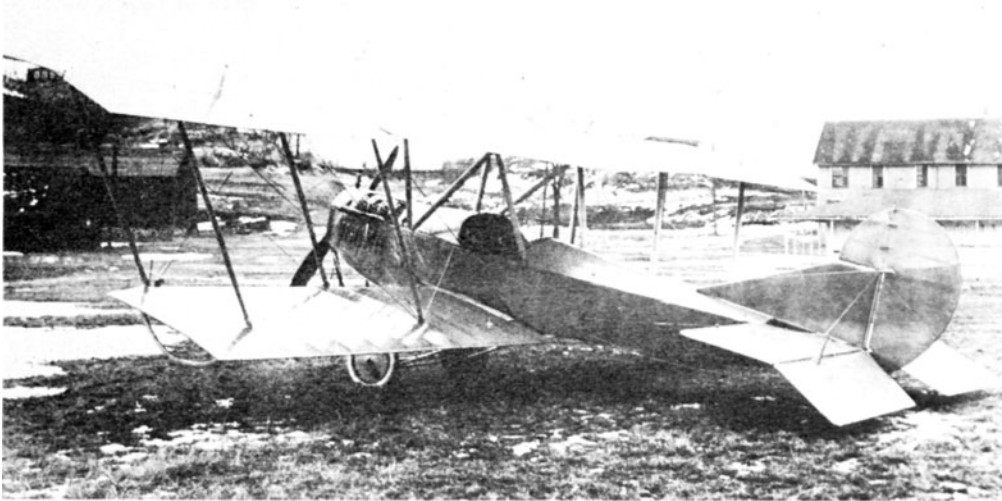


The Burgess Story

Part 5

1917 - 1918

By BARTLETT GOULD



The Burgess Trainer, Type B.P. Six were ordered by the Signal Corps in 1916, not a successful type for the period in view of the increasing war activity. (Photo - Mrs. Helen B. Bolster)

This is the concluding portion of The Burgess Story, begun by Bartlett Gould in the JOURNAL, Volume 10, Number 2, (Summer, 1965).

During the fall of 1916 W. Starling Burgess designed a side-by-side tractor trainer, the Type B.P., and an order for six was received from the U. S. Army on November 1. Work on the prototype proceeded throughout the balance of the year and it was taken to the old Saugus racetrack for testing early in February, 1917.

One of the interesting features of the B.P. was the tricycle landing gear, which does not show in the photo. The third wheel, hidden here by the lower wing panel, was full size but rigidly mounted with the intention of providing all the benefits of a skid without the disadvantages. Early trainers were often equipped with a skid or two out front to prevent enthusiastic students from nosing over, but, as Grover Loening pointed out, in *Our Wings Grow Faster*, the skids were so easily damaged that they caused more accidents than they prevented. Hence, the front wheel. However, it should be emphasized that it was there as a safeguard only, and a three-point landing with the Type B. P. meant two wheels and the tailskid.

Another unusual feature of the B. P. was the interplane struts, which were not only staggered, but splayed outward which made them appear as the spokes of a wheel whose hub was located a short distance beneath the landing gear.

It was found necessary to make the fuselage only a little wider than customary to allow room for the double Deperdussin controls. Power was a 90 h.p. Curtiss OX-2.

Some accounts give Elwood "Gink" Doherty credit for the test work on the new biplane, while others say the job was done by Clifford L. Webster. Very likely they both flew it. It seems probable there were a number of bugs to be removed, as T. A. Hodgdon, who as a boy saw the Type B. P. fly on many occasions, is quite sure that at one time the wings had to be removed for alterations. At any rate it was not until early May, 1917, that the first two were delivered to the Army. Two more

were delivered in June, then one each in September and October. They were given serial numbers 271-276 inclusive.

Once delivered, the B. P.'s slid quietly into obscurity. Just why, it is difficult to say. Robert B. Casari notes that a year later (February, 1918) Lieutenant Colonel V. E. Clark reported that the planes had been delivered, but had never passed acceptance tests. Too, the six planes were originally scheduled to be delivered by January of 1917. The long delay could have caused the Army to lose interest, especially as the Curtiss JN-4's were working out satisfactorily anyway. Mr. Casari notes that one of the B. P.'s was sent to McCook Field, and from there to the mechanics school at St. Paul. Very likely the other five were utilized in similar fashion.

