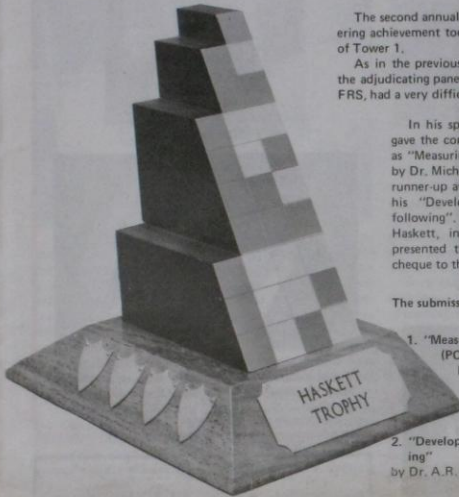


## The Haskett Trophy



The second annual presentation of the Haskett Trophy for engineering achievement took place on 23 March in the conference rooms of Tower 1.

As in the previous year several projects had been submitted and the adjudicating panel, under the Chairmanship of Sir Eric Eastwood FRS, had a very difficult task in selecting the winner.

In his speech, describing the entries, Sir Eric Eastwood gave the comments of the panel and announced the winner as "Measuring wing-mounted pod orientation" as submitted by Dr. Michael Stephenson and his team. A most meritorious runner-up award was given to Dr. A.R. Runnalls of IND for his "Development Studies for Navigation and terrain following". Mrs. Sarah Haskett, widow of the late Fred Haskett, in whose memory the trophy was instigated, presented the trophy and cheques to the winners and a cheque to the runner-up.

The submissions for this second contest were:

1. "Measuring wing-mounted pod orientation (POD-FLEX sensor system)" by Dr. M.D. Stephenson, Mr. W.A. Waller, Mr. A.J. Fordham, all of Flight Automation Research Laboratory.
2. "Development Studies for Navigation and terrain following" by Dr. A.R. Runnalls of IND.
3. "OPCS Digital Modem" by Mr. E.C. Barrett, Mr. G.R. Clark, of ISD.
4. "Fibre Optic Network Development" by Mr. R. D. Beasley of Flight Automation Research Laboratory.
5. "Air data Sub-System for Cobra Helicopter" by Mr. S. Hellyer, Mr. R. Stewart, Mr. A. Gibson, of ISD.
6. "Navigation Facility for Head-Up Display, Weapon Aiming and Navigation System" by Mr. M.G. Hobbs, Miss J.K. Woods, of ADD.
7. "EMAFIL Wiring techniques for Lightweight Acoustic Processing and Display System".
8. "Modification of Multilayer printed Circuit Boards" by Mr. P.R. Hodge of MASD.



The runner-up receiving his prize. (A)



Some other entrants. (A)

## WE ARE BACK!

We are pleased to begin publication again, after an absence of two months, due to the incapacitation of the Editor.

The Editor wishes to thank the Company Management, and fellow employees at all levels, for their good wishes, get well cards, telephone calls, letters, visits and assistance to his family, by providing transport for hospital visits, during this trying time. There are too many to acknowledge individually, so please accept this note of thanks with the appreciation and sincerity it has been penned.

Thank you too, for the tolerance and understanding shown during the absence of your newspaper.



The winning team receiving their trophy. (A)

4. "Fibre Optic Network Development" by Mr. R. D. Beasley of Flight Automation Research Laboratory.
5. "Air data Sub-System for Cobra Helicopter" by Mr. S. Hellyer, Mr. R. Stewart, Mr. A. Gibson, of ISD.
6. "Navigation Facility for Head-Up Display, Weapon Aiming and Navigation System" by Mr. M.G. Hobbs, Miss J.K. Woods, of ADD.
7. "EMAFIL Wiring techniques for Lightweight Acoustic Processing and Display System".
8. "Modification of Multilayer printed Circuit Boards" by Mr. P.R. Hodge of MASD.



Some other entrants. (A)

## CHINESE MINISTRY WELCOMES MARCONI AVIONICS

Last year His Excellency Mr. Lu Tung, Minister in charge of the Third Ministry of Machine Building, visited Marconi Avionics at Rochester with a delegation of specialists. (The Third Ministry of Machine Building is responsible for aircraft production).

