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The GEC Newspaper

February 1995

GEC companies win massive orders for new Hong Kong airport rail link

GEC companies have won orders worth £110 million to supply systems for the new Hong Kong airport rail link. GEC Hong Kong, GEC ALSTHOM and GPT will be responsible for the power supply, communications, signalling and train control systems for the Mass Transit Railway Corporation's (MTRC) new 34 kilometre long railway linking central Hong Kong with the new airport on Lantau Island.

The new airport, which is currently under construction, will replace the existing Kai Tak airport which has reached full capacity.

When it enters service, estimated to be early 1998, the railway will operate an airport express and the Lantau Line, a domestic mass transit service. The airport express will have four stations, carrying an initial 39,000 passengers per day, increasing to 75,000 by the year 2011. The Lantau Line will have six stations catering initially for 266,000 passengers per day, rising to 491,000 by the year 2011.

generating plant for the ventilation buildings, and batteries and chargers.

a solid state interlocking system and central train control systems.

GEC ALSTHOM

GEC ALSTHOM's order, worth £39 million, is for the supply of a complete signalling system for the new rail link. The system will incorporate continuous speed control, drivers' cab signalling and functions to aid train operation and maintenance. The order also includes the supply of

GPT

GPT's order, worth £27 million, covers the supply of an optical fibre-based communications and information system, comprising a Synchronous Digital Hierarchy fibre backbone network, a PBX business communication system, a mobile radio system, station TV monitors, passenger information



Aerial view of central Hong Kong.

displays and track to train closed circuit television and radio.

GEC-Marconi on target with Spearfish

GEC-Marconi Naval Systems, Waterlooville, has won a £630 million MoD contract for the supply and in-service support of Spearfish torpedoes for Royal Navy submarines.

The order covers the entire production process, including sub-system procurement and integration, performance demonstration and storage.

The Spearfish, which will equip the Swiftsure, Trafalgar and Vanguard classes of nuclear submarines, has the capability to outmanoeuvre the fastest and deepest diving targets, making it the most advanced heavy-

weight torpedo in the world.

Defence Procurement Minister, Roger Freeman, said the order will "create some 40 new jobs and help to safeguard many more at the company's Underwater Weapons Division at Waterlooville, Hampshire." He went on to say, "This order will be very welcome for a wide section of the British industry."



The Spearfish torpedo.

GEC HONG KONG

GEC Hong Kong's order, worth £44 million, is for the provision of a 110V dc power supply system including the necessary mechanical and electrical engineering work. The order includes the supply of a 33kV transmission system, a 1,500V dc traction power supply, standby

www.rochesteravionicarchives.co.uk

News in Brief

Appointments

GEC

The Hon. Raymond G H Seitz has been appointed to the board of GEC as a non-executive director.

AEI CABLES

Mr Glynn Stainthorpe has been appointed technical manager of AEI Cables in Birtley. Glynn will be responsible for the quality assurance, cable design and materials development groups and will help implement a new product development programme.

GEC ALSTHOM

M Pierre Bilger has been named president and chief executive officer of GEC ALSTHOM. M Bilger replaces M Jean-Pierre Desgeorges.

GEC-Marconi

Sir Peter Harding has been appointed deputy chairman at GEC-Marconi. The former chief of the defence staff will be responsible for overseas sales promotion.

Dr Robert Witty has been appointed director of software engineering. Dr Witty will be responsible for improving GEC-Marconi's software engineering capabilities.

GEC ALSTHOM

GEC ALSTHOM has successfully synchronised the first of two 340 MW VEGA 209E combined cycle units at the Kot Addu power station in Pakistan two months ahead of schedule.

Matra Marconi Space

Matra Marconi Space has assembled and shipped the first transponder for KOREASAT, Korea's first national satellite. The transponder will now be integrated by Martin Marietta Astro Space into their 3000 Series spacecraft platform. KOREASAT will provide broadcast television and business and general telecommunications throughout the country.

Lord Nelson of Stafford

LORD NELSON of Stafford, a former director of GEC and its chairman from 1968-1983, died on January 19 aged 78.

The son of the first Baron Nelson of Stafford, who himself had been chairman of the English Electric Company, George Nelson was a lifelong dedicated engineer and a humble unsung hero of British industry. He played a particularly notable part in the development of civil nuclear power and had an unusually broad experience of an industry whose prosperity depends on its ability to keep pace with technological advance and scientific development.

Succeeded at his own invitation by Lord Carrington as chairman of GEC in 1983, Lord Nelson had by then worked for the company - or one of its component parts - for 44 years. He joined the English Electric Company, which merged with Arnold Weinstock's General Electric Company in 1968, as superintendent of its Preston works in 1939. Over 3,000 Halifax and Hampden bombers had been produced there by the end of the Second World War and the experience he thereby acquired gave him a lasting interest in the military aviation field.

He was for 17 years joint deputy chairman of the British Aircraft Corporation and earlier had put together the team which produced the record-breaking Canberra bomber and the supersonic all-weather Lightning fighter. But he never allowed any special interests to affect his attachment to the more conventional products of the engineering industry.

A trained engineer by profession, Henry George Nelson was educated at Oundle School and at King's College, Cambridge, where he won an exhibition and took his degree in the Mechanical Sciences Tripos. Two years then followed in which he gained practical engineering experience both in France and Switzerland and afterwards at home in Britain.



Lord Nelson of Stafford.

He first became a director of one of English Electric's subsidiary companies when

he was 25 years old and by the age of 40 was managing director on the main board.

But his reputation went well beyond the group of companies which came ultimately under his father's direction. He played a full part in the industry as a whole, enjoying the unusual distinction of being a member of the three engineering institutions - electrical, mechanical and civil.

He served for many years on the Engineering & Allied Employers National Federation (later the Engineering Employers' Federation).

He always prided himself on taking a national view and by no means confined his interests to those of his own industry. He was a director of the Bank of England for more than 25 years, 1961-87, and served

for five years on the selection and interview boards for entry into the administrative grade of the Civil Service, 1956-61. He also led the campaign in the 1960s to raise funds for the country's first business and management schools. He was particularly proud of his association with Aston University, of which he became Chancellor in 1966, serving until 1979.

It was perhaps his misfortune to have to live the earlier part of his life rather under the shadow of his father, who had been created a baronet in 1955 before being raised to the peerage in 1960. The first Lord Nelson had rescued English Electric from bankruptcy after the First World War and he continued very much in harness until his death at the age of 75 in 1962. This may conceivably have had something to do with his son's pursuit of such wide-flung outside interests.

His involvement with English Electric meant, however, a great deal to him and it was partly at his insistence that, when the merger first took place in 1969, the name of the new joint firm should have been for two years or so General Electric & English Electric Companies.

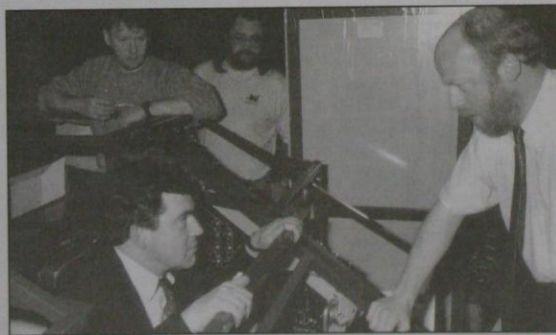
He may never have possessed the flair of the genuine born entrepreneur but his modesty, conscientiousness and dedication to whatever he saw as his duty ensured

him respect in all the companies that he served.

It was a tribute to these qualities that he was persuaded to stay on the GEC main board for four years even after he had retired as chairman. As a director he was to see two former Conservative ex-Cabinet ministers - Lords Carrington and Prior - assume his place at the centre of the boardroom table. The relationship with Lord Weinstock - which might have been predicted not to be the easiest one - in fact worked out very well and it was only the growing international dimensions of GEC that led to a different sort of chairman's appointment being made once Lord Nelson had offered to retire at the age of 66. By then he had served as chairman of GEC for nearly 15 years, having been both chairman and chief executive of English Electric for the six years before that.

He married in 1940 Pamela Bird, the daughter of a former Conservative MP for Skipton. She survives him together with their two daughters and two sons. The elder of the latter, Henry Nelson, now inherits both the baronetcy and the peerage.

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During a visit to Marconi Radar and Control Systems, Dr. Gordon Brown, MP for Dunfermline West, is shown the Challenger II Main Battle Tank by Keith Duncan (right), whilst two technicians involved in assembling the equipment, Garry John McMullen (left) and Andrew Birtwell look on.



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

GEC ALSTHOM

GEC ALSTHOM has signed an agreement with the China Guangdong Nuclear Power Holding Company to supply a new nuclear power plant at Lingao in Guangdong province, in the People's Republic of China.

The project could be worth up to £350 million to GEC ALSTHOM.

GEC-Marconi Naval Systems

The command and control businesses of GEC-Marconi and Ferranti have now been combined. Commenting on the merger, Graham McIntyre, managing director of GEC-Marconi Combat Systems said, "This bringing together of Ferranti and GEC is an exciting and important move for us and one that we believe places us strategically in a very powerful position in our market place as a world leader in naval systems."

Marconi Instruments

Marconi Instruments has received an order worth £1 million for its recently launched 2945 TestMate radio test set. The order, placed by the DTI's radio investigation authority, is for radio test sets together with associated calibration and support services.

Satchwell Control Systems

Satchwell Control Systems has opened its 11th regional office. The office, in Beeston, Nottingham, will serve a number of international clients, and will also be responsible for all new and refit engineering activities for the Boots Company on a nationwide basis.

Woods of Colchester

Woods of Colchester recently held a technical seminar in Athens on the ventilation of below-ground tunnels. The seminar was attended by over 50 consultants, contractors and representatives from the Ministries of Public Works and Transport.

GPT links up with Moscow

MOSCOW'S telecommunications network is to be modernised with up to 170,000 GPT digital lines in a record £50 million export order.

Under the terms of the contract, GPT will supply System X digital exchanges and other equipment to COMSTAR, a joint venture formed in 1989 between GPT and the Moscow City Telephone Network (MGTS).

This project marks the largest individual overseas order for System X. Peter Brown, GPT Public Networks Group's managing director, said, "The fact that Moscow, one of the world's most influential cities, has chosen System X for such a

significant modernisation programme proves that the record breaking exchange has significant international appeal."

