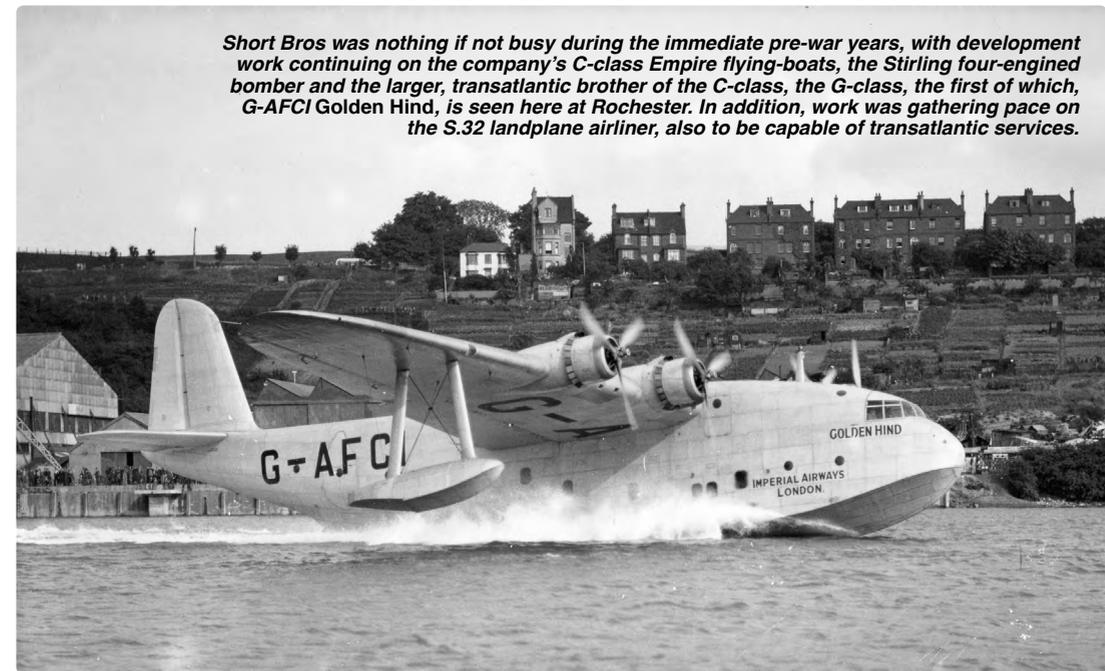
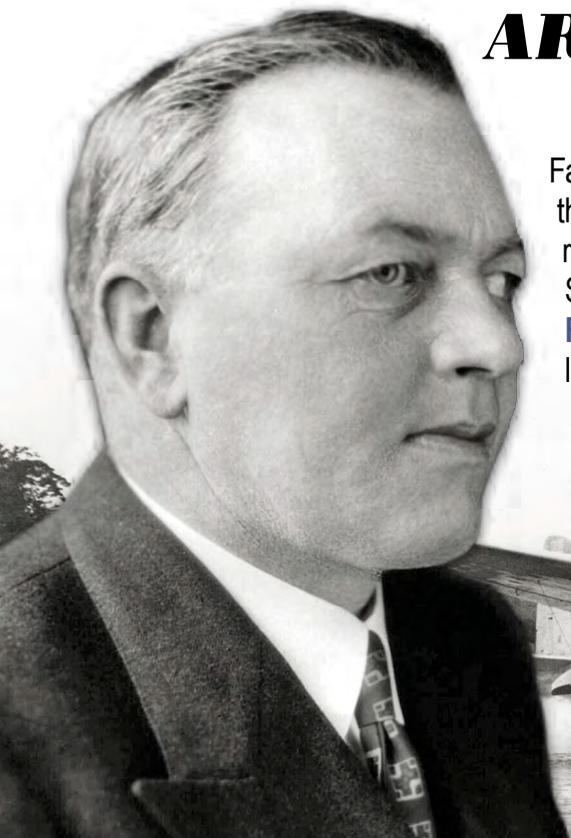