While the Type B. P. had been progressing through its several stages Starling Burgess was concurrently designing a large twin-engined hydroaeroplane and on 9 December 1916, the U. S. Army ordered thirty-two of these for coastal patrol and observation work, at a price of \$21,422 apiece. The first of this model was scheduled to be delivered by 1 March 1917.

In anticipation of a considerable volume of business the Burgess Company arranged to enlarge their plant by 32,000 square feet. However, by the time the March 1 deadline rolled around the twin hydro was still unfinished and when, in April, the United States formally entered World War I the Army apparently decided they had no particular need for thirty-two twin-engined hydroaeroplanes. Besides, the Burgess facilities were urgently needed for Navy work. So early in July the contract was cancelled, one of the cancellation terms being to place an order for a single twin hydro with Sturtevant 5A engines. The completed seaplane was delivered in late August, 1917 at a price of \$26,822.

Where or even if the Army used their twin hydro remains a mystery. It was a rather peculiar airplane in that in spite of its size - the span of the top wing was 72 feet - and the two engines giving a total of 300 h.p., it was two-place only with the pilot in the rear and an observer or machine-gun operator, as the case might be, out front. And, as

top speed was 78 m.p.h. and climb an unhurried 350 f.p.m. it would seem that the machine gunner would have ample time to admire the view. The performance could hardly be described as thrilling but of course the floats were pretty big and it did carry enough fuel for an eight hour flight.

On 17 November 1916, a communication was sent to the airplane builders of the United States advising them of the U. S. Navy's need for a single-place seaplane with a top speed of at least 95 m.p.h., fuel for 2-1/2 hours and a span not to exceed 28 feet. It was admitted that to meet these specifications an air-cooled engine might be required, but the Navy had reason to expect that Gnomes, although not available at the moment, might soon be.

The HT-B and the HT-2, turned out by Starling Burgess in response to the communication, were apparently the last true Burgess designs to be completed.

The first of the type was demonstrated to the Navy Department on 19 May 1917. It was unusual in appearance - a sesquiplane with short floats equipped with shock absorbers, and distinctive fabric-covered K struts set at a pronounced slope. With Gnome engines still unavailable power was supplied by the much heavier Curtiss OXX-2 which considerably reduced the performance. High speed was no better than 85 m.p.h. and landing speed was 57. Further, the fuel supply had been cut down to two hours.

In spite of these shortcomings the Navy Department felt the plane had excellent qualities. They were especially pleased at its handling, both on