Following this visit, the Minister invited Mr. Pateman, Managing Director of Marconi Avionics, to visit the Peoples' Republic of China with his team, and this return visit was made from 2 to 17 March. The party, 12 in all, included Mr. P. Mariner, Assistant Managing Director at Borehamwood; Mr. H.R. Bristow, Assistant General Manager, Mr. D. Bowyer, Airradio Products Division, Basildon; and specialists from Rochester, Borehamwood and Basildon.

Discussions took place on possibilities of collaboration between the two organizations and a number of



interesting visits were made. The picture shows Mr. Pateman being welcomed to the Peking Aeronautical Instrument Corporation by the General Manager, Mr. Shen Ching-Shin, prior to a tour of the Corporation's workshops.



Some other entrants. (A)

## OBITUARY

We regret to record the passing of the following colleagues which occurred earlier this year. Both were employed in Accounts Department and condolences of sympathy were conveyed to relatives.

Gordon Hughes Age 55 17 years with Company  
Ted Roach Age 55 21 years with Company

## Letters to the Editor

I would just like to warn the entire staff of Marconi Avionics, and anyone of a nervous disposition, that our Miss Kim Knowler of the Records Office AS & RD has taken up driving lessons.

D.F. Bird.

I was pleased to see that Mr. Ron Cooke's 25 years' service was mentioned in the March issue of the Marconi Avionics News, but was sorry to note that his photograph was unfortunately printed in reverse.

This indicated that he was shaking hands with his left hand, which as you imagine, has caused considerable comment.

S.A. Williams

## APPRECIATION AND THANKS

We have received the following letter, which speaks for itself.

Dear Sister Gordon,

I would like to thank you very sincerely on behalf of our Mobile Team for your kind help when they visited you during the whole of last week, 19th to 23rd March 1979.

We collected the grand total of 557 units of blood which was certainly a tremendous help to the Hospitals and for which, therefore, we were extremely grateful.

Could you also please convey our thanks to the Staff and to the Management who helped to make our visit so successful.


Many many thanks once again for all the 'hard' work that you so kindly do on our behalf.

Yours sincerely,  
Mrs. A. Hazlewood  
Assistant Administrator Donor Unit

## Note!

The Blood Donor Unit will be next in attendance at the Works on 15 October when it is hoped we may improve on the grand total.

**CASTAWAY**



Cyril Cawley (A)

The Castaway chosen for this month is Cyril Cawley, the foreman within Works Engineering. Cyril is a man of many parts, a singer of note, and an enthusiastic member of the P.C.C. of All Saints and St. Pauls. His interests are reflected in his choice.

**Music**

1. Brahms Lullaby - for restfulness
2. Tales from Vienna Woods by Strauss.
3. I Travatore by Verdi.
4. The Blood Donor by Tony Hancock - for a laugh.
5. Legend of the Glass Mountain.
6. La Sorciere Apprenti.

**Books**

1. The Bible
2. David Copperfield by Charles Dickens.
3. No Highway by Neville Shute.

## MARRIAGES

To travel half-way round the world to get married is the experience of two of our colleagues.

Miss Lynda Barstow of FCD Production Drawing Library is returning to Australia, together with her fiancé Gerard Whitford of ISD Engineering, a fellow Australian, for their marriage which was on 14 July 1979 at the Church of St. Peter and St. Paul, Gawler, South Australia.

A presentation of pressure cooker, double sheets and pillowcases, bath and hand towels and tea cloths, was made by Mr. J. Smith FCD Production Manager, to mark the occasion.

Lynda and Gerard will be returning to England and to Marconi Avionics, after the wedding and a reunion with their families.



The happy globe trotters at the presentation. (C)

David Carney of ISD was married to Linda Hollister at St. Michaels Church, Sittingbourne, on 26 March 1979.

To celebrate the occasion, his colleagues and friends contributed to the presentation of a Kenwood Chefette which was handed to him by Mr. Frank Woods.



David Carney. (C)



Jackie Carter of FCD Purchasing was married to Terry Woolmer at St. Stephens Church, Chatham on 28 April.

Our picture shows the happy couple.



Dawn Haystead of ISD Drawing Office was married to Robert Sutton of FCD Tool Drawing Office on 3 March 1979 at the Gospel Mission Church, in Strood. Bob and Dawn are shown after the ceremony.



"I'd have preferred 'tut-tut' to Miss Angel's confession - not 'CORI'!"

