



Rochester Avionic Archives Newsletter

From the Curator.

These are certainly difficult times. Our Team of Volunteers at the RAA are sensibly not allowed on the Company site because of the risk to ourselves of the Covid-19 virus. So, the museum has been closed until further notice. This made it difficult to gain enough material for this Newsletter so please forgive a rather scrappy content. Our website is, of course open and we have a lot of exciting things underway, The BAE Systems Heritage organisation at Farnborough has plans to embed the various Heritage sites firmly into the business and this theme was echoed at the recent Conference of the Aviation and Aerospace Archives where both BAE Systems and Boeing stressed the value of their heritage.

To all our readers, I ask that you keep yourselves safe.

Chris Bartlett, Curator

The Bristol 221 research aircraft

Development of the Concorde harnessed a then-new type of delta wing that was being developed at the RAE known as the ogee or ogival delta design.

Low-speed testing of the concept was already being provided by the Handley Page HP.115. Although high-speed performance appeared to be predictable, a dedicated testbed aircraft was desired, especially for drag measurements. As early as 1958, the RAE and Fairey began discussions about converting one of the Fairey Delta 2 prototypes to support the ogee wing.

During 1960, further development activity was disrupted by the purchase of Fairey by Westland Aircraft, who assigned further work on the conversion project to Hunting Aircraft. Accordingly, in July 1960, the programme moved to Bristol and was now a part of the larger British Aircraft Corporation (BAC).

In early September 1960, Fairey Delta 2 WG774 was flown to Bristol's Filton facility. Following a period of detailed design work, the re-manufacturing process commenced in April 1961. On 7 July 1961, the newly christened BAC 221 was completed.

In total, the BAC 221 featured a new wing, engine inlet configuration, a Rolls-Royce Avon RA.28, modified vertical stabilizer and a lengthened undercarriage to mimic Concorde's attitude on the ground. It first flew on 1 May 1964. The sole 221 was used for varied flight testing from 1964 until 1973, after which it was placed on public display.

Elliotts developed a variable stability Autopilot for the Bristol 221 and also supplied Gyro systems. A young Robin Sleight is seen working on the system in 1963.



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Elliott Bros was one of Britain's largest companies.

Elliott Bros broad Horizons

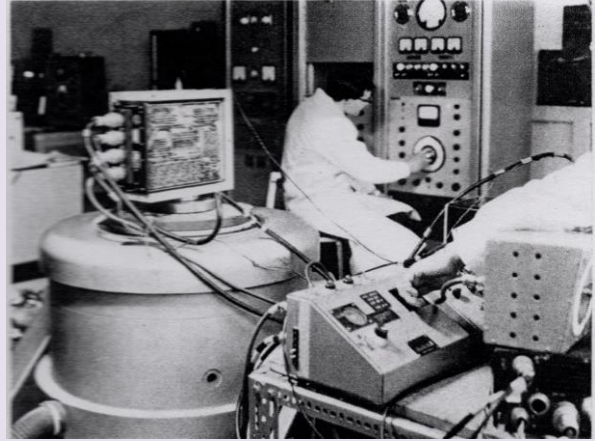
Goonhilly Satellite Earth Station is a large radiocommunication site located on Goonhilly Downs near Helston on the Lizard peninsula in Cornwall, England. It was at one time the largest satellite earth station in the world, with more than 25 communications dishes in use and over 60 in total. The site also links into undersea cable lines.



Its first dish, Antenna One (dubbed "Arthur"), was built in 1962 to link with Telstar. It was the first open parabolic design and is 25.9 metres (85 feet) in diameter and weighs 1,118 tonnes.

The site has also played a key role in communications events such as the Muhammad Ali fights, the Olympic Games, the Apollo 11 Moon landing, and 1985's Live Aid concert. 'Arthur' was controlled by an Elliott 803 Computer

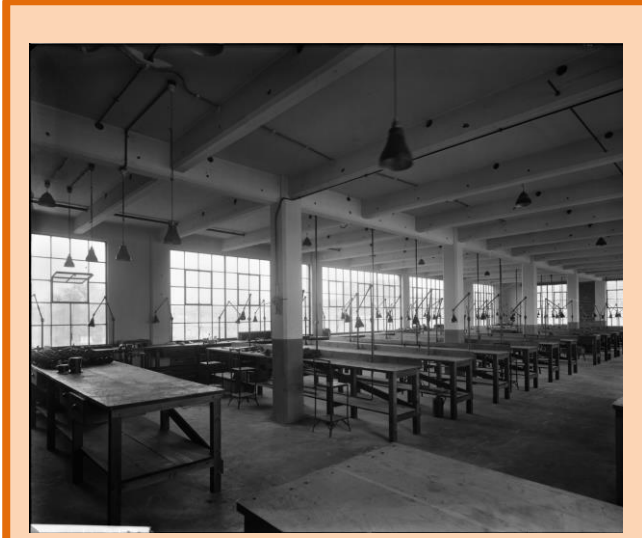
An Air Data Computer undergoing vibration testing at the Environmental Test Laboratory at Rochester in 1963



