



# Today's News is Tomorrow's History

Help your Society's effort to record and preserve the history of aviation in the Commonwealth. You can help by clipping and sending any newspaper articles relating to your local airport, aviators or related events to the VAHS office. Also welcome are any photos of Virginia airports or anything concerning Virginia aviation history. We will file and scan the information so it will be available on our website.



## **Boeing – The China and Richmond Connection** **by Mark Sternheimer, VAHS Board Member**

The year 2016 marks a major milestone in the history of the Boeing Aircraft Company and they want to celebrate their 100<sup>th</sup> anniversary in a big way.

In 1916 William Boeing wanted to build a trainer aircraft for the US Navy. The war in Europe was about to explode into WWI and Boeing knew that a new training aircraft would help solve the problem of training new Navy fliers. He went to the best engineering school in the country and hired a new Chinese graduate, Wong

Tsu. Wong had just graduated with high honors from MIT and was anxious to prove his worth as an aeronautical engineer. He was the first engineer hired by Boeing and was put to work designing the model C trainer. This design was the first commercial success for the new Boeing Company. The US Navy issued a contract for 50 of the model C-4L-S which was powered by a Hall Scott 100 hp liquid cooled engine.

The serial numbers were C-650 to C-699. Serial number C-700 was kept by Mr. Boeing as his personal aircraft during the early 1920's. Although Wong Tsu left the Boeing Company shortly after he was finished designing the model C, he went on to great renown in his home country. He was known as the father of Chinese aviation and was believed to have designed at least 30 aircraft. He later became Professor of Aviation at Cheng Kung University in Taiwan.

The 50 model C aircraft were delivered to the Navy during 1918 but WWI ended just about the time these aircraft were delivered and the Navy had no need to train a large number of pilots after the war was over. The aircraft were declared surplus and were put up for sale. My dad and his brother had founded a surplus business at the end of WWI and large quantities of government surplus were sold by the US Government at the Intermediate Terminal on the James River, just a few blocks from their warehouse at the end of Lester Street (now Main Street). The 50 surplus aircraft were purchased by their company in 1920 and were sold over the next several years as well as many parts for WWI aircraft. They were sold new in crates and were assembled at their warehouse and a number were flown away from the James River.

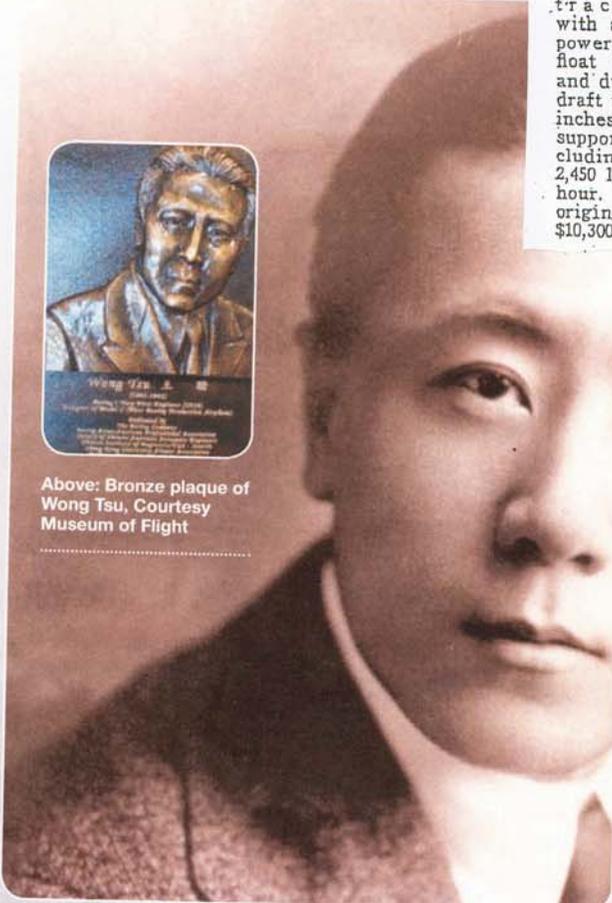
In 2008 we wrote an article for the VAHS Newsletter entitled 'Richmond's First Aircraft Dealer' which gave the history of early aviation in the Richmond area. Several weeks ago we were contacted by the Boeing Company who had seen the article and knew about these 50 model C aircraft which were the first aircraft manufactured by Boeing beginning in 1916.

