C.L. p2

CHELMSFORD

NEWS AND VIEWS

Marconi Radar Systems

ISSUE 15 May 1986

The Martello family of long-range 3-D air defence radars.

A PAT ON THE BACK

Major honour for the Martello family

MARCONI Radar has won one of British industry's most prestigious prizes — the Queen's Award to Industry for Technological Achievement.

It has been won in respect of the *Martello* family of long-range, 3-dimensional air defence radars, and highlights both the technical effort dedicated over the last 10 years, and the commitment of some £15 million of private venture capital.

Martello made its first public appearance in 1978 at Farnborough, where it was the 'star' of the Air Show. Since then, it has been sold to the Royal Air Force and overseas defence forces, including NATO.

Early on the morning of HM The Queen's birthday, The Queen's Award flag marking the company's achievement was heading for 'breaking out'. Pictured are (top) Keith Chittenden, managing director; Nigel 'ER' Ellis-Robinson, Martello programme director; Alan Prior, project manager Martello (bottom left); and Ted Overy, development engineering manager.

Martello radars provide not only range and bearing of target aircraft but also height, and unlike some of their contemporaries can provide 3-D track information on every target to a height of over 90,000 feet within their 270 mile range.

To counter enemy jamming, they have a wide range of facilities available, but including the ability to 'hop' randomly from one frequency to another for each transmitted pulse of radar energy.

Excellent

Because they operate at relatively low frequencies, they give excellent long-range performance, even in rain, dust storms, etc.

Another major feature is their mobility. A complete *Martello* system, including antenna, transmitter, power supplies and services, is housed in standard ISO containers, and can be deployed and fully operational within five hours.

Keith Chittenden, managing director, commented: 'We are immensely proud of this achievement. Private venture projects are always a gamble, but this award justifies our faith in the ingenuity of our engineering staff at all levels and highlights the tremendous efforts put in by all the other staff associated with *Martello* to ensure its success.'

1986

INSIDE: Posted to the Far islands P4/5, Memoirs of a Marconi Man P6, Sport P7, GEC centenary and exhibition P8

39 years of service for modest Bill

BILL HAZEL MM, who retired from the company on February 15, was born in Danbury in 1921. In those days, the building that is now the post office at the top of the hill was occupied by Luckin Smith. And that is where Bill started work at the age of 14.

When he was 18, the air was full of the rumours of war, and he became a Territorial. Not long afterwards, and a week before hostilities broke out, he was called up.

Bill's first two years in the Essex Regiment were spent mainly on the south coast, building defences against potential enemy invasion. In 1941, however, he left this country on a tour of duty that took him thousands of miles across the world.

Sailing from Liverpool and stopping off at Durban en route, he eventually arrived in India, where his regiment was attached to the 4th Indian Division (Infantry), and served alongside the Raj Patana Rifles and 1st/9th Gurkha Rifles.

A long overland trip took him through Iraq, Syria, Lebanon, Palestine, Egypt and through North Africa. He then crossed the Mediterranean and landed in Torento in Italy, continuing up through Casino and finally seeing the end of the war in Genoa.

It was in the south of Tunisia that Bill displayed the courage that won him the Military Medal.

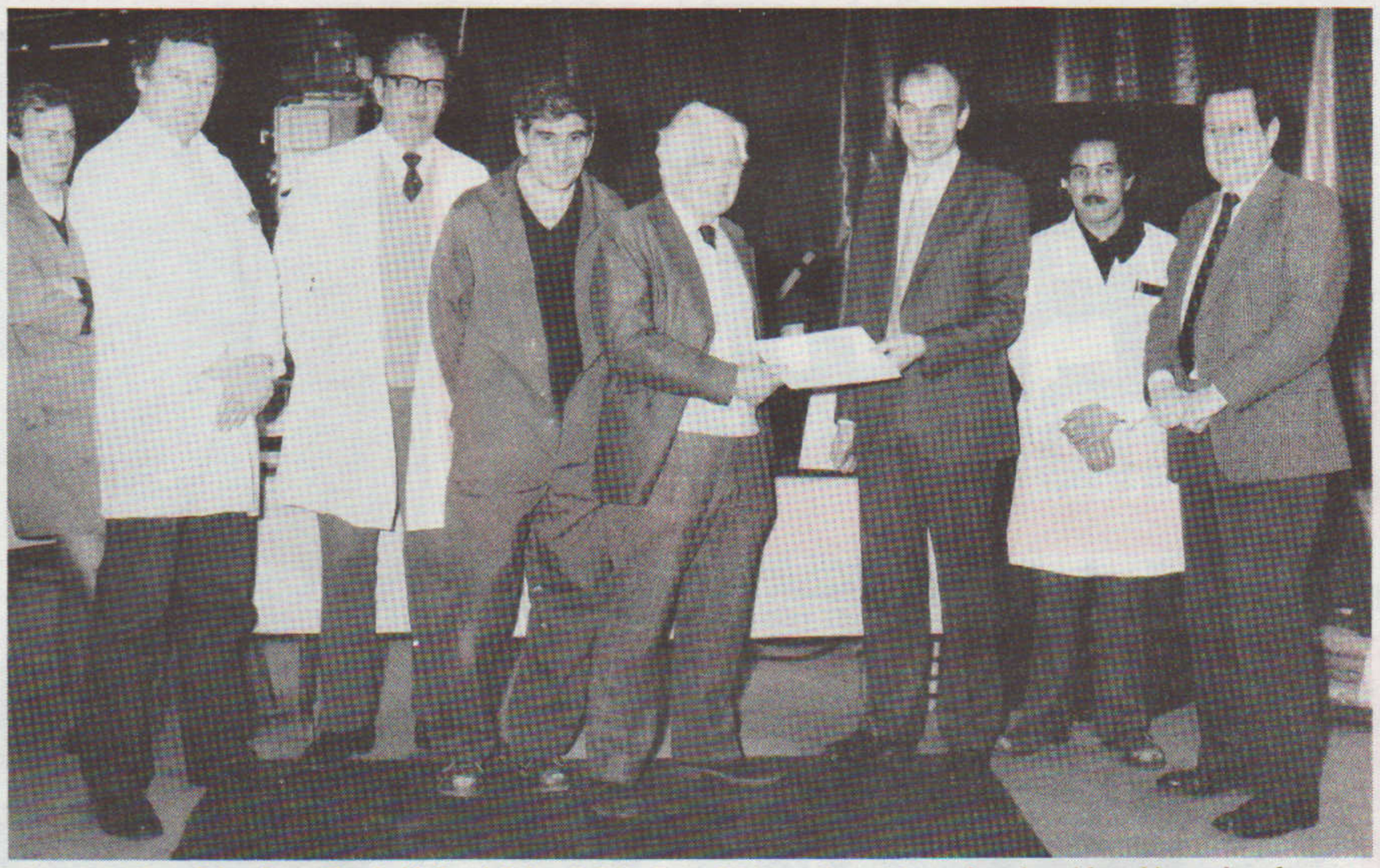
During a night of action in the foothills of a village called El Blida, his company's progress was halted by a German machine-gun nest. After stalking the position to within 20 to 30 yards, Bill charged the enemy position, firing a Bren gun from the hip. The Germans fired in retaliation and found a target in Bill's shoulder but failed to stem his attack. He succeeded in silencing the machine-gun nest, and so enabled his company to carry on with their advance.

Bill was taken back to his first aid post and was again injured — this time in the hip and leg by shrapnel from a shell burst. He overcame these injuries and, in due course, rejoined his regiment.

Bill is far too modest a man to talk about his award: few people knew of his exploits, and we have had to collect these details from the Essex Regiment museum, which has asked us to pass on the Regiment's best wishes for his retirement and a warm invitation to visit them at the museum.

This is the proud record of a man who served his country well and who has also given 39 years service to The Marconi Company, where he started in 1947 as a trainee sheet metal worker. He spent the majority of his working life in the workshops at Baddow, moving to Writtle Road when they closed.

When Bill departed for a life of leisure and to pursue his interest in British stamp collecting, wildlife studies and gardening, his colleagues gave him a brass model of a wheelbarrow, made by the apprentices, and a seed propagator.



Left to right, Dave Price, Dave Theobald, Derek Driscoll, Eddy Twin, Bill himself receiving a signed card from his previous foreman Peter DeBank, Terry Brand and Charles Rand.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

K is for klystron

. . . and some of its relatives

COLIN LATHAM continues his series on the alphabet of radar

Klystron is the name of a type of valve (or vacuum tube to North Americans) often used in the output stages of radar transmitters.

Its invention is usually attributed to the Varian brothers in the USA, and it was under development both there and in this country from early on in the war. Apart, however, from low power oscillators, known as reflex klystrons, successfully used in radar receivers, it was not until after the war that it was perfected as a reliable high power microwave amplifier.

The klystron finds its field of application at the higher radio frequencies, where conventional valves are dropping off in performance and where, for the pulsed operation needed in radar, it is not yet possible to get sufficiently high powers from semiconductors.

The essential feature of the klystron is an electron beam: electrons emitted from a hot cathode are attracted by a positive anode, called the 'collector', and are constrained en route into a narrow beam by a magnetic or electrostatic focussing system. The whole is contained in a vacuum and in essence is not unlike the focussed electron beam behind the screen of a TV set. But there is an important difference between the ways in which the beams of a picture tube and a klystron are modulated. The former is intensity-modulated to produce light and shade on the screen but the latter is velocity-modulated, and to explain that I need to digress.

