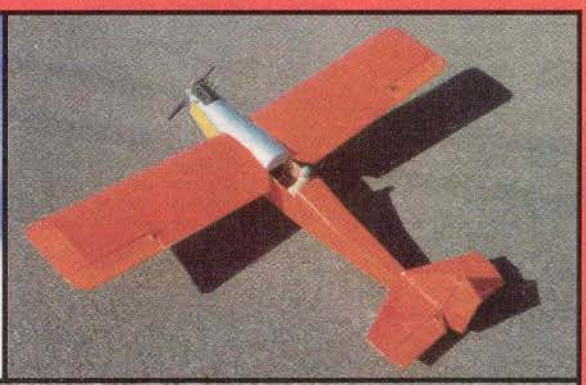
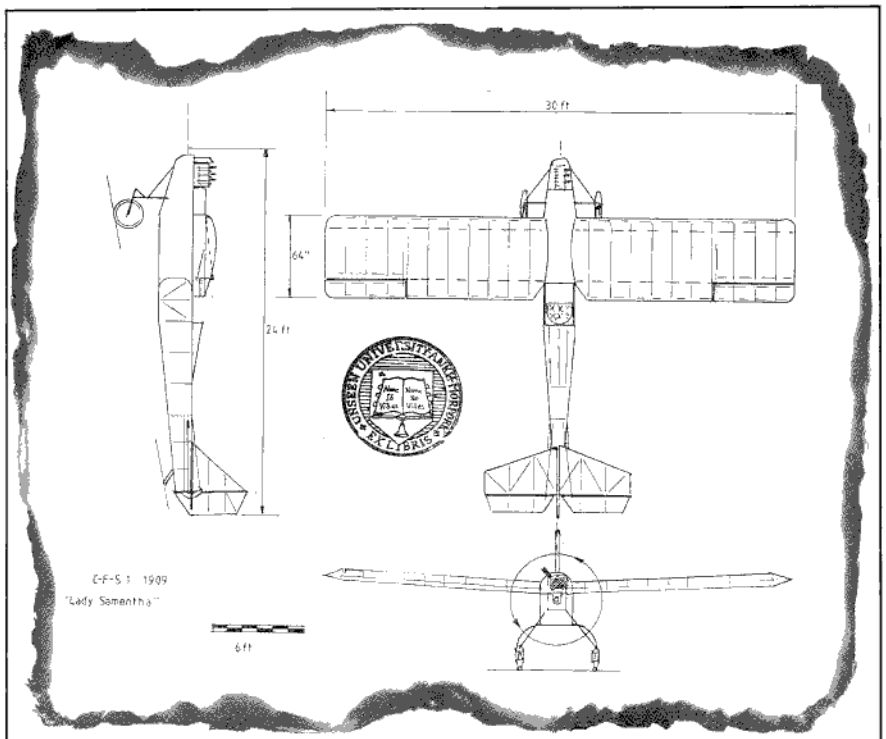
Lady Samantha



Designed by Peter Miller

A Lesser Known Aircraft From Aeronuttycal History



Tragic Death In Aerial Disaster

Earl's Son Falls From Flying Machine

The Honourable Algernon Cholmondely-Fortescue-Smythe, oldest son of the seventeenth Earl of Clampham Junction, was killed on the 25th of September when he fell to his death from the flying machine built by his younger brother.

Horrified witnesses to the tragedy reported seeing the flying machine turning in tight circles and leaning over. Suddenly the shocked spectators saw the aviator plummet to the ground. The body struck the ground mere feet from a haystack which might otherwise have preserved the young man's life.

Mr. John Magee, a farm labourer had been working on top of the haystack and was the first person to reach the unfortunate pilot, but was unable to do anything for the mangled remains.

Police Sgt. H. Crinkle arrived shortly afterwards and took charge of the scene.

Witnesses stated that after the pilot fell out, the engine stopped and the flying machine righted itself and made a safe landing in an adjacent field.

Half an hour after the accident, the police brought the news of the appalling disaster to the house.

The Honourable Archibald Cholmondely-Fortescue-Smythe, younger brother to the deceased and builder of the flying machine, was distraught at the news of his brother's death.

Sgt. Crinkle said that when he broke the devastating news to the Honourable Archibald, the young man turned away, his shoulders shaking with uncontrollable sobs.

The honourable Archibald is now the heir to the title and all the estates.

