



# Rochester Avionic Archives Newsletter

**From the Curator.** There is some exciting news about the development of the Rochester site but that will have to wait for our 40<sup>th</sup> edition!

The major contracts in 1966 were huge when you take inflation into account and these really were bumper years for the Company. There were so many aircraft companies with exciting developments and Elliott Flight Automation was at the forefront with equipment for them.

Chris Bartlett, Curator

## Elliott-Automation wins major US contracts 55 years ago

### Integrated Light Attack Avionic System (ILAAS)

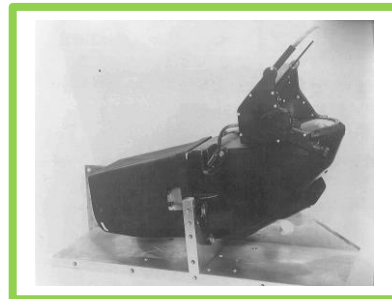
In August 1966, the ILAAS Head Up Display contract worth about £5 million was awarded to Elliott Flight Automation (EFA). This was a first for Britain to sell such advanced military avionics to the USA. The picture on the right shows the ILAAS Pilots Display Unit.

This programme led to the award of the contract for the A-7 Head Up Display. The initial contract was worth £14 million for 1,200 displays and was the largest ever awarded to a British firm.

### The Air Data Computer for the C-5A

On September 12<sup>th</sup> 1966, Elliott-Automation announced the award of a contract to supply 58 Air Data Computers for the C-5A. The contract was initially valued at around £1million.

The pictures show the announcement on the EFA stand at Farnborough on almost the last day of the show. Below that is the Air Data Computer affectionately known as the 'Cog Box' (Newsletter 17 has more on this ADC). This contract led on to EFA supplying the Energy-Management Computer and the Under-Carriage Crosswind Steering Computer.



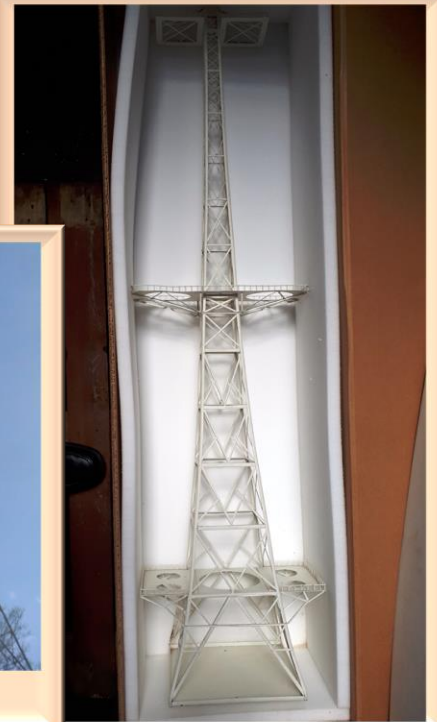
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## The Radar Tower at Great Baddow

The Great Baddow site still includes a prominent local landmark, a former WW2 Chain Home Radar Tower which at 360 feet / 110m high is visible across the surrounding countryside. It is the last remaining such tower maintaining all its platforms and was granted a Grade II listing by Historic England in October 2019.

We recently went to Farnborough to help them assess a pile of stuff culled from Eastwood House at Great Baddow. There was not much of interest apart from a nice model of the Chain Home Radar aerial (probably about 4ft). Eastwood House was named after Dr Eric Eastwood (later Sir Eric) who joined the Laboratories in 1948. Here he concentrated on extending the Laboratory's activities in communications, radar and applied physics. In 1954 he was promoted to Director of Research of the Marconi Company and then in 1962 became Research Director of the whole English Electric Group.



## The three Towers at Rochester



The Towers at Rochester were designed by Yorke Rosenberg Mardall. This was a British architectural firm established by F. R. S. Yorke (1906-1962), Eugene Rosenberg (1907-1990) and Cyril Mardall (Sjöström) (1909-1994) in 1944. The international character of this modernist firm was created by Rosenberg, born in Slovakia and who practised architecture in Prague before the Second World War, and Mardall, born in Finland, as well as by the number of staff from all parts of the world.