Let's pretend for a moment that electrons in the beam are like cars travelling on a motorway. You may have noticed how rarely it is that all cars go at the same speed; usually there is a series of overtakings going on all the time, and if these are well spread out the traffic density is about the same all along the road.

At other times, however, a few middle-lane cars will overtake one or two in the nearside lane whilst some in the outside lane are overtaking them all. When that happens there is a high concentration of cars over a short stretch of road that presently may become devoid of traffic for a while. In other words the traffic is bunched up rather than flowing steadily. Bunching happens at random for cars on motorways but, in a controlled fashion, for electrons in the klystron beam it is the key to its operation.

Shortly after leaving the cathode all electrons in the beam travel at more or less the same velocity until they pass through a cavity to which the input microwave signal is applied. They pass through this cavity, known as the 'buncher', rather like cars going under a bridge across the motorway. It needs only a very small amount of input signal to modulate the velocity of the electrons in the beam, some emerging slightly faster, some slightly slower than before.

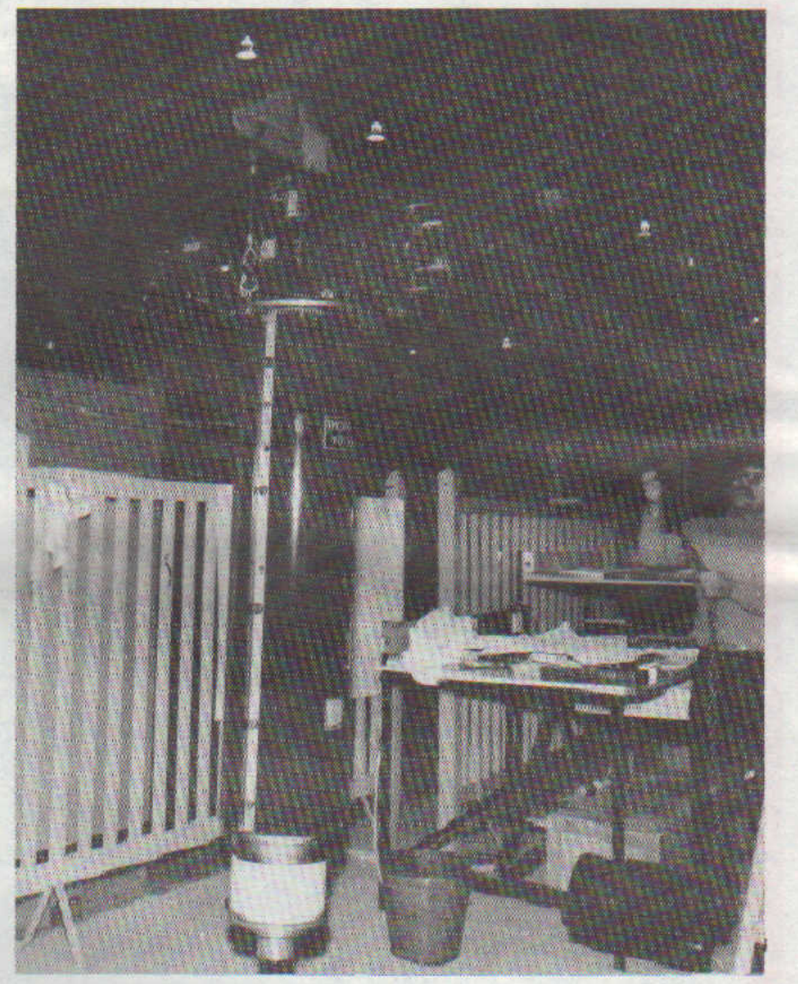
The result is a series of overtakings all along the beam at specific distances called 'bunching planes'. At one of these another motorway bridge, or rather cavity, is situated, and this also carries a microwave signal that acts upon the beam, alternately slowing down and speeding up the beam as it passes through.

The clever trick lies in the phasing so that when this cavity, known as the 'catcher', is slowing down the electrons a bunch is passing through, but when it tries to speed them up there is a temporary dearth!

In slowing the electrons down, energy is transferred from the beam to the microwave circuit, and as there are always more to slow down than to speed up (because of the bunching) there is an overall power transfer from beam to catcher.

To sum up, the input signal to the klystron is applied to the buncher and extracted from the catcher, the power in the beam being used to raise the strength of the signal. The amplification can be very significant indeed, perhaps raising a 10 watt input signal to a million watts in a large transmitter klystron.

Klystrons come in a range of sizes, the electron beams varying in length from a few inches to several feet. The largest tubes, complete with focussing and cooling systems are substantial and expensive pieces of engineering, needing mechanical handling aids.



L Band (23 cm) hybrid amplifier (Twystron), used in *Martello* S713. The peak output power is 3.3 MW.

Because the klystron employs a straight electron beam it is classed as a 'linear beam tube' and in its basic form is characterised by high gain (amplification) and narrow bandwidth — i.e. it operates at a single frequency or at best over a small range.

To some extent, greater bandwidth can be traded for lower gain by using many stagger-tuned cavities but for really wide bandwidth there is another kind of linear beam tube, known as the travelling wave tube. Velocity modulation and bunching is still employed but the 'motorway bridges' are of quite different construction — more like a continuous tunnel that progressively bunches and de-bunches.

Although TWTs are often used in high power form for radar transmitters, they have also been made as low-noise signal amplifiers for radar receivers, but that application is becoming less common with the advent of microwave transistors.

It is for high power that the TWT has the greatest attraction these days. Sometimes, to get the optimum combination of gain, bandwidth and power the electron beam is made to pass through a structure where klystron-like bunching is followed by TWT-like de-bunching, and in that hybrid form the tube is called a Twystron*. One such is used in the output stage of the S713 *Martello* radar. It provides 8-10 kW of average power at a peak pulse power of 3 MW.

* *Varian trade name.*

PEOPLE ON THE MOVE

AMONGST the promotions and appointments notified within the last two months are two new posts in accounts. **Robert Marsden** moves from Gateshead to be financial controller and **Rod Challis** has come back from GEC McMichael as financial planning manager. Both Robert and Rod report to financial director, Alan Harris.

Brian Partridge takes up the post of company chief engineer and reports to Reg Beckley the technical director.

Data Systems Division has appointed **Peter Bain** as project manager, software engineering.

Production director, Dick Jewkes, has appointed **David Phyall** as assistant production director with special responsibilities for implementation of MMS (the Marconi Management System). **Tony Corfield** has been appointed MMS project manager reporting to Russ Armitage. **Eric Elliott**, MMS systems manager, and **Bob Rawlings**, materials and manufacturing systems manager, will continue to report to Tony Corfield.

In Naval Division, **John Parry** and **Mike Allen** have been promoted contracts managers reporting to Roy Smith, the division's commercial manager.

Five new group chiefs and ten section leaders have been appointed in Colin Birch's MACE projects department of Airspace Control Division.

Bob Taylor is group chief, with section leaders **Len Hope** and **Dave Walters**. Group chief, **Tony Smith**, has section leaders **Ken Elliott** and **Paul Dawkins**. Section leaders **Mark Atkins** and **Roy Johannessen** report to group chief, **Steve Webb**. **Dave Lugton** and **John Stuck**, as section leaders, report to **Roger Baker**, group chief. **Mike Jones** is group chief to **Peter Weathersby** and **'CK' Ryan**, the new section leaders.

Death of Dennis Moyce

It was with a profound sense of shock and sadness that the company learned of the death of Dennis Moyce (commercial executive) on Friday, April 11. It extends its deep sympathy to his widow, Eileen, and to his two sons, David and Graham.

A tribute on page 6 by John Lawrence, expresses the thoughts of us all.

Technical director Roy Simons retires

On his retirement, in addition to the cheque from his colleagues, Roy was given a model of an 1899 'Grasshopper' send-receive key, seen in the photograph. With him are his wife, Margaret, and David Candy, commercial director.

PRECISE. Meticulous. A perfectionist. These are words that have been used by many of his colleagues to describe Roy Simons, who retired on March 21, after a working-lifetime's service with Marconi — a company of which he had an encyclopaedic knowledge, from its foundation to the present day.

Forty-three years ago he joined the Research Division of Marconi's Wireless Telegraph Company. There he developed specialist receivers for wartime direction finding equipment, laying the foundation of a career that was totally radar orientated.

In 1947, he became a founder member of the department that was set up to develop a range of radar systems, and progressed from section chief through group chief and deputy superintendent of the Display and Data Handling Laboratories.

For nearly two decades he was concerned with the design, development, manufacture and installation of display systems, and played a major role in pioneering the fixed-coil display that was used in ROTOR — the largest radar project ever undertaken in the UK.

It was during this time that he met and married Margaret, who worked with him at Baddow as a circuit designer.

In 1965, a major restructuring of The Marconi Company took place, and Roy was appointed technical manager of the Radar Division, taking responsibility for all the radar development activities.

When English Electric merged with GEC, the radar interests of their constituent companies were brought together in a new company, Marconi Radar Systems. Roy was then appointed technical and quality director answerable for the development work at both the Chelmsford and Leicester sites. As a result of this marriage of interests, the product range now included instrumentation items as well as radar.

