

AERONAUTICS

# Giants of the Sky

Convenience, speed, and ease will mark the postwar luxury airliner which will fly across the United States in less than 10 hours.

By ROBERT N. FARR

See Front Cover

► THE postwar luxury airliner will fly across the United States in less than 10 hours, or from Boston to Moscow, a distance of 5000 miles, in 18 hours. No spot on earth will be more than 60 hours away from your living room.

Half again as big as today's large plane, tomorrow's giant airliner will weigh up to 125 tons. Four to six engines will thrust it through the sky at speeds greater than 300 miles an hour. Such a giant is the "Model 39" shown on the front cover of this SCIENCE NEWS LETTER in a Consolidated Vultee Aircraft Corporation photograph.

The new planes will stand so high that they will require an elevator or escalator to get into them. Already planes are coming off the production lines that are as tall as a three-story building. A small cottage could be built under one of the wings of these sky giants.

Many of the long-distance postwar airliners will have two or three decks, taking care of 60 or more passengers. The actual cabin will have from two to eight separate sections and be as large as a five- or six-room house.

Passenger comfort and convenience are prime considerations for manufacturers and designers working today on the airplanes of the future. Safety is now practically taken for granted, as a result of great advances in engineering.

New seating and sleeping arrangements, more space for passengers and baggage, wide use of lightweight plastics—these and dozens of other improvements are being created for the spacious planes you will ride in after the war.

## New Passenger Seats

One of the outstanding features of the future airliner will be new passenger seats. Their design is derived from the wing chair familiar to family living rooms. An individual reading light is built into the left wing, so spotted that it falls directly on your lap. The other wing of the chair houses a "pillow ra-

dio" which permits the passenger to hear programs without annoying those about him.

Seat upholstery conforms to the body's contours. When the passenger presses a button, the back reclines and the seat slips forward, dropping slightly at the rear to allow a more comfortable lounging position.

These chairs, arranged in a series of four, can be converted into sleeper berths at night.

The toilet facilities offer convenience unknown in prewar planes. The women's powder room, for example, has a whole wall covered with a plastic mirror.

One of the first of the new postwar airliners is already being test-flown. It is the Consolidated Model 39, designed by Henry Dreyfuss, industrial designer and consultant of New York.

Riding on an escalator that takes you nearly 20 feet up to the passengers' entrance in the exact center of one side of the plane, you step through two sliding doors, built into the hull, which open like those of an elevator.

Upon entering, you find yourself in a small lobby, faced with a giant air map of the route you will travel. The hostess, one of a crew of six, takes your coat and hat and places them in recessed closets built on either side of the entrance. Your luggage is stored in a compartment behind the map.

The cabin is divided into two sections, one fore and one aft. In the forward section there are 24 seats, in the aft section there are 22 seats. There are three toilets, a large galley, and a special "club car of the clouds" section, made up of four seats near the galley.

The use of color has been given especial attention. Warm gray and rust brown, or wood brown and soft green are combined to give you a greater sense of psychological security.

A modern idea in visual comfort in



**SPACIOUS BERTH**—Just one of the inviting features of the airlines of the future is the spacious berth with the polaroid windows which can be adjusted to admit any degree of light.

the form of polaroid windows allow you to select variable densities of light, from bright sunlight to complete darkness.

If you want privacy while in flight, special private compartments can be easily formed by using temporary panels.

At night your sleeping berth is wider and longer than the standard Pullman berth, though it operates in a similar manner, with upper and lower. The upper berth swings down from the ceiling. In daytime the lightweight bedding materials and light-proof privacy curtains are stored in the closed upper berth.

### Like Liberator Bomber

This luxury airliner is similar to the Consolidated Liberator bomber in design. It is typical of the one in which you will fly. With a top speed of 270 miles an hour, and a range of 4,000 miles, some of these planes will carry 52 passengers and baggage over the longest ocean trade-routes without stopping.

It is probable that airline travel will break itself down into five logical types of service. Each type of service will be designed to fill special needs, and will use a different type of plane.

Small 14-passenger Lockheed "Lode-stars" will probably be used for feeder service that stops every 25 to 30 miles to pick up passengers, serving small communities, and taking passengers and cargo to mainline points.

For local service that makes stops every 150 to 200 miles, connecting with feeder lines, 21-passenger Douglas DC-3's may be used.

Larger planes like the Boeing Stratoliner, which carries 33 day passengers and sleeps 25 at night, will be used for limited stop service, connecting major cities and industrial centers.

### Long-distance Flying

The big planes of the future, designed for long-distance, high-speed flying, will be used for international and intercontinental service, flying from London to New York, Los Angeles to Hong Kong, Chicago to Buenos Aires, as well as to and from other world centers in a matter of hours.

