

# Echo

The internal newspaper of Marconi Radar Systems and its people

## NEW ORDERS—New plant speeds output



### New Test Centre

MRSL's environmental test centre at Crompton Works being opened by Admiral Sir Anthony Griffin, Controller of the Navy. With him is J. W. Sutherland, our Managing Director. In this centre, which includes one of the largest climatic chambers, the radars we build can be tested to ensure that they will take a pounding and are efficient for a hard working life.

### Hand-over for RAF

The second of two massive air defence data handling systems for the Royal Air Force has now been handed over to the Ministry of Defence by Marconi Radar Systems. The first system was transferred in September 1973 and now with completion of the second system, which includes a comprehensive on-line simulation capability, the contract has been brought to a successful conclusion.

To mark the occasion the Commanding Officer accepted for his station an inscribed silver salver presented on behalf of MRSL by I. L. Whitlock, Manager, Systems B.

In the picture, right, are, from l. to r., A. B. Greaves, Systems B, MRSL, Project Controller; Gp. Capt. P. McDermott, MOD; P. H. E. Champion, Contract Project Controller, MRSL; I. L. Whitlock; L. Barton, Site Manager, MRSL; B. Kendon, Systems B; Gp. Capt. Richardson, CO; A. J. Crisp, MOD; D. Reed, Chief Inspector, Field Services, MRSL; A. Sibley, MOD; F. Loughrey, EQD; D. Barrett, Prog. Manager, MRSL.

By John Sutherland, *Mng. Director*

What extraordinary times we are living through! The world's economic system seems to be turning upside down, and inflation world wide is at an unprecedented level. Nevertheless, I believe that we as a Company have the opportunity and ability really to help to improve the situation by contributing significantly to exports.

As a nation we are in grave danger of continuing to spend, often in a frivolous way, more than the country earns. It is by the sort of overseas selling efforts which we in Marconi Radar, and other firms like us, are making that some sort of stability can be brought back to the British economy. I said recently at the Apprentice Prize Giving in Chelmsford that it was very encouraging to see young men and women choosing a career in which they can really do something, instead of taking the soft option of the perpetual student, or working in some so-called "service" activity without the pressures and responsibilities of industry.

### Investment in plant

Capital Electronics as an industry—particularly the "systems" type of activity in which we are engaged—can be enormously valuable to the country since it consumes relatively little imported material and a rela-



### The girl with a Gold

Congratulations to Lynne Saunders, a student apprentice at present working on computer programming with Marconi Management Services, who has won a Duke of Edinburgh's gold award. She took five of the six sections of the course: Interest—music; Community Service—clerical work for a Venture Scout Unit; Design for Living—a project on getting married; Residential—a week away from home, 'mucking in', but also including sport; and finally a four-day 45-mile expedition on Dartmoor. Lynne is going in the autumn to UMIST, the University of Manchester Institute of Science and Technology.

tively modest amount of energy, and yet can produce a high value of exports per man. Investment in plant and machinery is vital (and in Crompton Works alone we had capital approvals in excess of a million pounds last year), but it can be substantially more effective pound for pound in our business compared with many others, such as the air frame and engine business which needs astronomical sums to be competitive in the world.

Research and Development is the life blood of our business; each year Marconi Radar Systems Limited spends roughly £6 Million on R and D of which about half is in the form of contracts for Government Departments, etc., and half is our own investment.

(Continued on page 2)





Left: An informal moment during the tour of the Blackbird Road factory. Working on a panel monitor is Mrs. Ellen Glenn, with Mrs. Alma Hughes, Supervisor, next to her. From the left are: Major General J. M. Sawers, Air Vice Marshal G. H. Ford, Peter Way, Director and General Manager; Owen Jones, Works Manager; and Colonel A. Martin.

# Leicester opens its doors

## Service Chiefs see new developments



To mark the centenary of the birth of Guglielmo Marconi, Leicester opened its doors to the Lord Lieutenant of Leicestershire, Colonel R. A. St. G. Martin, and three senior military officers.