In 1973, Roy was appointed general manager, Chelmsford, and became responsible for four trading divisions, an engineering department, a supplies division and a support division. In human terms, this meant about 3,500 employees: in financial terms, a turnover of £60 million.

The centralisation of the company management in 1976 eliminated the need for general managers, and Roy was appointed technical director, taking under his wing all the company development and, until 1979, the company production at Chelmsford, Leicester and Gateshead.

Associated

For more than 30 years, Roy was associated with the specification and design of both civil and military air traffic control systems requirements. He represented the company on innumberable IEE, EEA, MoD and CAA committees; he was the EEA's nominee on the steering committee for long-term air traffic control systems; he represented the EEA and AECMA in meetings with the EEC on European air traffic management.

Roy has always been keenly interested in training and education, was active in promoting new ideas on the structuring of degree courses in various universities and polytechnics, and will continue to pursue these activities on behalf of John Shrigley, the director of personnel services of The Marconi Company. Independently, he will be undertaking similar tasks for Queen Mary College, London University.

Such a schedule might seem sufficient for someone who has retired but Roy will also continue to be involved with the Essex Institute of Higher Education and the College of Further Education; he will continue to attend certain IEE committees, and he will attend the Marconi Research Centre twice a week in the capacity of consultant.

It is good to know that one of the few remaining links between Marconi and the pioneer days of radar will not be severed.

BY TED FRANCIS — MANUFACTURING DIVISION TRAINING OFFICER

Training for modern technology

Wayne Charlton, Mark Pearce and Samantha Hoare watch Andrew Cooper checking the results of a practical experiment based on the theory taught earlier in the day. With them, left, is senior electronics instructor John Shepheard.

BRITISH industry is short on skill. It is a problem that bedevils all areas in all types of industry, but we are principally concerned in this article with the shortfall of men and women qualified in modern manufacturing technology.

To counter the situation, the company goes to great lengths to provide electronics and mechanical courses for Youth Training Scheme entrants; craft and technician apprenticeships for school leavers; and in-depth industrial experience for our sponsored graduate apprentices. Moreover, we train our own Writtle Road staff in new technology and management techniques.

At the heart of this all-embracing effort is the Manufacturing Division Training Centre (MDTC), staffed by myself, chief instructor Ron Taylor, senior electronics instructor John Shepheard, senior mechanical instructor John Davidson, mechanical instructor Brian Spalding and wiring and assembly instructor Vic Hurrell.

We are backed up by a number of highly skilled industrial tutors, and together we do much to boost the company's manufacturing capability.

Excellent facilities are already on tap for electronics training at craft and technician level, and the mechanical training area will soon be refurbished: new CNC lathe and milling equipment will replace the existing machinery, and the area will meet both the exacting requirements of the Engineering Industry Training Board and Marconi Radar's strict safety standards.

Catch 'em Young

The MDTC works in close co-operation with Shirley Porteous, the company's schools liaison officer, to put the case for an industrial career to those who are already thinking about what life holds for them when they leave school.

Each of the Centre's staff instructors is responsible for liaison with two schools in the area. They advise and help the careers officers, weigh up the candidates to assess which type of apprenticeship they are best suited for — craft, technician or student — and give a hand to the Personnel Department in the matter of recruitment.

In the schools, we show a video entitled 'This is Marconi Radar', which gives the young people a run-down on the company's history, its products and the career opportunities that it provides. There is also a video, 'Marconi, the Challenge', which we show to potential graduates to give them an idea of the sorts of career that would be open to them.

Show 'em How

No amount of videos, talks and leaflets stimulates interest to the same extent as practical experience. So, when possible, we arrange for pupils to come to Writtle Road for a spell during their long summer holiday. Not only do they acquire a 'feel' for the place during this period of 'work experience' but they also absorb a considerable amount of information.

Work and Play

Once recruited, the new trainees are slotted in to their respective courses. And it's worth noting here that consideration is being given to allowing above average technicians to continue their training by specialising or by transferring to a degree course or by branching off into line management training.

All the MDTC trainees take part in the activities set up by the company's Training Department: character development courses, reckoned to sort out the men from the boys and the women from the girls, have so far proved that all are adult when faced with a challenge; an annual Maldon 'Round the Island Fun Raft Race', is held in aid of the RNLI — the raft is being built by the apprentices in their own time, and we shall again be looking for sponsorship and support on the day.

In-house Training

We run a range of courses aimed at enhancing operator skills and bringing a knowledge of new technology to Marconi Radar employees. Technology does not stand still, and it is vitally important that everyone should be kept abreast of it.

Already, though the MDTC is only seven months old, we have trained a number of operators in the repair of single-sided, double-sided and multi-layer printed circuit boards, and a number of test personnel have undergone training in soldering techniques. Training in these and other new techniques has become an on-going activity.

All courses are available without charge to those working in the Manufacturing Division, and for a moderate fee to others. I shall be pleased to pass on to departmental managers full details, and to discuss setting up any new courses they may feel necessary. For we are not set in aspic!

For instance, the advance of computers into almost every industrial activity prompted enquiries into the possibility of conducting computer appreciation courses for technical and business staff — a step that we have successfully taken.

Management Training

We help in the matter of management training by circulating particulars as they come to hand of organisations such as Dunchurch and Loughton that offer suitable courses.

Managers having people in their area who they consider would benefit from attending such a course should contact me, and we will deal with the applications and make the necessary arrangements on their behalf.

Outside Support

We are always ready to augment our own training initiatives with those from outside the company. Recently we carried out a study to see how we might benefit from adopting the Science and Industry Research Council's 'Teaching Company' scheme.

We are working in association with the Teeside Polytechnic CAD/CAM Faculty in order to assess the cost and benefits to the company of introducing a number of CAD/CAM projects.

We are also in touch with the North East London Polytechnic Robotics Project Group to see if we might adapt their work to achieve the automatic 'pick and place' of chip components, using placement data from GEC 4190 CAD computers.

Not Guilty

One thing's for sure: no one can point an accusatory finger at Marconi Radar when the subject arises of skilled manpower shortage. It's not just the effort and money that we're putting into the training schemes themselves, it's the effort we're making to persuade young people that their future lies in industry.

School exhibition week success

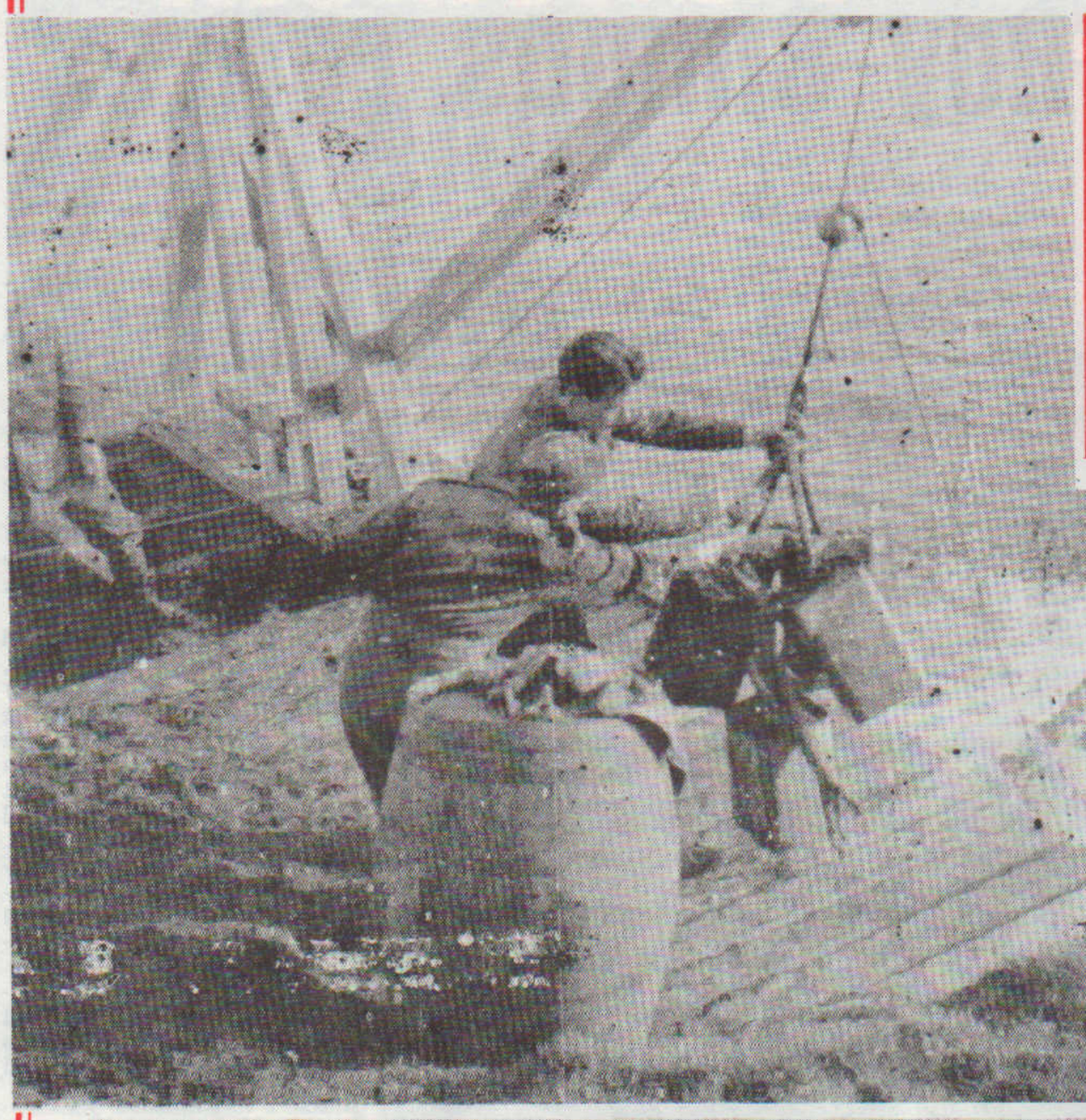
RECENTLY, Marconi Radar ran an exhibition week at Rainsford School.