## PORTALOO LAMENT

### AN ODE TO THE CLEANING LADIES

Oh dear, Oh dear, we do despair  
You've left our wastebins on our chair,  
We arrive at work all clean and perky  
One sit down and our dress is dirty,  
Please think of us after a hard day's toil  
Washing at the sink to remove the soil,  
Oh please lovely ladies we do implore  
Please leave our wastebins on the floor.

### LOVELY LADIES RESPOND

It seems a shame you must agree,  
That you should have to chastise me,  
But Please Oh! Please you must be fair  
I wash your floor with the greatest care,  
I lift the bins to do it proper  
Then I find I've come a cropper  
If I've left you in distress  
With a mark upon your dress.  
In the future, as you implore  
I'll put your bins back on the floor.

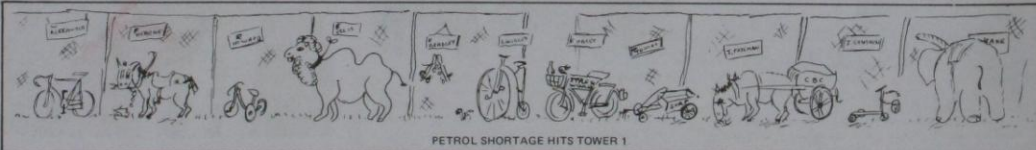
## COMPETITION

### TO IMPROVE SPEECH

A voucher for £3 will be awarded to the sender of the 1st correct solution opened.

Si Senior, Der Dago  
Feevty Loriss, Ina Ro.  
Demain Loriss, Demiss Trux.  
Fulov chix an Geese Andux.

Send solutions, marked 'Competition', to, THE EDITOR, MAV NEWS, TOWER 1, to arrive not later than 31 AUGUST 1979.



PETROL SHORTAGE HITS TOWER 1

## HAPPINESS FROM GOOD COMPANY

Norman Orchard, a member of the Marconi Avionics Central Machine Shop team, who was blinded in a road accident four years ago, now operates advanced computer-control equipment at the Company's Rochester factory. Norman can do this thanks to a training scheme designed for him by his colleagues and thanks to the independence he gains from the watchful eyes of Erik, his guide dog and constant companion.



Norman, pictured with Erik at the tape preparation console, uses the typewriter-style keyboard to prepare punched paper tapes from information recorded for him by a young colleague, Wendy Stone. An automatic check program warns if an error has been made. Norman's present training course is of twelve weeks duration. Even before the end of the course, Norman has been able to prepare tapes successfully. Their use, on numerically-controlled machines, is essential for the manufacture of precision parts used in the production of avionic systems which the Company supplies for the world's aircraft.

The equipment depicted is in Norman's office, close to the Company's Central Machine Shop. Erik, who guides Norman to and from work each day and about the factory, has his own 'dog box' in the office. Erik, characteristically, shows more interest in his master than in computer control



Norman demonstrates to his guide dog Erik his former job, in the calibration room adjacent to the Central Machine Shop at Marconi Avionics Airport Works factory, Rochester. The audio comparator sounds a warning, which depends on how far the size of the manufactured item departs from the standard required. From the pitch of the note, Norman can tell whether the part he is holding is to size, or whether it is inside or outside the permitted tolerances.

Inspired by Norman's success, his colleagues have raised £810 for the Guide Dogs for the Blind Association. They want the money to be used to furnish another blind person with a guide dog — preferably like Erik.

## VIEWING THE GOODS

It is not often the opportunity arises for individuals to see the units they work on, fitted up and in operation in the aircraft. Yet this pleasure was offered to, and accepted by, P. Schofield and R. Newman, Quality Technicians with AS & R Division.

The AFCS Computer, fitted to the LYNX helicopter, on which they work was their target and having received tickets for a display they gladly aimed themselves of the opportunity.

On 9 June they travelled to RNAV Fleetlands Open Day and enjoyed not only observing the LYNX in action but the particular items of interest, in situ, together with the display of other aircraft too.

Having thoroughly enjoyed the day, they are enthusiastic that if more people could see their work in the final entity, it would give an impetus to more enthusiasm and dedication.

## Guide dogs for the blind

Inspired by the success story of Norman Orchard and his guide dog Erik, his colleagues in Central Machine Shop, ably supported by the Graduate Association set about the task of raising funds to provide another guide dog for a blind person.



The party, prior to the start.