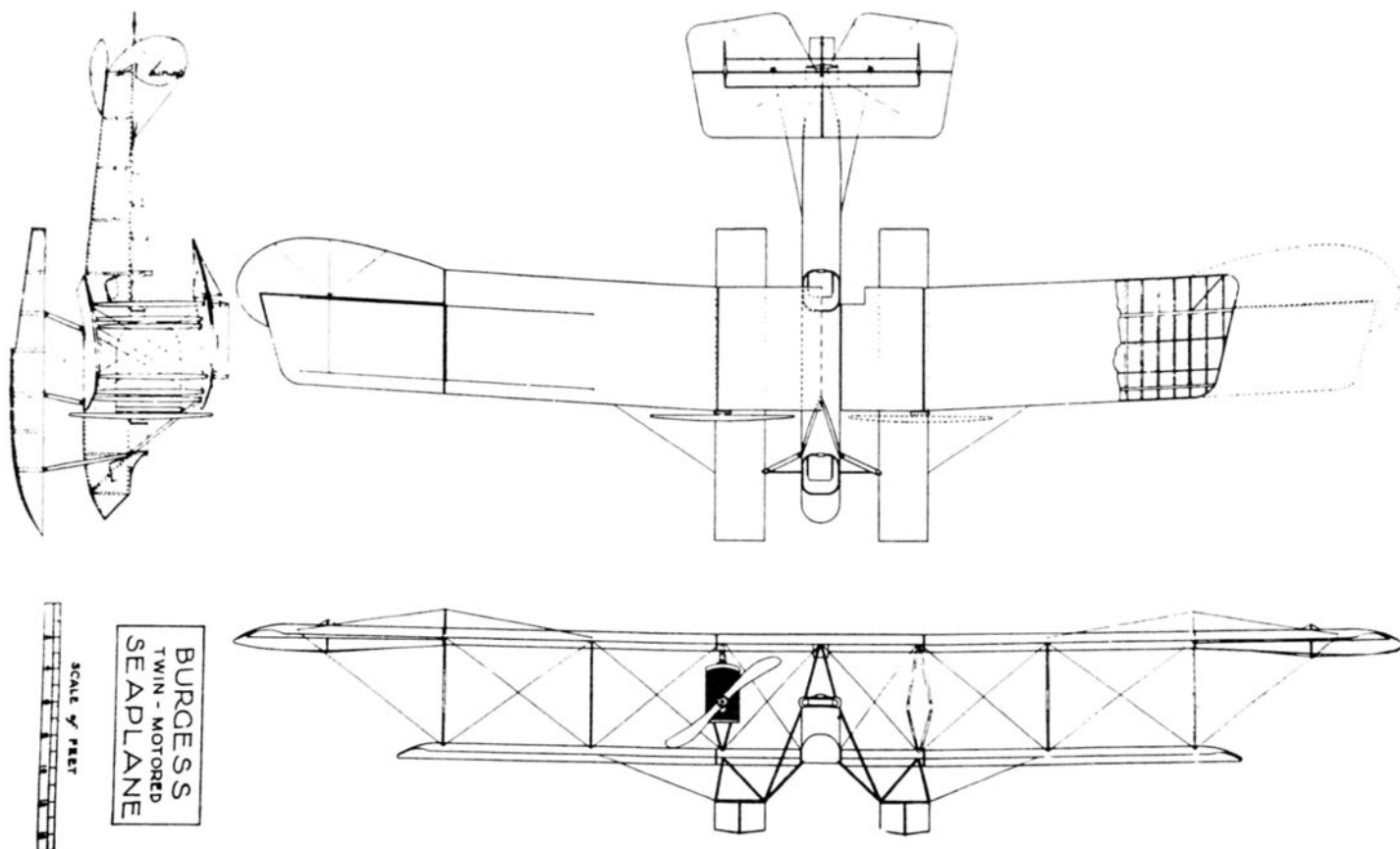
the water and in the air. The shock absorbers attached to the floats came in for appreciative comment and they also approved of the manner in which Starling Burgess had arranged the wing tips to fold back, reducing the span to 22 feet and so allowing the plane to be stored aboard ship with a minimum of waste space.

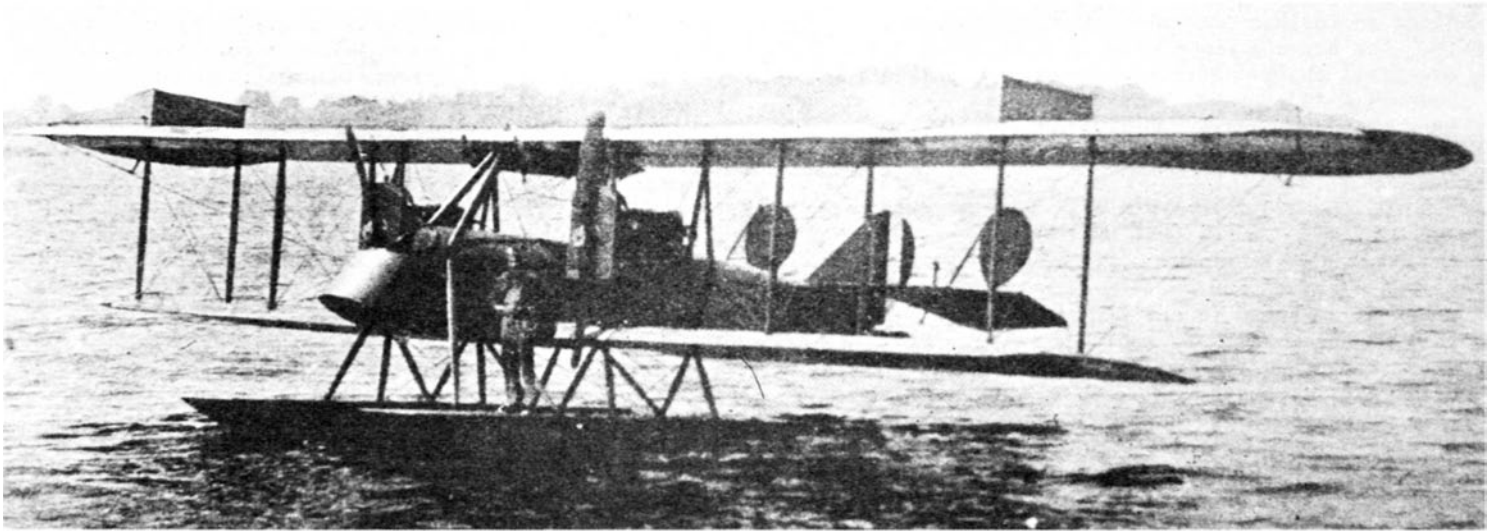
The Department did call attention to what they felt was evidence of hasty construction and unnecessarily heavy fittings. They suggested a number of minor alterations and ordered six planes, although the original order was apparently changed later.