Colonel Martin with Major General J. M. Sawers, Signal Officer-in-Chief; Air Vice Marshal G. H. Ford, Air Officer Engineer, HQ Strike Command; and Captain Sir Edward Archdale, R.N., Ministry of Defence, were welcomed at New Parks by Peter Way, director and general manager, who gave a slide presentation and outlined the role of the Company. They then saw a film of the modernised gun control and stabilisation system for Centurion tanks, and later the visitors attended a practical demonstration of the Company's lightweight 800 series radar, which included the tracking of aircraft.



Above left: At Blackbird Road Major General Sawers stops for a word with apprentice Paul Cropper, right, and Stan Heath, Superintendent of Manufacture.

Left: Brian Bedford, right, an inspector at Blackbird Road, explains a point to Captain Sir Edward Archdale, who is accompanied by Martin Bennett, Mng., Test and Inspection.

### Continued from page 1

The total is nearly twenty per cent of our annual turnover. This spend underlines the fact that our most vital asset is the skill, ingenuity and enthusiasm of our people.

### Continuity of effort

The continuity of effort in development over the years has given rise to exciting results in the last few months. Our export order book has leapt ahead—you will have seen from the poster that in a six week period from the end of March to May, we took orders worth seventeen million pounds. In the first three months of this financial year this figure is now well over twenty million. Fortunately, contractual deliveries are well spread and we should not be over committed; that is not to say that we shall be without difficulties. Far from it—shortages of

materials and rapidly rising costs will make life hell at times, but I am sure we will succeed.

The gratifying thing is that all of the new business has come from customers who are already satisfied users of our equipment, and the orders are well distributed across a variety of clients. All our eggs are far from lying in a single basket! Regrettably, restrictions prevent us from saying too much about individual contracts, but we do try and persuade our customers to let us publicise new orders. To the extent that we are successful in this respect you will see details in ECHO.

It only remains for me to congratulate everyone concerned with this dramatic rise in new business and emphasise the security which our order book represents to everyone in the Company, and the steady expansion which is now within our grasp.

### Keyboard battle

The programme at New Parks also included a presentation on the TEPIGEN system—a method of producing television pictures from a computer for use in the training of pilots and navigators—which Leicester is now developing.

After a buffet lunch, the party toured the Blackbird Road factory, where they spent an hour visiting the manufacturing and test areas. Escorts were on hand to explain the various products and processes, and the visitors spent some time talking with employees, including apprentices.

### Their first air trip

Bill Burns, commonly known as 'Jock' to his friends, a 63-year-old mechanical inspector at Leicester's Blackbird Road factory, and his wife Muriel recently enjoyed a VIP weekend in Paris as the Company's guests. Previously the couple had travelled no farther than the Isle of Man.

On the Friday they boarded a plane for the first time in their lives, having been collected by company car from their home in Leicester for the drive to East Midlands Airport. They returned home on Sunday night.

And their verdict? "It was great," said Bill. "We both thoroughly enjoyed it—particularly a trip round Paris on the Saturday night. We're very glad we went."

Bill had qualified to participate in a draw for the trip by introducing a new recruit to the company. He and 36 others had already won an award of £20 each. As winner of the draw Bill also received £25 spending money.

### Bruce wins first race

Bruce Long with his new boat, *Longbow*, a Sydney Harbour 18, a new class in this country. Only four boats have been built so far; Bruce of TID, Crompton Works, built *Longbow* himself, she was on exhibition at the Boat Show, and now he has won his first race in her. The class races on the Blackwater with the Stone and Marconi Clubs.



## A new three letter 'word'

The boffins at Leicester have invented a new three-letter 'word'. It is CMM, and it stands for computerized modular monitoring.

We heard that the 'word' had aroused a lot of interest in many quarters and that a flow of orders and enquiries was already coming in. So we asked Frank Dale, Head of CMM Marketing at New Parks, to explain the whole thing to us.

### Problems eased

"CMM is concerned with the management, control and maintenance of complex electronic equipment," he said. "The management of large systems, whether for defence, civil aviation or communications, can be greatly assisted by the application of computer techniques.

"CMM puts the power of computerized instrumentation at the disposal of the responsible official. It gathers data from local or remote equipments and presents information on equipment status and availability. Programmes are available to provide detailed equipment knowledge and present it in a simple form. This feature has been extended to offer system checking and automatic fault location as an aid to maintenance."

