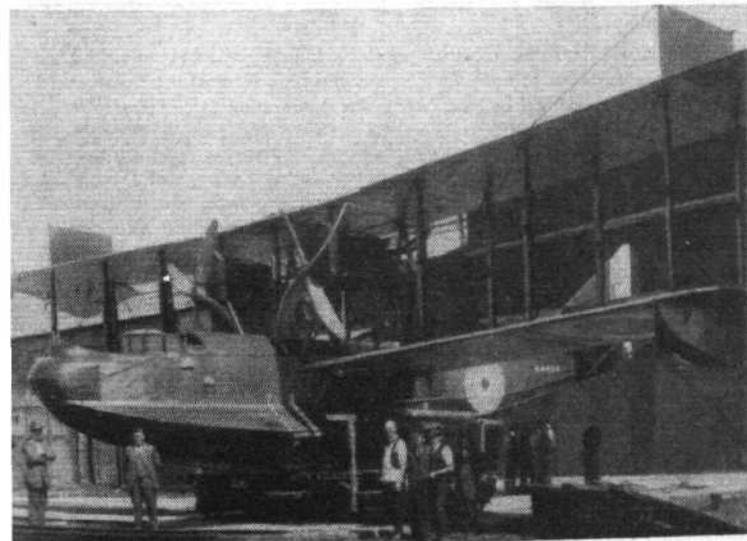
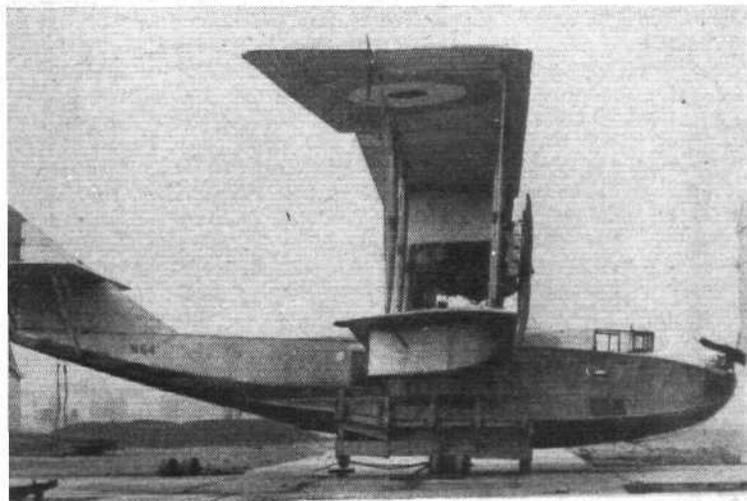
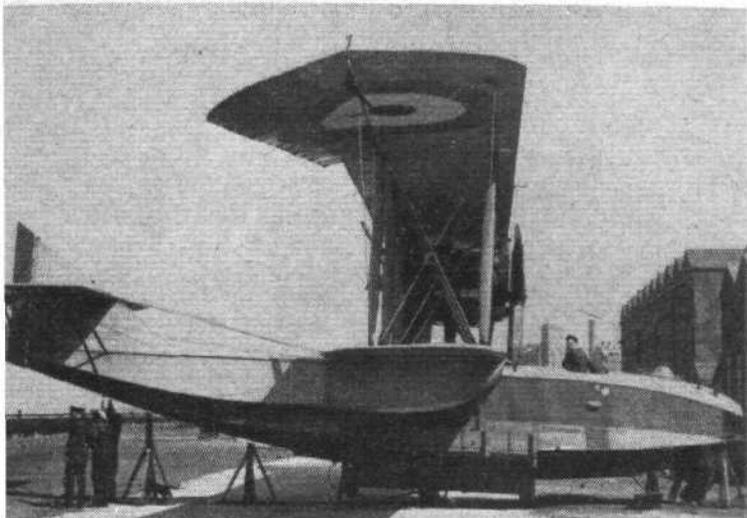
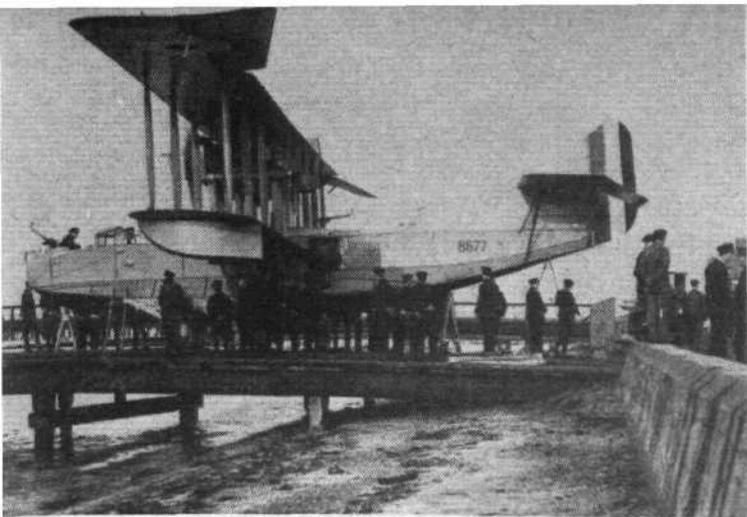