Sgt. Crinkle said that a young lady had been seen in the area in a dishevelled state and he feared that she may have been struck by some part of the machine or the falling aviator and that she may be in some need of attention.

Geslingthorpe Chronical & Weekly Advertiser, 30th September 1910

History would have us believe that Bleriot, a Frenchman, flew the channel first and, but for a stroke of good luck and some coincidence, this fallacy would never have been disproved.

1909 And All That

My main interest is the era of the 30's but I acquired some issues of *The Aero* from 1909. These gave me a deep insight into the state of the art in that year. (Items that can be confirmed from these magazines have been marked with an asterisk.) Not long after this, I attended a house clearance sale in the hope of picking up an old engine or magazines. I happened to stumble over a box of junk and a large diary fell open. The sketch on the open page made me buy the box. The story that unfolded was a tale of brilliance, gullibility, skullduggery, and disillusionment.

The diaries had been written by one Archibald Cholmondely-Fortescue-Smythe, the second son of the seventeenth Earl of Clapham Junction and covered the years of 1908 to 1913. The box also contained some photos and sketch pads. Unfortunately, much of this material was damaged by mice and then by the cat that had killed the mice which seem to have had an unfortunate effect on the cat's digestive system.

LADY SAMANTHA

Designed by:
Peter Miller
TYPE AIRCRAFT
Sport "Vintage Look"
WINGSPAN
45 Inches
WING CHORD
8 Inches
TOTAL WING AREA
360 Sq. In.
WING LOCATION
Shoulder
AIRFOIL
Clark "Y" Type
WING PLANFORM
Constant Chord
DIHEDRAL, EACH TIP
2 Inches
OVERALL FUSELAGE LENGTH
37-1/2 Inches
RADIO COMPARTMENT SIZE
(L) 6" (W) 3" (H) 2-3/4"
STABILIZER SPAN
14 Inches
STABILIZER CHORD (inc. elev.)
5 Inches (Avg.)
STABILIZER AREA
70 Sq. In. (Approx.)
STAB AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top Of Fuselage
VERTICAL FIN HEIGHT
5-1/2 Inches
VERTICAL FIN WIDTH (inc. rud.)
4-3/4 Inches (Avg.)
REC. ENGINE SIZE
.074-.09
FUEL TANK SIZE
2-4 Oz.
LANDING GEAR
Conventional, Optional Shock Absorption
REC. NO. OF CHANNELS
4
CONTROL FUNCTIONS
Rud., Elev., Throt., Ail.
C.G. (from L.E.)
1-3/4 Inches
ELEVATOR THROWS
3/8" Up – 3/8" Down
AILERON THROWS
1/2" Up – 1/2" Down
RUDDER THROWS
1" Left – 1" Right
SIDETHRUST
–
DOWNTHRUST/UPTHRUST
–
BASIC MATERIALS USED IN CONSTRUCTION
Fuselage ..... Balsa, Ply & Spruce
Wing ..... Balsa & Ply
Empennage ..... Balsa
Wt. Ready To Fly .... 28 Oz. (1 Lb. 12 Oz.)
Wing Loading ..... 11.2 Oz./Sq. Ft.

Fumbling In The Dark And Other Early Experiments

At that time no one knew much about aerodynamics, in fact, the term hadn't even been invented. Those who did know anything kept very quiet and it is a fact that right up until the end of 1909, people did not appreciate that a curved wing generated lift by creating lower air pressure on the top surface.*

It would seem that Archibald had become interested in aviation while at university at a time when speculation about the possibility of flying the Channel was beginning to warm up. Knowing that as a second son he was out in the cold with regard to the family wealth, he felt that he could achieve fame and fortune by being the first to fly the Channel.

According to the diary, the final spur came when his friend at university got so fed up with him talking about this, that he said, "Oh, why don't you B B B Build the thing and F F F Fly the Channel."

Archibald promptly embarked on a major research project, reading everything available and carrying out experiments, and it was in this area that his brilliance came to light.

The Aero published a series of plans for scale paper gliders, most being scale in name only. Readers also sent in drawings of their paper models.* Archibald studied these and noticed that some had curved plate wings while others had flat plate sections. He asked himself what would happen if he combined these and he found that his paper model flew far better than any of the others. His final wing section bears some resemblance to Clark Y.

I will not detail the long series of experiments which resulted in the full-size aircraft, but his experiments on undercarriages are important because they had a great effect on him in later life.

