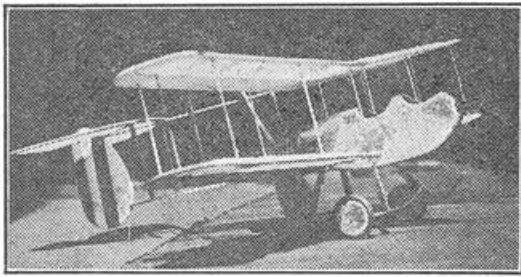


It isn't hard to see why the Vickers "Gun Bus" was likened to a winged bath tub by all who saw it, for in appearance that's about all it amounted to. This picture gives a swell front-quarter view of Struck's model, and if you'll look closely you'll see the old Maxim gun poking through.



THE OLD FLYING BATH TUB!

You can criticize the 1914 brand of plumbing if you wish—but you can't feel cool about the "hot water" dished out enemy flyers from this sky-riding "bath tub" early in the War. For the "Gun Bus" was Britain's first fighter allowed direct forward fire, and it helped curb the enemy's air supremacy that threatened when Fokker introduced his synchronization gear. You'll like this "Gun Bus" story—but you'll be especially pleased at the ease with which our model can be built.

* * *

Vickers "Gun Bus"

TRAIL BLAZERS OF THE AIR—No. 7

* * *

DURING the British Army's aviation trials at Aldershot in 1913, an obscure young experimenter showed up with a bi-winged "bath tub" which was pushed through the air by a Gnome Monosoupape rotary motor. Protruding through the nose of the "tub"—right about where the hot and cold water lines would come through on the domestic variety—was a revamped Maxim machine gun.

Each day, this "bath tub"—which actually was a Vickers biplane—climbed upstairs in chase of small free balloons, while its pilot picked them off one by one with his machine gun.

This armed Vickers caused some small interest at the trials and then was shelved "for future reference"—and promptly forgotten about in the excitement attending the outbreak of the World War.

Military aviation in those earlier days consisted mainly of "peeping" at enemy activities—straight observation work, so to speak. And once in awhile the opposing pilots would "get mad at each other" and let fly with brickbats, or even shotgun fusillades. But Roland Garros, famous French flyer, wasn't quite satisfied with such primitive types of aerial offense, so he mounted a regular ground-type Hotchkiss machine gun on the cowl of his Nieuport, reinforced the hub of his prop with heavy iron armor, and then sent German flyers into a panic because of the accuracy of his forward-firing gun.

But with characteristic German efficiency, the Kaiser's experimenters set about to find a device equal to, or better than, the crude Garros' arrangement. Tony Fokker eventually came through with a synchronized gun that would fire right through the prop—or, rather,

By Henry Struck

between the blades as they revolved—and was timed by the motor crankshaft through a system of cams and lever. This Fokker gear was soon mounted on a number of German ships.

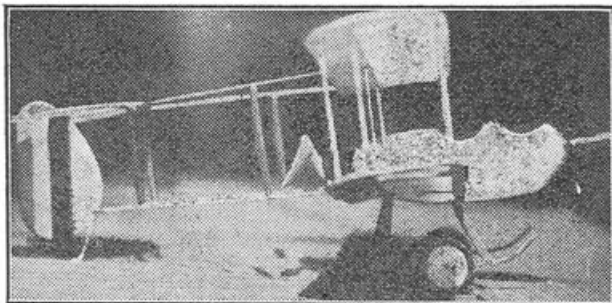
The next move was up to the Allies! And—unable to figure out how the Fokker gun gear could operate without destroying the prop—the brass hats suddenly recalled the tub-like Vickers gun bus of the 1913 military aircraft trials. So this sturdy job was turned loose "over there" and helped to turn the early tide of aerial supremacy a little more in favor of the Allies. "Shelved for future reference!"

But that frequent ailment of erring experts, known as "red face," became prevalent once again—when one of the Kaiser's Fokkers was forced down and its gun gear analyzed. For the miraculous device that fired through props—and had had the air experts of the Allies going around in circles while trying to figure out how the trick was done—turned out to be almost a duplicate of another apparatus tucked away on the shelves for future reference, the Sergeant Kauper gun gear that they'd feared wouldn't work in practice! And it had taken Fokker to show them that it *would*—at the expense of many British airmen's lives!

Getting back to the Vickers chariot, though—this was really an unusual machine even though it did conform somewhat to the old pusher pattern. "Pusher," of course comes from the fact that the prop was mounted behind and *pushed* the ship through the air, as opposed to the tractor type in which the prop, mounted at the front or nose, *pulls* the ship along.

The nacelle of the Vickers was built up of steel tubing

(Continued on page 89)



In our model, 1/16" diameter bamboo simulates the steel tubing outriggers that held the front and rear of the "flying bath tub" together. The Maxim machine gun, built of balsa, is more clearly visible in this picture.



