The Royal Aircraft Factory at War
Dr Graham Rood
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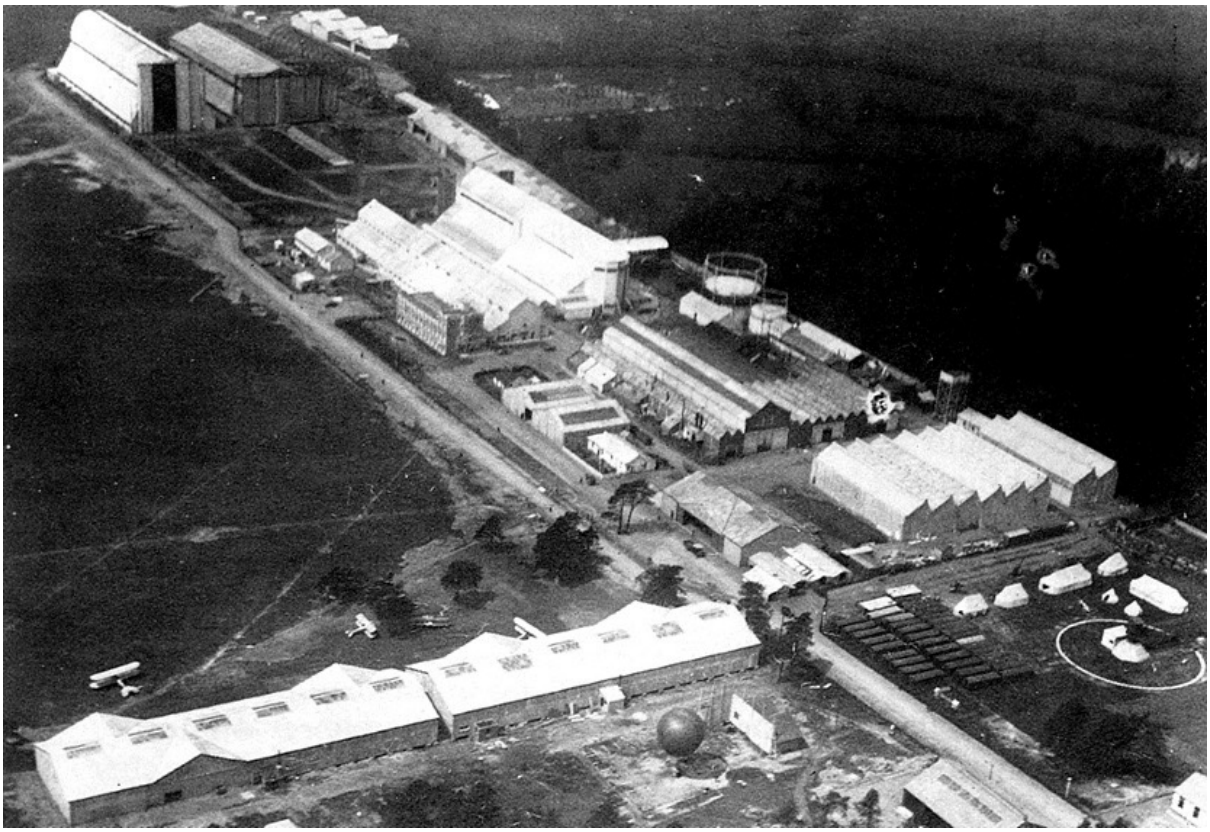
Taking on the task of describing days when aviation was in its infancy, when photographs were the only visual record - but the subject is pivotal to UK aviation history - is a task best left to someone not only enthusiastic, but also steeped in the fabric of the tale. Dr Rood (now a trustee of the Farnborough Air Sciences Trust (FAST)) fulfilled these attributes and presented a vivid and fascinating picture of the events and endeavours at the place where he became an apprentice in the 1950s, and it is a place he has remained close to ever since.

