

Arthur Searl's MORANE SAULNIER 'N' SCOUT 56" span for .29-.40 power, 3-function propo—has been flown

THE Morane Saulnier 'N' was one of the most advanced combat planes of its time and, when one considers that it was in service at the outbreak of World War I, its highly streamlined appearance and clean lines are all the more amazing. It was highly manoeuvrable, had an extremely good rate of climb, with a top speed of 102 m.p.h. when most machines of the day could hardly achieve 80 m.p.h., one can understand why it was nicknamed the *Bullet*.

The *Bullet* was the product of an outstanding designer, Raymond Saulnier, (he was also mainly responsible for the design of the Bleriot XI—the cross-channel machine), and was a leading exponent of monoplane design. He had designed a

number of very successful slab-sided monoplane racing machines which had just about picked up every speed record before the outbreak of the war. Antony Fokker's *Eindecker* was a copy of the 1913 Saulnier racer, but Saulnier was not satisfied with the racer and developed the *Bullet*. This machine was the first true "scout" design and had a performance that was not surpassed by many fighters even at the armistice, and would have given a better account of itself as a fighter but for two reasons. One of these was the lack of a synchronised gun, and the other reason the attitude of airmen of the day to monoplane designs. They claimed they landed too fast—that was, over 40 m.p.h.

However, Saulnier was one of the

first to see the need for a forward firing gun and, indeed, developed a synchronising method before the outbreak of war, but lack of official support made him abandon development. 'Planes of that time were only considered militarily for observation, nevertheless it was a Morane that altered that attitude, by using hardened steel deflectors attached to the airscrew, which hit aside any bullet that would have damaged the wooden propeller. (A Morane was considered operational if it had less than six holes in the prop !)

The story of Anthony Fokker's being inspired to develop his famous interrupter gear after seeing this device on the French Ace Roland Garros' machine, which had made a forced landing behind German lines,

is well known. I often wonder if he also copied Saulnier's interrupter gear as well as his machine.

About 60 *Bullets* were built and equipped squadrons in the French, British and Russian air forces. They were extremely effective on the Eastern Front and the exploits of the Russian Aces are quite hair-raising. Men like Smirnof, Nesteroff and, in particular Staff Captain Alexandrovitch Kazakov who was Commander of XIX Corp Air Squadron of the Russian Imperial Air Service, and is Russia's top W.W.I. Ace with 17 confirmed victories, but unofficially credited with 32. He must have inspired Dastardly and Muttley, as his method of attack was to fly over slower-flying enemy aircraft and tear away wings, flying wires, and control surfaces by trailing a grapnel, and he also brought down an *Albatros* by collapsing its upper wings by landing on them with his undercarriage. He received the British D.S.O., M.C. and D.F.C. and, during the Russian Civil War, joined the R.A.F. His machine had a green cowl and light green fuselage; normal Russian Air Service machines were silver with black cowls; British were as per plan or, instead of silver, plain undoped fabric. The red cowl was in order to distinguish the Moranes from the Fokker *Eindecker*—the silhouette in the air being virtually the same. However, there are many references to colour schemes. The Revell plastic kit of the Morane is useful for Russian markings and detail. The plan presented here is of a machine of 60 squadron R.F.C. mid 1915.

Building the Model

Construction is quite straight forward and, therefore, it would seem both boring to the reader and waste-

