

Major Breakthrough in Fly-By-Wire

With the recent well publicised launch by Boeing Commercial Aircraft of their new wide bodied twin engined airliner, the 777, GEC Avionics has been selected to supply the Primary Flight Control Computer. Boeing are the world's largest aircraft manufacturer and this is therefore a major triumph for the company and for our Flight Controls Division whose responsibility it will be to develop the system in conjunction with Combat Aircraft Controls Division and Maritime Aircraft Systems Division.

The 777 will represent a major technological leap for Boeing in that for the first time one of their range of passenger airplanes will use a full authority fly-by-wire primary flight control system.

With increasing passenger numbers and intense competition between the world's airlines the move by Boeing to use fly-by-wire reflects the advantages this technology can offer the airline operator by way of improved aircraft performance and reduced equipment maintenance.

Boeing Commercial Aircraft embarked on the programme some five years ago since when GEC Avionics has worked closely with them to develop a highly reliable, low maintenance flight control system. FCD's Divisional



Artist's impression of the proposed Boeing 777 Manager, Ray Dennis, believes:

'The primary flight computer system programme represents the culmination of years of work across a number of divisions in GEC Avionics. Our long term agreement with the world's most successful aircraft manufacturer establishes the company's position in the emerging civil fly-by-wire market and will enable us to expand our civil business base.'

The long term agreement with Boeing puts the company in a strong position for future technology updates on other Boeing aircraft.

New Markets for a NEW HUD

This less familiar shape of Head Up Display is a synthetic-vision HUD. Coupled with an infra-red sensor, it is being developed for the civil market, and is a follow-on from ADD's well established A-7/F-16 technology.

As a system to be used as a landing aid for airliners, rather than for military applications, one big difference is that it is under development as a primary flight instrument with safety critical performance needs. The pilot flying in low visibility landing conditions

can bring his passengers in with the aid of an IR picture of the runway approach combined with symbology and navigation data.

A potentially massive market is being opened up, especially by a recent decision by the US Federal Aviation Authority to allow aircraft fitted with a civil HUD to land at airports in Category 3 conditions, as little as 300ft visibility.

Several US airlines are showing interest, and GAv is actively following these leads.

Merry Christmas



A message from our new Managing Director



As we approach the end of 1990, we can reflect on a year in which the world political scene has been transformed beyond previous belief. The resultant changes in our industry have been on a scale that could not have been foreseen even a short time ago. Despite having anticipated a reduction in our activities some two years ago, it is with regret that the worldwide reduction in orders has recently forced us to reduce the size of our workforce below the planned level.

However, as I take up my appointment as your new Managing Director I see us moving steadily into a position to meet the challenge of the next decade with renewed confidence. Changing world markets will, of course, demand that we further increase our competitiveness, and we will have to expand our activities across an even wider sphere of defence and civil avionics. We have already begun this process by moving into a number of new market areas.

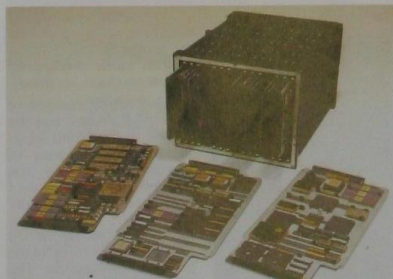
In civil avionics, our current successes will re-affirm our position as a leading supplier of electronics to the world's airlines. In defence, the exceptional range and variety of international programmes and projects with which we are now involved, from the Phoenix remotely piloted vehicle system to the European Fighter Aircraft, from the Merlin helicopter project to the United States Advanced Tactical Fighter, will provide a sound base on which to build our future activities.

I am sure that, by working together to meet the new challenges, we will be able to take the opportunities which the 1990s will offer and which will benefit us all.

My very best wishes to each of you and your families, for Christmas and the New Year.

BGS Tucker

BGS Tucker



GAv's prototype Flight Control Computer



The New Head Up Display

Inside

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More Subsea SUCCESS

GEC Avionics Improves Safety Offshore

GEC Avionics is contributing to improving the safety of operations in the offshore oil and gas industry by providing control systems for subsea isolation valves (SSIVs) (known also as ESVs for Emergency Shut-down Valves) to be installed in subsea pipelines in the North Sea.

Oil companies, who have been anticipating the recommendations to follow from Lord Cullen's report on the Piper Alpha disaster, are acting now to help prevent similar events happening again. Over the next few years, pipeline operators will be installing failsafe emergency shutdown valves in seabed pipelines. Typically they will be situated within 500m of the offshore installation. In the event of an emergency, automatic closure of such a subsea valve would prevent the pressurised con-

tents of a ruptured pipeline fuelling any existing fires on the platform, thereby limiting any further damage.

As part of this programme to retrofit SSIVs to the many existing pipelines, oil companies are calling on the expertise of suppliers like GEC Avionics' Monitoring and Control Division at Nailsea to provide the safety critical control equipment to operate and monitor these valves.

GAv is well known in the oil industry as a supplier of high reliability systems for controlling production from subsea oil and gas wells. The application of this technology to control SSIVs is seen as a logical extension to MCD's existing business activities.

MCD has been particularly successful in pursuing SSIV control system business, and has been awarded contracts by BP and Chevron with a total

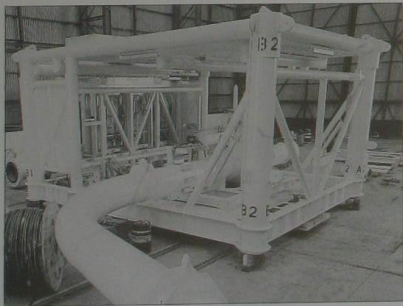
value of approximately £4m since February this year. A factor in their success has been the division's ability to respond to the short delivery timescales required by the clients in order to meet scheduled offshore shutdown periods for valve installation. This timescale has typically been 6 months from contract award through design, manufacture and delivery to the commissioning of a complete system offshore.

The equipment supplied by MCD has included, for the platform, Hydraulic Power Units and computerised control and monitoring packages, with interfaces to the platform's supervisory systems. Subsea equipment included umbilical cables with terminations, subsea control modules (both pilot and electro-hydraulic operated) and subsea hydraulic accumulator storage modules.



With the MCD project team for the BP Cleeton and Magnus SSIV projects, is a subsea electronics module used on the SSIV skid to relay

valve status data to the platform operators. Pictured left to right are - Peter Grimes, Mike Cameron, Dave Milson, Dave Roche, Bob Gough.



A GEC Avionics control system accumulator banks and hydraulic control module can be seen in a mounting frame to the rear of the structure, while the con-

trol system accumulator banks and hydraulic control module can be seen in a mounting frame to the rear of the structure.

Divisions Merge

At Nailsea we have experienced an increase in demand for our offshore engineering products and a decline in production orders for power supplies and recording systems products. Therefore, the company has taken a decision to merge the activities of Power Conversion Systems Division and Recording Systems Division into Monitoring and Control Division. The Nailsea operation now operates as a sub-division of MCD Rochester, under the Divisional Management of Peter Hewlett.

The product range of both RSD and PCSD will be maintained and promoted within the new structure, and MCD's activities now cover Fuel Systems, Engine Utility Controls, Health and Maintenance Monitoring, Control and Display Units, Power Supply and Control, Video Recording Systems, Mission Data Entry Systems, and Subsea Control Systems.

The new management organisation at Nailsea reporting directly to Peter Hewlett is: Ray Phillips, Business Manager, responsible for all Oil/Gas business; Dave Hooper, Business Development Manager; Howard Jones, Operations Manager, responsible for Production, QA, DO and Tech Pubs. The Engineering Product Groups are led by Paul Barstow, Recording Systems Group and Ian Robinson, Power Controls Group who report directly to Rod Tester, Technical Manager MCD Rochester. Bob Attwood, Contoller responsible for commercial activities on site at Nailsea reports directly to Rod Davidson, Commercial Manager, MCD Rochester. Both Trevor Morgon, QA Manager and Laurence Matthias, Production Project Manager maintain responsibility for their respective disciplines for MCD Rochester product activities.

Are You Driving?

Don't spoil your holiday - or that of anyone else.

Whether or not you pass a breath test depends on many factors - from when you ate last to how big you are and how fast you drink. You also need to know what you are drinking and how much alcohol it contains.

A simple guide is that five units for men and three for women will put you close to the legal limit of 80mg of alcohol per 100ml of blood.

What constitutes a unit? Which? magazine gives a rough guide to one unit of alcohol as: a single malt whisky, half a pint of full-strength beer, half a 125ml glass of full-strength wine, 1/2 glasses of 5 per cent strength wine, 1/2 pints of 1 per cent strength beer, three pints of 0.5 per cent low-alcohol beer, five pints of 0.3 per cent low-alcohol beer, 160 125ml glasses of 0.05 per cent low-alcohol wine.

