

FOKKER TRIPE

by JOSEPH H. WHERRY

HERE are plans for an accurate 3/4 in. to the foot flying model of one of the most famous fighting planes of the First World War. Tony Fokker's *DR.1* or *Dreidecker* as the Germans called it, was the type chosen by the great enemy ace Baron Manfred von Richthofen to be flown by the pilots of the unit he commanded, *Staffel 11*. It was while flying his red Triplane that the Red Knight, as he was known, met his death at the hand of Capt. A. Roy Brown flying a Sopwith *Camel* early in the spring of 1918 over the Australian sector of the British lines. Richthofen was intent on trying to shoot down the later to be famous *Wop May* of the Canadian squadron commanded by Brown; May escaped, but the Red Knight fell victim to Brown's Vickers gun.

The Fokker Triplanes appeared in strength over the Western Front during the last half of 1917 and they remained an active factor in the air war up to the Armistice. With a top speed of 115 mph, fast climb and great maneuverability, this ship was indeed of great merit for its time.

Not only was the *Tripe* a favorite of von Richthofen, but it was also flown by his lesser known brother, Lothar, and also Werner Voss, the late Ernst Udet, the soon to be "late" Herman Goering and many other well known German aces.

So much for background on this triple winged terror of 1917 and '18.

No serious model builder's tarmac of famous fighters can be complete without a model of the Fokker Triplane. A glance at the accompanying photographs will convince all of the simplicity of design and the beauty of this little job. As for flights, the *Tripe* is right out in front there too. Built with care and in accordance with these plans, the author assures you that the *Tripe* will not only fly well, but if constructed lightly and correctly balanced it will reward you with excellent R.O.G. flights.

We begin with the fuselage. Construction is best accomplished directly over the plans which should be placed on a smooth board and held in place with thumb tacks. A sheet of waxpaper over the plans will serve to keep the cement from adhering to the plans and work board. The main fuselage framework is indicated by the solid black lines and is of 3/32 in. square balsa. When the two sides are completed they are removed from the work board, joined together at front and rear and set aside to dry. All crosspieces are also of 3/32 in. square balsa; they are placed between sides on both top and bottom as indicated on the top view of fuselage. The top view is drawn so that the crosspieces are shown by solid black lines and the formers are shown in their respective places by the cross-hatching method. When all crosspieces have dried in place, the top formers are prepared according to the tem-

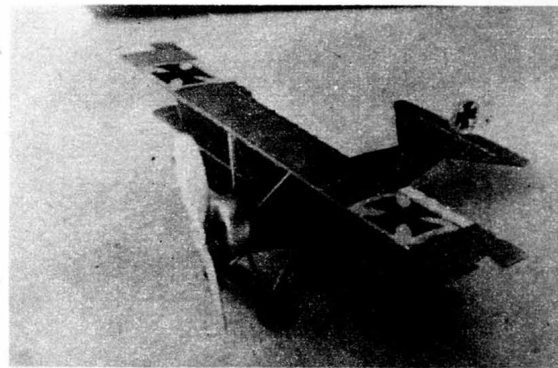
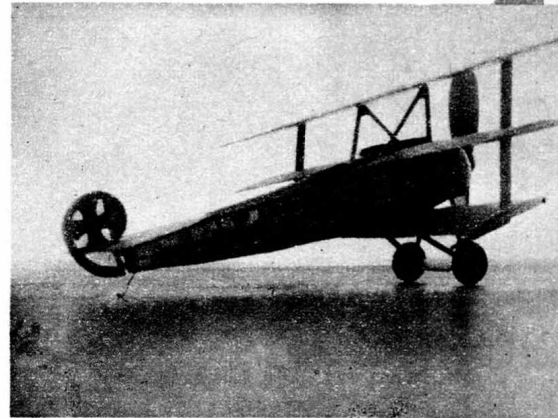
plates on Plate 1 of 1/16 in. sheet balsa. The stringer notches are 1/16 in. square.

When the top formers are in place and dry the side formers (Plate 2) are cemented in place as indicated on top view. Two of each side formers are required; A is of 1/16 in. sheet, while B, C and D are of 1/32 in. sheet. With all formers in place we may now cement the 1/16 in. square balsa stringers in their places. Note that the center wing fits directly on top of the top longerons between Nos. 2 and 3 formers; because of this we cut the stringers connecting these formers as well as those between 4 and 5. The cockpit opening is covered with heavy bond paper, and after this has dried securely in place, trace the cockpit outline lightly and cut away with the point of a sharp razor blade. A rear motor hook of music wire is now cemented in place; the space below the bottom stringer between side formers B and D is filled in with 1/16 in. sheet balsa on each side so as to provide a firm base for the mounting of the bottom wing, and the fuselage framework is complete except for a thorough sanding with very fine sandpaper.