Giant "flying box cars" or cargo planes will provide fast, regular service between all major points on the globe.

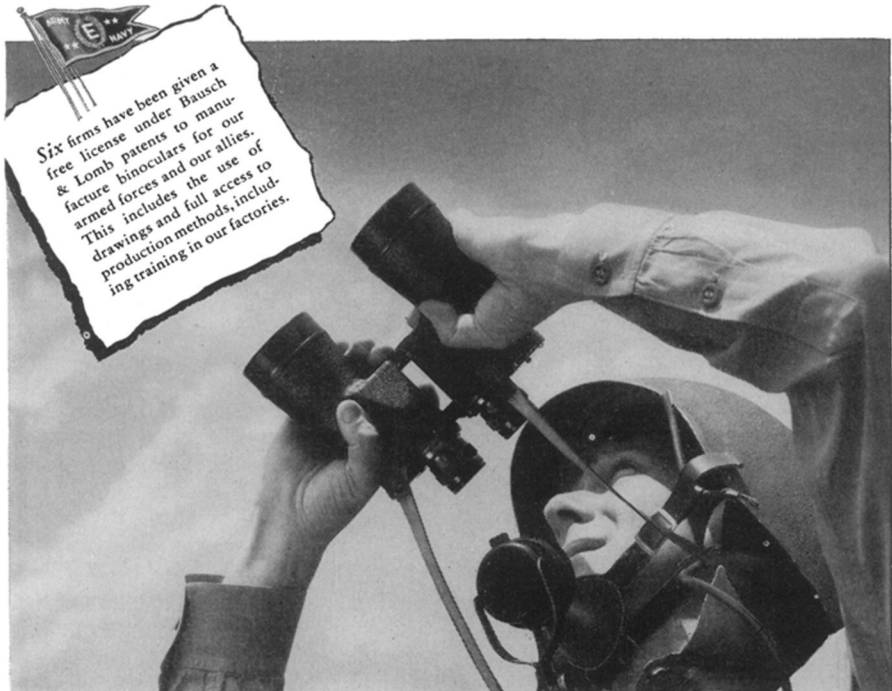
The final objective is a completely integrated air transportation system in which each of the five types of service works with the others.

A ship can drop anchor anywhere it likes, but an airplane needs a suitable landing field. New and better airports will be needed in many communities that are destined to become essential ports of call. Less than 20 per cent of the present airports in the United States can accommodate the big sky giants of the future.

Airports must be built closer to the center of the community, for the convenience of passengers. Today, many cities are separated by a flight of only a few hours, but an hour or more may

be frittered away travelling to and from the airports. Good examples of this are the conditions in St. Louis and Chicago. It takes a person 108 minutes to fly from St. Louis to Chicago, but 110 minutes of travel time are used up in the few miles between airports and downtown business sections.

The question of suitable airport facilities is a big one, and though much thought is being given to the problem by the Civil Aeronautics Administration and other public and private agencies, it may take so long (*Turn to next page*)



Six firms have been given a free license under Bausch & Lomb patents to manufacture binoculars for our armed forces and our allies. This includes the use of drawings and full access to production methods, including training in our factories.

## Experience Shared . . . Production Multiplied

When war came to this nation, even the greatly expanded facilities of Bausch & Lomb could not meet the urgent demands for binoculars as well as the range finders and other military instruments which only this company was equipped to produce. There was a tremendously increased need, too, for optical instruments of the utmost precision for industrial research and control . . . that our fighting men might have fighting tools second to none.

Faced with this situation, Bausch & Lomb at once increased its own binocular production more than twelve hundred per cent and multiplied its effectiveness by making its specifications and production experience available to six other manufacturers.

In addition, the Bausch & Lomb glass

plant makes and supplies the fine optical glass which goes into lenses and prisms not only of the binoculars this company manufactures, but into others as well.

Thus, through the expansion of its glass plant and the sharing of its knowledge and experience in binocular manufacture, Bausch & Lomb is making possible an uninterrupted supply of these optical instruments for America's Armed Forces.

**BAUSCH & LOMB**

OPTICAL CO., ROCHESTER, N. Y.



*Makers of Optical Glass and a Complete Line of Optical Instruments for Military Use, Education, Research, Industry and Eyesight Correction and Conservation*

## Do You Know?

Rice fields in California are planted from *airplanes*.

*Ants* can be controlled indoors by the use of thallium sulfate.

Australia raised 450,000 *turkeys* last season for American soldiers.

