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The GEC Newspaper

December 1994

## GEC ALSTHOM NORTHERN LINE WIN

London Underground's Northern Line is to get a new fleet of GEC ALSTHOM trains.

The trains, which will be built by GEC ALSTHOM Metro Cammell, Birmingham, will be supplied under the terms of an innovative 20 year Train Service Contract, that will see the company taking on wider responsibilities than under a traditional manufacture and delivery contract. Valued at over £400 million, the contract represents

London Underground's biggest single order to date.

London Underground Chairman, Peter Ford, described the deal as the first significant use of the Private Finance Initiative for funding major public transport projects. "We are going to work with the private sector in a new way. For the first time, we shall devolve the responsibility for maintain-

ing the trains to the people who have designed and built them." He continued, "This contract, however, goes beyond simply providing far more comfortable and reliable trains for our Northern Line customers. We need a lot of other sophisticated equipment to run a reliable and efficient train service such as specialised trackside equip-

ment, closed circuit television systems (CCTV), train radio and depot plant and equipment."

GEC ALSTHOM's order covers the design, manufacture and installation of this equipment. The company will be paid to provide the trains to enable London Underground to operate its service.

The new trains will form

one of the world's most modern fleets, and are a development of those being built by GEC ALSTHOM for the Jubilee Line. Customers will benefit from an internal CCTV, information systems and improved facilities for wheelchair users.

GEC ALSTHOM will take on the responsibility of maintaining the existing train fleet as well as the new

trains which will be phased in gradually as they are delivered. The first train is expected to come into service in the middle of 1996.

The Northern Line is one of the London Underground's busiest with 108 million passenger journeys a year, 15 per cent. of the total number of journeys taken on the Tube.

## GEC-Marconi on the crest of a wave

GEC-Marconi has recently scored a triple triumph, with the launch of two frigates at Yarrow Shipbuilders, Scotstoun, and major orders for Marconi Radar and Control Systems' Seawolf missile tracking radar.

### KD Lekiu

The most recent launch was that of the Kapal DiRaja Lekiu (His Majesty's Ship Lekiu) by the wife of Malaysian Defence Minister, Datin Sri Rosmah Mansor.

The ship, which has a displacement of 2270 tonnes and an overall length of 106

metres, has a comprehensive range of weapons and sensors to enable it to counter air, surface and underwater threats.

KD Lekiu was constructed from seven large pre-outfitted blocks - an advanced modular construction method developed by Yarrow. The contract to build this and another similar frigate for the Royal

Malaysian Navy was placed in 1992. Delivery of both ships is scheduled for 1996, following an extensive trials programme.

### HMS Grafton

The second launch, that of HMS Grafton, a Type 23 frigate, was carried out by Lady Abbott, wife of Vice-Admiral Sir Peter Abbott,

KGB, Deputy Supreme Allied Commander, Atlantic.

HMS Grafton's primary role is submarine detection. It is the eighth Type 23 or 'Duke' class frigate to be built at Yarrow. At 133 metres, the ship has a standard displacement of 3500 tonnes, and is defended by the vertically-launched Seawolf anti-missile system.

### Seawolf radar

The Seawolf radar orders were won by Marconi Radar and Control Systems, Chelmsford.

Valued at £20 million, the orders cover the modification and supply of Type 911 tracking radar for the Type 23 frigate's Seawolf missile control system. The radar provides the missile's control and guidance data.



The Royal Malaysian Navy's frigate, KD Lekiu.



HMS Grafton.

[www.rochesteravionicarchives.co.uk](http://www.rochesteravionicarchives.co.uk)



## News in Brief

### Appointments

#### GEC ALSTHOM Power Generation

Kelvin Bray has been appointed managing director of GEC ALSTHOM's new Power Generation Division. The Division has been set up by merging the activities of the Electromechanical, Gas Turbine and Diesel, and Boilers and Environmental Systems Divisions.

#### GEC-Marconi

GEC-Marconi has a new managing director. Peter Gershon, formerly managing director of GPT, has succeeded Roy Garner and will be based at Stanmore.

#### GEC-Marconi Avionics

Dr Saul Lanyado has been appointed managing director of GEC-Marconi Avionics. He joined the company from STC Submarine Systems.

#### GPT

Tony Cobbe, formerly managing director of the GPT public exchange business, has been appointed managing director of GPT.

#### Sensors Division

David Laybourn has joined GEC-Marconi as managing director of the Sensors Division, based at Basildon. For the last four years, he has worked at British Aerospace, most recently as managing director of BAe Dynamics.

#### AB Dick

AB Dick has launched a new series of digital duplicators with advanced ink technology. The duplicators, which are designed to increase productivity, give quicker turnaround times and print up to 120 copies per minute.

#### Matra Marconi Space

One of the first privately owned satellite data, voice and fax links from China has become operational. Matra Marconi Space designed and commissioned the system which links GEC ALSTHOM in Manchester with the Shajiao power station in China.

# A SPRAY OF ORDERS AT SEA

GEC-Marconi Avionics' Radar Systems Division (RSD) has received two orders from Westland Helicopters for Seaspray 3000 radars for the UK Royal Navy and the Brazilian Navy. Worth over £20m, the orders involve upgrading existing Mk1 radars in Lynx helicopters to the new Seaspray 3000 standard.

Commenting on RSD's success the Division's managing director, Dr Alan Martin said, "These new contracts are both very important as they demonstrate the sense and cost-effectiveness of upgrading existing Seaspray Mk1 radar assets to the current Seaspray 3000 standard."

Seaspray 3000 has already been procured by four nations for operation in a range of fixed and rotary wing platforms. Its major benefits over the Seaspray Mk1 are provided by the new digital signal and data processor which enables

comprehensive integration of the radar with the rest of the mission system avionics. It also supports a man-machine interface.

The contract for the Royal Navy represents the latest phase of their Lynx Mk3 to Lynx Mk8 upgrade programme, entailing the replacement of the analogue processor with its digital successor.

#### Sea Harrier

Two sets of automatic test equipment (ATE) to support the new Sea Harrier FA/2 have been success-

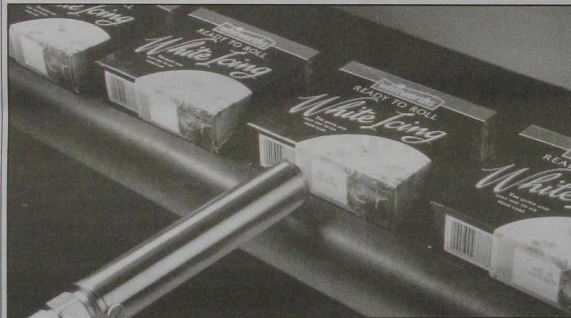


The Sea Harrier FA/2 on board HMS Invincible.

Photograph courtesy of British Aerospace.

fully commissioned on board HMS Invincible. The equipment will maximise support capability for the first operational sea deployment of the aircraft. The two ATEs provide test and diagnostic capabilities for GEC-Marconi's Blue Vixen Radar and the Sea Harrier's avionics. The commissioning team is now installing the second set of equipment on another aircraft carrier.

## Demanding environment for Videojet printers



Videojet's EXCEL 170i prints best-before date and batch code on to packs of Whitworth's ready-to-roll white icing.

VIDEOJET has supplied EXCEL ink-jet printers to the food company Whitworths, for use on its flow-wrap bagging lines.

This is a particularly demanding environment as production lines are operational 24 hours each day, packaging a wide variety of goods ranging from sugar to dried fruits. The atmosphere can vary from dry and dusty to wet and humid.

According to Whitworth's engineering manager, the company assessed all the leading brands of ink-jet coders before opting for Videojet. He said of the

order, "We are concerned that the printer should be able to recycle its ink within the system, and using this method the EXCEL 170i has proved to have a low ink consumption."

Videojet has also developed eight coloured fluids for printing messages directly on to food products.

The new fluids enable brand names, logos and graphics to be applied directly using its non-contact, ink-jet printers.

### Royal Australian Navy order

GEC-Marconi has won an order worth £70 million to supply six integrated sonar and tactical data handling systems for the Royal Australian Navy's new coastal minehunters.

The contract has been awarded by the shipbuilder ADI to GEC-Marconi Systems Pty in Australia.

The first complete ship system will be delivered in 1997 with a total of six ships

due to enter service by the year 2002.

Comprehensive shore facilities for training and maintenance are to be built by ADI and combat system integration will be undertaken by GEC-Marconi.

### Servicing Sainsbury's

PM Services, Walsall has won a three year contract, in collaboration with ICL, to maintain Sainsbury's 150 supermarket filling stations. The contract covers all fuel dispensing equipment, from petrol pumps to tanks and tank gauges.

One of Sainsbury's senior managers said, "We look forward to enjoying the improvements and benefits PM can bring to our forecourt operation."



Topic is the newspaper for all GEC employees. It aims to be a link between all the company's operations, keeping them informed and aware of each others' interests and employees' activities.

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**News in Brief**

**Avery Berkel**

The East Kent Principal Trading Standards Officer recently joined Avery Berkel and Post Office Counter project teams to celebrate the 1,000th new generation postal scale to come off the Birmingham production line. The scale is being installed at a post office in Canterbury.

**EGT**

GEC ALSTHOM subsidiary, European Gas Turbines (EGT), has commissioned a 123 MW gas turbine generating set in the United Arab Emirates, just eight months after receiving the order.

**GEC-Marconi Infra-Red**

GEC-Marconi Infra-Red has won an order worth in excess of £3 million to supply British aerospace with infra-red detectors for use in the Sea Dart missile programme.

**Ferranti Naval Systems**

GEC-Marconi subsidiary, Ferranti Naval Systems, has won an order to carry out an 18 month feasibility study for the Hunt Class mine counter-measures vessels' mid life update programme. The work is part of a £7 million MoD package.

**Marconi Instruments**

Marconi Instruments and Neltronic have entered into an alliance to provide a repair and calibration service for the Scottish manufacturing industry. The agreement covers on-site and back-to-base calibration of electrical, electronic and mechanical test and measurement equipment.

**Matra Marconi Space**

Matra Marconi's civil communications satellite, Orion 1, has completed its final pre-launch test programme at the Kennedy Spacecraft Centre's Astrotech spacecraft processing facility in Florida.

**News from NNC**

NNC, Knutsford, has won an order to refurbish and upgrade the heating, ventilation and control systems at Heysham 2 power station.

The work includes the supply of a carbon bed filter system to provide clean air for a building which would act as a command centre in an emergency.

NNC has also won an order to design and manufacture production line systems for British Nuclear Fuel Limited's Sellafield mixed oxide fuel plant. This involves the manufacture and supply of two boat unloading and grinding line systems used in the production of mixed oxide fuel pellets.

**More ships to be powered by Paxman**

**GEC ALSTHOM Paxman Diesels, Colchester has won an order worth £4m to supply 14 Valenta engines for Sandown class single role minehunters being built by Vosper Thornycroft for the Royal Navy.**

Five Paxman powered Sandown class mine hunters are already in service. The new order covers the supply of two 6RPA200EM Paxman Valenta engines for each of the seven new vessels on order with Vosper Thornycroft.

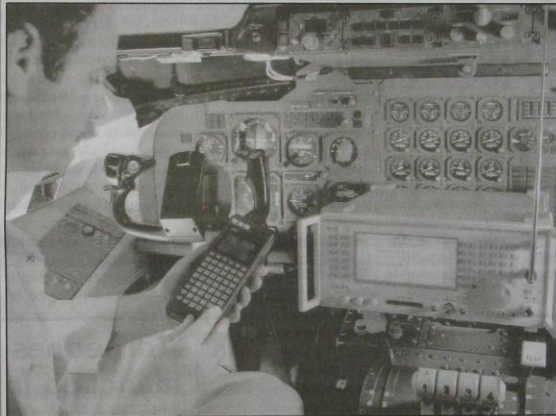
In order to meet the special requirements for minehunter operation, the

Paxman Valentas have been designed to have low magnetic activity. This is achieved using a degaussing system and components with a low level of magnetivity.

Deliveries of the engines will commence in 1996, with the first of the vessels due to be commissioned early in 1998.



The single role minehunter "HMS Bridport" is powered by two Paxman Valenta diesel engines.



**A first for Marconi Instruments**

THE new 2946 TestMate from Marconi Instruments, pictured above, is the first integrated radio communications test set to simulate signals for the testing of aircraft navigational and landing systems, and provide representations of typical aircraft displays. A key feature of TestMate is its remote operation, enabling control from a hand-held computer. All measurements and data analysis can be carried out from within the cockpit by a single operator.

**Budgens sees the 'Advantage' in Avery Berkel**

**AVERY Berkel has won a £200,000 order to supply scales and service to Budgens, one of the country's leading supermarket chains.**

The order covers the supply of Advantage retail scales, manufactured at Avery Berkel's Birmingham factory, and the servicing of

all Budgens' in-store weighing and food processing equipment.