Since the "Gun Bus" is a pusher rather than a tractor, the prop and engine—as can be seen—are mounted to the rear of the fuselage. The wing and tail insignia on the model are optional, since the earlier planes were seldom marked.

vihil stick event; Thracey Petrides, of New York City, for a flight of 15 min. in the Stout indoor tractor event; DeWitt Ross, Tulsa, for an 11 min. 47 sec. flight in the Texaco gas event; and Edward Fulmer, of McKees Rock, Penn., for a flight of 7 min. 46 sec. in the open class gas event.

Most of the trophy winners in the meet also received a copy of the *Model Aircraft Yearbook*, which your correspondent has a vague recollection of having written.

This year's contest acquired a dis-

tingent literary flair by the appearance of three publications devoted to news and gossip of the meet. The three publications, all neatly mimeographed, were: the *Daily Blurb*, the *Central Gas Modelplane Society Bulletin*, and the *Chicago Aeronauts' Bulletin*. The *Daily Blurb* was actually edited on the last day of the meet, by Al Lewis and Bruno Marchi. This miniature "scandal sheet" was distributed at the banquet, and as a novel feature it carried complete results of all the winners in the various events.

Build an "Empire" Boat

(Continued from page 39)

The engines can best be represented by marking out the cylinders on thin paper as in the plans, then cementing the disc thus formed between the nacelles and the exhaust rings.

The three-bladed airscrews are not difficult. Cut the blades from thin aluminum. Then, as shown on Plate 3, cement on the hub end of each blade a 1/8" length of 1/8" dowel. Then cut

off a 3/16" length of aluminum tube and cement the three blades at an equal distance around it. You'll find that you have a real De Havilland prop.

Since the hull and wings of the Empire boats are flush-rivet metal covered, the correct coloring is natural aluminum. Before applying the color, be sure that your model is carefully sanded until thoroughly smooth.

Vickers "Gun Bus"

(Continued from page 50)

and covered entirely with sheet aluminum. The tail booms and many of the struts, and the wings spars, too, were also of steel tubing.

This rugged construction stood the gun bus in good stead against the superior performance of the Fokker E-1's. Many an old pusher staggered home with wires and struts flapping all over the sky, but with still enough odd bits of frame to hold her together.

The Maxim gun mounted in the original gun bus could be swung thirty degrees in any direction. The opening necessary for this movement was filled in by a small shield that moved with the gun, preserving the streamlining of the nose and at the same time keeping the airstream out

of the cockpit.

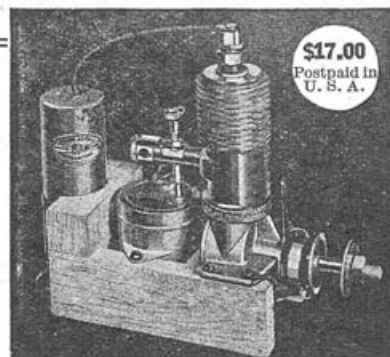
The large wing span of thirty-eight feet in the original ship scales down to nineteen inches in our model, and gives an area of nearly one hundred square inches of lifting surface—assuring an ideal slow-flying model.

Before beginning work on the gun bus study the plans and notice that the three-view drawing is on a scale of 1/4" to 1"—or half the size of the finished model—while the layout page is actual size.

CONSTRUCTION

THE fuselage of our Vickers "Gun Bus" is constructed entirely of sheet balsa. Cut the sides from soft 1/16" sheet and connect them at

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the top by Formers 1 and 2—also cut from 1/16" sheet. Connect them at the bottom with cross pieces of 1/16" by 3/16" balsa.

Moisten the rear portion and form between the fingers to match the curve given on the top view of the fuselage. Cement Former 3 in place at the rear. Cover the top and bottom of the fuselage with 1/64" sheet balsa.

Carve the nose plug from a block of very soft balsa 1-3/4" square by 1-1/8" thick. After the outside has been shaped to the proper outlines carefully split the block lengthwise with a razor, and hollow out the inside as shown by the shaded areas in the drawings. A small length of 1/16" aluminum tubing is cemented to the bottom of the nose plug. The wire prong of the removable motor stick fits into this tubing. The nose block may now be cemented to the fuselage, the cockpits cut out, and the fuselage completed by smoothing the entire body with sandpaper.

We are now ready to add our rugged and simple undercarriage. The main struts A (2" long) and B (2-3/8" long) are streamlined from hard 1/8" by 1/4" balsa. Cement the struts securely to the bottom of the fuselage using pins to hold them in place while drying. Bend the skids C of bamboo and fasten to the bottom of the struts with plenty of glue. A 1/16" sq. bamboo cross-piece cemented at the junction of struts A and the skids C, acts as a spreader.

The wheels are 1-1/8" in diam. and may be either balsa or hardwood. After the wheels are slipped on the .034 piano wire axle, the latter is bound to the skids with 1/32" rubber.

