

## MORE MULTI-NATIONAL CONTRACTS FOR EFA

Further contracts have been awarded for systems on the European Fighter Aircraft, increasing GAv's already substantial involvement in the development of the new high-technology air defence aircraft destined for the air forces of the UK, Germany, Italy and Spain.

An international consortium led by Monitoring and

Control Division, with Litef of Germany, Microtecnica of Italy, and Inisel of Spain will supply the Engine Monitoring Units (EMU) for the EFA. The contracts cover the design and development of the equipment, the supply of prototype hardware and full product support to Eurojet, the Munich-based group undertaking development of the EJ200 engine.

The EMU will provide continuous monitoring of the engines. This will avoid the need for frequent preventative maintenance checks, allowing servicing to be carried out only as required and reducing EFA's operating costs, compared with aircraft currently in service.

Using data derived from links with the digital engine

control units and engine mounted sensors, the EMU will carry out a number of functions, which include monitoring life usage and vibration, recording engine incidents and performance, and providing engine failure detection and location.

### Investment Pays Off

Another GEC Avionics led consortium will supply the advanced pilot's control stick, known as the Stick Sensor and Interface Control Assembly (SSICA). This group led by CACD includes Bodenseewerk Geratetechnik of Germany, Alenia of Italy and Inisel of Spain.

The SSICA will provide the link between the pilot and the aircraft's flight controls. The use of state-of-the-art technologies in the stick will give the pilot enhanced aircraft control as well as the 'feel' of aircraft manoeuvres.

The EFA SSICA is the result of 10 years of investment by the company in the development of fly-by-wire pilot's control sticks - work

which began with the control stick for the Experimental Aircraft Programme (EAP), regarded as the testbed for the EFA.

This announcement, following that of the US Advanced Tactical Fighter contract, means that GAv will now provide the control sticks for the future fly-by-wire fighter aircraft of both Europe and the United States. Also, for both aircraft the head up displays and (together with Lear Astronics and General Dynamics for the ATF project) the fly-by-wire flight control computers, will originate from Rochester.

*GEC Avionics now has prime responsibility for many major elements on the EFA, including the flight control computer, the aircraft's air data transducers, cockpit equipment including the head up display, the dry and total fuel flow meters, and the weapon station units, as well as the EMU and SSICA mentioned above.*

## MAIDEN FLIGHT OF 'SENTINEL 1000' AIRSHIP

Early on 26th June, at Weicksville, North Carolina USA, the world's largest non-rigid airship flew for the first time. It was controlled by a state-of-the-art 'fly-by-light' flight control system, developed and supplied by GAv.

The system, derived from the equipment first developed in FARL/TSRL for the Airship Industries Skyship 600 which flew in 1988, was reported by the pilots to have performed flawlessly throughout the 2 hour flight.

The Westinghouse Airships, Inc. (WAI) Sentinel 1000 series airship, 220 ft long, is a totally new machine developed from the earlier work on the Skyship. GAv's fibre-optic signalled 'fly-by-light' control system is at the heart of these airships, the first of a planned series of craft destined for military and civil roles.

Among the support crew on the first flight were WAI engineers and Paul Buckingham, Senior Development Engineer from TSRL.

See Page 5 for more news of the Sentinel 1000.

*The Sentinel 1000 dwarfs the ground crew as they release the airship for its maiden flight.*



The EJ200 full scale development engine undergoing Reheat trials at Rolls-Royce, Bristol. (Picture by courtesy of Rolls-Royce plc.)

## On the Rails



A High Speed Train at Nailsea's local station, Bristol Temple Meads.

A milestone in railway history has been reached with British Rail's decision to buy equipment from a manufacturer of aviation equipment. Monitoring and Control Division at Nailsea are to supply 'black box' recording systems for a fleet of trains.

Known as On Train Monitoring and Recording Units (OTMR) this equipment will perform a similar function to an aircraft flight data recorder or 'black box'. Throughout each journey, it will collect, process and store data in a high integrity crash survivable box. During normal operations this data will be taken periodically to an analysis centre where safety functions will be closely checked. In the event of an incident the data will be critical in determining the

precise cause, helping to ensure the effectiveness of any consequent changes in safety procedures.

This important contract highlights BR's determination to fulfil the recommendations of Sir Anthony Hidden QC, following his enquiry into the Clapham Junction accident. The report suggests that equipment should be installed in all trains "to assist investigation

of any future railway incident, providing information as part of a systematic safety monitoring procedure."

To introduce OTMR into the rail network, British Rail have adopted a two phase programme. In phase 1, GAv and two other suppliers will each provide ten units for installation on High Speed Trains on the Great Western main line. These will be used to fully test

the equipment and to demonstrate compatibility with the new system of Automatic Train Protection which is now in trial operation.

During Phase 2, commencing in March next year, up to 100 trains will be equipped with OTMR in order to determine production schedules and support requirements for the full fleet.



### INSIDE

Page 2 and 3 Company News and People; 4 and 5 HUDs and the Haskett Trophy; 6 Long Service Awards and Retirements; 7 Clubhouse Forthcoming Attractions, Crossword



## Suggestion Wins £500

The 1991 Suggestion of the Year, chosen from some eighty submitted, brought the Annual Award and a cheque for £500 to John Townson, Leading Hand Quality Technician in LCSD. Managing Director Brian Tucker made the presentation to John at a ceremony and buffet lunch attended by management and representatives from his colleagues.

John's award-winning suggestion will considerably ease a time consuming problem which has been caused by the increasing complexity of aircraft systems and Printed Circuit Board diagrams. Using his idea, an easily comprehensible list of all the interconnects on any system diagram or PCB will be produced with each schematic diagram. This will greatly reduce the task faced by Production and Maintenance staff in deciphering these highly complex diagrams in order to understand the construction of each system or PCB.

Brian Tucker has said "Ideas sent in to our Suggestion Scheme are particularly valuable because they come from the experts in each field, from the individuals who work in different environments around the company, who experience problems

and can see ways to solve them effectively. As with all the best ideas, the suggestions are often simple yet they can bring a great deal of benefit, as John Townson's idea amply illustrates".

*John Townson*



## Meet the Buyers

Over 200 companies were represented at the two-day National Meet the Buyers exhibition in May at the Lordswood Leisure Centre. Local and national suppliers paid a token entrance fee and were able to book, in advance, 10 minute interviews with the buyer companies who had set up their stalls in the large exhibition hall.

attended by companies such as British Telecom, British Gas, Marconi Underwater Systems, PowerGen and the MoD.

The general impression given by the suppliers was that the show was a great success and that serious thought should be given to making it an annual event.

This type of exhibition has now been attended by members of our purchasing departments over the past four years, and demonstrates GAV's continuing desire to support local companies where cost-effective, for the supply of the goods and services we need.

*Jennie Jarrett talking to one of the suppliers.*

*"I talked so much over two days, I nearly lost my voice"*

The GEC Avionics stand was manned by Jennie Jarrett from GAV Purchasing, and every 10 minute slot both days was booked up well in advance. Shortly after the show, Jennie reported "I talked so much over two days, I nearly lost my voice". She also said that the discussions had to be polite but brisk in order to put across the requirements, procedures and practices of the company in the time available.

The show, backed by Rochester, Gravesham and Gillingham councils, and English Estates, was also



## RJ Trials Go Well

As briefly reported in our last issue, on Friday 10th May the Canadair Regional Jet took to the air for the first time with a vital part of its flight controls operated by GEC Avionics Fly-by-Wire equipment. The Spoilers Electronic Control Unit (SECU) made by Flight Controls Division controls the spoilers on the top of the wing surface. Spoilers are used on an aircraft to act as a form of 'air-brake', to help slow the aircraft down for the approach and landing, and also to "dump" lift on landing. A special feature of the spoilers on the Regional Jet is that each of the eight spoiler panels is controlled individually by the SECU, allowing the panels to be

operated asymmetrically to increase the roll power at low speed. All of these functions have been demonstrated in over 50 hours of flight. The trials are going so well that some tests scheduled for aircraft number two have been completed already on number one, and customers are asking for earlier delivery of the aircraft they have ordered.