### Vital information selected

Frank showed us a Data Selector Unit (DSU for short), small enough to fit in the palm of the hand, which is the part of the hardware that does the detailed sensing in the system. A number of DSU's can be implanted in the equipment to be monitored, and the resulting data is passed to a digitizing and control unit (DACU) and from there to a central processor, where the final assessment and analysis takes place. The last link in the chain is the console unit, which is attended by the operator.

Leicester's new 'word' is rapidly becoming accepted. Both The Ministry of Defence and the Civil Aviation Authority have already ordered production or evaluation CMM equipment.



## A day we will remember

The Marchesa Maria Cristina Marconi took the opportunity to talk to everyone she could when she was at Crompton Works and she thoroughly enjoyed her visit.

She came to London and to Chelmsford with her daughter, Principessa Elettra Giovanelli, for the centenary celebrations of her husband's birth, and at Cromptons was able to see radar with present-day universal applications produced by engineers whose developments continue to give life to Marconi's genius.

Here she is, above, being presented with Royal Doulton china on behalf of MRSL by veteran Leslie Freeman.



The Marchesa enjoyed meeting MRSL people. Here she is talking to John Lancaster, Assistant Manager, Systems C.

## Leicester Apprentice prizewinners

More than 100 parents and friends attended the Apprentices' Presentation Ceremony at Leicester's Blackbird Road works. Before the ceremony, the guests were able to see round the factory, and at the end of the evening refreshments were served in the staff canteen.

The main prize-winners were: student apprentice of the year, Richard Parsons; technician apprentice of the year, David Glover; craft apprentice of the year, David Hawkins; commercial apprentice of the year, John Skelton; best apprentice through drawing office, Colin Head; special award for sustained effort throughout training, Martin Lucas; Starratt award for the most promising young mechanical apprentice, Roger Preston; most promising young electrical apprentice, Gary Radford; best trainee through operator training school, Elaine Glenn; best trainee through secretarial training school, Jane Dean.

Leicester's award-winning apprentices after the presentation ceremony. In the foreground are Mr. Roland Lees, Director of the Royal Radar Establishment, who presented the awards, and student apprentice of the year Richard Parsons.





## With best wishes

### Alf Mayes retires

*Alf Mayes, a mechanical inspector, had been with Marconi forty-three years when he retired recently from Baddow Workshop and at this presentation by Ron Bernhardt, Works Manager, Chelmsford, received from his colleagues a contribution towards an electric lawnmower.*



### Gone to Gateshead

*Left: George Smithson first met his wife Lisa when they were both on inspection for MCSL at Beehive Lane, they married after moving to MRSL Inspection at Cromptons and recently George went to Gateshead, his home town. Lisa joined him later, but before she did so good wishes and gifts for her new home were presented by Mick Moore, Workshop Foreman.*

*Bernard Hughes, Works Superintendent Cromptons, has also gone to Gateshead. He had been at Chelmsford since apprenticeship days. Ron Bernhardt, Works Manager, Chelmsford, presented him with an executive brief-case and a pen and pencil set.*