The contract will build on the existing System X-based COMSTAR network which was the first to offer its Russian customers on-demand satellite international, national and local calls.

GPT also plans to introduce further fibre optic and Synchronous Digital Hierarchy equipment, Smartcard pay-phones,

videoconferencing and voice processing equipment, and additional ISDXs (Integrated Services Digital Exchange). A range of business service solutions including Virtual Private Networks, CleverCall and Centrex will also be available.

In addition, COMSTAR's operational activities will be significantly strengthened with the provision of network management and maintenance repair centres and a technology training facility.

Processing the noise in Portland

GEC-Marconi Naval Systems has won an order worth in excess of £300,000 to supply a new data processing system for the ships' radiated noise range in Portland.

Ranging is used to analyse the noise radiated from warships so that their quiet operating condition can be maintained.

The order, placed by the Directorate of Test and Evaluation Programmes (Marine/Land), includes the supply of a differential GPS positioning and tracking system, a hydrophone data processing system and display and comprehensive data storage facilities. The highly automated system will be supplied by the company's Sonar Systems division and will require only two operators, one to monitor the ranging and liaise with the ship by radio, and the second to assess and compare the on-line data.

The system will be installed later this year.

European orders across the board for EGT

The force of GEC ALSTHOM's subsidiary, European Gas Turbines (EGT), in France and the UK, has been felt across Europe, with orders totalling just under £70 million in Belgium, Spain, Italy and Denmark.

EGT in France has won an order worth £60 million to supply power generation equipment for a 359 MW combined cycle power station being built at Gent-Ringvaart in Belgium.

The order, placed by Tractebel on behalf of Spe-Electrabel, covers the supply and installation of an EGT 233 MW Frame 9FA

gas turbine, a 126 MW GEC ALSTHOM steam turbine and a 470 MVA GEC ALSTHOM generator, together with an EGT control system. The gas turbine, steam turbine and generator will be mounted on a single shaft and is scheduled to enter service before the end of 1997.

EGT in the UK has won

combined heat and power orders worth over £5 million in Italy and Denmark.

The first order, awarded by Italian vegetable oil manufacturer, Unigra SpA, is for an EGT 4.5 MW Typhoon gas turbine generating set incorporating a GEC ALSTHOM Unipak generator for the Unigra factory at Conselice, near Bologna. The gas-fuelled Typhoon will be the first in Italy to use a Dry Low Nox combustion system.

The second order, awarded by the Danish packaging manufacturer, Brodrene Hartmann A/S,

covers the supply of two EGT 7.2 MW Tornado gas turbine generating sets, each incorporating a GEC ALSTHOM generator. The gas turbines will operate on natural gas and be equipped with full secondary steam injection to provide power enhancement and reduced Nox emissions.

The sets will power the Brodrene factory at Tonder in Southern Denmark with excess electricity being exported to the local grid. The plant will also provide steam for manufacturing process and hot water for the local district heating

network. The third order worth over £4 million is for the supply of gas turbine power generation equipment for a new combined heat and power/combined cycle power plant at the Ford Motor Company's Almussafes factory near Valencia in Spain.

The order, placed by a joint venture company, IDAE-Almussafes, is for an EGT 13 MW RLM 1600 gas turbine generating set, again incorporating a GEC ALSTHOM generator.

Delivery for all three orders is scheduled later this year.

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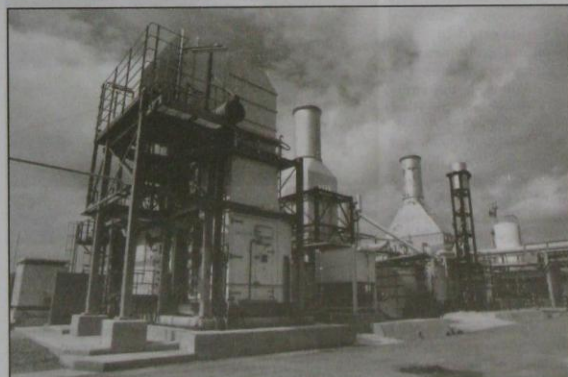
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An EGT RLM 1600 gas turbine installation at FMC Foret, La Zaida, Spain.

INNOVATION

Laser research improves aircraft safety

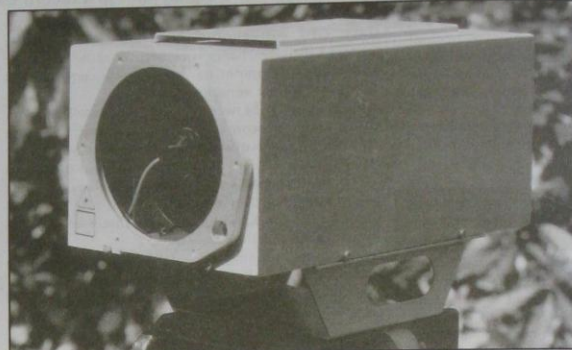
GEC-Marconi Research Centre, Great Baddow, is working on laser radar technologies that promise exciting, new products for GEC companies.

Current work with diode lasers has resulted in a compact, eye-safe laser range finder for natural targets at distances up to 100 metres; a unit with a range of several kilometres is under development by the Applied Physics Division of GEC-Marconi Defence Systems. This will have a number of applications such as robotics and military direct fire weapons. Another area of research is

focused on ISAFE diode-pumped solid-state lasers for use in Laser Doppler Anemometry. This technology has a number of airborne applications where the advantages of light weight and low power consumption are desirable. The technique involves detecting the Doppler frequency shift of signals reflected back to an aircraft from small particles in the atmosphere. Potential applications include true air speed measurement and the wind profiling of the path ahead of an aircraft to identify possible hazardous conditions like wind

shear or air disturbance caused by other aircraft.

A laser-based technique to measure true airspeed is being developed by the Flight Systems Division of GEC-Marconi Avionics and GEC-Marconi Research. This promises greater accuracy than conventional Pitot tube techniques as the aircraft's speed is measured well away from turbulence generated by the aircraft itself. Multiple laser beams can also be used to provide wind vector information, which is required for flight control of high performance fixed wing aircraft.



A prototype of the diode-laser range finder currently under development by the Applied Physics Division of GEC-Marconi Defence Systems.

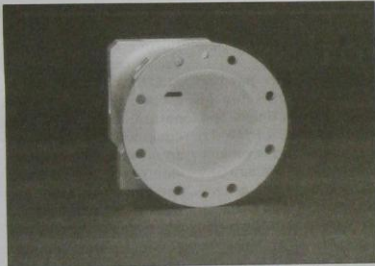
New technology from Hirst Research Centre

Electroless deposition

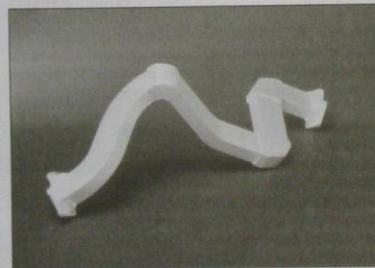
COMPONENTS for high reliability applications such as the space and aerospace industries place unique demands on materials processing.

To optimise performance many components, which often have complex shapes, must be coated uniformly with noble metals on both their external and internal surfaces. Current electrolytic plating techniques present many problems. Not only do they require conducting surfaces but electrodes have to be inserted into the small and sometimes difficult to access cavities.

In response to this growing requirement, the Hirst Research Centre developed a technology for depositing noble metals using a technique that requires neither electrodes nor conducting surfaces. The new technology has a number of advantages: the cost is lower, it gives a uniform coating thickness on both conducting and non-conducting surfaces even over solder fillets, and it also removes some of the processing constraints ex-



Microwave cavity plated with silver using the new electroless technology.



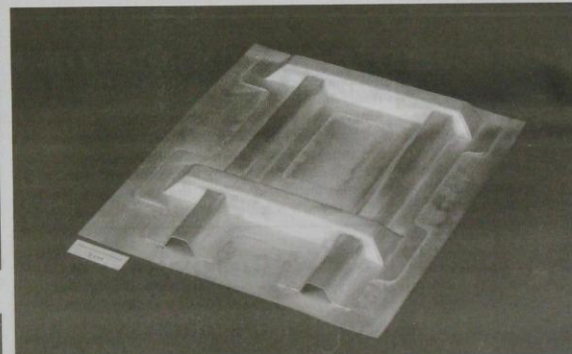
Complex aluminium micro-waveguide plated with silver using the new electroless technology.

perienced by design engineers. The process is currently capable of deposition rates approaching those of conventional plating methods.

The technology is already used for coating a range of components and systems

including waveguide tubes and cavities, lead-in-glass assemblies, telecommunications and aerial structures.

The technology complements existing facilities for the electroless deposition of copper and nickel.



Ribbed aerospace component fabricated using the novel GEC braze. Because the base material begins to melt at 540 degrees Celsius, it cannot be joined using conventional brazing technology.

Low temperature brazes

HIRST Research Centre has developed two world-leading low temperature brazes for aluminium assemblies and components. The new brazing materials contain inexpensive and non-hazardous constituents and provide joint strengths comparable to the strength of the aluminium engineering alloys themselves.

Existing methods involve temperatures around 650 degrees Celsius and risk melting or deforming the aluminium components. This not only requires post-

brazing chemical cleaning but also limits the choice of aluminium alloys used.

The new technology has significant benefits over conventional methods: because brazing can be completed at temperatures 150 degrees Celsius lower than other methods, thin-walled and high precision assemblies are more tolerant of the joining process as there is no risk of melting or deformation. Considerable weight savings can also be made. Precipitation-hardened alloys can now be

brazed without sacrificing their beneficial mechanical properties and as the new process is fluxless, the need for post-brazing cleaning is eliminated. Previously this has been the source of many test and service failures.

Current applications for the new technology include: precision packaging for electronic components, lightweight waveguides and other microwave components, heat exchangers and body frames for transport applications.

News in Brief

GEC ALSTHOM

The first unit of the 660 MW Shajiao C coal-fired power station in the Guangdong Province in southeast China was recently synchronised, 32 months from the contract award.

PRODUCT LAUNCHES

GPS

GEC Plessey Semiconductors has launched the SL6610 Direct Conversion Receiver, an IC which enables pagers to be shrunk down to credit card size.

Videojet

Videojet has launched the Type 6 traversing printhead system, which is able to code several products during a single pass. The new system is smaller than its predecessor, employing fewer parts for easy operation.