The Advantage weighing scales will be central to the 'Fresh from Budgens' campaign and are now being installed on meat and delicatessen counters in 90 stores throughout southern England. The scales, linked by

master networks, are designed to collect sales information, to accurately monitor stock levels in line with Budgens' promotion.

Budgens is also testing Avery Berkel's Scale Manager package which links weighing scales to a rear-of-store computer for automated pricing control.

**Cruise ship orders for GEC ALSTHOM**

**CHANTIERS de l'Atlantique, GEC ALSTHOM's shipbuilding subsidiary, has won an order to build two 1,000-cabin cruise ships for leading US cruise shipowner, Royal Caribbean Cruises Limited (RCCL).**

The order for the second ship is subject to confirmation before the end of May

next year, and deliveries are scheduled for early 1997 and 1998.

The cruise ships will be equipped with diesel electric propulsion systems.

This latest order brings the number of cruise ships ordered from Chantiers de l'Atlantique in the last ten years to 11, eight of which have been for RCCL.

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## News in Brief

## Canadian Marconi

Canadian Marconi has won an order to supply Loral Federal Systems with integrated electronic warfare processors. The work is valued at US \$3 million.

## Creda

B&O, the DIY company, has awarded Creda a Category B award in its supplier environmental grading system. This recognises Creda's awareness of the environmental issues associated with its products, and its policy to address

## EEV

EEV has launched a range of high power amplifiers for use in satellite uplink communications systems. Known as Stellar, the amplifiers set new standards in terms of size, weight, performance, EMC compliance and ease of use. ITN's London-based news team used one of the amplifiers in their mobile system making live television broadcasts. After a two-week trial they praised it highly.

## GEC ALSTHOM

GEC ALSTHOM ACEC Transport, in partnership with the Compagnie des Signaux, has won an order from Belgian National Railways for the supply of a solid state interlocking.

## GPS

GPS and Apple Computer Inc have developed a wireless communications system aimed at a broad range of applications, including desktop and hand-held computers. The partners also intend to license the system for integration within a variety of network platforms.

## Satchwell Control Systems

The company has opened a new London office which will improve sales and maintenance support to customers throughout the City. Among the customers to be serviced by the office are The Dorchester Hotel and The National Gallery.

## EGT Typhoons for Argentina

GEC ALSTHOM's European Gas Turbines (EGT), Lincoln subsidiary has won an order to supply two 4.55 MW Typhoon gas turbine generating sets to provide electrical power for the El Tordillo oil fields in the Chubut Province of southern Argentina.

The £2.5 million order includes an option for a third unit and is EGT's first for Typhoon gas turbines in Latin America.

The contract was awarded by Tecpetrol, through EGT's agent Sullair Argentina SA, on behalf of a consortium known as UTE 'El Tordillo'.

The gas turbines will be equipped with GEC ALSTHOM generators and will operate on previously flared natural gas.

## Delivery

The first delivery is scheduled for April 1995 and the third, optional unit, in 1996.

## Communications travel to Spain

GEC-Marconi Communications, based in Chelmsford, in association with Landata Sistemas SA, has won orders, worth around £75,000, to supply trunked mobile radio equipment in Spain.

Marconi's integrated trunked mobile radio network will be used to provide customers with efficient, reliable and economic voice and data mobile communications. The system's design allows expansion without interruption as the area of coverage and customer base develop in the future.



Woods of Colchester's Airpac Division is helping staff at one of Britain's major supermarket companies keep cool.

## Woods' 'University Challenge'

WOODS of Colchester recently took part in a 'University Challenge' of its own that resulted in an order worth more than £280,000.

To win the order, the Essex-based company had to provide a solution for the replacement of the library central ventilation plant at Leicester University. Not only did the equipment have to fit into the same roof space as the plant it was replacing, it had to provide 15 per cent. higher capacity and offer reduced noise levels.

Having met the challenge, the University asked Woods to supply and install five roof-mounted Airpac

ventilation units. Woods' Airpac Division has also risen to a challenge of a different kind - keeping staff cool at Safeway's new Middlesex head office. This involved supplying ten weather-proof air supply and extract units, worth more than £100,000.

The units had to be supplied ready to run. With many of them weighing over 12 tonnes, the largest being the size of a mobile home, the challenge for

Woods was one of logistics. Another part of the company also has something to celebrate having sold more than 6,000 JM Aerofoil fans just 12 months after the range was introduced.

UK sales manager, Alan Butcher said, "Everyone involved in the JM Aerofoil programme believed it would be a star performer from the outset, and it's very gratifying to see the impact that the range has made on the market in its first year."



HRH Prince Michael of Kent recently took the controls of the Venom Attack helicopter demonstrator at GEC-Marconi Avionics, Rochester. After a briefing on GMAV's products and programmes, Peter Jones of the Venom management team made a presentation on the helicopter. Pictured above is Peter (right) with Prince Michael. The Venom cockpit simulator allows realistic missions to be flown by day or night, using a helmet mounted display.

## Torpedoes launched in Portugal

THE Underwater Weapons Division of GEC-Marconi Naval Systems has won an order worth £1.6 million to produce Mk 32 lightweight torpedo launchers for the Portuguese Navy.

The launchers will be fitted as part of the refits to three Commandante Joao Belo Class Frigates. Assembly, integration and test of the launchers will be carried out at the company's Waterlooville factory near Portsmouth. This programme brings the number of GEC-Marconi torpedo launch systems in service with navies across the world to 17.

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AEI's moisture resistant MI cable is the toast of The Highland Distilleries Company's maturation warehouses.

## Toast of the Highlands

FOLLOWING experiments spanning ten years, The Highland Distilleries Company in Scotland has reported that AEI's moisture resistant mineral insulated cable is the only one being specified for the refurbishment of their vast network of maturation warehouses.

Unlike the others tested, AEI's MI cable showed no deterioration in its insulation after the ten-year trials. The cable's insulation is of particular importance as there is a real danger of fire in the warehouses, which house whisky containing 63 per cent. alcohol. The electrical refurbish-

ment is scheduled to last for several years. Orkney's Park Distillery alone has 25 warehouses holding the equivalent of 30 million bottles of whisky and will take around two years to refurbish using some 12,500 metres of cable. The famous Highland Park single malt will then continue to

mature in a safe environment. Elsewhere, AEI Cables has won an order to supply a composite submarine cable to link Shell Expo's Clipper complex with the Southern North Sea Gas Basin platform as part of the Barque extension project.

## NNC focuses on the environment

**THE UK Government has asked NNC to look at the potential for using household waste to fuel combined heat and power plants (CHP). The project is being funded by the DTI through the Energy Technology Support Unit, ETSU.**

NNC's team will examine the economics and market opportunities for generating both heat and electricity from solid waste. They will also report on some of the environmental implications particularly the emis-

sion of greenhouse gases.

The work will call on NNC's considerable experience in municipal waste incineration and CHP as well as in the field of environmental consultancy. Although exploitation of the technology in the UK is as yet limited, a number of local authorities are considering CHP systems.

### Air pollution control

NNC has signed an agreement with US company Research Cottrell to market their range of integrated air pollution control technologies in the UK and the Republic of Ireland. The part-

nership combines NNC's expertise in the implementation of advanced engineering projects with Research Cottrell's leading-edge technology.

### Applications

Potential applications include fossil-fuel power plants, incinerators, minerals and metal industries and glass manufacture. Research Cottrell's founder, Dr Frederick Cottrell is perhaps best known for having invented the electrostatic precipitator, a device which removes dust particles from flue gases using an electrostatic charge.

## Ruston engines for 'Super Seacat'

GEC ALSTHOM Ruston Diesels, based in Newton-le-Willows has been selected to provide the propulsion units for the new 79M catamaran fast ferry for Sea Containers, the 'Super Seacat', which will enter service in Northern Europe next May.

The vessel will be powered by four 16 cylinder diesel engines, providing a total power of 22 MWb (mega watt break). This will give the 'Super Seacat' a service speed of 39 knots. Each of the vessel's two hulls will house two Ruston engines with power trans-

mission provided through reduction gearboxes to the waterjet drives. Passenger capacity will be 600, with space for 184 cars. Austral Ships Pty of Australia will construct the vessel. Sea Containers have an option to purchase four more vessels.

## New power chairman for the IEE



**KEITH Ralls, managing director of GEC ALSTHOM T&D Power Electronic Systems, Stafford, formerly TaDPoLe, is the new chairman of the Institution of Electrical Engineers (IEE) power division. Keith recently gave his inaugural address on power and electronics, its growth and electrical power transmission systems, at the Institution's Savoy Place headquarters in London.**

Keith joined English Electric in 1963 as a trainee working on the design of electrical power transmission systems.

After a series of promotions, he joined GEC in Stafford in 1981 as projects director in the Power Transmission Division.

He was appointed managing director of GEC ALSTHOM T&D Power Electronic Systems in 1986.

## A new range of products from Creda

FRESH ideas from Creda have inspired a new range of home laundry products and cookers. The Creda 1200 Cascade Ecowash washing machine and the Creda Sensair Electronic Ecodry tumble dryer feature easy to read graphic styling plus big water and energy savings, which help to reduce household bills.

Freestanding gas cookers incorporating features such as individual pan supports and spillage wells, and Multizone ovens have also been introduced. Leading the range is the Creda Contour Solarflame which offers three oven temperature zones and has the biggest oven capacity in its class.

## FERRANTI AND MARCONI UNITE

FOLLOWING GEC-Marconi's purchase of Ferranti International's main defence businesses, and their satellite communications business by Matra Marconi, agreement has been reached with the Joint Administrative Receivers to purchase 50 per cent. of Ferranti-Thomson Sonar Systems UK. The acquisition is subject to regulatory clearance and represents

the first stage of wider arrangements whereby GEC and Thomson propose to establish an alliance embracing their respective sonar systems activities.

A further agreement with the Joint Administrative Receivers has resulted in GEC-Marconi being named 'preferred' bidder for the purchase of Ferranti's civil airport and emergency systems business.



## GPS Test Area visit

GEC's managing director Lord Weinstock and board director Sara Morrison visited GPS' Test Area at Cheney Manor in Swindon, where they were given a tour of the facility. Pictured above are (left to right) Lord Weinstock, Peter Yates, wafer fabrication manager, Jim Jamieson, test operations manager, Sara Morrison and Tom Urwin, GPS' managing director.





## Queen's Award presentation

GEC ALSTHOM T&D Protection and Control, Stafford was recently presented with the Queen's Award for Export Achievement. Chris Tilton, the company's managing director, received the award on behalf of all employees at St Leonards Works, Stafford. He is pictured above at the presentation with Colonel F W James, OBE, Vice Lord-Lieutenant of Staffordshire, appearing on behalf of HM The Queen.

## C<sup>2</sup>f-Express Lifts' formula for success

WITH the aim of improving both efficiency and quality of service, the main focus of Express Lifts' employees has now moved outside the workplace - to the customer. Topic spoke to Peter Talbot, general manager of the company's UK service activities, about the recently introduced 'Customer Care Initiative'.

The programme has been designed to meet the needs of the customer via careful research and planning. Therefore, to find out more about customer expectations, the company first identified the critical success factors by which customers judge service performance, and then sent out questionnaires to equipment users as opposed to contract holders. They were asked to list the company's services in order of importance and to compare Express Lifts with other service providers.

To enable the initiative to be communicated effectively, a vision statement

together with a customer charter and an employee's charter, was developed.

A strategic plan was then put into action to enable the Customer Care Focus (C<sup>2</sup>f) Initiative to be debated, and for the company to respond to employees' feedback. Communication sessions for all employees were run "to ensure a common understanding of the forces of change, the vision and strategy to implement the initiative."

"We have recognised the need to realise the wish to succeed in our employees and to create an environment which supports and

develops the individual," said Peter.

This is further highlighted by the company's commitment to becoming an 'Investor in People'.

The New Year heralds further multi-discipline workshops "to measure and improve any cultural difficulties whilst reinforcing our Customer Care Initiative."

The effects of this initiative are already visible within the company, which is now re-examining all of its processes and systems. The company's regional teams are also reviewing their operations to see how a similar approach can benefit their customers.

## Honours for GEC directors

LORD Weinstock, GEC's managing director, and board director, Sara Morrison have both been awarded honorary degrees.

The honorary degree of Doctor of Technology was conferred on Lord Weinstock by Anglia Polytechnic University.

The degree recognises the long-established support given by GEC and the Essex-based GEC-Marconi companies to the University, and was presented by Lord Prior, the University's Chancellor and GEC's chairman. John Mark, Marconi

Radar Systems' (MRS) technical director was also awarded an Honorary Doctorate.

Whilst in Chelmsford, Lord Weinstock visited MRS' recently completed premises at Eastwood House. Amongst those he met during his visit was high frequency radar consultant John Bodonyi, winner of a 1994 Nelson Gold Medal.

At another ceremony held in Coventry Cathedral, Coventry University conferred the honorary degree of Doctor of Business Administration on Sara Morrison for her distinguished achievements in business and public service. Sara said that she was delighted to have been considered for such an award and was very proud to have received it.