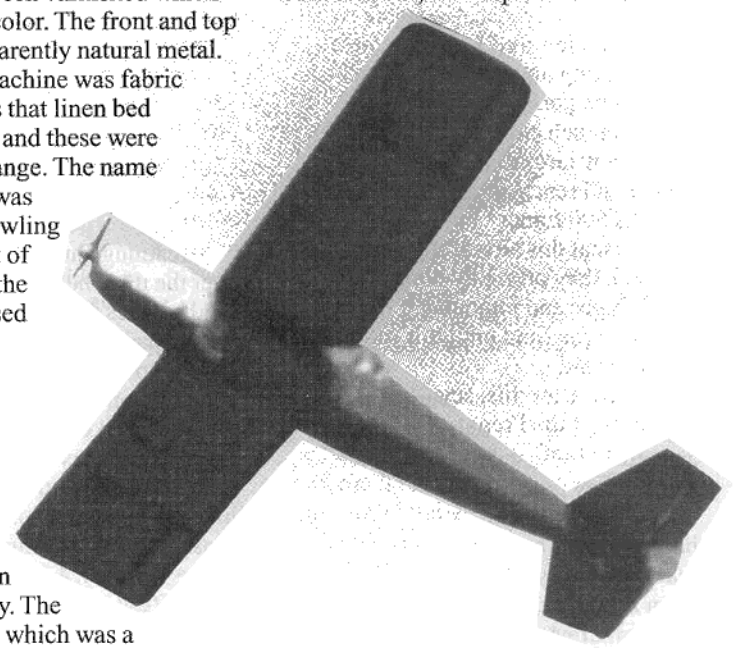
Archibald did not like the masses of struttery, skids, and wire that were considered essential for an aircraft to alight upon and he worked with models to produce a simple, well sprung "Alighting carriage." He used knicker elastic as a springing medium in his experiments and he had so much fun obtaining supplies that he continued with his experiments long after the aircraft was complete.

So assiduous was he in these experiments that his favorite source of supply, one Lady Samantha, became known among her circle of friends as "Droopy Drawers." I will not dwell on these sections of the diary because, with some name changes, this is going to be the hottest book since "Fanny Hill" and should make me a fortune. How Archibald found the time and energy to work on his aircraft is a mystery.

The aircraft was completed by March 1909, an advanced looking machine for its day with a cantilever shoulder wing, conventional tail surfaces, and a simple tubular undercarriage with levered suspension.

The engine was a three-cylinder, overhead valve, liquid cooled unit of approximately six liters capacity.

As far as can be ascertained from the available documentation, the machine was covered with birch ply from the nose to the cockpit; this appears to have been varnished which gave it a yellow color. The front and top cowlings are apparently natural metal. The rest of the machine was fabric covered; it seems that linen bed sheets were used and these were dyed a sort of orange. The name Lady Samantha was painted on the cowling and Archie's coat of arms painted on the fin. This comprised a green shield with a prancing red unicorn.



The Great Flight Begins

Archibald taught himself to fly over the next month and in May he was ready. The weather was fine which was a change. It should be noted that a comment in a June *Aero* was "If we ever get a Summer."*

The aircraft had been built at Colchester by a small marine and railway engineering company. Archibald took off from their field and headed south. After a time, he crossed a large body of water and looked for somewhere to land. A meadow beside a road seemed a good place and he touched down safely.

One of the locals arrived on the scene and Archibald asked him where he was. He was staggered to hear the local say something about "Ostend." Could he have crossed the North Sea? At last, after much sign language, he found that this "Ostend" was in Essex, just North of Southend on Sea and the body of water was merely the Blackwater Estuary.

Having managed to obtain fuel, Archibald took off and crossed the Thames Estuary. Unfortunately, the fuel was not as clean as it should have been and he was forced down soon after reaching the other side.

A figure approached and addressed him in German. Archie was now thoroughly confused; navigation was not his strong point. Had he landed in Germany? The gentleman assured him that he was in Kent. Now *The Aero* was always reporting on the threat of the mass bombing on London by German airships* and Archie realized that Kent must have been invaded, so he set about beating the living daylights out of the man. Fortunately, another man arrived and separated the combatants and explained that Herr Schickelgruber was an Austrian bird watcher. During the conversation, it transpired that Herr Schickelgruber had taken up the hobby to get away from his son, Adolph, who was a right little horror. The son later changed his name to Hitler.