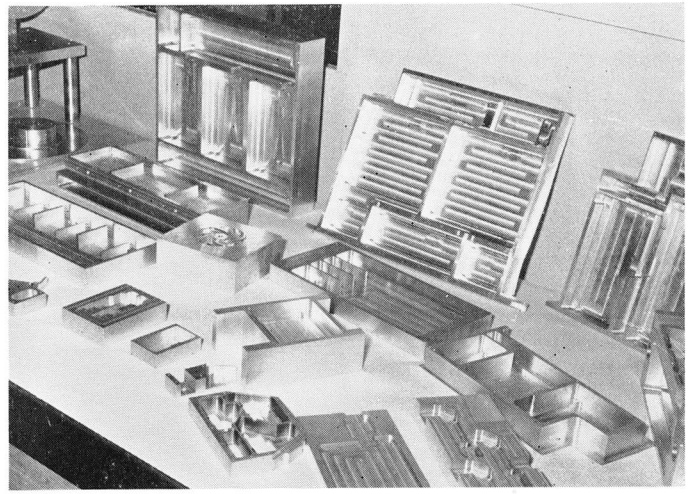
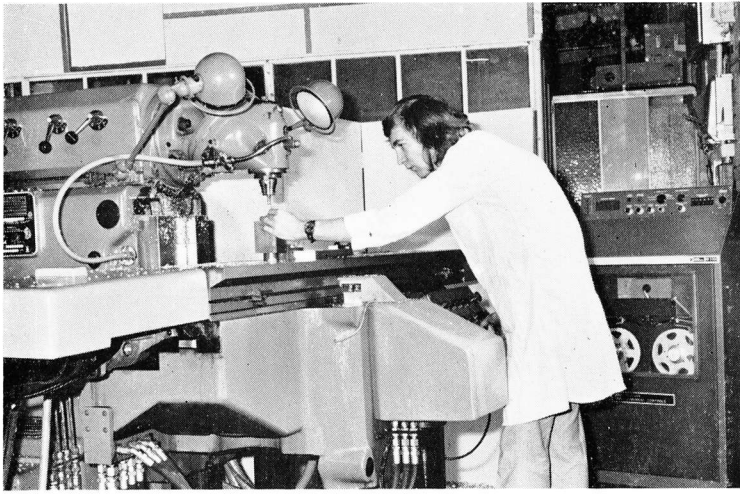
### Long service occasion

*Purchasing Department friends of Mrs. Elsa Cole gave her a bouquet of spring flowers when she completed twenty-five years' Marconi service, and presenting it here at Crompton Works on their behalf is Bryan Carey, Supplies Manager.*

### Winning Apprentices



*Left: MRSL Apprentices with A. S. Robb, GEC Education Manager, who presented the awards at Chelmsford, and our Managing Director, John Sutherland. L. to r., Michael Dryer, Best HNC Tech. (Elect.); Stephen Gill, Best HNC Tech. (Mech.); Peter Ridgers (Joint) Highly Commended Student; Susan Bingham, Highly Commended S/hand Typist; James Panting, Best Craft Wireman Assembler; Valerie Clear, Best S/hand Typist; Nicholas Hickman, Best Craft Machinist; Mr. Robb; Christopher Turner, Best Craft Instrument Maker; Richard Banks, Best Craft Sheet Metal Worker; Mr. Sutherland; David Richards, R. J. Kemp Memorial Shield; Christine Osborne, Highly Commended HNC Tech. (Computing); Graham Randall, Best Student Apprentice; Arthur Pollitt (Joint) Highly Commended Student; Stuart McLatchie, Best First Year Craft Appr. through Training Centre; David Kirkby, Best City and Guilds Tech. (Mech.).*



# New plant to speed output

Two new machines which will increase productivity have now been commissioned by the Production Engineering Department and are in operation in G building.

The new Huron numerically controlled milling machine and the Ferranti Conquest computer-controlled measuring machine provide extremely economical and accurate methods of manufacturing intricate components.

The Huron interprets instructions from a master mind and transforms them into movements for machining waveguides, R/F boxes and other components. These will be needed as quickly as we can make them for the contracts now on our books.

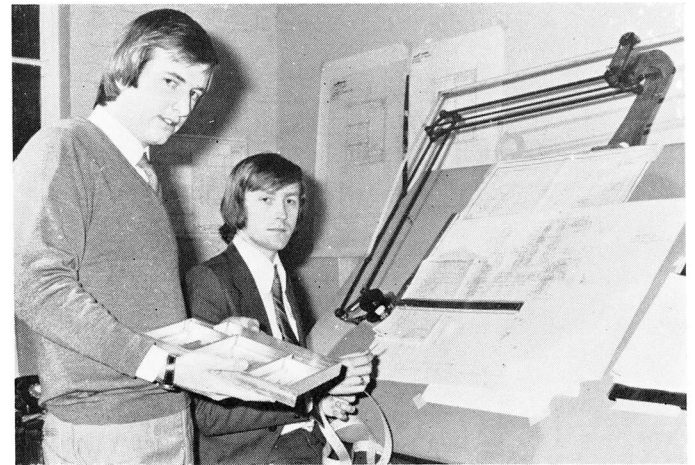
## Control language

But the first essential is that the machine and its programmers all speak the same language. For this reason Peter Stacey, Chief of the Huron NC Section, and his two programmers, Production Engineers David Brazier and Victor Gooch, have all taken a part programming course in 2CL, a control language most suited to our work because of its speed of application; and this language has been specially installed for us in the computer processing department at Baddow.

