MARCONI RADAR

No. 4 1976

Echo

The internal newspaper of Marconi Radar Systems and its people

FIRST TIME IN PUBLIC

– a successful Farnborough

All the items shown by Marconi Radar at a crowded Farnborough International '76 last month were being exhibited publicly for the first time. They represented major advances in naval missile guidance, automated defence systems, antenna design, air traffic display systems and computerised systems management.

Since the last Farnborough two years ago the Company has been devoting a large part of its effort to the development of new and more effective systems which take full advantage of latest techniques.

Support

All this effort allied to a great deal of enthusiasm and support from employees both in front of and behind the scenes contributed to the success of this year's exhibition, which was declared to have been 'one of the best ever' as far as the Company is concerned.

The veil of secrecy surrounding the GWS25/Seawolf anti-missile system having been partially lifted, we were able to show, for the first time anywhere, the tracking and the surveillance radars, and these captured a lot of attention from both press and public. Now undergoing extensive sea trials on HMS Penelope after highly successful land-based trials, GWS25/Seawolf is the only proven anti-missile point defence system in the western world.

High performance

Another eye-catching exhibit in the 'radar park' was the new S1061 25ft antenna, the latest enhancement to the S600 series radar. This new high-performance equipment is readily transportable in spite of its size and one man can fold down or re-erect the complete antenna. The S600 series of transportable radars has already achieved remarkable success with over £75 million worth of export orders.

FURNACE, a new highly-flexible concept in air defence data handling, was shown in our cabin on the radar park, and also on display there was our latest civil air traffic control data handling suite. On the stand our CMM (Computerised Modular Monitoring) exhibit illustrated a civil aviation application and showed how unmanned en-route radar stations can be controlled and monitored from a remote control centre.

Behind the scenes...

A great deal of hard work goes on in many quarters before an exhibition sees the light of day, and this year's Farnborough was no exception. Here are some of the people who helped to make our display a success.

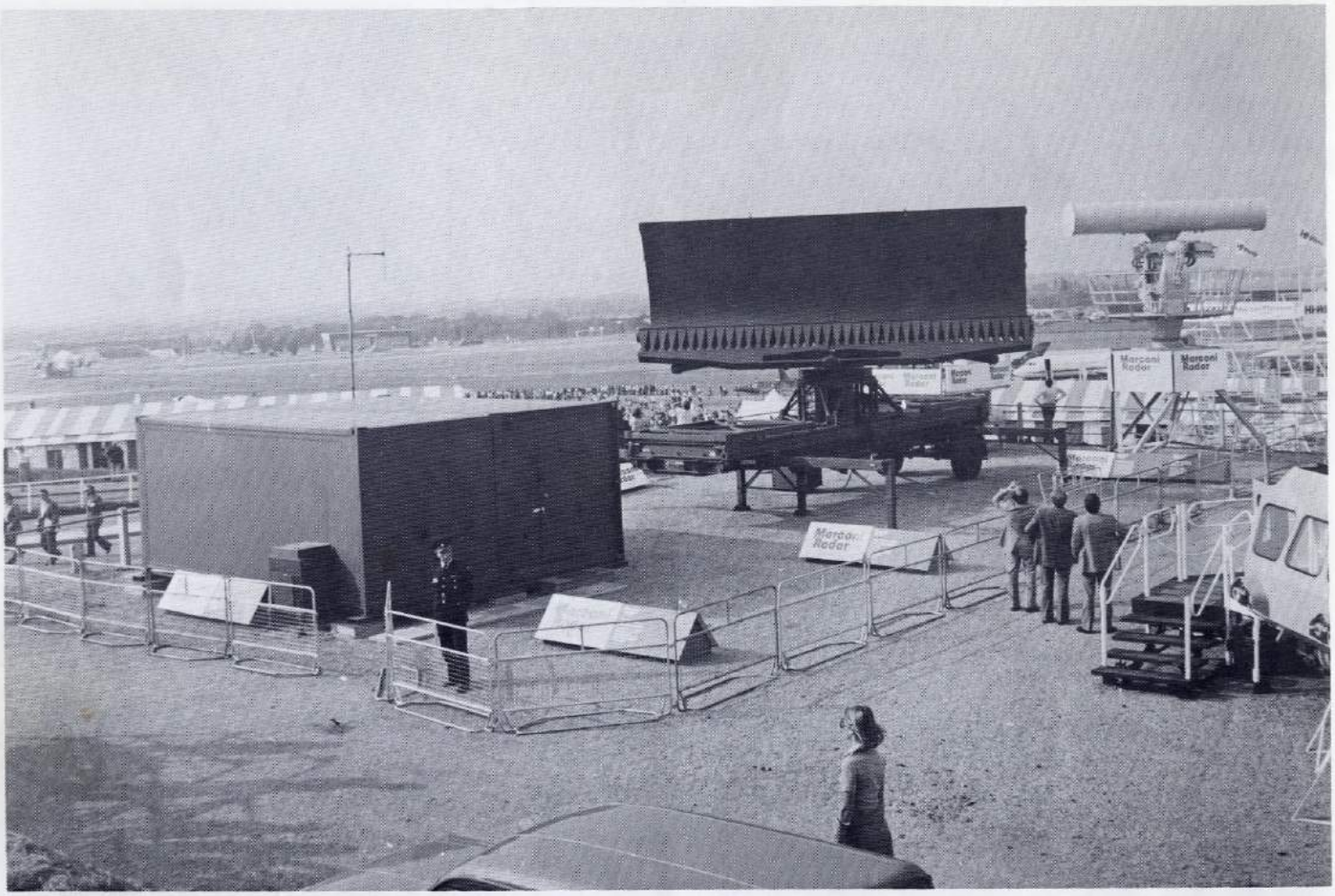
Standing in front of the S1061 antenna before it left Writtle Road are: (back row) Fred Chittenden, John Cooper, Brian Butcher; (centre) Paul Jeffrey, Pat O'Donnell, Vic Brimley; (front) Derek Banes, Geoff Edwards, John Dearsley.

Inside the exhibition cabin as it nears completion are: (back row) Derek Knight, Robin Webb, Bill Gilby; (front) Richard Guns, Jimmy Hull, George Byrne, Ken Knight, Frank Piper.

On site...

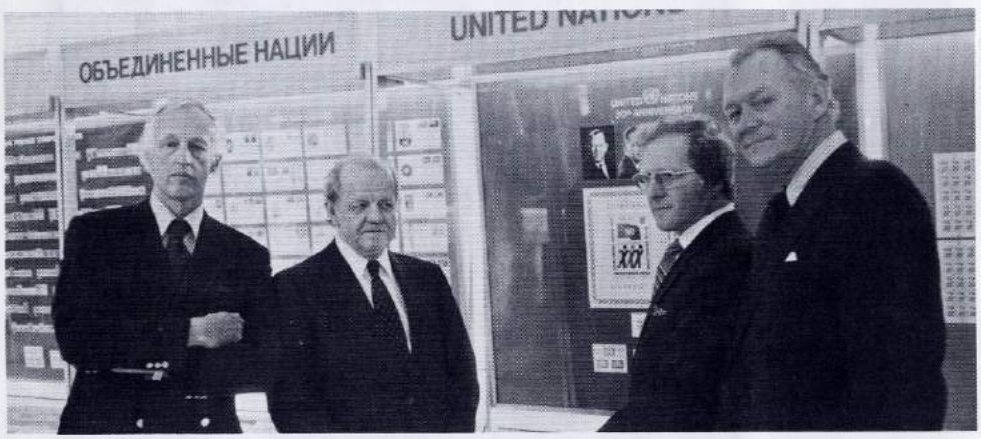
Top award

John Julsing (right) of Gateshead Works receives a cheque from Ron Sherwin, General Works Manager, MRSL, for a valuable technical suggestion concerning a triple passive identity select module, submitted by him to the Suggestions and Inventions Committee. John's award, which totalled £150, is the largest award under the scheme to be made at Gateshead Works.



