

Whitehead No. 21 Monoplane

By KEN JOHNSON . . . An interesting scale model, as the original may have flown before the Wright Brother's aircraft. Lesson: If you're ever the first to do something historical, be sure someone takes pictures!

• Did Gustave Whitehead and his #21 monoplane truly fly on August 14, 1901? This date was over 2 years before the Wright brothers flew at Kittyhawk.

This question prompted me to read the article on Whitehead in the November 1968 issue of American Aircraft Modeler magazine.

According to this AAM write-up, there were numerous eyewitnesses who related seeing Whitehead in #21 fly for up to 1/2 mile in distance.

The Wright's flight was 122 feet in length.

While working in Dayton, Ohio, in 1975, I was a contestant in a paper airplane contest held in the convention center. This building has two marble pillars in the lobby, marking the distance of the Kittyhawk flight. The contestants in the contest stood on a low platform at the one pillar and flew their paper gliders toward the other pillar. The winning flight went past the 122 ft. marker and struck the wall a good 30 ft. behind it.

The reason the Kittyhawk flight was recognized as the first powered flight was that a local photographer snapped that famous picture we all know, with the airplane about 4 ft. off the ground. A helper in black suit and cap is standing near one wingtip.

Unfortunately there were NO photos of the Whitehead aircraft. Just accounts from eight eyewitnesses who saw #21 fly.

A friend of the Whitehead family, Miss Stella Randolph, wrote a book about Mr. Whitehead and his experiments with airplanes and engines. This work is titled "Before the Wrights Flew," and was published by G. Putnam's & Sons, in 1966. I found the book in my public library. Many photos and accounts of the planes can be found there. A second book by Miss Randolph is titled "The Lost Flights of Gustave Whitehead."

The AAM article contains an excellent three-view drawing of #21 by Bjorn Karlstrom.

Note: There is no intent herein to discredit the achievements of the Wright brothers, but to simply show a comparison with Mr. Whitehead.

This airplane intrigued me personally for several reasons:

- ★ It had folding wings and tail.
- ★ The craft stood on four wheels.
- ★ The pilot was partially enclosed within the fuselage.
- ★ The two counter-rotating propellers were driven by one steam engine located in the front of the fuselage.
- ★ #21 could come down on the water, since the body of the plane was boat shaped.
- ★ To turn the craft, Mr. Whitehead stood up and pulled on the wires which

supported the wings. This amounted to wing warping and the resulting drag made the plane turn.

As I studied the three-view, I wondered if it would fly with no vertical fin. #21 had none. And how would I make a rubber powered model of it with one rubber band driving two propellers?

The plan was drawn up to a span of 22 inches and construction began. The rubber motor was enclosed in the fuselage, with a two-pulley arrangement forward of the front hook. The propellers each had a pulley just behind which connected to the motor hook pulley by a tied length of thin thread. The model was covered with condenser paper.

The wing structure was made of what appears to be tapered bamboo poles connected at the root and fanning out toward the tip of each wing. To simulate this in the model, 1/16 sq. balsa strips were sanded round and tapered smaller toward the tips. This is accomplished by holding a small square of sandpaper (folded over) in one hand and spinning the strip of wood around through the sandpaper and drawing it back and forth simultaneously. The wood poles are coated with yellow marker and the joints marked with a thin brown ring.

Test flights on the completed model revealed that the pulley arrangement was inefficient and much power was lost with this type of drive train. The model flew in a straight line but wandered slightly from side to side. I concluded the reason being the absence of a vertical fin. This first model was set aside and eventually given to a friend when my family moved to California.

The second Whitehead model was built to the 13 inch Peanut size for the Model Builder Peanut Proxy Contest held in Long Beach, Ca. in 1978. The new craft was different in that it is used a separate rubber motor for each propeller. Rear hooks were located on the top of the stab on each side. The model was covered with white Japanese tissue, and this time a scale-looking vertical fin was added.

The performance was much improved. The model was proxy flown by Curtis Mooney, using another modeler to help with winding. The Peanut Whitehead flew for 17 seconds. WOW! Not very high time. But I considered this model a success because it did fly. To my mind, this proved that Gustave Whitehead's airplane would indeed fly through the air, in contradiction to the beliefs of some aeronautical experts who stated that the design was not airworthy.

Now we come to the model featured in this article. While searching for a subject for an upcoming Flightmasters multi-engine contest, I turned again to the #21. The plan were drawn to a wingspan of 40 inches this time. The

aircraft was finished the day before the meeting, which is rather typical for me, or so say my friends. No time for test flying.

Next morning, the model was lifted from my car trunk and two motors were made up and slightly lubed. Almost immediately a bearded gentleman appeared and offered his help. "My name is Paul Steel, and I'm a Whitehead #21 fan." Paul realized that winding this airplane was a two-man job and he was willing to spend some time with me to see that the trim was right and that I got my flights in early, before the winds came up.

The writer held both props while Paul Steel wound one motor frontward, attached it to its stab hook, then wound the other motor backwards and attached it. After both motors were in place, Paul would come around to the front and hold one prop as I moved around heading the same way the model was heading and underneath it. The launch position was to have the tip of one prop blade in each hand and the #21 over my head and slightly forward. At launch, the prop blades were pushed forward softly and the fingers released quickly so as not to tear off the blades.

With Paul Steel's help I was able to get the time up to 25 seconds from a hand launch. The Whitehead won the meet. One ROG was attempted, but the time was about 15 seconds. And since hand launch was legal, we stuck with it.

One problem noted during winding was that the the stab would give as the first motor was attached to its rear hook. This warned us that using heavier motors might destroy the tail of the model because of the lateral force exerted in the stab area. I feel that using bamboo support rods under the stab would allow bigger motors and higher, longer flights.

Note: Several months after the above mentioned contest, Mr. Paul Steel was killed in a fall from the balcony of his condominium.

The Whitehead was flown again recently at a meet which offered a Paul Steel Memorial Trophy for the most unusual model to put in a qualifying flight. I was most happy to win this award, since the last time the Whitehead flew, it was with the help of Paul Steel. This trophy means more to me than any other I own.

This model project is not for everyone. It is only recommended for the adventurous builder. It won't fly the highest, it won't fly the longest, but it sure is a challenge. If you want a museum piece, why not try it?

CONSTRUCTION.
Begin with the fuselage. It is built in the standard fashion, using 1/8 sq. medium balsa throughout. Note the construction used on the fuselage