MOSCOW Exhibiting at the Moscow Airshow

A Personal View

The opening-up of Eastern Europe and particularly of the Soviet Union has been well reported in the press and the British aircraft industry is already responding to the changing situation. In September, eight UK companies exhibited as members of the Society of British Aerospace Companies at the 'Teknika Aeroporta '90' exhibition.

With UK Government approval, GAv exhibited

civil aviation equipment relevant to the growing market and activity there. There was a great deal of interest in Western equipment and large numbers of visitors attended the exhibition, keeping us busy at all times.

Senior Soviet visitors to our stand included Ministers and Deputy Ministers; the photograph shows our Chairman Ron Howard, greeting Mr Systsov,

Minister of Aviation Industry, with members of his team.

In September of this year, I had the privilege of attending an aero-space exhibition in Moscow as one of a number of GEC Avionics personnel. The show was called 'Teknika Aeroporta '90' and was held in a purpose-built exhibition hall situated in a large park dedicated to the economic achievements of the Soviet Union. Our products created enormous interest among our Soviet counterparts and the prospects for cooperation on future commercial aircraft products are good.

As well as the business of the exhibition, we had the chance to meet our hosts socially at a number of receptions held by the British Aerospace Industry. I found them very friendly and open, a complete departure from the West's rather surly stereotype of the Russian. Following the momentous changes that have taken place in East-West relationships over the past year, the visit was altogether a very moving experience.

John Aplin
Marketing Executive, FCD



Congratulations!

GAv's 1991 Calendar, which is sent to customers and business contacts as part of our marketing strategy, was selected from more than 300 entries to be exhibited in the National Business Calendar Awards show in London.

The calendar is made up with reproductions of six specially commissioned water colours of London scenes. Design and production work was in the hands of LCS Publications, and the printing was done by Gros Monty of Ashford. This is the second time our calendars have been honoured in this way.

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MASD Helps RAF win 1990 Fincastle Trophy

The Fincastle Trophy was first competed for in 1961 in a simple annual bombing competition between Anti-Submarine Warfare (ASW) crews of the RAF, RCAF and the RNZAF. In 1970, the competition was extended to examine a wider range of ASW skills, including detecting, localising and attacking an evading submarine. Each country holds an annual national competition to select the crew that will represent them at the international Fincastle competition, which is hosted by each country in turn.

The 1990 competition was held at CFB Greenwood, Nova Scotia, during the period 24 September to 3 October. There is often an element of luck in winning the competition but not on this occasion. It was an extremely close contest throughout, with three of four competing crews locked together at the top of the table. However, Crew 6 from 42 Squadron, RAF St Mawgan was very confident and therefore not surprised when it was

awarded the trophy. The RAF has now won the competition outright on 10 occasions with the RAAF in second place with 7 victories.

The RAAF and RNZAF fly Lockheed P-3 Orion aircraft and the Canadian Air Force operates a variant of the P-3 known as the CP-140 Aurora. The 4 RAF squadrons are equipped with British Aerospace Nimrod MR Mk2 aircraft, which contain several avionic systems designed and manufactured at Rochester. For instance MASD's AQS 901 sonobuoy system which is also fitted in the RAAF's P-3 Orions and GSD's Central Tactical System (CTS). MASD also supplies the 920 ATC computers used in the AQS 901, CTS and the Loral 1017 ESM system, and MCD/RSD supplied the Mission Tape Recorders.

The company was therefore very pleased to provide sponsorship for the RAF team in the form of T-shirts from MASD, suitably decorated with the 1990 Fincastle Trophy and GAV logos, and a generous contribution for their 'refreshment' kitty.



The victorious 42 Squadron team in front of their Nimrod.



Chris Humphris and Gene McKibben with the T45 model. (B)

AWARD for T45 Flight Control

The McAir T45 programme management team has carried out a whistle stop tour of their main UK suppliers. Gene McKibben, Director of Procurement (T45 program), visited Combat Aircraft Controls Division to review the Yaw Damper Control Unit Program and to tour the Division's facilities. He presented Chris Humphris, Divisional

Manager, with an engraved aircraft model in appreciation of the GEC Avionics team effort in support of the T45 program.

The T45 is based on the British Aerospace Hawk and is the next generation US Navy trainer aircraft. CACD provide the yaw damper control system.

Following a successful development programme, where the Division was commended for responsiveness and on-time delivery, production deliveries will start in July 1991. Currently, 300 aircraft are planned but this is likely to grow with Airforce and Export requirements.

SESD Aid for the RAF

A team led by GEC Avionics is one of three competitors selected to participate in the three-month project definition phase for the Advanced Mission Planning Aid (AMPA) for the RAF Harrier GR7.

AMPA will enable preparation of single and multi-aircraft missions by a single operator. Aircrew will be able to plan all types of mission, from daylight operations to covert missions against ground targets, undertaken at night and in adverse weather conditions.

During this project definition phase SESD will use a modified Pathfinder 2000

mission planning system to demonstrate its ability to meet the MoD AMPA requirements.

The team comprises Gav, Hunting Engineering Limited of Bedford, and Fairchild Defense of Germantown, Maryland. Fairchild Defense are manufacturers of the US Air Force mission planning system - MSS II.

GSD already supply their solid state digital colour map unit for the Harrier GR7. This equipment overlays tactical information on digital map data. AMPA will provide the information for these overlays.



This Harrier GR5 cockpit is rather cluttered with the pilot's paperwork. The AMPA and colour map unit will dispense with the need for such techniques.

GEC Avionics News

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Barry Wallington, Hopewell
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Central Charity Fund

Donations totalling more than £1500 have been made to local charities amongst which have been contributions to the Medway Scanner Appeal (Cancer Research Fund) £250; Kent Leukaemia and Cancer Equipment Group, and Kent Womens Aid Group £200 each; Kent Association for the Disabled £150.

Don't forget - if you would like to make a regular contribution to charities such as these, it can be deducted at source through the payroll. Contact Personnel Records for an application form.

For your 10p a week donations, the company donates another 10p.

Renewing Your Car Tax?

The Davis Estate Post Office, which already remains open during the lunch hour, is now able to deal with applications for issue or renewal of Vehicle Licenses. This provides a quick and easy facility for your annual tax renewal.

Dave's Duddell Medal



Dr Dave Hubbard is seen at his computer terminal, viewed through the combiner of the 'space model' of the EEA HUD.

The Institute of Physics Medal which has been jointly won by Dr Dave Hubbard, Principal Systems Engineer in TSRL and by Dr Ken Firth, Consultant in Sensors and Avionics Research Laboratory at Great Baddow, is awarded annually together with a cash prize. Instituted in 1923 as a memorial to the inventor of the electromagnetic oscillograph, it is for 'contribution to the advancement of knowledge by the invention or design of scientific instruments ... or for outstanding contributions to the application of Physics'.

The achievement of the two company scientists lies in further development of the Queen's Award winning holographic HUD which was selected for the US Air Force F-16 LANTIRN programme. This has brought major export business for ADD - around 400 systems have been delivered.

Dr Firth was engaged on the original holographic HUD from the outset, but for the last five years he and Dr Hubbard, and the teams working with them, have developed the use of a single combiner with

a large off-axis angle. Ken Firth has concentrated on practical realisation and novel fabrication techniques for the combiner 'lens'. Closely interacting with that, Dave Hubbard has concentrated on the optical design of the system, in particular the technique used to correct system errors. This has involved the generation of a very powerful computer aided design methodology which he has developed from scratch.

Their joint work has played a major role in the development of the new GAv Holographic HUD which has been selected for the Eurofighter. They have successfully demonstrated a new degree of freedom in optical system design which can be exploited in any HUD application. For example, civil airliners - helicopters - general aviation aircraft - automobiles - as well as combat aircraft. These are all of great importance to our future business prospects.

Dave Hubbard completed his Honours Degree in Physics at Portsmouth Polytechnic in 1977, and his PhD in Physics at Reading University in 1983. He and Ken Firth will receive their Bronze Medals and the Prize in May.

Bowling for BRITAIN

In August John Luker, who works in the Health Physics Section of Applied Physics Division, was a very successful member of the British Team at the World Bowls Championships for the Disabled, held in Birmingham. He won a Gold Medal in the pairs competition for his class of disablement and a Silver Medal in the pairs open tournament.

But John is most proud of the Bronze Medal that he won in the singles after a play-off against an Irish player. He said, 'When you play singles it's down to you and so to get the Bronze pleased me most, especially against the strong opposition provided by the Irish, Australians and New Zealanders'.

John is Chairman of the Bowls Section of the Elliott Sports and Social Club at the Borehamwood site and he also plays for other local clubs and is a County player.