...at the Show

Marconi Radar 'hardware' dominated the radar park at Farnborough. The huge S1061 antenna in the centre is flanked by our cabin and the GWS25 surveillance radar. The GWS25 tracker was also on display but is hidden here by the S1061.



Ray Goodey (second from right) pictured while visiting the UNPA's stamp exhibit in the General Assembly Building at United Nations Headquarters, New York. Also in the picture (from left) are Mr. Herbert Conway of Linn's Stamp News; Dr. Robert Kvarnes of the UN Study Unit in Washington; and Mr. Ole Hamann, Chief of the UN Postal Administration.

Expert on UN stamps

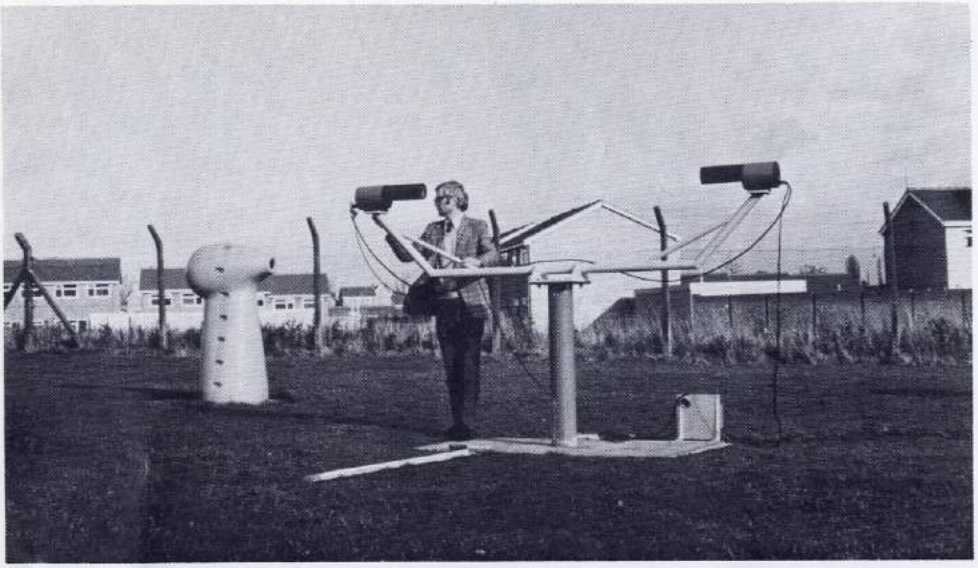
Ray Goodey, of Engineering HQ, is rapidly becoming an acknowledged authority on postage stamps issued by the United Nations Postal Administration. This month he expects to see publication of Part One of his two part illustrated history of UN Stamps — the first comprehensive work on the subject. His first 140-page volume contains some 40 photographs and cover the regular issues between 1951 and 1966. Ray is looking after his own publishing and distribution, and 500 copies will be printed.

Ray's special interest in United Nations stamps began in 1953, two years after they were first issued. Since then his research into the subject has taken him on visits to New York and Geneva, and twice to Holland where the Dutch printing firm of Enschede have supplied him with reprints, new plates and detailed information on such matters as paper, gum and perforations. Last year he received an official invitation to visit UN Headquarters in New York — an experience which impressed him a great deal.

"Many people don't realise that the UN Organisation has its own postal administration," said Ray. "It not only issues a series of regular stamps but also a five-time-a-year commemmorative set featuring anniversaries and special events. This helps to bring home the enormous amount of good done by the various United Nations agencies all over the world in many different ways."

On test

Pictured here working on a squintless feed antenna are (left to right) test engineers Tony Welland and George Henshaw and production engineer Roy Clover. For the technically minded, they are measuring the phase and amplitude of the output ports. When finally set up, the complete equipment will be going overseas.



A MET-1 prototype being installed at New Parks, Leicester, by consultant physicist Mike Judge, under the watchful eye of an IVR 'dalek'.

Measuring fog thickness

The Royal Aircraft Establishment is to research the vertical structure of fog using MET-1, the new visual range monitoring equipment developed at Leicester.

Two MET-1 (Marconi Environmental Transmissometer Mk. 1) equipments are to be supplied for use by RAE at Bedford and Cardington, for joint Civil Aviation Authority and Ministry of Defence experiments.

Visibility

At Cardington the MET-1 will be attached to a balloon and raised and lowered from 1000 feet to measure the vertical profile of visibility.

The MET-1 at RAE, Bedford, is to be used in conjunction with an existing IVR (Instrumented Visual Range) airport runway system. MET-1 will be installed on a 100-ft tower and, again, can be raised and lowered

Accurate measurement

MET-1 was developed as a visual range measuring system for use in any situation where accurate measurement of visibility is required in the presence of fog, dust, rain, snow, smoke or other pollutants in the atmosphere.

A main advantage of the new instrument is that it measures atmospheric transmission using only a short baseline. This is a significant advance in technique since it enables the two ends of the baseline to be mounted on the same rigid bar, resulting in a single compact unit for installation. For ground level installations it is supported at the required operating height on a single central support pillar.

Aimer trainer for Royal Navy

V-MAT, a new versatile multi-aimer trainer developed at Leicester, is to be supplied to the Royal Navy at a cost of about £½ million.

The new system, which is to be installed at a Royal Navy training school, will provide training for up to eight operators simultaneously, creating highly realistic pictures in their optical sights.

Computer generated

V-MAT is based on the TEPIGEN (Television Picture Generator) system which, using computer generated imagery techniques, synthesises television pictures wholly from a computer. It gives students the opportunity to practise tracking targets which have the appearance of, and react as, real targets. The basic system is easily adapted to simulate various naval roles in both attack and defence, using missiles or gunfire. Locus 16 data-processors are used to drive both the picture generation and the control of the exercise.

Optical tracking

The instructor can monitor the progress of his students continuously from the Exercise Control Console where he can also introduce a wide variety of problems for the students to solve.

Visual aiming systems are currently receiving a boost from the development of infra-red and low-light optical sights for their performance in hostile electronic warfare environments, and this enhanced interest in optical tracking has created a demand for a training system such as V-MAT, which rapidly identifies those trainees who have a natural aptitude for the very exacting tasks of tracking and aiming.

TEPIGEN, as used in the V-MAT system, produces television pictures entirely from a computer; no cameras, film or models are involved.

DELIVERING THE GOODS

The news of our big order in Saudi Arabia arrived too late for my editorial in the last issue of Echo, but I was at least able to include a reprint of our Press Release with each copy.

