

# THE McCARTHY AIR SCOUT

The author has been researching this obscure 1925 lightplane since 1977—time well spent, as can be seen in the photos of the finished product.

BY SHERMAN GILLESPIE

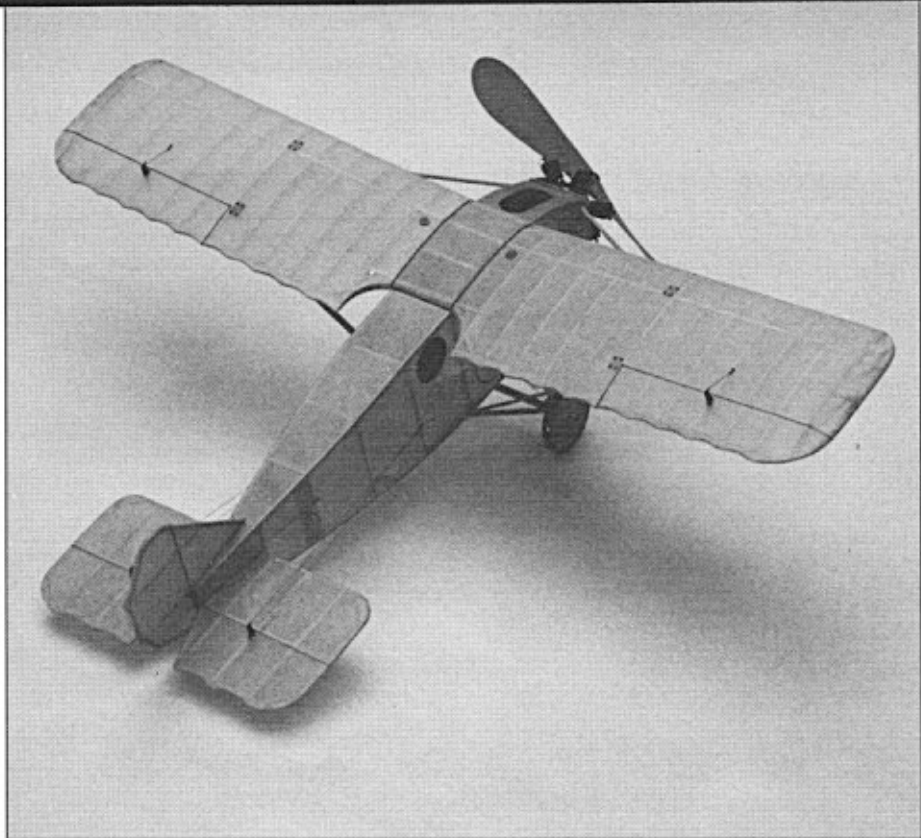
The McCarthy Air Scout was described in the March 31, 1927 issue of *Flight* magazine as an "American two-seater enclosed light plane." The first and apparently only product of the McCarthy Aeronautical Engineering Company of Detroit, Michigan, it was first test flown in January, 1925. Power was a 45-horsepower Anzani, and the aircraft was claimed to have a top speed of 120 mph at a gross weight of 1020 pounds. Flown continuously during the fall and winter of 1925-26, it was said to be strongly constructed, safe to fly, and especially suited for advertising and private flying. With its clean lines and six-cylinder engine it makes a charming Peanut Scale subject for modelers looking for a rarity from the Golden Age of aviation.

## CONSTRUCTION

The model shown was designed for indoor flying, so "keep it light" is the key suggestion. Target weight was 8 grams. The completed, covered airframe came out at 6.7 grams less the engine/prop assembly.

Construction follows conventional practice with only a few points to be mentioned. The longerons must be soaked in water until they will bend easily around a sheet balsa form for the curved nose section. Allow ample drying time with the strips pinned to the board. All sheet fill or support points in the fuselage are cut from 1/20 sheet stock to match the basic structure, except for the 1/32 sheet tail skid anchor spot. Use care laying out and gluing the sticks that form





Scale details go a long way toward making a realistic model—such things as control surface outlines, control cables and horns, strut bolt access plates on the wings, etc. Text tells how it's all done, including dyeing the tissue a light gray.

the slot for the stabilizer, so as to insure square alignment and zero stab incidence. When joining the fuselage sides, be sure to maintain the square construction through the cabin section. Accuracy here is very important when final mounting the wing.

