Aviation Science & Development at Farnborough
History and Learning Briefings

8

THE ROYAL FLYING CORPS

The Greatest Novelty of War

The Royal Flying Corps had a brief existence – less than six years – but over that short period it built up from a most faltering start to the most efficient air arm in the world; and successfully fought the greatest war that mankind had experienced.

In 1917 Lord Hugh Cecil summed up the Royal Flying Corps when he wrote the following :

"The Flying Corps is the greatest of the novelties of the war. And it appeals to people in several ways. Its military importance is great and increasing; it unites in a singular degree the interest of a sport with the deeper and stronger interest of war; the gallantry of its flying officers touches sympathy and thrills imagination; and the development of its mechanical and scientific apparatus inspires wonder and almost astounds belief."

Difficult Birth

Yet the gestation of the Corps was painful and protracted. Only a year before its formation in May 1912, the Chief of the Imperial General Staff, Field Marshal Sir William Gustavus Nicholson, had trumpeted that, *"Aviation is a useless and expensive fad advocated by a few individuals whose ideas are unworthy of attention."* It was against such opposition that the Corps struggled to gain acceptance as a new arm of warfare.

The prior history of English aviation had started in1862 when the Royal Engineers began trials to ascertain the military potential of balloons; and the interesting history of the development and use of balloons, including the period at Farnborough, is discussed in Briefing No. 7 in this series.

The first officially recognised manned flight in Great Britain of a powered and controlled aeroplane was by Cody on 16th October 1908 at Farnborough (see Briefing No. 12). But, in spite of this portent of the future, it wasn't until Bleriot flew the English Channel on 25 July 1909, that the general military woke up to the fact that a new form of attack on the British Isles was possible and significantly different from the past centuries of naval attack. Furthermore, it was quite capable of completely by-passing the formidable might of the Royal Navy.

In February 1911, the Royal Engineers were authorised to form an Air Batallion with effect from 1st April 1911. Under the command of Major Sir Alexander Bannerman, No1 (Airships) was based at Farnborough with the Beta, Gamma and Delta airships, whilst No2 (Aeroplanes) was based at Larkhill.

FAST is developing a series of briefing on key aspects of Farnborough's Aviation Heritage.

These briefing notes are not intended to be a complete and comprehensive history of the subject of the title, but are intended to stimulate the imagination and encourage further reading. To that end, a 'further reading' list is included at the end of each briefing. By reading a number of different histories, written by varying authors over a range of timescales, a balance of the differences can be achieved – and the reader's own opinions formed. But we hope that these briefings will be an interesting summary.

It is a continuing process and a number of further briefings are planned.

BRIEFING SERIES

1-6 A Brief History of the Farnborough Aviation Site (1901 to 1991)

1. 1901-14 The Early Days
2. 1914-18 World War I
3. 1918-39 The Inter War Years
4. 1939-45 World War II
5. 1945-90 The Cold War Period
6. 1991 The Demise of RAE

7. Royal Engineers Balloon School
8. Royal Flying Corps
9. Royal Aircraft Factory
10. Edward Teshmaker Busk (Scientist)
11. Frank W Gooden (Test Pilot)
12. Samuel Franklin Cody
13. The Farnborough Wind Tunnels
14. Hermann Glauert (Aerodynamicist)

Please check www.airsciences.org.uk for the latest list of available titles.

Meanwhile the Navy had been forming a group of aeroplane pilots who were training at Eastchurch on the Isle of Sheppey.

In 1912, the Committee of Imperial Defence appointed a group to prepare plans for the formation of the Royal Flying Corps. This would amalgamate, into a single organisation, the Air Batallion of the Royal Engineers and the Naval Air Organisation. It was constituted by Royal Warrant on the 13 April 1912.

Left : Members of the Royal Flying Corps 1912
Above : RFC collar badge and wings

The emergence of this new Corps did not, however, spring to life immediately. Nos 1, 2 & 3 Squadrons were formed at Farnborough on the 13th May 1912, No 4 in September and No 5 in August 1913.