Woods of Colchester

Woods of Colchester has launched a range of Multi-Stage Aerofoil fans. This is the latest development of the JM Aerofoil series, which has established new standards of air volume, pressure, noise level and energy efficiency.

GEC-Marconi testing the water

GEC Marconi Naval Systems' Sonar Division has won a substantial order to design and manufacture an experimental towed array for the UK Defence Research Agency, based in Portland, Dorset.

The towed array, which will be known as the Large Aperture Research Array (LARA), will consist of a set of re-configurable towed modules which will be used to evaluate acoustic performance in varying environmental conditions.

GEC-Marconi Avionics is manufacturing many of the electronic components, based on advanced techniques developed jointly with the DRA. Following a recent trial, Phil Lock, head

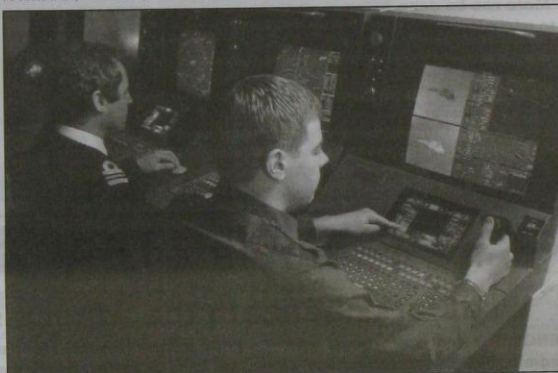
of sales and marketing at Sonar Systems, said, "The results of this trial will obviously have a very important impact on the course of future towed array development programmes."

NAUTIS

Meanwhile, development of GEC-Marconi Naval Systems' latest command system, NAUTIS, is nearing

completion. NAUTIS is on course to be delivered to the Royal Malaysian Navy, later this year.

Developed by the Addlestone based Combat Systems Division, two NAUTIS hardware shipsets, designed to equip the new Lekiu class light frigates, have been delivered to Yarrow Shipbuilders, Scotstoun. Delivery of applications software is scheduled for later this year.



The NAUTIS command system.

GEC ALSTHOM wins Korean hydroelectric order

A GEC ALSTHOM-led consortium has won an order worth over £28 million to supply power generation and control equipment for the San Chong hydro-electric power station in Korea.

The consortium comprises GEC ALSTHOM Neyrpic, GEC ALSTHOM Electromécanique and CEGELEC, and will supply the Korean Electric Power Company (KEPCO) and its partner, Hanjung, with two 390 MW pump turbines, spherical valves, two 405 MVA generator motors and the instrumentation and control system. The turbines will operate under a 392 metre head of water.

The order follows two others; that at Muju, for two 300 MW pump turbines, and that at Namgang for the refurbishment of two bulb units.

CMC'S MILLION DOLLAR CAMERA

THE Canadian Marconi Company (CMC) has won two orders worth a total of US \$1 million for its IRC-160 infra-red camera, developed and manufactured by its subsidiary, Cincinnati Electronics based in Mason, Ohio.

The order, placed by the US Coast Guard, covers the supply of cameras which are primarily for locating and assessing environmental hazards such as oil spills, as well as search and rescue operations. The second order, with AVIO of Japan, involves the supply of cameras integrated into

the TVS-8000 thermal video system jointly developed by CE and AVIO. The first of its kind, the TVS-8000 is used for research and development, and quality control operations in a large number of industry applications.

"These new orders mark a significant step in Canadian Marconi's diversification programme. They also confirm our ability to adapt our military products and technologies to the needs of specialised niches in commercial markets," said Ken Kivenko, CMC president and chief executive officer.

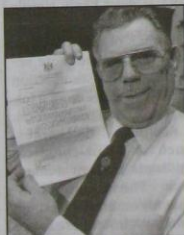
NEW YEAR'S HONOURS LIST

GORDON GROOOCK MBE

ONE of the longest serving members of staff at the Leicester Road works of GEC ALSTHOM Large Machines in Rugby, Gordon Grooock, was awarded an MBE.

Gordon, senior foreman of site maintenance at the company's Rugby base, began his career over 48 years ago with the former BTH company on the same site. Since then, he has worked for AEI, GEC, and GEC ALSTHOM.

He has always undertaken additional voluntary tasks, which have included works fireman, first aid and representing the RSPCA. In a large manufacturing site



Gordon Grooock MBE.

that even today is close to open country, it is always likely that animals and birds will stray into the premises. Over 25 years ago, he was trained by the RSPCA to care for animals and treat minor injuries.

DIANAH CLARK MBE

DIANAH Clark, an employee at GEC-Marconi Defence Systems, Portsmouth, was awarded an MBE for her contribution to the UK Defence Industry.

Dianah received the award for her contribution to achieving the American MIL 2000 build standard for GEC-Marconi Defence Systems Manufacturing facility.

"I was extremely shocked and somewhat overwhelmed by this honour. Many people have contributed to the award and I would like to express my thanks and appreciation to them all," said Dianah.



Dianah Clark MBE.

An employee of GEC since 1977, Dianah currently works in the company's Broad Oak Works production facility where she is a Category C instructor/examiner.

JOHN PEARCE MBE

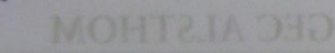

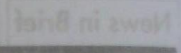
JOHN Pearce, of Marconi Radar and Control Systems, Chelmsford, was awarded an MBE in recognition of 25 years plus service to the electronics industry.

John joined Marconi as a senior systems engineer in 1967. During most of the 1980s he played a key role in the UKADGE project to modernise the UK's air defence control system. His combination of technical, financial and contractual skills proved invaluable when Marconi bid for a major order in Australia. After masterminding the winning offer, he spent six months negotiating the contract before becoming



John Pearce MBE.

resident general manager. Since his return to the UK, John has been programme manager for a new generation of radars which will enter service in the next century.

 ENVIRONMENT

DESIGNING TO PROTECT THE ENVIRONMENT

MORE than 60 senior engineering, technical and manufacturing managers recently attended a seminar on designing for environmental protection held at GEC's Management College, Dunchurch.

With the term 'environmental awareness' not only being the catchphrase of the moment, but indeed of the future, a recent seminar, hosted by GEC's Management College, threw some light on how future product design can meet the demands of an increasingly environmentally aware society.

The seminar was opened by GEC's director of technology, Dr David Grant, who gave a presentation in

which he forecast that the environment would become a key driving force in product design in the next 10 to 15 years. He made it clear that it is important that GEC businesses begin to take this into account in their product development plans.

"More can be done to minimise waste generation during manufacture..."

Other speakers at the seminar included Dr Ian Boustead, an expert on Life Cycle Analysis (LCA), who described the technique

and its benefits. He stressed that LCA was a valuable tool for evaluating designs - from an environmental perspective, but that it does not provide solutions to economic, social or environmental problems. Carl Sanderson of BMW (UK) Ltd spoke about his company's initiatives in using recycled plastics for car parts such as bumpers. BMW in partnership with other car manufacturers are encouraging scrap dealers to set up proper recycling centres where end of life cars can be disassembled in a systematic and controlled manner, reducing the present environmental

damage caused by scrapyards, where toxic gearbox oils, brake fluids and coolants are allowed to leach into the ground and ground water.

In an afternoon workshop session, delegates were given a hands-on opportunity to disassemble new and old telephone hand sets and examine the design from an environmental standpoint.

Commenting on this latest initiative by GEC, while emphasising its continued commitment to the environment, Dr Cedric Rodrigues, the company's Environmental Adviser said, "For the past four years, we

have concentrated our efforts on making environmental improvements to our operating sites. It is now time for us to consider more closely the environmental impact of our production processes and the raw materials used. More can be done to minimise waste generation during manufacture and in the selection of materials that are recyclable."

Future seminars will focus on specific issues such as the selection of environmentally friendly paints and plastics, suitable for recycling and waste minimisation during manufacture.

National Energy Awards 1994

GPT's considerable achievements in efficient energy utilisation and energy management were recognised in the recent National Energy Awards, sponsored by NIFES and the Major Energy Users' Council.

GPT submitted a combined entry for their plants at Beeston, Chorley, Coventry, Dagenham and Liverpool. The awards, in which GPT came second, equal with BAA plc and NatWest Bank plc, aim to recognise private and public sector organisations, demonstrating the increased emphasis on energy efficiency measures, reduction in greenhouse gas emissions and understanding of recycling materials.

John Gummer, Secretary of State for Environment, presented a plaque and a certificate to GPT's then managing director, Peter Gershon, and director of business efficiency, Ian Forster.



Secretary of State for the Environment, John Gummer (left), GPT's then managing director, Peter Gershon (centre), and director of business efficiency, Ian Forster (right).

Note to Topic readers

If you work within GEC and if you recycle waste, use environmentally friendly equipment, raise money for an environmental charity, or if indeed your company has its own environmental policy, please feel free to send details to *Topic*, or simply call Rachel Oliver on 0171 493 8484 or G-Net: Access + 783 388. *Topic* will be very pleased to hear from you.

Boyle's Law

What lurks beneath the water's surface?

ENGLAND and Wales boast almost 19,000 miles of rivers. Tourists and natives alike admire how picturesque these waterways look, yet after reaching a relative high in the early 1980's, water quality has fallen into a pattern of gradual deterioration. In this issue of *Topic*, Boyle's Law focuses on an organisation which is reversing this trend.

Protecting and improving the quality of the waterways in England and Wales is the responsibility of the National Rivers Authority (NRA).

The NRA gained increased power to combat pollution, resulting from a new statutory river classification system, passed in 1989 in line with EC Directives. This will enable the NRA to set standard objectives and to award a classification for a stretch of river, based on set criteria.

Already, the NRA is carrying out a yearly water quality survey along the lengths of all rivers, assessing levels of pollution on a scale from A ('Good') to F ('Bad'). A river can start off as 'A' status in the upper stretches but gradually

deteriorate to lower grades as it flows through agricultural, urban or industrial land. Although there has been gradual deterioration in water quality since the early 1980's, the NRA's 1993 survey found that over half of the total length of rivers was of good quality.

The quality of a river can only be maintained by carefully controlling both the quantity and quality of discharges made into it. The law tries to control this by prohibiting the discharge of any effluent or other polluting matter into a river except where it is in accordance with a licence, known as a discharge consent. These are issued and policed by the NRA.

