



ONE SPRING MORNING in April 1926 Oswald and Eustace Short trolleyed their latest advance in aircraft engineering down the slipway into the River Medway. Conventional by the standards of today, the Duralumin monocoque monoplane *Mussel* was remarkable for its time, featuring heavily in the aviation press even before its first flight. The Short brothers had acquired a reputation for futuristic designs since the all-metal *Silver Streak* took the Olympia show by storm in 1920. Unfortunately the first flight did not go well. In front of an expectant audience the aircraft barely unstuck from the water, and struggled along at 70 m.p.h. (113km/h).

When it re-emerged from the riverside workshop that June the *Mussel* had acquired two curious fabric sleeves over the joints between the wings and the fuselage. This spoiled the clean lines of the aeroplane — a simple streamlined and tubular fuselage over a thick straight wing — and made the junction dead straight and the fuselage sides locally flat. *Flight* noted that a “light fabric fairing was attached . . . and when the machine was next tested, its speed, climb and get-off were improved out of all recognition . . . this machine can now definitely be said to be a really practical proposition, and should be of great value”. It seemed that, not for the first or last time, the Short brothers had seen something that others were missing.

The period between the last echoes of the First World War and the gathering of the clouds before the Second was all about dynamism. The world was changing, the old certainties evaporating in the white heat of technology. Speed was shrinking the world and people

tunnel vision

streamlining and the **root cause** of drag

In the second article in his three-part series on aerodynamic developments during the golden age of aeronautical experimentation, **MATT BEARMAN** explores the potentially catastrophic issue of wing-root drag, how it was ultimately cured and why it would have a profound effect on aircraft design, from Spitfire to supersonics

Staff of the National Advisory Committee for Aeronautics (NACA) prepare the 8ft (2.5m) windtunnel at the Langley Memorial Aeronautical Laboratory for another vital experiment. The use of windtunnels to simulate flight conditions was invaluable during the early development of the comparatively new science of aerodynamics.