The SECU design is based on FCD's well-proven Airbus Fly-by-Wire computers with two different microprocessors programmed by different teams to give protection against common software errors.

*Canadair RJ on its maiden flight.*



## SMART in Kansas City

SES Division attended the ARINC Avionics Maintenance Conference (AMC) in Kansas City, Missouri, and chose this venue to exhibit their new SMART ATE for Airlines. The Division has been closely associated with the preparation of the ARINC Specification for a Standard Modular Avionics Repair and Test System, and has the world's first SMART compliant hardware in the form of the ORION 608 Switch Unit. This Switch Unit is incorporated in the ATE demonstrated at the AMC, where it evoked a lot of keen interest from the

knowledgeable participants from a wide range of airlines and avionics manufacturers.

The main purpose of the AMC is to help improve air transport operations as related to the functioning of avionics systems and their support. It is primarily intended for air transport operators and other segments of the industry, who could benefit from the exchange of information. SMART was

one of the main topics of the Conference, and a program update was received with interest by airlines and other participants.

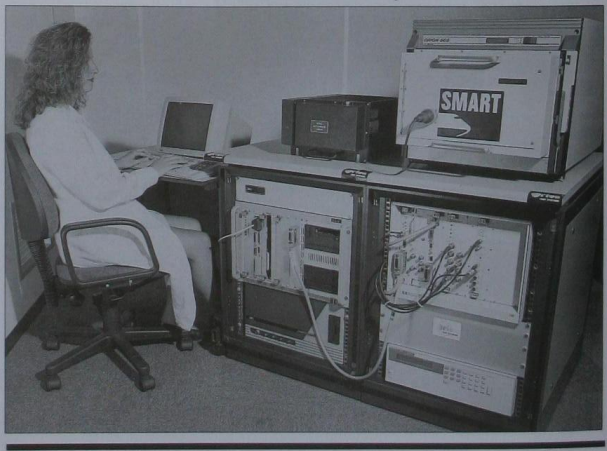
The ARINC SMART™ Beta Site software for the VME/UNIX Test Control Computer has been received by SESD and Boeing and an American ATE company, in order that they can carry out trials to prove that the software complies with the ARINC Specification. SESD and Boeing have already installed software on their ATEs, and testing is under way.

Andy Fogg and Alan Edwards from SESD set up

the equipment and demonstrated it at all hours of the day and night to representatives from international and American airlines, and Prime Equipment Manufacturers who have been selected to supply equipment on to the Boeing 777. Representatives from LCSD and MCD were also present to promote their wares within the commercial airline industry.

*Lisa Stevens at the controls of the SMART ATE which is being used to check out the newly developed SMART™ System Software.*

SMART™ is a Trade Mark of ARINC.



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# Apprentice Indentures Signed



Gavin McArthur, his parents and brother Mark, with John Clover.

Tuesday 4th June saw this year's Apprentice Open Evening at Hopewell Drive, when nearly 50 apprentices came with their parents and friends to sign their indentures and show their work. One of them was Gavin McArthur, son of Hughie McArthur of the Technical Training Centre staff and GAV Club committee member. Gavin, a first year Electronic Skilled Apprentice, has written this account of the occasion:

"The Open Evening was for the trainees to show their parents the types of equipment we had used and the skills we had developed. It also gave the parents a chance to ask the instructors questions about our progress. The most important part of the evening however was to have our indentures presented to us by John Clover, Production Director.

As you may have guessed, I was one of the lucky ones who had their indentures signed. When I collected them, I was a little nervous, well it's not every day you get to meet a Production Director. I walked in smiling, I said hello to Mr Clover and Mr Wallington, we shook hands, I turned and introduced my parents to them. Mr Clover asked me a few questions about the type of job I was being trained for and when I would be going to the factory. He handed my indentures to my father, and wished me the best of luck for the future. My parents and I left in order to look around the Training Centre. Some time later, I walked out of Hopewell Drive as an Indentured Apprentice with GEC Avionics Ltd at Rochester".

With the go-ahead on the 777 programme, a vital link with Boeing is the GAV Inc office near Seattle, Washington State. Peter Clarke, Manager, has sent this account of the activity there.

Flight Controls Division (Rochester) set up the original office in the Seattle area in 1968, on Boeing's doorstep, in an area known as Tukwila. This was a one-man marketing affair. By the mid-70s the company had received two major contracts from Boeing: the Digital Flight Control System development for the YC-14 STOL military transport, and the Full Flight Regime Autothrottle System for the Boeing 747 aircraft. The YC-14 programme and the Flight Control System were outstanding technical successes, but unfortunately the aircraft programme was cancelled due to a change in the US Air Force's requirements. The 747 Autothrottle programme however has been both technically and commercially successful. When the final delivery is made this year, some twenty variants of computer totalling more than 550 units will be in the field. The on-site engineering team has been responsible for the development of the majority of the autothrottle variants and for all of the flight test programmes.

By 1978 it became clear that larger workshops would be required to support Boeing's production and flight line requirements. In

that year, a move was made to our present home in Redmond, about 12 miles east of downtown Seattle.

Since that time, Redmond has become an FAA approved repair station, and product support activities have been expanded to include all types of Airbus Slat & Flap Control Computer support in North America. Duncan Craick, Staff Engineer, leads the support team of Steve Marker, Lab Supervisor; Thyce Colyn, Technician; and Mitch Reynolds, Technician.

From the early 1980s the Redmond team has spearheaded FCD's efforts at Boeing in a series of joint studies, developments and rig programmes aimed at establishing the requirements for future Fly-by-Wire flight control systems. Despite many trials and tribulations, cancelled airplane projects, and stiff competition from the international avionics industry, GEC Avionics' commitment and persistence culminated in our recent selection by Boeing Commercial Airplane Group as Primary Flight Computer supplier for the 777 for the next fifteen years. This will be Boeing's first move into full primary fly-by-wire.

Glen Hislop, Commercial Flight Controls Manager, heads the expanding Primary Flight Computer team locally. Currently the permanent members are Chris Osborne, Principal Systems Engineer (previously at Rochester), and

# Weapons Interface Contract for Tornado

GAV's involvement in the RAF Tornado Mid Life Update programme has been further increased by the award of a contract for the Weapons Interface Unit - WIFU, to an international consortium; Teldix GmbH of Germany, Alenia GST of Italy, and ourselves.

With a potential production run of over 650 aircraft sets, the total value of the order could exceed £10m. GAV's work share, valued at over £1.3m, calls for the design and development of the WIFU over the next 18 months and will be carried out in ISD.

Two WIFUs will be installed in each aircraft and will provide the interface for transferring high frequency signals between the aircraft

subsystems and the weapon stations. The WIFU, together with the upgraded Stores Management System which is already being developed by ISD as part of the Tornado MLU programme, will give the aircraft MIL-STD-1760 weapon carriage capability.

Following this initial order GAV is confident that the equipment will find many applications in the retrofit market worldwide.

The existing involvement of GAV is in ISD's Stores Management System upgrade, and the CACD/GSD 'Spartan', the world's first covert terrain referenced navigation and terrain following system for manned military aircraft.

## HAVE YOU SOMETHING TO ADVERTISE?

GAV News is starting an advertising supplement. Local suppliers of goods and services, including those offering discounts for employees, will reach a larger readership than divisional notice boards can achieve.

You too can advertise; articles for sale, cars, motorcycles, property, holidays, local accommodation wanted or available, or anything you think we should know about. "Wanted" entries can also be accepted.

'Small ads' in these headings are free of charge for GAV employees and their families, and anyone retired from the company.

Contact - Peter Royall, LCSD Publications Dept., Ex. 4166, or post clearly written words to him.

# Seattle Gets Busy

Paul Oelund, Staff Engineer. The team will be supplemented by additional engineers when 777 hardware is delivered next spring.

To maintain the company's lead in flight controls, considerable effort is being put into the study of new technologies including Fly-by-Light. GAV is one of two companies selected by Boeing to work with them in developing such a system aimed at a near-future commercial airplane. Technology and Systems Research Laboratory has the responsibility for this programme, currently represented at Redmond by Keith Mitchell, Chief Scientist and Rob James, Senior Systems Engineer, our photonics guru.

