

Delightful 'Peanut Scale' version of this unusual aircraft, featuring all sheet construction and rubber power
by J. FERGUSSON



FOR MANY YEARS, more than I care to remember I have been intrigued by a peculiarly named biplane the *Gugnunc*, or H.P.39 as it is more correctly titled. A fascinatingly ugly, splendidly proportioned, rigidly braced sesquiplane, ideal for model flying purposes. I had suitable three-view drawings, and around 1956 drew up a one-twelfth scale prototype for a 0.8 c.c. diesel motor, but due to business and other commitments I had to give up active modelling shortly afterwards. I still have the unfinished fuselage with centre section and tail-plane fitted! Articles by Ken McDonough and Doug McHard inspired me, during a recent illness, to dig out my old drawing and re-scale it as an indoor rubber model. Built to Ken's $\frac{1}{32}$ scale all-sheet principle it has proved to be a very good flyer and as tough as they come. To date it has had about a hundred flights both with realistic take-offs from the ground and hand-launches, many flights being 'disturbed' by banging off walls, concrete floors, and all manner of like model-wreckers. Sole damage to date has been a split rudder through falling back on to the floor after striking a wall. Ken's construction methods are fully proven and in the *Gugnunc* allied to Handley Page's 'W' style of bracing, it really pays off.

Outdoor weather so far has not been suitable for flying such a small model, but at 11.45 p.m. the other night I did take it out to test it on a patch of grass of about 50 yds. square opposite our house. The *Gugnunc* performed a beautifully stable half circuit and landed in the middle of the road just as a car came around the corner into our Avenue. I haven't run so fast in years!

The full size machine was built in 1929-30 specially to compete in the *Guggenheim Foundation* Air Safety Contest in America. In twenty entries only two survived the tests, the *Gugnunc* and the American *Curtiss Tanager*.

The latter finally being declared the winner. Then a row blew up which eventually led to law suits, but the *Gugnunc* survived to appear in the 'New Types Park' at Hendon Air Display, June 27th, 1931, resplendent in silver livery as R.A.F. K.1908. In fact it survives today, stored by the Science Museum at Knockholt in Kent. On the *Gugnunc* the slots extended throughout the upper and lower spans and were allied to flaps along the trailing edges. This enabled a speed range of 3.36 to 1 to be obtained and the *Gugnunc* was capable of descending (albeit in a tail down attitude) almost like an autogiro under full control. Power was supplied by the reliable Armstrong Siddeley 'Mongoose' of 130 h.p. Span was 40 ft. upper, 28 ft. lower, and it was 36 ft. 9 in. in length. As for the model, it hardly needs explanation: Ken's excellent article in the September 1971 issue of *Scale Models*, tells it all.

The plan frequently calls for $\frac{1}{64}$ in. thick wood, but as this is not commercially available, you need to sand your own from $\frac{1}{32}$ in. sheet. This is quite easy using the device shown on the plan.

Start construction by cutting out the basic fuselage sides from $\frac{1}{64}$ in. sheet balsa, noting that these continue right to the nose former: Add the $\frac{1}{16}$ in. sq. longerons, $\frac{1}{32}$ in. doublers, as well as the $\frac{1}{16}$ in. \times $\frac{1}{32}$ in. uprights on the inner faces. Use P.V.A. glue throughout and assemble the two sides starting at the rear, sandwiching the rudder (also of $\frac{1}{64}$ in. sheet) between the tail-post sections. Follow by mounting Former 2 between the sides at the firewall position. When dry, pull in the nose of the side panels and attach to the $\frac{1}{32}$ in. ply nose ring Former 1. Note the built-in side thrust at this stage. Next infill between F3 and F4 on the top deck. Add $\frac{1}{16}$ in. \times $\frac{1}{32}$ in. cross members at the bottom making sure to allow for the thickness of the $\frac{1}{64}$ in. bottom sheeting which follows at this stage. The top deck has longitudinal grain and is fitted next. Bend up the 22 swg wire undercarriage and sandwich across front face of F2 (using PVA glue) and the rear face of the top nose block for this purpose. Very soft balsa block is now fitted to the other three sides of the nose section and is sanded to shape, as shown. The cross section at the engine is circular,



Even the outside prop (necessary for good flight performance) fails to spoil the charm of this $\frac{1}{32}$ nd scale sesqui-plane. Delicate construction is called for when working with $\frac{1}{64}$ in. sheet wood, but the resulting model is so light that damage is rare, even after 'clouting' solid objects. Ideal for flying in the office. . . . !



Get up and go! Be very careful when colouring this model that you do not increase the weight more than the absolute minimum. Plan gives details of the best methods to use.

sweeping in plan view to meet the flat fuselage sides at F2. The lower radius rods are soldered to an inverted double pyramid structure with sharpened ends inserted and glued into the U/C doublers. Fit paper fairings to the radius rod and plastic or paper tubes to represent the oleo struts on the shock legs. The engine is shown and fully explained on the plan. The windshield top deck fairing is made of film base or clear acetate sheet as there should be a clear panel on the between-cockpit section.

Now the tailplane maybe cut out and mounted between the base of the rudder and the top of the fuselage sides. Attach by two spots of glue at the leading edge and by a packing block as shown across the tailpost at the hinge line of the elevators. Finally centralize the fin leading edge and glue in position, make up and fit the wire skid pyramid and stab into bottom edges of fuselage. Glue well. The wings are cut out and glued over the ribs to provide an airfoil section, then are offered up to the centre section end ribs in the case of the upper-wing. Check dihedral here. Follow by putting the lower panels into the fuselage sides in the area of the doublers. Check this dihedral also. Continue fitting the top wings by reducing some birch cocktail sticks to the correct section

and stabbing into the top longerons by sharpening the ends. Glue well. The top ends are stabbed and glued to the top centre section ribs. A cardboard template is very useful here to obtain the correct rigging angles and symmetry. Fit the $\frac{1}{32}$ in. ply front cabane struts. Inter-plane struts are also $\frac{1}{32}$ in. ply and are simplicity to fit: just sharpen the ends and push into the wing ribs. Again ensure that rigging angles are correct. Finally fit the brace strut from the top centre section to the lower inter-plane at the front edge of the 'N'. Mount wheels on axles with spot of P.V.A. to retain on the end of the wire. Assemble ply disc F.1 and balsa spigot bushed with tubing as a nose button.

Glue eight laminations of $\frac{1}{4}$ in. \times $\frac{1}{16}$ in. \times 4 in. balsa, spread fan-wise as shown for the propellor. Allow to dry, then carve to shape and add rear spinner disc and build up a soft balsa spinner. Now fit the prop shaft using cup washers, mount on spigot and bend the rubber hook. Fit the motor between this hook and rear peg - my original uses five office bands 'Veteran Series No. 140-19' pre-tensioned and well lubricated. All that is left to do is to decorate the model - details are on the plan - using Indian Ink and Silver Dope. Then off you go to many happy flights.