



Rochester Avionic Archives Newsletter

From the Curator

We are all excited that after many years of searching we have found the grave of Frederick Elliott. He was buried in his wife's family tomb in Kensal Green Cemetery. Ann has spent a lot of time on this so, well done! We have a picture of the grave but sadly the inscription has completely worn away. The Cemetery Records confirm however that this grave is indeed the right one.

The RAA is beginning to burst at the seams a bit and we are starting to look at how we can make better use of our space. This seems to be the time when people find documents and although we are always grateful because we learn much about our collection we really don't like having to stack them on the floor. Another exciting donation to the RAA was the architects model of the planned seven towers which came with an odd mix of other items including the statue of Archimedes (see below).

The response to our new website has been very good and one week we had eighteen new people sign up and five is quite usual every week.

The RAA took part in Armed Forces Week and has hosted four work experience girls recently so we are getting recognised in the Company as part of the business.

Stop Press. We have just celebrated over 50 years since Airborne Display Division was formed with a Garden Party hosted by Sir Kenneth Warren

Chris Bartlett

The grave of Frederick Henry Elliott

Frederick and his brother Charles were the Elliott Brothers after whom the Company was named. Frederick Elliott was born on the 27th May 1819 and his birth was registered at Westminster, St Martin in the Fields. He was the son of William Elliott and Emma Paget, his third wife. Frederick Henry Elliott was privately educated at Baldock and Edmonton, then obtained his Master's degree at Christ's College, Cambridge in 1848. In August 1848 he married Susan Pearse at St Georges Bloomsbury.

In 1850, under a deed of partnership Frederick Henry and Charles Alfred were taken into their father's business which then carried on as William Elliott & Sons at 56 Strand, London. Two medals were won in the 1851 Great Exhibition, beginning a series of successes in exhibitions in Britain and abroad. By 1854 the company was trading as Elliott Bros.

Frederick Elliott became a fellow of the Royal Society of Arts in 1850 and in 1859 a fellow of the Royal Astronomical Society. Jointly, Frederick and Charles obtained patents for improvements in drawing boards, barometers, and telescopes. The company prospered, its success attributed to Frederick's business ability. Before long the Company was producing most of the standard optical, surveying, navigational and "philosophical" instruments for home and overseas customers.

In 1865 Charles Elliott retired leaving his brother Frederick as sole proprietor:

Frederick Elliott continued to live at Sangley Lodge in Lewisham and there was a serious fire there on 13th August 1870 caused by a candle left burning by a servant. At least six rooms and the first floor and roof were destroyed and reports of the fire appeared in the Maidstone Telegraph.

He died of a stroke in his office at 449 Strand, London on 18 January 1873.

Frederick was buried, rather unusually in the grave of his wife's parents, Rebecca and Peter Pearse and his wife Susan was buried there too in 18

The picture was sent by The Friends of Kensal Green Cemetery and hopefully these lovely people will clear the grave so that we can see the full inscriptions. We plan to make a donation to the Friends

As you may recall the grave of Charles Elliott is at Twickenham and sadly the cross has been taken down for safety reasons. Unfortunately the cost of replacement is too much for us.

There cannot be many companies that can identify the founders from over 160 years ago but sadly we have not yet had any success finding where William Elliott is buried. It is just possible it was in the old churchyard of St Martin in the Fields now an open space called Drury Lane Gardens.

*Some of the text and facts herein are sourced from H.R. Bristow and we acknowledge his work on the background to the Elliott brothers.



The grave of Frederick Elliott at Kensal Green Cemetery; Plot 1860.

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Around the Divisions (3) : Airborne Displays Division (ADD). Early years.

The Airborne Display Division was formed in late 1963 on Floor 3 of Tower 1. The Division was then led by Kenneth Warren (later Sir Kenneth Warren MP for Hastings) as Divisional Manager and also had John Peet as Controller. The engineering team was Robin Sleight with Clive Bowles as Chief Engineer; the junior engineers were Geoff Wilkins who had Martin Redfern reporting to him. The draughtsman was Peter Royall who reported to Bernie Martin at the Lower Sydenham Drawing Office. There was as Sir Kenneth Warren noted 'a delightful, giggling secretary. John Peet was responsible for dispensing the £25K the Board gave for FY 63/64 to start the Division (John Peet went on to become Finance Director of Vodafone).

ADD seemed to spend much of its early life moving from place to place.

Elliotts were particularly keen to acquire the aircraft instrument and Head Up Display work at Rank Cintel and in August 1964 Elliotts under the leadership of Jack Pateman acquired the Head Up Display business of the Instrument Division (Aircraft Equipment Division) of Rank Cintel. In Sept 1964 ADD moved to AS&R (Hanger 1). This location was not comfortable for the staff nor for the equipment as there were no windows and of course none of the luxury of modern air-conditioning. The only solution was to work in the cooler morning and late evening with long lunch times at the pub! The germanium transistors in the equipment were limited to 70°F and the environment only improved when the Division moved into the new part of the Cintel factory at Lower Sydenham later that year.

