



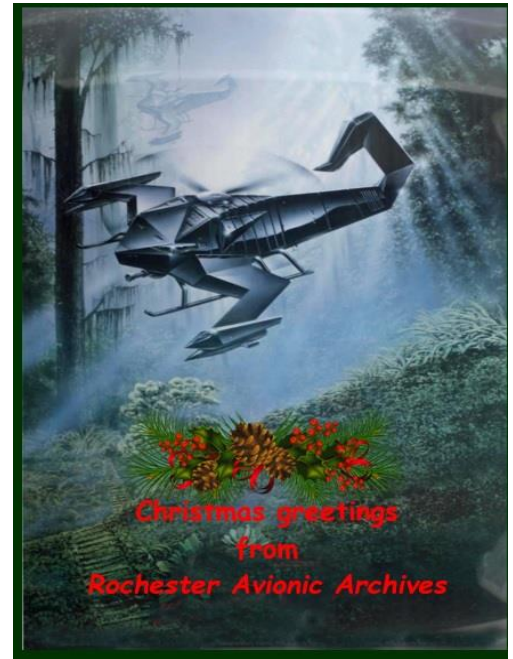
Rochester Avionic Archives Newsletter

A very Happy Christmas to all our readers! I have roughly estimated that to date the team has put in over 25,000 hours of work since we started and that is just the hours logged in the RAA not including hours at home! So a big thank you to you all.

I would also like to thank the many people who support our work within the Company at Rochester and the people at Farnborough running the huge Heritage organisation. Next year is 18 years since the RAA was formed and our website is due to be refreshed again with a new look and better search capability

Chris Bartlett, Curator

The picture on our Christmas Card is from one of a series of futuristic posters held in the RAA Archive. The posters were first produced in 1985 for GEC Avionics.



Nature got there first!

Insects can detect a range of changes in their environment using modified antennae and specialized receptors.

Flight-speed sensors

The blowfly (*Calliphora vomitoria*) uses its antennae to monitor its flying speed. The wind twists and vibrates the antennae. A ring of nerve endings at the base of the antennae sense the amount of movement - this calculates the flight speed.



High performance military aircraft generally have a combined Pitot/static probe which extends out in front of the aircraft so as to be as far away as practicable from aerodynamic interference effects and shock waves generated by the aircraft structure.

From the measurements of static pressure PT and total pressure PS it is possible to derive the Pressure Altitude, Vertical Speed, Calibrated Airspeed and Mach number. A Probe made by Rosemount for the Phoenix UAV is shown on the right



Curator: Chris Bartlett, Deputy Curator: Ann Jackson, Secretary Geoff Harvey
Tel: 01634 203321

e-mail: info@rochesteravionicarchives.co.uk Website: www.rochesteravionicarchives.co.uk

Nature got there first! (Continued)

Infrared sensors

The buprestid beetle (*Melanophila acuminata*) lays its eggs in the wood of trees scorched by fire.

It scans miles of forest and countryside finding smouldering wood with its photo-mechanical receptors - tiny dangling 'sensilla' located in pits on its thorax.

These sensillae detect infrared rays from the light of the fire and almost instantaneously convert them to heat. The heat causes the sensillae to swell prompting nerve impulses to the beetle's brain.



The picture on the right is of the LANTIRN pod which has a wide field-of-view (WFOV) forward-looking infra-red sensor. The pod is used on the F-16 aircraft and allows a night vision display of the outside world to be presented on the Head Up Display.



Elliott Bros Instrument at Evesham



Alan Briggs sent in this picture with the following note:

My wife and I did a Treasure Hunt earlier today round the local town of Evesham in Worcestershire. One of the clues led us to this piece of Elliott Bros history. It is an indicator dial on a wall (about 10 feet up) in the town centre connecting to a vane on the roof. Set into the wall below, behind a glass window, are a mercury barometer, a hygrometer and a mercury thermometer. I've walked by it many times since we moved to this part of the world but the clue made us look more closely at the plate beneath it.



Payroll robbery



Pay Snatch In London. Car Rammed By Stolen Van.

On November 8th, 1957 four bandits ambushed and rammed a payroll car at the junction of Morden Hill, and Morden Grove, Lewisham, London. Elliott Bros sent four of their employees every Friday to draw wages money from a branch of Barclays Bank which was five minutes' drive from the factory. Each week the route and the car used were changed as a precaution against robbery attempts. The car was rammed and forced on to a pavement by the bandits' stolen vehicle, a dark blue van. The four bandits, three of them hooded, jumped from the van armed with pickaxe shafts and coshed Mr. Frank Hoadley and Mr. Terence Oval in the car. They snatched the payroll bag from the wrist of the latter, who was also slashed in the face. Two of the four Elliotts staff in the payroll car needed their wounds dressed in hospital. The gang escaped with £11,762 in £1 notes and made off in a powerful car. The payroll bag had been fitted recently with a new device for sounding a strident alarm. This worked efficiently but the noise failed to attract attention!