A film, equipment brought in from the laboratories, such live demonstrations as radar pulses on a display screen and talks on career prospects were all aimed to stimulate the 4th year pupils' interest in science and engineering.

In a quiz on the company and its radars, Dean Elles, Claire Rogers and Sarah Hall came first, second and third, and are seen in the picture receiving their prizes of Marconi Radar pens and book tokens from managing director, Keith Chittenden.

Raw dried mutton and 'green' whalemeat — a

THE FAR



ABOVE: Donkeys did it in the Middle Ages! Working the windlass to bring the winter fuel and rations up the cliff from the rowing boat, 250 feet below.

LEFT: The young Gerry, extreme right, on the back row, with 11 of the 16-strong team that was stationed at Akraberg.

'HOW do you feel, lad?' asked the Welsh doctor. I looked at him in surprise. 'All right, I think.' 'I have had no experience of anything like this,' he waved a telegram, 'It says here that I am to examine you for suitability to live in an isolated place and to survive on iron rations. You look fit enough, and you feel all right, so I can only wish you the best of luck.'

My heart sank. I had been at the Kete CHL radar station near Milford Haven since January 1942, and in the past three months I had begun to 'get my feet under the table' as the saying goes.

It was now May, summer was on the way, and it would soon be warm enough to bathe from the miles of sandy beaches around the site. We were comfortably billeted in Dale Castle, the work of maintaining the radar was easy and interesting, and rumours abounded that we were soon to get WAAF operators. It was just my luck now to be posted overseas. But where?

□ □ □

Two months later, I was stationed with 15 others at the most southerly point of the Faeroe Islands. The station had the grandiose title of RAF Akraberg, and was perched on the edge of a 400-ft cliff, with a sheer drop into the sea. We were one of five similar stations, scattered round the 20 islands that make up what the Faeroese people call Foroyar or the Far Islands. Surprisingly, about 17 of the islands were inhabited in 1942, with a total population of 30,000, of which some 3,000 had been trapped in Copenhagen by the German invasion in 1940.

The islands, which lie about half way between the Shetlands and Iceland, were taken by a Royal Navy task force just after Denmark fell to the Germans, and the Lovat Scouts provided the initial occupying force. The RAF had a base at the head of a three-mile long freshwater lake at Midvaarg on the island of Vaargar. Because the lake is surrounded by mountains, it pro-

Faced with u whale hunts a one recalls life

vided a safe landing p in the worst of Nort

In 1942, the Pione ing a runaway out of tain near the lake. This of appalling working summer of 1943, and international airport.

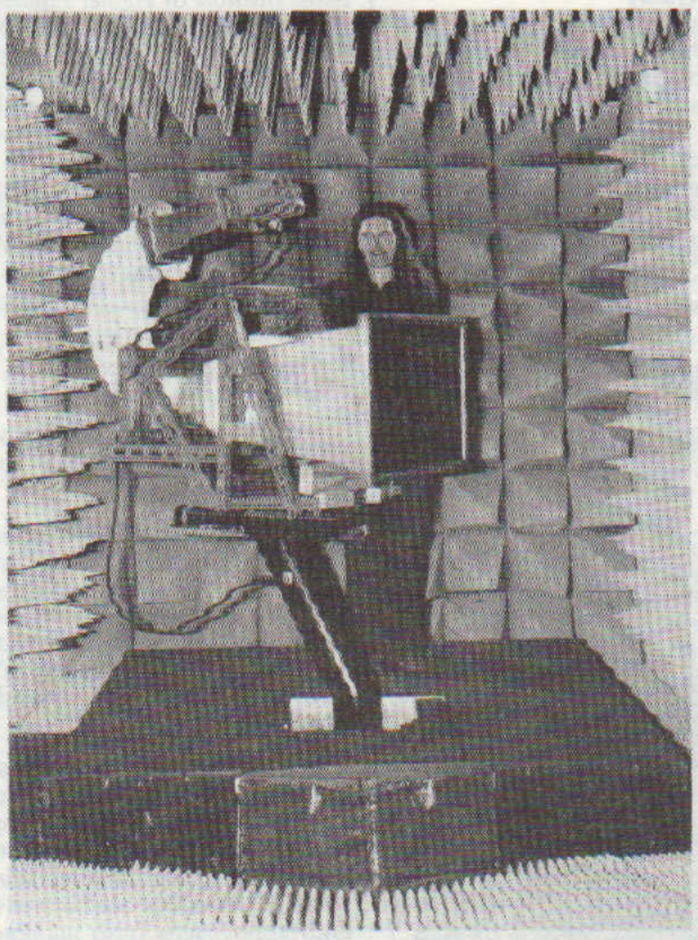
As well as being a Norwegian Air For *Catalina* flying boat fighters, the station landing facilities to t of aircraft that were b the USA. Perhaps m the occupation of the provide evidence to t Second Front could Norway, so that they sions tied up there.

□ □ □

At Akraberg, on the of Suderoy, we had to air and quarters est autumn gales struck. island of Suderoy wit pots, pans, beds and boat. The site was t road, so we had to hu over the peat bogs. T 2000 gallons of petro six-months' iron rati hauled up 250 feet o boat by a four-man winched up the last 15

By the time the gea Faeroese builders had square radar building for the W/T equipmen Another Nissen, whic having living room,

IT IS A 'NICE' CAREER FOR A GIR



Andrea with the new S1020 corrugated feed horn in the anechoic chamber at Baddow during the early part of 1978.

by ANDREA WESTON

DURING my final year at university I carefully considered what I wanted to do in the future and which companies to apply to for employment.

The Careers Service at University was extremely good (unlike that at school) and through them and the Physics Department I found out about the wide variety of jobs that were available.

Having enjoyed my degree course immensely, I wanted a job in industry where my degre would be used, and was very keen to get involved in the nuts and bolts of actual hardware. I did not want to sit at a desk or computer all day.

Not until then did I realise that if I followed my chosen career I should be labelled 'engineer'. I was not put off by that or by some remarks from fellow students that they did not think industry and engineering added up to a 'nice' career for a girl.

Obviously, there were not many female engineers, but I was prepared to swell their ranks. My confidence was challenged when at more than one interview I discovered that there had never been a female engineer employed at that site, let alone in the department to which I was applying!

Certainly there were moments when I felt like a pioneer — treading a path that no woman had trod before. I was lucky enough to be offered four jobs (one offer sent to a Mr A.J. Weston!) and chose that of an engineer in the Antenna Department of the Research Laboratories at the Marconi Research Centre. There I joined an all-male team of about 30 engineers.

The department had employed a female engineer some years before, and another came along a few weeks after me. She unfortunately stayed only a year. It was not until I had been there for six years that another female engineer joined.

The training I received was mainly 'on the job' and I was very much part of a team. Initially I worked on a corrugated horn feed for the S1020 antenna, which is used in air traffic control systems throughout the world, and on the exponential horn for E/F STIR. I learnt about the basic design principles of antennas, their method of construction, measurement techniques both in the laboratory and in the field, and the analysis of test results.

The work involved liaising with workshop personnel, mechanical and systems engineers as well as colleagues from within the department. I wrote and used computer programs, as well as measuring antenna and microwave components at the bench, in the anechoic chamber and outside.

My first experience of working away from site was in March 1978, when I was one of three engineers testing the new corrugated horn for the S1020 at Bushy Hill. We positioned a source horn on the water tower at Purleigh and measured the 360° radiation pattern of the S1020 antenna. I remember rushing outside in the snow fell, to cover up the electrical equipment. I had learnt that it was more important to keep valuable equipment dry than engineers!

In spring of 1979, I bought a house outside Rayleigh. Three weeks later I travelled up to the Marconi Radar site at Gateshead for four weeks, followed by three weeks back in Essex, followed by another four weeks at Gateshead. I went there with another engineer (whom, incidentally, I later married) to test and measure components of the S1067 — the antenna of the *Martello* 713.

The first antenna was being built at Gateshead, and owing to its size it was easier to send engineers up north to test it than to bring it south. It was very hard work but I found the Geordies exceptionally helpful and friendly — even if I could not always understand what they were saying.

After that, *Martello* continued to be my main project, and one of my designs was the dipoles for the S1077 — the antenna for the *Martello* S723.