With our record order book, we must all now concentrate our efforts on getting things done — each one of us must do that little bit more to ensure that the equipment and systems are right and go out through the door on time. We can do a lot to enhance British prestige overseas, and ensure that satisfied customers come back for more, if we really can 'deliver the goods'. And what is more, the size of our business is such that it begins to have a real effect, however fractional, on our national balance of payments, and thus on our future standard of living.

Successful show

We have just finished another Farnborough week — the time we put our goods in the World's shop window and lay the foundation for new orders in the future. Our new equipments excited a good deal of interest and I would like to thank and congratulate everyone concerned on the success of the show — not only the people in the forefront, but everyone who slogged away beforehand and who contributed at a distance. I was very glad that a number of people were able to go along on Saturday and Sunday and see for themselves; I am only sorry we could not make it possible for more of you to go.

Modernisation

In conclusion, a word on the subject of the Writtle Road site. Although at times the progress may seem very slow, we have spent several million pounds on modernisation, on new plant and on reconstruction (much of it necessitated by the inability to obtain Government permission for new buildings in the Chelmsford area in the late 1960's), and by the early months of next year most of the work will be substantially complete. We shall then have one of the best equipped electronic establishments in the country, in which we can all take due pride.

John Sutherland, Managing Director

"Tango Radar - this is Golf Papa Whisky"

Richard Worby, Area Sales Controller responsible for air traffic control and data handling in the U.K. and Europe, is playing a vital and active part in the operation of the Engineering Division's new flight control centre.

Five years ago Richard fulfilled a lifelong ambition when he obtained his own pilot's licence — he is now a member of Thames Estuary Flying Club — and so he is able to pilot the aircraft used as 'flying targets' in trials conducted by the Division to evaluate radar performance. Not only is this convenient for the Company but also for Richard, as it helps him to log the number of flying hours necessary to retain his licence from one year to the next!

First sorties

Working closely with Systems Engineer Robin Webb, who during the trials takes over on the ground as Air Traffic Control Officer, Richard flew his first sorties in November 1974 in a Piper Cherokee Arrow 200, registration number G-BAPW, to help test a new design of feed for the S264. In March and April of the following year more of these tests were carried out, this time with a twin-engined Piper Aztec.

June 1975 saw Richard flying two more sorties in G-BAPW for the evaluation of SINTEQ (Selective Interrogation Equipment), which is designed to overcome over-interrogation and over-suppression in a secondary radar environment.

Tango radar

In February of this year he was at the controls of another Piper Cherokee Arrow 200 when he made a test flight in connection with a CAA study contract to evaluate an advanced multi-filter MTD (Moving Target Detection) system. This is designed to supersede the MTI (Moving Target Indication) system, which has certain limitations.

During the flight trials Richard is linked by radio telephone with Robin Webb — call sign 'Tango Radar' — who gives an advisory service as air traffic controller from his post at the radar displays in the control room. Robin obtains clearances in advance as far as possible and is in constant contact with civil ATCC and the aircraft, though Richard is responsible for his own clearance with civil ATCC.

'Buzzed'

One of the trials tracks runs from the Thames Estuary, over Rivenhall to the North Sea area, and Richard confesses that he is sometimes so busy changing radio frequencies and keeping in touch with various people on the ground that he is left with little or no time to fly the aeroplane and has to leave it to the automatic pilot.

He also tells the story of how on one occasion he was 'buzzed' by a number of Phantoms and Lightnings based at RAF airfields below who came to take a closer look — and of how relieved he was when they went away!

Richard Worby pictured at Southend with the Piper Cherokee Arrow 200, registration number G-BAPW, which he has used in many of the radar trials.

Robin Webb (standing) and Richard Worby inspect a new air traffic control suite.

Update for Danish Radar

We have received a contract from the Danish Post and Telegraph Authority to improve the 50cm radar system at Kastrup, the airport which serves Copenhagen.

The original equipment, installed in 1961, has given excellent service and the inclusion of the improvements will extend its life for many years to come. Planned for completion in eleven months, the installation is being carried out by the customer's engineers under Marconi Radar supervision.

Comprehensive study

This is the second overseas improvement programme to follow from a comprehensive study carried out by the Company for the U.K. Civil Aviation Authority which resulted in contracts to install new signal processing equipment, receivers and transmitter conversion kits in the 50cm radars covering the U.K. airways system. The first overseas programme is already in progress in New Zealand.

Ship-shape, Marconi-fashion

Vice-Admiral R.P. Clayton, Controller of the Navy, and Vice-Admiral Sir Philip Watson KBE, MVO, Director-General Weapons (Navy), visited the Company recently. During their visit to the Writtle Road works the Admirals were shown the progress being made on the latest naval radars, including the Seawolf system.

Our picture shows (left to right) Bob Telford, Managing Director, GEC-Marconi Electronics; Vice-Admiral R.P. Clayton; John Sutherland, Managing Director, Marconi Radar Systems; and Vice-Admiral Sir Philip Watson.

Leslie calls it a day ...

A man who has been a familiar figure in the Company for nearly half a century and who could claim the longest Marconi service in MRSL has recently retired. He is Leslie Freeman, Sales Controller at Writtle Road, who joined the office staff of New Street Works in 1928.

In later years Leslie became associated with many of the large radar contracts the Company has handled — including GWS25 (Seawolf) from its early days as a study contract — and travelled all over the world.

His involvement with the sophisticated GWS25 system emphasises the long way both he and the Company have come since the time when Leslie spent his first two years in various works departments as training for future administration and sales work. He went through such departments as Planning, Cost Office, Works Orders and Contracts — a highlight of this period was in 1932 when he saw Guglielmo Marconi during the great man's last visit to Chelmsford — and eventually he moved to Marconi House in London where he stayed until 1938.

D-day landings

What is not generally known is that although Leslie could have remained in his 'reserved' occupation during the Second World War, he did in fact join the forces to serve with the Royal Tank Regiment. Leslie took part in the D-day landings, saw action in France and Germany, and was in one of the first tanks to cross the Rhine. He survived the destruction of three tanks but was seriously wounded in the fourth shortly before VE-day and spent the following two years in hospital.

After the war Leslie joined the Services Equipment Division of Marconi which was formed in 1948 to handle the growing volume of radar business. (S.E.D. was soon to be renamed Radar Division and in 1969 became the nucleus of Marconi Radar Systems Limited).

Naval business

As Chief of Naval Section, Leslie took over the sales and contracts aspects of the whole of the naval business. In the mid-1950's he became closely associated with radar Type 965, the main surveillance radar for the whole of the Royal Navy, and then went on to Type 992Q, spending much of his time on the sales of these radars both at home and overseas. When the handling of naval radar was concentrated at Leicester he moved on to GWS25.

From all accounts Leslie will be as active as ever in retirement. He has his vegetable plot and his badminton to keep him physically fit, and to keep him mentally alert he intends to study a foreign language — either Spanish or German — in depth. In addition to this he will continue as Treasurer of the GEC Overseas Club, Chelmsford Centre, and he is also an active member of the Marconi Veterans Standings Committee and of Chelmsford Engineering Society.

Les Freeman (left foreground) pictured at his farewell party with Mrs. Freeman (holding portrait) and Roy Simons, General Manager. Les's portrait was presented to him by Pat Bird (far left).

