FLIGHT

THE PARNALL "PIXIE" LIGHT 'PLANE

Douglas Engine

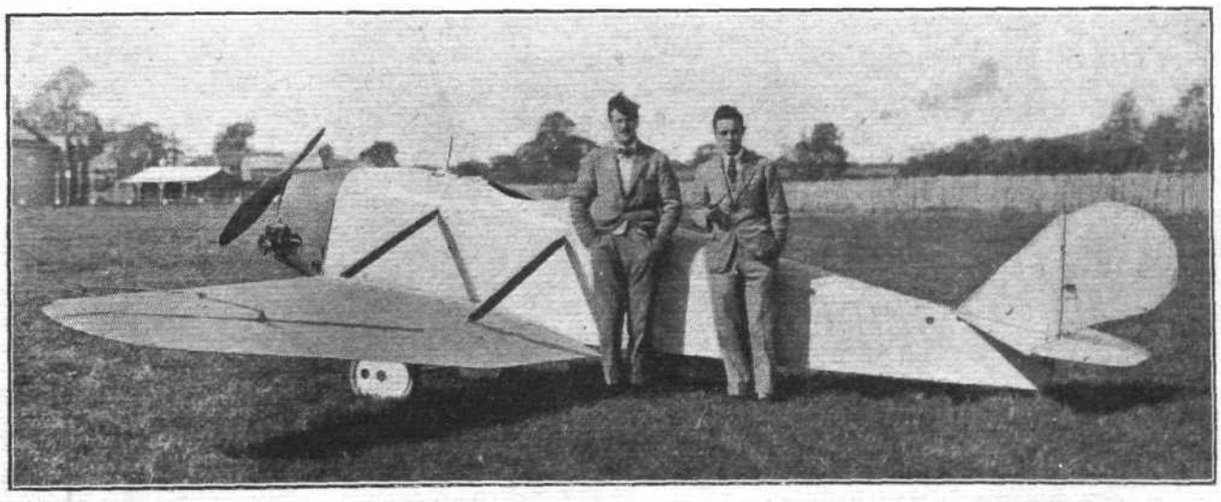
OWING to the fact that we were unable to obtain from the manufacturers details and illustrations of the machines entered by George Parnall and Co., of Coliseum Works, Bristol, for the Lympne light 'plane competitions, it was not possible to include with the comparative scale drawings published in our issue of October 11 the drawings of the "Pixie." We have now, however, obtained these drawings, and have therefore thought that a brief illustrated description of the machines may be of interest. In our issue of October 18 several sketches showing certain constructional details of the "Pixie" were published, and to these we would refer readers, as space does not allow of publishing them again this week.

As entered for the Lympne competitions the Parnall "Pixie," designed by Mr. Bolas, chief designer to George Parnall and Co., was built in two types, one with large wings and a 500 c.c. Douglas engine, and the other with small wings and a 750 c.c. Douglas. Instead of building two complete machines, the one fuselage, chassis and tail were made to serve for both types, the machine being changed from one type to the other by merely changing the engine and wings. The constructional details are the same for both types, so that the following remarks may be taken, except when otherwise stated, to refer to both. Incidentally, the idea of interchangeable wings of various areas might be worth further development when we come to consider the marketing of light 'planes, and it would appear that the idea might be extended to include a change from single-seaters to two-seaters. This we do not claim as an original idea, as something of the sort has already been done (by Capt. Barnwell while he was associated with the Bristol Aeroplane Company), but it seems that in the case of a light 'plane the "side-car" idea has a good deal to recommend it. At any rate, we offer the suggestion for what it is worth. It should not be difficult to design a fuselage in which a central portion can be interchanged for one with two seats and carrying a larger wing or wings. Thus, if the owner-pilot desires to go alone, but to travel reasonably fast, he would use the machine with small wings and one seat. If he wished to take a passenger he would merely disconnect the central portion of the fuselage and replace it with the two-seater, large-wing portion. In other words, he would attach his "side-car."

However, to return to the Parnall "Pixie." The machine is a low-wing monoplane, with the two halves of the wing hinged to the lower longerons of the fuselage and braced by two streamline steel tube struts. These struts are attached to the upper longeron of the fuselage by a very neat adjustable fitting, which allows of setting the angle of incidence and dihedral within very fine limits. A sketch of this fitting was published last week.

THE PARNALL "PIXIE I": Three-quarter front view.

The wings themselves are of normal construction, the spars being of built-up I-section, with the web resting in grooves in the top and bottom flanges, somewhat after the fashion of a wing rib. The material used is spruce. The wing design is, however, unusual in that, although over the inner portion of the wing the two spars are parallel, from just outside the points of attachment of the bracing struts the rear spar slopes forward to meet the front spar at the tip. Thus any tendency on the part of the rear spar to deflect under aileron loads is prevented by the front spar, which is placed at a deeper part of the section. In fact, according to how the spar positions are chosen, it would probably be possible so to design the wing that the tendency to warp under aileron loads was in a direction



THE PARNALL "PIXIE I": Three-quarter rear view. Standing by the machine are Capt. Macmillan, the pilot, and Mr. Bolas, chief engineer and designer of the Parnall machines.