With peace restored, the carburetor cleaned, and the weather holding, Archie finally made it to Dover. By now, he was cautious and asked four policemen where he was before accepting that it was, indeed, Dover.

Triumph And Tragedy And Triumph Again

The next day Archie pointed the aircraft towards the French coast and took off. The take-off was prolonged because the French coast happened to be down wind and the take-off should be more accurately described as a fall-off because the aircraft fell off the white cliffs, picked up speed, and Archie was on his way.

The flight across was pretty simple, the weather was clear and Archie had a stiff tail wind, and so some twenty-five minutes after take-off, he arrived

over the French coast. A suitable field came into view and Archie made a good landing and that was when his troubles began.

The French customs charged the pilot of any aircraft or balloon that landed on French soil. The standard rate was 500 francs* but since it was obvious that this aircraft had flown the Channel, they promptly doubled this to 1,000 francs and impounded the aircraft in the field until this money could be paid.

Shortly after this, several lesser members of the French Aeroclub arrived and refused to accept the flight. They pointed out that it could not be counted as an official crossing because there had been a tail wind, that it was very easy to find France from England, but England was a much smaller target and, anyway, Archie was not a Frenchman so that excluded him from contention.

Archie was furious. He could accept the first two reasons for the flight not to be recognized, but the thought that only a Frenchman could qualify was too much for him. It was at this point that a germ of an idea entered his mind. A plan to retrieve his aircraft without paying customs for duty on it.

Archie could speak excellent French, a rare skill for an Englishman, so he borrowed a filthy raincoat and a dirty beret, he ate vast amounts of garlic and onions and swilled some wine, then he presented himself to the customs man guarding his aircraft.

Breathing garlic and stale wine all over the man, he informed him, between loud belches and other indecent noises, that he had been delegated to fly the aircraft to a place where the Aeroclub officials could examine it.

Totally taken in by Archie's disguise, the customs guard helped him start the engine and waved him on his way, and Archie made the return crossing of the Channel.

More Tragedy, A Title, And More Research

Archie returned to his father's estates where he used to make regular flights as he developed his machine. He extolled the joys of flight and described how one could see everything that was going on on the ground.

Archie's older brother, Algernon, became very interested. He asked Archie to report any of the laborers that might be slacking in the fields but Archie refused.

Algernon asked if he could use the aircraft but Archie again refused, pointing out that flying was dangerous and that the heir to the title should not risk his life even if it was apparently easy to fly. Algernon subtly questioned Archie on the skill of flying and learned a great deal in this way.

One day in late September 1910, Archie landed in front of the ancestral home to get an extra pullover. He left the engine running and Algernon quickly climbed into the aircraft and took off. He had soon climbed to about 500 feet and began to look around, he found that the wing obscured much of his view of the ground but he caught the glimpse of a farm worker lying on top of a haystack with a companion.

Algernon banked the aircraft over until he had an excellent view of the activities below but he became so engrossed in the scene below, that he increased the angle of bank until the aircraft was almost inverted, whereupon Algernon fell out. (Archie had never thought to mention the safety harness due to some oversight.)

Once Archie had inherited the title, he turned his expertise on knicker elastic to good use, setting up a company to manufacture a much better grade than had previously been available. For example, during his researches he had found that elastic lost some of its strength at a temperature of 98.4°F. This had never been a problem at the time, as he had found other things to do while the elastic cooled down.