...and so does Ken

Ken Merriman, who at one time worked closely with Les Freeman, has himself retired at Leicester after more than 25 years' service.

Ken was a Chief Petty Officer (Radar) in the Navy during the last war, and then stayed with the Admiralty in a civilian capacity. He was stationed at the Royal Naval Air Station, Ford, Sussex, where he was the first civilian to be in charge of the airfield radar there.

In 1951 he joined the Company at New Street as a Systems Engineer. He was involved with radar systems for destroyers, including sea trials, and travelled widely to such places as Venezuela, Peru, Spain, Portugal and East and West Africa.

New Parks

Later he moved to Technical Sales and then in 1968 transferred to Radar Sales at Writtle Road. He made the move to New Parks, Leicester in 1971, where he continued with Radar Sales for naval applications.

Ken will stay in the Leicester area for the time being. During his retirement he intends to play a more active part in his membership of RSBG (the Radio Society of Great Britain).

Below: *Ken Merriman with the tankard presented to him by his colleagues on his retirement. Colin Latham (third from right), Development Manager at Leicester, also presented Ken with a camera and accessories on behalf of the Company.*

The need for fibre-glass components in radar

A material with the strength of steel which can be used where metal will not serve is an essential in the production of radar units.

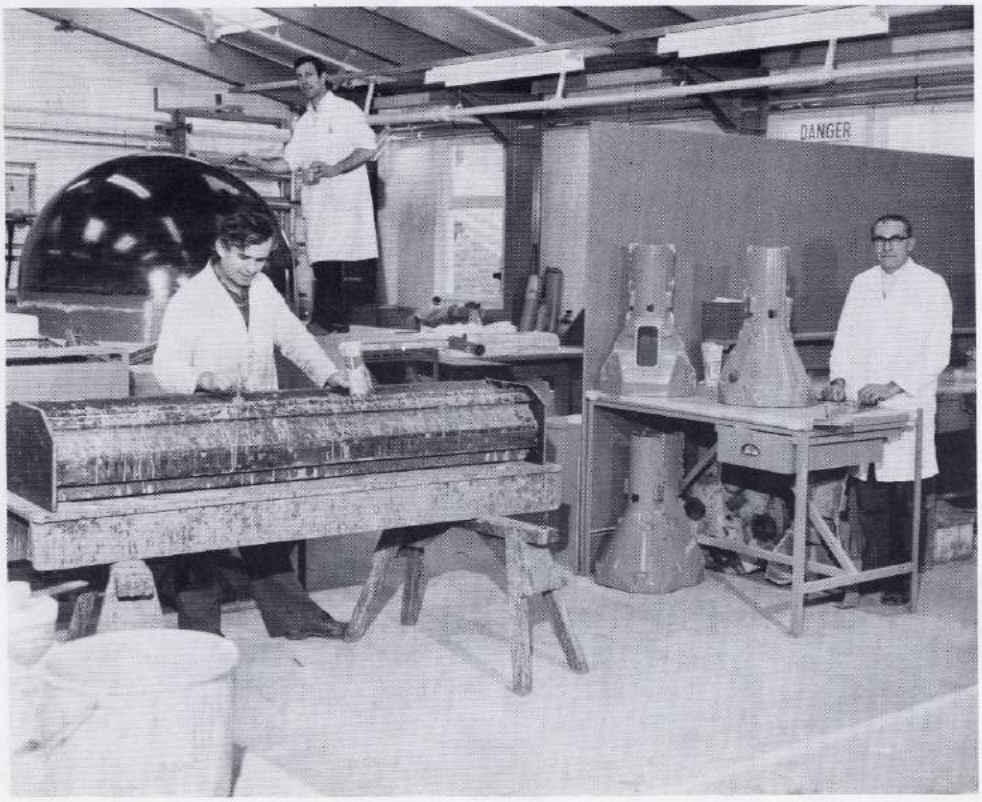
Resin bonded glass fibre meets many of our needs in this way for it has mechanical strength, lightness and radar transparency.

Because of its many applications in radar systems, we have our own fibre glass moulding section where we make all kinds of moulded components, covers, ducts and radomes. They vary in size from small coil covers to big, weatherproof, aerial casings for ships of the Royal Navy which have to be strong enough to stand up to the buffeting of gale force winds and continual exposure to dirty weather.

Marconi know-how

These products are built up with resin and glass fibre laid layer upon layer to form glass reinforced plastic laminate of great strength. The methods of manufacture, of laying up the materials in the moulds for different types of work, and the specifications of the chemicals for making up the resin mixes are the results of specialized knowledge and experience of Marconi Radar people starting with the designers and finishing with the Production Engineer and the works manufacturing unit.

The basic ingredients of the material are fibre glass and resin, the tools for the job are moulds, and the results of the work of Fibre Glass Section can be seen in most of the equipment which leaves the Company for major contracts; for example, the casing on the aerial in the photograph to which Mr Sutherland is pointing on page 4 was made in the section.



Top left: *A radar-transparent GRP (glass-reinforced plastic) casing for an aerial. This will go to sea with the Navy — when Jim Mantle has finished his final touches.*

Left: *Here is the lay-up shop or moulding section. In the foreground is Maurice Leveridge working resin into a moulding for a rectifier. Behind him is Peter Theobald preparing a radome mould by putting a releasing agent on it before the lay-up is started. To the right is Len Ellis with top and bottom housings he has made for cathode ray tubes in display units.*

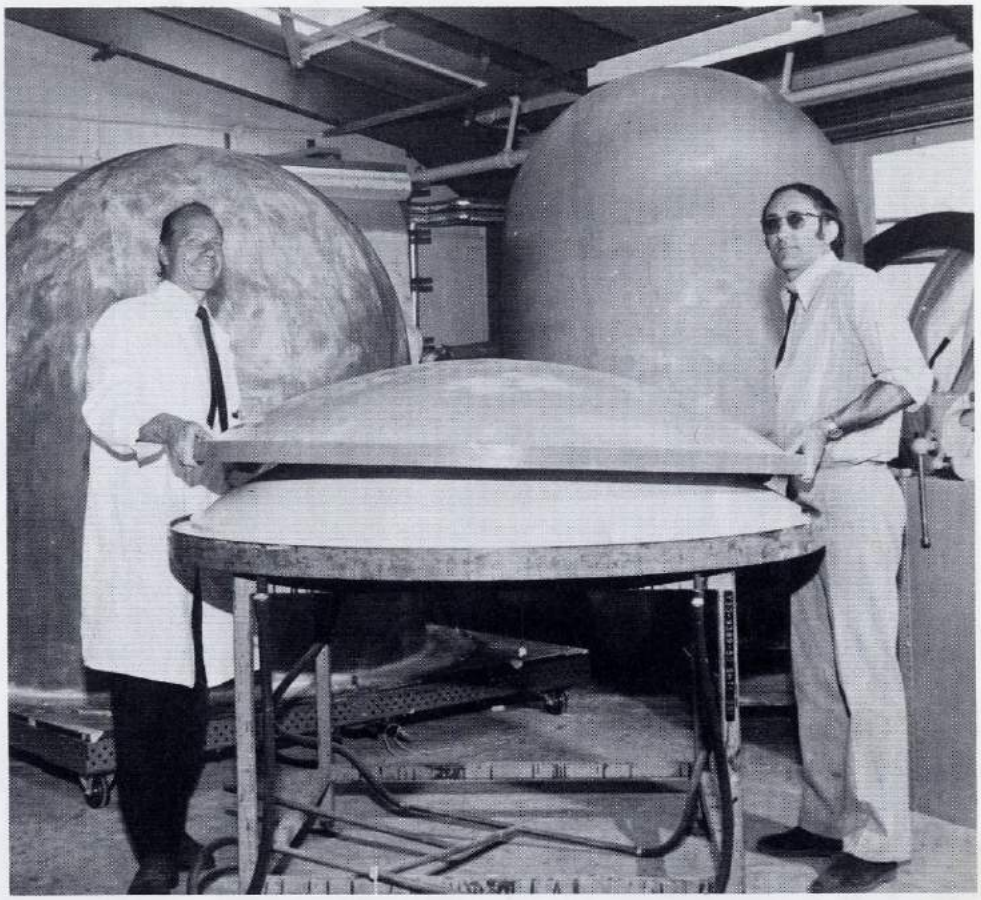
Top right: *Derek Siseman, Supervisor of the Fibre Glass Section and Cliff Crane, Production Engineer, are lifting a mould to show a glass-reinforced plastic dish aerial ready for release. Behind them is a radome in process of being built up on the mould and on the right is a finished unit. Domes like these are also built for MCSL. This is one area where MRSL provide a service for Marconi Communications Systems.*