Robyn Callan, Administrative Assistant, competently

handles the office routine and keeps the more riotous engineers in order. Peter Clarke manages the office and the FAA Repair Station activities, and liaises with our main local customer on the various company programmes.

The Redmond office history has been one of solid growth, particularly in recent years, necessitating plans to move to a larger facility next spring. The future is going to be very exciting.

Judging from pictures received, the team members are also very busy in their off-duty hours. Paul Oelund is often seen riding a beautiful chestnut horse; Glen Hislop pilots a micro-light aircraft and Chris Osborne keeps his hand in on more conventional light aircraft, as does Keith

Mitchell. Steve Marker lands large fish, and Rob James is to be seen going up vertical surfaces, in the best tradition of the GAV Club Climbing Section. Duncan Craick competes on a mean-looking motorcycle, Robyn Callan competes in Tae Kwon Do tournaments. Mitch Reynolds includes smokey barbecues among his interests, and finally Peter Clarke is building a boat.

Most of the Redmond team gathered in front of their office. Left to right: Steve Marker, Rob James, Robyn Callan, Glen Hislop, Keith Mitchell, Peter Clarke, Paul Oelund, Mitch Reynolds and Duncan Craick.





# HUDs and the Haskett Trophy

The 1991 Haskett Trophy for Engineering Innovation was presented to ADD's winning team at the end of June. Sarah Haskett, in whose late husband's memory the annual competition was started some years ago, handed over the miniature replicas of the Trophy and the £2000 prize to Richard Howard, Project Leader, and Joanne Kelsey and Jonathan Freeman, Senior Development Engineers. Senior Design Engineer Roy Townsend was unable to be present.

After brief introductory remarks from Dr Bernard O'Kane, former GAv Chairman, Professor John Shepherd who is now Research Director of GEC-Marconi welcomed and thanked all the entrants, saying how encouraged the adjudicating panel had been to find that this year as much attention had been paid to manufacture in the entries as to their innovation; this is vital in ensuring the success of an invention.

In reviewing the four team entries, Prof. Shepherd briefly described the submission by Charles Hewitt and Jon Boyes of GSD: GOCAT, an intelligent ground proximity warning system, is increasingly important in a situation where last year as many as 18 aircraft 'flew into the ground'. ISD's new hybrid High Bandwidth Switching Network, entered by Len Martin, Doug Gregory and John Ould, is a gallium arsenide device with a switching range from low Hz well into the GHz domain, and has been completely designed at Rochester.

This year a Meritorious Runners Up prize of £500 was awarded, to Russ Leybourne and Paul Schwarzenberger of APD, Borehamwood. Their proposal of a High Repetition Rate laser transmitter, developed by GAv Inc. for a US missile programme, showed

much attention to reliability, produceability, and long life.

The Winning entry with the title "Powered Holographic Elements for use in Head Up Displays" was chosen not for the design and development which has been going on for some years, but rather for the innovative production techniques for making the glass combiners. The laser process which forms the hologram requires incredible standards of mechanical stability and accuracy in manufacturing rigs, and handling and test equipment.

The submissions received, said Prof. Shepherd, prove that "innovation is alive and well in GAv. We continue to lead the world". He particularly wished to thank the many members of engineering and support teams who had put so much effort behind the entrants.



A demonstration model of the EFA HUD.

After making the presentations, Sarah Haskett herself paid tribute to the teams and all those who backed them up. And how nice, she said, to see a lady among the winners!

Finally, before the guests and divisional representatives moved to a buffet lunch, Jon Freeman thanked all those in the 'larger team' particularly Dr Kenneth Firth of Marconi Research Centre, Great Baddow who pioneered the holographic HUD principles, and Chris Bartlett ADD's Chief Engineer, for their support.

The Adjudicating Panel for the Trophy comprised Dr O'Kane, Professor Shepherd, Mr CG Howell, Chief Scientist, Civil Aviation Authority; John Colston, Director, Marconi Research Centre; and Dick Collinson, GAv Technical Executive.



## The Team Members

Richard Howard obtained his Honours Degree in Physics at Imperial College in 1975 and started work with the Marconi Research Centre at Great Baddow. He was involved in various electro-optic and microwave projects, until the late seventies when initial feasibility studies were carried out into the use of holographics in HUD applications.

Following the successful development of LANTIRN HUD, in 1982 he transferred

to ADD to help establish a facility for holographic production at Rochester. Since then he has been involved in running the holographic department and controlling its development activities, currently as Project Leader within the Optical Design Group.

He has been involved in the Off Axis HUD programme since its conception in the early eighties and since 1988 the holographics group has been responsible for developing the manufacturing processes, tooling and techniques required to

produce this new type of combiner hologram.

Richard Howard, Joanne Kelsey, Roy Townsend, and Jonathan Freeman, with the vital components of the Holographic HUD manufacturing process.

to ADD to help establish a facility for holographic production at Rochester. Since then he has been involved in running the holographic department and controlling its development activities, currently as Project Leader within the Optical Design Group.

Joanne Kelsey, Senior Development Engineer, joined GAv in 1975 after qualifying at Leicester University with a BSc Honours degree in Physics with Astrophysics. Initially she was involved in the facility set-up and subsequent process development and production of 2000 holographic optical

## HOW IT WORKS

### Basic Principles of the HUD

All HUDs operate by projecting a 'collimated' (focused at infinity) display of essential flight information such as speed and altitude onto a clear glass display in front of the pilot.

The glass display, known as a 'combiner', acts like a see-through mirror, allowing the pilot to see the outside world together with the display of flight information.

Because the display is focused at infinity the pilot does not need to refocus his eyes to read the information, and because the display is in front of his eyes he does not have to take his gaze away from the outside scene - a critical factor in the modern high performance fighter aircraft.

This 'combined' display is therefore the key element in a successful Head Up Display.

### Flying with a HUD

Within the constricted space of the cockpit, the HUD is the vital display through

which the pilot conducts all operations. The modern HUD must therefore have a number of important characteristics:

- **Brightness:** The display must be able to be read in the brightest sunlight, but adjustable for low light levels.
- **Accuracy:** The display must be sufficiently precise and optically efficient to let the pilot locate distant targets through the combiner, and maintain weapon aiming accuracy across the whole field of view.
- **Head Movement:** The display must be visible from a

range of positions to enable the pilot to move his head freely.

- **Wide field of view:** Required for operations at night and in bad weather where infra-red imagery is displayed on the HUD to allow the pilot to see in low light, fog etc., and to look into turns when manoeuvring at low level.

None of us would feel free (or indeed safe) to drive around Hyde Park Corner with our normal panache if we had blanked off side windows, a shattered windscreen

and only a small area punched through as the clear vision panel.

### Holographic HUDs

Conventional HUDs use a lens system to create the display image from the cathode ray tube. An optically coated Flat Combiner Glass then reflects this image into the pilot's line of sight.

In the conventional HUD the field of view is limited by the size of the lens (already the diameter of a saucer) and its distance from the pilot's head. This has a similar effect

to observing a scene such as a football match through a knot hole in the fence - the further you are away from the hole the less you can see.

In modern Holographic HUDs, holographically formed coatings enable the Combiner optical elements to form a 'see-through' spherical mirror which reflects the light of one display wavelength or colour only, and transmits light of all other wavelengths or colours.

The see-through spherical mirror is achieved by making a flat parallel glass 'sand-





The Judo Club gave a demonstration.



The GEC Avionics Brass Band "Blaze Away".



Harry Staff and some of his helpers, at the Bric-a-brac and Book Stall



Members of the Model Railway Club with part of their display.

# Family Sports Day

Sunday 14th July drew crowds of employees and their families to the GEC Avionics Club for this year's inter-divisional tournament and social event.

Sideshows and races kept the children busy on a happy day.

Several Raffles, Draws, Displays, and articles for sale in aid of the Scanner Appeal raised over £1000 on the day.