The cowl is carved from a solid block of soft balsa to the exact size shown on plans. Note that this cowl is perfectly round except for the bottom which viewed from the front is flat, and when viewed from the side is sloped so as to conform to the profile of the fuselage. The author recommends that a small brace and bit be used to drill the nose plug hole. Shape the cowl carefully so as to duplicate the shape of the original. A smooth finish is obtained by applying several coats of clear dope and sanding with very fine paper. You will save time at this point if you completely finish the cowl by dopping with white dope. Several coats with sanding between coats will give a good finish. The cowl bottom should be doped a dull black, as should the dummy cylinders which are carved from balsa wound with thread and supplied with push rods of small scraps. Some modelers may wish to install a true to life rotary motor, but the dummy stationary cylinders are preferable for a model which is to be flown. With the cowl completed we now lay it aside until final assembly.

Tail surfaces are next. These are made directly over the plans of 1/16 in. flat balsa. Matters will be simplified if you prepare a plan for the left half of the elevators. This is easily accomplished by tracing the right half on thin paper, reversing your drawing and making your lines heavier. By joining your tracing and the half shown you will have a plan of the entire elevator. Controls on our *Tripe* are adjustable, so construct the frames as shown and join together by short lengths of copper wire inserted in the frames and held in place by a gener-

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Fokker Tripe

ous amount of cement. The rudder is all one piece, no vertical stabilizer being used on the real ship. When the tail surfaces are completed and dry sand them carefully so as to insure a neat covering job later.

Now provide plans for the left half of each wing in the same manner as the elevators. Join the left wing tracings to Plates 3 and 4 and you are ready to construct the three sets of wings for your model. (The author would draw the reader's attention at this point to the fact that the designer, Tony Fokker, did much to develop the cantilever, or self supporting wing, and so we see here one of the few uses of the thick, high lift wing section so common on our modern planes. Fokker installed interplane struts of wood only after the conservative German officials refused to accept his Triplane in its original form, that is without interplane struts.) Provide ribs in the numbers indicated on Plate 4. Pin the spars in place. The spars of 1/16 in. by 1/4 in. balsa are the same in all wings. The top and center wings are constructed in one piece while the bottom wing is made in two halves. Cement ribs in place over the spars and add the leading edges of 1/8 in. by 1/4 in. balsa and the trailing edges of 1/8 in. by 1/4 in. balsa. Note that ailerons are carried only on the top wing and that to accommodate same we use a rear spar of 1/16 in. by 1/4 in. balsa on the top wing as indicated. The root ribs of the bottom wing are slanted inward so as to join fuselage at the correct angle. Wing tips are of solid balsa; ailerons are also of soft balsa and are carved so as to possess the cross sections shown. The cut-out portion of the center wing is built up 1/8 in. by 1/4 in. balsa. When all wing frames are completed, remove from work board and shape all leading and trailing edges to their correct cross sections as indicated on rib patterns. Sand all frames

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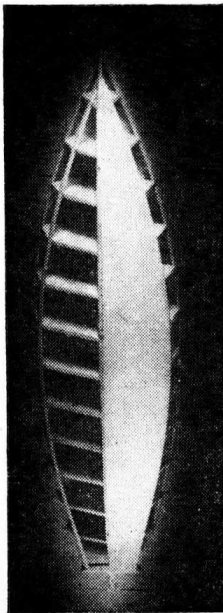
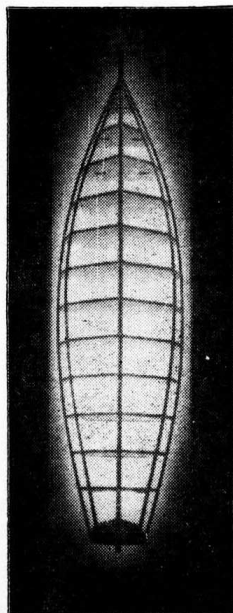
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and provide the scallops on the ailerons.

With the wings completed, we arrive at the point that gives most modelers their greatest trouble, covering. The author recommends colored tissue, and since the famous *Tripe* flown by von Richthofen was red, that is the color of the model shown in the accompanying photographs. Covering is simplified by using small strips of tissue with the grain running the length of framework. The background for the insignia is best accomplished by using squares of white tissue applied first. These are applied atop the top wing, the underside of the bottom wing, both sides of the fuselage, while entire rudder is white. Red tissue is now applied to the entire remaining frames. Take care to cover all portions of wing tips and leading and trailing edges. Even the solid ailerons are tissue covered. By using tissue of the proper color we assure ourselves of a light weight job. All surfaces are sprayed lightly with water and given one light coat of clear dope. Take the usual precautions against warping.