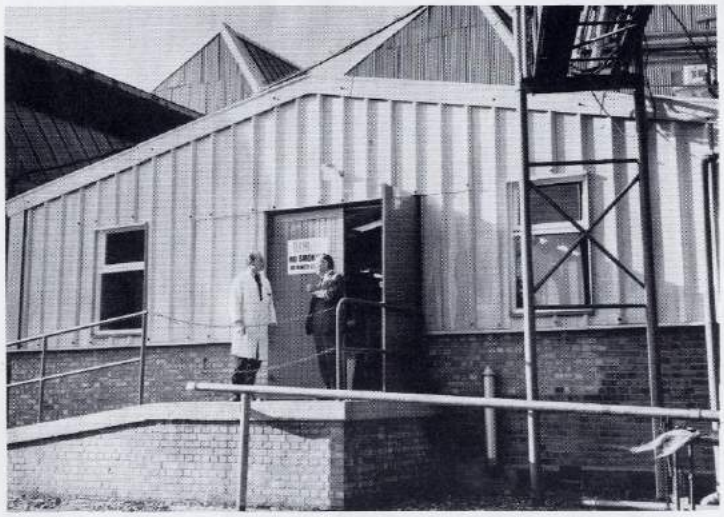
Centre left below:
Derek Siseman and Ron Bernhardt at the entrance to the new building.

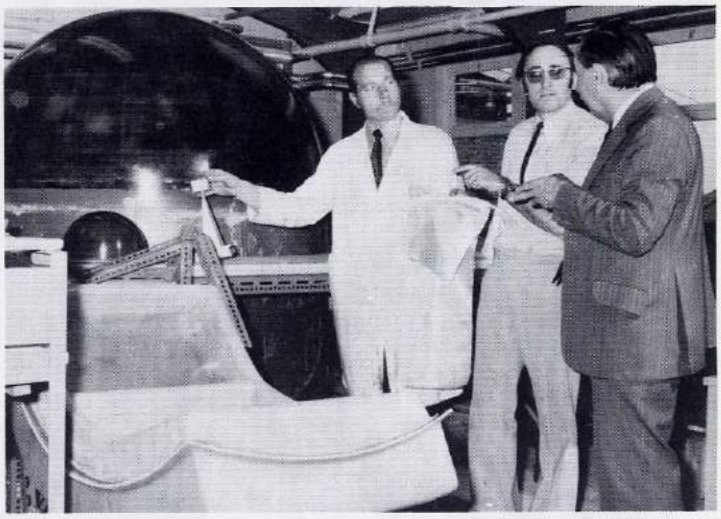
Centre right below:
This picture, taken before the others soon after the glass fibre section moved into its new building, shows two radome moulds with, left to right, Derek Siseman, Supervisor of the Section, Cliff Crane, Production Engineer, and Ron Bernhardt, then Manufacturing Facilities Manager, now retired. Derek has in his hand a prototype feed horn made for development work, and Cliff has a specimen of the glass fibre cloth which is bonded in layers with resin.

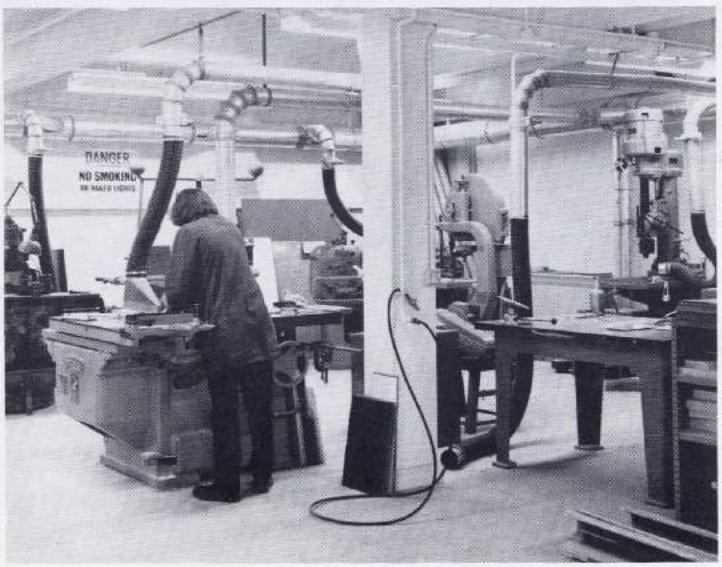
Bottom left:
The Section's machine shop is on the floor below the lay-up shop. Each of the machines is fitted with a high-power vacuum extraction unit so that the working atmosphere is completely free of dust. Here is Frank Childs at work on the Wadkin saw.

