P.82 Defiant II

cowled and the wing was a pure cantilever structure with square-cut tips. In the second machine the thrust lines of the engines were lowered; Townend ring cowlings were fitted; the wing was strut-braced; the wing-tip shape was revised; and Handley Page slots were fitted. Though the fitting of the Townend rings increased the speed by 7 m.p.h., performance remained inadequate, which is not surprising in view of the relatively large size and weight of the Bittern (span 41ft, gross weight 4,500 lb) and the low power of the Lynx engine (214 h.p.).

P.82 Defiant I Air Ministry Specification F.9/35 called for a turret fighter—that is, a fighter wherein the entire armament would be concentrated in a power-operated turret—and to its requirements Boulton Paul produced a machine of exceptional qualities, named Defiant. The first prototype, K8310, was initially flown on August 11th, 1937, and at the end of the year the type passed into production with the Rolls-Royce Merlin III, with which powerplant 713 machines of the type were eventually built for the R.A.F.

The Defiant wing was made in five main sections—the centre-section, two outer panels, and detachable tip portions—and embodied two main spars, having top and bottom booms of extruded light alloy, and light-alloy sheet webs with vertical corrugations. The flush-riveted stressed skin had Z-section stiffeners riveted on. Frise-type ailerons were fitted on the outer panels, and there were hydraulically operated split trailing-edge flaps between the ailerons and fuselage. The fuselage itself was of oval-section and built in two main portions; the first of these was built up of four L-section longerons and a number of massive bulkheads, and the rear part was made up of three units—two side members and a deck. Surmounting the deck, fore and aft of the turret, were light fairings which hinged downwards automatically, under the action of pneumatic jacks, to permit the turret to be traversed.

The Boulton Paul turret, a removable, self-contained unit, mounted four 0.303in Browning guns, and the whole of its hydraulic system was part of the turret itself, having no connection with any other hydraulic system in the aircraft. The Merlin III engine, rated at 1,030 h.p. at 16,500ft, drove a de Havilland constant-speed three-blade airscrew of 11ft 6in diameter, and was supplied with fuel from two tanks in the outboard extremities of the centre-section.

The Defiant proved an excellent flying machine and won golden praise from the Aeroplane and Armament Experimental Establishment. Span was 39ft 4in, length 35ft 4in, wing area 250 sq ft, weight empty 6,078 lb, normal flying weight 8,318 lb, max. permissible loaded weight (night fighter) 8,600 lb, speed at 17,000ft 304 m.p.h.

P.82 Defiant II In this sub-type the Merlin XX engine, delivering 1,260 h.p. at 12,250ft, was substituted for the Merlin III. The engine mounting was redesigned, as were the radiator and cowling, and additional fuel tankage was provided. Other modifications were the fitting of a slightly larger rudder and a pressurized fuel system. Deliveries began early in 1941 and continued until January of the following year, when production ceased with the 207th aircraft.

P.82 Defiant T.T.1 A target-tug version of the Defiant II, with the same engine. One hundred and forty were built "from scratch," and many Defiant II fighters were converted to the same standard.

P.82 Defiant T.T.3 This designation distinguished the target-tug conversion of the Defiant I (Merlin III). Many of the type were "tropicalized" for service with the Royal Navy overseas.

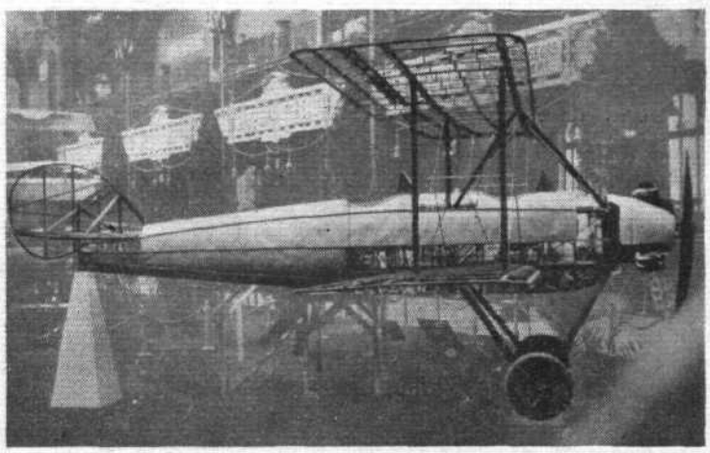
P.92 In 1939 Boulton Paul projected another turret fighter, of very advanced concept. It was to be powered with two Rolls-Royce Vulture engines, would weigh over 19,000 lb, and be capable of over 370 m.p.h. at 15,000ft. The armament of four 20 mm guns was to be concentrated in a massive low-drag dorsal turret, the cupola of which merged into the high-mounted wing. A crew of three—pilot, navigator and gunner—was to be carried, and range with auxiliary tankage would be 2,000 miles. Although the full-scale aircraft was never built, a half-scale model, with two de Havilland Gipsy Major engines, was constructed by Heston Aircraft, Ltd., and was extensively flown.

LIGHTPLANES

P.6 A little single-bay biplane, built in 1918, the P.6 two-seater was used for full-scale aerodynamic research and was powered with a 90 h.p. RAF. 1A engine. Judicious application of the results of tests with this type, and in the wind tunnel, contributed largely to the aerodynamic advances which characterized the company's later machines; and the inscription "Boulton and Paul, Ltd., Sales Department," painted prominently beneath the wings and on the fuselage sides (see photograph on this page) proclaimed the incidental usefulness of the machine as a

P.6.

P.9.



Above, P.10; below, P.41 Phoenix.