A profitable business for Elliott Bros in 1964

- Company growth was largely internal but averaged 20% per annum.
- During the years from 1958 to 1963, sales and profits tripled to some \$109 million.
- In 1964, Elliott-Automation supplied 40% of the digital computers produced in Britain.
- There were 130 Divisions averaging just under \$1million each in sales.

Apart from the growing avionics business, Elliott-Automation was a major supplier of radar and communications systems and the fledgling project management business through Elliott Space and Advanced Military Systems at Frimley. Elliott Flight Automation had 11 operating divisions and two laboratories. EFA had sites at Rochester and Borehamwood under their Director Jack Pateman.



This is a picture of the inside of Elliott Bros Century Works in Connington Road, Lewisham. The photograph was commissioned by Trussed Concrete Steel Company, reinforced concrete engineers, who were presumably involved in the construction of the building. It dates from May 1919

©The Bedford Lemere Collection



This Visitors Book was found by one of the Cleaners in a waste bin! This page shows the names of some of the VIPs who visited in 1985.

An Elliott Bros advertisement from 1961

ELLIOTT... THE ONLY COMPLETE INERTIAL NAVIGATION SYSTEM IN EUROPE

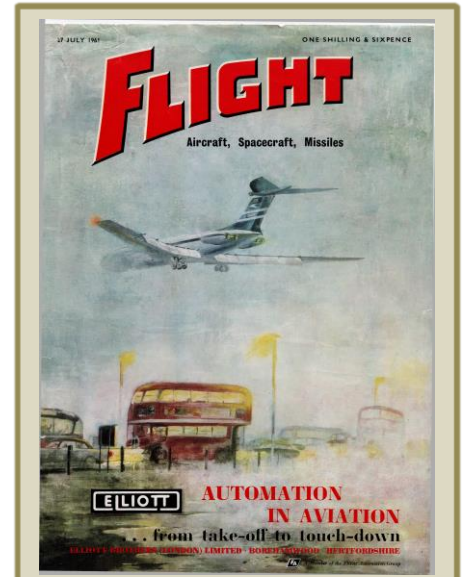
An essential element in the nuclear deterrent

ELLIOTT

ELLIOTT BROTHERS (LONDON) LTD.

Something about 'Specsavers' comes to mind.

This picture is from a Bendix-Elliott All Weather Landing Committee Meeting in October 1962. The heading on the board is 'Manned Orbital Vehicle Control Panel. The men are a young Peter Hearne and Jack Pateman with Cdr Pasley-Tyler wearing the helmet.



Elliott Bros occupied the front cover of FLIGHT magazine in July 1961 with this painting of a VC10 descending through the gloom into Heathrow

The Ron Howard Collection historic items

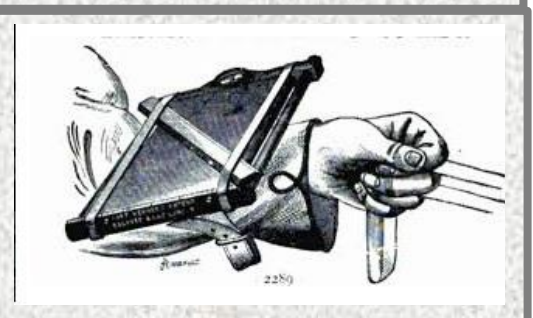


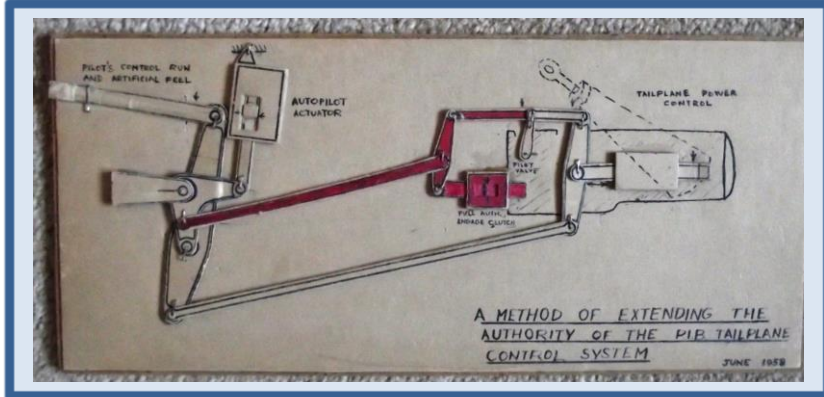
These two objects were acquired with the Ron Howard Collection. They look like old-fashioned 'Tin Openers' but are probably leather working tools. These have been returned to his family.