The photo shows the scene after the snatch at Lewisham today. The wages car is on the pavement on right - and the stolen van used by the bandits to ram it is in the centre of the road.

The Queens Awards -1969



The August 1969 copy of EFA News has a brief front page about the Queen's Award. The December edition describes the award ceremony. Lord Cornwallis presented the official scroll of the Queen's Award to Mr Pateman, EFA Managing Director. Mr Pateman said that "Some 2,000 people here owe their jobs to the fact that we have been successful" The exports were probably for Head-Up Display for the LTV Corsair fighter-bomber; the energy-management analogue computer for the Lockheed C-5 and for the same aircraft the under-carriage crosswind steering computer.



The Company was given a glass block engraved with the category of the award. In this case "The Queen's Award to Industry 1969". Note that as in the early award the 'E' for Export is not placed in the centre of the logo.



The C-5A Energy Management Computer is shown above and the Crosswind Casting Computer to the right



Blue Steel again.



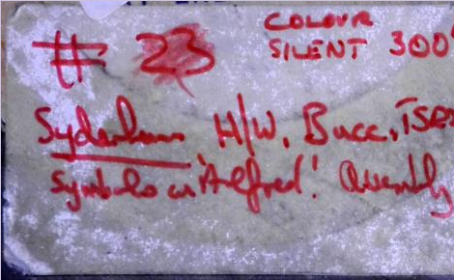
On the left is the Blue Steel Navigator of 1963 without its covers pictured at RAF Scampton and some of the sub-units are on the right. See Newsletters 17 and 20.

The mystery of 'Alfred'

Earlier this year one of my colleagues was working on the archive of 16mm films we hold in the RAA and photographed some of the film-cans (& sometimes their film-reels or film-leader) in the hope of extracting useful information. One can has a rather puzzling scruffy label attached noting:

Colour, Silent, 300'
Sydenham H/W, Bucc, TSR2
Symbols as 'Alfred'. Assembly

This set us wondering what is the meaning of 'Symbols as Alfred'?



The Film can label

A frame from the rather poor film of the symbology on the TSR2 Head Up Display. RAA Cat. No. M0616



Our initial discovery was that there is a Pub in Sydenham called 'The Alfred' Maybe the engineers developed the symbology over a few beers?



A recent picture of what was Elliotts site at Sydenham



A current picture of the Prince Alfred pub

A search of Google Earth made us think that this was correct. A line between the two places is mostly over green space and much of the housing was probably not there when the film was made. Both buildings are three storeys (see above) and, the top floor of the Elliott Automation building easily overlooked the nearby railway track. Maybe the label says "Symbols **on** 'Alfred' ..."

However, while having another look at the pictures we noted that the Alfred has a flat roof and is not such a long building as that in the film. It also seems rather a long way from the factory.

The background lighting conditions during the symbology section of the film change quite a bit, as does the image clarity, so the attached still image gives a better view of the outside world. The foreground, trapezoid shape seems to be a stained roof with a central chimney stack. The houses on the other side of Worsley Bridge Road from the old Elliott building have that sort of roof, chimney and staining and the glancing view of the roof's left-hand slope suggested the direction we should search.



A closeup of the white building in the distance

Delving a little deeper we found that there was “The King Alfred” pub (built around 1945) on Southend Lane Catford. It eventually became “The Saxon Tavern” and sadly the pub would eventually close and stand empty for many years until being destroyed by fire. In the 1980s the derelict pub was demolished & replaced by a supermarket (now LIDL). The “sightline” picture below shows the clear view across parkland from the factory to the pub and also has “King Alfred Ave”– (see below).

The final image shows the demise of “The Saxon Tavern” after the fire and clearly shows part of a white rendered building with tall chimneys, which is consistent with the film content.



The derelict King Alfred pub after the fire.



The sightline from the Elliott Factory on the left to the site of the King Alfred pub.

So, the mystery is solved! ‘Symbols over Alfred’ means that the Head Up Display symbology typical of the Buccaneer/TSR2 era was filmed looking across the parkland towards The King Alfred’ pub.

The pub sign image is of King Alfred Bellingham and was painted by a signwriter from Mann’s Brewery. The land for the Bellingham Estate was bought in 1920 and building of the main estate was completed in 1923. Historical names were chosen for the roads. Some were connected with King Alfred, who was thought to have been Lord of the manor of Lewisham.