*Swordfish*, which sometimes grow to 12 feet in length, are tiny fish about an inch long when first hatched.

*Helicopter service* has been authorized in Mexico by the government to connect remote communities with the country's chief airlines and airports.

*Nicotine* serves an important role in insect control because it has the unique properties of being a contact poison, stomach poison and fumigant.

The recent eruption of *Vesuvius* has put 50,000 acres of farmland out of use for this year and rendered 200,000 acres fit for partial use only.

*Zein*, now produced in commercial quantities, is a protein extracted from corn; dissolved in alcohol, it forms a lacquer-like solution usable as a substitute for shellac.

Ingredients of aviation fuel, synthetic rubber and TNT are quickly determined by a new *optical method* by passing infra-red beams through samples; certain wavelengths are absorbed by various ingredients.

A *mallard duck* in the Philadelphia zoo stole away from her home, hatched a brood of ducklings on the bank of a nearby river, and later proudly marched her new family back to the zoo through the main entrance gate.

Two sprays to control the American dog tick, or *common wood tick*, have been developed by the U. S. Department of Agriculture; one uses nicotine sulfate, the other a three-to-one mixture of sodium fluoride and nicotine sulfate.

*Mexican bananas* may soon become more plentiful in the United States because of two 2,000-ton American vessels chartered to Mexico to carry bananas from Mexican ports to Brownsville, Texas, and general cargo southward.

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to build suitable airports that the post-war air age will be delayed.

The end of the war will bring us a long step nearer the accomplishment of the airplane's real purpose—the rapid transportation of commerce over the face of the globe. No other instrument

ever invented by man has a greater chance of creating international good will. Yesterday we were a world of separate nations, protected by distances that no longer exist and seas that have been narrowed to millponds. Today our nearness makes us all members of the Family of Nations.

*Science News Letter, August 12, 1944*

### AERONAUTICS

## Jet Propulsion for Gliders

May eliminate other methods of launching if it proves practicable. The one big disadvantage is the additional weight of the motor.

► JET PROPULSION motors may eliminate other methods of launching motorless planes or gliders, if this method proves practicable. Such a motor was tried out in conjunction with an address by Zbigniew Krzywoblocki, instructor at the Polytechnic Institute of Brooklyn, at a meeting of the Soaring Society of America in Brooklyn.

Mr. Krzywoblocki stated that successful powder-rocket flights had been performed with gliders as early as 1928 in Germany and in 1931 in Italy. No glider, however, has ever taken to the air with a jet motor.

Jet-propulsion motors might make it possible for gliders to take off from a level hilltop or from flat ground, and for horizontal flight, where no gain in altitude is required, without automobile, plane, or winch towing, or shock-cord launching. One big disadvantage of jet-propulsion motors for gliders is the additional weight of the motor.

The combustion chamber of the jet motor may be placed in the wings, and the fuel tanks may be placed in the wings or fuselage. Mr. Krzywoblocki pointed out that jet propulsion calls for an elaborate installation and is difficult to operate.

Zygmund Fonberg, consulting engineer, built the model jet-propulsion engine demonstrated at the conference. The engine, mounted on a restraining structure to prevent it from "taking off" was actually started and allowed to run for some time.

*Science News Letter, August 12, 1944*

## Gliders Are Valuable

► THE SUCCESSFUL operation of motorless planes or gliders, in the airborne invasion of Normandy, as well

as earlier military operations, has established them as valuable tactical weapons of air warfare, reported Major Eliot F. Noyes, of the Army Air Forces, at the meeting.

"Beyond any doubt, the glider has now been accepted as a tactical weapon of great military importance. Gliders have now been used tactically in a variety of ways, but this is still a new weapon. The extent of its tactical possibilities is not known, and will not be discovered without further use in actual theaters," Major Noyes stated.

Military gliders, he indicated, were designed to carry troops and equipment into battle. The glider is a large container that can land in small unprepared areas in which a transport plane cannot land. It can carry larger loads of men or equipment than can be dropped by parachute. It can be retrieved either loaded or empty.

Most important use of gliders, Maj. Noyes advised, is the airborne attack, as used in the invasions of Crete, Sicily and Normandy. Large numbers of gliders are used, flying probably in darkness or half-light. Such an operation is designed to land troops who will vertically outflank the enemy, seize communications points and disrupt the enemy's rear lines, making it difficult for him to bring up reserves while a ground attack is in progress.

A second important use is the establishment of an airhead behind enemy lines, as was done in Burma by Col. Cochran's Air Commandos. The important difference between this and the Normandy invasion, Maj. Noyes pointed out, lies in the fact that in Burma the airborne force (*Turn to page 110*)