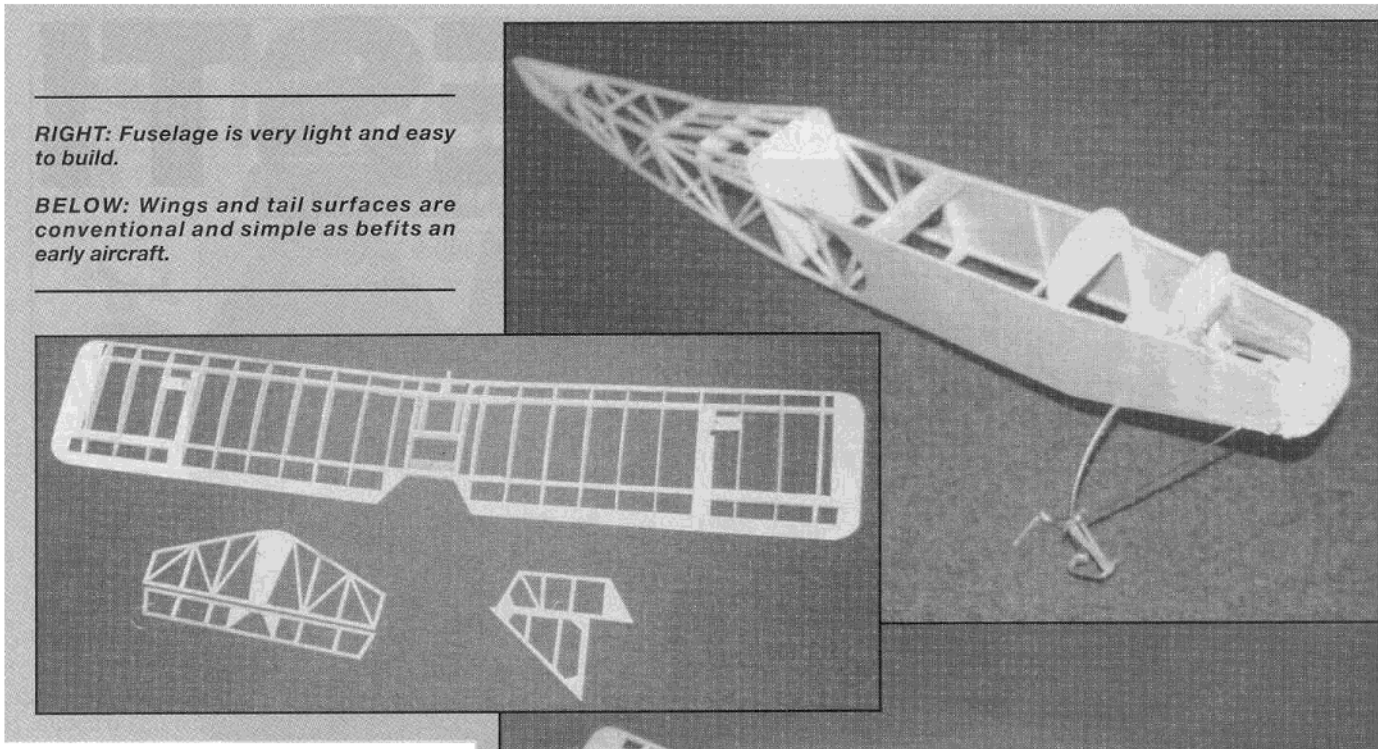
After his experience with the French, Archie had become a Francophobe. Now his elastic became famous all over the world but the supplies sent to France were specially formulated to snap one and a half hours after reaching 98.4°F. Archie would chuckle over this in his later years. Strangely he never had any complaints from France.

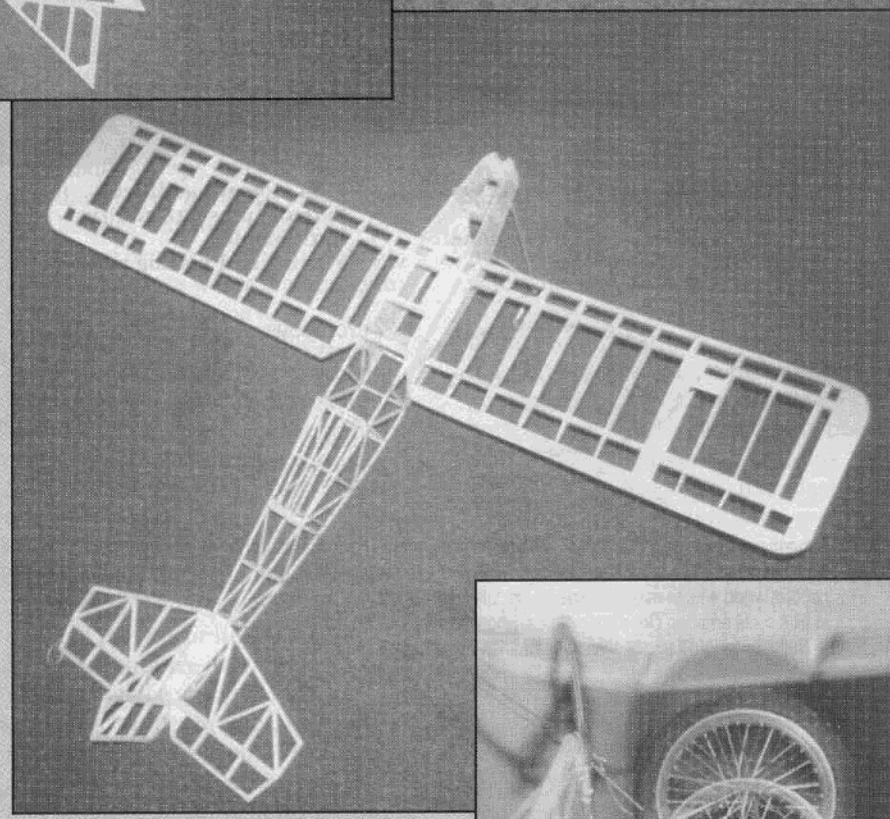
Archie had the sense not to try and run the business himself, appointing managers; however, he did insist on continuing his researches. He was so dedicated to this research that, even towards the end of his life, he could be seen hurtling down the long corridors of his mansion in a specially tuned wheelchair in hot pursuit of some young maid whose elastic he wished to test.