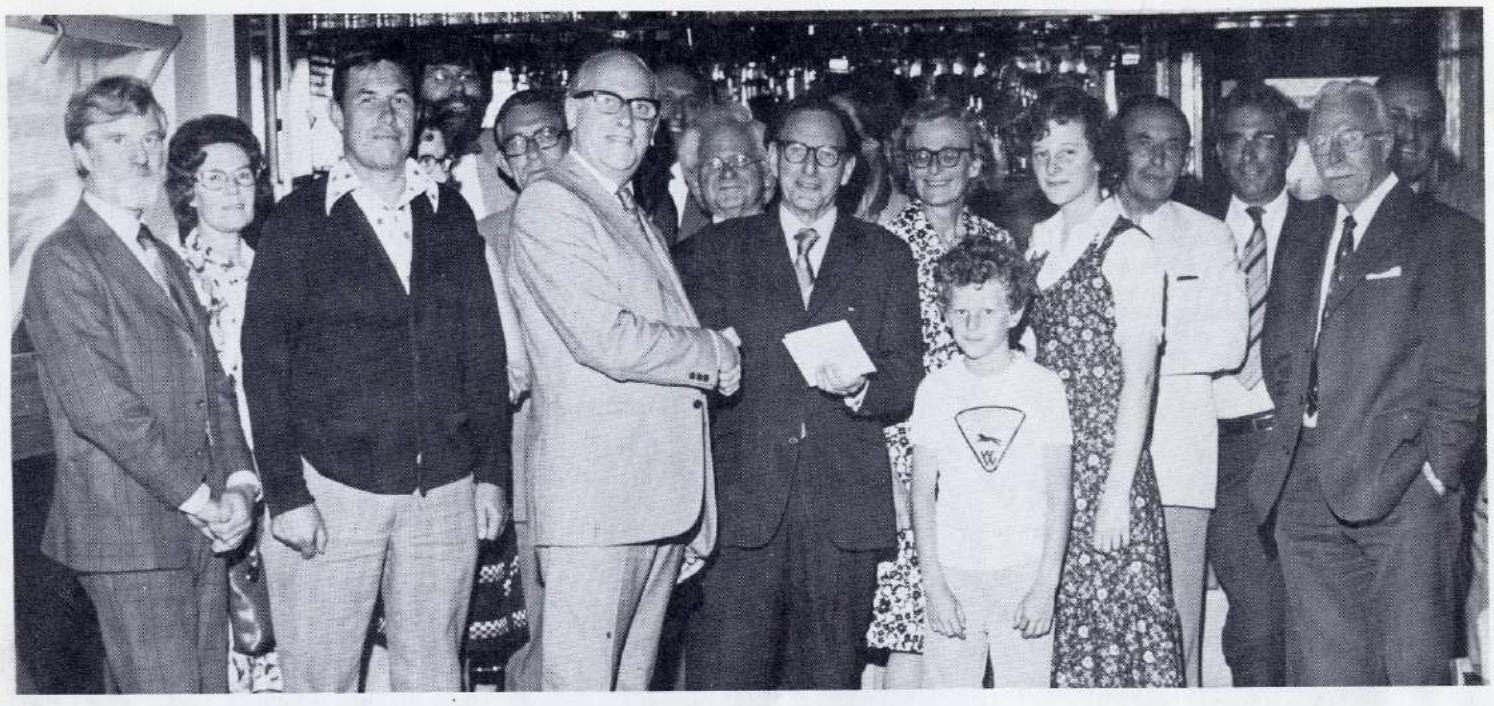
Bottom right:
Jim Mantle drilling a glass fibre cooling cover for a coil.











FAREWELL TO DUSTY

We recently said farewell to Mr. L. W B. Miller — known affectionately to everyone as 'Dusty' — after his 26 years' service with Marconi and many years as Editor of Echo.

Dusty, to whom Mr. Sutherland paid tribute in our last issue, really began his writing career with the Navy during the last war. He was sent to HMS Excellent, the gunnery school at Portsmouth, to help produce training material and books for ships and other establishments.

"The only office available was a conservatory in a requisitioned house out at Cosham," says Dusty, "so I sat and wrote my stuff in the sun amid the roses and geraniums."

Magnum Opus

The job grew, so he was transferred to the Central Editing Section at the Admiralty. When he was de-mobbed he put on a bowler hat and went back to sit at the same desk and do a wider variety of work. He always considers that his **magnum opus** was the "Royal Naval Handbook of Latrine and Ablutions"!

In the evenings he attended the London School of Printing, the Camberwell School of Art and the City Literary Institute. Within three months of qualifying — in April, 1950 — he was offered a job with Marconi.

Twenty years' run

Now the Echo office has on its shelves bound volumes of 20 years' production of the Marconi Companies and Their People; with, since then, Marconi News, Link, and Echo. On the walls hang seven Certificates of Merit and an Award of Excellence, won by the Marconi Magazine during its 20 years' run, in annual competitions of the British Association of Industrial Editors.

Dusty will spend his retirement at his home at Little Baddow with his wife Kay, daughter Helen and son Sandy where he will knuckle down to a new "career" — that of portrait painting, which he has already started with some success. If he proves to be as talented with the brush as he was with the pen, his future is assured for a long time to come.

Above: *Surrounded by some of his friends at the MASC Club, Dusty Miller is presented with a farewell gift on their behalf by Peter Baker, Publicity Manager, GEC-Marconi Electronics. On Dusty's left are his wife Kay, son Sandy and daughter Helen.*

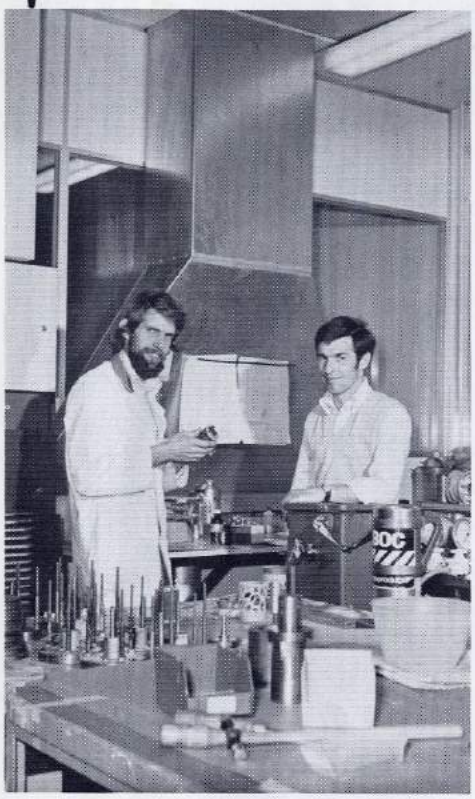
Right: *Two old acquaintances meet again as 'Dusty' receives a presentation from Mr. R. Telford, Managing Director, GEC-Marconi Electronics.*

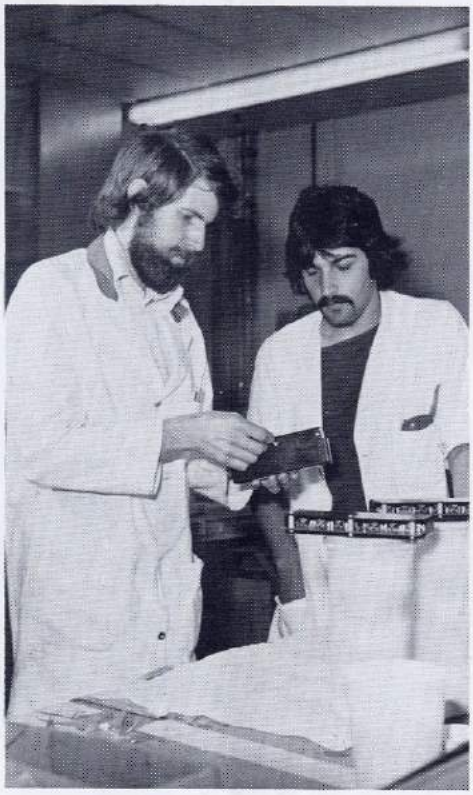
First birthday show

An impressive display in the Blackbird Road Canteen by the GEC (Leicester) Art Society, held by courtesy of the Ex-Service Association at the same time as the flower and vegetable show, marked the end of the Society's first year of existence. Seen here admiring some of the paintings are (left to right): 'Johnny' Jones, Chairman of the Society, John Scotney, Mrs. Elinor Kinder, Arthur Kinder and Jim Chambers. The display was later transferred to New Parks.