Here are some - others included LCSD's Tombola and the soft drinks stand run by Macdonalds in support of the cause. Thanks to them all.



Surgery Sister Vicky Oakley, Nurse Linda Ali, and Basil the clown



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# Inter-divisional for t “Champion of Ch



SESD beat GSD at Netball.



GAU's Tug-of-war team in action; Peter Eastwood, Steve Butler, Derek Thorndick, Tony Williams, Graeme Cooper, and John Spinks anchoring. They were loudly coached by Julie Powell-Williams.



Some of GAU's 60 - strong team with their Champion of Champions



Ian Coaker (GAU) won the 400m and came second at 800m.



Tim Baker (ADD), John Evans (SESD) and Christian Budge (SESD) heading a 400m beat.



Veterans David Reeves (GAU), Ray Reese (GAU) and Alan Hindlet (ADD).

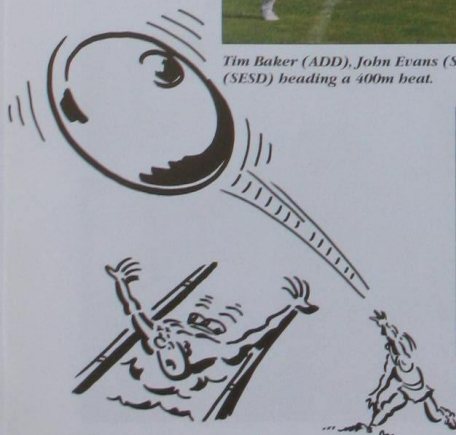


The 1500m walk, led by the first 3 winners Keith Greenfield (ISD), Robin Davies (TSRL) and Martin Reeves (GAU).



Swimming G Richards, Ra and (behind) Fiona Newma

		Points Table						
Divisional Sports C								
EVENTS	GAU	ADD	LCS	ISD	FCD	SESD	MA	
Athletics	4	6	5	3	2	1		
Bowls	2	1	3	4		5		
5-A-Side Football		4		3				
Hockey	5	1			3			
Netball	5		1		4	6		
Swimming	6	3	5	4	2			
Tug-of-War	6	3	2		2			
<b>TOTAL</b>	<b>28</b>	<b>18</b>	<b>16</b>	<b>14</b>	<b>13</b>	<b>12</b>		





# Competitions the Champions' Trophy



ions Shield.

Championship

MSD	CMS	MCD	GSD	CS	CACD	MCD	TSRL
(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
	5	6					
5			2		4		
			2			3	
			1				
	4			5			
2	9	6	5	5	4	3	0



Jim Beaney accepts the Athletics Cup for ADD from Mrs Enid Howard.



MASD's Bouls team: Jeremy Laycock, Paul Barnicott, Mike Dando and Lee Smith.



MCD's 5-a-side footballers achieved the hat-trick for Nailsea. Left to right with Mrs Edith Alexander presenting the cup are: Colin Goatley, Steve Hynam, Peter Luckhurst, Welsh MacKendrick (Capt.), Charlie Hannab, Ray Wilson, Chris Coveney, and Steve Grimmer.



Gala runners-up were LCS: Steven Newman, Pete Barton, Lee Goulding, Caroline Gross and Cecilia Barton, with Ian and Clare Barton.



The GA Swimmers were Ben Morton (Capt.), Noel Beby, Jon Sage, Paul Tassie, Derek Thorndick, Ian Vickery, Christopher Broun, Sarah Kenny, Kirsty Samuels, Ben Kinslow, Ceri Samuels, Lorna McPake, Joan Murphy, Andrew Brown, Kalli Samuels, Clare Thorndick and Kelly Thorndick.



The SESD Netball victors - Julie Barrs, Bridget Huckstepp, Lisa Stevens and Clare Stevens.





# Individual Results

## Athletics

Timings are in mins.secs.tenths.  
Distances are in metres.

### 100 metres

#### Men

- 1 L Goulding, LCSD 12.1
- 2 J Isaac-Henry, GAv 12.2
- 3 S Robb, ISD 12.4

#### Women

- 1 N Saker, LCSD 14.1
- 2 K Newton, FCD 14.4
- 3 G Evans, SESD 14.5

### 200 metres

#### Men

- 1 M Forder, LCSD 24.1
- 2 J Isaac-Henry, GAv 24.7
- 3 S Jury, ISD 24.8

### 400 metres

#### Men

- 1 I Coaker, GAv 54.0
- 2 C Budge, SESD 59.8
- 3 S Lake, GSD 60.0

### 800 metres

#### Men

- 1 M Forder, LCSD 2:04.2
- 2 I Coaker, GAv 2:06.0
- 3 S Beaney, ADD 2:15.4



Nicola Saker (LCSD) won Victor Ludorum (Ladies) and Martin Forder (LCSD) won Victor Ludorum (Men).  
The Cups were presented by Mrs Enid Howard.

#### Women

- 1 L Shackleton, ISD 2:48.6
- 2 L Mose, ADD 3:22.8
- 3 N Saker, LCSD 3:36.4

### 1500 metres

#### Men

- 1 M Forder, LCSD 4:36.1
- 2 S Beaney, ADD 4:41.9
- 3 K Greenfield, ISD 4:48.4

#### Women

- 1 L Shackleton, ISD 5:57.3
- 2 T Sakaria, FCD 6:00.6
- 3 G Evans, SESD 6:57.5

### Javelin

#### Men

- 1 D Patt, GAv 41.00
- 2 T Gibson, FCD 34.82
- 3 I Morgan, FCD 34.82

#### Women

- 1 S Nash, ISD 30.88
- 2 N Saker, LCSD 25.50
- 3 W Logan, ADD 23.84

### Shot

#### Men

- 1 J Ives, ADD 10.76
- 2 M Thorndick, GAv 9.05
- 3 I Morgan, FCD 9.00

#### Women

- 1 S Nash, ISD 9.75
- 2 N Saker, LCSD 7.66
- 3 S Sunnucks, ADD 7.21

### Discus

#### Men

- 1 J Ives, ADD 38.30
- 2 P Mayger, LCSD 31.04
- 3 I Morgan, FCD 25.60

#### Women

- 1 S Nash, ISD 29.68
- 2 N Saker, LCSD 20.82
- 3 K Holliman, ADD 18.90

### High Jump

#### Men

- 1 A Lucas, ADD 1.65
- 2 G Phillips, MASD 1.55
- 3 M Forder, LCSD 1.55

#### Women

- 1 S Sunnucks, ADD 1.30
- 2 N Saker, LCSD 1.30
- 3 S Court, LCSD 1.24

### Long Jump

#### Men

- 1 A Lucas, ADD 5.93
- 2 S Lake, GSD 5.78
- 3 J French, SESD 5.36

#### Women

- 1 N Saker, LCSD 4.23
- 2 W Logan, ADD 4.01
- 3 S Sunnucks, ADD 3.92

### 1500 metres Walk

#### Men

- 1 K Greenfield, ISD 8:07.0
- 2 M Reeves, GAv 8:08.7
- 3 R Davies, TSRL 9:07.7

### Veterans

#### 100 metres

#### Men

- 1 G Joyce, CACD 12.4
- 2 J Evans, SESD 12.9
- 3 C Reese, GAv 12.9

#### Women

- 1 G Evans, SESD 14.5
- 2 C Snelling, ISD 16.6
- 3 L Lyons, GAv 16.7

### Inter-Divisional Relay

#### 4 x 100 metres

Men	Women
1 GAv	ADD
2 ADD	GSD
3 SESD	FCD

## Swimming Gala

All Races are 1 length except where noted 2L.  
Timings are in seconds.