To ensure that effluent discharges are within their consent limit, the NRA regularly takes water sam-

ples for analysis. If it is found that there has been a breach of a discharge consent, it will consider what action to take. Where no harm has been caused, the NRA is most likely simply to issue a warning, but as breaches of the discharge consent become more serious and persistent, action taken can range from a formal caution to prosecution.

Accidental discharges, such as oil or chemical spillages present a major risk. These can subsequently enter a storm drain and pass from there into a river. Such incidents are often reported by members of the public to the NRA which has a reputation for responding rapidly. Initially, the source of pollution would be identified and, if necessary, action taken to prevent any fur-

ther pollutants entering the river - usually by cleaning up the spillage. The causes of the accident, what remedial steps are necessary to prevent further occurrences and whether legal proceedings should be brought, are then considered. Where there has been a significant fish kill, a prosecution is likely to follow. On average, the NRA successfully prosecutes over 300 cases each year. While a typical fine is in the region of £5-10,000, the maximum fine ever given was a staggering £1 million.

The NRA stresses that prevention is always better than cure. Much of its time is therefore spent advertising good practices to avoid pollution in the first place.

GPS Paris trade mission

GEC Plessey Semiconductors (GPS) participated in a trade mission held in Paris recently to increase awareness of its products amongst Japanese companies.

The mission, sponsored by the European Electronic Components Association in association with the users committee of Japan, provided a forum for European suppliers to meet with Japanese manufacturers on a one-to-one basis.

Ernie Pusey, GPS' sales and marketing director, said, "We have been involved in three events of

this type over the last two years. They are useful in making our products more visible in Japan - fitting in very well with our expansion plans in this market.

We have already had a number of visits from Japanese companies following last month's trade mission. We are the leading European supplier of CMOS semi-custom ASICs

and Japanese companies are looking at off-shore sources for manufacture of their semiconductor requirements."

Since GPS opened an office in Tokyo just over three years ago, there has been an increase in Japanese business and the company expects 40 per cent growth in this country in the next year.



Sales manager for GPS' Tokyo office, Yoshi Kudoh (left), GPS' sales and marketing director, Ernie Pusey (centre) and Peter Bacon, from the DTI's electronics division unit responsible for Japan, setting off for Paris on Eurostar, for the Japanese trade mission.

NNC Fuel Transit Bay order

NNC, Knutsford, has won an order to refurbish the Fuel Transit Bay at Hinkley

Point 'A' power station.

The refurbishment is part of necessary works to ensure the continued effective operation of the fuel route for the remainder of the station's planned life and then for a three year defuelling period after final shutdown.

The order covers control and instrumentation and mechanical engineering. Working in a radioactive environment, the NNC team will also conduct hardness

testing, weld and bolt checking within the Transit Bay. They will also replace the control desk and pneumatic control panels.

The work will be carried out in parallel with an order already awarded to NNC to refurbish the Pond Hall Cranes. The Fuel Transit Bay is the area where spent fuel elements are transported from the cooling ponds and put into flasks for eventual removal from site.

Monitoring power in Lithuania

GEC ALSTHOM is to supply nuclear power station monitoring systems in Lithuania.

GEC ALSTHOM's subsidiary, MAN Energie GmbH in Nuremberg, has received a £1.2 million order to supply an operational monitoring system for the nuclear power station at Ignalina.

The system will monitor the cooling channels in the station's two nuclear reactor blocks. Using this proven monitoring technique, the safety of the two 1,500 MW reactors will be increased. This order is the first for MAN Energie placed by a former Soviet republic. The system is scheduled to enter service later this year.

Jubilee win for Woods

WOODS of Colchester has continued its success in the tunnel ventilation field with a contract worth £4 million for London Underground's Jubilee Line extension.

The order, which is the largest ever for Woods worldwide, was placed by Drake & Scull Engineering, one of the project's principal mechanical and electrical contractors.

The contract covers the supply of 66 large tunnel fans and silencers, which will be installed at 22 locations along the 12.5 km underground section of the 16 km Jubilee Line extension from Green Park to Docklands and Stratford.

Commenting on this latest success, Woods' managing director, David Priest, said, "Woods' success in secur-

ing this business is a powerful testimony to the company's experience, in-depth capability, product reliability and expertise in fire safety ventilation, demonstrated in tunnel projects all over the world.

This important and prestigious project brings a further reward in a year which has seen a vigorous, company-wide team effort to consolidate Woods' position as a world-class leader in the ventilation field. The company is now in a strong position to develop its business even further in 1995."

Woods' project leader, Alan Butcher said, "Everyone in the team was confident we could secure the order from the outset, because Woods could offer the right combination of technical knowledge and experience in the field. The Jubilee Line Extension project will be a showcase for modern tunnel technology, and we're obviously delighted to be playing a part."

The extension, for which GEC ALSTHOM and GPT have both won major orders, is scheduled to enter service early 1998.

Avery Berkel weighs up the orders

AVERY Berkel Australia has won its largest ever order of \$250,000 for a single weighbridge.

The order, awarded by Argyle Diamond Mines, Western Australia, covers the supply of a remote driver control station, linked by modem to a computer running Weighman 2000 software.

The software, developed by Avery Berkel, is reputed to be the most advanced programme of its type on the market. The new weighbridge system, is based on a modular design which enables it to be customised and upgraded readily to meet customers' changing requirements. It will also be used to protect

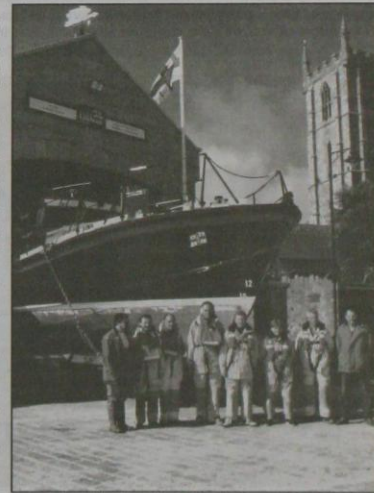
the road surfaces and road users on the highways of Malaysia. The Malaysian Highway Authority is concerned about damage inflicted on road surfaces, resulting from heavily loaded lorries. Consequently, Avery Malaysia Sdn Bhd has recently been awarded an order to install five weighbridge units.

Xpelair rescues St Ives Lifeboat station

XPELAIR, Birmingham, has recently improved crew conditions at the new St Ives Lifeboat station by installing two wall mounted ventilators.

The station houses a new 12 metre-long rescue boat and provides improved facilities for the crew and support staff. An essential part of the station is the crew room with its showers and wet weather gear changing rooms.

The station's honorary secretary, Captain Phil Moran, said, "The shower areas can get very steamy, particularly when the crew like to freshen-up after a call out. It's not often we move to a new building, so we wanted to make sure that we took effective steps to prevent mould growth and structural damage caused by poor ventilation."



By ensuring a flow of fresh incoming air, the two DX200 fans have reduced condensation in the crew room to a minimum.

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GPT - shaping the future of

GPT is Britain's largest telecommunications manufacturer and has achieved sales in more than 100 countries worldwide as it continues to increase significantly its international business.

Owned by GEC (60%) and Siemens (40%), GPT is a world leader in telecommunications solutions, from its record breaking System X digital public telephone exchanges to payphones, videoconferencing and latest generation Synchronous Digital Hierarchy (SDH) transmission systems.

Modern telecommunications network

GPT supplies everything for today's modern public telecommunications network including advanced digital telephone exchanges, transmission equipment, PBXs, network management systems, land and submarine cable systems, payphones, and telepoint equipment.

At the heart of its network technology, System X and Synchronous Digital Hierarchy are industry innovations designed to handle the requirements of today and the next century.

System X meets all the needs of a modern digital network. Its modular design satisfies the needs of both the smallest and largest network operator and can easily expand to incorporate the latest technological advances. System X is at the heart of

the UK's digital telecommunications network and has delivered over 22 million lines to 11 countries throughout the world.

SDH

Synchronous Digital Hierarchy is an integral part of future networks, and the company is deploying systems to more than 30 countries around the world. Last year, GPT won the two largest orders in the world for SDH systems - £40 million from China and £30 million from Australia. GPT is a leading supplier of transmission systems for local areas and for business users to access public networks. This is supported by the supply of cables, associated equipment and a

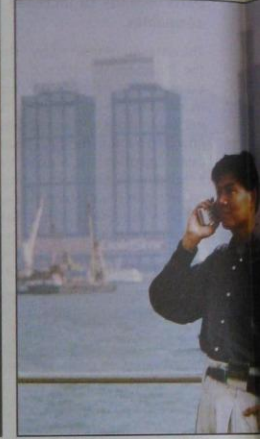
full project management capability.

Recent public network success includes a record £50 million export order to modernise Moscow's telecommunications network. The order, placed with GPT's Moscow-based joint venture COMSTAR, represents the largest individual overseas order for System X. It also involves SDH transmission equipment.

GPT has also earned a reputation as a leader in the handling of major transportation projects. It has won contracts for the Beijing Metro and the London Underground Jubilee Line extension and was selected for the £27 million Mass Transit Railway linking the new airport with the Central District on Hong Kong Island.



GPT is the world's largest supplier of payphones with more than 100 customers in over 70 countries.



Ningbo was the first Chinese city to go live with

Communications on the move

No challenge is more demanding than satisfying the communications needs of people on the move. GPT offers a range of innovative communications products and services, and is a leader in telepoint systems and payphone technology.

Telepoint

The Telepoint system, a mobile telephone system which utilises the public network, is currently in great demand in South East Asia - particularly in Hong Kong and China. Telepoint users can make calls when in the proximity of a base station. GPT developed the world's first two-way Telepoint system, allowing users to make and receive calls. GPT's recent £18 million Telepoint order in Taiwan is the world's largest. It involves supplying more than 12,000 base stations and the associated network management system.

Payphones

GPT is the world leader in payphones. Not just coin operated phones, but phones able to accept the methods of payment most convenient to travellers - credit cards, pre-pay cards, bankers cards and GPT's own smartcard technology. These 'smart phones', give a new dimension to the power and convenience of call box services. GPT has supplied over half a million payphones in such diverse places as Bulgaria, the Antarctic and Saudi Arabia. It is, in fact, the world's largest supplier with more than 100 countries worldwide. Recent successes include the introduction of smartcard technology into China and Thailand. GPT is also supplying British Telecom with its next generation of public payphone technology and smartcards later this year.