The Society's first year has been a successful one, with activities such as lectures, demonstrations and appraisal evenings, as well as visits to an art show and group painting in the countryside. The committee is planning an even more ambitious programme for the winter. Membership is growing steadily and currently stands at 34.

How to test a trouser leg





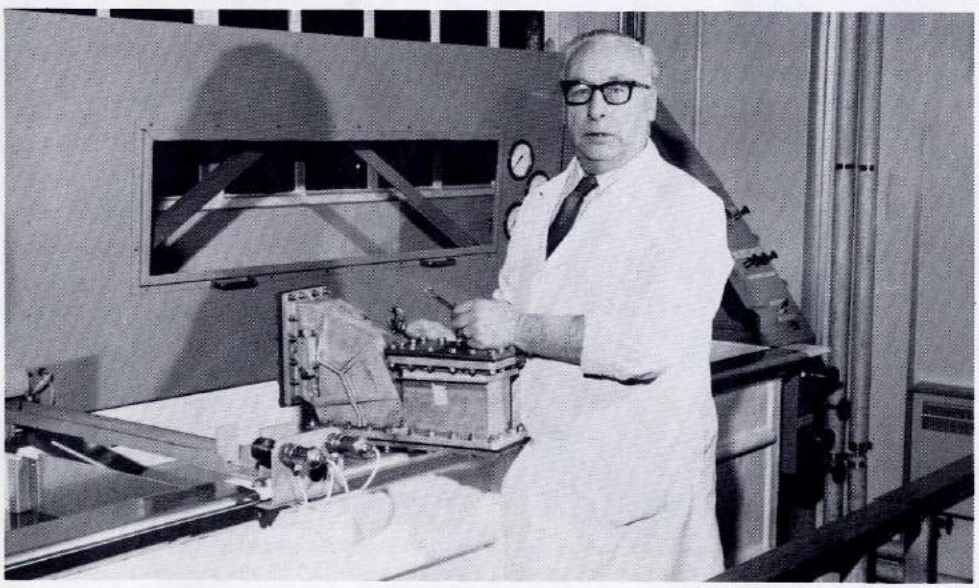
Epoxy resins and araldite are being more widely used in works production. The number of jobs for which they are required is increasing, and with the greater variety of applications comes the demand for special mixes and the specialized knowledge required for their preparation.

Tucked away in a comparatively new area of a building is a small section, No. 153, which runs a service to the Works for araldite mixing and processing. This section also handles other resin work such as encapsulation and potting, and provides special services for jobs like the shrink-fitting of bearings at extremely low temperatures and the pressure testing of 'trouser legs' — waveguide angle pieces and joints. There is also a special clean area set up for the assembly of any equipment which requires ultra clean conditions.

Valuable contribution

All these services, although carried out in one section where the requisite working tools are set up, are essential to the production programme and tie in with the Works schedules. Work which goes out from Section 153 is as valuable a contribution to the final product as work from any other feeder section.

Here are pictures of some of the jobs in progress:-



Above left: *Barry Martin, Senior Production Engineer, right, with Nick Hodge, of Section 153. Behind them is the epoxy resin mixing bench with the scales for weighing out the chemicals. Resins and araldite mixes are also made up here for jobs carried out by other Works sections. Barry is touching part of the degassing chamber, a vacuum system used for extracting bubbles of air from araldite and other mixes.*

Nick is holding a deflection coil formed from a flat printed sheet which has been encapsulated in resin and is now ready for insertion in a plastic laminate cooling cover made in Fibreglass Section. See article on page 6. In front of Nick to the left are the fixtures for holding the coil in the rolled shape during the encapsulation process. On the bench in the foreground is an upright shaft, a rotor for a waveguide switch, which turns on a bearing shrink-fitted into the housing socket. The bearing and shaft were first reduced to —197°C with liquid nitrogen then inserted in the housing and left to heat up and expand. The fit, now, is perfect, the bearing integral with the housing. On the right is the flask of liquid nitrogen.

Above centre: *Nick Hodge, left, with Steve Clarke who is about to encapsulate filter band units in a silicone rubber mixture.*

Above right: *Peter Raven, above, also does encapsulation work. But here he is sealing a waveguide joint in preparation for a pressure test in the water tank.*

Left: *The waveguide pressure testing tank with Sam Bacon (now retired) ready to submerge a 'trouser leg' joint. This tank was built to specified requirements by the Plant Engineers from designs and drawings by Ken Garrett of P.E. In it components can be tested at any pressure up to 180 lb. sq. in. The lid slides forward at an angle during tests to ensure the complete safety of the operator.*

The story behind Prowler

There are often some interesting 'behind-the-scenes' stories to be told about the development of a new and successful product — and we have discovered that Prowler, our one-man portable battlefield radar, is no exception.

Prowler has been developed to British MOD Specifications to operate at ranges up to 3,000 metres in a ground-to-ground role. It is used to detect moving objects — human or mechanical — in darkness or in conditions of poor visibility such as fog or smoke. Powered by a small battery, the radar indicates the presence of a moving object by sound in a set of headphones. The sound varies from a low hum to a whistle depending on the target and the direction it is travelling.

For instance, a walking man is heard as a low humming noise with a series of thumps; if he runs, the pitch of the note increases and the thumps become faster. Having found the target, the operator can switch to 'range mode' and check its distance from the radar.

Prowler on manoeuvres.

Early days

The principle used is not new. Way back in 1916, during experiments in short waves, Marconi noticed that these were being reflected by obstacles in the path of the signals. He never pursued the phenomenen, being heavily involved in the development of the short wave beam at that time.

As early as 1957, experimental equipments were demonstrated. BEVA (Battlefield Electronic Velocity Analyser) was shown to military authorities, and a special show was put on for King Hussein of Jordan.

The Government put out a general tender for Infantry Company Radar (ICR) in 1963, and two prototypes were built by Marconi and demonstrated in West Germany in 1966. A further four evaluation models were built in 1970, but it was not until after the completion of a project definition study in 1972 that a contract was received for the development of the equipment.

The black box

Research Division had carried out the original development but the work then passed to Engineering Division. Alan Prior, Engineering 'A', was placed in charge of the project and with other members of his section, plus Mechanical Section at Writtle Road and Design Office and Workshops at Baddow, designed and produced a working prototype. This was housed in an executive briefcase, with the aerial fitted to the front — affectionately known as the 'Black Box'.

Roadside trials were carried out with this prototype on a road carrying no speed limit, but engineers noticed that as soon as motorists spotted the Black Box, all slowed down to a steady 30 mph. One lady driver, however went further — she stopped and insisted on knowing what was going on!

'A' models

A team of engineers including Peter Herrington, Paul Hibbert and Steve Kolazynski (Electronics), Roy Moody (Aerials), Roy Frost (Tripods), Brian Crick and Pete Pudney (Mechanical Design), started work on the first 'A' models. By mid-1973 manufacture of these models was well under way in Baddow Workshops, with Bill Claydon taking charge of overall workshop activities under Charlie Lodge, Workshop Superintendent. Reg Daniels had by this time joined the team as Assistant Project Engineer.