As John was required to raise funds as a contribution towards the cost of training for the games, Applied Physics Division organised a Barn Dance attended by about 170 people. This very enjoyable event raised over £600 and even the catering was done by members of the division to increase the profit. The Technical Manager, who is a well known local Barn Dance Caller, made sure that the dancers knew what they were doing.

The Royal Aeronautical Society Medway Branch

Lecture Programme 1991

Main Canteen, Airport Works
7.00 pm

16 January
Head Up Displays and
Helmet Mounted Displays
Chris Bartlett BSc, MIEE
Chief Engineer (Displays)
Airborne Display Division
GEC Avionics Limited

20 February
Comet 1 and the next 40
years of Jet Transport
J M Ramsden CEng,
FRAeS

20 March
Tornado Operations
Serving Officer
27 Squadron

17 April
35 Years of Fly-by-Wire
Ron Howard, Chairman
GEC Avionics Limited

22 May
Annual General Meeting

Kent's Air Ambulance Takes Off

As many of you will be aware, the Kent Air Ambulance Service was given a reprieve in June and its future looks a little more secure. However, successful fundraising remains an important factor in its continued existence and all donations, great and small, are gratefully received.

GAV already assists the ambulance by providing landing and hangar facilities free of charge. Also, recently a cheque was presented to the Air Crew on behalf of the GAV Central Charity Fund.

On 11th October an Air Ambulance lottery was launched and it is hoped that the sale of the tickets will provide sufficient funding for the Ambulance to continue. At present there are over 200 agents sell-

ing the tickets across the county.

If you would like to make a donation or help the Kent Air Ambulance Service in any other way, please contact Kate Chivers, Appeals Secretary, at Cranbrook on 0233 645763, and if you would like to become a Lottery Agent, phone the same number.

Any of you not already exhausted by the London-to-Brighton or the ADD Race, indeed anyone - family and friends - can take part in a Sponsored Fun Ride in aid of the Air Ambulance and other charities. This is being organised by the Rotary Club of Gravesend, on SUNDAY 24th MARCH. This is not a race, indeed you may not even complete the 50 mile course!

Ask Elaine Beard, Social Club Officer, Ex 4058 for more details.



Coming Events

Nicola Dicker of ISD's Air Data Engineering group has left in preparation for the birth of a child early in the New Year. (B)

GEC AVIONICS

into, '91

ANNUAL REVIEW OF ACTIVITIES



Head Up Display for the EFA



The Boeing 777

The Managing Director's Report

During the past year major changes in the world situation have resulted in a general slowdown in defence programmes. These have affected our industry considerably and 1990 has proved to be one of the most difficult years in our long history. Nevertheless, GEC Avionics has continued to achieve success in many differing areas.

With the dedicated efforts of every employee and our wide range of systems expertise we can move into 1991 with confidence in our future.

The commencement of the European Fighter Aircraft programme is reestablishing many of our successful European collaborations and is creating new ones that will consolidate our leading position within European industry. Internationally our continuing exports, particularly to the USA, will be a key feature of our business in both the defence and civil aircraft markets.

The selection of the Company by Boeing to be the supplier of Fly-by-Wire Computers for their newly launched 777, together with our continuing work with Airbus and Canadair has confirmed our long and successful involvement in civil avionics and demonstrates our world leading position in flight control systems for all classes of aircraft.

Our company is also extending its activities into many new fields. A good example is our offshore products business where we have achieved notable success in 1990. We can look forward to playing an important role in the future development and production of subsea electronic equipment.

I am pleased to report that during the year we have continued our implementation of the Total Quality Programme. In the highly competitive environment of the 1990's it is even more essential that we continue to improve our ability to satisfy our customer's requirements.

In this review are many examples of innovation across the wide range of products developed by the divisions of the Company in the United Kingdom and our associated companies in the United States of America.

I hope that you will find the contents interesting and a confirmation of GEC Avionics determination to progress in a changing world.

B G S Tucker
Managing Director of GEC Avionics Limited



B G S Tucker
Managing Director

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Airborne Display Division

1990 has seen European business activity on both fixed wing and rotary programmes. The division won the Head Up Display (HUD) contract for EFA and, in conjunction with their European partners, will also supply the computer symbol generator and cockpit interface unit. Flight trials of a revolutionary new night vision integrated pilot's helmet have been carried out on a PAH-1 attack helicopter of the German Army.

In the United States, prospective customers have kept the division busy with programmes such as the F-16 Mid-Life update, helmet mounted display (HMD) programmes and the HUD for the YF-22 (contender for the Advanced Tactical Fighter). In all of the flying to date of the demonstration/validation YF-22, the HUD has performed impeccably. Flying of our helmet system on the F-16 has continued throughout the year.

Follow on orders have been received for 'Cats Eyes' Night Vision Goggles as well as orders for the new specialist ground forces goggle 'Ground Owl'.

The division is now developing HUDs for commercial aircraft. Great interest has been shown by several major US airlines in both critical flight instrument HUDs which put basic flight information before the pilot's eyes and in 'dual mode' HUDs which can add synthetic imagery of touch down points.

1991 offers many exciting prospects for establishing launch customers for several new products in military and civil fields.



PAH-1 Attack Helicopter.

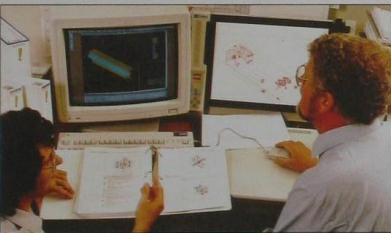
Applied Physics Division

The majority of the division's business is in the development and production of neutron generators and in 1990 for the first time we were able to obtain a fixed price multi-year contract from MOD. This required a major team effort and renewed incentives to produce our quality product even more efficiently.

Production of the US Abrams Tank CO² Laser Rangefinder was not authorised by the US Army and our laser tube supplied to GEC Avionics Inc will not now lead to the growth which we had planned. However, we obtained increased customer funding for our laser research and development department and prospects of additional orders for European collaborative and other US programmes are very good.

Acquisition of the Laser Energy Meter products from GEC Hirst Research Centre proceeded in line with our plans to increase our commercial activities and demands exceeded our expectations due to a very aggressive sales and marketing campaign.

Refurbishment of the division continued to provide much needed improvements to our professional image and working conditions and capacity to locate a team from the Technical Director's Advanced Systems Group.



Computer Aided Design of a Laser System.

Combat Aircraft Controls Division

Along with the production of military flight controls for the Tornado, AMX and T45 aircraft, CADC has been selected to supply the European Fighter Aircraft (EFA) Flight Control Computer and the covert SPARTAN Terrain Reference Navigation/Terrain Following System for the UK Tornado Mid-Life Update. Development of the YF-22A Vehicle Management System is completed and the equipment is currently undergoing rigorous flight testing.

With the EFA contract award, the division can now claim to supply pilot's control sticks for three of the world's major future front line fighter aircraft, the YF-22A, A-12 and EFA, and these notable successes are opening up many new opportunities in other fields related to pilot controls.

The division is also involved with the increasing retrofit/upgrade market and is in discussions with manufacturers on a number of programmes. These programmes, along with product diversification, feature strongly in the divisions future business plans.

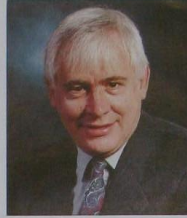
Management Team of GEC Avionics Limited



John Bradley
Personnel Director



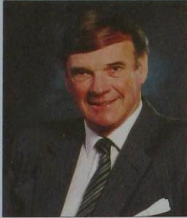
David Clews
Assistant Managing Director



John Clover
Production Director



Jerry Fisher
Marketing Director



Ron Howard
Chairman



Ray Reese
Assistant Managing Director



David Reeves
Commercial Director



Robin Sleight
Assistant Managing Director

Flight Controls Division

The recent announcement that FCD has been selected by the Boeing Commercial Airplane Company to supply the Primary Flight Computer System for the 777 aircraft is a major achievement for the division and for the company as a whole. This important announcement coincided with the first deliveries to Canadair of Spoiler Electronic Control Units for the Regional Jet, one of the up-and-coming range of commuter jets. These successes, together with FCD's continued deliveries of Slat and Flap Control Computers for A300-600, A310 and A320 Airbus aircraft (which reached record levels this year), consolidate GEC Avionics long held position as the world leader in the development of fly-by-wire systems for commercial aircraft. In the latest moves into fibre optics, work has continued in developing the revolutionary 'Fly-By-Light' system for the operational development model of the US Naval Airship.

The complete British Army Phoenix target acquisition and surveillance system has undergone extensive flight testing in preparation for the commencement of final customer acceptance trials. Considerable overseas interest in the highly capable surveillance system is now being shown.