Boeing advised us that China had become one of their major production areas for their new model 787 transport. In addition they expect China to become one of their major purchasers of new transport aircraft during the next 30 years since they have a booming economy and need many new transport aircraft to fill their needs. As a result they are building a large manufacturing facility in China which they expect to finish in 2016 which marks the 100<sup>th</sup> anniversary of the Boeing Company. In addition they plan to build a replica of the model C in honor of Wong Tsu. This aircraft will be flown throughout China in celebration of their anniversary as well as their indebtedness to Wong Tsu as their first engineer.

Boeing has asked us to find any information regarding these model C airplanes that were sold here in Richmond during the 1920's and early 1930's. They are particularly interested in any original parts that may belong to this aircraft as well as history of how they may have been used after they were purchased.

If any of our members have any knowledge of these aircraft or know of any parts that may have been used please let Jen in the home office know about it and we will advise Boeing. Although Boeing does have a copy of the original drawings for this aircraft nevertheless many of the parts are unusual and applied only to this aircraft. If we are able to help them in any way, Boeing will be very appreciative.

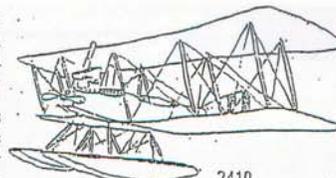
Attached is an article about Wong Tsu and his importance to Chinese aviation.



Above: Bronze plaque of Wong Tsu, Courtesy Museum of Flight

**New Navy Boeing Seaplane.**

The Boeing Seaplane is a tractor biplane, equipped with a Hall-Scott 100 horsepower engine. It is a two-float type with two places and dual wheel controls. The draft when fully loaded is 14 inches. Wing spread 44 feet, supporting surface, including ailerons, is 495 sq. ft. Weight, including instruments and water, is 1,940 lbs., and total weight is 2,450 lbs. Maximum speed, 73 miles; landing speed 46 miles per hour. Only forty (40) of these for sale, so act quick. Are in original crates, and in excellent condition. Cost approximately \$10,300. Price F. O. B. present location.



No. 2410—New Boeing Seaplane with 100 H.P. engine ..... \$2,200.00

Chinese-born Wong Tsu was The Boeing Company's first engineer and helped put the company on a sound footing.

# The 1<sup>ST</sup> ...and the Best

By EVE DUMOVICH

A fledgling Boeing Airplane Company got an industry footing in the early 1900s, due largely to the creative talents of its first engineer – a Chinese graduate of the Massachusetts Institute of Technology.

Wong Tsu, born in Beijing, in 1893, designed Boeing's first mass-produced product – the Model C training seaplane. The airplane went on to become Boeing's first financial success. He also introduced aviation innovations on two continents, and set the stage for Boeing China today. Wong was dedicated to advancing aeronautical science as both an inventor and as an ambassador.

Wong was only 12 years old when he was selected for the Manchu government's Yang-Tai naval academy. Four years later he was one of the first Chinese naval cadets sent to England, where he earned a bachelor's degree in naval architecture and mechanical engineering from Armstrong Technical College. The Chinese government then sent him to the United States and the Massachusetts Institute of Technology to study the new science of aviation.

The MIT aeronautical engineering program was the first

in the country, started in 1914 by Jerome Hunsaker, helped by graduate student Donald Douglas. Its first students also included Navy engineer George Conrad Westervelt, who in 1915 was in Seattle with William Boeing designing the first Boeing plane – the B & W.

Westervelt was stationed back east before it was finished and Boeing formed Pacific Aero Products. He asked Hunsaker to recommend a skilled aviation engineer, and Hunsaker recommended Wong.

"[Wong] is a good man," Hunsaker wrote. "Intends to spend two more years working in this country and wants a chance on aeroplane design and construction."

### Wong meets Westervelt

Wong graduated from MIT in June 1916 and had learned to fly at the Flying Boat School of the Curtiss Co., Buffalo, N.Y. He talked to Westervelt, now aboard the USS *Wyoming* in New York harbor, and then headed to Seattle to work on the Model C, using data from the MIT wind tunnel and research from Gustav Eiffel.

Wong was able to test his theories in the air. According to a Seattle newspaper of the time, William Boeing allowed his em-

ployees to fly the planes they were building.

"Among the most enthusiastic members in the newly established aviation school now being conducted by the Pacific Aero Products Company at the Lake Union testing and trial grounds is a young Chinese, T. Wong ... who in addition to cherishing the ambition to become a proficient birdman, is a mechanical engi-



Boeing and Eddie Hubbard in front of the C-700 with a mail sack.

