



Bedford Enclave Showing the Newly-Completed Large Motion System Building, 1982 (B6088C)



Tornado ZA326 Over Tunnel Site, May 1988 (A256)

Newsletter This issue sees the completion of our first year of newsletters. We get messages from many people after each issue but are always happy to receive more. Our aim with the newsletter is to tell you what we, as BAHG, are doing to preserve the history of RAE Bedford and to recall some of its achievements. We include in each issue some photographs from the archive. Don't forget we have this large collection dating from the 1950s to 2001. If there's a photo of an aircraft, a facility, a team or a departmental group for which you would like a fresh print, please contact us.

Letter to the Editor *From Mike Dobson* Thanks for the excellent Jubilee Issue [No.5] of the newsletter, referring in particular to the "Rose of York" aircraft. Interestingly the B-17 involved was originally to be named "Princess Elizabeth" but it was thought it might be too much of a propaganda coup if the aircraft were to be shot down, hence the change of name. Also the US Officer on the right of the group in the picture is Jimmy Dolittle, who was famous for leading the raid on Tokyo with a force of sixteen B-25 Mitchells from the carrier USS Hornet on 18 April 1942. Not being able to land back on the carrier the aircraft over-flew Japan to land in China.



Some Local News Despite the damp weather that has been the hallmark of this summer, Sunday 8 July saw the memorial to the airmen of the US 8th Army Air Force, and the 306 Bomb Group, hitherto located in Thurleigh village, unveiled at its new location on Thurleigh airfield next to Ralph Franklin's museum. Rain prevented a flypast by a B-17, but the ceremony was attended by a large crowd.

Neil Armstrong at RAE Bedford Everyone knows that Neil Armstrong, who died on 25 August 2012 aged 82, was the first man to step on the moon. What is probably less well known is that in 1971 he visited the Royal Aircraft Establishment at Bedford, at that time the UK's premier flight testing and wind tunnel research centre, while on a goodwill visit to Britain. The Establishment at Thurleigh was conducting experimental flying and other research as part of the Concorde development programme. As an experienced test pilot, Armstrong readily accepted the invitation to fly something unusual, one of RAE's unique research aircraft, the Handley Page HP115. This was used to investigate the low-speed flying qualities of highly-swept "slender delta" wings suitable for Concorde.



The picture shows Armstrong climbing in to the HP115 cockpit.

The HP115's first flight took place at Thurleigh on 17 Aug 1961 (see BAHG Newsletter Issue 2), 8 years before Concorde, which had its first flight in the same year, 1969, as Armstrong landed on the moon. As his introduction to flying the single-seat HP115 aircraft at Bedford on 24 June 1971, Armstrong was briefed (picture left) by RAE test pilot Ron Ledwidge (who died in 2003) and then, in effect, was handed the keys and told to go. That's what test pilots do. He came back safely, all smiles after a brief flight. The HP115 is now at the Fleet Air Arm Museum, Yeovilton.

[A similar article was published in the Beds Times 30 Aug and a phone-in was broadcast on Three Counties Radio at 0830 on 3 Sept]

Bedford Aeronautical Heritage Group

Don't forget, to contact us with any news or comments, please email (bahg-bt@hotmail.co.uk).

RAE Aircraft In earlier issues we have outlined briefly the history of certain research aircraft – so far HP115 and Harrier 175 (Issue 2), BAC 1-11 XX105 (Issue 3). And now (thanks to Bruce Lumsden) Wessex XR503. We hope these are of interest, perhaps stirring memories. We would be pleased to hear your recollections about these or other aircraft.

Wessex HC2 (XR503) Profile by Bruce Lumsden

Wessex HC.2 XR503 was built by Westland Helicopters at Yeovil with construction number WA128. It first flew on 23 August 1963 and was delivered to the RAF on 16 September that year. It arrived at RAE Bedford in early 1968 to support research trials on MADGE (Microwave Aircraft Digital Guidance Equipment). It was used initially to flight check the new SPN10 lock-follow radar system (Bell Radar). In the spring of 1971 MADGE won a NATO competition and was formally recommended for adoption (but never actually used by NATO). The MADGE B models proved very useful research tools and the Wessex participated in the 1979 Sea Harrier/HMS Hermes trials investigating MADGE multi-path. It also proved the concept of civil helicopter operations from gas and oil platforms in the North Sea.



Wessex XR503 was the platform for the testing and demonstration of a prototype electronic flight instrument system (EFIS). New display formats were devised for ship recovery and, using MADGE, approaches were made to the RAE's research vessel Col Templer down to low break-off heights to demonstrate an all-weather recovery system. Fully integrated dual colour displays followed in 1984 and it was the success of this innovative technology which resulted in EFIS being introduced into the Royal Navy's Merlin HM1 helicopter cockpit. The EFIS/pilot interface also included pilot voice commands.



In 1986, a NATO requirement for future landing systems, at tactical sites and on ships, to have a low probability of detection led to the evaluation of different technologies, including MADGE and MLS, and the subsequent adoption of a guidance system based on the US NAVSTAR GPS satellite system. A trial at sea using Wessex 503 and the RV Col Templer ship in 1990 demonstrated the potential of the new guidance system.



The Merlin for the RN was originally intended for single-pilot operation and, to reduce pilot workload during ship recovery, it was considered necessary to automate the recovery. As a result, a programmable versatile autopilot based on the Smiths LN400/450 automatic flight control system was installed in Wessex XR503. The total recovery package involving guidance, EFIS and a new NVG-compatible lighting suite on the ship, was successfully demonstrated in January 1994 off the Clyde with T23 HMS Iron Duke. This trial achieved a number of world firsts including the first wholly automatic approach to the hover alongside a ship. A further sea trial took place in 1995 with Wessex 503 operating from RFA Fort Victoria to test an enhanced guidance system. The Wessex also participated in the trials of the SHARK deck landing positioning and display system and the ship motion landing period designator (LPD) system on HMS Marlborough in very high sea states in 1996.

This proved to be the last major trial of the Wessex which since June 1994, with the closure of Bedford Airfield, had been operating from DERA Boscombe Down Airfield. It was subsequently moved to the Fire Service Central Training School at Manston Airfield where it remains.



Work in the Archive One of the things we are doing to build up the archive is scanning flying log books from former test pilots and flight test observers. The information in these log books supplements other information about the research programme. We are grateful to all those who have trusted us with the loan of their precious log books and would be pleased to be offered more.

Early History As part of our efforts to establish the early history of RAE Bedford, we have recently obtained from the National Archives a copy of the report (ARC 7500, 23 March 1944) on "National Requirements for Aeronautical Research and Development" which led to the creation of RAE Bedford. It was a surprise to discover that this report assumed the new National Experimental Establishment (sic) for aeronautical research and development would be established at Farnborough. How the focus changed to Bedford has yet to be found. Sir Stafford Cripps, the then Minister of Aircraft Production, confirmed Bedford as the chosen site in the House of Commons on 28 February 1945.

Talks We continue to give talks about the work of RAE Bedford. Most recently, in July, we spoke to the Carlton Historical Society. In September we will talk to a joint meeting of IMech E Guildford with the RAeS Weybridge Branch at the Brooklands Museum. In October and November we will talk to the Bedford Millennium Probus Club, Bedford Castle Rotary Club and to a Northamptonshire audience at Knuston Hall.

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