1990 has seen exciting changes in the world, with the opening of the eastern bloc. These markets



John Spinks
Assistant Managing Director



Tim Venables
Finance Director



Bob Wilkinson
Technical Director

offer GEC Avionics many new opportunities and FCD has devoted a great deal of energy to spearheading the company's highly promising exploratory talks on avionics for commercial aircraft.



GEC Avionics at Moscow Aerospace '90.

Guidance Systems Division

Guidance Systems Division's production of Sensor Units for Sting Ray and Javelin and inertial platforms for the Multi-Launch Rocket System (MLRS) is still continuing. 1990 has also seen delivery of the first production equipments to UK MOD of the Azimuth Position Elevation System (APES) for the British Army's Observation Post variant of the Warrior. Deliveries have begun of the Digital Colour Map Unit for the RN and USN Harrier GR-7. Strong promotion and marketing of covert navigation systems continues worldwide, including the Digital Colour Map Unit and the SPARTAN Terrain Reference Navigation/Terrain Following System, which is marketed jointly with CADC. Orders for the long running Naval Compass Stabilizer equipment (NCS1) continue to be received.

In 1990, in recognition of its innovative design and potential for a wide spectrum of commercial and military users, the Solid State Angular Rate Transducer 'START' gyroscope received one of the UK's most prestigious technology accolades - selection as an award winner for the innovation stage of the Prince of Wales Award for Innovation and Production. START continues to attract considerable interest in fields as diverse as space research, automobiles, guided munitions and wave motion study.



APES in the Warrior OPV



A-12

Instrument Systems Division

An unprecedented level of sales and marketing activity through the year has resulted in a number of new contracts for the USA, Canada and Europe. The general downturn in the market for new projects has not affected the demand for retrofit air data and stores management products, although delays in Government fiscal commitments, particularly in the USA, have been very frustrating.

Due to the maturity of our SCADC and Mini SCADC modular designs and the increased efficiency flowing from our investment in

computer aided design, manufacture and test, we were reluctantly unable to sustain the engineering department at its previous levels.

The SCADC programme attained new milestones with 4500 production units delivered and new variants for the USAF F-14 and B-52 and the USN S-3 coming on line. The reliability of in-service units is exceeding that guaranteed and is the foundation upon which future aircraft variants and production requirements will be established.

The first production order for

Mini SCADC has been placed for the Canadian F-5 variant (CF-116) and we expect new orders soon for other F-5 retrofit programmes worldwide. Use of the SCADC modules has enabled the acquisition of a USN contract to replace up to 400 Signal Data Converters for the A-6 aircraft.

Successful demonstration of our modular stores management system (STDRMS) in the US has led to an initial contract from McDonnell Douglas for an interface unit for the Harpoon missile which will enable retrofit on older aircraft. The Tornado SMS programme has continued into 7th batch production, and development of

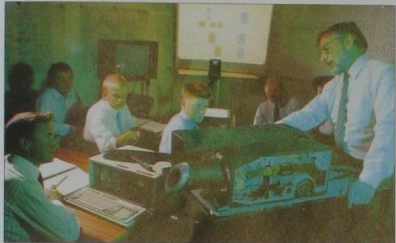
Logistic and Customer Services Division

During 1990 the division changed from Aviation Service and Repair Division to its new name - which more accurately describes the full range of customer support services the division provides to civil and military operators of GEC Avionics' equipment.

LCSD continues to operate a 24 hours a day, 365 days a year repair and supply service for all GEC Avionics equipment operators. These operators now possess a diversity of equipment types and technologies, from early 1960s analogue equipment to the most advanced modern microprocessor based systems!

In the last year our technical services have been extended to meet the latest MOD/DOD contract requirements for ILS, CALS, 2000M and 1000D, whilst engineering support to the divisions has been extended to include equipment maintainability recommendations and reliability/maintainability analyses.

In 1990 an advanced electronic publishing, image scanning and typesetting facility was installed in our publications department allowing us to offer, in 1991, a full range of up to the minute publication services.



Customer's Staff Under Training

Maritime Aircraft Systems Division

The Maritime Aircraft Systems Division has broadened its current airborne ASW product range to include systems for ships and submarines.

The integrated mission avionics system in the Sea King Mk 42B, probably the most advanced system of its kind currently available, is now in service with the Indian Navy and is proving highly reliable and effective. Further sales are expected in India.

Deliveries of AQS-902G/DS sonar systems for the latest Royal Navy Sea King helicopter, the Mk6, are well ahead of schedule. This gives the Navy a more powerful system than the AQS-904 which equipped the Mk5, with CRT displays and a wide range of aids for the operator. Current work on software updates will optimise the system performance for the prevailing RN concept of operations.

In a joint programme with GEC Avionics in Atlanta, flight trials of equipment for the Grumman 5-2(T) Turbo Tracker, are almost complete. The AQS-928F acoustic processor has consistently exceeded the required performance levels and is likely to be the first trial avionic system to complete the 5-2(T) test schedule. The acoustic system for the RN EH 101 Merlin - the AQS-903 - will complete development early in 1991. Laboratory and bench tests, and trials at sea during 1990 have shown that 903 meets, and in some cases exceeds, the performance specified by RAE. Final sea trials took place at the Atlantic Underwater Test and Evaluation Centre (AUTEC) in November 1990.

The Airborne Crew Trainer has been demonstrated across the USA during 1990 and has attracted a good deal of attention. During 1991 MASD intends to promote this unique equipment in Europe, the Far East and Australasia.

Also in the coming year, MASD expects to play a major role in Mission Systems Integration (MSI) for the RN Merlin, Spanish Air Force P-3B Orion update and Nimrod replacement aircraft supplying equipment for all three programmes.



MASD's Technical and Acoustic Systems

modifications for the mid-life improvement programme, including a new weapon interface unit, is proceeding.

We have been successful on the EFA project with the award of the Air Data Transducer contract and are confident of further orders for the stores station units in the near future. The production department continues to provide a full manufacturing service for Monitoring and Control Division, whilst Microsystems are experiencing an increasing demand for hybrid and SMT devices from several GEC companies amongst others.



F-14



Common Control Unit

Monitoring and Control Division

1990 was a very significant year for MCD. The amalgamation of the businesses of Recording Systems and Power Conversion Systems into MCD increased the scope for organisational efficiency at our Nalaise site and the opportunities for the development of further monitoring and control systems' markets.

New business was acquired from Eurofighter for the EFA total and dry fuel flow measurement (FFM) systems, as well as initial development funding for the EJ200 engine monitor unit from Rolls-Royce. This consolidated our position in Europe and opened up fresh opportunities in the USA with the flexwave FFM design.

Support Equipment Systems Division

Support Equipment Systems Division (SESD), previously known as Automatic Test Equipment Division, is set to capitalise during 1991, on the investment it has made in new systems and technologies. Sales of the ORION 608 test equipment and the imminent establishment of a SMART Beta site in the division illustrate the leading role SESD is playing worldwide in the promotion of this new ARINC standard of ATE for airlines. Widespread overseas contacts make SESD confident of success in this field.

Sales prospects for the ORION 9000 data bus tester (now extended to encompass the EFA 3910 standard) and its ruggedised version, the ORION 9000R are good. Shipping of the MATE systems for the United States Air Force and Navy is underway whilst the Pneumatic Test System, a part of MATE designed in the division, has recently been approved by the USAF MATE Office.

During 1990 the division has received the first contract for its new Mission Planning System - a success which launches us into the developing market of Geographic Information Systems.

Work associated with EFA is proceeding through our involvement in EUROLOGS. Activity is also well underway to propose test equipment for the RN EH 101 Merlin programme. This work, along with the ORION 608 activity, is achieved in collaboration with GEC Ferranti.



Automatic Test Equipment in SESD

Accounts Department

During 1990 the department has been refurbished. Investment in new computer systems, both mainframe and personal, continues to improve efficiency and reduce costs and has in fact allowed the department to maintain costs at the level of three years ago.

The new bought ledger system (BLIS) is now operating and, in four divisions, is linked to SPUR, the company's purchasing system. This allows suppliers' invoices to be cleared automatically. During 1991 the system will be taken to all the remaining divisions.

Audio Visual Unit

1990 has been a busy year for the Audio Visual Unit.

In all some 24 projects have been completed, five of which were produced specifically for the Farnborough International Airshow. These projects have included a number of firsts including translations and re-editing into Turkish and Russian for major aerospace exhibitions in Ankara and Moscow.

To support the company's growing schools liaison programme the unit has put together a company recruitment video intended for schools and careers conventions.

In work for external companies, the unit has completed a Royal Saudi Air Force training programme for Marconi Defence Systems Ltd at Stanmore.