Their first task on any new job is to decide on the method of approach and to define the cutter path by breaking down the drawing

Top left: Joe Lambert setting up the new Huron milling machine for action.

Top right: This is the kind of work the Huron produces.



and transcribing it in elements of the 2CL language. This describes the required profile of the component to the computer.

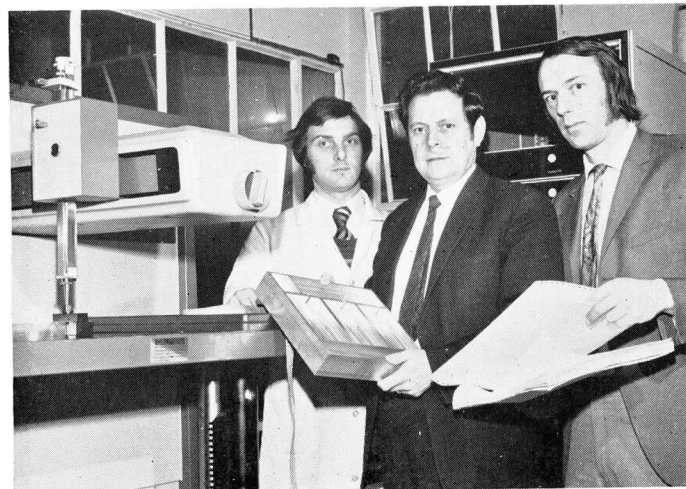
The data is passed to Baddow where it is processed, and the computer produces an operating control tape. This is fed to the Huron; then, with the push of a button, the cutter proceeds to machine a new billet of metal, controlled by the tape, until a new component is complete.

## A Conquest

The follow up to the Huron is another new piece of equipment, the Ferranti Conquest which will produce the vital statistics of anything put in front of it. Not only in three positions either, it feels its way until it has recorded the complete profile well within inspection tolerances. What is more, to give its money's worth it drops out a tape of the

profile composed in the computer operating 'language' the Huron understands. Put this into the Huron and it will fashion before your eyes the profile with the vital statistics measured by the Conquest.

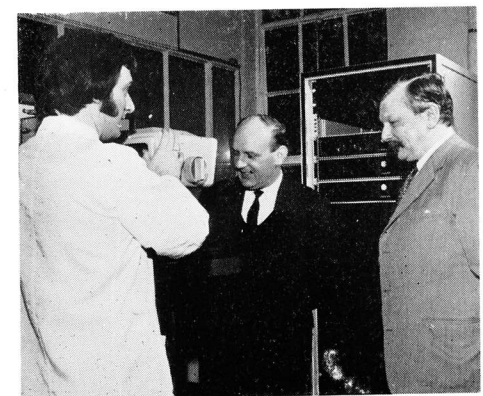
Charles Rand, Chief Production Engineer, explained that the Conquest is used in two ways, firstly for inspection: it inspects all the Huron's work at the speed of production; and secondly for reproduction. For example: when Research engineers need to reproduce a prototype component, particularly one for which drawings have not been made, this will be possible with the use of the Conquest and its associated PDP8 computer. Ferranti's have developed this in liaison with MRSL in such a way that Conquest will scan a component, compute the profile and record it on a control tape so that an exact reproduction can be made on the Huron. (Continued)



Above right: Production Engineers Victor Gooch, left, and David Brazier are responsible for working out from the drawings programmes for the tape control of the Huron milling machine.

Left: The new Ferranti Conquest measuring machine with, left to right, John Paggi who operates it, Charles Rand, Chief Production Engineer, and Peter Stacey, Chief of Numerical Control Section.

Below: The engineers responsible for production quality. Left to right, John Paggi, 'Ben' Button, Quality Engineer, and Henry Whybro, Chief Mechanical Inspector.