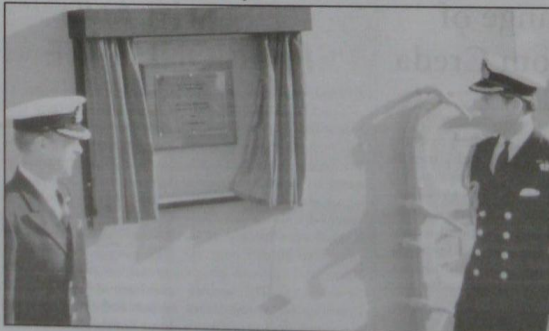


Pictured above from the left, Marconi Radar Systems technical director John Mark, the Hon Sara Morrison, Lord Weinstock, JORN project manager Colin McRae and computer modelling specialist Paul Wright.

### Invest in a pension

- \* We now have 19 pensioners who are 100 years old or over.
- \* So far this year, 11 have reached their 100th birthday
- \* Our oldest pensioner is 104.
- \* Another 15 pensioners will reach 99 years of age this year.
- \* We have 76,166 pensioners as at 1 September, 1994.

Extracted from Stanhope Pension Trust's newsletter, Snippets.



### Royal visit to RAS

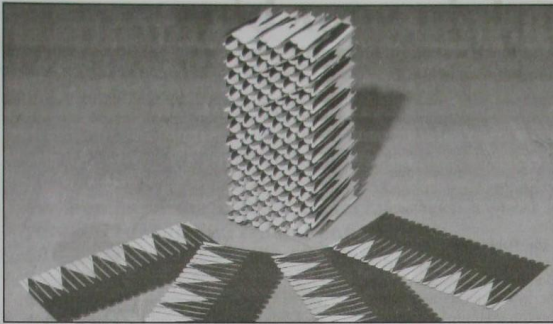
HIS Royal Highness, The Prince of Wales (pictured left) has officially commissioned the Replenishment at Sea (RAS) training rig at HMS Raleigh in Cornwall.

The rig was designed, supplied and installed by GEC ALSTHOM Engineering Systems, Whetstone.

The ceremony was attended by three Whetstone employees - senior contract engineer Bruce Brewer, project manager Graham Baynes and principle engineer Chris Rodwell.



# INNOVATION



The NGA material.

## NGA - the material system for the future

A new lining material for anechoic test chambers and screened rooms, which counteracts many of the problems associated with conventional pyramid-shaped foam linings, has been developed and is undergoing pre-launch testing at GEC-Marconi Materials Technology, Towcester.

The new material, known as NGA, has already attracted considerable world-wide interest as it offers the same electrical performance as conventional lining materials yet can be used safely at much higher power levels.

Anechoic chambers and screened rooms are used to isolate electrical equipment from external influences when testing for electromagnetic emissions. The linings reduce unwanted electromagnetic reflections.

The drawback of pyramid-shaped linings is that being made of foam, pyramid tips are easily damaged. Foams can also give off harmful gasses when heated outside the normal operating range. NGA alleviates these problems.

## Motor control from Marconi

THE Engineering Services Department of GEC-Marconi Naval Systems at Waterlooville, Portsmouth has developed a new system to control the speed of electric motors.

The Motor Controller uses two transistors (known as the 'Portsmouth Pair') to perform high frequency power switching with 99 per cent. efficiency. This is thought to be the best performance ever attained by such a controller.

The Controller is also much smaller than other systems, does not give off any audible hum and has a low cooling requirement. This makes it ideal for use in electric cars and vans and other transport systems where space and weight are important factors.



The Marconi Controller is ten times smaller than conventional motor controllers.

## Super circuit for clarity

THE Hirst and GEC-Marconi Research Centres, based in Borehamwood and Great Baddow, have developed a superconducting microwave circuit which improves the quality of satellite television pictures. The circuit is the result of a collaborative project, partly sponsored by the DTI.

The effectiveness of the superconducting system, which uses a closed-circuit refrigerator to achieve cooling to 70 degrees Kelvin (minus 200 degrees Celsius), was demonstrated by using the circuit as the input stage of a direct broadcasting television receiver. At this low temperature, the superconducting components have an electrical resistance 100 times less than copper, which is usually considered to be one of the best conductors of electricity. This very low resistance gives a much better performance than conventional circuits. Semiconductors, if suitably chosen, also operate better when cold, and an important part of the project was to ensure that the semiconductors and superconductors worked together efficiently.

The final system performed extremely well. In the presence of a strong interfering signal, a clear, high quality picture was obtained using the superconducting receiver, although this was



TV reception with a conventional receiver.



Reception with the superconducting circuit.

impossible with a conventional receiver.

This was the first demonstration in Europe of an integrated superconducting

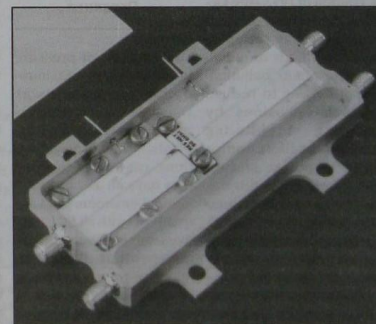
system and it provides a base for GEC-Marconi to exploit the technology further in numerous microwave applications.

## Lightweight demonstrator

THE GEC-Marconi Research Centre (GMRC) at Great Baddow has achieved what is believed to be a UK first; it has built a box from a metal matrix composite (MMC) material.

Despite their low weight, high strength, stiffness, good wear, fatigue resistance and thermal conductivity, MMCs are generally considered to be costly and difficult to work with.

The GMRC demonstration box dispels these beliefs. It houses microwave circuitry, and is made from a material comprising silicon carbide particles in an aluminium matrix.



Microwave circuit packaging using 70 per cent. silicon carbide MMC.

The GMRC project has developed and a manufacturing service to be set up.



## ENVIRONMENT

# The hazards that lurk in your bins...

WITH every home discarding around 2 tonnes of waste each year, there is clearly a need for a dramatic turnaround in public awareness of wastage, particularly hazardous materials as eventually, what goes around comes around...

The largest proportion of the waste we throw away, such as paper, bottles and other forms of packaging, is harmless. A small proportion, however, such as electrical and electronic equipment, paints and pesticides is extremely toxic, and if not disposed of correctly, can be harmful.

Hazardous household waste is defined as any material discarded from the home which due to its chemical or biological nature (such as engine oil and cleaning products), puts human health or the

environment at risk. Many areas of the country still lack facilities for their responsible disposal or recycling, while disposal guidelines are confused and often hard to find. Consequently, much hazardous waste is either thrown into the domestic bin, ending up at a landfill site or simply poured down the drain. Only 50 per cent. of used car engine oil is returned for recycling - what happens to the other 50 per cent?

Not only is damage to sewers costing the country

between £20 and £50 million each year, but toilet and drain blockages caused by careless disposal of nappies, sanitary products and congealed fats (not to mention toxic chemicals) can lead to serious health hazards.

To support the work of local councils and community recyclers such as Save Waste and Prosper (SWAP), the National Household Hazardous Waste Forum (NHHWF) was set up in 1993. This industry-led initiative aims to work through quarterly one day

meetings with presentations and smaller workshop sessions to allow more detailed discussion of the problems encountered by consumers, businesses and local councils.

The Forum believes that prevention at source and lifestyle changes may be the best solution and has developed three long term objectives: source reduction of hazardous substances and influencing consumer purchasing policy; education to encourage behavioural

changes; and widespread availability of collection systems.

Interested? Membership of NHHWF costs £25 per

annum. This entitles members to attend all meetings and to receive a regular members' newsletter.



Household hazards to be aware of.

For further information, please contact: GEC Energy and Environmental Advisory Unit, Foundry Lane, Smethwick, Warley, West Midlands B66 2LP. Tel: 021 607 5111 fax: 021 607 5199 G - Net: Access+ 5661 6655

## Boyle's Law

THE increased danger to the environment has put considerable pressure on the EC (now the EU) to legislate further against the perils of gaseous emissions, but is it already too late to save the forests?

When burnt, fossil fuels release gases which, if allowed to escape into the atmosphere, mix with water vapour to form dilute sulphuric acid and nitric acid, in other words, acid rain! Approximately 80 per cent. of these gaseous emissions come from power stations.

### Beaver Committee

Following the lethal smog in London of 1952 (see October Topic), the Beaver Committee was set up to look at methods of reducing atmospheric pollution. One idea was to reduce gaseous emissions by installing filtering desulphurisation equipment in power station stacks. However, this advice was ignored. Instead taller stacks were built to disperse the pollutants higher into the atmosphere, resulting in pollutants carried by the wind to fall as acid rain in other parts of the country and Northern Europe.

In the early 1980s, the

West Germans and Scandinavians noticed areas of badly damaged forests, and many lakes and rivers devoid of fish. This damage was directly linked to increased acidity caused by acid rain, much of which was claimed to have come from Britain. To alleviate the problem, Germany used its voice in the European Community, arguing for the introduction of an EC Directive to prevent air pollution.

### Pressure

As a result of pressure from Germany the EC introduced the Air Framework Directive 84/360. This requires that large industrial plants, including power stations, can only operate if they have an authorisation from an environmental authority. As with all EC Directives, the requirements do not constitute UK law and must be transcribed into law by the Government.

In the UK, authorisations to operate power stations and other large industrial plants are issued by Her

Majesty's Inspectorate of Pollution (HMIP). Before issuing any such authorisations, HMIP must ensure that the plants are designed and operated using the most up-to-date techniques to minimise polluting emissions.

### 'Daughter Directives'

Whilst the Directive set out the basic structure for pollution control, it did not set out the permissible emission levels. These were to be set out in subsequent 'Daughter Directives'.

The first of these Directives, 88/609, adopted in November 1988, required member states to reduce their total emissions of sulphur dioxides, nitrous oxides and dust from large combustion plants, mainly power stations and refineries. The 1980 level for each pollutant was used as a baseline, to which the future levels would have to be gradually reduced.

Different levels were set for each of the member

states. In the UK, reductions in sulphur dioxide emissions were set at 20 per cent. for 1993, 40 per cent. for 1998 and 60 per cent. for 2003.

In order to achieve these targets, a National Plan issued by the Government in 1990 set out the annual maximum quantities of sulphur dioxide and nitrous oxides which could be produced by individual power generators and others.

The EC has also tackled air pollution by passing Directives which set air quality limit values on some forms of pollutants. For example, Directive 82/884 sets out a maximum level of lead in the atmosphere. The requirements of this Directive were transcribed into UK law in the Air Quality Standards Regulations 1989.

The next phase of legislation is already being planned by the EC in a new framework directive on Air Quality Standards. This will set out limit values for over 20 atmospheric pollutants. Whether the forests and rivers recover, however, remains to be seen.

## DID YOU KNOW?

That in the UK each year:

- 80 million used fluorescent tubes are thrown away containing in total 3.5 tonnes of mercury capable of contaminating 1.5 million Olympic size swimming pools.
- 33 million gallons of paints are bought by domestic homes and unused paints are thrown away with normal domestic waste.
- Between 4 and 5 million lead acid batteries are thrown away with normal domestic waste.
- Used engine oil is far more toxic than most other household wastes. Over half of the oil sold to DIY motorists is not returned to waste oil collection centres. Therefore, some 3 million gallons are unnecessarily damaging the environment.
- Although animal farming and agriculture are the main sources of pesticides in drinking water, according to Thames Water, 30 per cent of atrazine and simazine in rivers now comes from domestic waste.





# Interim Report 1994

6 months to 30th September

## The Chairman's statement

IN announcing the results, GEC's Chairman, Lord Prior, commented: "Profits before taxation for the first six months of the current financial year increased by 5 per cent. to £378 million (£360 million). Earnings per share rose by more than 7 per cent. to 8.8p (8.2p).

Operating profits were up by 13 per cent. Power Systems, Telecommunications, Electronic Metrology, Electronic Components, Industrial Apparatus and Distribution and Trading all contributed higher profits than last year. In Electronic Systems, profits were unchanged as GEC-Marconi progressed important development contracts towards completion. Weaker markets yielded lower profits in Consumer Goods, Office Equipment & Printing and Medical Equipment.

Interest income at £70 million was down £11 million because of lower interest rates, despite the investment of increased funds.

Since 31st March, 1994, net cash balances in the Group increased by £74 million to £1,426 million, and our share of net cash in joint



Lord Prior, the Chairman

"A very Happy Christmas to everyone and best wishes for 1995 to you all."

ventures by £14 million to £1,473 million. Since 31st March, 1994 we have spent and committed to investment £300 million for the following:- the purchase, with Matra, of the space activity of BAe; the joint venture between Marconi SpA and Finmeccanica, several acquisitions from the old Ferranti company; and the purchase of a near 14 per cent. holding in VSEL in support of our bid for that company which has lapsed following the reference by the Secretary of State for Trade and Industry of the GEC and BAe bids to the Monopolies and Mergers Commission.