Also in 1913, in March of that year, the Experimental Branch of the RFC's Military Wing was created. Its remit was to assess and develop the military use of man-lifting kites, aerial photography, bomb dropping, meteorology, aerial gunnery, wireless and artillery observation. This experimental branch had bases at Montrose (2 Squadron), Salisbury Plain (3 Squadron) and South Farnborough (Headquarters and 4 Squadron).

In June 1914, the entire RFC formed up at Netheravon for a 'Concentration Camp' – in the true sense of the phrase – its purpose being to concentrate under canvas the full strength of the new Corps in order to test its mobilisation ability and efficiency. In all, five squadrons were present at Netheravon – Nos 2, 3, 4, 5 and 6. No 1 Squadron was in the process of converting from airships to aeroplanes and No 7 was still being formed.

On the 1st July 1914 it was announced that from henceforth, the Naval Wing was to take control of all airships and airship operations and would follow an independent existence in the form of the Royal Naval Air Service (RNAS), using both airships and aeroplanes.

Outbreak of War

On the 4th August 1914 World War I broke out.

The strength of the Military Wing of the RFC, at this time, was assessed at 147 officers and 1097 men with 179 aeroplanes; with all of those in France being commanded by Brigadier-General Sir David Henderson. By November, the enormous demands being placed upon the RFC necessitated a more flexible command structure, rather than a centralized command.

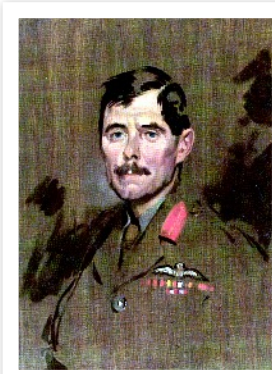
On the 29th November the Wing system was implemented, with GHQ keeping control of 4 Squadron, the Wireless unit and the Aircraft Park. No 1 Wing RFC was based at Merville and made up of Nos 2 and 3 Squadrons and served the IVth and Indian Army Corps. No 2 Wing was based at St Omer and comprised 5 and 6 Squadron serving III Corps and II Corps respectively.

Increased Demands

Over the next two years this system worked well, but the increasing demands on the Squadrons - fighting, bombing, reconnaissance, photography, artillery observation and contact patrols - led to a decision, on 30th January 1916, to a change of structure and it was decided that each Army would have two Wings.

A Corps Wing would provide support directly to the ground forces in terms of tactical photographic reconnaissance and artillery-spotting up to five miles beyond enemy lines; and the Army Wing would carry out those operations called for by the Army Commander - air fighting, long-range reconnaissance and strategic bombing beyond this distance. The Corps and the Army Wings were now termed an 'RFC Brigade'.

Earlier, on the 7th August 1914, back at Farnborough, Temporary Lieutenant-Colonel Hugh M Trenchard had been appointed officer commanding the RFC and was to take charge of all activities at home. The HQ was based at South Farnborough in G1 building on the north east side of the airfield next the Farnborough Road. This original building is now Grade 2* listed and, as well as being the HQ of FAST, also serves as the FAST Museum.



Above : HQ of the RFC and RAF G1 Building Farnborough.

Now (inset) the HQ and Museum of FAST

Above Right : Lieutenant-Colonel Hugh M Trenchard

Rapid Expansion

Later Trenchard was posted to France and the RFC had been increasing in size and capacity. By the end of 1916 the RFC had 1035 aircraft abroad and 1677 at home. It comprised 64 operational squadrons and 33 reserve and a total personnel count of over 46000. From 1917 the total number of Squadrons had increased to 115 with 109 training squadrons. It had 4227 aircraft in France, 941 in the Middle East and 5770 at home.

In this year, in just one of their disciplines - aerial photography - the RFC had taken 127,000 aerial photos and developed 3.9 million prints! Over the period of the war, mainly in the later stages, some 650,000 prints were made on the Western Front alone, mainly reconnaissance to assist commanders of ground forces in the field.

The Royal Aircraft Factory

Throughout the war, the Royal Aircraft Factory had been working hard and long in the support of the RFC and the broader war, mainly in production of a wide range of aircraft types - reconnaissance, bomber and fighter - culminating in the highly successful SE5a. As well as airframes, the Factory had been effective in the design, building and testing of a range of engines to power these various types of aircraft.