## The story of the Model C

The Model C seaplane trainer launched Boeing as an airplane manufacturer. It was the first military plane Boeing built and also was the first Boeing plane used to carry the mail. It led to development of the Model 40A mail and passenger biplane, and future success building commercial air transports.

By 1917, World War I was going strong and Josephus Daniels, secretary of the Navy, urged Boeing to hurry production of the Model C. In addition, the Navy needed proof that the Model C planes were as good as Boeing claimed they were.

If they passed tests at the Pensacola, Fla., Naval Base, the Boeing Airplane Company would be in business.

Because the biplanes could not fly that far, two Model Cs were taken apart, packed into crates and shipped by train – accompanied by Claude Berlin, Boeing factory superintendent, and pilot Herb Munter.

They reassembled the little seaplanes at the Navy base where despite 35-mph winds and 4-foot waves, the Model C proved better than anything the Navy fliers had seen. Three months later, Boeing Airplane Company seamstresses and carpenters were rushing to fill an order for 50 Model Cs for a total price of \$575,000.

Boeing began final assembly of the airplane in a shipyard on the Duwamish River he had bought in 1910. By 1918, Model Cs were being manufactured in the timber structure known today as "The Red Barn," later moved to the Museum of Flight in Seattle.

The Army bought two experimental EA models, essentially landplane versions of the C. The Navy ordered one to be modified with a single main pontoon and small auxiliary floats, known as the C-1F. Boeing built another Model C for himself as the C-700. On March 3, 1919, Boeing and Eddie Hubbard made the first international airmail delivery to the United States when they used the C-700 to carry 60 letters from Vancouver, British Columbia, to Seattle. All 56 Model C-type aircraft were built between 1916 and 1918.

neer and draughtsman," the reporter wrote.

The Model C first flew on Nov. 5, 1916. It was the second airplane designed by the new company but was designated the C-4 because it was the fourth airplane owned by William Boeing. An improved Model C, with a bigger rudder, made its first flight April 9, 1917. Two weeks later, Boeing changed the name of Pacific Aero Products to Boeing Airplane Company.

On May 22, 1917, a month after President Woodrow Wilson declared war on Germany, Boeing issued Wong a check for \$50.77 for "payment in full for services rendered." Wong went back to China where he started the first Chinese airplane factory in an old engineering works at Foo Chow.

Conrad Westervelt wrote: "When he [Wong] returns to China ... he will of course be one of the few men in that country fluent in aviation matters and I would look forward to the possibilities of some business in that country through him."

By 1918, Wong was building the first Chinese floatplanes at a shipyard in Mah-Wei, including the Sea Eagle and the River Bird. During the next decade, Wong produced dozens of aircraft there, helping to establish China's aircraft manufacturing business.

## Building Sino-American relationships

Westervelt's words proved prophetic.

In 1928, Westervelt went to Shanghai as a representative of the Curtiss Wright Corporation, working with the Chinese government to found the China National Aviation Corporation (CNAC), and inaugurate commercial air service in China. He selected Wong to be chief engineer in charge of CNAC services and maintenance operations.

By 1934, Wong, now a Lieutenant Colonel, became the first general manager of the Central Hang Zhou Aircraft Company, building Curtiss Hawk pursuit planes and Douglas observation planes.

In that capacity, Wong visited the Boeing Company in Seattle, the Douglas Aircraft Company in California, and the Boeing School of Aeronautics in Oakland, Calif. There is also a record of him visiting the Stearman Aircraft Company in Wichita, Kan. Wellwood Beall, Boeing sales representative to China in 1935, recorded friendly meetings with Colonel Wong Tsu.