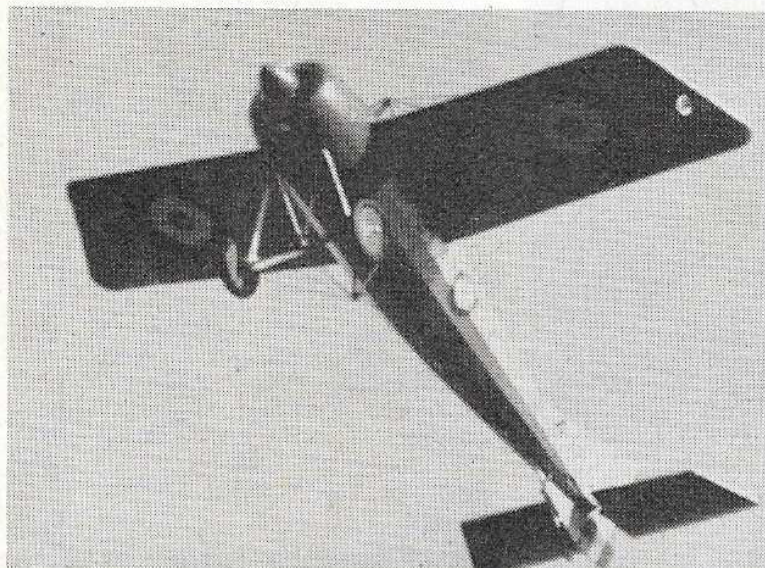
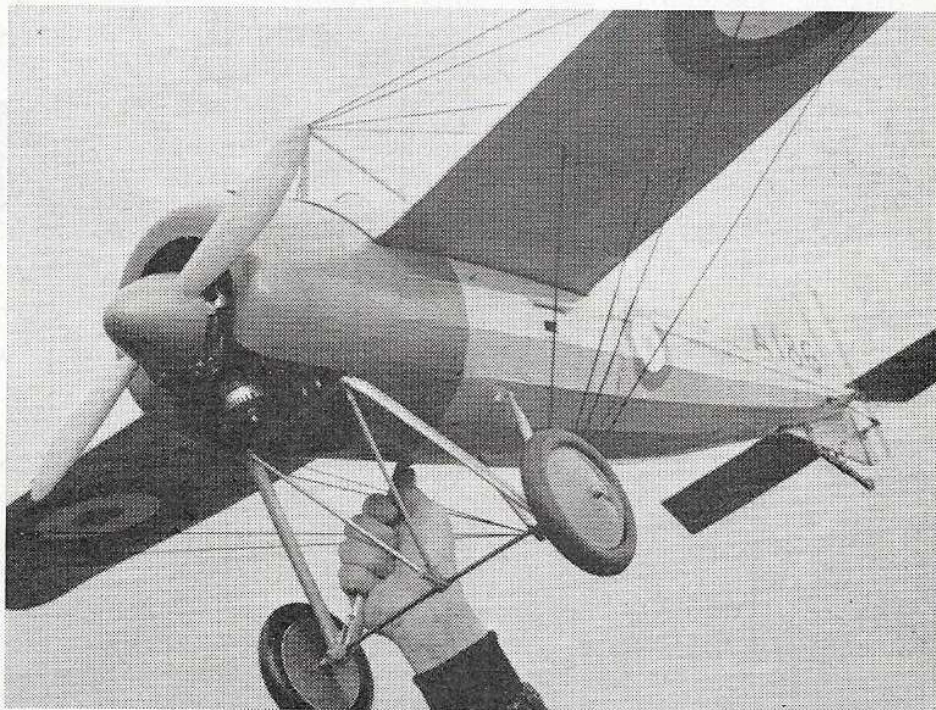
ful of space to give too detailed a description. Instead, I will deal with those parts of the building that might be of special interest and, of particular interest, must be the fuselage, especially for those who have never built one incorporating stringer construction.

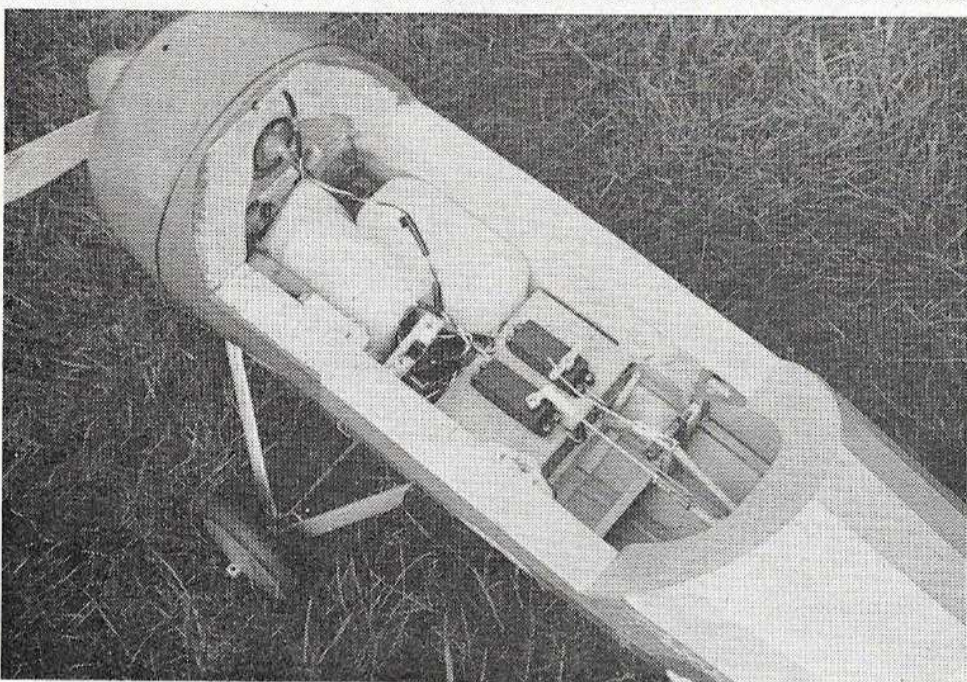
I am basically a sheet slab-sided type myself (if the Eds. dare make just one crack!) and although I wanted for some time to build the *Bullet*, those stringers and the round fuselage put me off. However, I need not have worried. Quite frankly it is as easy as a slab-sider for, once the basic box has been made and formers glued to the uprights, it is just a matter of lining up the stringers and gluing in place. I built the fuselage almost complete, fin, wheels and the lot, before I built the wing. I then