In the first six months of the current financial year, exports rose by 25 per cent. to £854 million, although

## HIGHLIGHTS

	1994	1993
<b>TURNOVER</b>		
£million	4,842	4,386
<b>PROFIT BEFORE TAXATION</b>		
£million	378	360
<b>EARNINGS PER SHARE</b>		
pence	8.8	8.2
<b>DIVIDENDS PER SHARE</b>		
pence	2.95	2.81

markets for capital goods became increasingly competitive. We enjoy excellent relationships with our customers overseas, and our efforts are being reinforced by more acute awareness of HMG of the vital importance to the UK economy of exports.

The strong positions we have established around the world in our key businesses will stand us in good stead.

Your directors have resolved to increase the interim dividend to 2.95p (2.81p) per share, payable on 31st March, 1995."

## GEC's principal activities

### ELECTRONIC SYSTEMS

Order intake exceeded sales and the order book at 30th September at £4,733 million was 4 per cent. higher than at 31st March.

Exports rose by 19 per cent. to more than £400 million and accounted for 34 per cent. of Electronic Systems sales.

Operating profits were virtually unchanged from marginally higher sales as GEC-Marconi progressed important development contracts towards completion.

### POWER SYSTEMS

GEC ALSTHOM's sales and operating profits rose by 24 per cent. and 11 per cent. respectively with most of the businesses contributing to the improvement. Some important orders received, including the Korean high speed train, did not become effective until after 30 September, 1994.

NNC earned lower profits from reduced activity following the substantial completion of Sizewell B.

### TELE-COMMUNICATIONS

Order intake exceeded sales with export orders increasing by 51 per cent. to £104 million. In November, a £50 million ECGD credit was finalised to finance the supply of System X and Synchronous transmission products to Comstar, the Moscow telephone network operator in which GPT has a 50 per cent. shareholding.

Increased turnover and further work on costs improved profits by 22 per cent. to £54 million.

### CONSUMER GOODS

Factory closures adversely affected the results in the six months with the benefits expected to come through in the second half of this financial year.

### ELECTRONIC METROLOGY

Strong demand for petrol pumps in the United States enabled Gilbarco to achieve record sales and profits. Avery Berkel managed only modest improvement in sales and profits in weak markets for its products.

### OFFICE EQUIPMENT AND PRINTING

Sales and profits of Videojet's overseas subsidiaries rose by 45 per cent. and 49 per cent. respectively as the company succeeded in growing its businesses outside the United States. With demand remaining weak, AB Dick recorded a loss.

### MEDICAL EQUIPMENT

Picker International achieved some 10 per cent. sales growth in the Health Care Products business but equipment sales suffered from un-

certainly about health care reform in the United States. Falling prices resulted in reduced profits despite reductions in costs.

### ELECTRONIC COMPONENTS

Orders for Semiconductors exceeded sales; higher factory output resulted in sharply increased profits. The company is upgrading the existing capability of its CMOS wafer fabrication plant at Plymouth at a cost of some £100 million.

EEC and Marconi Instruments recorded improved profits.

### INDUSTRIAL APPARATUS

Although the results show a small improvement demand remains weak and the return on capital employed is not satisfactory.

### DISTRIBUTION AND TRADING

Better economic condi-

	Profit before Tax £ million		Turnover £ million	
	1994	1993	1994	1993
Electronic Systems	79	79	1,177	1,137
Power Systems	78	72	1,659	1,356
Telecommunications	54	44	530	494
Consumer Goods	7	8	118	122
Electronic Metrology	30	15	273	232
Office Equipment & Printing	16	17	157	162
Medical Equipment	11	19	294	305
Electronic Components	11	6	156	142
Industrial Apparatus	5	4	171	165
Distribution & Trading	8	6	195	162
Central costs, provisions and other	(3)	(10)	6	42
Intra-Activity sales			(66)	(66)
	<u>296</u>	<u>260</u>	<u>4,670</u>	<u>4,253</u>
Other associated companies	12	19	172	133
Net income from loans, deposits and investments including joint venture associated companies	70	81		
	<u>378</u>	<u>360</u>	<u>4,842</u>	<u>4,386</u>

tions in Australia and New Zealand brought higher sales and profits in the distribution and trading businesses in the Far East.

### RESEARCH AND DEVELOPMENT

Research and Development expenditure, including the Company's

share of joint ventures, amounted to £501 million (1993 £498 million) of which £194 million (1993 £195 million) was privately funded.



# Integrated circuit technology

## What is an integrated circuit?

An integrated circuit, often referred to as a microchip or just chip, is defined in the dictionary as an electronic circuit contained in a single piece of semiconducting material, usually silicon. This material only conducts electricity under certain conditions - hence semiconductor. A simple definition, but one that describes one of the most revolutionary developments ever.

The first semiconductor - the transistor - was created in 1947 but it was not until

the mid-70s that the silicon revolution really got underway with the development of the microprocessor - the computer on a chip. It was this application of integrated circuit technology that really triggered the use of microelectronics in so many things we see around us and which today we take for granted, such as calculators, personal computers (PCs), satellite TV, engine management in cars, mobile telephones and video recorders.

Although the general prin-

ciples of silicon chip manufacture have not really changed since the early days of the industry, the pressure to put ever more components on a chip has led to significant developments in manufacturing technology. GPS is now processing products with component sizes of 0.5 micron across. A human hair is around 80 microns in diameter! And over the next few years component sizes down to 0.25 micron and smaller will become the norm.

## The manufacturing process

Manufacturing a chip - with many identical chips being produced at one time on a single wafer of silicon - involves building up over 15 process layers in the silicon itself. Areas are defined by alternately masking and etching using a 'photographic' process prior to the introduction of certain 'impurities' to create the various electronic components.

The individual chips are then separated and encapsulated in packages that make them more usable. The pins on the packages provide the electrical connections back to the chip itself. It is in this packaged

form that most integrated circuits are incorporated on to printed circuit boards.

The high precision needed and the intensive testing required demands very sophisticated equipment throughout the production process. Furthermore, as component sizes are so small, manufacturing areas have to be kept virtually dust free.

The continuously filtered air in process areas is maintained typically at 'Class 10' standard, or less than ten particles per cubic foot of air of a size not greater than 0.3 micron. By comparison, the air in an office might be 'Class 100,000', or if the oc-

cupant smokes 'Class 1,000,000', and many of the dust particles would be much bigger than several microns, all of which would be 'killer defects' for a chip during manufacturing.

As reported in the last issue of *Topic*, GPS has started a £100m expansion programme at its Plymouth facility based around a new clean room concept known as the 'mini-environment'. Here, the wafers and equipment are isolated from the room and staff in 'mini-clean room' environments. This improves yields and allows new equipment to be phased in more easily.



WLAN technology from GPS. From top to bottom, the progressive integration of the radio transceiver. The final version has space for system protocol circuitry.

## Wireless local area networks

In most modern offices, there is a mass of cables connecting PCs to other PCs, servers and printers through some sort of network.

To eliminate the constraints of this wiring, GPS is working on the development of a product range called a wireless local area network or WLAN. GPS' module uses radio transmissions instead.

Operating on the same frequency as a microwave oven, the GPS' WLAN uses a technique known as 'spread spectrum' to transmit and receive signals. This technique has been successfully used for some time in military systems, so is well proven. It ensures clear reception, avoids interference and eliminates

the possibility of data being intercepted by other users.

WLANs are a significant step in the evolution of portable computing as, increasingly, there is a move away from the desktop PC towards laptop and handheld devices.

The WLAN could make network cabling a thing of the past.

Looking to the future, it is not only in PCs that the WLAN could be used. Given the convergence of computing and communications, applications are being considered in point of sale, weighing machines, fuel dispensers, warehouse inventory systems, even for handheld cash registers. In fact, anywhere portability is required.

## Video cassette recorders

Many people have difficulty in operating their video cassette recorders (VCRs), particularly when setting them to record a programme. It is even more frustrating to discover that the transmission time has changed after the machine has been set.

GPS' enhanced video automation (EVA) technology enables the complete programme to be recorded even if the start time is changed.

The same technology can also be used to tune the VCR and to set the time on the clock.

## In the beginning

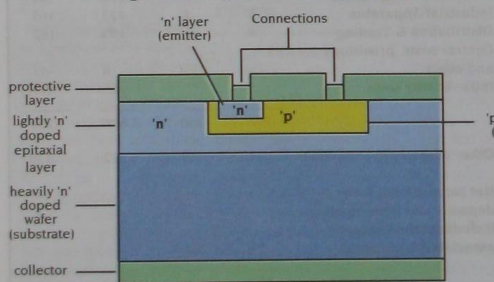
GEC Plessey Semiconductors business, formed only in 1990 to the early days of the microelectronics industry when Europe's - and perhaps state circuit' was produced by Marconi Materials Technology.

Today, from its Swindon, Old Scotts Valley and Tours sites, over 100 million integrated circuits are made and a few of the products are made and a few of the products are made.



This 32-bit microprocessor is fabricated at GPS. It is just 8.49mm square, contains nearly 60 million transistors.

## A simplified cross-section through an 'npn' planar epitaxial transistor



THE 'planar' process is the most commonly used method of producing integrated circuits. A transistor, shown above, is built on a heavily 'n' (electron rich) doped wafer, the substrate. On to this is grown a thin, or 'epitaxial', lightly 'n' doped layer of silicon.

The transistor 'base' is a 'p' (electron deficient) doped area diffused into the surface of the epitaxial layer and, the 'emitter', an 'n' doped area diffused into the base. The transistor contacts are left exposed through a final protective layer that covers the surface of the chip.

GPS uses an epitaxial process at its bipolar facility in Swindon.

## What of the future?

The future is always difficult to predict, but certain is there will be continuing demands to ensure even higher densities and higher performance. In fact, anywhere portability is required. The future of the IC maker demands on the IC maker service issues will be more complex than ever.

Another certainty is that with the world's leading manufacturers producing ever more products, they will give them a lead over their competitors.



# Technology from GPS

## inning...

(GPS) is a relatively new technology, but its origins go back to the microelectronics industry of the world's - first 'solid state' - at what is now GEC's facility at Caswell.

At Plymouth, Lincoln, GPS manufactures well over 100 circuits a year for more than 75 per cent. of the products outside the UK. This article looks at the circuit (IC) is, how they are produced in which they are



Plymouth facility. The chip, measuring 100 micrometres, contains 300 transistors.

## the future?

To predict but what is the future of the technology? The increasing pressure to shrink the size of higher component performance. Some forecasts will be putting one more on a single chip by the year 2000 will require higher performance and increase the demand. It is also probable that this will be critical in separating one

GPS will continue working on the electronic equipment manufacturer innovative ICs that will be competitors.

### Mobile phones

The modern mobile phone is one of the most visible aspects of the communications revolution. These lightweight, hand-held units are able to reach virtually anywhere in the world - and without a wire in sight.

Key to the working of the mobile phone system is the ability of the handset circuitry not only to detect and work with very weak, low power signals, but also to transmit signals that are strong enough to be picked up by the nearest base station.

Inside a typical handset, GPS integrated circuits convert barely detectable radio frequencies of up to 1.9GHz (GHz or Giga-Hertz

is one thousand million cycles per second) into 'strings' of data which contain speech information and the codes needed to control the channels which are being used by the phone. This makes it possible for large numbers of callers to use their phones without interfering with, for example, TV, the emergency services or each other.

These ICs must also use very little power so that the batteries in the handset last for an acceptable length of time. As the technology is developed further, newer circuits will use even less power - indeed 3 volt operation is rapidly replacing 5 volt operation.



GPS CMOS (complementary metal oxide semiconductor) facility at Plymouth, UK.

### Semi-custom ICs

As more features are added to electronic products, the ICs used in those products become more complex. However, with time to market being so critical, both the IC design engineer and manufacturing have less and less time to create the necessary circuit - and it has to work right first time! Semi-custom design tech-

niques are now generally accepted as being the most cost effective way to satisfy these demands.

#### Fully engineered

Semi-custom design makes use of sophisticated computerised design tools to arrange pre-designed - and fully engineered - com-

ponents or sub-system cells into the required circuit configuration often comprising over 3 million components. The same computer systems enable the engineering teams to predict accurately the performance characteristics of the IC, so that designs can be optimised before the circuit is manufactured.

Because circuits designed in this way can move into volume production very rapidly, the market for this type of product is showing very high growth.

GPS is the leading European supplier of CMOS semi-custom ICs and a major supplier of this type of product to the growing communications and computer markets. GPS is currently delivering CMOS

semi-custom ICs to customers in the USA, Europe and the Pacific Rim.

For further information about GPS or any of the applications mentioned, please contact: Customer Services, GPS, Cheney Manor, Swindon, Wiltshire, SN2 2QW. Tel G-Net: Access +970 8527 or 01793 518 527.

### Mass storage

With the advent of the microprocessor-based PC, impressive computing power became available to everyone. What's more, it wasn't necessary to be a computer boffin to get useful work out of the equipment. With this increase in computer availability and usability, however, came an insatiable demand for more and more data storage space and faster and faster access.