In November 1983, I transferred to the newly formed Antenna Department. To begin with, this did not involve a big change, as I continued to sit at the same desk, see the same people and work on the same job.

In the New Year, the whole department came together in space allotted in F Block

at Baddow. At early producti in initial prod writing softwa produced by t equipment at few more trips

During this other projects, power divider which has bee

By the end had been inco ducts, I had b — *Martello* S through to full gained a wid antennas, esp *Martello* was tion problems manufacturin hence, it was move.

I had been w seven years, a subject. I fa specialised fiel perience would

I applied f department w January 1985 building as a Division for a Engineering 'A I was the first on in the de building, and I were the firs

...all part of life on . . .

ISLANDS

...nusual food, gale force winds and rain, ...and sheer cliffs . . . GERRY TAYLOR in part ...e on the Faeroe Islands during World War II.

...lace for flying boats ...n Atlantic weather. ...er Corps were hack- ...the side of a moun- ...was finished, in spite ...conditions, by the ...is now the Faeroe's

...base from which the ...e flew supplies in ...to their resistance ...provided emergency ...e tens of thousands ...ing ferried over from ...ost important of all, ... Faeroes was used to ...ic Germans that the ...e launched through ...had to keep 17 divi-

...southernmost island ...get the station on the ...ablished before the ...We had sailed to the ...h all the equipment, ...it in a small fishing ...hree miles from the ...mp our kit and food ...he radar equipment, ..., 20 tons of coal and ...ons then had to be ... cliff from a rowing ...windlass, and then ...0 feet on a rail truck. ...was up the cliff, the ...completed the 10-ft ... the half-Nissen hut ...t and the workshop. ...h was a kitchen and ...had been built 400 yards down the hill next to the lighthouse, and was sheltered to some extent from the full force of the Atlantic gales. Sleeping quarters were in the lighthouse keepers' houses, and an outside byre was a very cold bathhouse and laundry.

It was about this time that we made an important decision. The two cooks called a meeting and suggested that they would provide us with the best food of any service mess in the Faeroes if they were excused all duties except doing the actual cooking. The rest of us would be expected to do all other jobs, such as washing up, peeling spuds, fetching coal and keeping the mess clean. As the cooks were the only RAF regulars in the unit and had many years service between them, it did not take us long to agree.

It soon became clear what a right decision it was. In spite of a lack of what today would be called culinary essentials, the food was never less than excellent. The fact that meals became something to look forward to kept morale going and helped to ward off depression.

□ □ □

The radar equipment was the same Packset, derived from airborne ASV, as that which Ken Smith described in an earlier *News and Views*, and which was intended for use in the Western Desert. A conical tent housed the transmitter, two receivers and a six-inch A-scope display, all of which were mounted in a small open framework. The antenna consisted of a pair of Yagi arrays, mounted horizontally on a vertical steel pipe, with a bearing at the apex of the tent frame. This was rotated by hand, using a car steering wheel, clamped about two feet above the floor. Beneath this was a bearing disc, marked in five-degree steps, and a sharpened nail for a pointer. A pair of single cylinder JAP engines, each driving a high frequent alternator, provided main and standby power.

With a peak transmitter power of 9 kW, the best range achieved was 24 miles on a *Sunderland* flying boat, just as the installation was completed. By the middle of winter, this had fallen to eight miles, and we usually heard the aircraft before the radar saw it! The cause was eventually tracked down to salt deposited on the antenna from sea spray coming up the 400-ft cliff.

□ □ □

The autumn gales soon struck with considerable ferocity. At times, it was only possible to get to the radar site by crawling on hands and knees, and the usual 10-minute walk could take 45 minutes, with frequent stops as gusts threatened to blow you down hill. Up at the site, a trip from the ops room to the W/T hut meant clinging to a rope, and moving only between gusts.

One of the cooks took advantage of a lull in the worst of the wind to throw a large box of rubbish over the cliff. He started to walk away when, about 10 seconds later, the whole lot descended on him from a height of about 30 feet.

After that we used to impress our few visitors by flinging our service caps over the cliff and waiting for them to be returned some 10 to 15 seconds later. Another oddity was that water from small streams flowing over the cliff edge was flung up in a 20-ft high arc and back into the stream again, like an inverted waterfall.

After the wind there was the rain, which was nearly as continuous. It was often in the form of a fine sea mist, which soon soaked through service battledress. The Faeroese wore thick pullovers, which had so much natural lanolin in the wool that they could work all day in the rain.

With the coming of winter and the very short hours of daylight, there was little to break the routine. The three-watch system with three crews meant that there was no day off every four days, as was usual on UK stations. When not on watch or sleeping, the rest of the time was mostly spent on domestic chores, playing cards or reading and writing. We had hauled a large barrel of beer up the cliff before the winter set in and managed to make it last six weeks. A 'comforts' radio had been issued to us but without spare batteries. It was several months before ingenuity showed that 100 volts could be extracted from the radar and sent down the field telephone line to the radio in the domestic hut.

Three of us slept in the house of 'Poppa' Berg, one of the three lighthouse keepers, and it was not long before we began to establish communication with him and his wife and daughter. It was surprising how quickly they picked up English. In three months, they were quite fluent, although our Faeroese was never more than halting. We later found that the islanders were remarkable for their intelligence, and in spite of their isolated existence were well informed about the rest of the world. They were very hospitable too; we had only to appear in the village for the people to invite us into their houses for coffee, cakes and biscuits.

□ □ □

The houses were half stone and half wood, with grass on the roof. It was common to see chickens on the roof, and sometimes a sheep. The houses were very comfortable, with good furniture and polished floors, covered with thick rugs or carpets. Usually, the houses had two storeys, the ground floor being given over to the family cow and to storage space for fishing gear, while the living space was on the first floor. The attic was used for drying mutton. A spinning wheel and often a loom were to be found in most houses, and the wives spent a lot of time in the long winter making woollen clothes.

The islanders had always had to be virtually self-supporting. The economy relied entirely on the fishing fleet which, during the war, was based in Aberdeen and supplied half of the UK's fish. The money from fishing had to be spent in Scotland, so when the fleet returned to the Faeroes in the winter, the vessels were loaded up with goods. As a result, the shops on the island were relatively well-stocked. The price the Faeroese paid was to lose over one quarter of their boats, with the crews, to enemy action. The debt the UK owes these hardy people for such support has hardly, if ever, been fully acknowledged.

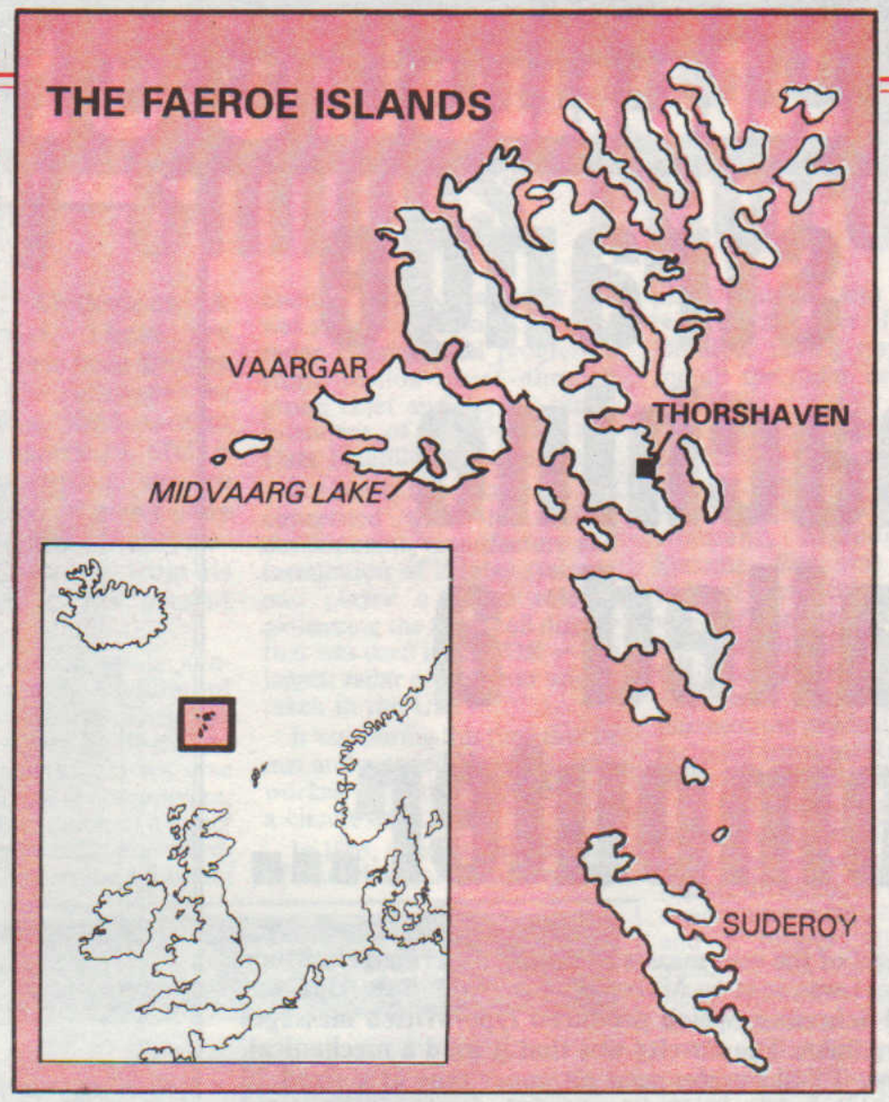
Trying out the Faeroese food was something of an adventure. They are excellent cooks but the ingredients were sometimes a bit strange. The fish was first-class, as were the sea birds' eggs. The birds themselves were not so good. The raw, dried mutton, which had been hanging in the attic, was always sliced with a very sharp penknife, which was passed round the table. It proved to be an acquired taste. The fresh whalemeat was rather like strong beef but the dried version was another matter. After being cut into strips and hung out of doors for several months, it acquired a green coating. When 'Poppa' Berg's wife started to fry it, we simply had to evacuate the house!