A good part of the summer was spent in testing and refining the Speed Scout, with "Gink" Doherty flying. It is clear that there were two final versions: a consultation of the Navy Record of Acceptances and the Bureau of Construction and Repair Monthly Progress Report indicates that the first Type HT-B was delivered to Squantum on September 11, and the next to Pensacola during October.

They were designated A-155 and 156. Six more Speed Scouts, Type HT-2 were delivered later on in the same year and designated A-374-379.

In late August the Burgess Company sent a letter to the Bureau of Construction and Repair bringing up the matter of the Burgess Dunnes A-54, 55 and 56. In 1915, when the first model was being demonstrated by Cliff Webster, he discovered it was seriously unstable in a dive. Since then the trouble had been corrected but a great deal of other work remained to be done. For one thing, all three machines required new pontoons. As it was obvious the Navy had no need for the Dunnes now, the Burgess Company proposed to settle for less than cost. It





Burgess Twin-Hydro. 32 Ordered in 1916, one built, balance cancelled after U.S. entry in WWI.

is likely that this procedure was followed; at any rate, these Burgess-Dunnes never went into active service.

After the United States entered the war things happened fast in the aircraft industry and to those pilots, designers, engineers, mechanics and other workers who had been building it up. In May, Webster left the Burgess Company to take active duty in the Naval Reserve. He was commissioned an ensign, becoming Naval Aviator Number 112-1/2. (The fractional number was not unusual - seniority was important, and in the scramble numbers were often assigned wrongly and had to be straightened out later by the use of fractions or letters.) At first Webster served as a flight instructor, then went abroad and ferried from England to France.

On May 5 Burgess accepted a commission as Captain in the Aviation Section, Signal Officers Reserve Corps of the Army. For some reason or other he evidently regretted this action very soon, for he resigned the commission in short order and the resignation was accepted by the Army on July 6.

It was also during May that Frank H. Russell was made president of the Aircraft Manufacturers Association. Of direct interest to the Burgess Company, now a subsidiary of Curtiss, was the announcement that John North Willys of Willys-Overland had become president of the Curtiss Aeroplane and Motor Company. C. M. Keys explained that the move was made to combine the engineering acumen of Curtiss with the manufacturing skills of Willys.

In late fall "Gink" Doherty resigned from the Burgess Company to become an instructor for the Navy and, eventually, Commanding Officer of the Anacostia Naval Station at Washington, D. C.

And then on 11 December 1917, an era came to an end when W. Starling Burgess received a telegram advising him he had been commissioned a Lieutenant Commander in the U. S. Navy, assigned to duty in Washington. He reported on December 15, and was put in charge of aircraft design for the Bureau of Construction and Repair. His wife, a well-known portrait painter who signed her work "Rosamond Tudor" went with him and later on, in 1918, enlisted her talents in the war effort by joining the Camouflage Section of the Navy as a civilian employee.

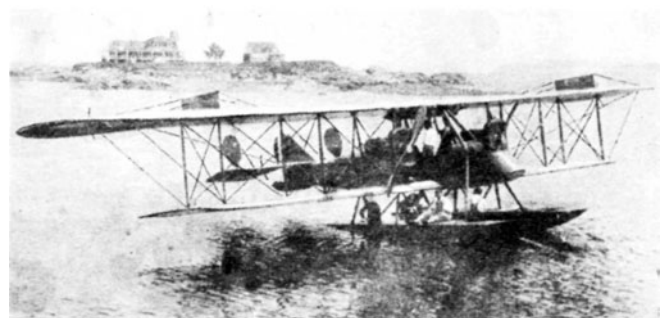
When Starling Burgess left for Washington he severed all business ties, resigning as president of the Burgess Company, and also from the Board of Directors of the Curtiss Aeroplane and Motor Corporation. His departure from the Burgess "Division" of Curtiss left a void that could not be filled, and a statement was issued to the effect that, although the Burgess Company would continue with naval aircraft construction, there would be no more original designs or experimental work undertaken at the Marblehead plant.