The move from the New Road site to the top floor of the Falcon Building has been successfully accomplished with the last of the complex moving taking place now. From its new, improved facility, the unit is looking forward to an in-

teresting and busy 1991.

Central Manufacturing Services

The past 12 months have been a busy period for CMS with a full order book. Participation in the development of TRN, Canadair and other programmes has provided a challenge, as it has been necessary to produce prototype models in very short timescales. In addition, the return to machining to very fine tolerances required for CAD's pilots stick sensor programme, has proved interesting and challenging. The growth of Redux Bonding across GEC as a whole has brought new business and has extended the CMS's list of customers to Marconi Defence Systems and GEC Sensors.

The process area continues to provide its valuable high quality service - some 50,000 PC boards have now been successfully conformally coated. Reliability shakedown testing has been improved by the installation of video cameras to constantly monitor conditions. In 1991, the introduction of the AQS-903 chamber and the consolidation of RST activities in the main factory will improve the service even further.

Central Quality Department

The department continues to offer support services to divisions in the field of electrical and mechanical standards, and also through its Environmental and Electromagnetic Compatibility Laboratories, both of which are assessed and accredited by NAMAS.

Over the year both these laboratories have expanded their activities to encompass an ever increasing amount of work under

Our liquid crystal display product range expanded as a result of contract awards by British Aerospace for the Hawk 100/200 programme and we came very close to winning a major US retrofit programme.

The video recording and computer loading systems contracts for the Tornado MLU experienced development difficulties at Nalaise, but the prospects for these products were confirmed by the award of a contract for the Hawk 100/200 data loader.

Power conversion systems production for ADD, ISD and others generally proceeded to plan and we have recently gained a major external order from Racal for PSUs

for a naval application. Production activity levels at Nalaise have been affected by the slowdown in F-16 and SCADC PSU requirements but we have been successfully acquiring subcontract assembly work.

The Offshore Products Group experienced a major increase in demand for subsea control systems and the group was awarded contracts from Chevron, Total and BP. Major prospects exist in the North Sea and offshore fields in the USA and the Far East. The very short timescales for these products placed significant demands on our development and production staff at Nalaise and they rose to the challenges in all cases.

Technology and Systems Research Laboratory

TSRL (formerly Flight Automation Research Laboratory) is living up to its new name in that it is supporting the divisions' current business as well as researching future products. The research laboratory is currently looking at many new markets including the automotive and fishing industries.

Work on human/computer interfaces, data transmission, VLSI and environmental design has been complemented by overall system design for unmanned aircraft, missiles and helicopters, and for non-aerospace applications.

Research customers now include the European Commission and universities, and TSRL also supports GAV's contribution to inter-company joint ventures, such as the Mission Management research now being carried out at RAE (Farnborough).

Support to the divisions includes research into optics for head up and helmet-mounted displays, integrated design verification and validation of high integrity systems, RPV ground support equipment and ASIC and signal processor design.

taken for external customers. Capital investment has been made and further investment is planned to support this.

In particular the Electromagnetic Compatibility Laboratory is in the process of expansion to meet the requirements of the European Fighter Aircraft, as well as the new EEC legislation for white goods and motor vehicle testing.

For many years the department has had certain corporate quality responsibilities, notably in relation to quality organisation surveillance and the maintenance of the Quality Manual. Within the past year 'Total Quality Management' disciplines have come to the fore as an important aspect of our customers requirements and attention has been paid to the establishment of these requirements.

Technical Standards and Codification Section continues to maintain and produce detail component specifications, company instruction sheets and design codes of practice. These activities have been expanded to take into account recent legislation relating to product safety.

During the year, on behalf of the company, the Central Quality Department hosted the first CODERM Reliability and Maintainability Seminar to be organised at an industrial site. It was well received by a full house. Representatives included other GEC Companies and various branches of the Ministry of Defence.

Computing Services

Computing Services has continued to develop and enhance its range of information systems, services and company-wide communication facilities.

1990 saw a number of new integrated ICL based software systems established across the company including Purchasing (SPUR), Bill of Materials (BOMIS) and Bought Ledger/Invoice Clearance (BLIS).

The department now has overall responsibility for the management and security of the company computer network and intends to examine computer and communication data security issues during 1991.

Also in 1991 CSD will continue to promote financial and MIMMS information systems, with the gradual implementation of new systems such as Materials Requirement Planning (MRP), Stock Control and Timesheet Input.

Personnel

Throughout 1990 the department has been involved in examining manpower across the company to ensure we can effectively and efficiently meet the business needs of the next decade.

The current economic climate has sadly resulted in some redundancies but wherever possible the company has worked to retain staff through additional training and through transfers between divisions. As a result, recruitment has been modest and has been designed to fulfil specific needs, where skills are unavailable within the company.

In the field of staff welfare, the Cancer Prevention programme has been extended with breast screening available now to all female employees whilst a 'no smoking' policy has been introduced across the company as a result of recommendations from a management-trade union working party.

During 1990 a new formal Personnel Procedures Instruction Manual was issued. This has been modified with the aim of more effectively controlling and monitoring current practices within the company.

Site Services

During the past year Works Engineering Services have completed a number of important projects which significantly improved the amenities and appearance of the company.

The two long dry summers of 1989 and 1990 have allowed completion of extensive external redecoration on both the main and flying school sites. In the main canteen the new ceiling and other major refurbishments of both the interior and exterior of the building have been completed. As a result the canteen is a more pleasant area in which to relax during the lunch break and offers an improved venue for major company functions.

continued on back page...

USA Companies

GEC Avionics Inc

The US Army's decision not to include our CO² Laser Range Finder in the Abrams M1A2 Tank production configuration has seriously affected our business activity levels and resulted, in 1990, in a reduction in staffing levels. The situation was exacerbated by cancellations to other DoD requirements.

The launch order for the Mono HUD was received in August and we are now confident of further orders, from export customers, for this helicopter display and weapon aiming system.

Core activity in spares and repairs for the USAF/USN has continued at expected levels and the provision of logistic services to a number of GEC Units, contracting and tendering into the US, is increasing.

An Auto HUD system has been fitted in a vehicle and extensive trials have been carried out in Europe, culminating in a successful display at the Birmingham Motor Show. This device which projects vehicle performance data onto the windscreen is now generating a lot of interest, both within the United States and abroad, and increased marketing resources will be devoted to this project in the coming months.

Developmental Sciences Corp.

Activity has been dominated by the development and systems integration of the air vehicle for the US UAV Short Range programme. Competitive performance testing against the TRW/IAI team is scheduled early in 1991. This programme has been a major challenge due to the short timescales and performance objectives and has required a major team effort across all departments.

The SKYEYE R4E-50 was updated for a middle eastern customer with a GPS navigation system and, after exhaustive in-country support, has now been accepted into full operational service in desert conditions. Deliveries of SKYEYE R4E-60 to a far eastern customer are imminent following the normal period of operator training at our flight test range. In general, the prospects for follow-on orders and new customers for RPV products are being enhanced by the deployment of multinational forces to the Gulf area and we are expecting this level of interest to mature into order intake in the next few months.

Production of the Aviation Ground Power Unit continues with over 450 now delivered to the US Army. The ability to rapidly deploy AGPU in support of remote operations by Army helicopters and USAF fighters in the Gulf has led to an increase in the prospects for future orders and derivative products.

Our composite structures capability has been fully employed fulfilling our own requirements for RPV parts and increasingly supplying several airframe manufacturers.

Facility enhancements during the year include a new dedicated engine test facility, a S-Station mechanical CAD facility and software engineering workstations.

Lear Astronics Corp.

Lear Astronics has experienced a very dynamic year of change, achievement, and new business acquisition. The difficulties experienced on a number of major development programmes have been largely overcome and investment in new product technologies is beginning to pay off. We have maintained our position as the leading US supplier of flight controls systems and have penetrated new business sectors with radar technology.

The main project highlights were:

- Completion and successful flight tests of the YF-22 (ATF) flight control and vehicle management systems with contributions from GEC Avionics divisions.
- Selection for the Boeing 777 Actuator Control Electronics requirement.
- Award of the first major production contract for our Tactical Defense Alert Radar for the USMC.
- Successful flight tests and initial production award for the USAF F-111 FCC.
- Selection for the USAF/FAA synthetic vision system demonstrator in conjunction with Marconi Defence System's millimetric wave radar sensor.
- Successful flight test of the USAF B-2 Actuator Remote Terminals.
- Follow on orders for the development of the Swedish JAS-39 Gripen flight control system.

Working relationships with GEC Avionics divisions and Marconi Defence Systems have been considerably expanded and offer improved prospects for the future. Immediate prospects for major production orders for export customers are very good and profitable growth in 1991 is assured.