□ □ □

The monotony was enlivened occasionally by the chance of a trip in our small van over the mountain to the little town of Vaagur to pick up the fresh meat and vegetables, and sometimes mail, which were sent down on the steamer from Thorshaven, the capital of the islands. Quite often, it was too rough for the boat to make the trip, and we had to rely on the iron rations which, thanks to the cooks, were reconstituted into quite palatable meals.

There was nothing like a whale hunt to bring out all one's primitive instincts, and it was on one of the trips to Vaagur that I got caught up in one — and the party afterwards.

Although today there are attempts to stop the practice, the whalemeat did in those days provide the essential protein and vitamins that were missing from the islanders' winter diet. The whalemeat was shared among all the inhabitants of the island that had had a hunt, and a fisherman tramped over the bogs to deliver the two bucketsful allotted to us.



Keeper, 'Poppa' Berg, dressed for duty, props up the base of the lighthouse with some of his new RAF friends.

...L

...this time, *Martello* was in the ...on stage, and I was involved ...uction problems as well as ...re for analysing the results ...he computer-controlled test ... Gateshead. This entailed a ...to Gateshead.

...period, I also worked on ... and designed the horizontal ...for the *Messenger* antenna, ...n sold to the CAA.

...f 1984, several of my designs ...rporated into company pro- ...en involved in a big project ...1077 — from initial design ...-scale production, and I had ... knowledge of microwave ...ecially of phased arrays — ...one of these. Early produc- ...had been overcome and the ... was running smoothly! ... convenient time for me to

...orking on antennas for over ...d they are a very specialised ...cied a change to a less ...d, but where my antenna ex- ... give me a good background. ...r a transfer to a systems ...thin the company, and in ...started work in the new 'M' ... systems engineer in Naval ... department called Systems ..., where I am still employed. ...female engineer to be taken ...partment, the first in 'M' ... I would not be surprised if ... in Naval Division.

Andrea Weston . . . 'I did not want to sit at a desk or computer all day'

Memoirs of a Marconi man

PART THREE

A strange machine called a computer...

AT the end of the war, masses of captured German electronic equipment was sent to Marconi's for evaluation. One was the Hell-Schreiber, which produced type-written messages over wire links. The novelty was that it used a mechanical, seven-line, TV-like raster scan on paper tape at a fixed 25 rpm. As this system was resistant to interference it was tested for use in conjunction with SWB8s.

By PETER HELSDON

Peter, who retired from the company last year has recalled the pre-war and the war years at Marconi. In part 3 the story is taken up at the end of World War II.

The SWB11s were also used for telephony, but the valves did not like being modulated, as they suffered what was called Rocky Point effect. This made testing something of a hazard, since the fault would make all the front panel meters explode and fly across the room.

About this time, the first graduates made their appearance. One claimed that he had learnt all about transmitters at college. When asked why he was trying to tune the tank circuit by watching the r.h.t. meter, he said that his lecturer had told him that the anode voltage in a Class C amplifier went through the minimum.

The Company was attempting to diversify into industrial heating. I was asked to design a 300 watt oscillator, operating at 25 MHz, for the Crompton Company, to be used in the manufacture of its new PVC cables. The Crompton manager was so delighted with the novelty of impressively glowing valves that he instructed his electrician to extend the leads so they could be mounted on top of the cabinet.

Peter Helsdon at the Image Orthicon test camera in 1949.

I was seconded to Transmitter Development in 1946, and worked on the first s.s.b. and f.m. transmitters. There was also work to be done refurbishing the Alexandra Palace television transmitter, which had been used for counter-measures during the war. In that laboratory there was a strange machine, full of relays. On enquiry, I was told that it was a computer, which did arithmetic.

One of my tasks was to take VIPs around the factory. The most memorable were a party of Russian generals, who were much interested in the scale model of the New Street site, made by the Germans during the war, and who wanted to know if it was accurate. At EEV, they were shown megatrons on test and were presented with a sample.

And, talking of samples, Valve Test had a gallery where a sample of every valve produced since 1914 was kept. Some front-office genius ordered a labourer to smash this priceless historical collection with a hammer, thus achieving something that even Hitler had failed to do.

After the Company was sold to English Electric, and presumably to mark the start of a new era, the test manager had a bell system installed, connecting his office to the section leaders' desks around the site. When he rang, they were expected to run to him at the double. The staff would cheer as they flashed past. Surprisingly, perhaps, he was very good at looking after his people, despite this eccentricity.

I transferred to the Television Studio Development Group at Great Baddow in May 1948, working with L.H. Bedford and George Partington. My first job was to test the new Image Orthicon cameras, made to an RCA design, and then to develop and produce an I.O. test camera for use by EEV, who were setting up a production line of tubes.

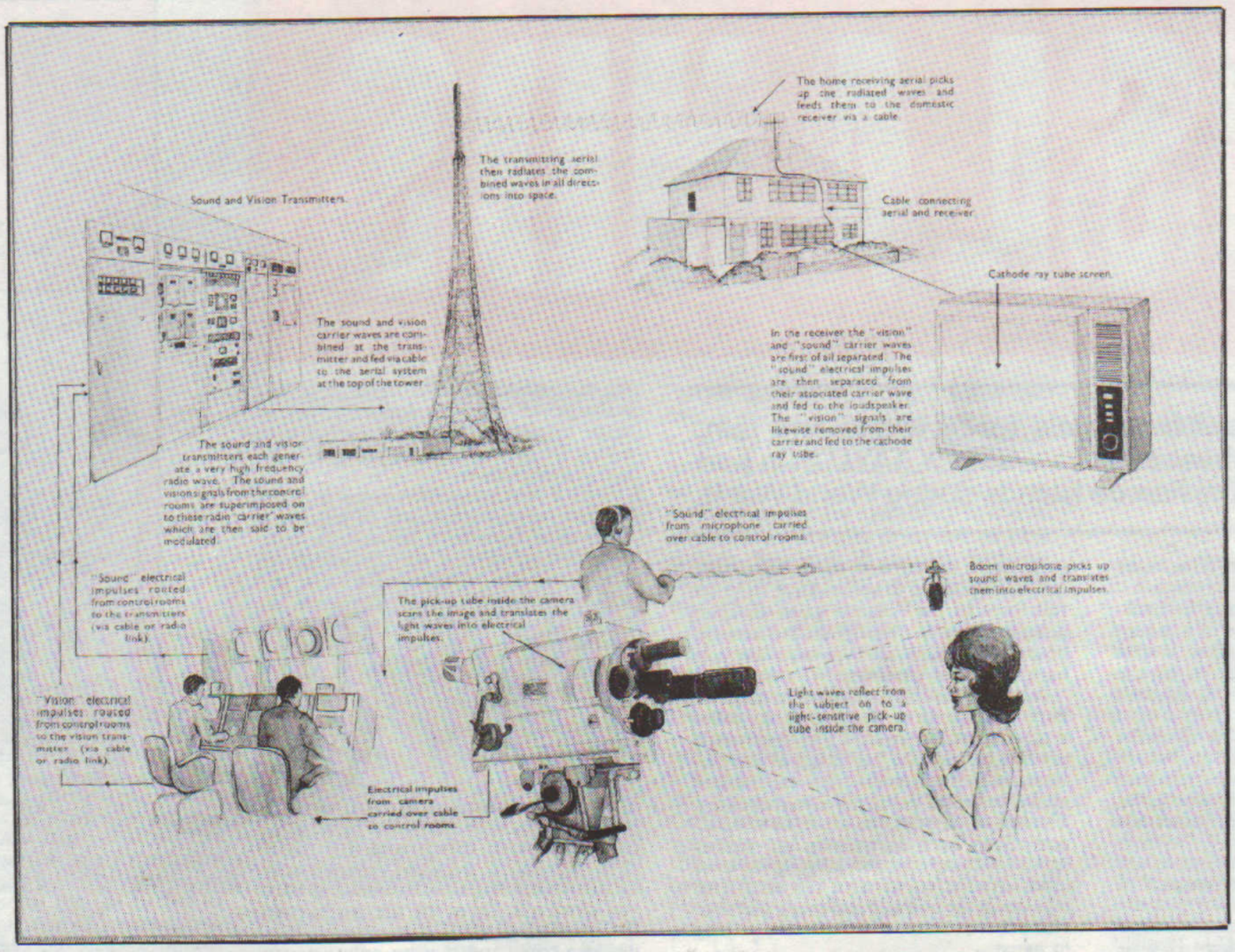
D.L. Plaistow, in the adjacent Television Research Section, had his picture transmitted to Australia in 1932 by an early mechanical scanner — so much for *Telstar's* 'first' long-distance record, 30 years later. You can see a photo of Plaistow at work with the scanner in the Oaklands Park Museum.