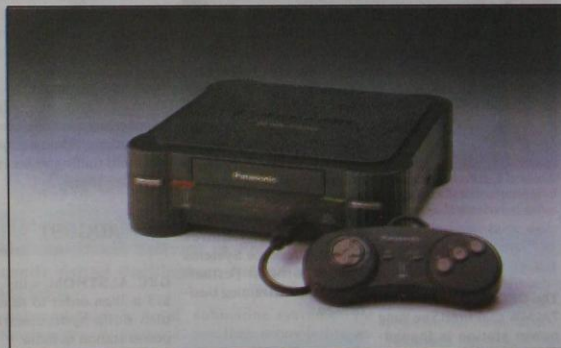
To help both optical and hard disk drive manufactur-

ers meet this demand, GPS technology is being used to develop ever more sophisticated and faster data recovery circuits.

The ICs produced by GPS are used to read/write and encode/decode information on the disk.

To access data, the disk 'heads' move back and forth across the disk platter at high speeds similar to the action on a CD player.

GPS technology is critical in ensuring that data is recovered effectively.



Launched in 1994, this CD based home entertainment system will be available in the UK in 1995.

### Home entertainment

Home entertainment in the form of CD and cartridge based video systems, is one of the most active markets in electronics. Compact disc systems can

manipulate huge amounts of information and give very high quality vision and sound whilst the lower quality cartridge based systems are much cheaper.

GPS is the premier supplier of the 32-bit microprocessor at the heart of one of the leading CD based products in this market. The same product also

utilises a GPS video encoder IC to convert digital information into a standard television signal. Already on sale in the USA and Japan, this system will be available in the UK early in 1995.

GPS is also employing this

same video and microprocessor technology in the desktop PC multimedia and digital broadcast television markets. Indeed, GPS video ICs are already widely used in the products of many leading manufacturers.

[www.rochesteravionicarchives.co.uk](http://www.rochesteravionicarchives.co.uk)



# 1994 - the first six months

A review of some of the major orders and events during the first half of GEC's financial year.

## APRIL

**Marconi Radar and Control Systems** is awarded a £45 million contract by the Spanish air force to design and produce equipment for its air defence re-equipment programme.

**GEC-Marconi Avionics** is awarded a follow-on contract to supply the Ministry of Defence with Marconi Instruments' radio communications test systems.

**GEC ALSTHOM**-led TGV Korea Consortium wins Korean high-speed TGV train order worth approximately US \$2.1 billion.

**& Control**, Stafford win Queen's Awards for Export Achievement.

**Marconi Instruments** wins the British Design Award for its new microwave test set.

**European Gas Turbines** wins orders worth over £20 million to supply gas turbine power generation equipment in the UK, Italy, Spain and Turkey.

HM Queen Elizabeth travels on-board **Eurostar** at the inauguration of the Channel Tunnel.

Following its maiden flight in Germany in March, **Eurofighter** makes its first UK test flight.

**GEC ALSTHOM Australia** wins a £36 million order to supply, extend and upgrade five substations in Java.

Seven **GEC** employees are recognised in the Queen's Birthday Honours.

**GEC ALSTHOM** wins an order for four turbine generator sets for the Koyna 4 hydroelectric power station in India.

## JULY

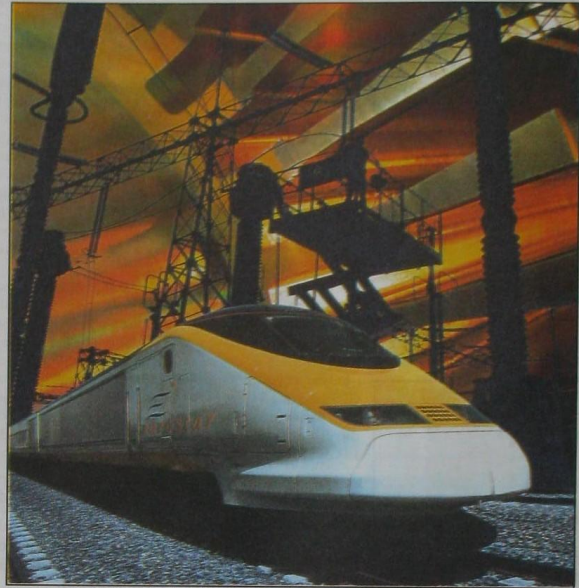
**Matra Marconi Space** agrees to acquire British Aerospace Space Systems.

**Avery Berkel** wins an order for supermarket check-out scanner scales and departmental counter weighing equipment worth £2 million.

**Woods of Colchester** wins an order to supply Jetfoil fans for Southwick Hill road tunnel.

**GPT** wins orders worth approximately £17 million for System X digital telephone exchanges and synchronous digital hierarchy transmission equipment for UK network operators.

**Marconi SpA** plans to form a joint venture with Finmeccanica in radio communications, telematic systems and traffic and access control systems.



*Eurostar - the high speed train linking London to the continent.*

A **GEC ALSTHOM** consortium wins a concession to construct, equip, operate and maintain the Stockholm airport rail link.

**GEC-Marconi** secures an order worth £70 million to supply sonar and tactical data handling systems for the Royal Australian Navy's new coastal minehunters.

**GEC ALSTHOM** wins

## SEPTEMBER

**GPT**, Chorley produces its 500,000th payphone since 1981.

**GPS** announces £100 million expansion of its

**GEC ALSTHOM** wins

**GEC ALSTHOM** wins

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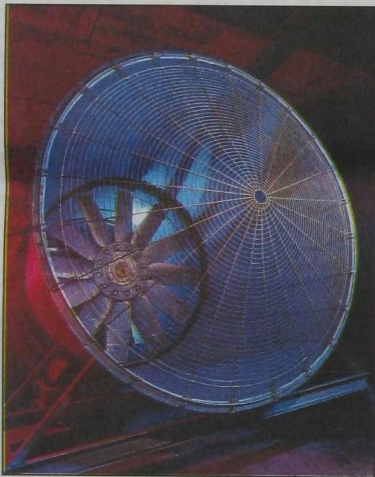
**GEC ALSTHOM** wins

**GEC ALSTHOM** wins

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**GEC ALSTHOM** wins

**GEC ALSTHOM** wins



*Woods of Colchester's comprehensive range of Jetfoil Aerofoil fans have been specifically designed for use in the ventilation of road and metro tunnels worldwide.*

## MAY

The **GEC ALSTHOM** - built 724 MW coal-fired Yue Yang power station is inaugurated in China.

**GEC ALSTHOM** acquires 51 per cent. of the shares of German manufacturer of railway equipment, Linke-Hoffman-Busch.

**Matra Marconi Space**, Portsmouth and **GEC ALSTHOM T&D Protection**

**GEC-Marconi** acquires Ferranti Defence Systems Integration and Ferranti Simulation & Training businesses.

## JUNE

**Avery Berkel** launches 'Axiomat' - a new range of top pan balances.

The Boeing 777 flies for the first time under the control of **GEC-Marconi Avionics'** fly-by-wire computers.

## AUGUST

**GEC ALSTHOM** wins a £15 million order to refurbish Burla hydroelectric power station in India.

**Matra Marconi Space** acquires Ferranti's International Satellite Communications and Microwave Components business.

**GEC ALSTHOM** wins US \$319 million order from Taiwan to supply 32 electric trainsets.



*GPT Payphone Systems, Chorley, winner of the 1992 Queen's Award for Export Achievement, celebrates the production of its 500,000th payphone.*

[www.rochesteravionicarchives.co.uk](http://www.rochesteravionicarchives.co.uk)



TRAINING  DEVELOPMENT

# NNC HAS THE WINNING TEAM



Pictured with their trophy are the team from NNC (from left to right): Paul Hinds, Alison Owen, David Holdern (managing director of Peritas), Andy Lidstone, John Durston (managing director of NNC), Sue Thompson and Phil Diwell.

**A team from NNC in Knutsford has won the National Management Game 1994, beating hundreds of teams from all over the UK.**

The game is held once a year and is sponsored by Management Today magazine and Peritas - ICL's training company. The game tests managers' skills by putting them through simulated business exercises. Against strict time deadlines, strategies concerning such things as product prices and investment are made. Performance is based upon the profit made at the end of each 'trading' period.

The NNC's team's success was due largely to its policy of cost reduction.

After winning the semi-final, which was held in London, the NNC team travelled to Antwerp for the final round. Careful strategic play helped the team to beat the other finalists, BP and City lawyers Lovell White Durrant, although team member Sue Thompson suggested that it was, "All down to good teamwork."

## People come first at Woods

**WOODS of Colchester is one of just 13 UK companies to have been re-accredited an 'Investor in People' (IIP).**

To achieve the IIP standard, a company must not only make public its commitment to regularly reviewing the training and development needs of all employees, but must also carry out any necessary training and development and assess the achievement of this to improve future effectiveness.

Woods was among the first 28 companies to receive the initial award in 1991, and has now been re-awarded the title, following a three-yearly assessment.

To mark the occasion, managing director David Priest was presented with a certificate by the chairman of IIP UK, Sir Brian Wollson. Following the presentation, David said: "We are very proud to have maintained IIP status, as the award recognises commitment and hard work by staff at every level in our company."



Woods' managing director (centre with certificate) and some of the staff who took part in IIP.

## FIRING TO THE TOP

**CREDA's 26-strong fire team has won the top award in the Fire Protection Association 1994 fire safety awards. This follows the Certificate of Merit and runner up position which Creda won last year.**

The team competed against others in the category for companies employing 500 people or more.

The scheme is a rigorous test of a company's readiness to cope with an emergency fire. On receiving the award from Adair Lewis, technical information director for the Association, Creda's manufacturing director, Nigel Taylor, commented "Creda's success is all the more remarkable because these old buildings were formerly an aircraft factory during the war and we use hazardous materials which require a diligent form of management."

## Award for service

**BOB Graham, a project manager at GEC-Marconi Naval Systems in Portsmouth, recently visited Buckingham Palace to collect his MBE.**

Bob served with the Royal Navy for 20 years, attaining the senior rank of warrant officer with the commander-in-chief's engineering staff.

During this time, he worked closely with the in-service support team employed by Ferranti (now part of GEC-Marconi Naval Systems). On leaving the Navy, he joined Ferranti as an engineer working on

submarine systems. He was then promoted to assistant project manager, and has been in his present position for six years.

Bob was awarded the MBE for services to the defence industry.

He told *Topic*: "I was overwhelmed that the company should put me up for the award. It was a marvellous day and one that I will never forget."



Bob with his family and MBE (left to right): his daughter Lesley, his wife Trudy and his younger daughter Lindsay.



## TRAINING DEVELOPMENT

### GEC-Marconi rewards high flyers

A successful partnership between the University of Brighton and local schools has been rewarded with this year's GEC-Marconi Prize at the Partnership Awards ceremony.

The prize, worth £5,000, is awarded for innovative methods that encourage young people towards a degree in engineering, and is a way of recognising and giving status to creative teaching.

Dr John Kearsay, organiser of the University's 'High Flying School of the Year' programme, received the prize.

Dr Kearsay has secured the support of industry and Training and Enterprise Councils while making use of the popular interest in flight to provide pupils, teachers and parents with a better understanding of what engineering has to offer.

The programme includes

practical experience for pupils in the University laboratories. This is designed to build an understanding of the engineering principles underlying flight which can then be tested and subsequently applied through the design and construction of gliders.

#### Finale

The finale of the programme, through which the efforts of all the schools are recognised, is a flying day when gliders compete. The event also attracts the support of industrialists and flying enthusiasts who provide displays and resources relevant to the theme of engineering and

flight.

On receiving the award, Dr Kearsay said, "The project group representing schools, industry and higher education is delighted to have won the GEC-Marconi Award." He thanked the company for its generosity, and went on to say, "The group is very pleased with the pupils' positive responses to the project and fascinated by the results. These demonstrate the urgent and continuous need for higher education and industry to support and complement maths and science teaching in our schools if pupils are to recognise the fun, excitement and challenge of engineering as a career."



Four of EEV's winners (front row, left to right): Ivan Oxborough, Daniel Long, Clive Hill and Kieron Goodwin and EEV directors, (back row, left to right): David Boylan, Geoff Rowlands, John Spinks, Chris Neale and Derek Lunn.

### Training for the future

TRAINING awards are not uncommon, as Chelmsford-based EEV can testify, after celebrating its 35th annual apprentice presentation.

At the ceremony, the company's apprentices received no fewer than 44 awards. These included National Vocational Qualifications and apprentice-

ship completion documents. Four special awards were made to the company's top apprentices.

After making the presen-

tation, EEV's managing director, John Spinks, commented that the company's success was largely due to its highly skilled and competent workforce.

## Schools are a part our business

THE Basildon-based Sensors Division of GEC-Marconi has won an Employee in the Community special award for its 'Partners in Learning' initiative.

Three teams of company trainees have attended St Anselm's School over the past two years to teach electronics to GCSE students.