### Freestyle

#### Girls 10 Years & under

- 1 Clare Barton, LCSD 16.99
- 2 Archana Patel, ISD 20.91
- 3 Kelly Thorndick, GAv 22.66

#### Boys 10 Years & under

- 1 Philip Akriell, GSD 15.40
- 2 Matthew Gilroy, ADD 15.42
- 3 Mark Newman, LCSD 18.16

#### Girls 11/12 Years

- 1 Kalli Samuels, GAv 14.21
- 2 Fiona Newman, LCSD 16.36
- 3 Clare Thorndick, GAv 21.18

#### Boys 11/12 Years

- 1 Richard Gotting, ADD 13.21
- 2 Ian Snelling, ISD 14.56
- 3 Neil Barton, LCSD 15.34

#### Girls 13/14 Years

- 1 Kay Snelling, ISD 14.56
- 2 Sharon Moore, CACD 19.14

#### Boys 13/14 Years

- 1 Simon Harper, GAv 17.80

#### Girls 15/16 Years

- 1 Sarah Moffett, FCD 13.74
- 2 Ceri Samuels, GAv 13.90
- 3 Emma Snelling, ISD 14.14

#### Boys 15/16 Years

- 1 Ben Kinslow, GAv 16.95

#### Ladies 17/30 Years (2L)

- 1 Kirsty Samuels, GAv 30.77
- 2 Sharon Baldwin, ISD 32.95
- 3 Sarah Barton, LCSD 34.75

#### Men 17/30 Years (2L)

- 1 Mark Baldwin, ISD 25.20
- 2 Ian Rogers, GSD 26.84
- 3 Brendan Joyce, ISD 27.85

#### Ladies 31/50 Years

- 1 Kathy Earl, FCD 16.61
- 2 Glynn Fry, LCSD 20.49
- 3 Ann Hollands, FCD 21.28



Victrix Ludorum (Girls):  
Kalli Samuels, GAv



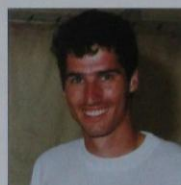
Victor Ludorum (Boys):  
Richard Gotting, ADD



Ben Morton, captain, and Kelly Thorndick the youngest team member, received the Swimming Cup for GAv from Mrs Yvonne Tucker.



Victrix Ludorum (Ladies):  
Kirsty Samuels, GAv



Victor Ludorum (Men):  
Mark Baldwin, ISD

#### Men 31/50 Years

- 1 Steven Richards, LCSD 12.14
- 2 Mike Sweeney, ISD 12.19
- 3 Colin Matthews, FCD 13.11

#### Ladies 51 Years & over

- 1 Joan Murphy, GAv 22.88
- 2 Cecilia Barton, LCSD 28.41
- 3 Edith Alexander, GAv 30.21

#### Men 51 Years & over

- 1 Noel Beby, GAv 13.52
- 2 Bruce Hopkins, ADD 14.26
- 3 John Goodhand, GAv 17.70

### Breaststroke

#### Girls 10 Years & under

- 1 Clare Barton, LCSD 24.85
- 2 Kelly Thorndick, GAv 33.62
- 3 Kathryn Hollands, FCD 38.51

#### Boys 10 Years & under

- 1 Philip Akriell, GSD 21.78
- 2 Matthew Gilroy, ADD 22.47
- 3 Mark Newman, LCSD 23.21

#### Girls 11/12 Years

- 1 Kalli Samuels, GAv 18.71
- 2 Fiona Newman, LCSD 20.57
- 3 Claire Thorndick, GAv 27.50

#### Boys 11/12 Years

- 1 Richard Gotting, ADD 17.39
- 2 Ian Snelling, ISD 21.11
- 3 Neil Barton, LCSD 21.53

#### Girls 13/14 Years

- 1 Kay Snelling, ISD 20.45
- 2 Sharon Moore, CACD 22.59
- 3 Claire Bradley, GAv 25.27

#### Boys 13/14 Years

- 1 Simon Harper, GAv 23.86

#### Girls 15/16 Years

- 1 Sarah Moffett, FCD 17.98
- 2 Ceri Samuels, GAv 19.34
- 3 Kelly Akriell, GSD 19.94

#### Boys 15/16 Years

- 1 Ben Kinslow, GAv 19.96

#### Ladies 17/30 Years (2L)

- 1 Kirsty Samuels, GAv 41.12
- 2 Sarah Barton, LCSD 44.22
- 3 Sharon Baldwin, ISD 44.60

#### Men 17/30 Years (2L)

- 1 Ian Rogers, GSD 34.41
- 2 Mark Baldwin, ISD & Simon Bracken, ADD 35.38
- 3 Jonathan Sage, GAv 36.58

#### Ladies 31/50 Years

- 1 Kay Holliman, ADD 21.56
- 2 Kathy Earl, FCD 22.38
- 3 Glynn Fry, LCSD 24.97

#### Men 31/50 Years

- 1 Robin Davies, TSRL 17.16
- 2 Ray Newman, LCSD 17.26
- 3 Colin Matthews, FCD 17.44

#### Ladies 51 Years & over

- 1 Joan Murphy, GAv 25.94
- 2 Cecilia Barton, LCSD 26.58
- 3 Lorna McPake, GAv 30.66

#### Men 51 Years & over

- 1 Noel Beby, GAv 17.17
- 2 Bruce Hopkins, ADD 21.10
- 3 Brian Rogers, GAv 21.10

### Backstroke

#### Girls 10 years & under

- 1 Clare Barton, LCSD 20.33
- 2 Kelly Thorndick, GAv 24.79
- 3 Archana Patel, ISD 26.54

#### Boys 10 Years & under

- 1 Philip Akriell, GSD 20.02
- 2 Mark Newman, LCSD 21.81
- 3 Matthew Gilroy, ADD 23.39

#### Girls 11/12 Years

- 1 Kalli Samuels, GAv 16.86
- 2 Fiona Newman, LCSD 20.50
- 3 Clare Thorndick, GAv 25.42



devices for military use. This was followed by a project to design and develop a HUD demonstrator using new holographic material.

On the current Off Axis HUD programme her responsibility in the Optical Design Group is the process development for the production of the combiner element which will be used on both EFA and ATF.

**Jonathan Freeman**, also Senior Development Engineer, gained his BSc Honours degree in Applied Physics at University College, London in 1984. Here, he was initially involved with the development, modelling and production of a holographic optical filter - 2000 of which were subsequently produced. He worked with several projects theoretically modelling and designing dielectric coatings, more recently concentrating on the optical design and procurement of helmet projection systems.

In the Off Axis project for ATF and EFA he is responsible for the manufacture of the powered hologram using complex construction optics - including a computer generated hologram.

**Roy Townsend**, Senior Design Engineer, commenced an apprenticeship with Elliott Brothers (now GAv) in 1948 from Rochester Technical College. On completion of his apprenticeship he entered the design office and eventually became a chief draughtsman in the former MAC Division.

In 1966 he left Rochester and worked for several companies in various industries including aviation, petrochemical and atomic power both in this country and abroad.

Roy returned to GAv in 1986 for the specific task of designing and procuring the mechanical process and test equipment needed for hologram manufacture.

## GEC National Gliding Championships

*GAv sponsored the British Gliding Championships at Lasham in Hampshire for the ninth time this year. The event is held annually, and runs for nine days; flying competitions are held every day, weather permitting.*

This year GAv sponsored the British 15m championship which was won by Brian Spreckley, a previous World Champion in the class.

This summer has clearly not been a good one for gliding but the perseverance and determination of the competition organisers resulted in competition flying on six of the nine days. However, on one of those

days the weather closed in earlier than forecast and all 80 gliders 'landed out' littering the South-east of England with gliders and their disgruntled pilots!

In the final days of the meeting the weather cheered up and the competition ended on a high with the last day's weather just perfect for gliding.

Every other year, on the 'odd' year (ie 1991) GEC Avionics and GEC Sensors jointly take hosting facilities down to Lasham Airfield and spend a valuable week entertaining contacts and customers from UK industry and the Ministry of Defence. This year over 250 people

joined us for what is a quiet, relaxing day. During the day every guest is offered the chance to take a trial flight in a glider and everyone, even the nervous flyers, seems to enjoy it. It is good to see those who are particularly apprehensive yet determined to 'give it a go' return from their flight absolutely elated. Every year a number leave Lasham determined to return for a course of lessons.