Back in 1916 the Burgess Company had produced the Model U, a single-float, two-place tandem tractor with Deperdussin control. Now, with only slight modifications specified, the Navy ordered six of these. Called Model U-2, the new trainers were delivered during 1918 and given the designating numbers A-380 to 385. Although the original model U had used a Curtiss OXX-2, the U-2s were equipped with Hall-Scott 100 h.p. engines.

From December of 1917 till the end of the war the Burgess Company was kept busy manufacturing just four products: the U-2s mentioned above, hulls for Curtiss flying boats, the Curtiss N-9s and cars for Model C pressure airships.

Since 1916 the Curtiss Aeroplane and Motor Corporation had utilized the Burgess facilities for manufacturing hulls for Curtiss flying boats. It is not unreasonable to assume that Starling Burgess, an outstanding authority on water craft, would have made contributions to the design of these hulls, but

Burgess Twin-Hydro with 150 hp Sturtevant 5A engines,



that is conjecture. At any rate, this hull work related to Curtiss orders and Curtiss designs.

The Burgess Company built a total of 360 N-9s. The first thirty, receiving the Navy designating numbers A-409 to 438, were delivered during 1918 as were the next thirty, designated A-999 to 1028. All sixty were equipped with 100 h.p. Curtiss OXX-6 engines.

Of the 300 more N-9s, most were powered by 150 h.p. Hisso motors, in which case they were called N-9II. They were given the designating numbers A-2351 to 2650 but the date of delivery is unknown, although it seems probable that the greater part of the order was completed before 1919. An order for an additional 1200 N-9s was cancelled after the war ended.

Starting in the summer of 1918 the Burgess Company manufactured ten twin-engined dirigible cars for Navy C-type pressure airships. These cars were boat-shaped affairs about forty feet long and five feet deep. Including the engines their width was fifteen feet. There was room for a crew of five men, and the cars were powered by either two 8 cylinder 150 hp Hispano Suizas or two 6 cylinder 150 hp Union Motors. The Burgess Company had nothing whatever to do with the manufacture of the envelopes, six of which were manufactured by Goodyear and the balance by Goodrich. The dirigibles were numbered C-1 to C-10 inclusive.

These small airships had an honorable history. C-1 made its first flight the last day of September and on 12 December 1918 it became the first non-rigid to launch an airplane in flight when, piloted by Lieutenant George Crompton, it carried an Army JN-4 to 2,500 feet over Fort Tilden, New York and released it. The plane was piloted by Lieutenant A. W. Redfield, USA.

In February, 1919, the C-3 demonstrated in-flight

refueling at sea, from a submarine chaser. In 1921 the C-7 became the first airship of any type to be inflated with helium. And, with an Army crew, the C-2 made the first transcontinental flight by an airship.