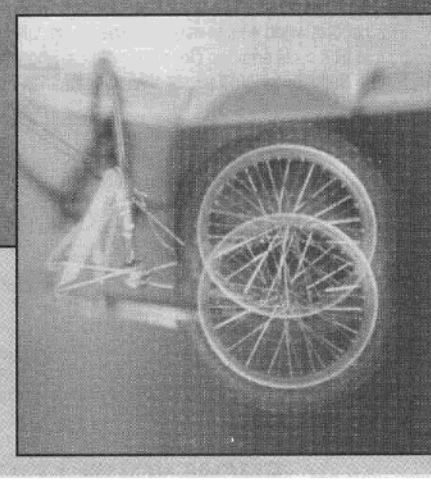
Archie never forgave the French. When he was lying on his deathbed,

RIGHT: Fuselage is very light and easy to build.

BELOW: Wings and tail surfaces are conventional and simple as befits an early aircraft.







ABOVE: The structure follows the full size as accurately as possible.

RIGHT: The working undercarriage is well worth the effort, the landings are a revelation. Don't ask me where to get the wheels; use Flair or Williams.

he was told that the Channel Tunnel had been started. His comment was "Good show! Now we can pump all our effluent through it and clean up the British beaches!"

***Note**: All persons and events are fictional and any similarity to persons, living or dead, or events is purely coincidental. Well, I have to be careful ...*

BUILDING THE MODEL

Fuselage:

Construction is very easy. The fuselage is built from 1/8" square spruce longerons with 1/8" sq. balsa cross members and diagonals. The front portion is covered with 1/64" ply, which must be added to the sides before assembling them to the formers as the longerons are cut at the bends; the cuts are then filled with epoxy when the bends are made.

The undercarriage can be made very simple as shown and the extra parts soldered on from scrap brass tube; alternatively, a working undercarriage can be made which is more complicated but works very well. This is shown on the drawings.

The fuel tank can be made out of brass sheet and brass tube or you can fit a 2 oz. clunk tank, but you may have trouble finding one that is short enough.

The tank can be fitted and removed with the top decking on but it is easier to do the initial installation before the deck has been glued on.

The wing is held on with a dowel at the front and a nylon bolt through the bottom. This is a neat and unobtrusive method.

Wings:

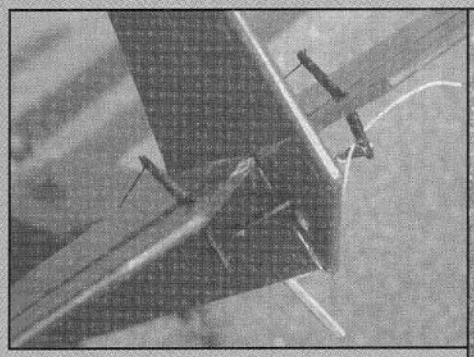
The wings are very easy to build, all the ribs are the same with the exception that those in the center section are cut away for the dihedral braces.