The first 'A' models were complete by January, 1974, ready for the 'Dark Lady' demonstration of Battlefield Surveillance Equipment at the Royal School of Artillery, Larkhill. A number of British electronics firms took part, demonstrating equipment to visitors which included foreign military attaches. It was here that Paul Hibbert — turning into an enthusiastic salesman for a couple of days — tried hard to 'sell' the equipment to none other than Mr. Telford, Managing Director of GEC-Marconi Electronics!

Groups of employees who had in some way been involved in the design and manufacture of Prowler were invited to Galleywood Common for a demonstration by Barry Trewern, Area Sales Controller.

Quality

The man responsible for checking that the radars passed all the environmental tests, as well as for reliability and quality aspects, was Ray Hardiman, who joined the project team early in 1973 as a Senior Project Engineer. He also devised numerous, fiendish contrivances to enable the full environmental programme to be carried out.

A month after completion of the final 'A' models, in April 1974, a video tape recording of Prowler was made on Galleywood Common for sales demonstration purposes. This was helped by an unsuspecting gentleman pedalling along on his bicycle and a lady walking her dog. The movements of the man on his bike and the cavorting dog were faithfully picked up by the radar. No doubt other members of the public out there that day still wonder what Reg Daniels was up to as he ran and hid between clumps of bushes. His antics were good material for demonstrating the radar — and also (he claims) helped him win the Dad's Race at White Notley village sports that afternoon!

Green fingers at Leicester

Leicester's annual show of flowers, fruit, vegetables and wine — organised by the Ex-Service Association and open to all GEC people, their families and associate members of the Social Club — was held in the Blackbird Road works canteen. The trophies were presented to the winners by Works Manager Owen Jones.

Sidney King, of Mechanical Assembly, repeated his success of last year and again won the open challenge cup for the most points gained in the show. He was also the winner of Section One (vegetables and fruit). J. W. Coleman had the second highest points in the show, and G. F Smith was third.

Other winners were — Section Two (flowers), J. W. Coleman; Section Three (home crafts), Mrs. K. Mawby; Section Four (wines), W. O. P Jones Trophy, J. B. Humphreys; A. E. Dobbs Trophy, W. Burns; W. Burns Trophy, A. E. Dobbs. In the inter-departmental competition for the Gilling Challenge Cup, the winners were Mechanical Assembly.

Sidney King, clutching a prize marrow, receives the open challenge cup from Works Manager Owen Jones at Leicester's annual flower and vegetable show.

Tripping the light fantastic at a recent Sports and Social Club Dance in the New Parks, Leicester, canteen are (foreground, left to right) Martin Fretter, Beth Hutchinson, Pat McConnell, Allison Mercer, Pat Patel and Jim McConnell. Nearly 300 people attended this successful event.

Mr. Bob Baldwin (left), Promotions Officer of Leicester City F.C., drew the raffle during the New Parks dance. He is seen here with Mrs. Baldwin and with Nick Donovan, Personnel Officer, New Parks, and Mrs. Donovan.

Post horn gallop

Reflector, the Leicester drama group, are hoping to repeat their previous two successes with a production of "Post Horn Gallop", a farce by Derek Benfield. The play will be produced by Ron Brown of Blackbird Road and presented in the New Parks dining hall from Wednesday December 1st to Saturday, December 4th.

Successful football competition

The Inter-departmental football Competition had a very successful season during 1975/76. The weather was good throughout and the standard was even higher than for several seasons past.

Radar teams figured prominently in the honours at the season end with Radar Commercial winning the Cup when they beat the heavily fancied Marconi Marine by 1—0, the goal being scored by Peter Stewart of Radar Accounts Department.

Following the Final Tie, the cup was presented to Gerry Wells, Captain of Radar Commercial, by John Sutherland, Managing Director.

Gerry Wells also received from Mr. Sutherland the 'player of the match' award, a handsome trophy presented annually at the Cup Final.

The Inter-Departmental League Cup was won by Radar Workshop who beat English Electric Valve by one point.

The season therefore has been an extremely good one for the Radar Company with both major trophies going to Writtle Road.

Officers elected

The A.G.M. was held on June 24th and the following Officers were elected:- Chairman — M. Owen, Radar Support Division; Secretary — P H. E. Champion, Radar Operations Department; Treasurer — J. Knight, Radar Accounts Department; Fixtures Secretary — J. Pickering, MCSL; Referees Secretary — S. A. Downes, MCSL.

The Committee paid tribute to the retiring Chairman, Doug Robinson, following 17 years' continuous service as Chairman. He becomes a Life Member and is to receive a 'Long-Service Merit' award.

Next season sees an extension of the competition to two Leagues, involving thirteen teams. It looks like another good season ahead, particularly if the weather is kind.

This season's prospects

Phil Champion, hon. secretary, tells us that the first session of this season has now been completed with the advent of two divisions for the first time since the 1972-73 season. This reflects the growing popularity of the competition.

The most gratifying aspects have been the keenness of the teams competing and the very high standard in both Divisions One and Two.

The competition for both League and Cup will continue in the second session due to begin at the end of March 1977.

Above left: *League cup winners 1975-76 — Marconi Radar Workshops.* Back row: *Phil Reed, Bob Crick, Mick Partridge, Graham Werrell, Dave Lee, John Davis, Cyril Bowden, Trainer.* Front row: *Steve Pentz, Mick Butcher, Alan Dunn, Bob Bennison, Andy McCubbing. Manager, Alan Hare (not in picture).*

Above right: *Cup final winners 1975-76 — Marconi Radar Commercial.* Back row: *Brian Taylor, Adrian Taylor, Pat O'Meara, Nick Wright, John Knight, Peter Symes, Peter Tabor, Phil Champion, manager.* Front row: *Steve Jennings, Jim Putt, Mick Allen, Graham Ross, Harry Bradshaw.*

Your 'Echo'

News stories, photographs, or other items of interest concerning the Company and its people are always welcome for possible publication in 'ECHO' Copy date for the next (December) issue is November 12. Your contact is W A. Smith, MRSL, New Parks, Leicester. Tel. 0533-871331, Ext. 313. Int. 561.

Opinions please

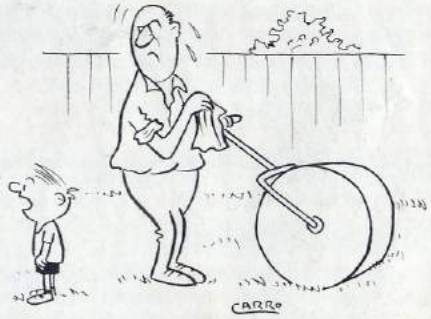
We would also be glad to have your views, comments and constructive suggestions with regard to 'ECHO' in general. For instance, would you like more Company news, or less? More stories of 'people at work'? More social events, sport, leisure activities? Retirements, weddings, letters for publication? 'ECHO' is intended to be YOUR paper — so please write and let us know.

Stan Heath (left) of Blackbird Road presents Vernon Coles of New Parks with the trophy after the angling match.

Leicester angling match

After a closely fought angling contest which took place between Leicester's Blackbird Road factory and the New Parks site on the North Bank of the River Nene, New Parks ran out winners by 24lbs to 17lbs total team weight.

The losing side presented the winners with the trophy, which for this occasion had been manufactured by the Apprentice Training Centre at Blackbird Road. All 30 people taking part declared it to have been a most enjoyable day and it is hoped to make the event an annual one.



"Mum, he's stopped again!"

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