

BRING OUT THE BIG GUNS

BRITISH MILITARY AVIATION & THE DEVELOPMENT OF THE HEAVY CANNON, 1914–39

The advent of German airships and bombers able to rain destruction on Britain's capital during World War One sharpened UK thinking on airpower and hastened development of the "heavy-gun fighter", a concept extensively examined by the RAF over the next 25 years. **MARK RUSSELL** explores the Service's experiments with 37mm-plus cannon

FROM THE EARLIEST days of the Royal Flying Corps (RFC) and the Royal Naval Air Service (RNAS), interest was shown in the use of heavy guns in aerial combat. For the purposes of this article, and in the way the RAF considered such matters, a "heavy gun" is defined as a shell-firing gun of greater than 37mm-calibre, seen as the smallest that could meet the requirement that an explosive shell must weigh at least 1lb (454g), as decided at the St Petersburg conference of 1868.¹

The 37mm cannon was initially considered by the British as a measure to counter Zeppelins,

and then later to attack bomber aircraft. The use of such heavy guns was debated within the RAF from its formation in 1918 through to the early 1930s, and this article looks at the RAF's need for such weapons and the aircraft designed to carry them, as part of the response to the question of how best to defend against the dreaded bomber.

Ultimately, the RAF ended up standardising on 20mm rather than 37mm cannon, until the introduction of the 30mm Aden cannon on the Hawker Hunter in 1954; however, we will focus here on the development and testing of the 37mm cannon.

VICKERS TYPE 161 SERIAL J9566 / TAH ARCHIVE



PHILIP JARRETT COLLECTION

The RAF continued to investigate the weapon for various reasons, including the fact that it had initially been tested during the First World War, and so was a known technology. Also, because there were examples held in RAF stores, experimentation with these guns did not require the purchase of additional guns, which would have been the case with 20mm weapons.

THE COW AND DAVIS GUNS

Experiments with heavy guns, particularly the Coventry Ordnance Works (COW) 1½-pounder and 57mm Davis recoilless six-pounder, had begun before 1914, the Royal Aircraft Factory's F.E.3/A.E.1, which first flew in 1913, being armed with a COW one-pounder. It was never fired while the aircraft was airborne, however.²

The RNAS conducted the first successful air-firings of a 37mm cannon, using Sopwith Bat Boat serial "127", fitted with a Vickers 1½-pounder gun, in May 1914 and similarly armed Short S.81 "126" the same year³, the latter reportedly stalling and dropping 500ft [150m] owing to the recoil.⁴ In April 1915 the S.81 was used to test the Davis six-pounder.⁵

Other trials included the 1916 conversion of a Beardmore-powered F.E.2b to carry a Vickers one-pounder automatic gun, with a 40-round belt of ammunition and a CFS Landing Searchlight Mk II fixed along the line of the gun. Trials were undertaken on August 21, 1916, with air-firing tests "carried out in a satisfactory manner". The aircraft was "very pleasant to fly" and "slightly faster than the standard F.E.2b".⁶

ABOVE Short S.81 "126" at Calshot in 1914, fitted with a Vickers 1½-pounder gun mounted on a strengthened nacelle designed by armament specialist Arthur Camden Pratt. The calibre (shell diameter) of the heavy guns mentioned in this article was 37mm (or higher in some cases), but the weight of the shell varied — hence the use of the term 1½-pounder, for example.

The Admiralty Air Department's A.D. Scout (aka Sparrow) first flew in 1915 and was intended to carry a two-pounder quick-firing Davis gun to attack Zeppelins, although it is thought that the gun was never fitted to any of the four built.⁷ Other anti-Zeppelin designs followed, including the Supermarine P.B.31E Night Hawk, a quadruplane bomber-destroyer designed to carry one or more two-pounder Davis guns at the front of its gunner's enclosure, which first flew in February 1917 (see Michael H. Goodall's *Pemberton Billing and the Four-Winged Farrago* in *TAH8*).⁸ The Royal Aircraft Factory's N.E.1 (Night Experimental) first flew in September 1917, and was tested carrying a COW gun and its own searchlight.⁹

These heavy weapons were seen as ideally suited to attacking Zeppelins; their longer range and accuracy meant that aircraft could attack from below, and the weight of the shell and its explosive properties were seen as more likely to ignite a hydrogen-filled airship. The COW gun used in many of these trials was the weapon selected by the RAF for its inter-war trials, being "probably the lightest gun for its calibre and power ever made".¹⁰

After the end of the Great War, the newly