In 1966 Airborne Display Division was moved back to Rochester and amalgamated with Flight Support Division to create DADD under H.R.Bristow as Divisional Manager. By late 1967 ADD had once again its own identity. Brian S Wolfe was the Divisional Manager, Ed.C. Hawley Controller, Peter Lowry was Chief Engineer and S. R. A. Lowry was Sales Manager. Among those who worked there were Brian and Brenda Patrickson who worked for Robin Sleight along with Peter Hawes, Peter Holmes, John Austin, Ian Whitehouse and Fergus Maloney.

The late 60's were a time of massive expansion as the Division developed technology on the ILAAS project which opened the doors to the Head Up Display on the LTV A-7 Corsair. The A-7 HUD was the breakthrough into the U.S. market and was the start of a golden era for HUD's; 2534 of this design were made and build rates exceeded 30 a month at one time. The substantial throughput saw a large increase in the size of the Production Department and also the Environmental test area. In August 1974 the 1,000th Head Up Display for the A-7 was handed over to LTV and a number of silver model replicas of the HUD were made in the Company Model Shop. The Division went on to do the even larger F-16 HUD programme with many derivatives and entered the civil transport and Business jet markets. More of this in another Newsletter.

The Directors of ADD were:

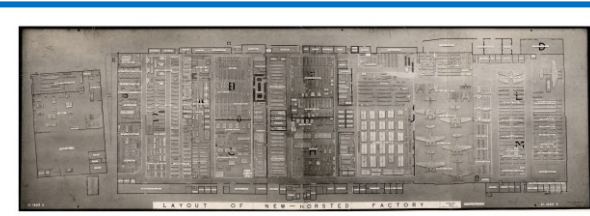
1963-1966	K.R.Warren	1987-1991	C.W.Humphris
1966	Merged with FSED to form DADD	1991 (Oct)-1992	D.G.Clews (Acting)
1967	Reformed as ADD	1992(Mar)-July	G.R.Sleight (Acting)
1967-1970	B.S.Wolfe	1992(July)	M.O.Barton
1970-1983	A.J.Colwell	1992(Aug)	Merged with GSD to form GDD
1983-1985	J.C.Spinks	1992(Oct)	G.A.Barnes (Acting)
1985-1987	G.R.Sleight		



This little statue probably of Archimedes was found in the area vacated by the works engineering team. There is a place for a plaque on one side but it is missing, Does anyone know anything about it?



We recently acquired a group of five 'futuristic' advertisements from eBay. (I particularly like the aircraft cabin; the lady at the front with her hair blowing in the wind and further back a man seems to have some sort of spherical in-flight entertainment system Ed) We also have some large posters which echo this theme and are surely highly collectable.



The picture on the left shows the location of the bombs dropped during the German raids in August 1940. Despite the camouflage of the factory there are obvious clues to the location; the semi-circular apron is quite clear, the housing estate and of course the airfield itself. A dummy replica of the factory and airport was built at Lidsing and that was also bombed.

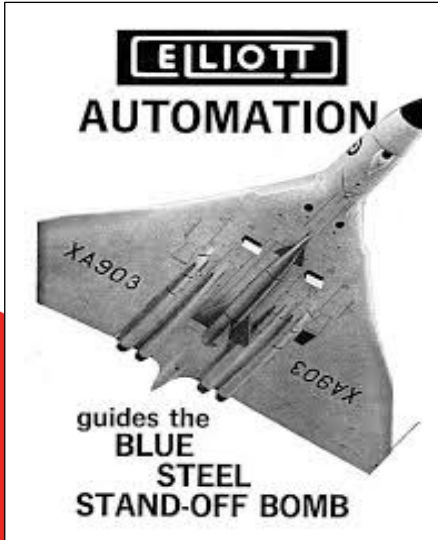
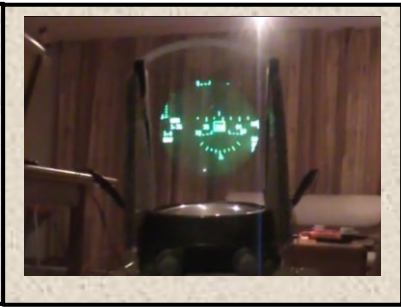
The small picture above shows the interior of the 'Horsted Factory' with a number of aircraft positioned in the main Hanger. These twin engine aircraft are probably the Short Sturgeon which first flew in June 1946 from Rochester. This design had a chequered development being finally cancelled after a small production run. Completed aircraft were taken out to the airfield through Hanger doors on the South side and not through the doors on the East end of the large Hanger. The legends do indicate at the West end of the site that floats for Sunderland aircraft were being constructed.