Short's EMPIRE LANDPLANE

ARTHUR GOUGE & THE SHORT S.32

Famous for its pioneering flying-boat designs of the 1930s, Short Bros also came up with a long-range landplane airliner design to Air Ministry Specification 14/38, resulting in the Short S.32. **RALPH PEGRAM** reveals what it might have looked like had war not stopped development



Short Bros was nothing if not busy during the immediate pre-war years, with development work continuing on the company's C-class Empire flying-boats, the Stirling four-engined bomber and the larger, transatlantic brother of the C-class, the G-class, the first of which, G-AFCI Golden Hind, is seen here at Rochester. In addition, work was gathering pace on the S.32 landplane airliner, also to be capable of transatlantic services.

TAH ARCHIVE

ALTHOUGH AIR MINISTRY (AM) Specification 15/38 for a medium-range commercial airliner had been sent out in May 1938 for competitive tender, and a contract awarded to Fairey for the FC.1 [see Fairey's Commercial Break by Bill Harrison in TAH21 — Ed.], the counterpart Specification 14/38 for a long-range commercial airliner, primarily for the transatlantic route, was not subject to competition, and a contract was awarded without delay to Short Brothers. Three prototypes of the resulting S.32 were ordered; two unpressurised and one pressurised.

THE GOUGE EFFECT

Short was gaining a formidable reputation as a constructor of large advanced flying-boats for both civil and military markets as a result of innovations introduced in the mid-1930s by its chief designer, Arthur Gouge. The latter's pioneering deep, narrow hulls and shoulder-mounted cantilever monoplane wing soon became *de rigueur* for many of Short's competitors, and his compact patented flap mechanism, which increased wing area and lift without inducing undue pitch variation, was a significant breakthrough. Short undertook an extensive programme of water-tank and scale-model flight tests of the various elements, and the first projects to incorporate Gouge's new ideas were all awarded contracts in 1934. These were the

S.20 *Maia* lower component of the experimental Short-Mayo Composite Aircraft; the S.23 Empire or C-class civil flying-boat for Imperial Airways [see the author's *The Golden Age?* in TAH36 — Ed.] and the S.25 Sunderland reconnaissance flying-boat for the RAF. There was a very strong family resemblance between these aircraft, particularly in the wing design, which Gouge would exploit across a range of further projects.

The Gouge wing was of all-metal stressed-skin construction around twin spars. In plan it had a straight taper out to around half-span, and a double-elliptical outer portion. He used a modified higher-lift version of the Göttingen 436 aerofoil, with a thickness/chord ratio of 18 per cent at the root and nine per cent towards the tip. Flaps were fitted to the inner, straight-taper portion, which increased wing area by a little under nine per cent when fully extended.

Cylindrical fuel tanks of circular or elliptical section were installed vertically between the spars. The engines, typically four, were mounted ahead of the wing's leading edge. In addition to its use on the aircraft mentioned above this wing design was also an integral part of the S.26 G-class large Empire flying-boats, the unbuilt S.27 catapult-launched flying-boat and the S.28 18-seat landplane airliner projects, as well as the S.29 Stirling bomber to Specification B.12/36 and other unnumbered projects.

By early 1938, as Specification 14/38 was being

OPPOSITE PAGE, TOP A contemporary model of the S.32 bearing its allocated civil registration, G-AFMK; the second and third examples were to be G-AFML and 'FMM, but none was ever completed and the registrations were not reallocated. OPPOSITE PAGE, BOTTOM LEFT Arthur Gouge — who, along with his deputy, Claude Lipscomb, was responsible for most of Short's innovative designs of the 1930s, including the C-class Empire flying-boats. The first of these, G-ADHL Canopus, is seen OPPOSITE PAGE, BOTTOM RIGHT "on the step" during take-off.