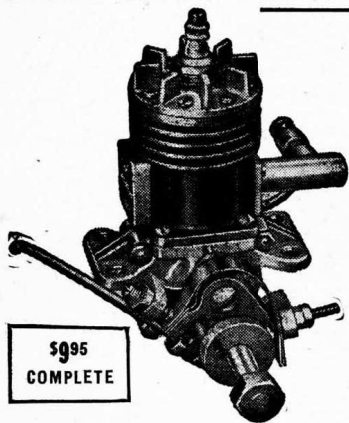
We are now ready for final assembling which begins with cementing the center wing in place directly atop the top fuselage longerons between formers 2 and 3. With center wing in place we cover the portion left open between these two formers and the wing. Small pieces of 1/16 in. square balsa are utilized to maintain the fuselage form at this point and small pieces of red tissue are carefully doped in place. The bottom wings are next cemented in place taking care that they are applied with neither positive nor negative incidence and without dihedral. While the bottom wing is drying in place, prepare four interplane struts of 3/32 in. flat balsa; these may be cut to the size and shape indicated on the side view on Plate 1. Sand them carefully to a streamline shape and fit two of them in their correct places between the center and bottom wings. The points where the struts attach are indicated by circles on the wing plans.

The center section struts are built directly over the plan given on Plate 4 of 3/32 in. by 3/16 in. hard balsa. Streamline these and sand smooth; cement in place (allowing for the correct outward angle) to the top longerons as indicated in side view on Plate 1. When the center section struts are securely dried in place cement the top wing in position. It is necessary to block the wing in place; small boxes and dope bottles are handy for this operation. Again take care that neither positive nor negative incidence is allowed when installing the top wing. The remaining two interplane struts are now cemented in position between the top and center wing. If the ailerons have not yet been attached they are now secured as were the elevators. The tail surfaces are also cemented in place at this time. The horizontal tail plane is cemented to the top fuselage longeron, and the rudder is secured to the rear of fuselage with small copper wire hinges securely cemented in position. The elevator struts are made according to diagram on Plate 2 and are cemented in place on each side.

The landing gear is probably due for some hard knocks, so the struts are made to the pattern indicated on Plate 4 of pine or other suitable hard wood. After being streamlined, they are cemented in place firmly to the lower fuselage longeron as indicated. While these L.G. struts are drying, prepare the wing type

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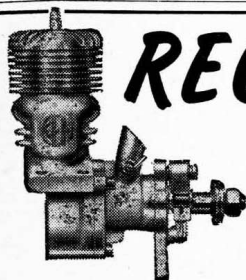
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spreader bar of medium grade balsa. (On the real plane, this spreader bar actually was intended to support the weight of the landing gear.) The axles are made of music wire and bent as shown on the front view on Plate 4. The author found this simple-type axle to be capable of absorbing all the normal shocks of landing. The end of the axles are bent so as to enter the spreader bar; cement these in place firmly and allow at least one hour to dry thoroughly. While the axles are drying, the struts may all be doped red and you may prepare the regulation Maltese crosses of black tissue and dope same in place with clear dope. The original *Tripe* had brace wires only beneath the center section and between the front landing gear struts. These are now duplicated with gray silk thread. The wheels can most likely be purchased at your favorite hobby shop or they may be easily made by laminating discs of 1/8 in. flat balsa. They are installed with small brass washers and held in place by a small drop of solder.

The wind screen is formed of celluloid and cemented in place. A realistic set of machine guns can be constructed by following the diagrams on Plate 2; make two, dope dull black and cement in place on top of fuselage as shown by dotted lines on the top view on Plate 1. The tail skid is made from a small piece of bamboo and cemented in place using a small crosspiece between the lower longerons.

We now install the cowl which was finished earlier. Cement the cowl firmly in place taking care not to smear that smooth white dope job. The two large black ventilator holes are best made of black tissue doped neatly in place. Set the model aside now so the cowl may dry in place and carve a propeller from a blank of hard balsa 5/8 in. by 1-1/4 in. by 6-1/2 in. Carve with care and make certain the blades have the proper concave shape. The prop should be sanded smooth and given several coats of clear dope. Install a music wire shaft equipped with nose plug and washers; cement firmly in place and set the propeller aside to dry thoroughly. The final operation before installing the prop and rubber motor is to dope the wheel centers white and the tires dull black. When the wheels and prop have dried, install the prop and rubber strands.

Your completed model will have a wingspan of nearly 19 in.; if you have worked with care it should weigh little over 1-1/2 oz. The model shown in the accompanying photographs was built by the author's young friend, Joe Hadsell.

It is a beautiful job and is capable of excellent flights. Your model should fly nicely on 4 or 5 loops of lubricated 1/8 in. flat rubber. The original model required no balancing; the adjustable elevators supplied what little adjusting was needed. However, if additional adjusting is necessary small weights placed in the nose or tail should suffice. Work with care and you will have an accurate scale model of a famous plane of which you can well be proud.

A letter to the author via the Editor as to your choice of future First War models will be appreciated.