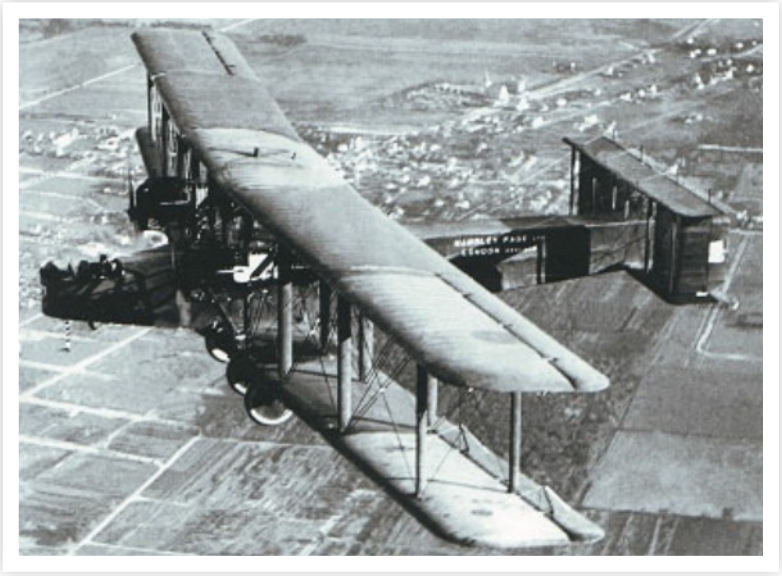
In other areas of aircraft technology, the Factory provided solutions to the real problems of operating aircraft under less-than-ideal conditions. For example, the use of waterproof dopes; and dopes which counteracted the deterioration of the fabric covering due to sunlight was developed at the Factory by Dr Ramsbottom of Chemistry Department. *See Briefing 9 in this series and the FAST archives of reports and photographs for details of the wider extent of Factory support.*

Long-Range Heavy Bombers

In the mix of relatively light aircraft that carried out scouting, air attack, reconnaissance and the other aspects of Army Support, there was a lack of ability to provide a long range heavy bomber role. For the Germans this had been effectively applied by the use of the Zeppelins and the Gotha and Staaken series of aircraft, which had continued raids over England into 1918. Handley Page provided its O/100 which entered service in September 1916 and the more powerful version, the O/400, entered service in 1918.

In May 1918, the Handley Page V/1500 four-engined heavy bomber arrived, capable of carrying two 3300lb bombs a distance of 1200 miles – a true strategic bomber. It was designed to attack Berlin, but arrived just too late – the Armistice being signed on the 11th November 1918.

Eight Naval Handley Pages formed part of the 41st Wing in October 1917, which became the VIII brigade, Royal Flying Corps in February 1918; and in June, became the Independent Force, Royal Air Force, commanded by Major-General Hugh Trenchard.



Above : The Handley Page V/1500 heavy bomber in the skies in 1918

Formation of the RAF and the Legacy of the RFC

The Royal Air Force was formed on the 1st April 1918. It combined the RFC and RNAS - thus ending the era of the Royal Flying Corps. The RFC had developed from a tiny and generally inadequate force at the outbreak of the war to the most effective air service in the world in the short period of just over four years. The development of its structure, honed by the white heat of war, resulted in an effective and efficient organisation which, despite the savage cut backs after the war, was the structure on which the RAF and virtually all subsequent air forces throughout the world were formed.

FURTHER READING

The RFC/RNAS Handbook 1914-18, Peter C Cooksley, Sutton Publishing Ltd 2000, ISBN 0-75092169-2
The First of the Few; Fighter Pilots of the First World War, Denis Winter, Penguin, ISBN 0-7139-1278-2
The Aeroplanes of the Royal Flying Corps (Military Wing), J M Bruce Putnam, 1982,
The Army and Aviation, Bruce Robertson, Robert Hale, 1981
The Times History of the War (contemporary history of the Great War)
The Royal Aircraft Factory, Paul R Hare, 1990, Putnam Aeronautical Books, ISBN 0-85177-843-7

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