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Using this technique MRSLS now have the facility to reproduce components direct from existing models.

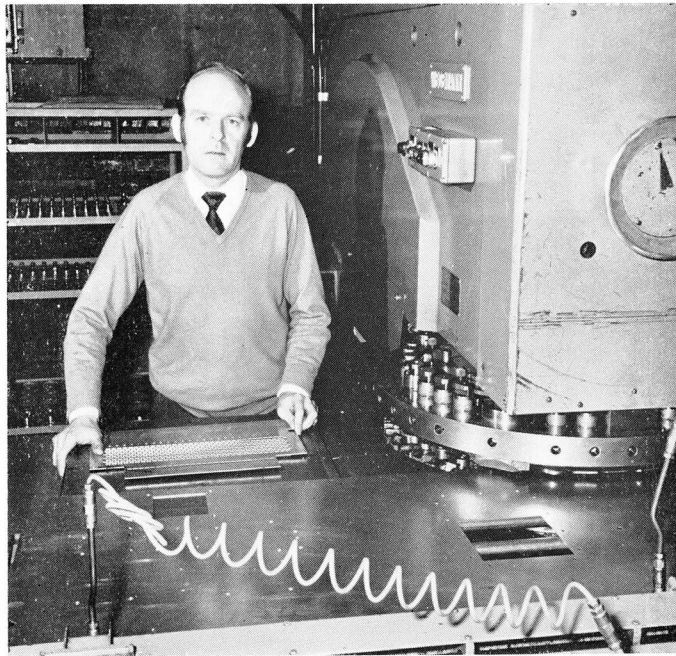
Charles says that these machines, though extremely expensive to install, must be of tremendous benefit to us in the future.

## The punch behind production

Have a look at a transmitter chassis, a cabinet or panel, and count the number of holes punched in it. These are essential for assembly, or for the fixing and support of components; and there are well over a hundred in many panels.

Cutting them all used to be quite a time absorbing process—measurements from the drawing were transcribed to each sheet of metal or a template was cut, and punches had to be accurately aligned. But, as part of the equipment of our new Sheet Metal Section now being formed in A building, we have introduced equipment with electronic control to speed up production.

The numerically controlled Wiedemann system gets over the problems with remarkable ease. For when the calculation has been completed with the drawing, the information



### Wiedemann tape controlled press

*John Reeve, Production Engineer, commissioned the new Wiedemann tape controlled press. In the foreground is a panel in production with holes punched in it and a rectangle nibbled out of it.*

can be fed in sequence into the machine which will punch all the holes in a panel automatically at the rate of forty hits a minute.

The key to the dot track mind of this automaton was revealed by John Reeve of Production Engineers. He's got it taped. He has commissioned this machine, and he is responsible for the making of the tapes which operate it. The whole procedure of punching the holes in a transmitter back from first to last is based on information fed from a tape. By this control the machine will punch holes

from 1/16" to 4" diameter, in any quantity and in any position, and it will nibble out rectangular apertures as well.

John himself collates the information for each job and prepares the data sheet. This is processed at Baddow and the operating tape is made from it. It only remains to see that the tool head of the machine is correspondingly set up and that the tape is reeved into the control panel, and all is ready for the run. Then in only 0.1 of an hour—six minutes—the first of the batch is off and ready for processing and assembly.



## Sports stars at works forum

Leicester Cricket Club took advantage of the final of the third inter-departmental quiz to hold a Sports Forum in the Blackbird Road works canteen. The proceeds from the event, which was broadcast on Radio Leicester, were for the testimonial of Jack Birkenshaw, Leicestershire and England cricketer.

Sporting personalities present included Barry Duddlestone (Leicestershire county cricketer), Janette Roscoe (Commonwealth Games gold medalist sprinter), Ken McKinley

(local speedway star) and Ivan Marks (Captain of the England Angling Team).