*Naval guests glide at Lasham; here Rear Admiral Cooke-Priest (behind) pilots Admiral Sir Julian Oswald.*



## The New SENTINEL 1000

The Westinghouse Airships, Inc. (WAI) Sentinel 1000 airship which has made its maiden flight is currently the world's largest airship at 220ft long, and the first to use fibre optic fly-by-light controls. Other advanced technology incorporated includes the use of strong multilayer hull fabrics, a lightweight composite gondola (cabin) and vectored thrust propulsion for improved manoeuvrability.

Because of their large envelope size and long endurance capability, WAI Sentinel airships are an ideal platform for carrying the large aperture radar systems that are necessary to detect and track low radar cross section and stealth targets such as cruise missiles. Moreover, the ongoing support and maintenance costs of the Sentinel airships can be as little as one-seventh those of fixed and rotary wing aircraft.

In addition to airborne early warning (AEW) surveillance, the Sentinel 1000 is designed to handle a wide range of military, civilian and commercial applications. These include air, land and anti-submarine warfare operations; mine countermeasures; fisheries protection; electronic intelligence gathering; drug traffic surveillance and interdiction; border patrol; cellular communications; and commercial transport and advertising. It is a half linear scale version of the Sentinel 5000 airship, which WAI is developing under contract with the Air Defence Initiative (ADI) programme of the US Department of Defense.

This totally new airship has been designed in Britain by a team of engineers and airship experts formed by WAI from former employees of Airship Industries Ltd. The WAI organisation has its headquarters in Baltimore, Maryland, manned by both British and American staff; its design and drafting office is in Luton, Bedfordshire, and its hangar and manufacturing facilities are in Weeksville, North Carolina.

GAv's contribution is on a 3-phase programme. The maiden

flight utilised equipment designed and developed by TSRL; Phase 2 will be flown in November, using a new system developed by CACD which will include an autopilot and stability augmentation system. In Phase 3 over the next two years, higher order autopilot capabilities will be added, including an automatic hover facility.

Having now proved itself to be flightworthy, this exciting new development in the evolution of aeronautical systems is available for the provision of a highly capable, long endurance, stable aerial platform for government and commercial use around the world.

### Why Fly-by-Light?

A major problem with existing airships is that the flying control surfaces are activated by the pilot through a series of cables and pulleys. This method, although effective, is not very efficient and consequently imposes a high workload on the pilot. Such a situation is unacceptable for any future operational role where pilot fatigue may be a crucial factor and an alternative solution was considered necessary.

A solution to this problem was a Flight Control System (FCS) which could provide auto-stabilization and autopilot functions. After an initial study it was concluded that incorporating an FCS within the existing flying controls was impracticable due to the unpredictability of the cable-pulley assembly. It was therefore decided to mount actuators and the associated drive electronics at the control surfaces, with a Flight Control Computer mounted within the gondola. This, however, left the data transmission to the actuators vulnerable to lightning strikes and interference because of the non-conductive nature of the airship envelope. It was for this reason that the Sentinel 1000 adopted Fly-by-Light where the data transmission paths within the system use fibre optic cables.

with", with an internal curved surface with a holographic coating at the junction between the two pieces of glass. In this way the outside world can be viewed directly through the HUD Combiner, and this new type of display can be made larger and brought far closer to the pilot's eyes giving a wider field of view. This new technology has in fact enabled the field of view to be doubled in comparison with existing conventional HUDs.

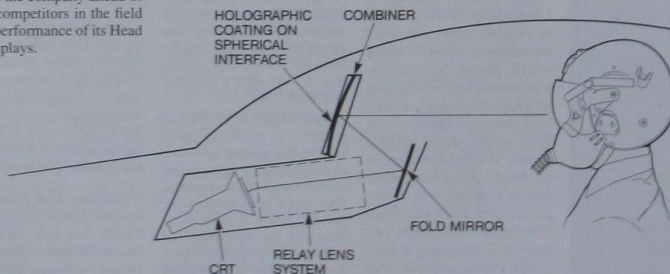
The new holographic coating is also a very efficient

reflector of the selected colour and therefore gives a far brighter display.

The combiner glass must be tilted by as much as 30° from the pilot's line of sight - this distortion also needs extra correction.

In a major new development at GEC Avionics, a holographic combiner has been developed with 'optical power' which provides additional correction to the optical distortion by creating variations in the apparent curvature of the reflecting surface.

This recent development has put the company ahead of all its competitors in the field in the performance of its Head Up Displays.



Single Combiner Holographic HUD



## GAv Long Service Awards and Retirements

### Idyll in the Lake District.

Once upon a time there was a place with lots of fresh air, peaceful surroundings, unusual wildlife, great food, interesting people, relaxing atmosphere, fantastic scenery, a generally heavenly experience. Yes, sounds like a typical day at GAv, but no, I'm talking about Hampsfield House, the GEC Convalescent Home.

Hampsfield House is set in acres of unspoilt countryside, on high ground with superb views over Morecambe Bay. Near Grange-over-Sands in the Lake District, it is a stately home converted to provide a large number of facilities for convalescing employees (spouses can go too). Here you will find a clean, well run, exciting, fun place to be. A place where wild deer, squirrels and woodpeckers are freely roaming about in large gardens surrounding the house. The experienced staff and GEC minibuses make sure no energy needs to be expended by anyone there.

Hampsfield House offers 4 excellent meals a day and a large bedroom with shared shower and bathroom facilities. The staff are friendly and make sure you don't have to lift a finger yourself. They do everything from bringing cups of tea to switching on your bedside lamp and turning over your covers last thing at night. There is only one rule during your stay and that is to be in

your bedroom by 11.00 pm - after all you are there to convalesce.

For those who want more than to lie around all day doing nothing but be waited on hand and foot, there are other things to do. There are TVs and videos and board games for the slightly energetic, and snooker, croquet, bowls and putting for the really adventurous. And for those David Attenboroughs out there, the miles and miles of British countryside should be very tempting; you could even hire some mountain bikes for that added thrill! On certain days there are trips organised to local beauty spots or local places of interest (e.g. a pencil factory!). The mini bus is used for these excursions as well as for trips most evenings into Grange or wherever you want to go (majority decision rules).

The subscription will cost you virtually nothing: 12p a week - less than the Social Club. Anyone can go, so long as their doctor agrees convalescence would be useful and they don't require any current nursing attention. Once it is decided that you can go for two weeks of sun and fun in 'The Lakes' then GEC will meet all your travel costs.

*From Peter Holmes of ISD, endorsed by the Editor who has also been to Hampsfield House.*

### ALEXANDER'S RESTAURANT

Bookings are now being accepted for Christmas.  
Christmas Meal: Monday to Thursday commencing Monday 9 December.  
Price £12.50

A la carte meals: Fridays and Saturdays.  
Sunday lunches: Christmas meal or normal roast meal.

A Deposit of £2 per head is required with written confirmation of booking.

### GEC Avionics News

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### 25 Years Service



**Sam Dunlop** was on contract to the company before he formally joined as DO Section Leader in ADD. As Assistant Chief Draughtsman he spent time in IND as well as ADD, becoming Chief Draughtsman in 1974. Still in ADD, Sam has been Logistics Manager since 1980.



**Keith Washington**, Consultant Engineer in SESD, discovered his interest in Automatic Test Equipment in discussions about college projects while he was studying for his IEE endorsements to the HND, during his Student Apprenticeship. Since joining ATED in 1969, Keith has been involved with most of the division's big projects; early days were on Trials at RAF sites, and then Keith was awarded a Company Scholarship to study for MSc in Systems Engineering at Surrey University. His enthusiasm and versatility led to development and management roles, helping and leading teams on COMPACT, ORION, Alvey Trailblazer,

AQS 902, NATS 2, and now AFACS, to name but a few. Keith has held senior engineering posts including Chief Development Engineer, and has enthusiastically shared his expertise with young engineers and trainees, particularly as Industrial Tutor to MEng students. He still finds time to organise the inter-divisional cricket tournament.



**David Leech**, Project Engineer in LCSD was originally in AEID (later ISD) and then in TACD/FCD before moving to AS&RD nearly 20 years ago. Now, he is working on Test Gear Design.