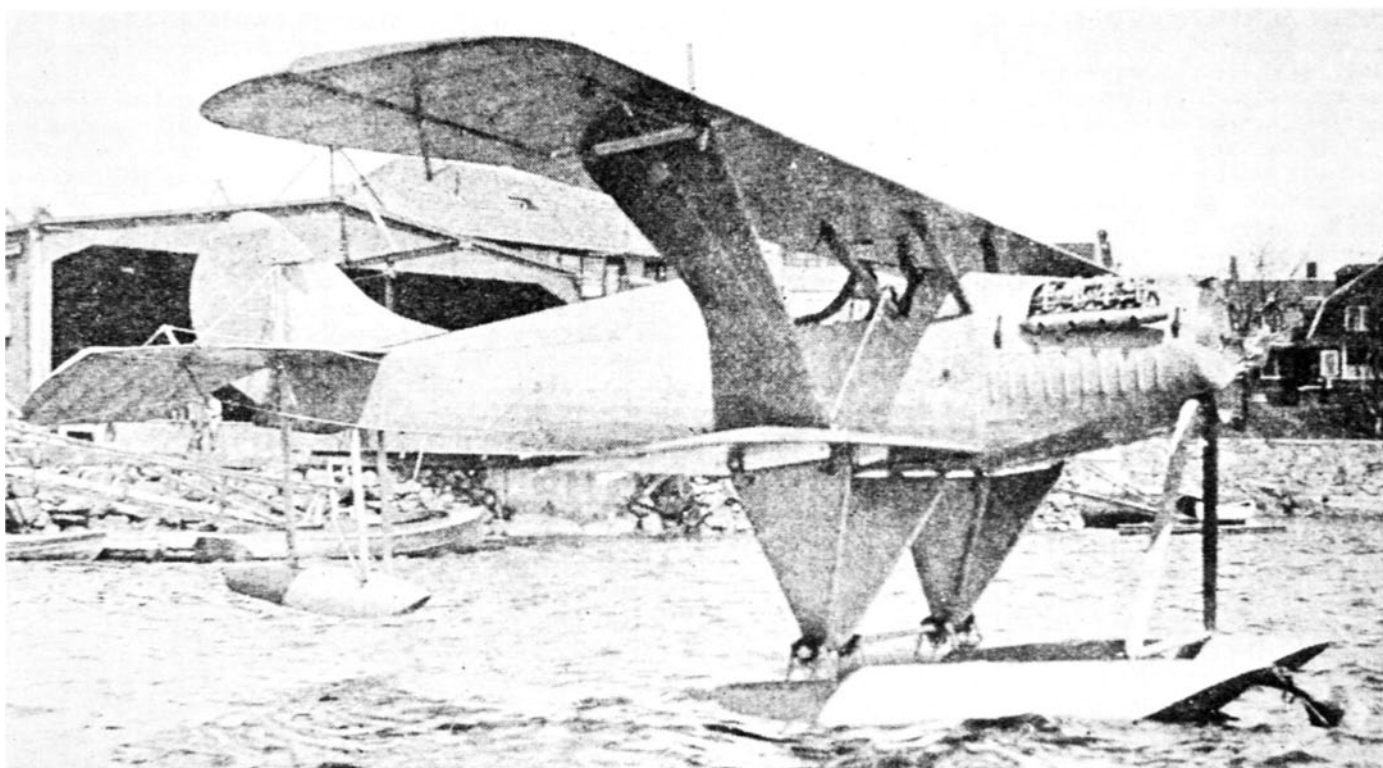
During the fall of 1918 the war was obviously drawing to a close. What plans were being made for the Burgess Company (usually referred to as their Burgess division by the Curtiss Corporation) we shall probably never know. For on November 7, the night of the false armistice, a fire swept Burgess Plant #2 and the loss, including some thirty flying boat hulls, was total. The plant was fully insured and the estimated damage varied from \$250,000 to \$500,000 depending upon what paper you read.

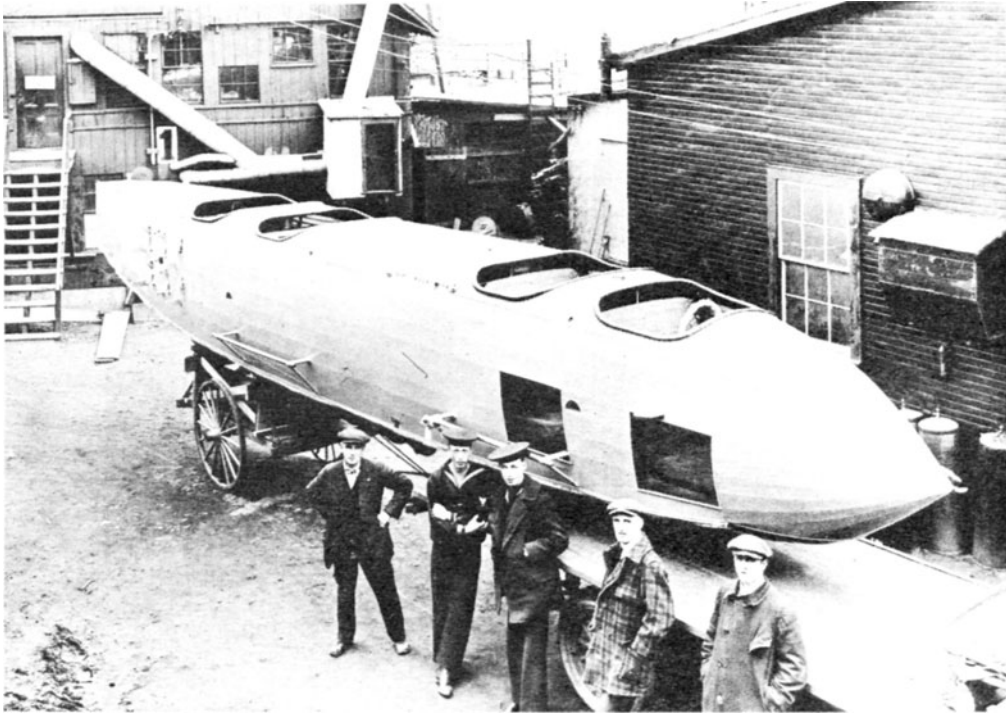
The fire, along with the real armistice a few days later, marked the end of the Burgess Company. The last of the dirigible cars and the N-9s were completed in Plant #1. In a few weeks it was all over. Frank H. Russell went to the Curtiss Corporation as vice-president and general manager. Greely S. Curtis joined the engineering staff of General Electric and the rest of the 500-odd workers drew their last salary checks from the Burgess Company and went their various ways.