The BAC1-11 that the Company nearly acquired as a trials aircraft in 1965

BAC 1-11 XX105 was acquired by the Blind Landing Experimental Unit (BLEU) as a replacement aircraft for the ageing Comets (XP915 and XV144), being more representative of the type of aircraft in service with airlines at that time. It was the 4th aircraft off the 200 series production line, and survived a crash-landing on Salisbury plain while investigating deep-stall problems. It was at this time that the Company was considering the purchase of a large civil transport aircraft to use as a test bed for flight control systems.

After being re-built, it entered airline service with British United Airways in 1964 as G-ASJD. It was purchased from British Caledonian in 1971 and became XX105 on the military register. There followed a period of overhaul and re-painting at BAC Hurn, and an extensive re-fit as a “flying laboratory” at the Cranfield Institute of Technology (CIT) and then in-house at RAE Bedford. It was modified to allow the spoilers to be used for direct lift control and fitted with a Smiths SEP5 autopilot to provide a “CAT 2” all-weather capability. XX105 took on a new red, yellow and white colour scheme, chosen within BLEU, which became well recognised by aviation enthusiasts throughout much of the world, and in spite of much pressure from RAE top brass to change to the official “raspberry ripple” colours; this unique livery was retained for the rest of its life.



Snippets from the Company Newspapers

Pioneers of flight!

The following seriously written report in a British daily newspaper by an Aviation Correspondent was printed circa 1905. It is not without humour:
"There can be no doubt as to this machine's flying capabilities. because the distance between where the wheel marks stopped and the pile of wreckage was 25 yards"

Cat and Duck Navigation!

It is generally believed, particularly by those who live by the sale of avionics, that you need a lot of exotic gear if you want to fly in cloud and land in fog and so on. But there are genuine low-cost solutions - known in the trade as BAM — of which the C&D, or cat and duck method is well known and approved by those who have not tried it. Perhaps some of the intrepid pilots in Elliott Flight Automation would produce a characteristically objective assessment. Here's how:

Place a live cat on the cockpit floor; because a cat always remains upright, he or she can be used in lieu of a needle and ball (blind-flying instrument — Ed). Merely watch to see which way the cat leans to determine if a wing is low, and if so, which one.

The duck is used for the instrument approach and landing. Because of the fact that any sensible duck will refuse to fly under instrument conditions, it is only necessary to hurl your duck out of the aeroplane and follow her to the ground.

There are some limitations to the Cat and Duck Method, but by rigidly adhering to the following checklist, a degree of success will be achieved which will surely startle you, your passengers and even an occasional tower operator.

- 1 Get a wide-awake cat. Most cats do not want to stand up at all. It may be necessary to carry a large dog in the cockpit to keep the cat at attention.
- 2 Make sure the cat is clean. Dirty cats will spend all their time washing. Trying to follow a washing cat usually results in a tight snap roll followed by an inverted spin.
- 3 Use old cats only. Young cats have nine lives, but old, used-up cats with only one life left have just as much to lose as you do and will be more dependable.
- 4 Beware of cowardly ducks. If the duck discovers that you are using the cat to stay upright, she will refuse to leave without the cat. Ducks are no better in instrument conditions than you are.
- 5 Be sure that the duck has good eyesight. Near-sighted ducks sometimes fail to realise that they are on instruments and will go flogging off into the nearest hill. Very near-sighted ducks will not realise they have been thrown out and will descend to the ground in a sitting position. This manoeuvre is difficult to follow in an aeroplane.
- 6 Use land-loving ducks. It is very discouraging to break out and find yourself on final for a rice paddy, particularly if there are duck hunters around. Duck hunters suffer from temporary insanity while sitting in freezing weather and will shoot at anything that flies.
- 7 Choose your duck carefully. It is easy to confuse ducks with geese, because many water birds look alike. While they are very competent instrument flyers, geese seldom want to go in the same direction as you. If your duck heads off for Canada or Africa, you may be sure you have been given the goose. **EFA News March 1972**

Tom's last drive

Tom Smith, EFA chauffeur since 1954, is happily leading a more regular life as Assistant Transport Officer, supervising loading and unloading operations at Goods Inwards. Tom must know every single detail of the road between Airport Works and Chatham station. He met most of the London trains for about 14 years: his record is 21 trips to the station in one day. For that matter, he once drove twice to London Airport and back in one day. Tom's last chauffeur assignment was, in fact, to drive Mr. Pateman and his family to Buckingham Palace on July 28th for the investiture. A Rolls-Royce was obtained for the occasion, which is a story in itself, because Mr. Pateman insisted that Tom and not a hired chauffeur should drive. This was something of a recovery operation because the earlier drive on March 4th had to be abandoned somewhere near Orpington because of a sudden snowstorm.
EFA News Sept 1970

The Rochester Airport site of BAE Systems will be continued in the next Newsletter