GEC AVIONICS

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Site Services continued

An extension to the Social Club at Hoo has been completed which now provides a much extended lounge bar, with family room and coffee lounge adjoining the restaurant.

In November 1990 the lease on our premises at New Road terminated. Both MCD and TSRL have now been accommodated in refurbished buildings on the main site which will ease communications between divisions.

The acquisition of new equipment during the year will allow Reprographic Services to now offer an increased range of services to the divisions in 1991. New services already include the production of microfilms and a colour photographic processing facility on-site, to provide rapid and efficient turnaround of prints.

The many other site service departments made their usual vital contribution to the smooth running of the site.

At Rochester airfield improvements to the drainage system have allowed aircraft to operate for a much greater part of the year than has previously been possible, and the King Air aircraft has continued to fly our staff to many UK and European destinations.

Training Department

An Open Learning Centre has been set up to offer training using self study methods. In excess of 500 hours of training is available each week in-house with unlimited capacity for own time study. Open Learning provides training which fits around the working week and allows attendees to learn at their own pace.

An updated 'Graduate Induction Programme' spanning 6 months has been introduced to provide a common core of training for new graduates.

The new National Vocational Qualification System, introduced by the Government to rationalise qualifications under one national system, is being piloted on this site through the Clerical Training Scheme. This competence based approach enables on-job training to contribute towards recognised qualifications.

A wide range of new initiatives have been organised with schools to improve curriculum relevance and pupil recruitment. This work is becoming increasingly important and the company's effort is being carefully directed.



The GEC Avionics Inc. Auto HUD at Motor Show '90.

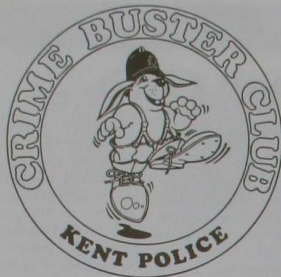


AGPU in Support of AH-64.



YF-22 Advanced Tactical Fighter

www.rochesteravionicarchives.co.uk



GAv Supports 'CRIMEBUSTERS' Police Initiative

Buster Bunny was brought to the company by Chief Inspector Norman Parry, Community and Crime Prevention Officer (centre in picture) and Asst. Chief Constable Ian Johnston from Police HQ in Maidstone. He came to receive from Brian Tucker and Ron Howard a cheque for £520, as part sponsorship for a new structured police schools programme. This money is being used to purchase 100,000 stickers for the Crimebusters Club, in support of the programme which reflects the needs of the National Curriculum. Many thousand pounds of sponsorship have been offered to fund the project for two years.

Buster Bunny and his undesirable associate Felix Fox will already be familiar to our children who have been at

primary school in the past few years. They were born in Kent Police 'B' Division, which covers the Medway Towns, and were first introduced to help deliver the 'Say No to Strangers' message to the youngest children. Since then they have developed to become a more general symbol of police liaison work in primary schools. Now, a new programme has started, to be delivered by seventeen full-time School Liaison Officers. Included in this is the fostering of Crime Prevention, and for the 5 to 11 year olds the figures of Buster and Felix provide a central theme, adding to their safety message the Crimebuster Club work on simple crime prevention and community awareness, throughout the county of Kent.

Maybe your children will be interested to know that their Crimebuster Club sticker is funded by GAv!



Haskett Trophy Entries

ADD
Powered Holographic Elements for use in Head Up Displays
R K Howard
J Kelsey
J P Freeman
W R Townsend

APD
High Repetition Rate Pulsed CO₂ Laser
P M Schwarzenberger
R C Leybourne

FCD
Ada Test Environment Generator
A Royle
C Hollingworth

FCD
Phoenix Air Vehicle Software Design
Mrs V Hale
M Agnew
A Wellard
A Wigmore

The 1990 Haskett Trophy competition has attracted eight entries - judging will take place in the New Year.

GSD
A Ground and Obstacle Collision Avoidance Technique
C Hewitt
J Boyles

ISD
Solid State, Ultra-wideband Switching Network for MIL-STD-1760
D A Gregory
J C Ould
L P Martin

MCD
Description of Flexwave Flowmeter
J Rowlands
G Mason
K Appleby
J Dredge

TSRL
Eye Tracker and 55° FoV Binocular Helmet Mounted Display
C B Staveley
P R M Jones
D A Clark
P Wrightson



Wedding Bells

11th October was the happy day for Jack Milner (FCD QA) and Maureen Scott (Exhibitions Dept), at Chatham Registry Office. Laurie Hampson congratulated them and handed over several gifts from friends and colleagues.



On 1st September Jackie Cook (also known as the MCD Technical Publications Department) was married to Andy Doorme, formerly one of the bright sparks in TSRL's VLSI team, who now works for Telspec at the Rochester Airport site. The ceremony was at the beautiful Aylesford church,

followed by a reception and disco in Rochester and a honeymoon in the Far East. Jackie and Andy would like to thank all their friends in MCD and TSRL for their generous gifts and warm wishes.

We take no responsibility for the formal (?) attire of our brides and grooms!

Still Flying High Chapter School glider takes to the air



Paul Baillie and Alan Norman of CACD look on as Chapter School girls and staff display their radio-controlled powered glider.

Paul Baillie saw the inaugural flight of the powered glider built by some of the 120 third-year girls as part of the 'Theory and Practice of Flight' project, undertaken over their working relationship with CACD which was described in GAv News last time. At the School in Strood the whole of the third year had arranged an exhibition of their work. Principles were demonstrated with diagrams of bird flight, paper gliders and a computer controlled simulator, and a wind tunnel built with anything they could get their hands on enabled aerofoils and their effects to be investigated. The girls were eager to explain their involvement and knowledge of the subject. The focus of attention then turned to the powered

glider. Under the watchful eye of the CDT teacher it was flown to about a thousand feet over the playing field before cutting the engine. Under radio control it was in the air for some fifteen minutes before making a perfect landing.

At the end of the project it was clear that the students' commitment and the teachers' enthusiasm has achieved a success. This link between education and industry provided the incentive for girls to be involved in Science and Engineering. The Company has been able to give real support to a local school for their National Curriculum Studies and it was rewarding to see that the experience could be helpful towards the girls' choice of career.

Obituaries

Derek Jones

ADD suffered the sad loss of Derek at the age of 47. He passed peacefully from us on 3 October, having fought cancer for three years. Showing tremendous willpower, he was determined to celebrate his 25th Wedding Anniversary, which he did at home with his family only the day before his death.

Derek joined ADD in 1968 and apart from a brief spell with IND remained there,

becoming a Project Leader in the Mechanical Design Group. His endearing qualities will be missed by all his friends throughout GAv, who send their condolences to his wife Barbara and children Mark, Dean and Vicki. Both Mark and Dean have served apprenticeships at Rochester, and Dean is currently employed in LCSD.

Ron Cole

It is with great regret that we announce the death of Ron Cole, recently retired Chief Draughtsman of FCD who sadly passed away on

15th August after a long illness. Ron joined the company in May 1954 and retired in June this year after 36 years with the company. His last 20 years were spent with FCD after previous service with AS&RD and TAC Division. During his time in the company he made many friends and he will be sadly missed by all.

From FCD

Anthony Licciardo

'Licci', previously employed as a Development Engineer in MASD, has died after being involved in a motorcycle accident in Australia.

Anthony will always be remembered for his cheerful disposition and his outgoing personality. He once made our local papers when the aircraft he was flying under tuition, was forced to make an emergency landing in a field in Rochester. It is most regrettable that he passed away pursuing the pastime he enjoyed most, motorcycling.

From MASD

Retirements

A glimpse of the many people who have retired in recent months.

John Lusted's 36 years, originally in Gyro but lately in GSD, have concluded in the Despatch Office. Earlier, John was a Foreman.

George Benwell's remarkable total of 48 years started at GEC Hirst Research Centre and he has now retired as Chief Production Engineer in APD.

Enver Chaudri, Senior Health Physicist in APD, has retired after 23 years at Borehamwood.

Joan Henderson has been Technical Typist in APD for 16 years.

Eric Fenn of APD, in Marconi Defence Systems until a year ago, completed over 34 years as an Instrument Tool Maker.

John Barton, MASD Drawing Office, was in several divisions early in his 35 years' service, but had already moved to ACD before it became MASD.

Eric Skinner, nearly 32 years in Test Engineering and Clean Room areas of IND and GSD, has also served for many years as Shop Steward.

Peter Nugent, Section Leader in ADD, served 22 years, as Checker and in Configuration Control.

Neil Flack with over 20 years mostly in ADD, has been Secretary in the Engineering Dept for many people.

Ted Reese, Production Technician in ADD, was close to the 40-year service milestone.

Ivor Brightman in his 21 years as Fitter in ACD/MASD, has taught a great number of company apprentices.