NOTES ON BURGESS AIRCRAFT

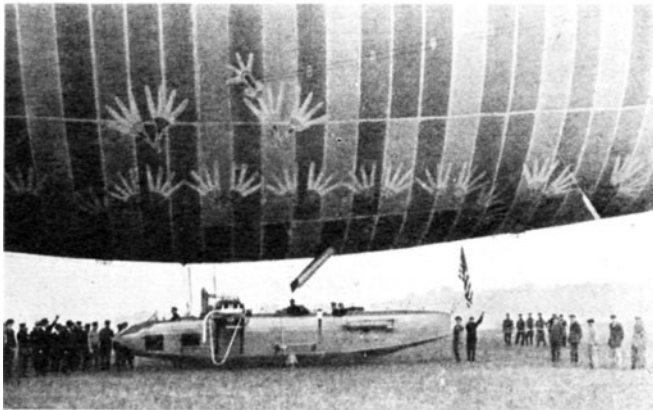
Aerial Age, Volume 5, No. 7 (April 30, 1917) pp. 218-219 carried a descriptive article with two photos and a 3-view drawing of the Burgess Primary Training Tractor Thr B. P. It was designed by Starling Burgess apparently at the request or suggestion of the U. S. Army. Upper wing span was 41 ft. 6 in. Lower wing span was 34 ft. Chord was 6 ft. 6 in. and gap was 6 ft. Wing curve was R.A.F.3. Horizontal stabilizer was 14 ft. x 3 ft. 6 in. Elevators were 15 ft. 5 in. x 2 ft. 6 in. All three

Last of the Starling Burgess designs, the HT-2, beset with performance difficulties because of low power.





The Burgess Company was a constructor of "C" Class airship cars for the Navy. These small airships, Navy designations C-1 through C-10, served as anti-submarine patrol aircraft and in a wide variety of other ways,



"C" Class dirigible car attached to Goodyear— or Goodrich-made envelope at splayed finger patterns.

wheels were 26 in. disc with 3 in. tires. The two rear wheels only had shock absorbers. The propeller was two-bladed, 7 ft. 9 in., and driven directly by the Curtiss OX-2 engine.

Aerial Age, Volume 5, No. 25 (September 3, 1917) pp. 920-921 had a descriptive article with two photos and a 3-view drawing of the Burgess twin-engined hydroaeroplane. Span for the upper wing was 72 ft.; for the lower wing, 51 ft. 9 in. Chord for both was 7 ft. 7 in., and the gap 6 ft. 11 in. Length over all was 32 ft., 5 in. The horizontal stabilizer was 16 ft. across the trailing edge and the elevators measured 16 ft. 8-1/2 in. from tip to tip. The central vertical fin was 3 ft. 2 in. high and the rudder 2 ft. 3 in. wide. There were two additional balanced rudders on each side 6 ft. from the fin.

The centers of the two floats were 10 ft. apart, and each float was 2 ft. in overall depth, 3 ft.

Below - The Burgess so-called "high speed scout", the HT-2, built for the Navy in 1917



wide and 19 ft. 1-1/2 in. long. The tail float was 4 ft. 8 in. long.

The motors were 8-cylinder water cooled Sturtevant 5As rated at 150 hp. Propellers were contra-rotating and 8 ft. 10 in. in diameter, driven through reducing gears. Gross weight was given as 5,380 lbs. and the speed range as 78-45 mph.