The 25 years' service of **John Williams**, MASD's Chief Draughtsman, is the latest part of a total of 42 years with the company. First he served an apprenticeship with Swift and Swallow, then after National Service he spent ten years in various divisions here. After a 6 month break in 1966, he returned to find himself finishing the drawings he had left, in Airspace Control.

There was a period of shuttling around with Divisions moving to and from Borehamwood, and the TSR2 cancellation, but by 1969 he settled into Airborne Computing Division as they moved to Rochester and later became MASD. Here, John was Design Engineer and became Chief Draughtsman in 1978.



**Brian Barton**, Project Engineer in MCD, reached his 25 years service in May. He joined the company as a Model Shop Technician with FID then moved on to work in the Planning Offices of IND, CMS and PSD.



**John Colechin**, until he transferred last year to FCD where he is a Senior Design Engineer on the 777 project, has been in MASD, and its predecessor AC, on their anti-submarine projects.



**Alix McSweeney** joined the company in 1966 working for Military Aircraft Controls Division as a Model Shop Employee and in 1967 moved into the Planning Section. In 1970 MACD amalgamated with TACD to become FCD; in 1973 Alix became Planning Section Leader, then in 1976 he was promoted to Model Shop Superintendent. In 1980 FCD was split (into FCD and CACD) and he found himself working for CACD, then in 1986 he moved to ISD as Materials Controller before taking up his present position of Divisional Services Manager in 1988. He is a keen golfer and indoor bowler.



**Arthur Ellis** started in AEID/ISD, and moved to his present post in LCSD after a spell in IND. His time since 1977 has been spent on Jaguar, Nimrod, F-16 HUD and Civil air data work. Arthur besides his work as Quality Technician is active in youth organisations, and he met his wife Joan through that interest.



**Mick Wilson**, CACD's Chief Estimator, started his career with a Dockyard Apprenticeship and then a year at the Admiralty in Whitehall. Here at Rochester, Mick has been in AEID/ISD, IND, and CMS as Planner and Ratefixer, becoming Estimator with AC in 1970. When MASD was first formed in 1973, Mick was half of the Production Department, but by 1975 he was Chief Estimator; following 10 years as Chief Production Engineer, he transferred to CACD and his present post when MASD and CACD's production activities merged last year.

### Retirements

Following his retirement from a distinguished career in the RAF, Air Commodore **'Reggie' Spiers** OBE FRAeS joined GAv as Company Marketing Executive, based in London where he has provided an ongoing liaison with MoD departments. Now finally retired, Reggie will also be remembered by his colleagues for a host of anecdotes and cartoon drawings based on his RAF career which included periods as Chief Instructor at the Empire Test Pilots School and at Cranwell, CO at the experimental flight test establishment at Farnborough, and lastly as Commandant at Boscombe Down, where he was responsible for all activities for

acceptance testing of systems for the RAF's aircraft.

**Jean Goulden**, lately Personal Assistant to Sir Michael Beetham and Bill Alexander, has been on the "Fourth Floor" for nearly 20 years working for senior executives. Earlier, Jean was in part-time posts and the Temporary Pool, and graduated to GAv after a full-time spell in MACD.

**Jack Hedley** of LCSD was originally in the Royal Navy, but after first joining us in 1966 he soon became a shop steward and works committee member. Then after a break in service he came to AS&R to work on air data, and the Buccaneer and Lightning projects. Jack became a Quality Technician in 1975 and Surveyor in 1978.

**Mary Smith** has retired after over 20 years in Accounts Dept., all of them on the Wages Section. But we are told that 4-weekly salaries will still be paid.

**Roy Featherstone**, Inspector, and **Alick Day**, Production Engineer have retired from CACD; both of them have worked through the various reorganisations of MACD, TACD, FCD and CACD. Roy started in MACD 30 years ago, and Alick in TACD in 1962.

Similarly, **Ken Gillham** of Inwards Goods inspection in CACD, but Ken also spent time in IND and his time in the various divisions totalled some 37 years.

### Wedding Bells

Ex-apprentices Richard White and Marie Staff were married at St Margaret's, Rainham. Richard is now a Development Engineer in GSD, and Marie a QA Assistant in ISD.

Paul Ralph, QA Manager of ISD, and Maureen Eldridge also in ISD, were married in April ... not only an ISD affair, since Paul will also be remembered by many people at Nailsea where he spent some years.

Robin Arnold, Progress Chaser in CACD and previously in MASD, and Shirley Woolnough were married in June.



# Brakes off!

Our local boxing star Gary Mason came in June to launch the ticket sales for the Scanner Appeal Summer Draw, with the first prize of the Vauxhall Cavalier. He sold the first ticket to Olympic Silver Medallist Paul Nihill of SESD, who is reeling from shock with Brian Tucker and Arnold Ferrell, Sales Manager of Greens of Rainham who supplied the car.



## Support Equipment Systems - another way!

SESD Engineering donated £30 for a sponsored walk of the "West Highland Way" by a team from Nimrod AEDIT, Sqn. Ldr. J.H. Robinson reported that the walk was a total success and was completed by all team members. The weather was glorious for the entire expedition and his only concern was that four of his men appear a couple of inches shorter than they used to be.

With SESD's help they will be able to donate several hundred pounds to a worthy cause.

## Knitting for Kids

On a Friday in May, ladies of Logistic and Customer Services Division put on display 94 jumpers and 11 pairs of dungarees made by themselves, their families and friends for children in the Romanian Orphanages.

Following various publicity after Christmas, they obtained

patterns to knit jumpers and make dungarees and then discovered that a local lady was planning to go to Romania to help the children. Since then she has taken over the "Wishing Well" Charity and is also planning on helping the old folk in Romania.

*A table loaded with woolies and some of the ladies who knitted.*

*(L to R) Rosemary Butler, Barbara Wilkinson, Chris Auchorne, Maureen Nunn, Pauline Cochran, Doreen Hutchings, Audrey Hockney, Ying Yau, Enid Wallington, Ann Watts, Pat Pilbrow, and Frances Maynard.*



Anyone wishing to help in any way would they please contact Mrs Joan Duvall on Medway 401537

## Your Help is Needed by YOUNG ENTERPRISE

Being an Adviser to a Young Enterprise Company is an enormously worthwhile experience. It's about passing on your skills and knowledge in a practical fashion to the young people of our community who are prepared to take up the challenge of running their own business.

The scheme, supported by the Company for more than twenty years, is seen as a sound way of providing young people with the opportunity of learning the basics of business and the importance of teamwork which is required in any undertaking. It should appeal especially to younger employees who would now like to share the experience they have gained in their particular field here at GAV.

Young Enterprise operates by recruiting youngsters between the ages of fifteen and nineteen within a range of local schools at the beginning of the academic year. They are then formed into Companies of 20 to 30 and proceed to set up their business. They operate two hours a week in the evening and run for six months; at the end they liquidate their Company and report the results to their shareholders.

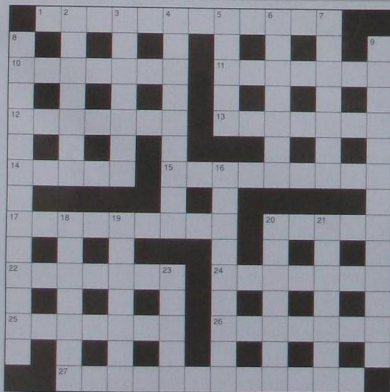
It's worthwhile, enjoyable, and doesn't take too much of your time. GAV plans to have three Companies operating by the end of September and will provide support for new Advisers throughout the life of the Company they are assisting.