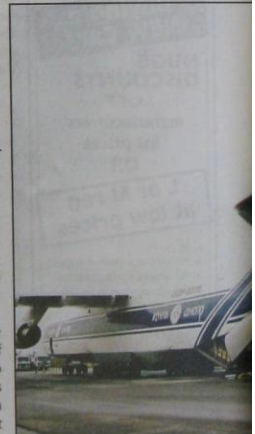
In the beginning

GPT was formed in April 1987 as the Plessey Company's largest telecommunications division. It is now the largest manufacturer of telecommunications equipment in Britain.

Today, GPT is a leading telecommunications solutions and applications company with products available in more than 100 countries around the world.



China bound... SDH systems on their way to Wuhan.



GPT's record £50 million export order to modernise Moscow's telecommunications network represents the largest individual overseas order in the company's history. The photograph shows the first public payphone installation.

f world telecommunications



...a GPT Telepoint system.

Developments in the workplace

GPT provides a range of customer focused communications solutions for businesses of all sizes - from videoconferencing for visual contact between remote sites to voice processing systems and from PBXs to Videotex Systems.

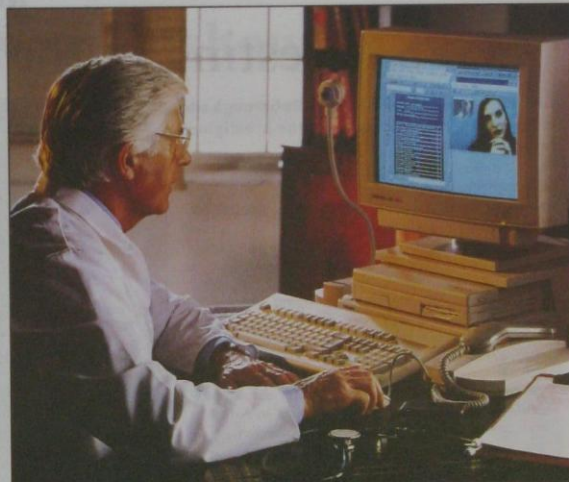
Some of the most important developments in the workplace include: cordless communication, the linking of computers to PBXs, videoconferencing and extending video into multimedia.

The cordless office represents a significant change in business communications, allowing telephone users the freedom to move away from their desks while remaining in contact through the office telephone system.

The system allows users to make and receive calls from their personal cordless phones wherever they are

within their office premises. The savings made not having to return calls are substantial and, as calls are channeled to individuals instead of their desks, efficiency is improved. The CT2 technology behind GPT's mobility solution has also been harnessed by GPT in its Telepoint mobile public telephone network solutions.

The linking of computers to PBX business communication systems has many applications and provides businesses with an advantage. The fact that data in the computer can be referred to, and up-dated, while the customer is actually on the phone is one of the most important benefits of this technology, commonly known as CTI (Computer Telephony Integration).



The design of FOCUS PC makes it simple to use and easy to install - a single communications card is all it takes to transform a PC card into a multimedia workstation.

inning...

In 1988 when GEC and GPT merged their operations to create the world's largest telecoms systems in

Britain's largest manufacturer and its operations are helping people in more than 100 countries around the world.



...modernise Moscow's telecommunications services order for a System X public network. The image shows pieces of equipment arriving in Moscow for

Videoconferencing

GPT is a leader in videoconferencing, with systems installed in over 40 countries worldwide. Videoconferencing allows individuals or groups to have live and interactive conversations whilst seeing one another on conventional TV screens even when they are hundreds of miles apart.

Using a GPT videoconferencing system is as easy as plugging in a telephone and power cable, then dialling the person you wish to speak with.

Videoconferencing is rapidly becoming important to the way companies and universities communicate. For example, it is used to link classrooms with lecturers miles away. Medical students in London are able to watch surgery taking place in Hong Kong, and talk with the surgeon during the proceedings. Not only does this avoid the need to travel, it also makes teaching situations possible.

Focus PC adds to GPT's videoconferencing portfolio, while also creating new

options through its data exchange capability. It is a multimedia package, comprising a camera, audiostream, software and a 'plug-in' PC card. The system is simple to install and easy to use. The single PC card transforms the PC into a multimedia workstation.

Control of Focus PC is made easy through the use of Windows-compatible software. Calls are set-up by selecting names from a personal directory and choosing the type of call, or any combination of video, audio and data. Focus PC takes care of the dialling. GPT's Business Systems Group - which is at the centre of its new office applications - recently celebrated a memorable achievement as worldwide sales of its ISDX (integrated services digital exchange) business communication system surged past the five million line mark.

Communications in the home

GPT technology also makes communications from the home easy. Teleworking allows the homemaker access to the same communications and computing facilities as an office worker, but from a remote location.

Recent innovative solutions in home communica-

tions include the ability to identify a caller's number, having the phone ring you when a previously engaged number becomes free and receiving a warning when there is a call waiting. These facilities are possible thanks to the advanced software devel-

oped on GPT's System X digital exchange.

GPT's test exchange in Coventry has been accredited by the Guinness Book of World Records as handling a record number of phone calls in one hour. The exchange processed 1.6 million calls.



The Business Systems Groups worldwide sales of ISDX business communication systems recently surged past the five million line mark. This milestone demonstrates the confidence customers around the world have in ISDX.

TRAINING DEVELOPMENT

GPS investing in the future

GEC Plessey Semiconductors's Roborough site in Plymouth, recently received the prestigious Investors In People (IIP) award.

IIP is a national accreditation which recognises an employer's commitment to the effective development of training of its staff in line with business needs. Jack Howard, operations director for the Devon and Cornwall Training and Enterprise Council (DCTEC) who support the programme, explained the reasoning behind the award: "IIP sets exacting standards for companies in terms of setting business goals, communications, and their commitment to staff. We are thrilled that GPS, as one of the leading companies in the electronics manufacturing industry in this region, has gained the award."

"We are committed to investing in our employees. This is essential, as they are our most important asset" Gordon Hutchison, general manager.

Gordon Hutchison, general manager of GPS's Plymouth facility, views the award as a demonstration of the company's commitment to investing in employees which he sees as "essential, as they are our most important asset and make a major contribution to our business growth and profitability. They must therefore be properly trained and have the opportunity to develop. It also supports our strategy of providing world class products to our customers."

Another GEC company, Woods of Colchester, was recently re-accredited with the IIP award, reported in the December issue of *Topic*. GPS's award ceremony took place at the company's Roborough facility.



Gordon Hutchison (left), general manager of GPS, Roborough in Plymouth, receiving the IIP plaque from Jack Howard, operations director for the DCTEC. Also pictured are Wendy Wyatt, IIP advisor for DCTEC (left), Mary Grett, personnel manager at GPS, Plymouth, and John Clifford, GPS director of personnel.

NNC - two days in January

EARLIER this year, some 300 students descended upon Salford University, to discuss the dilemmas involved in the engineering/environment relationship. NNC employees, Helen Buckley and Paul Fowler, both acted as group advisors during this two day event.

The event, sponsored by GEC, aimed to enlighten budding engineers, at pre-degree level, of varying engineering problems and their effects on the environment. On the first day, students attended an engineering workshop where they got to grips with solving engineering problems. They were given the opportunity to approach graduates who had recently entered the industry, with questions on their chosen profession.

The NNC workshop comprised an assessment of the extent of radioactivity in common household items. Students were surprised to discover that everyday items such as smoke detectors and watches were, indeed, radioactive.

Furthermore, it was demonstrated how natural elements such as radon can be detected, and how it can build up within homes and buildings as well as in underground potholes and caves.

On the second day, students attended a further workshop, where they found out more about topics such as recycling, water supplies and solar and wind energy.

After further discussion and a debate on whether "engineering safeguards the world", the students departed. All had the opportunity to discuss many aspects of the profession, and to alleviate any uncertainties before committing themselves to full time engineering studies.

New diplomas on offer from Dunchurch

Postgraduate Diploma in Project Management

THE GEC Management College, in partnership with Lancaster University and the Open University, is enrolling for the Spring launch of the new Postgraduate Diploma in Project Management. The qualification, awarded by Lancaster University, meets the requirements for full membership of the Association of Project Managers.

The 13 month programme combines Dunchurch management training with the distance learning expertise of the Open University and Lancaster's long experience in the subject. It is designed for project managers who wish to develop their skills. Candidates should hold a first degree or HNC although those without formal qualifications may also be accepted on the programme.

For more information, or to reserve a place on the programme, please contact Alex Miles, the programme director, at Dunchurch, or Amanda Siggery, registrar, on G-Net: Access + 784 2019 or 01788 810656.

Dunchurch and the Institute of Export partners in training

AFTER exploratory discussions with the Institute of Export late last year, the GEC Management College has obtained validation and accreditation for the postgraduate certificate and diploma programmes in commercial management. As a result, delegates who enrol as Associate Members of the Institute (AMIEx) during their course of study, are exempt from the Institute's entrance examination requirements and gain transfer to Graduate Member (MIEx[Grad]) status upon

successful completion of their postgraduate diploma. In addition, the Institute has agreed to award pass certificates for individual modules jointly with Dunchurch.

Stuart Ager, Dunchurch commercial and finance business group manager, said, "It is highly significant that the UK Professional Institute dedicated to the improvement of British export business has teamed with Dunchurch in this way and has accredited the commercial programme in its entirety."

GEC MANAGEMENT COLLEGE

TIMETABLE: Jan - Sept 1995

Forthcoming seminars at Dunchurch

Here is the latest list of one and two day events being held at GEC's management and training college.

Contract Liabilities for Delay	28 March
Market Testing	31 March
Executive Briefing - Business Process Re-engineering	7 April
Facilitation Skills for Managers	11 April
Controlling Contractors on Site	11 April
Construction (Design & Management) Regulations 1994	1 & 10 May
Environmental Seminar for Directors	2 May
Use of Outdoor Training for Developing Teamwork	18 May
Benchmarking Conference	25 May
Energy Conservation, Transport & the Office Environment	6 June
House Journal Editors Seminar	22/23 June
Conference on Software Management	TBA
Executive Briefing - Benchmarking	TBA
Winning Major Airport Projects	TBA
Environmental Law for Solicitors	10 July
Project Management Tools & Information Systems	22 Sept
Managing & Working in Virtual Organisations	TBA

For further details tel: G-Net: Access + 784 2020 or 01788 810656

TRAINING  DEVELOPMENT

And the latest video release from AEI Cables is...