The fund raising took many forms, including donations and the usual in house means, but the prime item was a sponsored 'pub crawl'. This was held in April 1979 and made the local newspaper headlines. As a result of all these efforts, together with a generous donation from the Company, added to donations from some of the pub landlords a sum of £810 was raised.

At a ceremony held in the reception area of Corsair Building, a large company gathered to participate in the act of handing over the cheque for £810 to Mrs. Marjorie Kirwan, secretary of the Rochester and Chatham Branch of the Guide Dogs for the Blind Association. After a speech, outlining the developments leading up to the presentation Mr. P. Burrows, Production Manager, CMS, invited Mr. Jack



Jack Hetterly making the presentation.

Hetterly (for 52 years a Freeman of the City of Rochester) to present the cheque.

At the presentation, a film of the pub crawl was shown to the delight of the audience. Dressed in a variety of costumes from schoolgirls to vicars they made a spectacular sight, as they staggered from one hostelry to another. To help each other along, they were coupled up, into a three legged situation.

## Central Quality Department celebrates first 10 years

Tucked away in the farthest end of the Hangars Estate this small and unique department with the modest title of 'CQD' certainly has every right to be proud to mark its 10th anniversary. It is completely self-contained with a staff totalling less than 80.

There can be only few areas in MAV that use less than three of its many versatile facilities, many of which cannot be equalled by any establishment within a radius of many miles.

Formed in 1969 CQD initially absorbed certain test facilities from FARL when the latter moved to New Road.

Increasing competition in world markets, together with rapidly advancing technology, created greater needs for assurance of product quality. New national and international Quality Management Specifications were being developed, and the Company decided that they should be the leaders in these developments. In consequence CQD was charged with introducing and developing new policies and standards associated with the achievement and verification of quality. It was essential to expand its facilities and consider implementation of other specialists. Personnel gradually moved from other parts of the Company to augment the existing staff, many of whom took the opportunity of exploiting in greater detail their particular skills.

The Company Quality Manual was raised by CQD and issued in 1970 following its approval by the Company's Management, the Ministry of Defence and the Civil Aviation Authority. The Company was now in a very favourable position to meet the new quality standards, including those issued by the Ministry of Defence in 1973. In subsequent MoD assessment in 1974 it proved to be the first major electronics company to comply with DEF STAN 05-21, the highest order of Quality Management Specification.

By 1971 the Electrical Repair Laboratory was operational, expansion had taken place in all other areas. Today every facility has attracted the interest of other companies as well as those of GEC. Some of the technological intensity can be gleaned from the fact that last year one and a half million electronic components were checked through Component Test Section, and the Electrical Standards Laboratory is now achieving over 500 certifications per period covering a comprehensive range of Test Equipment. Electrical Repair Laboratory in support of Electrical Standards Laboratory repaired 2,000 instruments last year, while Mechanical Calibration Laboratory



Ken Boardman, Divisional Manager, cuts the CQD cake when the department celebrated its 10th anniversary with a social dance at the Elliott club-house on 30 March 1979.

has been maintaining 350 checks per week on mechanical measuring devices and gauges.

The longest traditional services within CQD are those of the Environmental and Electromagnetic Compatibility Laboratories. This is particularly so with respect to the Environmental Laboratory which can claim to have an existence traceability back to 1961. The increasing significance that has been placed on this type of service activity has necessitated continual growth in capacity and capability. These two laboratories are the first of the few to be approved to the latest military specification of DEF STAN 05-32. Due to their common service function on many occasions these laboratories have had to resort to 24 hours per day, seven days per week working to cover divisional requirements, with total disregard to such luxuries as statutory holidays.

www.rochesteravionicarchives.co.uk

# NAMES TO FACES

Our presentation this month, is the little known Mailing Department.

This section, tucked away in the corner of the main building, is a lively and vital link between the people inside the walls and the countless others outside, including customers, suppliers, sub-contractors and sister companies.

They handle 10 to 20 sacks of mail per day, which include overseas, international data, registered and recorded, express and ministry mail.

They are at their fullest stretch, in the early morning and late afternoon, to prepare the incoming mail for distribution and to despatch the day's outgoing items.

It is a thriving and pulsating department at all times, and covers the whole of the Rochester site. The department also duplicates and issues all Company notices.

Presided over by Mrs Iris Thirlwell, who has served the Company for 18 years, the department runs along smoothly.