The initiative aims to improve the young trainees' communications skills, promote team work and adaptability, and encourage those students who continue into higher education to follow science and technology-based courses.

Having achieved these aims, the trainees' efforts have been recognised with the award for Employee Development in the South East, which was presented to Sensors Division's personnel director, Nigel Baldwin.

Perhaps, more rewarding for the trainees are the good working relationships and mutual respect that all involved agreed have been established.

Following the initiative's success, all trainees are to be given the chance to participate.

#### Young Enterprise

GEC-Marconi Avionics' Support Division at Donibristle has also helped a local school, in this case through the Young Enterprise Scheme. Pupils at Inverkeithing High School in Fife have had the opportunity to become 'business executives' and run a company for a year - assisted by the Division's staff.

This year, the pupils' company, aptly named 'TICK-TOCK' produced wall clocks based on blank CDs and made pre-tax profits of £1,784 - the highest profit



GEC-Marconi apprentice, Nicholas Schobel with pupils from St Anselm's School, Basildon.

made since the scheme started four years ago. This enabled them to make a charity donation of £1,000.

Bob Spilsted, training manager at Donibristle oversees the company involvement, and engineer

Paul Davies, manager of the production control department Janice Muir, and assistant divisional accountant Dave Robertson, act as advisers. They all consider it to be a very worthwhile and enjoyable scheme. "It

can be very frustrating sometimes but it is very rewarding when all their plans come together," Janice said, "I find my involvement in a totally different environment stimulating and very satisfying."

### Scholar of the year

EVERY Berkel's 1994 Scholarship has been awarded to Jenny Foster, who is studying for a degree in English literature and drama studies at Chester College.

The Scholarship is awarded by the Birmingham-based company annually and is open to employees' children who are taking their first degree. It was initiated in 1986 to commemorate GEC's centenary.

The candidates are assessed across a range of criteria, including academic and social achievements, and interpersonal skills.

Jenny enjoys tennis and hockey which she has played at club level, having represented her country in both sports.

Jenny's father Geoff, an industrial sales representative for the North West of England, has worked for the company for 32 years.

[www.rochesteravionicarchives.co.uk](http://www.rochesteravionicarchives.co.uk)



## TRAINING DEVELOPMENT

### Systems engineer - MRC524

Based in the Radar, Antenna and Microwave Laboratory, the successful candidate will work on system performance prediction and the analysis of future radars and related systems for land, sea, air and space use, as well as the support and analysis of existing systems. Other duties involve liaising with customers, project planning, management and cost control.

Previous knowledge and experience of aspects of radar and/or weapon systems, together with experience of PC and computer based tools for system analysis and performance prediction, are desirable. Good communication skills, especially for the preparation of technical reports and liaison with customers, are essential.

Candidates should have a degree in a relevant engineering or scientific field, be self motivated, possess an independent style, and have an interest in the future technical development of radar systems.

### Senior software engineer - Systems Research Group - MRC519

A senior candidate in the same department is required to lead a team involved in software design and development.

Tasks include the design of simulation and modelling software for performance studies and analysis of future radars and related systems for land, sea, air and space use.

Candidates should have an honours degree in software or systems engineering, not less than 8 years' relevant experience and have an interest in the future technical development of simulation and modelling tools for radar systems analysis. Previous knowledge and practical experience of radar, EW and systems simulation and modelling for ground, naval or airborne application is desirable and recent practical experience of leading complex software development, OOA and OOD techniques and the use of CASE tools, especially Teamwork, would be highly beneficial. Programming experience should include C/C++, operating in a SUN/Unix environment. Familiarity with GUIs is required.

Candidates should also have experience of working to ISO quality standards and good communication skills.

### Lightwave systems specialists/team leaders - MRC522

Opportunities exist within the Optoelectronics and Interconnect Division for experienced engineers to work in optoelectronics technology and lightwave systems applications. The work includes the development of optoelectronic multichip modules. The successful candidates will initially be required to run a portfolio of projects and assist with the development of new business.

The ideal candidates will have a degree in physics or electronic engineering or a relevant higher degree with several years' experience of industrial development in a related field. A track record of successful project management together with the ability to communicate with, and motivate both colleagues and customers are essential. Good commercial awareness and the ability to make decisions on multi disciplinary problems are also important.

### Research scientist - MRC525

As part of the Computer Systems Division, the laboratory is concerned with advanced software for information processing systems in the civil and military domains. The successful candidate will join a European collaborative research project in the area of knowledge based systems. Activities will have a strong emphasis on the theory of programming.

The ideal candidates will have a degree in computer science as well as a relevant higher degree and several years' experience involving KBS and Formal Specification. A knowledge of KBS specification and refinement using model-based approaches is essential and previous experience of collaborative project work is desirable. Candidates must also be able to work in a group at the same time as undertaking applied individual research.

To apply for any of the positions above, please write, quoting the appropriate reference number, to: FM Holloway, GEC-Marconi Research Centre, West Hanningfield Road, Great Baddow, Chelmsford, Essex CM2 8HN.

GEC-Marconi Research Centre, Great Baddow

### Sales support engineer

The role encompasses pre-sales demonstrations, dealing with post-sales support calls, training and consultancy, for compilers and Solaris.

Experience in all areas of Unix, Solaris, C/C++ and Embedded systems is essential plus the communication skills for direct customer contact.

### Software consultant - recruitment

The Consultancy Division, which specialises in the provision of software engineering staff, requires someone to develop existing relationships and open new accounts. The position will involve identifying opportunities for the provision of software engineers for GEC businesses, clearly establishing requirements and negotiating with customers and their enquiries.

The ideal candidate will have a software background, possibly in customer support, with selling skills.

### Software engineers

There are numerous vacancies within the Software Projects Consultancy and Software Products Division and for software engineers with experience of Ada, C or C++.

### Business development managers

The successful candidates will support the acquisition of new project based business and will be responsible for the identification, tracking and qualification of new prospects, registration, pre-qualification and bid management of tenders, customer presentations, mailshots and contact management.

Ideally, candidates will be experienced business developers with a software project management background. They will be educated to degree level and have excellent communication skills.

### Sales executive

The successful applicant will provide Unix networked solutions based on Sun hardware to customers in the defence, telecommunications and aerospace industries. Responsibilities will include lead generation and account management.

Candidates must have previous IT sales experience and a technical background which includes a knowledge of Unix and TCP/IP.

For any of the above vacancies, apply to Sue Ward, GEC-Marconi Software Systems, Elstree Way, Borehamwood, Herts, WD6 1RX, tel: 081 906 6366 or C-Net: Access +711 6020.

GEC-Marconi Software Systems, Borehamwood

### Senior software engineers

The vacancies within the Radar Systems Division involve requirements analysis, multi-level design and documentation for multi-processor systems, and implementation, testing and integration at unit, sub-system and system acceptance levels.

Ideal candidates will have between two and five years' experience in real-time defence applications with some or all of the following skills: C/C++, Ada, Real Time Structured Analysis and Object Oriented Design. Knowledge of radar systems would be an advantage.

To apply, please send your cv to: Sally Rider, Senior Personnel Officer, GEC-Marconi Avionics, Foxhunter Drive, Linford Wood, Milton Keynes, Bucks, MK14 6LA. Tel: 0908 229133, G-Net: Access + 704 3133.

GEC-Marconi Avionics, Milton Keynes



## GEC Overseas Club

### 1994 Annual Dinner

THIS year's Overseas Club Annual Dinner was held at The Brewery in London. It was attended by 463 members and their guests. Lord Weinstock, GEC's managing director and vice-president of the Club, welcomed the guest of honour and principal speaker Richard Needham, the Minister for Trade and Industry. Lord Nelson, a former president of the Club and Pierre Bilger, chief executive of GEC ALSTHOM were among the guests.

Lord Weinstock apologised for the absence of Lord Prior, the Club's president. Lord Weinstock described Lord Prior as a respected ambassador for both GEC and the country. He then welcomed the guests, particularly the apprentices before introducing the main speaker, Richard Needham, Minister for Trade and Industry.

The Minister thanked Lord Weinstock for his welcome and the opportunity of addressing the Overseas Club. He reviewed Britain's trade and investment posi-

tion in the world and illustrated that Britain's share of world trade was growing much faster than that of Europe. The Minister said that Britain must aim to give a better, more comprehensive service than its competitors.

He commented that his department believed in the importance of training and looked forward to the time when young people would be able to have comprehensive training for a career in 'trade'. He wished those present a rewarding future and proposed a



Pictured above from left to right: Lord Weinstock GEC's managing director, Lord Nelson a former president of the Overseas Club and Richard Needham Minister for Trade and Industry.



At the 1994 Annual Dinner (left to right): Alex Finlay director of international business division GPT, Madam Zou CATT China, Mr Zhang from MPT China, Margaret Webb commercial manager GPT, and Anton Schaal from Siemens in the Netherlands.



Lord Nelson (right) making a presentation to Peter Watson on his retirement.

toast to the Club.

Richard Reynolds, chairman of Club Council thanked members and centre secretaries for their hard work. He pointed out that the Club currently has over 5,000 members and that he believed its role was appreciated by the Company. He thanked those at Stanhope Gate for their support. He reported that best wishes for the evening had been received from the overseas centres and

from members in South Africa.

He went on to say that he was delighted that the Club Council and the Company were to recognise the retirement of Peter Watson as Secretary of Council and asked Lord Nelson to make a presentation.

Peter thanked Lord Nelson and said that he had found his 12 years as Secretary of Council very satisfying. He had worked for several chairmen and had

met many members of the UK centres. He briefly summarised the history of the Overseas Club from the apprentices in Manchester in 1925 to the present time. He thanked members of Council for their support and said he was sure the Club had a bright future.

Richard Reynolds concluded the formal proceedings by reminding members that the next dinner would be held in Rugby on October 26th, 1995.

## News from around the centres

### HONG KONG

The Annual Dinner took place at the Hong Kong Club, Victoria Suite. The branch chairman, James Chiu introduced the guest speaker Francis Cornish, the Senior British Trade Commissioner who spoke of recent initiatives by the Trade Commission to promote British business.

### LONDON

A lunch was held at the Naval Club. A toast, 'To the Immortal Memory', was proposed by Ken Druce, a life member of the Naval Club. Captain Brian Young Royal Navy, the Commanding Officer of HMS Antrim during the Falklands campaign, gave a vivid account of his experience.

### SOUTH AFRICA

A total of 92 people attended the Club dinner at the Inanda Club in Johannesburg. The guest of honour was Doug Edwards, a GEC ALSTHOM divisional managing director, who proposed a toast. Monty Widman replied.

Guests visiting from overseas were Martin Melling,

managing director of GEC ALSTHOM Engineering Systems, Whetstone and John Carter, also from Whetstone who is director and general manager of the Handling Systems division.

Among the local guests were Tony Ellingford, managing director of GEC ALSTHOM's South African partner, Reunert and directors of GEC ALSTHOM South Africa.

### Obituaries

We regret to announce the deaths of Harry Dickin and John Williams.

Harry Dickin joined the Manchester Centre Committee in 1973 and played a prominent part. He was elected as vice-president of the Club in 1989.

John was a former chairman of the Coventry Centre and an active member



### CLUB SECRETARY

Council: David Twigger,  
GEC,  
1 Stanhope Gate,  
London, W1A 1EH  
Tel: 0203 565588

### CENTRE SECRETARIES

Chelmsford: Chris Christelow,  
EEV,  
Chelmsford, CMI 20U  
Tel: 0245 493493

Coventry: Alan Nixon,  
GPT,  
New Century Park,  
Coventry, CV3 1JH  
Tel: 0203 563784

Lincoln: Tim Dunn,  
GEC Plessey  
Semiconductors,  
Carlisle Road,  
Lincoln, LN1 1SG  
Tel: 0522 565510

London: John Forster,  
Marconi Defence  
Systems,  
The Grove, Warren  
Lane, Stanmore,  
HA7 4LY  
Tel: 081 954 2311

Manchester: Nick Phipps,  
GEC ALSTHOM  
Power Plants,  
PO Box 75, Mill  
Road, Rugby,  
CV21 12S  
Tel: 0788 568444

Portsmouth: Leon Painter,  
Marconi Underwater  
Systems,  
Elletra Avenue,  
Waterfoville,  
PO7 7XS  
Tel: 0705 260024

Rugby: Phil Moore,  
CEGELEC Projects,  
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Rugby,  
CV21 1BU  
Tel: 0788 563563

Stafford: Colin Riley,  
GEC ALSTHOM  
Turbine Generators,  
Lichfield Road,  
Stafford, ST17 4LN  
Tel: 0785 223211

Hong Kong: Kim Steele,  
GEC Hong Kong  
Tel: 58938282

Canada: Brian Shangrow,  
GEC ALSTHOM Int,  
Canada, Mississauga  
Tel: 416 6248300

Noel Holmes (UK rep),  
2 Heathwood High  
Street, Tadworth,  
Surrey, KT20 5RB

Australia: Don Bartho,  
GEC Marconi Systems,  
Meadowbank NSW  
Tel: 02809 9700

of the Centre Committee for many years. He retired from GPT in 1991.

