



FD2 WG777 outside Aero Flight hangar, April 1959 (C3883)



Concorde G-BSSD visit to Thurleigh, Jan 1972 (B3090)

New Year Welcome to 2016. Yes, it's two months old already but this is our first issue of the year. A major event for us will be contributing to the local celebration of the Royal Aeronautical Society's 150th anniversary. Founded in 1866 as The Aeronautical Society of Great Britain, the society became "Royal" in 1918. Although not the first aeronautical society to be established – the French got there first around 1837 – it is the oldest still in existence. The civil engineers were the first professional engineering society in the UK, formed in 1818. What's happening locally for this "150" event? The Bedford Branch of the RAeS is coordinating a number of local organisations, including the Aircraft Research Association, Lockheed Martin and ourselves for an exhibition on the theme of "Aerospace in Bedfordshire: Inspiring Future Generations" to be held as part of the flying day at the Shuttleworth Collection, Old Warden on Sunday 3 July 2016. BAHG will put on a display about the history and achievements of RAE Bedford.

Supersonic Flight Research at Bedford - FD2 Anniversary

On 10 March 1956, the Fairey FD2 supersonic delta-winged aircraft, WG774, set a new world speed record of 1132 mph. Bedford's supersonic research programme with the two FD2 aircraft began later in 1956. Fairey FD2 WG774 made its first flight on 6 Oct 1954 at Boscombe Down, and was brought by road to Bedford in June 1955 and first flew there in July, before returning to Farnborough on 3 Sept for the SBAC Show. The picture left is an early view of 774 at Bedford (neg C5012, April 1960). The second FD2, WG777, first flew in Feb 1956, came to Bedford briefly in April 1956 and joined fully with 774 at Bedford in August, with its first flight by an RAE pilot (Lt Cdr Bill Noble) on 23 Oct 1956. Having flown from Farnborough to Bedford on 10 Sept 1956, in October WG774 flew



out from Bedford to the French flight test centre at Cazaux in October, returning to Bedford on 15 Nov 1956. Until Oct 1958, most flights of 774 were made by Peter Twiss, the Fairey test pilot. Both aircraft operated at Bedford, as seen in the picture here (neg C5534, Aug 1960), for the next 10 years, until 774, after 503 flights, was flown to Filton and converted to



the BAC221, as part of the Concorde research programme. This was then delivered back to Bedford from Filton by RAE test pilot Clive Rustin on 20 May 1966. The picture (right) is a rare shot of the two aircraft airborne together, and shows clearly 774's new ogival wing shape appropriate to Concorde.



WG777 made its last working flight on 12 July 1966, flown by Clive Rustin, and its last ever flight, number 429, by Dickie Millward, on 13 July. The 221 made its last flight (number 288), at Bedford, on 4 June 1973, flown by Bedford TP Ian Hamilton. WG774 can be seen today at the RN Museum Yeovilton and WG777 at the RAF Museum Cosford. Between them, the two aircraft made more than 1200 flights over a career spanning nearly 20 years.

Details of all FD2 (and 221) flights can be found in the book "The Speed Saga: FD-2 and BAC 221" by Henry Matthews and Peter Davison, HPM Books X-Planes Book-6, 2006.

Bedford Aeronautical Heritage Group

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

Web Site www.bahg.org.uk



Canberra WT333 One of many Canberra aircraft that transferred from Pershore to Bedford in May 1977, as part of the move of the Radar Flight Trials Unit, WT333 now resides at Bruntingthorpe, Leicestershire and recently celebrated its 60th birthday on 30 Jan, with a fast taxi run. We have recently responded to requests for information and images.

Concorde Entry to Service After many years of research on the design of supersonic transport aircraft, much of it conducted at RAE Bedford, the Anglo-French Concorde entered operational service 40 years ago, on 21 Jan 1976, when G-BOAA in London and F-BVFA in Paris took off simultaneously in a carefully orchestrated procedure at 1140. The British aircraft flew to Bahrain and the French one to Rio. Inaugural flights to the USA (Washington Dulles airport) took place a little later, on 24 May 1976. The final commercial flight, by British Airways, was on 24 October 2003.

Manchester United Air Disaster Anniversary and its Bedford Connection Although it occurred more than 50 years ago, the Manchester United Air Disaster at Munich is still remembered today by football fans. It is not well known that Bedford played a major role in the accident investigation.

On 6 February 1958, 7 members of the Manchester United football team, known at the time as the “Busby Babes”, and 14 other passengers, were killed in an air crash in an airliner attempting to take-off at Munich airport. The Manchester United team was returning from a European Cup match in Belgrade, Yugoslavia, against Red Star Belgrade, but had to make a stop in Munich for refuelling.

Initially, the aircraft’s Captain was blamed for the crash, but research scientists at Bedford identified another possible hazard, slush on the runway. Research was conducted at the Royal Aircraft Establishment Bedford’s airfield at Thurleigh from 1962 to 1964 after RAE Bedford scientists suggested this alternative explanation for the accident.

An aircraft of the same type as that involved in the crash, an Airspeed Ambassador, was tested extensively at RAE Bedford by taxiing it at various speeds through specially created “slush ponds” on the runway. Several other types were also used in the tests. The picture shows one such test undertaken in October 1963 with an Ambassador (the airline, British European Airways, referred to the aircraft by its own chosen name, “Elizabethan”). Using on-board instrumentation, and detailed analysis, it was established that slush of modest depth could have a significant effect on the aircraft’s ability to reach a safe flying speed. A major report was published by RAE and used by the accident investigators.



The investigation by the West German authorities originally blamed the aircraft’s captain, Captain Thain, for the crash, claiming that he had failed to de-ice the wings of the aircraft, despite statements to the contrary from eyewitnesses. Thain’s name was eventually cleared in 1968, ten years after the incident, as a result of the research undertaken at RAE Bedford. Similar tests to those devised at Bedford are still undertaken today by modern airliners, to ensure that the plume of spray from the wheels does not enter the engines.

Advanced Flight Simulator Flight simulation was used as a research tool at Bedford from the late 1950s. Many changes to the technologies of visual and motion cueing, and computing, took place over the years. The Advanced Flight Simulator (AFS), created in the mid 1980s, was a multi-million pound investment and included an early example of computer generated imagery and also the Large Motion System, the biggest simulator motion device this side of the Atlantic. The LMS building was constructed in 1982 (neg B6032B). We are trying to piece together the “early years” of the AFS/LMS, particularly to identify the first trial – what it was and when it occurred – some time from 1986/87 onwards. The AFS was used with a cockpit on the Redifon motion, before the LMS, at right, (A10900-6) was ready. If anyone has recollections and information on this period, we would be pleased to hear from you.



Some Anniversaries As mentioned in the last newsletter, the aircraft of Aero Flight and Naval Flight arrived from Farnborough on 14 Nov 1955, and most of the personnel were in place by then. According to Pearcey (in his book *A Short illustrated History of the Royal Aircraft Establishment Bedford*, Airline, 1999), the first catapult launch of the DH110 Sea Vixen prototype XF828 took place at RAE Bedford on 29 Feb 1956. Our archive does not seem to have a photograph of this event, and a picture of the aircraft taken a few days later has been squirreled away by the Imperial War Museum, a fate that has happened to many of our best images.

Talks There are several scheduled for 2016, the next one being at Carlton & Chellington Historical Society on 17 March (7:30 for 8), guests welcome. The subject will be “A history of aviation in Bedfordshire”.

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