Now place the body and landing gear assembly out of your way at the other end of your workbench and start work on the

WINGS AND TAIL

THE leading edges of 3/16" by 5/16" stock, and the trailing edges of 3/32" by 7/8" stock are carefully shaped with knife and sandpaper to the proper sections. Mark the location of the ribs lightly upon them. Pin 33 slats of soft 1/16" sheet balsa each 1-1/2" in length, together. From the resulting block, it is simple to carve 33 identical ribs.

Pin the trailing edges to a soft board. Cement the tip and center ribs in place, and pin the leading edge against the nose of the ribs. Insert the rest of the ribs, and the tips of 1/16" sheet.

Cut out the outline of the rudder and stabilizer and pin to the board. Be sure that the outlines are built of sections in which the grain runs as indicated, to provide sufficient strength. Note that the stabilizer

proper contains cambered ribs while the rear portion, or elevators—as well as the rudder—are flat in section.

When the surfaces are dry remove them carefully from the board and sand the edges evenly to remove any bumps that might spoil the covering.

ASSEMBLY

COVER the surfaces with light brown or tan tissue, using dope for adhesive. The fuselage is covered with silver tissue—using narrow strips if necessary to eliminate wrinkles. To prevent warping, the covering is not shrunk at this stage.

The four center section struts E, of 1/16" diameter bamboo 1-7/8" long, are pointed at both ends, dipped in cement, and forced first into top of the fuselage sides, and then into the underside of the wings in the positions indicated on the plans.

The lower wings are cemented to the sides of the fuselage and propped up at the ends with cans or blocks to the required dihedral of 1/4". At this point check both wings for alignment, incidence and dihedral. When you are satisfied you have properly rigged the surfaces, insert the outer bay of interplane struts F, then the inner pairs also labelled F, all 2-5/8" long and 1/16" diameter bamboo. The aileron struts L are of 1/32" diameter bamboo.

The outriggers G, 8-1/4" long, and H, 8" long and both of 1/16" diameter bamboo, are forced into the trailing edges at the inner bay of F struts and into the leading edge of the rudder. The broad struts J and I are streamlined from 1/8" by 1/4" balsa. They are 2-3/8" and 2-1/4" long respectively.

Now spray the tissue of your Vickers "Gun Bus" with water, and when thoroughly dry, dope the entire model lightly with clear dope.

MOTOR AND PROP

THE rear plug comprises two pieces of 1/8" sheet balsa cemented together cross-grain. It fits For-

mer 3 snugly. Washers, with bushings inserted, are glued to both sides of the plug to serve as bearings.

Round a 5" length of 1/4" square balsa and wrap it with heavy thread. Cut nine cylinders each 1/2" long, and cement them to the crankcase. A bushing and washer is cemented to the rear of the crankcase.

The propeller is carved from a block 1" by 5/8" by 5-1/2". As the prop is mounted in pusher fashion it is advisable to carve a left handed prop, to make it possible to wind in the usual clockwise direction. After carving, and smoothing with sandpaper, a coat of dope should be applied.

The motor is cemented directly to the rear of the prop. Form the shaft of .034 piano wire, slip it through the rear plug, the prop and motor—and don't forget a couple of washers between the bearings. The end of the shaft is bent over and forced into the hub.

The motor stick is 7" long and made of a strip of very hard balsa or pine 1/8" by 1/4". A prong and a hook of .034 wire are secured to opposite ends of the stick.

FLYING AND DETAIL

FOUR strands of 1/8" flat rubber, preferably lubricated, form the power plant for our Vickers "Gun Bus." The motor stick is slipped into the nose with the prong fitting into the tubing. Glide the model gently without power, and add weight to the front of the stick if the tendency is to stall, or to the rear if the glide is too steep.

The first powered flight should be made with about 100 winds. The rudder should be warped to the left slightly, to circle the ship in that direction. Stretched, and wound with a winder, 400 turns may be stored in the rubber with safety.

For use as a display model the rubber and motor stick may be removed, and a dummy machine gun fitted into the opening through which the rubber normally passed.

"I Wanted Wings"

(Continued from page 31)

getting past the medical examination provides a classic in themselves. Most certainly they should be read by every youth who even considers the Air Corps as a career. Lay, you see, was turned down twice on bad eyesight. Nevertheless, he persevered, setting himself a series of stiff eye-sight improvement exercises that eventually got him through.

But his troubles were not yet over. Next came the tortures of "Hell Month" at Randolph Field—and we are most certainly gratified to learn that this

ridiculous and cruel course of scientific hazing (it was originally designed to create discipline) has now been materially softened. We hope that Lay's description of his Hell Month experiences has been read by the Commanding Officer.

After this, the book deals with the training routine, with Lay portraying the different stages with a decided spirit of action. He covers the training in clear terms, carrying the reader all the way up to the final stage at Kelly Field when he becomes a full-fledged