As operational experience was gained, the I.O. cameras went through several stages of evolution, and other new studio equipment was added to the product list. I was involved in developing many of these, and in the follow-up sales promotion, which included helping the BBC crew on the first launch-based broadcast commentary of the Boat Race in 1949.

My next helping-hand effort came during a pilot run of 'The Sky at Night' at Alexandra Palace. The ultra-sensitive, wide-spaced, target I.O. camera was to be used together with a special 25-inch lens, to take a close-up of the room.

The previous afternoon, the equipment was set up in Studio B, with the camera out on the balcony. The BBC engineer asked me to find something to look at. On the other side of Alexandra Park, two children were playing with a ball. The girl, aged about 12, filled the screen, when, taking a furtive look round to check that no one could see her under the trees, she downed her knickers.

By then the monitor in the studio was surrounded by a crowd of curious BBC staff, who let out a roar of laughter. In rushed the producer from Studio A to complain that the noise of merriment had gone out on their live broadcast, just after a politician had made a point in the discussion.



DENNIS MOYCE — a tribute

WHEN a good friend goes out of life's door without premonition or sign of non-return, we are left without words to express our feelings other than, 'Why should it happen to such a good man, nearing the time of a happy and healthy retirement?'

In the few days since Dennis Moyce's most tragic death in a street traffic-accident, I have recalled, as no doubt many of his friends have done, the nearly thirty years of growing acquaintance and professional regard.

In this time has come a real awareness of his personal character and of his acquired knowledge in the field that became his special province, that of commercial negotiation on behalf of the company on many contracts and endeavours of major importance.

I met him as a serving RAF Officer in the days when he was training RAF personnel on the Marconi re-equipment programme for UK radar defences in the 1950s. After that, we benefited from his joining the company in 1962, when he became one of the founder-members of Defence Projects Group, prior to the establishment of Marconi Radar Systems Limited.

Since those early days of Marconi Radar, he managed projects, he dealt with HMG and with other customers, he advised our own managers and he contributed his knowledge to the training of staff.

Over and above all these activities, he gained respect and friendship across the whole range of his contacts, and especially from his colleagues working in association with him at Writtle Road.

I hope I have conveyed the feeling of my own regard for a man whose standards were of the highest order in every respect, particularly in the pursuit of the company's interests. We have all lost a friend but we have all gained from knowing him.

JOHN LAWRENCE

Dennis Moyce

Left in the dark — In focus? — not on this occasion

by Paul Harden

POSTERS advertised a meeting of a local photographic society, to be addressed by a speaker of note and to be held on a Tuesday, starting promptly at 7.30pm.

The first people to arrive at 7.25 are two visitors from the MASC Camera Club. They are greeted by total darkness, and no sign of life in the surrounding area.

The visitors retrace their steps and re-read the poster. They confirm the venue, date and time. Back to the hall, to be met by two people asking if this is the place where the photographic society meeting is to be held.

By this time, the hands of the clock have advanced to 7.40, and everywhere is still in darkness. Some five or six minutes later, a car stops and two people emerge. From their conversation it is clear that they are concerned with the organisation.

The first problem seems to be that neither of them has any idea where to obtain the key. During the course of the 'verbal search', a second car arrives, appearing to contain the society chairman and the visiting speaker.

The hands of the clock have now reached 7.55, and it is still impossible to get into the hall. The chairman joins in the conversation of his two colleagues, and after further mind-searching, one of the trio comes up with an idea where the key might be. One 'official' is despatched and returns some moments later with the key — doors open at 8.00.

Having gained access to the hall, the problems really start. Judging from the comments, it seems that this is the first meeting to be held here, and no one knows where the light switches or power points are: further delays, while all the usual places are tried.

Eventually someone finds a light switch, and a small glimmer of hope emerges that the evening might yet take place. Problems now arise because the speaker wishes to display a number of large prints, and of course there is nothing to support them. Once that problem is overcome, the next obstacle is to illuminate the prints.

The evening continues along these lines, with problems with curtains and chairs and coffee and other things. The speaker rises to his feet to start his talk at 8.20. And to cap it all, it's not really been worth waiting for!

SPORTS

Edited by PHIL CHAMPION

Julie Vansertima

Julie's just champion!

SPORTING personality of the month is unquestionably Julie Vansertima (Julie Dowsett until her recent marriage), operator-in-charge of the TID Wordplex system.

Julie is a table tennis champion. After a hard-fought battle against her great rival, Kim Hayden, she recently won the Ladies Singles Championship for the seventh time at the Chelmsford Closed Championships.

When serving for the final set and the championship, Julie was behind at 20-19. Calling on her considerable experience, she took four of the last five points to win 23-21.

She followed this match by partnering her brother in the Mixed Doubles, which they won in straight sets, 21-16, 21-16.

Earlier in April, Julie's team, EEV, took part in the Chelmsford Mixed Team Knock-Out Cup Championships, beating Writtle 9-0. They now go forward to play Essex C.C. in the semi-final ties.

It comes as no surprise that Julie is a county player and represents Suffolk in the Southern Area County Championships.

All set for the Centenary run

The list of people who will be taking part in the 13.1-mile GEC Centenary half-marathon at Dunchurch on September 13 makes interesting reading. It embraces a cross-section of company personnel, all of them determined to bring back the trophy to Writtle Road.

The balance of entrants is heavily weighted on the male side but one young woman has applied. Iris Bolton, who works in the Naval Division Transmitter Department, has never attempted anything like this before but is very fit and a great walker.

Iris is in it for more than the fun. She is hoping to be sponsored for the miles she covers, and will donate the money to the Dorton House Blind School in Kent, where her landlady's daughter is a pupil. It is to be hoped that she will receive generous support from all her Marconi Radar colleagues.

The Writtle Road A and B teams are expected to do exceptionally well, as they are seasoned runners. The teams so far are as follows: **Team A** D.G. Davies, M. Barwick, J. Launchbury. **Team B.** J. Harrington, A. Willis, A.J. Mitchell. **Team C.** D.T. Griggs, C.S. Owen, P. Toolan. **Team D.** S. Everitt, I. Bromage, D.R. Spicely. **Team E.** K.F. Tang, R. Ball, H.R. Beckley. **Team F.** C.M. Houillon, D.B. Ashmore, B. Cole. **Team G.** R. Foster, I. Bolton, B.G.A. Basham. **Team H.** A.J. Camp, M. Isherwood, R.S. Choppin. **Team I** C. Brillham plus two yet to volunteer!

Together with Gatchead's ten teams the company will show a mighty presence.

Summer School bigger . . . better

'IT was brilliant' 'Make it longer in time and days' 'Excellent'.

These are some of the comments from parents of children attending last year's summer school. This year, the Marconi summer school becomes the GEC summer school, with children from EEV and GEC Avionics at Basildon also taking part. It will be bigger and even better than before, with the theme 'Energy' running through the three days' activities.

The Essex Dance Theatre will be there for the dance workshops, and in addition to these there will be music, gymnastics and swimming options in the afternoons, while representatives from the companies will join in in the mornings to lead the popular problem-solving sessions.

The summer school will again be held at Boswells School, Springfield on July 22, 23 and 24. Places will be limited, and there will be a charge of £10 for each child.

If your child is between 11 and 16 and you would like an application form, contact Jackie Duchesne, Room B2, Training Department.

General fund gets windscreens boost

WHEN the windows and windscreens of the Company cars were engraved with their respective registration numbers as a precaution against theft, the engraver offered to provide a similar service for employees' private cars, and to hand over 10 per cent of the receipts to the Marconi Employees Charities Committee.

This generous scheme was administered by the Transport Department and raised £80 for the charities. The committee has expressed its gratitude and records that, as no particular charity was nominated, the money has been put into the general fund.

ODD SPOT

THIS is a quiz to tax your brain, though to find the solution is not too difficult. Can you spot what is unusual about this paragraph? It is just a group of common words put into paragraph form, having no topic in particular. It contains no omissions, as far as is known, of punctuation marks, and is not a cryptic coding of any sort. A typist might find this oddity obvious, as may anybody who can usually find solutions to crosswords or anagrams. A casual look, and you will in all probability miss a fact that would not occur to you naturally. Studying words individually or consulting a dictionary might assist you slightly. You may try comparing this paragraph with any surrounding it.

Answer at bottom of column 6 on this page.

MASC diary notes

Friday 2 May, Club Barn Dance, with 'Bush and Briars'. Members £2.75, guests £3.25.

Friday 2 May, Friday Night is Music Night with Ray Ward and Alan Watson. Admission free.

Sunday 4 May, Family Bingo Night.

Thursday 8 May, Modern Dance Section.

Friday 9 May, Football Quiz Night. Tickets £5.

Friday 9 May, Friday Night is Music Night, with Ray Ward and Jo Burman. Admission free.

Saturday 10 May, Badminton Section. Dancing to 'Spit and Polish'. Tickets £2.50.

Sunday 11 May, Family Bingo Night.

Monday 12 May, Camera Club.