Home made HUD

This link will take you to a Youtube video showing a home made HUD system, composed of an F-16 combiner glass, an A-7D HUD optics assembly and a 5 inch CRT monitor.

<https://www.youtube.com/watch?v=O6aAKwua7o8>

It is really quite good symbology!



A view from 1961 by Bill Alexander then an Assistant General Manager of Elliotts Guided Flight Group

Mr Alexander said that he believed we were entering the era when automatics are becoming the essential parts of the aerodynamic design of new aircraft and that electrical signalling will rapidly replace mechanical control runs.

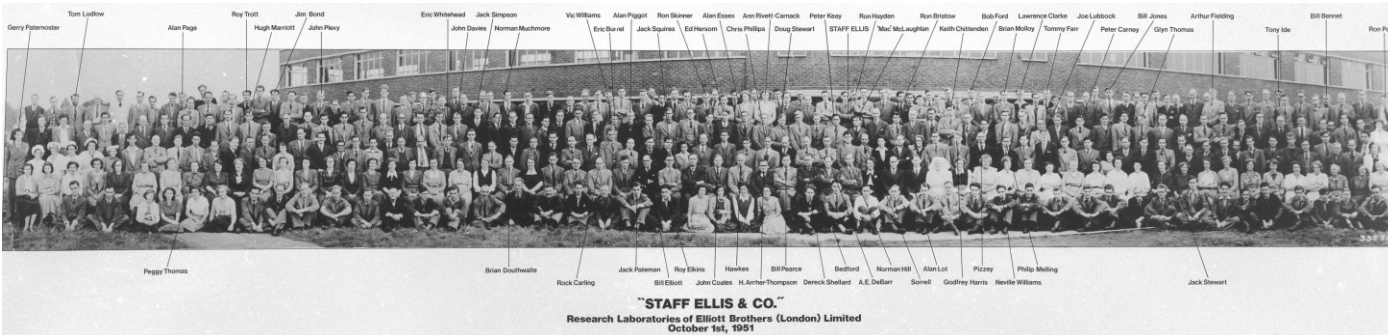
From the Negative Archive

The automatic flight control system of the Standard and Super VC10 was designed to be capable of development to full blind landing. To meet this requirement the system had to be capable of failure survival and this includes associated services such as power supplies and flying controls. The method of autopilot failure survival chosen was to provide two monitored systems which are fail soft, i.e. there is negligible aircraft disturbance after a failure. Only one autopilot is used to fly the aircraft, and the two systems, including power supplies, are completely independent. Each autopilot has a comparison monitor which detects faults and, in flight, will disconnect the system if these faults are likely to lead to dangerous conditions. For autoflare the system provides for automatic changeover to the second monitored autopilot system, in the event of fault in the first. Under these conditions the second autopilot is primed and ready to take over. If for any reason the monitoring system fails to prevent an autopilot runaway, the control movement is limited to a safe amount by the yielding of a torque-limiting spring.



The VC-10 Autopilot units from around 1967

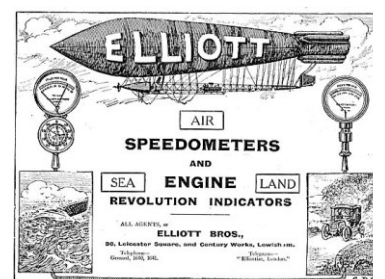
Many of the needed components were already present in the autopilot fit on the Standard VC10s, to achieve the autoland capacity the system on the Super received some additional items. The system, supplied by Elliott Brothers (London) Ltd, was based largely on components of the well-proved Bendix PB-20 autopilot, made under licence by Elliott, and interchangeable with American built components as installed in Boeing 707s. However, the system as a whole i.e., the dual autopilot concept was novel, and designed entirely by Elliott. The Autopilot panel (at the bottom of the picture) received much praise for the styling and ergonomic design. An earlier Newsletter describes how the designer Peter Bell was brought in to design this important unit.



This is a photo of the Research Lab group in 1951 probably at Borehamwood. It is a huge team of some 400 (*I gave up on counting Ed*). There are a few well known names shown and an awful lot of blanks unfortunately. A copy of this picture was presented to Staff Ellis on his retirement. Click on this link to see a larger picture and please let us know if you recognise anyone not marked:
<http://rochesteravionicarchives.co.uk/picture-archive/photo-negative/staff-ellis-co>



The model of the seven towers recently acquired by the RAA



An advertisement from 1909 for Elliott Engine Revolution Indicators.