Mrs Iris Thirlwell, Supervisor in Charge, 18 years service.



Mrs Norma Robson, 16 years service.



Mrs Lily Woodhouse, 11 years service.



Miss Jean Fields, 8½ years service.



Mrs Jessie Callaway, 5 years service.



Mrs Ena Dedman, 5 years service.



Mrs Lilian Harbottle, 5 years service.



Mrs Mary Deadman, 3 years service.



Mrs Patricia Kennett, 2 years service.



Mrs Audrey Holder, 1½ years service.



Mrs Diane Woolley, 6 months service.

## E.I.T.B. AWARD WINNER CRAFTEX '79 COMPETITION

A third year Marconi Avionics Apprentice, Nick Milas, has been awarded first place in the competition for the best craft trainee in South East England.

The award consisting of a certificate, silver medal and cash prize of £20 was presented to the winner by Sir Freddie Laker, (who served his own apprenticeship at Rochester with Short Bros).



Nick Milas and Sir Freddie Laker with Mr. Albert Lankford, EITB Senior Training Adviser in the background.



Nick Milas holding the certificate and silver medal presented to him, with a cash prize of £20, as winner of the EITB Craftex, '79 competition. Alan Teers (right), Marconi Avionics Manager, Manufacturing Services, is holding the duplicate certificate presented to him for retention by the Company.

## BRITISH SAFETY COUNCIL AWARDS FOR 1978

Marconi Avionics Limited, Airport Works, Rochester, Kent is one of 2,000 companies to win a British Safety Council Award for 1978.

The award is won by achieving a lower accident incidence rate than the national average for the applicable industry. Winning the award also entitles the Company to fly the green and white British Safety Council safety flag over its premises for one year.

"This is a vital achievement for any company's safety programme" says James Tye, Director General of the British Safety Council, in congratulating the award winners. "It demonstrates the transition from the intent of a safety policy on the wall into actual lives, limbs and money saved. Only a small percentage of the nation's industry qualify but if industry in general could achieve the same standards we would see a vast reduction in the current losses of over £1,000 million, and in the inestimable suffering caused annually through industrial accidents."

The main presentation of the awards was at the Grosvenor House Hotel on 18 and 25 May 1979. The Rt. Hon. James Prior, MP, being guest of honour at the first banquet.

# APPOINTMENTS Commercial Contacts

## MARCONI AVIONICS INC. Atlanta

*I have much pleasure in announcing the appointment of Mr. Harry Eagles as a Director of Marconi Avionics Inc. and as President of the Company. Mr. Eagles also assumes the duties of Chief Executive Officer of the Company. As many of you will be aware Mr. Eagles has just relinquished the position of Divisional Manager of Marconi Avionics Ltd.'s Aircraft Service and Repair Division. Previously, he was successively Chief Engineer and then Technical Manager of Airborne Display Division and played a major role in the introduction of Head-Up Displays into service with the US Armed Forces.*

*I will retain my present position as Chairman of the Board of Directors of Marconi Avionics Inc. and will be based in Atlanta, for the immediate future. I hope to see you all from time to time.*

*I wish to thank you all for your loyal and successful efforts during the trying times of the last few months and I am sure that you will give the same service to Mr. Eagles that I have received.*

J.D. Harron

Marconi Avionics Limited has appointed Mr. J.A.G. Casey Divisional Manager of its Aviation Service and Repair Division (AS & RD) at Rochester, England. The appointment follows the transfer of his predecessor, Mr. H.D.F. Eagles, to take up a post with the Company's United States associate, Marconi Avionics Inc. of Atlanta, Ga.

Jim Casey, 46, formerly the Division's Repair and Supplies Manager, takes charge of a team of some 450 people, whose work is dedicated to supporting aircraft operators, both civil and military, all over the world. This support, which itself constitutes a multi-million pound business, with significant exports, is for the avionics systems and equipments produced at Rochester. As Division Manager, he is responsible to Mr. D.G. Thomas, General Manager, at the Rochester establishment.

Mr. Casey, who has been with the Division since its creation in 1959, has now worked with the Company for 23 years and has been Repair and Supplies Manager for seven years.

He and his wife, Sheila, have a 22 year old son and live in Walderslade. His hobbies are golf and boating.

Mr. G.U. Rands has been appointed Sales Manager of Automatic Test Equipment Division (ATE) as from 2 July 1979 due to expansion of activities.