The Army serial number of the single Twin Hydro finally delivered was 332, and the s/ns of the cancelled airplanes ran from 333 to 363 inclusive.

Aerial Age, Vol. 5, No. 23 (August 20, 1917) pp. 828-829 carried a descriptive article with three photos and a 3-view drawing of the Speed Scout Type HT-2. The span was 34 ft. 4 in. for the top wing, 21 ft. 6 in. for the lower. Chord for both was given as 3 ft. 6 in. and the gap as 4 ft. Overall length was 22 ft. 3 in.

The K-shaped struts were formed from an X-strut with an additional member in front. The main floats were 11 ft. long and were spaced 6 ft. 6 in. apart, center to center. The shock absorbers not only eliminated a good deal of porpoising but also allowed for some pretty hard landings.

Deperdussin control was used. The propeller was of special design, 7 ft. 9 in. in diameter and driven by a Curtiss OXX-2. *Aerial Age* credits the Burgess Speed Scout with a high speed of 95 mph but this figure should not be accepted as necessarily accurate.

From the descriptions there is reason to conclude that the HT-Bs and the HT-2s were very similar, if not identical. A possible difference may have been in the span: In a letter to the Chief Constructor, Assistant Naval Constructor J. G. Hunsaker refers to the original HT-B as having a span of 28 feet, while the *Aerial Age* description of the HT-2 gives the span as 34 ft. 4 in.

The actual dimensions of the Burgess Type U-2 are not available. The *Aircraft Year Book* for 1919 says simply that it was the Model U with but slight modifications. A photo shows at least two obvious modifications: two skid fins are mounted on the top wing and there is a great deal of celluloid or other transparent material used around the cockpit. As in the Model U, Dep control is used, but the rudder was altered.

Taking the *Yearbook's* statement as substantially true, we can say that the dimensions of the U-2 would be roughly as follows: Span of top wing: 47 ft., of bottom wing 38 ft. Chord and Gap: 6 ft. Length: 30 ft., and Weight about 1800 lbs. The pontoon would be approximately 19 feet long.

Elretta Sudsbury's *Jackrabbits to Jets* says, on page 42 that all six Burgess (misspelled Burgess) U-2s were assigned to the North Island Naval Air Station. On page 47 there is an account of a hop in No. 381, and you certainly get the impression that the U-2 was not an unqualified delight to fly.

The N-9 and N-9H were strictly Curtiss designs, similar to the "Jenny" except for a longer wing and an extra set of struts on each side. A detailed account of the N-9s by Pete Bowers appeared in *Air Progress* for February/March, 1966.

The cars for the C-type airships held not only the five-man crew, but also four 260-lb bombs, radio and electric lighting equipment.

An excellent article giving an inventory of all Navy pressure airships - including the C-type - for a period of twenty-five years was written by Richard K. Smith and appeared in the *Wingfoot LTA Society Bulletin* for January, 1965.

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ACKNOWLEDGMENTS

For this, the fifth and last episode of the Burgess Company story I received considerable help. Lee M. Pearson, Historian of the Department of the Navy, supplied data regarding the aircraft built for the Navy; Robert B. Casari sent accurate and thorough accounts of the Army types, and copied some of the photos from *Aerial Age Weekly*. Theodore A. Hodgdon provided important information, especially regarding the Primary Trainer Type B. P. David Proper of the Essex Institute, and Robert Gould helped to locate news items from the daily papers of 1917 and 1918. The personnel of the Widener Library at Cambridge gave much assistance.

Mrs. Charles P. Burgess and Miss Caroline Burgess provided information and new sources regarding W. S. Burgess. Clifford L. Webster, test pilot for the Burgess Company during the greater part of their existence supplied a great quantity of essential information.

Shortly before this article was completed Mrs. Helen Bamford Bolster died. Mrs. Bolster, secretary to the Burgess Company from their beginning in 1910 until their dissolution, was in a unique position to describe the events and background of those early flying days and was very generous in doing this.

ABOUT THE AUTHOR

Bartlett Gould is a member, besides A.A.H.S., of the Connecticut Aeronautical Historical Association, the Canadian Aviation Historical Society, and Wingfoot LTA Society. He loves to fly; finds there is so much history available that he has specialized in the pioneer period. He is married, has two sons in college. Both he and his wife teach in Newburyport, Massachusetts schools, where they reside at 15 Walnut Street.