry — "spray-guns" that spew a flaming liquified powder at temperatures up to 5500 degrees Fahrenheit, half as high as those on the surface of the sun!

These white-hot sprays, amazingly, are being used to put thin coatings (1,000th of an inch thick, in some cases) of a mixture of ceramics and such metals as nickel and magnesium on high temperature alloys used in jet engine parts.

The ceramic coatings, though still in the experimental stage, are designed to make the "hot" parts of the engines resistant to the withering heats generated by today's high-powered jets and rockets.

One manufacturer of high temperature-resistant ceramics has successfully tested this new method of application and has developed a coating which will withstand temperatures up to 3,500 degrees Fahrenheit—16½ times the temperature of boiling water—for short periods of time.