*Below left: The panel members of the International Sports Forum. L. to r., Jeanette Roscoe, sprinter; Barry Duddlestone and Roger Tolchard, cricketers; Gordon Hill and Peter Reeves, FA referees; David Coates, a Leicester City Football Club trainer; Ken McKinley, speedway rider; and Ivan Marks, angler.*

*Left: Jeanette Roscoe being presented with a bouquet by Tracey Burgess, daughter of P. Burgess, Inspection Foreman.*

*Below: Works Manager W. O. P. Jones presenting the trophy to E. Wood, captain of the winning quiz team (MRSLS—New Parks).*



## MRSL runner-up in squash trophy

Squash club activities featured this year an enlarged league with best players participating in a super league. The Chinoy trophy was again hotly contested, success going to an up and coming player, Mike Harper, MCSL. Brian Clark, MRSL, this year's runner-up, played extremely well considering he had a slipped disc earlier in the season. He was the winner last year and has now been runner-up three times.

Alan Newton, MCSL, beat Eric Cotter, husband of Sylvia Cotter, MCSL, in the Novice's Cup and was runner-up to Arthur Williams, MEASL, for the Plate trophy.

Dorothy Swindon, wife of Ron Swindon, MEASL, was ladies' champion and beat last year's finalist Laura Gill, wife of Don Gill, Marconi Research.

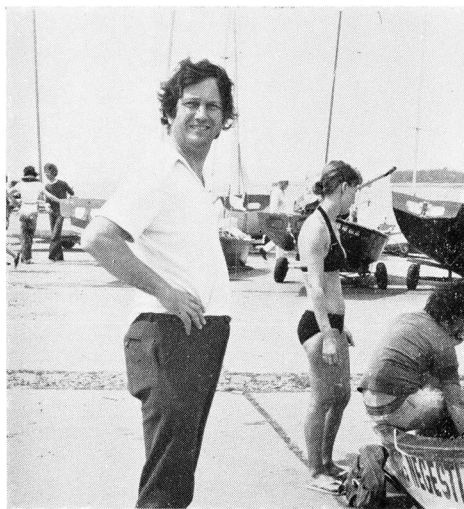
Another successful competition was the handicap tournament with all standards of play taking part. Some very exciting games resulted, but Brian Clark's experience paid off and he beat Don Gill in a marathon final lasting almost two hours.

## St. John winners

Below: Marconi Div., in the County competitions, gained highest overall points for team and individual work, also top marks in team test. In the Regional finals for the



seventh time, at Felixstowe, they won the uniform section; the fourth occasion. Team: George Noakes, Ron Staines, Peter Reader, Vic Turner. Bottom: Mrs. Elizabeth Seabrook, Secretary, and Dennis Dawson, Superintendent, both transferred to the County Pool and received at a recent presentation tokens of appreciation of their services to St. John.



Marconi regatta. Above: The Sailing Club's annual regatta at Stansgate on the River Blackwater was held on the Spring Bank Holiday weekend, and here is 'Nick' Tovey, Club Vice-president, left, who was responsible for PA and the equipment. Tom Gaskell, right, one of the MSC's old stalwarts, did a grand job as beach marshal, particularly in view of the large number of boats involved, up to 250, in a very short space of time.

## Squash people

MRSL people at the MASC for the squash finals. Left to right, Ted Ball, Chairman; Bob Holloway, Secretary; Frances Maher, committee; Brian Clark, committee and Chinoy trophy runner-up; Betty Richardson, Geoff Richardson.



## Top footballers

MRSL beat Marconi Marine 3-1 in the 1-D Cup Final. Marine topped the League on goal average, both teams were level on points. MRSL: L. to r. back, Bob Johnson, Phil Reeve, Callum McLean, Tom Sweeney, Peter Stacey, Brian Holdsworth, Alan Hare, mgr., Alan Martin. Front, Derek Harbour, Neil Smith, capt., Kevin Mansfield, Mick Butcher, Steve Pentz, Gra Werrell.



## New trophy

Radar Accounts battled with De Loittes, the Company auditors, for the new Accts. football challenge trophy and won. Score 2-0. L. to r. back, Geoff Richardson, Alan Alderton, Don Mott, referee; Dick Foy, Pat O'Meara, Peter Tabor, Ted Ball, Graham Harding. Front, Nick Wright, capt., Peter Crisp, Terry Smith, Steve Aldred, Malcolm Holladay, Arthur Hadyn.