Both Harry and John will be missed.

### 1995 Club diary

Club diaries have been despatched to all members. If you have not received your copy please write to the secretary of Club Council.





John Shenton (right) and Graham Clark of King Ford holding the winners' trophy.

## Golfing victory at the Belfry

**A Creda employee was certainly not feeling under par when he recently played golf for his country at the famous Belfry golf club.**

Amateur golfer, John Shenton, of the Creda Garage, Blythe Bridge, took everyone by surprise when he not only reached the

final of the Ford amateur golf tournament but succeeded in winning the competition along with his other team members.

After succeeding in the preliminary rounds earlier this year, John went on to compete in the regional finals. At Coventry he finished with an impressive net 64 score.

Tony Mellor, captain of the

Creda golf club, said, "We're very proud of John's achievement; he's done the club proud. It has certainly put the Creda name on the national golfing circuit."

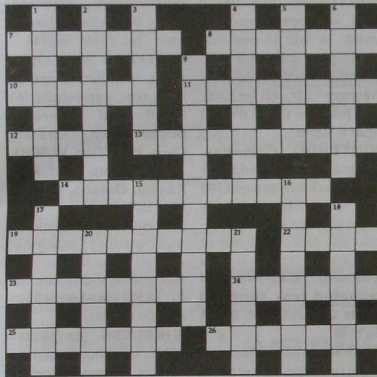
John, a 20-handicap member of Creda golf club, has been playing the game for ten years, and has only visited the world famous golf course once before, to

watch the Ryder cup last year. John couldn't believe his luck once he knew he would be walking down the same fairway as have so many world class golfers. "I never dreamed I would be playing there myself," he said, "I'm over the moon."

Following his success, John plans to return to the Belfry next year to defend his record.

## December Crossword

The prize for the December Crossword is an Xpelair wall mounted convector heater with a seven position thermostatic control. Suitable for use in a variety of locations, it is finished in grey.



### ACROSS

- Sty possibly looks a bit of a mess (7)
- Hand over de offal (7)
- Old convict follows mother to a Spanish resort (6)
- Meat and something sweet for a brawny lad? (8)
- The way in which a large number sound distressed (4)
- Hoses ordered by Hertfordshire town; minimum capital needed (10)
- Noticed young Richard having pudding (7,4)
- Dejected writer used to do censoring (4-6)
- Company scientist is nuts (4)
- King George (and his French descendant) (8)...
- ...reading his map incorrectly, caused an accident (6)
- Folk from Swansea, perhaps, upset about swindler (7)
- Roman emperor was hard on a Scotsman (7)

### DOWN

- They'll generate power for Monday's broadcast (7)
- Cut misshapen scale first from shellfish (8)
- Makes a sharp grating sound and bays, by the sound of it (6)
- Turned the other way, being obviously embarrassed about poetry (8)
- Clementine's dad going round about in a fine 'chopper' (6)
- Looking for a flying machine, say (6)
- Died as the smell of fish is starting to disappear (11)
- Remains to be fought over on the field? (3,5)
- Bird is certain to appear self-confident (8)
- Opening batsman nearly sent off for cajoling talk (7)
- Poor actor has a supporter over in Lincoln, perhaps (7)
- Man, if he were pierced by arrowhead it could be serious! (6)
- Beat's providing Sam's retirement feast on 1st August (6)

### OCTOBER WINNER

The first correct entry drawn at random from the October crossword entries came from D G Farnworth from GPT, Liverpool, who has won an Xpelair oscillating Taurus desk fan.

### OCTOBER SOLUTION

- ACROSS**  
 1. Artes; 8. Get-at-able; 9. Peach; 10. Anarchist; 12. At all events; 16. Vera; 17. Ingle; 18. Abut; 19. Stand around; 22. Aunt Sally; 24. Aside; 25. Hell to pay; 26. Bogus.
- DOWN**  
 1. Priestley; 2. Herculean; 3. Sewn; 4. Carry the day; 5. Lathe; 6. Blast; 11. Get into a row; 13. Elgin; 14. Aaron's rod; 15. Turned out; 20. Queen; 21. Stole; 23. Leap.

### ENTRY FORM

Name.....  
 Address.....  
 Company.....

**DEADLINE: 24TH JANUARY 1995**

A copy of your crossword together with this entry form should be sent to **Topic, GEC plc, 1 Stanhope Gate, London W1A 1EH.** Please mark your envelope **DECEMBER crossword.**

## It's a knockout!

**SERIOUS fund-raising in aid of Cancer Research, has been diligently pursued by employees from GEC-Marconi Avionics' Support Division, Donbristle.**

The team recently took part in a strenuous 'It's A Knockout' competition, raising £1,000 for the charity. The event was held at the Meadowbanks sports stadium in Edinburgh where team members - collectively named as 'Knobs and Knockers' - competed against eleven other teams from various organisations.

Competitor, Fiona Gibson, said, "The day was full of fun and laughter and as most of the events involved water and bubbles, by the day's end, the majority of competitors emerged soaking wet and smelling of Fairy Liquid!" A further £100 was raised



Brian McCaffrey (above) won the 'gunge the manager' vote.

via an extra event - 'gunge the manager' - where Donbristle employees selected a potential victim out of 13 willing senior managers. The unlucky 'winner' was project manager Brian McCaffrey, pictured above, receiving his 'prize'. Team members received trophies and sports holdalls in recognition of their achievement and as a well-deserved souvenir of a fun day out.

## Roger powers ahead for charity

**AN employee from Marconi Radar and Control Systems (MRCS), Frimley, recently took part in the first ever auto challenge for the deaf and hard of hearing.**

Representing Break-through Deaf Hearing Integration in Rushmoor, designer, Roger Sutton joined a team with two others to take part in the Deaf UK Auto Challenge. The event which lasted a whole weekend, coincided with National Deaf Awareness Week and was sponsored by local companies to raise funds to improve facilities at the Aldershot Information and Advisory Centre.

Forty teams took part in the Challenge which aimed to give deaf and hard of

hearing people the opportunity to take part in their own motoring event to test driving ability, navigational skills, team work and strategic planning.

During the weekend, the event took team members on a long drive to Preston, on to Bala in North Wales, down through Snowdonia to Cardiff, over to Corby, on to Walsall, last stop at Uttoxeter, and back home to Farnborough where the event began, more than 50 hours before.

Numerous obstacles

along the way, included high speed wheel changes, reversing a trailer into a coned area and an off the road event which involved descending a very steep hill in first gear, without any brakes!

MRCS provided the car which took Roger and his team members on their country-wide journey both on and off the road.

Awards were presented during an overnight stop in Walsall. Roger's team won the Diesel Class for 26 - 49 year olds.



# CLASSIFIED COLLECTION

## HOLIDAYS

**PORTUGAL**, near Estoril. Five minutes walk to the beach from luxury private villa with beautiful gardens and barbecue area. Sleeps four with two bathrooms opening onto terrace and pool. Sunday bookings, villa from £400 weekly. For further details tel: 01788 571395.

**HALF PRICE** holidays! Big off-season discounts offered on hotel prices at 200 superb locations in Europe, Spain and Portugal. For 136 page booking hotel brochure tel: 01582 594711 after 6pm.

**CLACTON** Essex, self-catering (non-smoking), two double-bedroom house. Situated near town. £120-£180 per week inclusive. Sleeps two couples or singles. Available now. Tel: 01255 473720 after 7pm.

**YORKSHIRE DALES**, Grassington, Chapel Fold Guest House. Converted chapel offers en-suite accommodation in comfortable surroundings. Arched windows, Victorian cooking range, oak beams. Good home cooking. Superb surrounding countryside. Easily accessible to Harriot country. Tel: 01756 752075.

**ISLE OF WIGHT**, Freshwater. Bungalow, sleeps up to six. Beach close by. Full amenities, ideal for a relaxing break - get away from it all! Please phone Rebecca on: 01483 769040 after 6pm.

**PORTUGAL**, Algarve. Near Vilamoura. Private villa in 2.5 acres. Twin en-suite rooms open onto terrace with large pool and barbecue. Sleeps four, possibly six. Maid service. Thursday bookings. Villa from £300 weekly. Further details tel: 01788 571395.

**DEVON CLIFFS**, Sandy Bay, Exmouth. Six and eight berth caravans on a Haven site. Especially suitable for families. Weekly cost includes admission to pools and clubs. Free gas and electricity. Privately owned and maintained, so the prices are below camp charges. For full details and prices tel: 01963 362101 evenings.

**FLORIDA**, five minutes from DisneyWorld. Privately owned three bedroom villa on friendly estate with free use of swimming pool, tennis court and children's play area. Near all major attractions. Sleeps six persons - £300 per week. Tel: 01424 84 2885.

**FLORIDA**, Kissimmee. Modern fully furnished four bedroomed detached house, sleeps ten. Fifteen minutes to major attractions/Disneyworld. Large private screened and heated pool. Cable vision, stereosystem, air-conditioned. Fitted kitchen plus more! Children welcomed. Assistance with travel arrangements. Booking 1994/5 tel: 01279 434534.

**TWO** fully-equipped self catering holiday cottages (1 x 2/3 and 1 x 4/5 people). Tent and caravan pitches also available. Set in the heart of rural Normandy. Nearest town Longny au Perche. Prices from 950 FF per week. Tel: Archer (010 33) 33 83 20 53.

**COTTAGES**. An extensive selection of personally inspected holiday homes, all shapes and sizes, situated throughout Southern England and South Wales and featuring Kent and Sussex - coast, countryside and town - available all year round. Brochure from Fairhaven Holiday Cottages. Tel: 01634 570157.

**SARINERA**, beautiful Costa Brava fishing village featured on Cliff Mitchelmore's first holiday programme. Large apartment to rent, sleeps seven. Close to beach. Roof-top barbecue. Ideal self-drive destination. Help given with flights and ferries. Discounts for Topic readers. For details tel: 01392 881363.

**YORKSHIRE DALES**, Grassington. Bed and breakfast and evening meal. Eileen and Allan Thompson invite you to share their 17th century riverside cottage. Recently restored retaining oak beams, flagged floors. Large attractive garden, ample parking, home cooking. Private fishing and a friendly welcome. Tel: 01756 752463.

**BED AND BREAKFAST** £49 per person per week. Includes airport transfers to small hotel overlooking Med. At Calis beach Fethiye, Turkey. Flights arranged if required. Discount insurance, car hire etc. For further details tel: 01392 881363.

**SPAIN** Gran-Alacante. Two bedroom apartment, sleeps four. Fully equipped kitchen, bathroom, lounge and balcony overlooking swimming pools. There are bars, restaurants, shops and ice-cream parlours. For further details please tel: 0181 907 3093 evenings.

**MAWGAN** Porth, North Cornwall. Holiday flat sleeps six. Swimming pool, tennis court. Sandy bathing beach 100 yards. Good surfing area, beautiful coastal scenery. Shop, pub, crazy golf nearby. Newquay five miles. All year booking. Tel: 01637 860504 for brochure.

**SNOWDONIA**. Trawsfynydd village. Comfortable, well equipped, two bedroomed stone cottage. Sleeps four/six, cot provided. Pet welcome. Good walking and fishing locally, convenient for exploring rest of North Wales. Available throughout year. £80 - £160 per week. Winter mini-breaks from £40. Tel: 01489 574626 for details.

**PORTUGAL**, Algarve. Two bedroom spacious apartment, furnished in traditional Portuguese style. Situated in Praia da Luz, 100 yards from beach. Scenic view of Luz Bay from balcony. Ideal centre for sea sports, has many shops, restaurants and friendly bars. Tel: 0181 427 3121.

**CHESHIRE**. Self catering (non smoking) cottage in historic Nantwich. £120-£180 per week inclusive. Sleeps 2/3 and is situated close to town centre in quiet row. Tel: 01270 624320 or 0322 223462.

**FRANCE** La PALMYRE, near Royan. Modern villa comfortably accommodates six people. Two bedrooms, good size living room with kitchenette. Swimming pool (in season)

and tennis courts in a village style complex. Good walking and cycling area. Sandy beaches, shopping precinct, large zoo and restaurants approximately 2.5 miles. Ferry bookings and insurance available. For details tel: 01276 28792 (answerphone).

**FLORIDA**, Orlando. Two bedroom, two bathroom, air-conditioned villa. Sleeps four/six. Overlooks 18th fairway, Meadow Woods golf course. Free golf, swimming and tennis. Fifteen minutes to Disney and major attractions. £275 per week. Tel: 01745 833 426.

**CENTRAL** Brittany, near Rostrenen, two bedroomed farm cottage, well equipped and furnished, will sleep six people. Central heating and log burning fire. Available all year. For details tel: 01752 787587.

**CYPRUS**, Protaras (Figtree Bay). Villa and apartment. Close sandy beaches. Use of super pool/complex. Near town, lovely restaurants and all amenities. Assistance with flight bookings. Tel: 01245 322583.