Cath Knowlden has spent most of her 33 years in TACD/FCD, as Assembler, Wirewoman, Inspector and Production Technician.

John Dawes, nearly 30 years in AS&RD/LCSD, was Liaison Engineer and lately Project Controller. But John spent much of his 49 years working life on the Flying School site, with his apprenticeship and service with other companies.

FCD's Reliability and Test work has been in the hands of **Harry Foan**, since the earlier MACD days. His 26 years of service are part of the family tradition - his wife Maureen and daughter Allison are still working here.

Ernie Day has been in IND/GSD for 22 years, in the Progress department.

Albert 'Duke' Ferris joined ISD fourteen years ago as Inspector, and later moved to the Planning Section, where he became Chief Planner at the grand age of 60.

Paul Seager's 43 years started in Swift and Swallow days; in ISD Stock Control since 1963, he saw the introduction of computerisation, as Head of the Section. And only one and a half days sick leave!

WES has seen the retirement of 2 Plant Engineers; **Fred Petley** completed fourteen years and **Gerry Hodson** four - he joined us when he was 62.

Pat Strike, Production Operative in ADD, completed 10 years.

Neil Watson was a Security Guard for 8 years.

Joe Richens, 'travelling' Field Service Engineer in LCSD, reckons he has spent only about six weeks of his 20 years' service at Rochester.

Most of **Phil Haig's** 19 years service was spent at Stanmore, before he came to Rochester to spend the last few months in LCSD as Business Development Manager.

Peter Green spent most of his 30 years at Rochester in Standards and Codification, with a spell in CQD. Previously he was at Borehamwood.

Reaper Club

Big Event

In addition to our monthly meetings, Summer 1990 has been a season of successful outings for the Retired people. We went to Canterbury and Folkestone, to Chichester and Bognor Regis, and to Cliftonville for the show at the Queen's Hall.

The highlight however was our trip to Southampton and the 'Howards Way' waters on the River Hamble.

The year's big event has been our 25th Anniversary since we started out as the '65 Club'. This was celebrated in July, a well-attended Social Evening included entertainment by the 'Newington Players', also Bingo and the raffle, with a commemorative pen for each member.

Thanks are due to our Chairman Cyril Boorman, Social Secretary Cyril Skinner and his non-Cyril assistant George Hilburn, and to the rest of the Committee for their programme of meetings, entertainment, and outings through 1990. We are grateful to the Management for their generosity with refreshments, packed lunches, and everything else given to our retired members.

Cyril Rhodes

25 Years Service



Andy Hills, Deputy Divisional Manager in FCD, and his DM Ray Dennis joined the company as apprentices on the same day. Andy has made key contributions to GAv's Flight Controls business, notably on the then innovative digital and fibre-optic signalled FBW system for the YC-14, for which he spent some time in the USA. Later, as Project Manager for the A310 slot and flap computer he was responsible for the introduction of a most successful new product, now a cornerstone of our civil business. In his present appointment Andy's latest tasks have been associated with the Boeing 757 flight testing of the primary fly-by-wire system for the 777. (B)



Colin Lennon, Business Development Manager in APD at Borehamwood, joined the Marconi Company at Chelmsford in 1965 to start a five-year apprenticeship with sponsorship for a BSc Honours Degree in Applied Physics. In 1969 he joined the Neutron Division, progressing to the Research Laboratory (now the Advanced Technology Laboratory) in 1973. Finally, in 1986, he was persuaded to join APD.



Geoff Fitzjohn, Senior Development Engineer in CACD, started in TACD as Inspector. By 1972 he was an Engineer, and he has been involved with the increased use of automatic test equipment, on development of test sets and programs for several major projects, notably Tornado and SAGE. (B)



Dick Amos is currently Project Manager of GSD's NCS-1 programme, but he started his career as Student Apprentice. He fondly remembers times in TACD when he was on VC10 flight trials, and in Fuzze, but he has been in IND/GSD since 1973. There, his work has included Jaguar, WG34 helicopter, and Honeywell land navigator systems; during that time he has travelled the world from the North Pole to New Zealand, with places such as Pakistan, Korea, and Singapore in between. (A)



Velma Gooch, now in ADD Inspection, has moved around a bit. Rejoining, after leaving for six years to bring up her family, Velma was in Fuzze, CMS, CQD Test, and Standards Lab before settling in ADD, where her husband Arthur also works. (A)



Bernie Axell, Mechanical Services Engineer in APD, joined Borehamwood as Fitter Machinist and has progressed through Technical Assistant and Process Engineer.



Janet Woolf of CACD, a Secretary for many of her 25 years, became a Project Administration Officer six years ago. (B)



Peter Robbins reached his 25 years' service having joined the company as an Apprentice. He spent his early days in AS&RD and in 1983 joined ISD as Superintendent. Peter is now Materials Manager and has played a major part in the SCADC programme. (A)

Club House Attractions

Friday 11 January
DISCO
in aid of
Medway Scanner Appeal
Tickets £1.50 (members)
£2.00 (guests)
from Hughie McArthur
Hopewell Drive
Medway 847923

Saturday 16 February
St Valentine's DANCE
and
Candlelight Supper
7.00 - midnight

Saturday 19 January

Parlour Derby

8.00 pm

There's Some Progress at Bridgewood

By the time this issue appears, the Pelican Crossing on the A229 south of the roundabout may be - or shortly will be - in operation; the KCC suggested 'the new year' as the likely time.

The next step in planned improvements is the reduction in size of the centre island of the roundabout to give extra traffic room. The proposed peak-hour signals

at the roundabout are still at the detailed design stage owing to changes in the traffic flow, but funds have been allocated and a trial scheme could possibly be in operation next summer.

No date is being forecast for the main-road flyover, since this is dependent on government schemes for M2 improvements and there may be objections from local residents.

GAvBP Kent Club
Swimming Section

Annual Gala Splash and DISCO

The Swimming Section invites children of ALL Club Members to a Swimming Gala, Splash and Disco to be held at the GAvBP CLUB POOL on Saturday 5 January 1991.

The Splash is for young or inexperienced swimmers who can swim two widths (very young with armbands if required) or one length. The Gala is for Boys and Girls racing in age groups. Entrants should report at 2.00 pm for these events. A party tea will be provided and Father Christmas is expected to present a small gift to all Gala and Splash Entrants. The tea, Prizegiving and Disco will be held in the Club Ballroom. Tea from about 5.30pm, Prizegiving from about 6.00 pm and Disco from 7.00 pm until 10.00 pm.

For information - contact Cyril Moffett, Ex 3250.

ADD on the WHEEL again

The ADD Bike race took place in July when twenty riders went to the line. The race was won by Ray (El Supremo) Brogan with Gordon Lees runner up for the third consecutive year. Third was John Crennell, followed by Kevin Patrickson, first of the new entrants. A surprise was in store for the timekeepers when Derek Stone crossed the finish line from the wrong direction! This naturally resulted in his disqualification.

The 'ADD only' rule was relaxed this year when two guests were allowed to ride. One of these was the father of Kevin Williams' no less a person than Vic (The Badger) Williams, leader of the famous 'Team Williams' racing family. It has to be said that any similarity he has with Bernard Hinault (nicknamed Badger) ended at his head band. The other guest was county-class racing cyclist Trevor Atkins who went around the course in such a ridiculously fast time that we won't mention it.

It was unfortunate that G.B. international Kim Staff could not start because she suffered from heat exhaustion during the Tour of Italy the previous week. The news on the start line was greeted not without some sympathy.

They Really Did Pedal Hard!

The FCD stalwarts in the London-to-Brighton Granada Sponsored Bike Ride, of which Sanj Sakaria told us last time, succeeded in raising the splendid total of £762.02.

A cheque has been sent to the British Heart Foundation and a letter of thanks received.



Ray Brogan at full steam.

The enigma of the Bike Race continues. Requests to ride the event come from far and wide. With county class and international cyclists appearing on the start list, how far will its fame spread? Will we find continental professionals refusing to ride the Tour de France because its date clashes with the ADD Bike Race? Will we find the organisers having to refuse an entry from Greg Lemond because he doesn't work for ADD? Who knows? But it says a lot for ordinary cyclists from ADD who are prepared to turn up and ride against such people. However the same cannot be said of Alan Ward who this year went so slow that in places he must have gone backwards.

Well done all - we hope your legs are better now.

Quarter finalists onwards: Alan Sibbick, Geoff Richmond, Martin Lee, Peter Fowler, John Spry, Andy Hughan the winner, Paul Ansell, and Barry White.



