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Tunnel

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 was caused by the scale models used in the tests.
 "You could never be sure ... that the results could be accurately scaled up to what you would get in actual flight conditions," Butowsky said.

Building full-sized models was impractical, but engineers knew that if they increased the air pressure in the tunnel they could get more accurate results. Max Munk, a German immigrant, designed the tunnel — a 35-foot long, oval capsule — and Newport News Shipbuilding built it for \$24,500.

"Obviously one of the best investments we ever made," said Paul Holloway, deputy director of NASA Langley. The tunnel led to a "revolutionary break" in the design of wings, he said.
 The agency turned to the shipyard to build the tunnel because of the company's experience in making steam boilers. The tunnel is designed to withstand pressures up to 300 pounds per square inch.

"It's not everyone who can say they transferred technology to NASA," said W.R. Phillips Jr., executive vice president of Newport News Shipbuilding.

Congress created NACA in 1915 and work started on the variable density wind tunnel in 1921.

Work done at the tunnel led to more efficient wing designs that were used in transport planes such as the DC-3, the first commercially viable airliner, and World War II planes such as the P-51 Mustang fighter and B-17 bomber.

Until last year, the tunnel was located in building 528. The tunnel, along with a plaque designating it as a Historic Monument, now sits outside just off Ames Road.

The tunnel's significance not only lies in the aircraft that it helped create, Butowsky said. "Most importantly this wind tunnel established NACA as a technologically competent organization," Butowsky said.

"That's not just a chunk of steel," Butowsky said. "That's a facility that represents the heart and soul of the agency."

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A look at Liberty



Wind tunnel becomes national landmark

70-year-old facility blew away competition

By Kirk Saville
 Daily Press

HAMPTON

A 70-year-old steel vessel, resembling a huge bomb, was called "NASA's most consequential landmark" by a National Park Service historian Thursday.

The 100-ton Variable Density Wind Tunnel was dedicated as a National Historic Landmark in a ceremony at the NASA Langley Research Center.

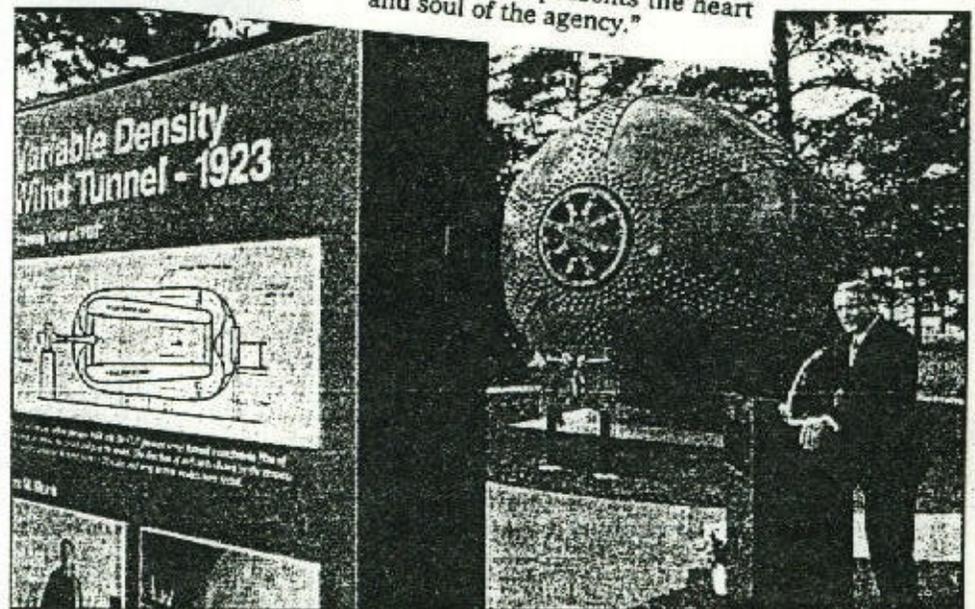
Harry Butowsky, the park service historian, said even though the wind tunnel was obsolete by World War II, it estab-

lished Langley as a world leader in aircraft design.

The tunnel was the "technological quantum jump that rejuvenated the National Advisory Committee on Aeronautics," fore-runner of the National Aeronautics and Space Administration, Butowsky said.

Until 1908, the United States, with the work of the Wright brothers, was the world leader in aircraft production. "By the time of World War I the Europeans were very far ahead of the United States," Butowsky said.

Before the variable density tunnel, engineers had difficulty getting reliable information from wind tunnels. The problem



W.R. Phillips Jr., executive vice president of Newport News Shipbuilding, stands near the Variable Density Wind Tunnel as he speaks at its dedication program. Kenneth Silver/Daily Press