## PROPERTY

**CANWICK**, Lincoln: superior detached bungalow in a quiet, sought after village location two miles from city. Comprising: three double bedrooms, lounge/dining room, fully-tiled kitchen, bathroom, w/c, sunlounge, double garage and large mature gardens. Property recently redecorated throughout. £82,500. Tel: 01522 528881 after 5pm.

**DETACHED** bungalow, three bedrooms, lounge, kitchen/dining room, conservatory, bathroom, central heating and double glazing. Spectacular mountain views, close to Port Appin; Oban 20 miles. Quarter acre secluded garden. Perfect family or holiday home. Offers in the region of £65,000. Tel: 01634 362788.

**LANGENHOE**, pretty village near Colchester. Access to A12 for Chelmsford/London. New four bedroomed detached ex-

ecutive house on small development, two bathrooms, two receptions, study, breakfast/kitchen/utility, double garage, good size garden, GCH, NHBC guarantee, £120,000. Tel: 01522 696031.

## FOR SALE

**NG TF**. MGB based 30s style sports car. Steel chassis with GRP and aluminium body. More fun than an MGB, but without the rust. £3,650. For more details and photograph, contact John Reynolds G-Net: Access + 340 209 or tel. 0268 533090 ext 209.

**MULTI**-Megadrive, brand new, still boxed and unused. A four in one machine plus games: Mortal Combat, Flashback, Road Avenger - CD. All for £300. Call John on: 01708 852212 after 6.30pm.

**NINTENDO** GameBoy. Magnalight link adaptor powerpack four games £100 ono. Game Boy cartridge eight games £100 ono. Telescope Tasco 150 power and earth (boxed) tri-pod £50 ono. Gas fire wall mounted teal surround lights £50 ono. Tel: 01788 569130.

**CLASSIC** motorcycle parts! A very large amount of parts for sale for various machines, including Velocette, Ducati, Norton etc. SAE (A5) for comprehensive lists to: 6 Alexandra Avenue, Hayling Island, Hants, PO11 9AL.

**NARROW BOAT** traditional-style, 50 feet long narrow boat. Four years old. Well maintained and newly painted. Equipped for residential or recreational use. Sleeps four. Diesel powered. Offers

around £25,000. Tel: G-Net: Access + 783 383 for details.

## MISCELLANEOUS

**THE RAF** Locking apprentice association is keen to hear from all ex-apps who trained at the unit between 1952 and 1976. If you would like to know more please contact: Charles Hart, RAF LAA secretary, 9 South Road, Weston-super-Mare, BS23 2HA. Tel: 01934 621969.

**WANTED** horse racing badges from annual members, and staff and officials metal badges, card badges considered. Also race cards from closed courses only. Tel: 01889 562345.

**WIRELESS** WWII equipment, information and anecdotes, especially WS No19 and operators pocketwatch. Contact: Chris Bisailion VE3CBK, 1324 Old Carp Road, RR 1, Kanata, Ontario, Canada, K2K 1XV.

**MECHANICAL** calculators and adding machines wanted by collector. Also interesting slide rules. Tel: 01788 531946 (day) or 01788 817309 (night).

**WIRELESS** enthusiast seeks unwanted valve receivers for restoration and private collection. Crystal sets, 1930s American models and UX valves especially sought. Write to: AC Stubbings, 7 Church Road, Saxilby, Lincoln, LN1 2HH. Tel: 01522 702601 evenings.

**18 PLUS** is a countrywide multi activity/social organisation for 18-29s looking for an excellent social life. Contact: 18 Plus, PO Box 18, Newent, Gloucestershire, GL18 1AG, tel: 01531 821210.

Send your classified advertisement written clearly in block capitals (maximum 40 words) to: The Topic Office, The General Electric Company plc, 1 Stanhope Gate, London, W1A 1EH by 24th January 1995 giving your name, address, telephone number and, where appropriate, your GEC site.

Only one insertion per ad is allowed. Insertion is not guaranteed but every effort will be made to include your advertisement as soon as possible. GEC employees, their families and people who have retired from the company may advertise free of charge. For others the cost is 50p per word. Please make cheques payable to: The General Electric Company plc.

Topic takes no responsibility for any misrepresentations or inaccuracies in classified advertisements or for any breaches of obligations by classified advertisers. Readers are recommended to take appropriate professional advice before entering into obligations.



## RESULTS

### TEAMS

1	Hotpoint, Peterborough 'A'	242 points
2	GEC ALSTHOM T&D Protection and Control Stafford 'Red'	224 points
3	GEC ALSTHOM Turbine Generators, Rugby 'A'	219 points
4	EGT, Lincoln 'X'	213 points
5	GPT, Beeston	195 points
6	EGT, Lincoln 'C'	186 points

### INDIVIDUALS

1	N Harrison	GEC ALSTHOM T&D Protection and Control, Stafford 'Green'	17lb	8oz
2	A Ward	GEC ALSTHOM Turbine Generators, Rugby 'A'	8lb	5oz
3	H Wild	GEC ALSTHOM T&D Protection and Control, Stafford 'Red'	7lb	10oz
4	C Wolf	GPT, Beeston	7lb	8oz
5	J Mills	EGT, Lincoln 'X'	6lb	14.5oz
6	C Nanson	Marconi Radar and Control Systems, Leicester	6lb	6.5oz
7	A Cook	GEC ALSTHOM T&D Protection and Control, Stafford 'Orange'	6lb	6oz

### SECTIONS

A	A Ward	GEC ALSTHOM Turbine Generators, Rugby 'A'	8lb	5oz
B	P Finney	GEC ALSTHOM T&D Transformers, Stafford 'A'	5lb	6oz
C	J Mills	EGT, Lincoln 'X'	6lb	14.5oz
D	H Wild	GEC ALSTHOM T&D Protection and Control, Stafford 'Red'	7lb	10oz
E	N Harrison	GEC ALSTHOM T&D Protection and Control, Stafford 'Green'	17lb	8oz
F	C Pitt	Marconi Radar and Control Systems, Leicester 'B'	4lb	9oz

## Hotpoint turns on the heat

THE River Trent at Burton Joyce, in Nottinghamshire was the venue for this year's GEC/GEC ALSTHOM Employees National Angling Championship when no fewer than 246 anglers, representing 22 companies, took part. Although the weather was fine, a strong upstream wind made float fishing very difficult in some of the sections.

Hotpoint 'A', Peterborough gave a great performance to win the team event with 242 points. GEC ALSTHOM T&D Protection and Control, Stafford 'Red' finished second with 224 points and GEC ALSTHOM Turbine Generators, Rugby 'A' were third with 219 points.

Neil Harrison of GEC ALSTHOM T&D Protection and Control, 'Green' took the individual trophy, finishing well on a three

metre whip, with a catch of 17lb 8oz, made up of small fish. A Ward of Rugby 'A' was runner up with 8lb 5oz.

H Wild of Stafford 'Red' was third with 7lb 10oz and C Wolf of GPT Beeston fourth with 7lb 8oz.

The organising committee from EGT Lincoln would like to thank GEC and

GEC ALSTHOM for their continued sponsorship; the stewards, and Bill Howells, manufacturing director of GEC ALSTHOM T&D Pro-

tection & Control, Stafford for making the presentation.

Next year's competition will be held on the Grand Union Canal at Yardley Gobian, between Northampton and Milton Keynes, on 9th September, 1995.

Enquiries to: Tony Pickering, Sheet Metal Shop, European Gas Turbines, PO Box 1, Lincoln, LN2 5DJ before the end of February 1995.



The winning team, Hotpoint 'A', back row (left to right): L Hart, R Burton, G Wing and A Dean and kneeling R Gardner and G Paylor.

## The Suzy Lamplugh Trust special offer

IN 1986, the estate agent Suzy Lamplugh disappeared.

As this could happen to anyone, we must all be aware of the dangers and take measures to minimise the risk.

A personal alarm offers an individual the opportunity to escape from a potentially dangerous situation,

as an alarm emits such a loud, high-pitched noise that the attacker is caught off guard.

The Suzy Lamplugh Trust, The National Charity for Personal Safety, is offering its Personal Alarm Pack at the reduced price of £5.99 plus 95p p&p - compared with the usual price of £6.99. The pack contains an alarm and a 12 page book-

let which gives essential and practical advice on personal safety.

All profits from alarm sales help the Trust's work.

To receive a Personal Alarm Pack fill out the form and send it, along with a cheque to: Suzy Lamplugh Ventures Ltd, 14 East Sheen Avenue London SW14 8AS.

The alarm could save your life.

**TOO**

**SUZY LAMPLUGH TRUST - Topic special offer**

NAME: .....

Please use own name and address for return of alarm.

ADDRESS: .....

POSTCODE: ..... TEL: .....

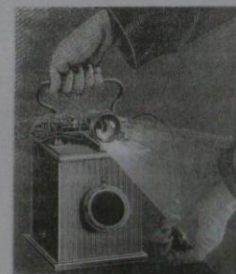
NO. OF ALARMS: ..... AMOUNT: .....



## Topic looks back

ELECTRIC LIGHT BY BATTERIES.

THE "E.C.C." NIGHT LIGHT.



The GEC 'E.C.C.' night light of 1894 was designed for use in an illuminated watch stand or as a portable lantern.



# GEC Challenge 1994 Life in the wild

**THEY CAME, THEY SAW, THEY CONQUERED  
- OVER ONE WEEKEND 72 TEAMS AND  
SOME 80 MARSHALS GATHERED AT  
TRENTHAM GARDENS, STOKE ON TRENT  
FOR THE 1994 GEC CHALLENGE...**

## The weekend begins...

A disused quarry staged this year's very wet and muddy event, providing an appropriate backdrop for a disaster relief exercise weekend set in 'uncharted territory'. Participants arrived en masse on Friday night and soon after they were quickly assuming their roles as relief engineers. The first task which faced them was to set up a base camp. Over the next two days, they were confronted with a series of physically and mentally demanding tasks relating to the disaster relief scenario.

The main aim of the GEC Challenge is to encourage effective team performance within participating companies. Graduate recruitment schemes can also be

incorporated within the programme which helps to develop cooperation between existing and new employees of different companies within GEC.

Throughout the weekend, team members learnt about problem solving, strategic planning and developed organisational skills. While the competitive element between Challenge teams continues to be important, the emphasis of the event is firmly focused on individual and team development, and in accordance with this, team managers were given clearly defined responsibilities regarding the planning and progress of their teams' tasks. Managers were briefed in advance of the event by Dunchurch tutors and a Team Development Journal was introduced to facilitate the monitoring of each team's performance.

## Advice and aid

Friday evening's exercise was enhanced by the help of OXFAM who kindly allowed the use of their own disaster relief equipment. The competitors also benefited greatly from the advice and expertise of the OXFAM marshals. In establishing their base camp, team effort became paramount, with members all working together to erect relief shelters, build water tanks, (later filled courtesy of the Staffordshire Fire Service), retrieve food from the middle of the lake, store it and then cook it. Life out in the wild was then taken to its limit with some hardy teams putting all their handiwork to the test by spending a very wet and stormy night in the relief shelters.



Team members from GEC Meters, Stone getting to grips with the 'Spiders Web'.

## Major challenge

The next two days presented a major challenge for the teams and their managers: twelve tasks to be completed within an extremely tight schedule. Team managers had to prioritise tasks, manage time effectively and evaluate team performance when considering the tasks their teams were busy tackling. Sunday afternoon heralded the final task of the Challenge with all 72 teams lined up across the brow of a hill in celebration of an ancient tradition of the 'host country'. In line with tradition, each team constructed a catapult and fired their tennis ball 'missiles' as far as possible. GPT Coventry were the proud winners of this event with an impressive 25 metres.

received fleece jackets. A final prize was awarded to the team who had shown the most effective use of the Team Development Journal. The journal helped teams to focus on what they had been doing well, how they could improve on subsequent tasks and how they could transfer what they had learnt back to their own workplace. The winning team came from GPT, Coventry.

During the Challenge, some 1,100 packed lunches were eaten, over 1,000 breakfasts cooked and 4,000 gallons of water were pumped into the water tank by the Fire Service.

The GEC Management College would like to thank everyone who participated in the Challenge with such enthusiasm and commitment. They would also like to thank Marshalls of Peterborough and Speeds of Nottingham for providing transportation for the event. A special mention must also go to the marshals for ensuring that the weekend passed without problem.

For further information, please contact Caroline Arbuthnott on GNet: Access + 784 2078 or tel: 01788 810656 ext. 2078.



The joint winners of this year's GEC Challenge from GPT (TSG) Liverpool.

## Awards

The 1994 Challenge drew to a close with an awards ceremony presided over by the recently appointed managing director of GEC-Marconi, Peter Gershon. For the first time, two teams, both from GPT (TSG) Liverpool, tied for first place. They share the Admiral Sir Richard Clayton Cup and team members received individual prizes of fleece jackets. In third place was a team from GEC Meters, Stone who also



A weary 'challenger' at the end of a hard day.