AEI Cables, Bootle, has launched a training video on mineral insulated cable termination, aimed at simplifying the process for the company's customers. Anyone who has ever tried, will know that mineral insulated cable termination can be a difficult and time consuming process. To those who have, it will come as a welcome relief to learn that AEI Cables, Bootle, has launched a training video, on the subject. Nine minutes in length, it offers step-by-step instructions and demonstrates how a standard cable termination can be completed in as little as two minutes using the company's purpose designed termination tools. Known as the 'Easi' range,

the tools are used in combination with standard cable terminations. They comprise the Easi-Strip (an expendable sheath stripping tool), the Easi-Pot (a simple wrench for screwing the pot on to the cable) and the Easi-Crimp, used to crimp the cap into place. Commenting on the usefulness of the video, group marketing manager, Graham Frackelton describes it as "the ultimate aid to the mineral insulated cable industry, providing invaluable support to our customers."

Woods helps students become 'engineers of the future'

WOODS of Colchester is paving the way for the training of computer-literate engineers of the future.

The company's technology and computer experience is being used to the benefit of local school pupils, to encourage the development of technology as a subject within the National Curriculum.

Woods has arranged for local schools to receive a computer-aided design software package, aimed at encouraging students to enter the profession, and eventually to create more engineers in the next few years.

The software packs were

recently handed to staff from four local schools in a presentation which included a demonstration of Woods' own computer-aided design system. This system is used to design all the company's products and forms an integral part of the computer-aided manufacturing system.

The presentation gave students first hand knowledge of how computer technology is used by Woods in developing and manufacturing a winning product range.

Quality news from GEC-Marconi Dynamics

GEC-Marconi Dynamics, Stanmore (GMDL), has received an ISO 9001 Certificate, after 25 man days of auditing. The certificate, which covers the company's four sites, was presented by Jim Mackenzie, the founder director of Lloyds Register Quality Assurance Limited to Ray Matthews and Peter Cook of GMDL.

GEC women show it's not a man's world

HAYLEY Gladstone, a senior project manager with GPT Strategic Communications Systems, Coventry, was chosen from a field of 50 entrants as the 1994 Young Woman Engineer of the Year.

The award - presented by The Secretary of State for Education, The Rt Hon Gillian Shephard MP and jointly sponsored by the Institution of Electronics and Electrical Incorporated Engineers and the Caroline Haslett Memorial Trust - was set up in 1978 to raise the profile of women in the engineering industry.

Hayley, who joined the industry as a telecommunications consultant in 1988, told *Topic*, she was "chuffed to bits - I didn't expect to win at all." Her reaction is understandable, after being told as a young girl that she "did not stand a chance" seeking a career in such a male dominated industry. However, Hayley showed a distinct determination to succeed in her chosen profession. She took a BTEC National Certificate and then a Higher National Certificate in telecommunications before joining GPT as a project manager in 1990. Promoted to senior project manager

in 1993, she has worked on many major projects such as the modernisation of communications on the Beijing subway system. She is currently managing the communications project for the Hong Kong Mass Transit Railway Corporation's extension to the new airport in her new home, Hong Kong.

In presenting the awards, Mrs Shephard commented on the standard of entries saying, "Today's finalists are an excellent testimony to the quality of education and training available for Incorporated Engineers. I have been most impressed by the quality and commitment of the finalists in this year's competition."

MARY GEORGE MEMORIAL AWARD

Congratulations also go to Julie Finch, another GEC employee. Julie works for GEC-Marconi's Sensors Division, Basildon, and was



Hayley Gladstone at work.

runner-up in the Mary George Memorial Prize. This is an additional award given to the most promising young entrant who has

completed her academic studies, but has not yet obtained sufficient training and experience to be eligible for the main award.

Marconi measures up to standard



THE winners of the Institute of Electrical Engineers' (IEE) 1994 Measurement Prize are Dr Chris Potter (pictured right) and George Hippiers (left) of Marconi Instruments, Stevenage. The prize, sponsored by the National Physical Laboratory, was presented for work which made use of numerous leading-edge developments in microwave engineering, and resulted in a new microwave reflection analyser.

The presentation was made by Ian Taylor (centre), the Parliamentary Under-Secretary of State for Trade and Technology. The prize is awarded annually to individuals or groups who have made a significant contribution to the techniques involved in measurement, using electrical, electronic or electromagnetic devices.

TRAINING DEVELOPMENT



THE 1994 Captain's Warfare Prize, sponsored by Marconi Simulation and Training, was awarded to Lt Mike Maher RN. Pictured from left to right at the presentation at Southwick House, near Portsmouth are: David Fletcher, managing director of Marconi Radar and Control Systems, Vice Admiral Michael Boyce, Flag Officer Surface Flotilla, Lt Mike Maher RN and Captain of the School, Captain Andrew Ritchie.

GEC Plessey Semiconductors

GEC Plessey Semiconductors (GPS) is one of the world's leading suppliers of integrated circuits to the communications market. Our business in this area is growing at about 25 per cent a year. To help maintain this growth, we have opportunities for talented engineers.

CMOS IC Designers

Designers are required to work in the following areas: analogue, digital systems and DSP.

Applications Engineers

Applications engineers are required to work in the following areas: cellular RF, power amplifiers and audio processing.

Bipolar IC RF Engineers

Bipolar IC RF engineers are required to work in the following areas: RF design, test development and integrated filters.

Applicants should be educated to HNC or ideally degree level.

To apply for any of the above positions, please write with full CV to: Lucy McGill, GEC Plessey Semiconductors, Cheney Manor, Swindon, Wilts, SN2 20W.

Swindon and Oldham

GEC plc

Finance Directors

GEC's Distribution and Trading Group would like to hear from suitably qualified and experienced accountants currently working within GEC who would now be interested in being considered for a term of employment in an overseas location, at Finance Director (or equivalent) level. The business carried out by the Distribution and Trading Group is mainly trading with some specialist contracting activities.

Candidates are likely to be aged between 30 and 40 and will be able to demonstrate good career progress to date. The ability to respond to the cultures of largely indigenous workforces is also important.

Please telephone Alan Taylor at Stanhope Gate G-Net: Access + 783 324 for an initial general discussion.

Overseas Locations

GEC-Marconi Communications

GEC-Marconi Communications has a world wide reputation in the design, manufacture and installation of radio, telecommunications and broadcasting systems for civil and military applications. Due to the expansion of its product range, the company has the following engineering vacancies:

RF Engineers/Senior RF Engineers

Working on Over the Horizon Radar Network Development (IORN), the positions require experience in one or more of the following areas:

- general RF design 5 - 150 MHz
- low phase noise and low amplitude noise circuitry
- low power broad band amplifier design
- passive (wound components) broadband hybrid combiner/splitter and transformer design
- low pass/band pass filter design for harmonic/noise limiting
- RF detectors for Bit/Bite use.

Some knowledge of HF system design would be an advantage.

Senior Control Engineers

Applicants should have experience in the following areas:

- communication protocols and associated hardware RS422/RS422A/RS232
- synthesizers - control experience
- CMOS circuitry - surface mount experience
- EMI testing of designs.

Senior DSP Software Engineer

Applicants should have experience of DSP coding and algorithms for vocoders and data modems. Motorola DSP 56000 series experience would also be advantageous.

PMR Software Engineers/Senior PMR Software Engineers

Applications are invited for a number of posts in the Private Mobile Radio Engineering Department. The successful applicants will be involved in the design of software for PMR applications. Knowledge of at least one of the following languages is essential: C, SQL, PASCAL. Familiarity with Yourdon/Teamwork, Unix or MS-DOS would be advantageous.

Senior Engineers - Modems

A vacancy exists for a new position within the Civil Product Development group. Initially work will be concentrated on the design of digital modems and associated equipment for a new range of 'B' and 'M' Inmarsat terminals. Work on other modems in the Tropo and Satellite field will also be undertaken involving high speed data modems and adaptive modems for other communications systems.

Applicants should have a very good understanding of digitally implemented modems, coding, decoding and control. Experience in the field of sequential decoders and of Inmarsat equipment and protocols would be advantageous. Extensive use of FPLGA's, DSPs and Micro Processor techniques will be required.

Applicants for all the above posts should have a relevant degree with a minimum of three years experience or five years experience for more senior positions.

To apply, please write with full CV to Peter Slade, GEC-Marconi Communications, New Street, Chelmsford, Essex CM1 1PL

Chelmsford

GEC Overseas Club

President's Trophy begins 41st year of competition

COMPETITION for the GEC Overseas Club 41st annual President's Trophy golf tournament is set to begin in June.

The President's Trophy is an international golf competition open to all club members both in the UK and abroad. The trophy was first presented in 1954 by Leonard Short and was renamed, at Mr Short's request, the President's Trophy in 1971.

Competition is spread over the summer months in centres across the globe. The UK tournament is played in June and July, whilst other centres arrange their own competition.

The tournament is played over 18 holes at a recog-

nised golf club that uses the Stableford scoring system. Competition is limited to a maximum handicap of 18. Score cards are then submitted to the council secretary to determine the winner.

In last year's competition, Jim Gordon of the Rugby centre was the winner of the Trophy. Playing with a handicap of 16, Mr Gordon won with a Stableford score of 42. Previous trophy winners include entrants from South Africa, Canada and Australia.

Council is currently considering a revision to competition rules that would allow overseas members in countries with no established club centre to run



Jim Gordon (left), Rugby centre, is presented the President's Trophy by David Twigger, secretary to council, at the 1994 awards dinner.

their own competition. It has been suggested that play must be on recognised

golf courses with a minimum of six members who play together. Interested

parties should contact the secretary to club council for further information.

News from around the centres

ICGF

MEMBERS of the UK club held their annual inter centre golf tournament last September at the Bar Hill Golf Club in Cambridge.

The event is a day-long competition between all centres in the the UK and is followed by a reception and awards dinner.