GSD WIN Bat and Trap

A close-run final match needed all of three legs to confirm GSD as the winners over CMS. This was, they say, due to frustration over several failures to close off an allegedly over-painted trap. But in the final leg superior batting prevailed for GSD, and both teams adjourned to the club bar for

The GSD Team - (Back 1-7) Barry Hodge, Mick Ware, Tony Rye, Ken Webber, Eric Jennings. (Front) Maurice Woolbridge, Brian Crumby, Ken Difford

drinks on their non-playing captain George Penny, following the distribution of Medals and the Trophy.

Taking part in earlier rounds were FCD, TSRL, MASD, Accounts, another CMS squad, two from CACD and three from ADD.

1990 Masters Round Up

Welcome, says Andy Hughan to the first CACD Masters golf. 37 competitors ranged from the 28 handicap beginner to the very experienced 6 handicappers.

It was a very exciting competition, with 3 preliminary rounds to the first, quarter, semi, and final rounds at courses throughout Kent. There were many close-fought games, and several well-

fancied players fell by the wayside or in bunkers. The final between Andy and John 'The Pro' Spry was a cliff-hanger - squared at West Malling's 17th with John catching up. 'Been playing badly', he said, due to lack of practice, marriage and subsequent honeymoon. But he missed the last 5ft putt, after a splendid pitch over the bunker - and Andy was left with 2 putts for the match.



Joe Ninety

Kent's Top ATHLETE

Martin Forder of LCSD, now 20, has been voted Best Athlete for 1990 by Kent AAA, with a prize sponsored by the Kent Reliance Building Society. The award was presented to him by Fatima Whitbread, the Olympic javelin thrower who plans to live in Rochester, at a ceremony at the Swallow Centre in Sittingbourne.

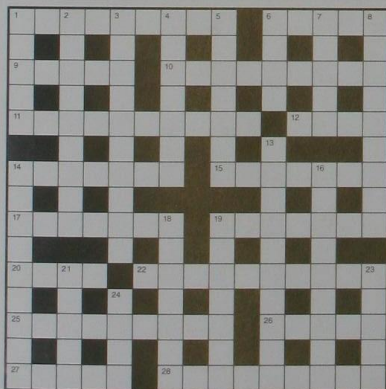


Martin (140) well on his way to winning the Kent 1500m championship this year.

Martin's strength is in the 1500m and 800m events. He has a long record of successes in local and national competitions, but he says that among the most notable are wins as National Junior Champion twice at 800m and 1500m, and his rating last year as 12th fastest in the world at 1500m for under - 20s - only three months after going down with glandular fever.

He holds twelve Kent titles, and this year he broke the GAV Athletics Club 800m record with a time of 1:49.5. Martin also represented Great Britain in last year's European Championships in Yugoslavia. And there's more!

Crossword No. 102 (For amusement only)



Across

1. Sub-Continent Down Under. (9)
6. Sense by which flavour is known. (5)
9. Usually old, to remind one. (5)
10. Science in operation relating to magnitudes, space. (9)
11. Bearing, usually given in finishing school. (10)
12. After sowing, so shall you. (4)
14. Areas of land and buildings. (7)
15. Like a Zebra or Sergeant. (7)
17. Ferry, or for cargo? (7)
19. Many assumed names. (7)
20. Close proximity. (4)
22. Continues to exist or do. (10)

25. Bad temper, not funny. (3-6)
26. Musical instrument. (5)
27. Small house or porter's room. (5)
28. Traces left by conflagration. (4-5)

Down

1. Bitterly pungent. (5)
2. White crystalline substance used in gun powder. (9)
3. The DJ. Spot, or maybe in Olympics. (6-4)
4. What Peas and Beans are. (7)
5. Total quantity, various areas. (7)
6. The other folk. (4)
7. Durable worsted fabric. (5)
8. Sometimes considered results of high spirits. (9)
13. Violent disturbance of mentality. (5-5)

14. Necessary and needful. (9)
16. Fare payer in service travel. (9)
18. To speak at speed, from memory. (4-3)
19. A comforter. (7)
21. Felt ill. (5)
23. For grasping and lifting. (5)
24. Musical treasure? (4)

Solution to Crossword No. 101

- Across 1. Sole survivor; 10. Hotel; 11. Honeycomb; 12. That's flat; 13. Goose; 14. Thirst; 16. Bassinet; 18. Espical; 20. Career; 22. Roomy; 24. Girl Guide; 26. Lie in wait; 27. Braid; 28. Sterling area.
- Down 2. Ostia; 3. Enlists; 4. Uphill; 5. Venetian; 6. Voyages; 7. Rio Grande; 8. What's the drill; 9. Absent friends; 15. Improvers; 17. Hangnail; 19. Cayenne; 21. Algebra; 22. Briton; 25. Image

Photographs taken by the Staff Photographers will be acknowledged in the following way:
(A) Alan Keats
(B) Ian Douglas

The views and opinions expressed by contributors are not necessarily those of the Editor or Company. Any such opinions or comments are those of the contributor alone and are printed solely as a matter of interest.

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LSA Dinner Dance

Well over six hundred people sat down to enjoy the five-course meal at the 7th Annual Dinner and Dance of the Long Service Association, in the Main Canteen. GAv's Chairman Ron

Howard gave some encouraging news of business prospects in reply to the Toast to the Company, and a particularly welcome guest was Harry Eagles, President of GEC Avionics Inc in Atlanta, who proposed the

Toast to the LSA. A vote of thanks was given by Jim Collins in his last 'official' appearance at these dinners.

Reminiscences and dancing concluded a truly enjoyable evening.



Harry Eagles from Atlanta. (A)



LSA President Dick Collinson, with Secretary Jim Collins and his wife Pam.



A happy group of guests.

A Lot of FUN for 'Children in Need'

As we went to press, news was still coming in of people and groups who took part in the BBC children's appeal. We hope to have an up-date of their efforts in the next issue.

Activities already known include a collection of loose change, and of 'old' 5p coins, with a 'guess the manager from his/her baby picture' (MASD); a 'swear box, sales of cakes, a 'Tacky Raffle', a volley ball tournament, and a half-beard shave (ADD). The GEC Avionics Brass Band took part in a concert at Chatham Central Hall. Probably the most spectacular and hilarious event was the Sponsored Custard Pie Fight in the courtyard of Radio Kent. ADD Software and Computer Services did battle and made a splendid mess of each other.

Can anyone who took part in this nationwide appeal please let the Editor know so that we can all share the story of your generous efforts?

The Sponsored Custard Pie Fight raised the grand sum of over £300, and someone from the same area raised over £400 by the shaving off of a fine head of hair.



Christmas at the Club House

Monday 24 December
CHRISTMAS EVE DANCE
with
'Keith Howard Roadshow'
745 - 1145
Bar open 12 noon - 2.30pm
Club closed 2.30pm - 6.00pm
Bar open 6.00pm - 11.45pm
All other facilities closed

Tuesday 25 December
CHRISTMAS DAY
Bar open 12 noon - 2pm ONLY
All other facilities closed

Wednesday 26 December
BOXING DAY
Bar open 12 noon - 2pm ONLY
All other facilities closed

Thursday 27 December - Sunday 30 inclusive
All facilities open as usual
Plus - Bar open 12 noon - 2.30pm on Thursday 27

Monday 31 December
NEW YEARS EVE DANCE
with

'HAPPY DAZE'
745pm - 12.30am
No guests admitted unless ticket holders.
Bar open 12 noon - 2.30pm
Club closed 2.30pm - 6.00pm
Bar open 6.00pm - 12.15am
All other facilities closed

Tuesday 1 January
All facilities open as normal Tuesday
Plus - Bar open 12 noon - 3.00pm

Wednesday 2 January Onwards

All Club facilities open as normal

But Remember: Bar now closed at lunch times except: Friday 12 noon - 2.30pm
Saturday 12 noon - 3.00pm Sunday 12 noon - 2.30pm

ALEXANDERS RESTAURANT

Restaurant closed on the following dates:-

Monday 24 December
Tuesday 25 December
Wednesday 26 December

Monday 31 December
Tuesday 1 January



Your Crossword is Inside - Page 7

GAv/BP Kent Club ANNUAL GENERAL MEETING

The Club's Ninth Annual General Meeting will take place at 8pm on **Thursday, 14 February 1991**

The Constitution requires a number of Management Committee representatives to seek re-election after two years in office. At the AGM, four vacancies exist and nominations should be in the Secretary's hands by 31 December 1990.



GAv/BP Kent Club ELECTION 1991

Nomination for
Ordinary Member of the Management Committee
(four vacant seats for GAv employees)

Candidate's Name (please print):

Candidate's Signature:

Club No:

Date:

Proposer's Signature:

Club No:

Seconder's Signature:

Club No:

This Nomination Paper is issued subject to Clause 5(a)(iv) of the Constitution and Rule 3

Nomination Papers must reach the Club Secretary by 31st December 1990