

AERONAUTICS

Largest Wind Tunnel and Towing Channel Finished

New Aircraft Testing Apparatus at Advisory Committee Laboratory Expected to Yield Valuable Information

See Front Cover

AERONAUTIC research took a stride forward when two outstanding pieces of apparatus for testing and improving aircraft—both the largest of their kind in the world—were officially put in operation last week by the National Advisory Committee for Aeronautics at its Langley Memorial Aeronautical Laboratory, Langley Field, Va.

One is a wind tunnel big enough to hold full-sized airplanes between its yawning jaws. The other a seaplane towing channel nearly half a mile long through which a model of a boat hull can be pulled as fast as a mile a minute.

Greater safety while flying and improvements to all forms of aircraft may be expected from experiments and tests that will be conducted with these two new tools of research.

The wind tunnel makes it possible to send a continuous stream of air past full-sized planes at a speed of 115 miles per hour. The jaws, or openings from which the air comes, are thirty feet high and sixty feet wide. The air is driven by two huge propellers out of one jaw, across an open space where the airplane being tested is rigged up and into the other jaw, whence it is sucked into the propellers and sent around the same course again.

Full-Sized Accuracy

It is much more satisfactory to measure the forces on full-sized airplanes, as can be done in this tunnel, than to test small scale models in tunnels that operate under pressure, which has been necessary to a large extent in the past. With the full-sized ship on test there is no chance of getting wrong results because of the reduction in the size of the plane. Exactly the same things happen as if the airplane were actually flying; the difference is that the plane is still and air is moving by it.

Another method which has been used to test models of wings or other airplane parts consists in carrying the part to be tested beneath an airplane in flight with instruments attached to measure its

behavior in the atmosphere through which it is rushing.

The seaplane towing channel is in reality a long narrow lake built to exact dimensions—2,050 feet in length, 24 feet wide and 12 feet deep.

Steel Rails For Carriage

Two steel rails run its entire length over which the towing carriage is driven. The carriage is operated by electric motors on power supplied from an overhead trolley and is capable of a speed of 60 miles an hour. Huge pneumatic rubber tires make it run quietly and smoothly.

The model to be tested is suspended beneath the carriage so that gauges and measuring devices can be readily attached. There is a small area of shallow water at each end of the channel in which the model can be easily attached to the carriage and its position in the water properly adjusted.

The towing channel was designed and its construction was directed by Starr Truscott. Mr. Truscott will be the engineer in charge of the channel when tests are made.

The wind tunnel and the towing channel were formally placed in operation at the Aircraft Engineering Research Conference between executives and engineers of the aviation industry and members of the National Advisory Committee for Aeronautics.

The channel was dedicated by Admiral David W. Taylor, U. S. N., retired, vice-chairman of the National Advisory Committee, who is known for his outstanding achievements in marine architecture. Admiral Taylor was given the John Fitz Medal for 1931, the highest award of the American engineering profession. Dr. Joseph S. Ames, chairman of the Committee and president of Johns Hopkins University, placed the wind tunnel in operation.

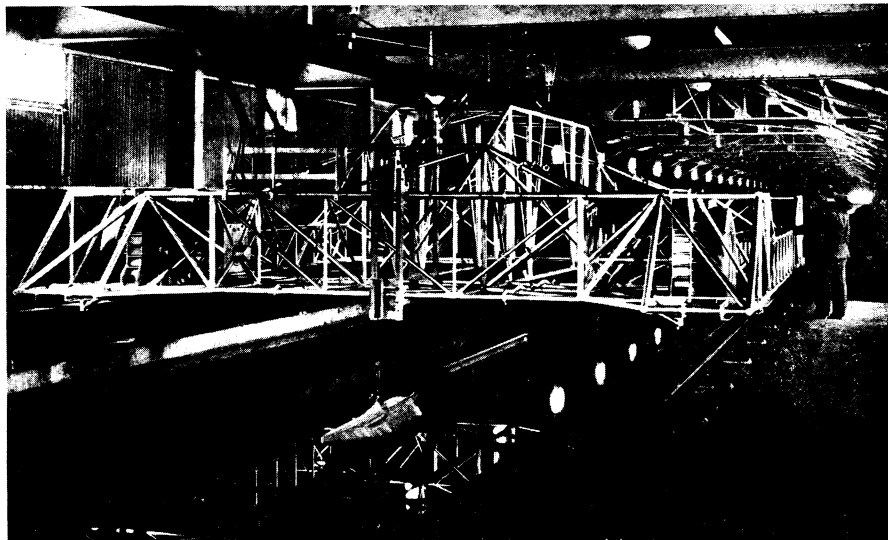
Science News Letter, June 6, 1931

PHYSICS

Rumford Medal Awarded Dr. Karl T. Compton

PRESIDENT Karl T. Compton of the Massachusetts Institute of Technology has been awarded the Rumford medal by the American Academy of Arts and Sciences, Cambridge, in recognition of his researches upon electrons and light waves. The fund providing the medal was established in 1796 by Benjamin Thompson, native of Massachusetts, the physicist who later founded the Royal Institution of Great Britain and became Count Rumford of the Holy Roman Empire.

Science News Letter, June 6, 1931



HALF MILE LONG SEAPLANE TOWING CHANNEL

Where models of seaplane hulls will be pulled through the water at 60 miles an hour so that they can be designed to offer least resistance. The new wind tunnel carrying a full-sized Navy observation plane on its mount is illustrated on the front cover.