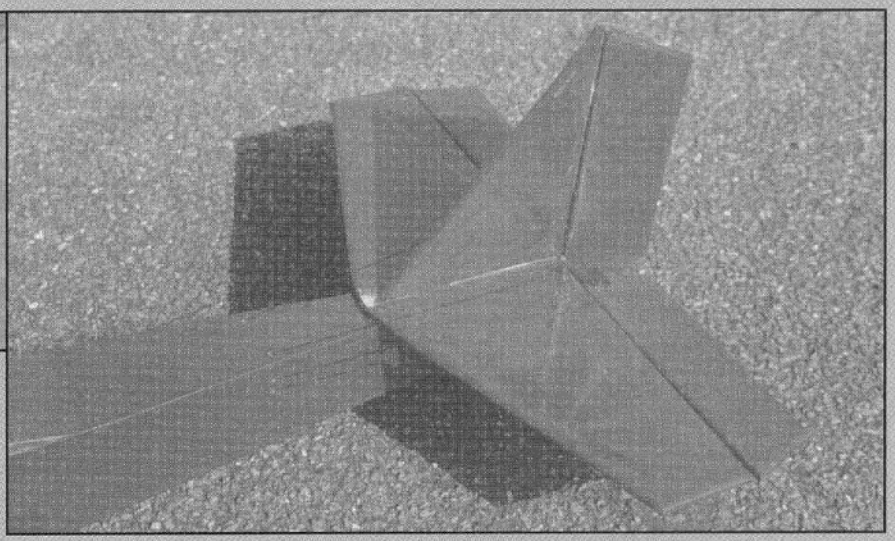
The spars must be rock hard balsa. My wood was not quite hard enough so I laminated the main spars up from spruce and balsa.

The ailerons are operated by 1/16" MW pushrods and Goldberg #420 bellcranks.

I sheeted between the root rib and the next rib out with 1/16" balsa sheet on the top only to hold the covering. The center wing fairing is covered with 1/64" ply and is glued in place after covering.

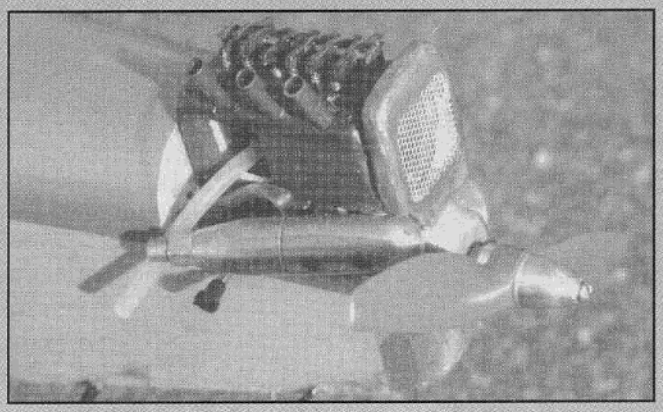
Make sure that the wing attachment bolt lines up and the wing can be bolted down properly before



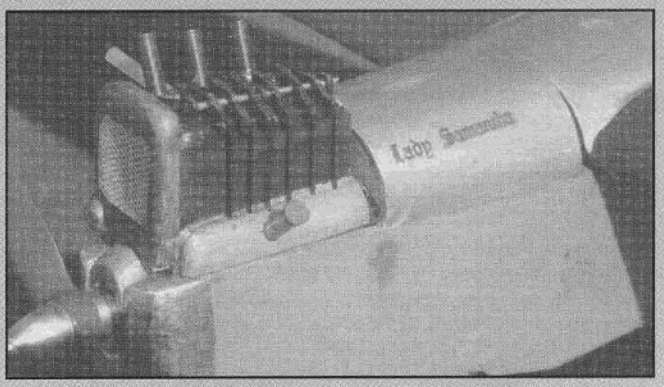


ABOVE: The controls are actuated by NyRods, but the shirring elastic dummy wires look great and add to the realism.

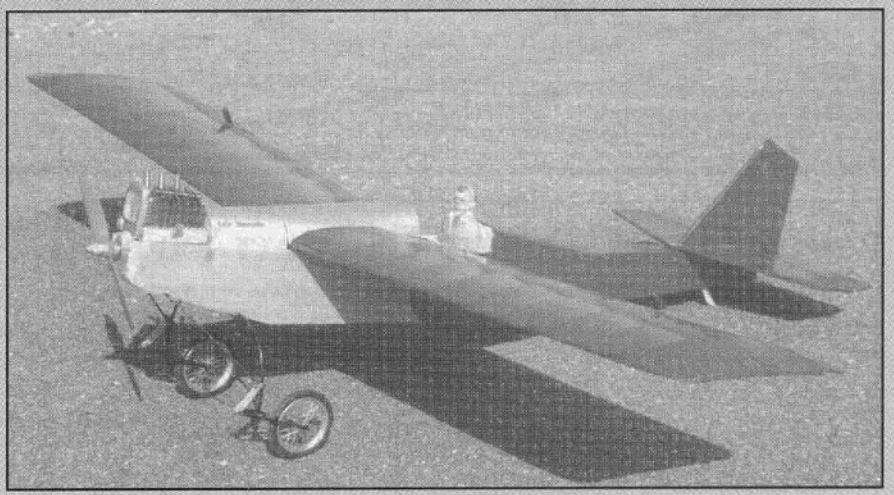
RIGHT: Shirring elastic stays tight regardless of control positions, simple and realistic.