placed the wings on the fuselage and filled in the cockpit section. This was simply done by gluing the front former onto the leading edge, laying the inclined former onto the fuselage's inclined former, and gluing to the trailing edge with a few scrap pieces here and there to hold the formers firm—and then planking in between.

As the construction follows reasonably the full-size, you get funny feelings of time warps and you may think you're back almost 50 years building the original machine, and to me that is what scale modelling is all about. (*Arthur—you've been reading too much Brian Aldiss science fiction!—Eds.*)

With this stringer-and-fabric construction you will not have to load up the nose with a fortune in lead, the housing of the Deacs in a made-





up tin-can over the engine helped a lot. A ply box well fibre-glassed would do as well, and it would keep the Deacs free from oil.

There are many ways of making a cowl—built up from balsa or wrapped ply; or you may even find a small saucepan suitable. However, fibreglass takes a lot of beating, and most people have the know-how these days but, just in case you are lazy like me, Joe Lebot makes one just for the Morane (see classified ads.).

Make certain the top pylon is firmly cemented into blocks of scrap balsa in the wings and to the cockpit sides. As with the full-size job, if you come in too steep on a bumpy grass field the model may nose over, and the pylon needs to be able to take the machine's weight.

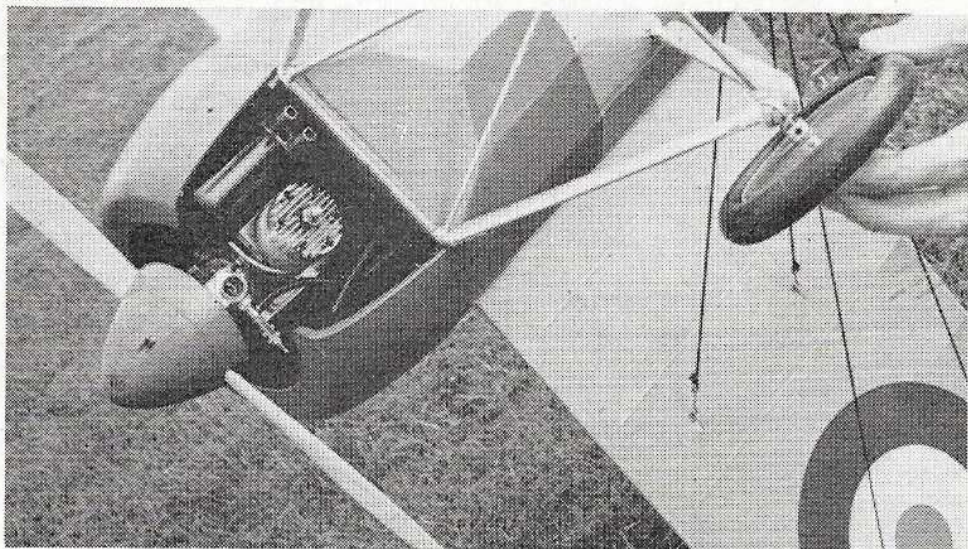
Other areas of "impact treatment" are the wheels and skids. Make certain all fixing points of the wheels are carefully attended to, especially the rear fixing to the fuselage and that the upright of the fin is hard balsa. It is not that these points are in any way vulnerable, it is just that my landings are lousy and I need to look to such items! I have been told that good fliers go light headed holding their breath when I make my approaches. However, with two years of flying in any weather, plus straining through the same hedge twice, I do not think there is any modification I could suggest to improve the structural strength.