The wire landing gear is sandwiched in place with 1/32 sheet balsa. The fairings and spreader bar are made from basswood, which carves and sands beautifully. Wheels are made from cross-grained laminations of medium-hard 1/20 sheet balsa with 1/8-inch brass washers as hubs, cemented on after the pre-painted paper wheel covers are in place. The full-scale Scout had wire wheels with fabric covering.

The stabilizer and rudder are made from light 1/20 balsa. The trailing edges on all surfaces on the original aircraft were cable, hence the scallops. Both the stab and rudder were of extremely thick symmetrical sections but were designed flat for a model this small to avoid adjustment problems.

The wing ribs, which are scale in number, are cut from well-sanded 1/32 sheet. The cable trailing edges can be effectively represented by slicing a 1/4-inch wide strip of balsa, cutting the scallops, and trimming the piece to the correct width. Position the panels on the plan and block up the tips for the dihedral. Cement the trimmed center section ribs in place and add the leading edge and spar pieces and the curved cutout parts.

### FINISHING

The original Scout was finished in "Valentine's gray" enamel, which was a very light gray. All metal fittings were black. A satisfactory light gray can be produced

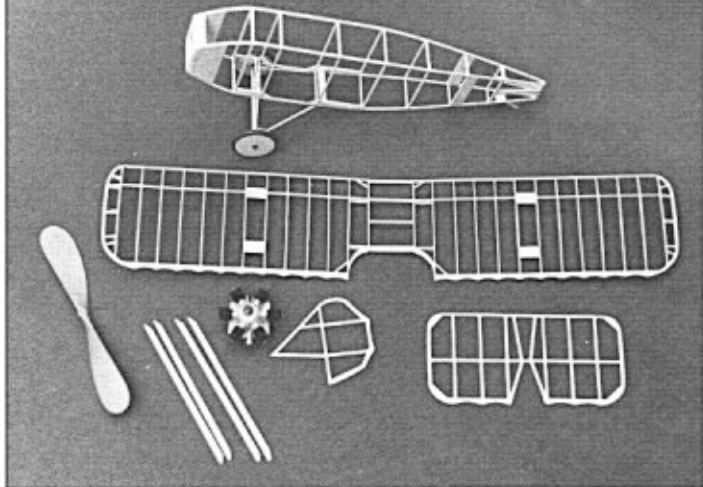
using Dr. Martin's #12 medium gray water color available in most artists' supply stores.

Make a wooden frame about 10x18 inches and dope white Japanese tissue in place. Mix about two droppers full of the Martin's gray color in 1 ounce of rubbing alcohol. Fog on a saturating coat using an airbrush; this will dye and shrink the tissue. Finish the dry sheets with a very light coat of Krylon #1303A Crystal Clear acrylic spray as a sealer. This procedure takes some practice but does work well. Prepare three or four sheets.

The right side door is drawn on a cut piece of tissue using a sheet balsa template and a Rapidoliner pen. Control surface outlines can be drawn on tissue panels using a straightedge as a guide.

All windows are represented by black tissue doped in place on the covered fuselage. White ink lines can be drawn beforehand on the front and side windows with a technical pen to indicate the "celluloid glazing." The rear windows at the pilot's position were actually open and are shown without the glazing lines. Clear dope and thinner were used to attach all covering.

The six-cylinder Anzani engine adds the finishing touch to the Scout and can be built up in various ways. Williams Brothers plastic cylinders will give one of the cleanest results; they can be reamed out some to lighten them. Cylinders can also be made from balsa dowels and paper wrappings with thread winding for cooling fins. Balsa caps form the cylinder heads with .015 wire as head bolts down the side of each cylinder. The carburetor is made from 1/16-inch aluminum tubing and paper wrappings.