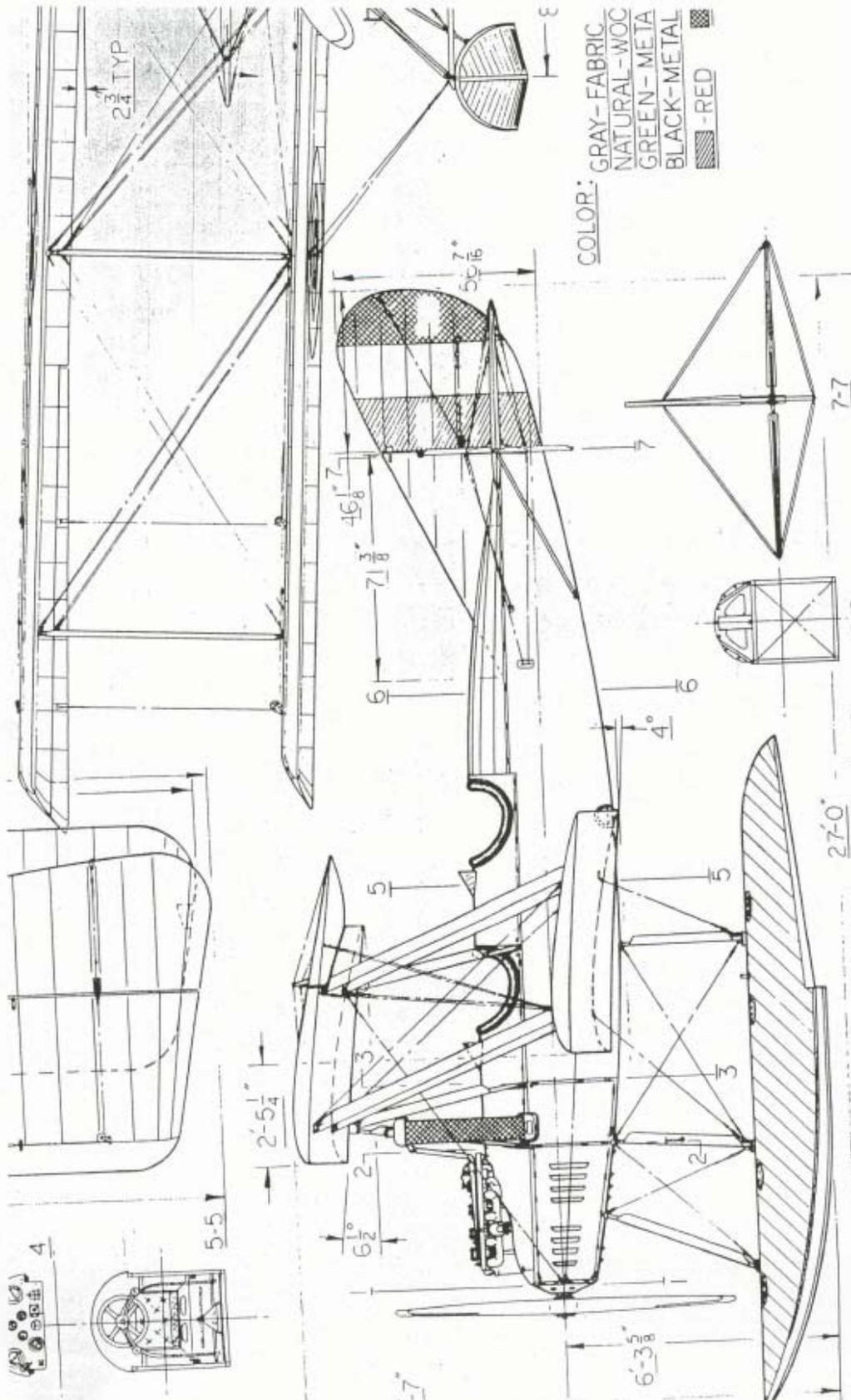
## Innovations during wartime

In 1938, when the Japanese invaded the Chinese coastline, Wong's factory moved inland – first to Wuhan and then to Kunming. In 1940, Wong established the Chinese Bureau of Aeronautical Research (later the Aviation Industry Development Center).

During World War II, it was hard to get materials to Chinese airplanes built inland, so Wong designed and built a unique troop-carrying glider made out of bamboo. By the war's end in 1945, Wong headed the Aviation Research Academy in China. He spent his last decade teaching aviation engineering at the National Cheng-Kung University. He died on March 4, 1965 in Tainan, Taiwan.

His legacy lives on around the world. Wong's accomplishments are documented in a display at The Museum of Flight in Seattle and at the Boeing Historical Archives.

His bronze portrait at the Museum of Flight was sponsored by The Boeing Company, the Boeing Asian American Professional Association, the Society of Chinese American Aerospace Engineers, the Chinese Institute of Engineers /USA-Seattle, the Cheng Kung University Alumni Association and the Beihang University Alumni Association. ■



COLOR:  
 GRAY - FABRIC  
 NATURAL - WOOD  
 GREEN - METAL  
 BLACK - METAL  
 [Hatched Box] - RED

SCALE (FEET): 0 1 2 3 4 5 6 7 8 9 10 11 12  
 27'-0" SCALE: 1/8"

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 J. A. MERRITT, JR.