*If you feel you can help and want to know more, please contact Don Short on extension 3171.*

## GEC AVIONICS CLUB Forthcoming ATTRACTIONS

- |   |  |
|---|--|
| Friday 6th September<br><b>CACD Disco</b><br>in Aid of Scanner Appeal<br>"Stateline"<br>☆ | Saturday 28th September<br><b>DANCE</b><br>"SNATCH BAND"<br>☆                        |
| Saturday 7th September<br><b>Country &amp; Western</b><br>MUSIC IN THE BAR<br>☆           | Saturday 5th October<br><b>Barn Dance</b><br>"JEZREELS"<br>☆                         |
| Saturday 14th September<br><b>Parlour Derby</b><br>☆                                      | Saturday 12th October<br><b>Over 50s Cocktail Party</b><br>with<br>"HAPPY DAZE"<br>☆ |
| Friday 20th September<br><b>Candlelight Dinner Dance</b><br>"Peter Elligate Show Band"    | Saturday 26th October<br><b>DANCE</b><br>"JOHNNY YOUNG BAND"                         |

## Crossword No. 105 (For amusement only)



### ACROSS

- Petty behaviour, not suitable for adults. (12)
- Beyond the present moment. (7)
- Position, status or starting point. (7)
- Showing off, not natural. (7)
- To imitate or equal. (7)
- Soil prepared to receive small seeds. (5)
- An American State. (9)
- The age of all sweetness. (9)
- Get out - on one leg! (3,2)
- Going to a new abode. (7)
- Universal or general proposition. (7)
- East African country, much troubled. (7)

### DOWN

- Outlying settlement. (7)
- Expert ones delight the golfer. (5,7)
- Gives you a lovely warm face. (3,4)
- An animal noted for spots. (7)
- Since ball points, not much used. (3,6)
- Speed, not always right. (5)
- The signs of having been removed. (7)
- Springs or stairs. (7)
- Thoroughfare of money, of European origin. (7,6)
- The cause of a loss on the job. (13)
- A number under the century. (6-3)

### 18. The art of exploiting men at the piano perhaps. (7)

- Once part of Henry's Kingdom. (7)
- The dancer needs one to make noise. (4-3)
- Private room within an inn. (7)
- Gain knowledge. (5)

### Solution to Crossword No. 104

- ACROSS
- Tin pan alley; 9. Oriol; 10. Lose caste; 11. Isis; 12. Menu; 13. Nomad; 15. Pennant; 16. Twinkle; 17. Imagine; 20. Gathers; 22. Tasty; 23. Brit; 24. Fish; 26. Narrative; 27. Aside; 28. Nerve centre.
- DOWN
- Tuition; 2. Nell; 3. Ailment; 4. Assault; 5. Licentiate; 6. Yashmak; 7. No oil painting; 8. Dead mens shoes; 14. Vanity fair; 18. \*Also run; 19. Ebb tide; 20. Glad-eye; 21. Edifice; 25. Malt.
- \* Sorry, we missed this one out. The clue was "Not a winner, but in the event".

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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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# Family Sports Day

Unexpectedly fine weather was granted for the day's events at the GAv Club on Sunday 14th July. The organisers were delighted by the large number of children who entered for their various races, and there was some stiff competition in the seven elements scoring equally for the inter-divisional "Champion of Champions" Shield.

All in all, there was a wide-spread feeling that the event was the most successful yet. GAv's points total, which included wins in the Tug-of-War and Swimming, brought them the championship. The Athletics cup was won by ADD, and Nailsea completed a hat-trick by winning the five-a-side Football, SESD won the Netball, MASD the Bowls, and the Hockey which was completed a week earlier also went to MASD.

All day there were side-shows for the children, who had a free ice cream, and plenty to see for the many family parties enjoying the

day. The Clubhouse Bar and Refreshments were popular, and various draws and raffles did well. The GEC Avionics Brass Band were in good form, and the day ended with the formal prizegiving and distribution of medals.

Quality Director Ray Reese has thanked the many event organisers, officials, and helpers for their efforts and support leading up to a successful day. This extends to the competitors and all employees, families, and friends who came to enjoy themselves.

Provisionally, we should put Sunday 12th July 1992 in our diaries for the next Family Sports Day.

See inside for your Colour Picture Souvenir with results of the Championship and events.

## Medway Scanner Appeal

£55,550

The GAv Medway Scanner Appeal has now more than doubled the original target which was reached in April. Well done, everyone!

Some Dates for your Diaries.

- 4 October - Karaoke Evening, Main Canteen
- 12 October - Dance in the Main Canteen
- 2 November - Dance at GEC Avionics Club

**STOP PRESS:** The Vauxhall Cavalier has been won by Ken Horder of GAv/MoD Technical Cost Office.

This framed oil painting of an English country scene is by 'Chas' Cliff, Chief Illustrator in LCSD. It has been donated by him and the division for Raffle in aid of the Medway Scanner Appeal. Sized approximately 24" x 20", it has been provisionally valued at around £400.



TICKETS, 50p EACH, ARE AVAILABLE FROM SCANNER APPEAL DIVISIONAL REPS OR ADMIN OFFICERS, DURING SEPTEMBER ONLY FOR A DRAW IN EARLY OCTOBER.

## ADD Still on the Ball

ADD's Purchasing department and GAv suppliers' representatives played football in aid of the Scanner Appeal, raising £34. The game was at the GAv Club on 21st June.

The final score was a 2-0 win for ADD. This was the third match between these teams, and ADD have always won. The Representatives have provided the tro-

phies, and their generosity makes the game all worth while.

John Michel was declared "man of the match". A former employee of ADD (Mighty mouth, Tony W.) incurred the wrath of the referee by kicking out of touch for little reason. But in the main the game was played in the spirit intended, and had a competitive edge. Further

matches at the Club are planned.

(L to R, Back): Andy Wilkinson, John Michel, Steve Stringer, Ian Reid, Ian Blackman, Stuart Flack, Phil Spice, Keith Patching; and Simon Abrill, Clive Tilley, Steve Moreton, Gary Bailey, Ray Carter, with mascot Aaron Bailey.



## THE NAILSEA 1991 GOLF CHAMPIONSHIP

MCD in conjunction with the Sports and Social Club held the first Annual Nailsea Golf Championship at Tall Pines Golf Club, Lulsgate, Bristol on Monday July 1st in the evening. The event was open to all personnel currently working on site and was well supported with 26 entries from Company Staff, Contractors and Customer Representatives.

The event took the form of an 18-hole Stableford competition with "Golfers" of all standards in each threesome. The tone of the event was set, however, by organiser Steve Tuckfield, who purchased a Panama hat so that he could do his impersonation of an old fogey whilst acting as Tee Marshal on the first tee. Rumours that the real reason was to make him play like Gary Player were partially borne out when he scored 30 points for the first time in his life.

The first prize to be awarded was won in style by Dave Radford. Dave, attempting to hit the ball off the first tee, proceeded to hit it at a 90° angle to the right, nearly reducing the opposition by two. Not satisfied with this he repeated the feat but again was unlucky in missing everybody. Unfortunately for Dave, his third attempt went

forward and he left the tee, much to the relief of Steve Tuckfield who wished he had bought a crash helmet instead.

Completely fooled by the weather were Bob Attwood and Dave Smith who, seeing this yellow light in the sky, thought it was summer and dressed accordingly. But the light was a Boeing 737 approaching Lulsgate Airport



and everybody got wet. Dress Honours were awarded to Dave Smith for a rather snazzy pair of shorts.

The veterans Threesome of Clive Baker, Vince Grey and Dave Radford achieved the Best Bunker Shot of the day when Vince entered the bunker beside the 11th green. Play on the rest of the course stopped for five minutes while he tried to see if he could find the Channel Tunnel. When he finally threw (sorry, hit) the ball out, Dave offered to get him a ladder while Clive

shovelled the sand back into the bunker.

The David Bellamy award was contested by Phil Jordan and Pete Fuidge who found more wildlife in the rough than anyone else, with Pete just taking the honours.

Closest to the Pin on the 18th was won by Mike (my handicap is too low) Cameron whose tee shot ended 14ft Lin away from the hole. Not bad when you consider it hit the tree at the side of the green first!

The Hidden Holes Competition was won by Bob Attwood who scored 17 points with Chris (I've only played once before) Coveny second with 11 points.

The overall Competition prizes went to two Rochester colleagues currently on loan to Oil and Gas Group. The well known pair of Bandits Dave Bull came first with 37 points and John Malthouse second with 33. Will the Secretary of the Rochester Golf Society please note that their handicaps have been reduced by three and two shots accordingly?

Overall, despite the weather, the event was a great success and we look forward to the next.