Bare bones shot of the Air Scout components. The author emphasizes the fact that the model *must* be built light for best performance. Prototype came out at 9.3 grams in flying trim.

Excellent front and rear views of the engine are shown in the 1917 and 1919 editions of *Jane's All the World's Aircraft*. The Anzani engine is also shown on the three-view of the 1918 Heath Model 2B in the May 1981 issue of *Model Builder*.

### ASSEMBLY

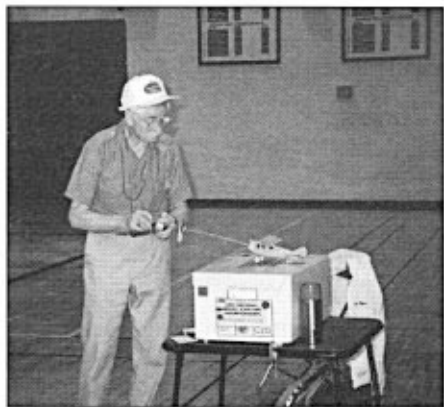
Slip the stab into position and cement it at the leading edge and spar, checking for trueness. Glue the rudder in place with drops of cement at the tip and rear, blocking it up square with the fuselage and stab.

Fit the wing in position over the top longerons, cementing at the leading edge, spar and trailing edges. Check carefully for alignment.

The wing and nose struts are cut from basswood strips trimmed and sanded to a streamlined shape. Although heavier than balsa, basswood can be sanded quite thin, is very strong and shows no grain. Double-gluing the struts at the contact points is recommended for a very strong assembly.

Size A, Shade 7820 gray silk thread was used for the landing gear wires and control cables. Cable entry points on the fuselage are small pieces of black tissue doped on. Only a tiny drop of cement is needed to attach the thread. Allow the fuselage end to

The author "starting the engine" for a flight in the local high school gym. Mr. Gillespie has been building Peanuts for many years; long-time *MB* readers will remember his immaculately built and excellent flying Glenn & Henderson "Gadfly," which was featured Peanut in the November 1981 issue and which took Grand Peanut and top Golden Age honors at the fondly remembered *Model Builder* Parcel Post Proxy Peanut Contest in 1979.



dry and then pull the thread tight across the pre-painted, glued-on paper control horns and hold as the cement dries. Trim the excess thread when secure.

### FLYING

Test flying turned out to be a most interesting experience. Three different engine/prop assemblies were built to allow for the usual "weight in the nose" adjustment needed for Peanuts. The engine/prop unit that gave the proper balance weighed 2.6 grams, bringing the total model weight to 9.3 grams. The balance point is approximately 1-1/16 inches behind the leading edge.

During the initial test sessions, it was found that the model would not perform well using medium-pitch balsa props. At times it refused to lift off the floor; increasing power only resulted in erratic, unstable flights that could not be corrected with the usual thrust changes.

It seemed that drag might be the real problem due to the unusual strut arrangement and the frontal area of the radial engine. The old modeler's determination "the model will fly" came to the fore. With a 4-3/4 inch low-pitch prop made from an old 6-inch IMP Paulownia wood prop, it was out over the grass on a dead calm evening for some hand-wound efforts.

The Scout climbed out steady as a rock in a natural right-hand pattern with no thrust adjustments of any kind needed. Subsequent tests off the gym floor brought the conclusion that the first attempts with the slow turning, higher pitch balsa props were like trying to get off the ground with a controllable pitch prop set at cruise rpm. Very scary!

With 500 turns on an .065 motor the model turned in consistent, beautiful, stable flights of 18 to 20 seconds. The logical conclusion is that at 8 or 9 grams, the Air Scout needs a small, low-pitch, high-rpm prop. A 4-3/4 inch plastic prop would be good for tests. It can be lightened considerably by scraping and is quite efficient.

While no attempt was made to go for high times under a 22-foot ceiling, the little McCarthy Air Scout shows great potential and is a truly unique, obscure aircraft that makes a delightful Peanut project. **MB**