Verner Cavalry Sketch Board-1887

This is a small drawing board with compass, surveying protractor/clinometer, and scales, designed to be strapped to the wrist or forearm with a leather strap attached to the back and to be used one-handed on horseback or in the field by military surveyors. Graph paper spooled around the rods and an articulated arm is attached to the front, achieving the same result as a parallel ruler.

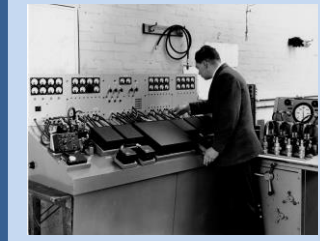
The board was originally designed by Colonel W H Richards, but was improved by Captain (later Colonel, later still Sir) Willoughby Verner (1852-1922) who was Professor of Military Topography at Sandhurst. The board then became known as Verner's. The board was not universally loved, and some referred to it as "*The damnable cavalry sketching board*". This item was made in about 1887 by Elliott Bros. The first picture shows the item in our Collection C1714 and the sketch below it shows how a mounted Cavalryman would hold the device. An early SatNav really!





The English Electric Lightning

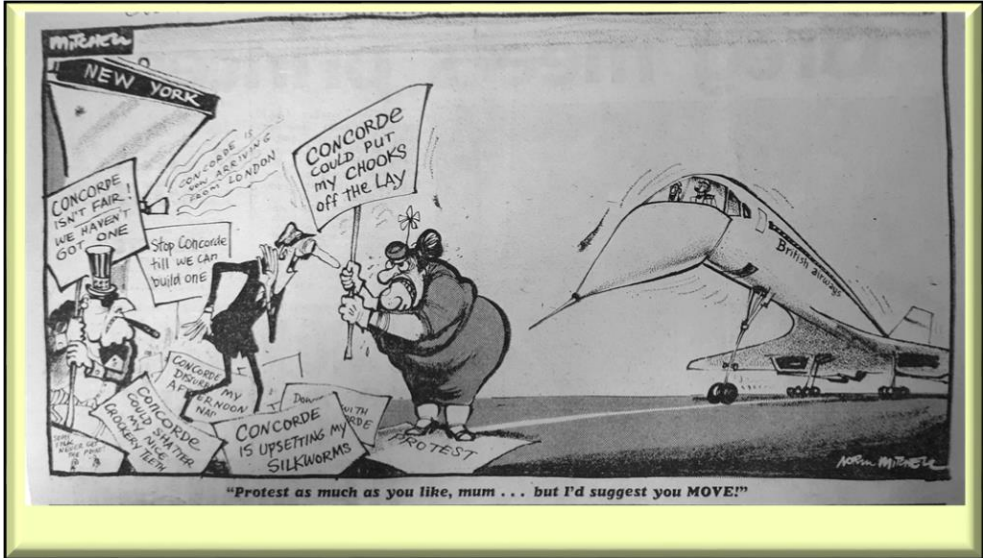
Elliott Bros supplied the The Lightning Automatic Flight Control System. This is the cardboard working model that was used in the Tailplane control system and it is now waiting to be catalogued into our Collection.



In 1958 English Electric had received a quote from Hobson for a new high authority electrically signalled tailplane power control to replace the existing one and the cost was so high that the aircraft programme could not support it. It was therefore now likely that the requirement for the last stage of OR946 would be cancelled. Staff Ellis had a close look at the existing Lightning tailplane and its pilot controls and autostabiliser actuator linkage and drew up some modifications to Jack Pateman's original Patent. At the Coordination Panel Meeting in June 1958, Ron Howard explained the proposal and passed around the table a small cardboard movable linkage model, made at home on the previous weekend, on which could be demonstrated the modifications which could be made to the existing system to implement the auto-attack full-authority demands. The proposal was accepted with enthusiasm and Freddie Page of English Electric at Warton instructed Hobson to deliver modified existing power controls. The pictures to the left show a Lightning P1B and the System Test Rig at Borehamwood.

Concorde again.

With Concorde in mind this was a cartoon from the 60's when it was clear that the US was doing its best to block flights into their country.



In February, your Curator attended the first Conference of the Aviation and Aerospace Archives Initiative entitled 'To Infinity and Beyond!'. This was held at Filton and we all had the opportunity to see the beautiful Concorde in the new Hangar. The AAAI is currently recording preserved aircraft throughout the UK and will then work on Avionics records. It is also providing vital information on how to run a Museum.