The all-moving tailplane gave me a few sleepless nights, but I was determined to duplicate this full-size feature. However, in the event, it is very docile if the throw is limited to approximately 6° up and down. You can link straight to the servo, but I found the secondary linkage well worth the trouble.

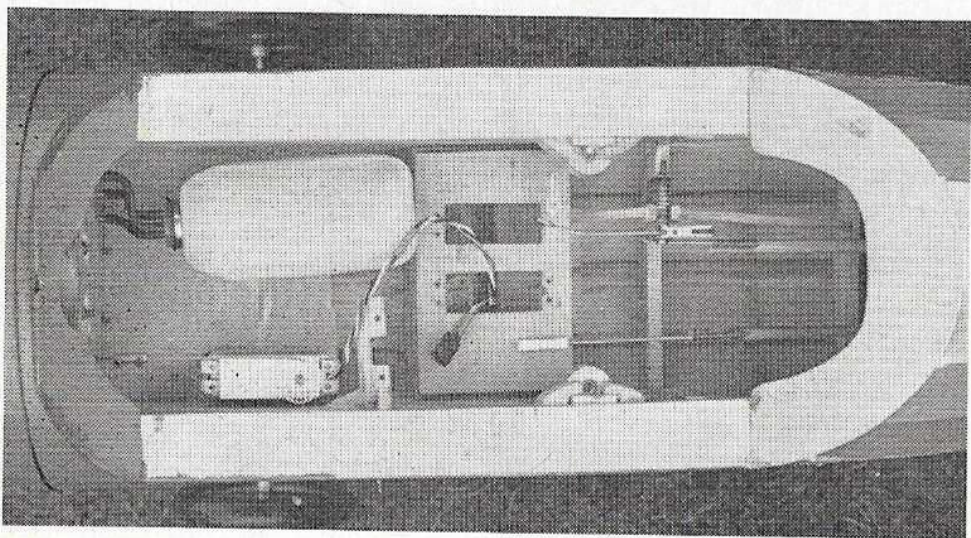
Covering and finishing

Covering, well its just got to be nylon—I covered the rounded fuselage in just two pieces. Covering wet, I found it easy to cover the bottom to the stringer half-way up the side and then did the top down, slotting out for the fin. However, before starting the covering make certain to give the framework at least two good coats of dope. When covering the wing the only point of special treatment is the under-camber. Give the under-camber on the ribs a good filling with dope and put the bottom covering on

Left: installation. Note bellcranks and offset fuel tank. Deacs in cowl.



Designer uses a Power-Max silencer which, as may be seen-above, keeps all the "works" in the cowl area. Below: installation shot—minus installation.



first—do a bay at a time, making certain the nylon is well doped along the camber of each rib.

You will find a number of colour schemes available, the one illustrated on the plan is silver and red, and looks surprisingly striking in the air. Captain Kazakov's machine had a green cowl and a light green

fuselage, roundels and skull and cross bones as per the Revel kit, which also illustrates yet another colour scheme—black cowl and silver body—for the machines of Nesteroff and Smirnoff.

The silver I used was I.C.I. Belco and it has turned out very serviceable. I used the spray quality

but, if you haven't a spray unit available, no doubt the brushing Belco would be suitable. The red was Humbrol enamel and then a couple of coats of fuel proofer. If you are using a silver scheme and use enamel, it is better to fuel-proof with clear polyurethane. I prefer Ronsel matt coat polyurethane wood seal.

Trimming and flying

My prototype model did not fly straight from the board; I had to take it out to the field first! (I do not think I would have made it through the window anyway.) In actual fact it flew straight out of my hand. I had tried ROG, which is really the only way with a scale job, but the grass was far too long for the 35 I had originally fitted and so I resorted to a shove and a prayer and, before it had done its first circuit, it was trimmed out. I later fitted a 40 and found the extra power handy, but any good 29 engine will suit.

The model flies itself—by the way it was originally intended for single channel some 12 years ago, yes I did say 12 years, but I put the frame in the attic and didn't bother finishing it until two years ago. (I wish I had had the guts to finish it then, because it would have made a great single channel flier.) I have tested this out with engine and rudder only. Put in a steep bank and left alone, it will gradually pull out of the turn, so you should have it trimmed out in a couple of hops. Whichever way you build it, it's a great feeling as it lifts off and climbs away. There must only be one other way for me to get that dawn patrol feeling, but I would have to have been born 50 years earlier. *Contact!* . . .