He took a largely chronological route from the origins of facilities on Farnborough Common in 1905, when the Army moved its Balloon Factory and School from Aldershot. They were soon in the company of other aviation pioneers, attracted by the fact that the Common was public access space, but these were independent at first. At intervals in his presentation Dr Rood shows organisational charts, and they were initial indicators of the influx of pioneers, such as Cody, and in later years over the period 1906-1918 that he covered, the scale and the diversity of the organisation, which fulfilled 'factory' and 'research' roles in this period was well described and illustrated.

The site changed its name to Army Aircraft Factory in April 1911 and then the Royal Aircraft Factory in April 1912. Under War Office & Army control aircraft were still built, and research was guided by the Advisory Council for Aviation (ACA). From April 1909 there was an organisation under the direction of Mervyn O'Gorman created to investigate such topics as metallurgy, structures, stability and control. Until that time, these issues were largely governed by each pioneering team's own rules of thumb. (In a concluding slide he showed a graph of the number of reports generated annually: it rose from barely a dozen in 1909, to over 100 in the later war years, and fell dramatically after 1918). These reports, now collated and kept for research use, are held on site by FAST.

He highlighted some of the most significant research, including Edward Busk's work on stability and control, structural design criteria, and the development through 1912-13 of the 'Trajectograph' and 'Ripograph' instrumentation systems, which considerably accelerated the quality of data acquired in flight trials.

On the 23 July 1914, as WW1 commenced, he detailed the 145 or so serviceable aircraft available to the UK armed forces: these were distributed between the Navy (49), Military (57), Central Flying School (33) and Royal Aircraft Factory (6): a total, and distribution, that exemplified the nation's poor standing on the eve of aerial warfare. Although Farnborough became synonymous with the 'Royal Aircraft Establishment' as a research base, the presentation stressed that it was the Royal Aircraft Factory, and that up to 1916 it was the most prolific source of military aircraft: with government encouragement to firms opening greater production only in the later years of WW1. He quoted the statistics, such as 553 aircraft built up to 1916, and particularly drew attention to the scale of the organisation, over 5,000 people at its peak, and the skills which were necessary. A lot of work was subcontracted, such as woodworking, and to manage that there was a large amount of technical work devoted to creating, printing and distribution of drawings, plus the generation of technical manuals for the rigging, repair and support of aircraft in service. It was wartime and many of the staff who performed these duties were women, with some 3,000 female members of staff at the RAF in 1917.



Royal Aircraft Factory: Late 1913 / early 1914

Dr Rood did not dwell on the major aircraft types that originated from the RAF. These did include the BE2 and FE2 series and the SE5, and he illustrated the various models, but he concentrated on the tasks that were challenging service personal – such as achieving high-altitude flight (performed by crews that used oxygen above 10,000ft) and having stable reconnaissance and bombing platforms - and solutions that stemmed from research by the scientists on the site were incorporated in their own and other manufacturer's designs.

The final name change came when the Royal Aircraft Establishment (RAE) was created in June 1918, to avoid confusion with the newly-formed Royal Air Force. Innovation was highlighted. Variable camber wings, enclosed cockpits, and the variable-pitch propeller were a few of numerous full-scale trials commented upon, and 'model' based research commenced with a substantial investment in wind-tunnels, and a whirling-arm facility for larger (even full-scale) models. Farnborough was to house the most diverse and significant set of wind-tunnels in Britain for many years.

Come 1918, and the end of WW1, the treasury funding for aviation was slashed, with social and economic demands on government budgets given much greater priority. Farnborough changed complexion, and its subsequent history was not a part of the lecture, but today it is still the venue for the biennial 'Farnborough Air Show.' Within a short space of time, and using numerous illustrations to support his wide-ranging discourse, the speaker delivered a clear reminder of what history was made on the site. His presentation attracted an audience of 140 people, whose interest drew a wide-range of questions.

Lecture notes by Mike Hirst