Organised last year by the Chelmsford centre, 62 members took part in



Richard Reynolds (left), chairman of club council, presents Chris Christelow with the Hugo Hirst Cup.

the tournament. Richard Reynolds, chairman of Club Council, presented the winners with their trophies and tankards at the reception dinner following the competition.

Winner of the Australia Cup for best team score was the Coventry centre team with 127 points followed very closely by Rugby centre with 126 points.

The Hugo Hirst Cup for the best individual Stableford score was Chris Christelow of the Chelmsford centre with a score of 38.

Inter Centre Golf Tournament

The AS Black Trophy for the lowest gross score was won by Nigel Bolsover of the London centre and Brian Marshall, Portsmouth centre, won the EG Phillips Cup for best individual Stableford score for those with a handicap of 19-28.

The 1995 Inter Centre Golf Tournament is scheduled for Ingestre Park on Thursday, September 21st and will be organised by the Stafford centre.



Members of the London centre enjoy a day at the RAF museum at Hendon, North London.

COVENTRY

FORTY six members and their families met at the Chequers Inn Ullathorpe on Sunday, December 4 for a Christmas luncheon. The event was very successful and secretary Alan Nixon hopes to continue further family luncheons this summer.

The annual dinner dance for Coventry members is scheduled for Saturday,

March 11th at the Manor Hotel Meriden. For more information contact Alan Nixon at 01203 563784.

100th Council Meeting

Wednesday, March 1st marks the 100th council meeting of the Coventry centre club. The meeting will be held at Dunham Knoll, Manchester. For more information contact Alan Nixon at 01203 563784.



CLUB SECRETARY

Council: David Twigger,
GEC,
1 Stanhope Gate,
London, W1A 1EH
Tel: 01203 565588

CENTRE SECRETARIES

Chelmsford: Chris Christelow,
EEV,
Chelmsford, CM1 2QU
Tel: 01245 493493

Coventry: Alan Nixon,
GPT,
New Century Park,
Coventry, CV3 1HJ
Tel: 01203 563784

Lincoln: Tim Dunn,
GEC Plessey
Semiconductors,
Carlholme Road,
Lincoln, LN1 1SG
Tel: 01522 565510

London: John Forster,
Marconi Defence
Systems,
The Grove, Warren
Lane, Stanmore,
HA7 4LY
Tel: 0181 954 2311

Manchester: Nick Phipps,
GEC ALSTHOM
Power Plants,
PO Box 75, Mill
Road, Rugby,
CV21 12S
Tel: 01788 568444

Portsmouth: Leon Painter,
Marconi Underwater
Systems,
Elletra Avenue,
Waterlooville,
PO7 7XS
Tel: 01705 260024

Rugby: Phil Moore,
CEGELEC Projects,
Boughton Road,
Rugby,
CV21 1BU
Tel: 01788 563563

Stafford: Colin Riley,
GEC ALSTHOM
Turbine Generators,
Lichfield Road,
Stafford, ST17 4LN
Tel: 01785 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

CLASSIFIED COLLECTION

HOLIDAYS

CLACTON, Essex. Self catering (non-smoking) double bedroomed house, suit two couples or two singles. Available now. Situated near town. From £120-£180 per week inclusive. Tel: 01255 473920 after 7pm any evening.

SOUTH DEVON, Challa-borough Bay. Privately owned and maintained, fully equipped six berth caravan on a Haven site. Weekly costs are significantly lower than Haven charges and include gas, electricity and admission to all site facilities. For further details and prices, tel: 01522 685178.

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

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

NORMANDY. Converted barn in private park. Two bedroom house, sleeps 4-6. Sandy beach 2 km. Mont St Michel 30 km. Nearest town Granville 5 km. For details tel: (010 33) 40 22 54 31 weekday evenings.

DEVON CLIFFS, Sandy Bay, Exmouth. Eight berth (3 bedrooms) caravan on a Haven site. Suitable for everyone. Weekly cost includes admission to clubs and swimming pools. Gas and electricity is free. Privately owned and maintained. Prices well below camp tariffs. Interested tel: 01793 731485.

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.

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.

DEVON CLIFFS, Sandy Bay, Exmouth, South Devon. Six and eight berth caravans on a Haven site. Especially suitable for families. Weekly cost includes admission to pools and clubs with free gas and electricity. Privately owned and maintained so the prices are below camp charges. Tel: 01963 362101.

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 Herriot country. Tel: 01756 752075.

FLORIDA, Orlando. Two bedroom, two bathroom, air conditioned villa. Sleeps 4/6. Overlooks 18th fairway, Meadow Woods golf course. Free golf, swimming and tennis. Fifteen minutes to Disney World and major attractions. £275 per week. Tel: 01745 833426.

SUFFOLK, small coastal village of Walberswick. Holiday home, sleeps four. Secluded spot overlooking meadows. Five minutes from good beach. Ideal walking and bird watching country. Tel: 01245 223689.

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 weekdays after 6pm.

SNOWDONIA, Betws-y-Coed. Tyn-y-Celyn House. Highly rated and situated in a quiet position in the park overlooking the pictur-

esque village. Superbly furnished for comfort and relaxation. There are beautiful views of the Llgwy Valley, rivers and surrounding mountains. £20 per person. Tel: 01690 710202.

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.

SNOWDONIA, Trawsfynydd Village. Comfortable, well equipped, two bedroomed stone cottage. Sleeps 4/6, cot provided. Pets welcome. Good walking and fishing locally, convenient for exploring rest of North Wales. Available throughout year. £84-£168 pw. Winter mini-breaks from £42. Tel: 01489 574626.

MINORCA, detached villa with private swimming pool. Three bedrooms, sleeps maximum eight people. Fitted kitchen, lounge/diner, two bathrooms, private gardens, two sun terraces. Close Ciudadela. Ten minutes walk to beach/coves. For brochure tel: 01634 867183.

SCOTLAND, Loch Rannoch, near Pitlochry. Fully fitted self catering luxury apartment, sleeps four. Resort facilities include hotel and restaurant, sports including indoor swimming pool. Available 10-17 August 1995 and 17-24 August 1995. For further details tel: 01268 540847.

FLORIDA, five minutes from Disney World. Privately owned three bedroomed villa on friendly estate with free use of swimming pool, tennis court and children's play area. Near all major attractions. Sleeps six persons. Tel: 01424 842885.

PORTUGAL, Algarve. Three self-contained villas with swimming pool. Set in four acres of secluded countryside, six miles from Lagos. Choice of 1/2/3 bedroomed villas all en-suite. £45 per person per week. Tel: 01202 897407 after 7 pm.

FRANCE, Gassin (near St Tropez). 4/5 bed mobile

home in wooded site. Pool, restaurant, shop, tennis court. Well equipped with separate double bedroom, shower, WC, private patio. Tel: 01962 853504.

NORTH WALES. Four bedroom stone cottage situated on the coast in Snowdonia National park in Llanbedr with good village shops, pubs, restaurants. Close to Shell Island, Harlech and Barmouth. Sleeps up to eight, cot provided. Excellent walking area. Tel: 0151 487 9521

SOMERSET, Doniford Bay (Haven site). Three bedroom, seven berth caravan, colour TV, free gas and electricity, entertainment. Indoor/outdoor swimming pool and many other activities on this site. For full details and prices, tel: 01522 689322.

SPAIN, Gran-Alicante. Two bedroom apartment, sleeps four. Fully equipped kitchen, bathroom, lounge and balcony. Balcony overlooking swimming pools. Bars, restaurants, shops, ice-cream parlours etc nearby. For further information please tel: 0181 907 3093 evenings only.

DYLAN THOMAS COUNTRY, Llanstephan, Carmarthen. Detached chalets, sleep three to six from £115 pw. Licensed club, heated pool, play area, near super beaches, sailing. Small rural site, one pet welcome. Tel: 01267 241457 for brochure or booking mentioning 'Topic'.

NORTH WEST SCOTLAND, Croft house on the edge of Loch Ewe, Wester Ross. Sleeps six plus. Close to Inverewe Gardens and beautiful highland scenery. Ideal touring, walking, etc. £80 per week. Further details tel: 01376 326250.

FRANCE, LaPalmyre, 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 approx. 2.5 miles. Ideal for visiting Cognac, Bordeaux, FUTURESCOPE.

Ferry bookings and insurance available. Tel: 0276 28792.

PROPERTY

CANALSIDE, two bedroom mews house, garage opposite. Priority mooring rights, access to private moorings from garden. Located in Gnosall, Best Kept Village of Staffordshire. Fully fitted kitchen/diner including appliances, GFCH, double glazing, tiled bathroom, shower. £58,000. Tel: 01785 822544.

PRESTON, attractively presented detached home. Three bedrooms, two receptions, kitchen, bathroom, downstairs WC. Attached garage, good sized garden, NHBC guarantee, GCH, double glazed, cul-de-sac position. £52,950 - quick sale due to emigration. Tel: 01772 792373.

DORSET. Individual superior detached house, main road position approximately three miles from Weymouth town centre. Comprising three double bedrooms, extra large bathroom, lounge, dining room, kitchen, utility room, cloakroom, GCH, garage, small garden. £87,950. Tel: 01305 834284 after 6 pm.

FRANCE, south of Loire River (200 km south from Paris). Two level house. Living room with verandah (60 sqm - half timbered with chimney), four bedrooms, bathroom, shower room, two toilets, reading room, garage (two cars), cellar, wood shed. Total sur-

face area 0.5 acres. 800,000FF (£100,000). Tel: Mrs Pizzini 33 4873 7244 or Mr Pizzini (GEC ALSTHOM International, Korea) Tel: 822 736 4047 Fax: 822 737 3591.

FOR SALE

COOKER, Creda Contour Dual Fuel (gas hob), model 48405, brown, as new £320. Tel: 01788 891649.

PIANO KEYBOARD, (88 note), each key operating two reed-relays and pressure-sensitive resistor pad. Also available, twelve crystals tuned to the piano scale and associated circuit boards. Suit keen experimenter. Tel: 01584 873900.

MISCELLANEOUS

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

WIRELESS collector enthusiast seeks pre-1950 military and domestic radios for restoration and preservation. 1930s Ecko, Philips, Bakerlite models especially sought. Telephone Alan Stubbings on 01522 702601 (evenings and weekends).

FREE to the first caller: one copy of the Met-Vic Register of Ex-Apprentices and Ex-Trainees, Fourth Edition 1902-1957. Contact Kent Robinson G-Net: Access + 635 + 2634 or 01162 561551.