From top to bottom: Rebuilt Curtiss H.12 with Porte-type hull (this aircraft, No. 8677, shot down Zeppelin L.43); the F.2C, which saw operational service but did not go into production; the F.3 prototype, which appeared earlier than the F.2A; and the production version of the F.3, with leading edge slightly recessed at the centre-section.



## THE FELIXSTOWE FLYING-BOATS . . .

on the hull; there were no waist gun-positions. The F.2C was powered by two 275 h.p. Rolls-Royce Mk II (322 h.p. Eagle VI) engines, and underwent official trials on June 23rd, 1917. Its performance was a little better than that of the F.2A, but not sufficiently so to justify interference with the F.2A production programme.

Nevertheless, the F.2C saw operational service. On July 24th, 1917, flown by W/C. Porte himself, it was one of five flying-boats sent out on patrol from Felixstowe. Near the North Hinder Light Vessel the patrol attacked a U-boat: two of the five 230-lb bombs which sank the U.C.1 on that occasion came from the racks of N.65, the F.2C.

At one time the F.2C was fitted with experimental bomb-release gear operated by compressed air. This gear was relatively complicated, and Sqd. Cdr. Hallam found it was not dependable when, one day late in September 1917, flying N.65, he attacked a surfaced U-boat; his bombs failed to leave the racks.

Earlier than the F.2C in point of time was the F.3, of which the prototype (N.64) underwent official tests on February 9th, 1917. This flying-boat was designed throughout by Porte and was slightly larger than the F.2A: its hull was three feet longer, and its wings were of greater span and chord. In appearance the F.3 was very similar to the F.2A, and could be distinguished only by the slight recessing of the leading edge of the upper wing immediately behind the airscrews. The upper wings of the F.3 had the same large overhang and ailerons of the same inversely-tapered shape as those of the F.2A; and the king-post structures above the outermost interplane struts were similarly clothed in fabric. The fin surfaces thus formed were characteristic of the F-boats, but they had no designed aerodynamic function.

The hull of the F.3 was built on the Porte principle, and was planked in the same way as that of the F.2A. At first, the tops of the fins were planked with birch three-ply, but on later F.3s the normal double-diagonal planking was used. An unsatisfactory feature was the design of the floors, which were rebated into the keelson on either side. This division of these important transverse members weakened the structure, and caused the planking to spring readily along the garboard: consequently the hulls leaked badly. As a palliative, intermediate timbers were later introduced.

The prototype was first flown with two 320 h.p. Sunbeam Cossack engines, and was distinguished by vertical surfaces fitted between the interplane struts immediately outboard of the engines. Production F.3s were powered by a pair of Rolls-Royce Eagles, and did not have the interplane surfaces fitted.

Whereas the F.2A could carry only two 230-lb bombs, the F.3 could carry four. It may have been this fact which commended the F.3 in official eyes, for it was put into production on a larger scale than the F.2A. There are indications that this was done against the advice of John Porte and his staff: indeed, Maj. Rennie later stated that the F.3 should never have been put into production. In service, the type was never so popular as the F.2A, for it did not handle so well as the earlier type.

The decision to build flying-boats at Malta has already been mentioned. Some F.3s were built in the dockyard there by local workers: the men were skilled boat-builders, and much of the fabric work was done by Maltese women under the supervision of Lady Methuen, the wife of the Governor.

The F-boats were used with another product of John Porte's lively imagination; one which might have had a greater influence on the course of the war had its development been pursued with more energy. As early as September 1916, Porte had suggested that the radius of action of flying-boats would be greatly increased if they could be carried across the North Sea on lighters in order to be able to take off near their objectives. He submitted a rough drawing of the type of craft he had in mind: it was a channel-shaped vessel which could be partly submerged by flooding tanks within its hull. A flying-boat was then to be floated in, the water ejected from the lighter's tanks by means of compressed air, and the aircraft thus raised clear of the water. Porte stated that the lighter should be strong enough to be towed at 25 knots by a destroyer.

After a visit by Admiralty representatives to Felixstowe, design work began at once. It was decided that only the stern portion of the lighter should be submersible, and that the flying-boat should be hauled aboard by means of a winch on the lighter. An order for four lighters was placed in January 1917, but it was not until June that the first was successfully tested at the builder's works. Towing trials were conducted in the