

iciency and involve a responsibility for human life and safety."

Tests after flights will tell how the aviator has stood the strain of service. Repeated tests on the aviator would show when he is becoming incapacitated for service through age or some other cause.

The instrument used was developed

from one devised by Drs. Ferree and Rand during the World War and used for testing army aviators. The test involves a measurement of the speed of vision, the speed of use of the muscles of the eyes in the perfect coordination needed for the clear seeing of a small detail, and the speed of accommodation.

Science News Letter, March 12, 1938

United will not be able to use the ship, however, under the terms of the construction agreement, until Transcontinental and Western Air, American Airlines, Pan American and North American Aviation, Inc., the other four cooperating parties, have also received planes.

Boeing's ship is noted for its advanced streamlined design, adapted for high altitude flying. A number of the Boeing planes have already been ordered by TWA and by Pan-American. Sealed cabins will maintain an air pressure equivalent to that found at 8,000 feet while the plane cruises at an altitude of 20,000 to 25,000 feet over the bad weather below.

Douglas' liner will also be adapted for substratosphere flying, although this was not included in original plans.

Both ships will cruise at a speed of slightly less than 200 miles an hour and will land at speeds in the neighborhood of 65 miles an hour. They are intended for through runs on the transcontinental lanes rather than for local service, for many smaller airports will not be able to accommodate them.

Two striking features mark the DC-4. It will be the first large plane to be equipped with a tricycle landing gear, the third wheel being under the nose. As a result the ship will be in a horizontal position when standing on the ground. It will also be able to land in a smaller space and under less favorable wind circumstances. A second feature will be the triple rudder.

A separate 110 volt power supply on

THREE LAMPS

Three of the series of models in the Buffalo Museum of Science showing the evolution of the arts of lighting and warming dwellings. They might appropriately be titled the Age of Aristotle, the Age of Shakespeare, and the Age of Pasteur.

AVIATION

New Planes Will be Double The Size of Today's Largest

One New Airliner Type, Costing \$1,500,000 to Develop, Will Carry 42 Passengers at Speed of 200 Miles an Hour

AN INFANT aviation industry's wildest dreams of ten years ago are coming to life today in two airplane factories on the Pacific coast, where two land transport planes dwarfing all other landplanes ever built in the United States are rapidly nearing completion.

Today's biggest land transports weigh 24,000 pounds loaded. Tomorrow's—in the shape of the Boeing and Douglas ships now nearing the moment when test pilots will take them off the ground—will weigh 42,000 and 65,000 pounds respectively.

Remarkable for sheer size, the planes will also incorporate novel aeronautical features which will set them apart from the herd of today's planes.

Douglas' 42-passenger giant will have a wingspread of 138 feet. It will stand 24 feet, nearly three stories, off the ground. Sleeping 28 overnight passengers, the ship will be manned by a crew of five. Its engines will develop 5,600 horsepower for the take-off. Tests

will be run with a series of four Pratt and Whitney Twin Hornet engines and later with Wright engines. Ninety-seven feet long, the plane far eclipses in size anything but the largest clipper ships either recently completed or still under construction.

Boeing's 307, which will haul 33 passengers by day and 25 by night under the tutelage of a four-man crew, will weigh 42,000 tons when complete. Seventeen feet high when standing on its landing gear, the Boeing job will have a wingspan of 107 feet and an overall length of 74 feet. Four Wright Cyclone engines will develop 4,400 horsepower.

Douglas' new airliner represents the combined resources of five major airlines and of the company which built the DC-3, most popular skyliner in America. One and a half million dollars will have been spent on its development by the time tests are complete and the first plane is turned over to the United Air Lines, its eventual owners.