Friday 16 May, Friday Night is Music Night, with Ray Ward and Al Breamo. Admission free.

Wednesday 21 May, Camera Club, special presentation.

Thursday 22 May, Modern Dance Section.

Friday 23 May, Club Dance, with 'Spectrum'. Members £2, guests £2.50.

Friday 23 May, Friday Night is Music Night, with Ray Ward and Jeannie Stevens. Admission free.

Saturday 24 May, Bank Holiday Saturday, with 'Driftwood'. Admission free.

Sunday 25 May, Bank Holiday Bingo.

Monday 26 May, Bank Holiday Monday, with 'David Jay'. Admission free.

Tuesday 27 May, Camera Club 'Life in the Eighties'.

Thursday 29 May, Modern Dance Section.

Friday 30 May, Friday Nights is Music Night, with Brent Peters.

ODD SPOT ANSWER

There are no e's in the paragraph.

Try our word poser

20	13	26	10	18	7	■	20	■	1	14	25	7	23	1
2	■	10	■	8	■	1	3	4	■	1	■	13	■	14
4	2	13	20	13	■	14	13	2	■	4	3	1	14	4
24	■	19	■	10	1	15	15	2	1	3	■	2	■	9
4	3	23	7	■	20	■	2	■	2	■	1	15	13	24
19	■	■	26	■	20	3	1	4	8	■	2	■	■	1
24	26	5	19	1	■	4	■	19	■	19	26	8	1	15
■	12	■	14	■	■	14	■	21	■	■	10	■	12	■
20	1	13	11	1	■	9	■	1	■	6	13	22	1	15
13	■	■	1	■	24	21	13	19	1	■	19	■	■	1
18	10	4	3	■	26	■	14	■	7	■	11	4	19	10
9	■	17	■	9	26	4	19	24	1	3	■	2	■	4
19	18	4	11	1	■	15	19	1	■	4	23	20	1	3
13	■	13	■	15	■	26	2	15	■	13	■	19	■	24
24	13	2	24	1	15	■	24	■	10	2	19	23	1	18

1 E	2	3	4	5	6	7	8	9	10	11	12 W	13
14	15 D	16	17	18	19	20	21	22	23	24	25	26

WINNER of the competition in the last *News and Views* was Mike Kensdale, Materials Quality Test Department.

The Solution to the last issue's poser: 1-B, 2-E, 3-K, 4-P, 5-V, 6-G, 7-O, 8-N, 9-C, 10-U, 11-H, 12-X, 13-J, 14-Q, 15-F, 16-M, 17-I, 18-A, 19-T, 20-Y, 21-L, 22-R, 23-W, 24-D, 25-Z, 26-S.

Have a go at winning £15 by solving our latest word poser.

All you have to do is match up each letter of the alphabet to a number on the grid to complete the puzzle.

We've already given you three letters, so fill them in on the grid and take it from there.

Send your entries (to arrive by first post on 12 May 1986. 1986) to the Editor, *News & Views*, PR Department, Marconi Radar Systems Ltd, Writtle Road, Chelmsford.

Name.....

Phone.....

Department.....

MASC Theatre Group NEWS

LATE CHANGES

FOR the first time in 15 years, the curtains rose in the MASC's main hall on a full production by Marconi amateur actors.

The Theatre Group put on three one-act plays, and in doing so had to overcome a producer's nightmare.

One of the main characters fell out the night before the show. Paula Tabard was involved in a road accident that left her with a broken ankle, and no chance of taking part. Her role was filled by producer Shirley Bowden, whose own small part in the play was taken by Stella Machin, the prompt.

During the MASC jubilee celebrations in the summer, the Group will be putting on the spoof Victorian melodrama, *The Gypsy's Revenge* which it has already recorded for hospital radio. It will be re-cast for the occasion and anyone interested in taking part should contact Ted Aldous, ext 2564 or Mary Ellis, ext 2523.

Joint team managers Andrea Peters and Peter Tickner

Search is on for outdoor pursuit teams

Welsh hills await our lucky eight

THIS year's GEC National Young Employees Competition is something special. To mark its centenary year, GEC is throwing the event open to many more competitors.

Marconi Radar has seized the opportunity and is sending two teams of four — one all-girl, the other all-boy — instead of its usual one mixed team.

This three-day, outdoor pursuit event is based on the TV show, 'Now Get Out of That'. It is designed to stretch the ingenuity and determination of the competitors to their limits, and is, in a way, an extension of the character development course. Tough it may be: fun it certainly is. And the chance to spend three days in the Welsh hills, which is where the contest is held 26-28 September, is not to be passed up lightly.

It can be fairly safely assumed that the activities will fall under four broad headings: orienteering, multi-activity, water-based activity and an initiative course. But what the teams may be called on to do in those four zones is anyone's guess — details are a heavily guarded secret until the last moment.

Already this year's joint team managers, Andrea Peters and Peter Tickner, have alerted all those in Marconi Radar under the age of 22, and have given a slide presentation of last year's competition. And already a number of prospective entrants have put their names forward. If you are interested, contact Peter on extension 2970 (Andrea is too mobile at the moment to track down on a telephone.)

Early in July the applicants will be interviewed and 16 'possibles' will be selected and sent on a three-day training programme, based on events included in previous competitions, in the hope and expectation that this year's will be similar, if not the same.

Then, four girls and four boys will be chosen to represent the company.

Our hopes are running high this year. Last year, in spite of an unforeseen and unavoidable set-back that eliminated us from one of the four zones, we finished 26th in the field of 96. This year, if we spark on all four plugs, we should be well up among the leaders.

HAPPY BIRTHDAY GEC

GEC is 100 years old. Its story started in 1886 when two young men, Hugo Hirst and Gustav Byng, joined forces to set up an electrical warehouse in London.

When they published their first catalogue, electricity was used for very little other than lighting, although Hirst had already powered a launch on the Thames, ridden an electric cycle and devised an electric dog-cart for an Indian Rajah.

Applications were beginning to be found in commerce, industry and the home, and Hirst realised that to exploit the potential it was necessary to establish a manufacturing base. A factory was, therefore, opened in Manchester.

In 1896 the company sowed the seed of one of its most important present-day activities when it won its first defence contract — supplying arc lamps to Lord Kitchener in the Sudan!

By the outbreak of World War I, GEC had expanded and diversified into electric motors, field wireless sets and signalling lamps. By the end of hostilities, 90% of its production was directed into the war effort.

In 1919, the research centre that was to take Hirst's name was founded — a move that put GEC in a leading position in scientific inventiveness that it has never lost.

Growth

Expansion, acquisition and diversification between the wars enabled the company to exploit the enormous growth in demand for electrically-based goods and services.

During World War II, it evolved a special valve that played a key part in radar — one of the country's most vital tools of defence. Navigation aids, blind bombing devices, the pipeline under the ocean (PLUTO), the fog dispersal system (FIDO) and numerous other innovations contributed significantly to the successful outcome of the war, and to valuable civil spin-offs and an on-going involvement in the defence field.


Hugo Hirst

If one accepts that electronics is the branch of electrical engineering that deals with the movement of electrons through thermionic valves and semiconductors and the devices that use them, then GEC has been a part of the electronics scenario from the start. But it was not until the post-war mergers took place with Radio and Allied Industries, AEI and English Electric, which encompassed Marconi and Elliott Automation, that it became as big a giant in the electronics field as it was in the electrical field.

These days, it employs 166,000 people, of whom some 18,000 are science and engineering graduates, and some 34,000 are technicians, technician engineers and craftsmen. It trains about 50,000 men and women each year, and sponsors 7,000 students and apprentices.

Famous

To mark its centenary, GEC invited 31,000 customers to a mammoth exhibition in the Wembley Conference Hall, where from April 29 to May 3 it showed a selection of the products that have made it famous throughout the homes, industry, commerce, public services and armed forces of countries everywhere: the products that bring light, heat and power to us all — from turbines that generate electricity to the power cables that distribute it.

The products that surround us in the home — from cookers to washing machines; from light bulbs to telephones.

The products that safeguard and transport the traveller — from road traffic signals to 125 mph trains; from signalling that controls the locomotives to controls that help the pilot of aircraft.

The products that are to be found in the workplace — from telecommunications to business systems; from furniture to office equipment.

The products that are used in hospitals — from standby generators to body scanners.

Warships

The products that defend nations — from radar to missile guidance systems; from warships to automated battlefield equipment.

These, and so, so many more that go to make up a catalogue of success, achievement and stability across 100 years.


Iona Fearon from Stanhope Gate takes time off to learn about the naval workstation — a colour raster scan radar display — from Paul Clissold, Airspace Control Division.


At the vessel tracking system display is David Cremer, sales manager, VTS, Naval Division and military adviser to Marconi Radar, Jim McLean.

CHELMSFORD NEWS AND VIEWS
Marconi

Next issue:
Copy date for inclusion of material in issue number 16 of News and Views will be June 2 and the newspaper will be distributed on June 18 1986

Published by Marconi Radar Systems Ltd., Writtle Road, Chelmsford.
EDITOR: Pam Reynolds c/o PR Department. Tel: Chelmsford 26711 ext 2761.

Designed and typeset by AB Consultants Ltd. and printed by Yellow Advertiser Web Offset, Harlow, Essex.