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 21st March 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 advisers. Readers are recommended to take appropriate professional advice before entering into obligations.

Avery-Berkel employee retires after 50 years

AFTER 50 years on the job at Avery-Berkel, Alf Sanderson decided it was time to move on.

He began his career with W&T Avery as a shop boy in 1944 when he was only 14. After a five year apprenticeship from 1945-1950 he became a weighing machine service

engineer and, apart from two years National Service, he has worked for the company in Barrow ever since. "There was always something different to do, places to go, because we made so many different weighing machines," he said. "I've enjoyed all my time at Avery-Berkel, but after 50 years I think I've done enough - I'm looking for-

ward to finishing."

He sees his retirement as leaving one job and moving on to another - his garden. He also plans to devote more time to his musical group, ABC. He plays private functions, sometimes out of town.

"The one thing I'll miss is the people," he said, "but I'll still be meeting plenty with the band."

Woods of Colchester long service awards

22 employees celebrate over 450 years of experience

TWENTY-two Woods of Colchester employees recently celebrated 21 years of service at the annual Long Service Dinner.

David Priest, managing director, presented each em-

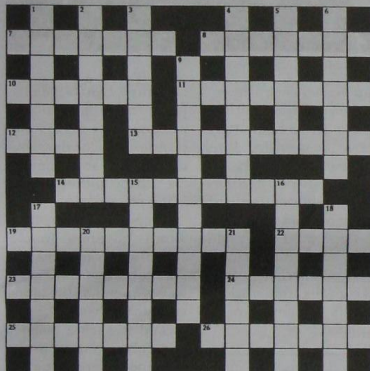
ployee with a gold watch in recognition of their achievement. Employees from all areas of the company were represented at the presentation including the produc-

tion, administration and commercial departments. To date, over 245 Woods employees have been honoured with a 21 year service watch at this special annual event.



Twenty-two Woods of Colchester employees recently received gold watches for 21 years of service.

February Crossword



ACROSS

7. Italian dish one has to stir round and round (7)
8. Sausage and stewed veal covered with sauce (7)
10. Article Ms Jackson left out from the programme of business (6)
11. Tips for sporting dogs (8)
12. Partly leaning back to see a girl (4)
13. Capsize, causing shock to marine chelonian (4,6)
14. Mysterious sign made by office workers (11)
19. Girl meets boss in Berkshire town (10)
22. Riot when English is dropped from the course (4)
23. I am enthralled by writer of Italian poetry - sparkling stuff (8)
24. Good fellows essential to the building trade... (6)
25. ...could be priests in disguise? Go on! (7)
26. Checked material from disorderly gaming house initially (7)

DOWN

1. Guides' leader in pink woolly is a very important person (4-3)
2. Sort of tax to beat overtime (8)
3. Star trips over it in a narrow passage (6)
4. Article found in cistern, mainly, or metal (8)
5. People 'over the hill' needing a counsellor (6)
6. Stately hall of justice is largely empty (7)
9. Useful device for a carpenter - or a ghost, even (11)
15. Standing on head might be considered bad taste (8)
16. Grannie's squandering the wages (8)
17. Collier boarded by a first-rate sailor (7)
18. Material from two male animals (7)
20. Stymied - frustrated when last ferry's gone it's clear (6)
21. Said to be makin' twice as much? That's capital! (6)

The prize for the February Crossword is a Redring AUTOBOIL cordless kettle.

DECEMBER WINNER

The first correct entry drawn at random from the December crossword entries came from **D H Locke, GEC ALSTHOM Large Machines, Rugby, who won an Xpelair wall mounted convector heater.**

DECEMBER SOLUTION

- ACROSS**
 7. Eyesore; 8. Deliver; 10. Malaga; 11. Beefcake; 12. Howl; 13. Shoestring; 14. Spotted dick; 19. Blue-pencil; 22. Cobs; 23. Grandson; 24. Mishap; 25. Welsher; 26. Hadrian.
- DOWN**
 1. Dynamos; 2. Escallop; 3. Creaks; 4. Reversed; 5. Mincer; 6. Seeking; 9. Obsolete; 15. The ashes; 16. Cocksure; 17. Blarney; 18. Abraham; 20. Ernest; 21. Lammas.

ENTRY FORM

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

DEADLINE: 21ST MARCH 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 **FEBRUARYcrossword.**

Mother's Day offer for employees

THIS Mother's Day show 'mum' just how special she is by sending her a beautiful fresh flower Mother's Day bouquet from Flying Flowers. To order, complete the form below and post to: **Topic Flower Offer, Flying Flowers, PO Box 21, St. Helier, Jersey, JE4 8NQ** or tel: 01534 865665 and reference **TOP/MD95/A**.

Closing date for Mother's Day orders is **17th March. Easter orders must be received by 10th April.**



Quoting Ref:TOP/MD95/A

ORDER FORM (please print)

Your name.....
 Address.....
 Post Code.....
 Daytime telephone number.....

Please send the following bouquet(s):
 12 Pink & White Carnations & Fern £9.99
 12 Mixed Colour Carnations & Fern £9.99
 10 Freesia & 12 Carnations & Fern £14.99

Delivery required by: I or Mother's Day or Easter

Recipient's name.....
 Address.....
 Post Code.....

Message (max. 10 words).....

Enclosed my cheque/PO E payable to Flying Flowers, Ltd
 or debit my Access/Visa a/c
 Expiry Date..... Credit Card Signature.....
 Although delivered by 1st class post the exact delivery date cannot be guaranteed. Please give additional names and addresses on a separate sheet.

Yachts, canoes, dinghies and a 720 ton adjustable floor...

TOPIC takes a look behind the scenes at the London International Boat Show - more precisely at the 720 ton lifting floor, built by GEC in 1937 for the Earls Court swimming pool, still in use today. An intrinsic part of the exhibition hall, the floor is lowered, on average, only twice a year. The 1995 Boat Show marked the first time ever that the floor was lowered to its full depth.

With 650 exhibitors, over 800 boats and craft, and £45 million worth of marine equipment on show, the main focus of attention at the annual London International Boat Show is the central pool with its lifting floor, built by GEC, over 50 years ago.

In 1937, Earls Court had just been completed. The largest reinforced concrete

building in England, covering an area of 13 acres, it was one of the foremost accomplishments of construction engineering at the time, and in the central exhibition hall, its most prominent feature - a giant sized swimming pool, 59.4 metres by 28.9 metres. The pool was impressive in its own right, but even more so with its adjustable floor,

which was raised and lowered when needed, yet acted as a cover for the pool for the majority of the year. The floor was built by Fraser & Chalmers in Erith, Kent, which later became GEC Mechanical Handling, then GEC ALSTHOM Engineering Systems, now based at Whetstone.

When the idea was first considered, it was realised



Crowds gather at this year's London International Boat Show.



The Central Exhibition Hall of the Earls Court Exhibition Centre, London, showing the adjustable floor of the swimming pool raised to the surrounding floor level.

that the pool would not be required for swimming purposes all year round. A means had to be found to cover the pool, with the cover forming an integral part of the floor, making the area available for exhibitions, concerts and conferences.

The challenge

The floor also needed to tilt when lowered so that the bottom of the pool would slope from the shallow to the deep end, also giving the pool that necessary extra depth for high diving. The lifting floor

had to serve both as a sunken area as well as a raised stage or platform above the main floor level.

To meet these criteria, the floor was divided into three equal sections, entirely separate from each other and operated independently. To go into detail of the floor's mechanics would take up all of this article, so here is a summary of the main facts.

The facts

The floor is basically designed to carry 200lb per square foot, sufficient for ordinary exhibition purposes, but for any occasions which involve heavy machinery, the floor is able to withstand 600lb per square foot. This is achieved by extra supports, in the form of stilts (known as temporary struts) which are placed on concrete piers. The whole load is carried by both the temporary and the main stilts. The former when not in use, are stored in carriers at the bottom of the pool. Each section of the floor has two parts - the understructure of main supporting plate girders, and a superstructure of rigid steel joists and floor plates. Two hydraulic rams are employed to raise and lower each section to the required level. Permanent supports, the main stilts,

carry the weight of the platform. The tilting action is performed by eight independent secondary hydraulic rams and cylinders fixed to the understructure of the platform.

The operation of the platform is governed from a control room situated at the side of the pool. The valves operating the tilting gear are mechanically interlocked in such a manner that only one sequence of operations can ever be carried out at any one time.

The show

Over half a century since it was built, the pool still holds the impressive title of largest in the country.

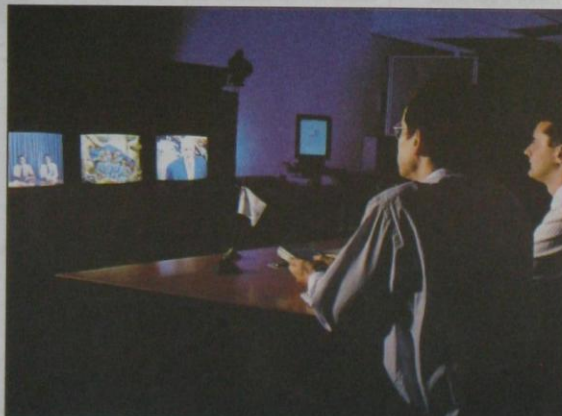
To fill the massive pool takes three days. This gives an idea of the sheer size of the hole the adjustable floor leaves when it is lowered 13 feet into the ground. This year the filled pool played host to displays of water-skiing, windsurfing, safety demonstrations and a large number of boats. Hundreds of companies took advantage of the London International Boat Show to launch over a thousand new products on the market, in a show which cost some £3 million to set up.

Many thanks to the GEC-Marconi Research Centre, Great Baddow, for providing archive material dating back to 1937.

Summit Meeting

PREVIOUS issues of *Topic* have covered the installation of a video-conferencing system by Matra Marconi Space linking the European Astronaut Center in Cologne, the French Space Agency in Toulouse with the Mir Mission Control Center in Moscow and nearby Star City.

Following the commissioning of the system, the German Chancellor, Dr Helmut Kohl visited the Cologne facility to take part in a live video link-up with German astronaut, Ulf Merbold on board the Russian space station, Mir.



Chancellor Kohl communicates with Euromir Space Station via Matra Marconi Space's videoconferencing system.