Their most notable trademark was the use of white ceramic tiles for the treatment of external façades inspired by Le Corbusier's use of tiles on the entrance of the Armée de Salut (1929) in Paris and the General Pensions Institute (1929-34) in Prague designed by Josef Havlíček and Karel Honzík and worked on by Rosenberg. Their main field of work was hospitals, schools, colleges, offices and industrial buildings as well as Gatwick Airport. The Architects also designed Marconi-Elliott Microelectronics Factory at Witham in Essex in 1969

### A flight in a Jaguar



This picture shows Mike Williams and Cid Sowler after a flight in a Jaguar T2 XX138 from RAF Lossiemouth in 1974. Mike had been one of the RAF technicians who were trained on the Jaguar NAVWASS and was later to join Marconi Avionics. Cid joined the Company after a distinguished career in the RAF and joined the Marketing group mainly on Head Up Displays. His real name is David, but there were too many Davids in his RAF Squadron so as the film of El Cid had just come out he acquired that name!

### Robert Marshall

We were recently invited to help clear a house near Maidstone. It was the home of Robert Marshall who had been a Chief Engineer for Marconi. Although he was a Radar and radio specialist, he had a Business Card with a Rochester address. A colleague recalls that Robert Marshall worked on the Jaguar 'Fly-by-Wire' system. He was an amateur radio enthusiast and his house and garage were absolutely packed with equipment but we found nothing relevant to his work at Rochester. Robert Marshall died in hospital in June.

### Gabriel Lancaster

Gabriel Lancaster, who died on the 3 Aug 2021 aged 99, was an aeronautical engineer who worked for Rolls Royce, Avro and Elliott Brothers, mainly helping to design aircraft engines and associated instrumentation.

In 1939, he had won an apprenticeship at Rolls Royce, where he began working on the Merlin engine that powered Spitfire and Hurricane fighter planes during the second world war. When it came to an end in 1945, he moved to AV Roe in Manchester, better known as Avro, leading the team that designed a fuel flow system for the Vulcan bomber.

In 1955, he and his young family relocated to Rochester, Kent, where he worked for Elliott Brothers on the fuel system for the TSR2 multi-role combat aircraft. A decade later he transferred to Fisher Controls, designing an innovative mobile quayside fuel blending unit and helping to install it in various places around the world. He retired from Elliotts in 1967, but continued working as a consultant, notably for Shell and Esso, until 2002.



The Test Rig for the TSR2 Flight Control System. This was located in in one of the Huts at Rochester in about 1965.



Over 60 Elliott Instruments were supplied to the "Titanic," and the same number to the "Olympic."  
*The Century works news sheet June 1912*

## Aircraft that came to nothing in the prolific 60's

### The Avro 720

This was an in-development British single-seat interceptor of the 1950s. It was designed and being developed by Avro in competition with the Saunders-Roe-built SR.53. While at least one prototype was partially-constructed, the order for the Avro 720, and quickly thereafter the project entirely, was terminated prior to any aircraft having been completed. The Avro 720 was intended to have been a high-performance aircraft that would have utilised mixed propulsion to accomplish this, using a rocket engine to achieve quick acceleration and a high top speed while a more compact jet engine would have been used during more mundane cruising flight. Avro opted to utilise the in-development Armstrong Siddeley Screamer rocket engine, which used liquid oxygen as oxidant and kerosene fuel; major questions were posed over the oxidant's practicality under operational situations. Elliotts bid for the conventional Fuel system.



**The Avro 720**

### The Saunders-Roe SR.177

This was a 1950s project to develop a combined jet- and rocket-powered interceptor aircraft for the Royal Air Force (RAF) and Royal Navy. It was an enlarged derivative of the Saunders-Roe SR.53, which was itself an experimental combined jet-and-rocket interceptor aircraft.

The SR.177 principally differed from the smaller SR.53 in its adoption of a nose-mounted airborne interception radar unit, which allowed it to scan for and lock onto its own targets; a more powerful turbojet engine was also incorporated. In addition to British interests in the aircraft, the German Navy had also expressed their interest in the project and closely evaluated its progress with an eye towards its potential procurement. However, the SR.177 was ultimately cancelled as a result of changes in Britain's military policies in 1957. Here also Elliotts bid for the Fuel flow system



**The Saunders-Roe SR.177**

### Fairey Rotodyne,

A helicopter at take-off and an autogyro during forward flight, the Fairey Rotodyne was designed for both commercial and military aviation markets. Sadly, despite the success of the trials, the Rotodyne programme was cancelled due to a lack of commercial interest and government cuts in 1959.