## MASC Mini winner

Left: Mrs. Irene Foster with a cheque for £700, in lieu of a Mini, presented by Managing Director, John Sutherland. Here they are in Production Control. Roy Escott, back row, second right, sold the winning ticket. Irene's husband Ken is with Marconi Marine and her brother, Peter Taylor, in Baddow Workshop's Planning Section.



## Cheque for cricketer

This is 'benefit year' for Jack Birkenshaw (top right), the well-known Leicestershire and England cricketer, and at a recent ceremony at Leicester's Blackbird Road factory he was presented with a cheque by works manager Owen Jones on behalf of the Company's employees. Jack's tanned appearance is accounted for by the fact that he had recently returned from the West Indies after playing there with the England test team.

The money was raised by the raffle of an autographed cricket bat signed by many England, New Zealand and county cricketers, and also from the proceeds of a Sports Forum held at Blackbird Road in which many local sports personalities took part.

## Leicester trophy won

The Marconi Centenary Football Trophy, presented to the Leicestershire Sunday Youth League by MRSL, Leicester, was won by Wigston Fields who beat Allextion B.F.Y.C. by three goals to one in extra time. After the match, the trophy and medals were presented to the winning team by contracts manager Ivan Richardson (right centre).

Eighteen youth football teams took part in the knock-out competition over a period of several weeks.

## Holiday in Romania

GEC holidays received a boost when the Romanian National Dance Ensemble entertained at the MASC and Les Dyer, Chief of Photographic Section, New Street, showed slides he took when on holiday there.

Two separate programmes are offered, eight days in the autumn at £37.50 and £39.00, and fifteen in the summer for £56.00 and £58.00. Get in touch with the MASC or Magnet World Travel, 132 Long Acre, London, WC2E 9AH.

Holidays in Yugoslavia are available from £52.50 for one week and £69.50 for two.



## Wanted: Team Manager

Marconi Football Section requires team manager for 1974/75 season; Essex Olympian League football. Players also needed for Essex Olympian and Mid-Essex Leagues. Coaching by ex-Chelmsford City professionals Ron Smillie and Tony Lodge. Training starts end of June. Contact Roger Tucker, Cromp-tons 2406 or Chelmsford 73845.



## I-D Cricket

There are two Radar teams in the Inter-departmental Cricket League, MRSL and Radar Test, who are seen here at the MASC when they played teams from MCSL.



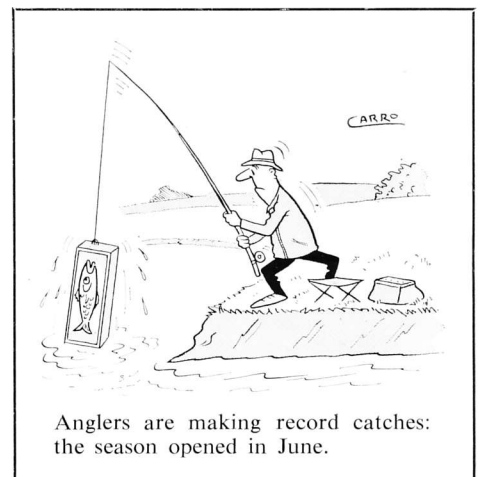
Left, Radar Test: L. to r., Pat Patternott, Peter Boyfield, Peter Southee, manager; Kevin Towers, John Hodson, Alan Joyce, Peter Harrington, Derek Tyler, Dave Buxton, Ken Ridley, Pat Crook, captain; and Roger Robson.

Bottom left, MRSL: L. to r., back, Terry Aves, Malcolm Thorpe, Nevil Linnert, Callum McLean, Martin Crick, Tony Selway and Jeff Harrington, captain. Front, Barry Day, Derek Harbour and Graham Hodges.

## Wedding bells

Jean Beech, Planning Department, Cromp-tons, was married to Brian Christopher, Design Office, Baddow, at Christ Church, New London Road, Chelmsford, in April, and among their numerous wedding gifts from Company friends and colleagues was a stainless steel tea set with tray, a Pyrex dish and stand, and a Wedgwood candy box.

Brian's father, 'Jim' Christopher, is with MCSL at Widford.



Anglers are making record catches: the season opened in June.