Right side of dummy engine showing air exit and fuel lines.



Left side of engine with dummy rockers, etc., quite easy with a little scrap ply and wire.



Eat your heart out Bleriot. Lady Samantha was ahead of her time although many features can be found in contemporary aircraft.

fitting the top fairing to the wing.

Install the pieces of 1/16" sheet balsa where the aileron pushrods exit the bottom of the wing.

Tail Surfaces:

These are built up from 3/16" square balsa. Use hard stock and add the extra pieces where the hinges fit. You can't get much simpler than this.

Radio/Engine Installation:

Some people like to install the radio equipment before covering and others do it afterwards. On this model, the choice is yours for most part but do fit the outer NyRod housings into the rear of the fuselage before covering.

I used a Cox .074 Queen Bee for power which fits nicely in the nose. I made up a metal tank to fit, as the nose is a little short and the carb is a bit high.

For control, I used one of my Fleet Micro systems with a 600 mAh flat battery. There is adequate room for a standard Rx and Mini servos.

All-up ready to fly weight is 28 oz. which gives a wing loading of around 11 oz./sq. ft. This could be further reduced for Texaco scale models by using the simpler U/C and selecting softer wood.

Control throws are: rudder 1" each way, elevator 3/8" each way, ailerons 1/2" each way.

Covering:

I covered all the flight surfaces and aft fuselage section on my model with orange Fibafilm. Yellow Litespan was used on the ply areas to give that varnished birch ply look, and the metal areas were done with Aluminum Solartrim, as that was what I had on hand. Chrome Fibafilm would look good as well.

Detailing:

There isn't a great deal of detail on the aircraft but the little that there is makes the model. The controls are duplicated by using shirring elastic on the ends of the control horns. The normal operating rods are not noticeable being under the wing and below the tail plane on one side. The shirring elastic stretches and so looks as if it is working like normal closed loop controls.

The undercarriage has already been mentioned. I used a very precious set of Fulton Hingerford wheels. I understand that these are no longer being made, nor do I have his address, so please do not ask me about getting hold of these. Use Flair or Williams Vintage wheels.

The engine is made from 1/8" sheet, scrap ply, wire, and tube. The front is left open and the radiator has aluminum mesh to allow cooling air to reach the engine. The right side of the dummy engine is cut away to allow the air to escape.

The dummy engine is slightly over scale in width to hide the engine, so larger engines may present some problems but a little more enlargement would not be noticeable.

The pilot is a J. Perkins 1/8" scale civilian pilot. His sunglasses are covered with some goggles surgically removed from another pilot, the cap is made from a piece of cloth cut from a check shirt (cut it from the tail and no one will see the hole). Don't ask how to make it, just cut, slit, and stick until it looks about right. Some pilots in those days used huge cloth caps. Give him a scarf and that is about it.

Flying:

My Cox Queen Bee is little below par. I know this because it used to hurl my Velie Monocoupe around with enthusiasm but since I have replaced most of it, the power seems to be down.

Having said all that, it does fly the model quite well, although the grass at the strip did cause enough drag to defeat a take-off.

In flight, the model is very prototypical, climb is slow and coordinated rudder and aileron are essential, turns on aileron alone let the tail hang down.

Naturally, the model is not aerobatic, although I suspect that more (non-scale) power would allow loops and rolls. Long slow passes are very realistic with the pilots scarf fluttering in the slipstream.

The biggest surprise was the landings. I had the sprung version of the undercarriage and the model landed on the grass and just rolled, not a single bounce, just a dead smooth landing every time. I can only assume that the springing is really doing the job.

Afterthoughts:

This model has been fascinating to build and fly, it creates a tremendous amount of interest and I believe that it will become a talking point in years to come.

✈