Elliotts provided Fuel Flow systems



**The Fairey Rotodyne,**

Some more successful bids at that time were for the Fairey Gannett, the Blackburn B103 which became the Buccaneer, the Airco DH121 which became the Trident, the Saab J35 which became the Draken, The Hunting-Percival Provost Trainer, Armstrong Whitworth 650 which became the Argosy Freighter, the Westland 192C which became the Belvedere, the BAC 107 which became the BAC1-11 and the Beagle B206. These bids were usually for Fuel systems or Flight Controls.

## Stanley Hitchcock Films

The RAA is helping to find a home for a most amazing collection of films produced by Stanley Hitchcock. He has over 160 16mm film cans and a few are held by the British Film Institute and a number of libraries.

Two of the collection have particular relevance to the BAE Systems predecessor companies

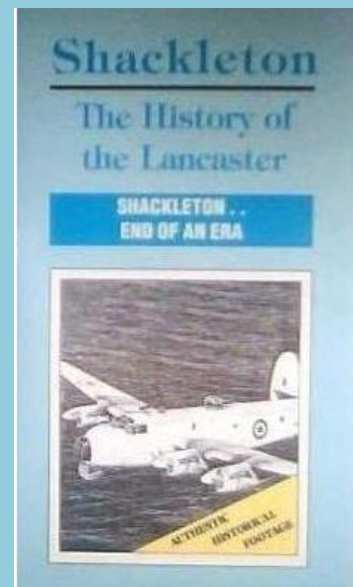
- 'Nimrod: The Mighty Hunter' This film was made in 1986 with John Cunningham and Richard Todd. It is on You Tube and is well worth a look.
- Shackleton. This film was made with sponsorship from Marconi and a poor-quality DVD is available from Amazon.

Hopefully the organisation that finally hosts this collection will get the films digitised and the RAA may be able to have some copies.

One other film relates to the plethora of aircraft projects briefly mentioned in this Newsletter, most of which were cancelled. The film is called 'Project Cancelled' and tells the tragic stories as well as the hilarious, ill-conceived concepts that never had a chance of getting off the ground. There are 17 episodes of 'Wings over the World' and another film is about a potential successor to Concorde.



A title still from the Nimrod video



The cover of the Shackleton video

## Paul Wisely (1949-2021)

Paul graduated in 1971 with a B.Sc.Hons in Electronic Engineering after which he took a Post Graduate Diploma in Solid State Electronics/Physical Electronics. Having successfully concluded this he moved to the Metropolitan University of Manchester to do a three-year Master of Philosophy Research in Magnetic Physics. Ultimately Paul Wisely became, unusually, honoured with being both a Chartered Electronic Engineer and a Chartered Physicist.

He joined what was then Marconi-Elliott Avionic Systems Ltd in 1975 to work on Head Up Display systems. In 1982 he and his family moved to Atlanta Georgia where Marconi Avionics had established a co-production and support facility. After being recalled to the UK he became a Program Manager on the HUD program for the C-17. He moved into a technical marketing role with the Company during the early 90s and he joined a team to work with Honeywell in Phoenix on systems for the Business Jet market. This led him ultimately to a position of Principal Displays Technologist where he helped develop a solid-state replacement for the CRT and to bring into the Company the new optical waveguide technology. Paul was the recipient of numerous awards for technical innovation, including the prestigious BAE Systems Chairman's Gold Award for Technical Innovation, for work on waveguide technology.

Paul had many publications in the fields of display technology and in enhanced and synthetic guidance. He lectured frequently on the subject of displays and for five years he was on the Conference Program Committee for the SPIE Defense + Security.

In 2010 he left BAE Systems to establish Aardvark Aerospace Ltd a specialist engineering consultancy company in avionic systems.

Paul Wisely passed away aged 72 on March 18th, after a long illness.