Mr. Brian Gee has been appointed Head of Sales Department in Inertial Navigation Division, Formerly Marketing Executive, he succeeds Mr. G.U. Rands.

## Around the Divisions

Straighter aim for Brunei patrol boats.

An export order, worth £700,000, for a new type of highly accurate gyro-compass system has now been completed by Marconi Avionics Limited. The systems, known as Marconi NCS-1 Inertial compass stabilizer Mark 11, are fitted to three Missile Patrol Boats (MPB), which have been built by Vesper Private Ltd., Singapore, for the Royal Brunei Malay Regiment.

The system is a central and highly-accurate source of the heading and attitude information which is required by a ship's fire control system, and which is also used in other on-board systems, such as navigation instruments, radars and displays. After the Royal Navy, the Royal Brunei Malay Regiment is the first defence force to put to sea with Marconi NCS-1, which has also been ordered for other navies.

The system, which was designed and built by the Company's Inertial Navigation Division, Rochester, England, to the specification of the UK Director General Weapons (Naval), has so far earned sales of £24 million, including substantial exports.

A team of European companies, led by Marconi Avionics Limited, has now received initial funding for a pre-series batch of automatic test systems for the support at second line of the Tornado multi-role combat aircraft. The total value of this batch is some tens of millions of pounds.

The advanced computerized test systems are being developed for Panavia, the European consortium responsible for the Tornado programme, by Marconi Avionics, Rochester, England, the Company appointed prime contractor and programme manager for the systems in 1975. The other members of the team are national prime contractors Siemens AG of the Federal Republic of Germany and Celenia of Italy, with Rohde and Schwarz (FRG) and the British Aerospace Dynamics Group (UK) as sub-contractors.

Suspected units, removed from an aircraft, are tested and, if found faulty are re-tested after rectification. The ATS is specially designed to assure a rapid "throughput" of units, thus assuring aircraft serviceability with the minimum requirement for spare units held at operational stations.

The Paris Air Show of 1979, held from 8-17 June, was a further opportunity to show to the Aviation World a selection of systems produced by the Company. All sections of the Company were represented, with the items below having particular regard to the Rochester Plant.

### First time Showing

Microprocessor-based Fuel Flowmeter (the first system of its kind in Europe, and is in production for export versions of BAe Hawk jet trainer).

HUD/WAC/NAV System (a combined head-up display, air/ground weapon aiming system, based on a new advanced digital electronics unit).

### First Paris Showing

Mono-HUD

(a fold-away head-up display for use in civil airlines).

Fly-By-Wire flight control system

(a quadruplex digital system under development for Jaguar aircraft).

### Auto Flight Control

Digital Autopilot and Flight Director (for European TORNADO).

Digital Flight Control Electronics (as operated on Boeing YC-14 STOL transport).

Advanced Automatic Throttle Control System (in service on Boeing 747 Airlines, operated world-wide).

A.F.C.S. (for Westland LYNX helicopters).

### Advanced Electronic Displays

Head-up display/gunsight.

(In production for F-16 multirole fighters).

Helmet mounted Sight

(the latest concept, compatible with many types of service helmets).

### Head-down display

(In production for a wide variety of aircraft, civil and military).

### Aircraft Instrumentation

Fuel Flowmeter System (a motorless true-mass flowmeter of simple and reliable design).

Helicopter Air Data System

(a microprocessor based lightweight system).

Precision Gyroscopes

(Rate gyroscopes, accelerometers and sensor packages).

### Anti Submarine Defence

The LAPADS system, the AQS 901 system (now handed over for use in RAF Nimrod and RAAF Orion aircraft).

**Automatic Test System**, for use on German, Italian and British TORNADO produced by a three nation team, led by Marconi Avionics.

### A.P.T. Automatic Powerplant Test System.

This is in service with RAF, and purchased by PANAVIA for the complete engine testing being produced for Italian and British TORNADO aircraft.



### THE FRENCH CONNECTION

An important member of the Marconi Avionics team at the 1979 Paris Air Show was Elizabeth Livious an interpreter from Bauligne, Elizabeth, pictured with a model of the Company's latest radar for the Eurofighter of the 1980's, has worked with the Marconi Avionics team on previous Paris shows.

## THE OPEN UNIVERSITY

### Industrial Relations Course

The why's and wherefores of rule-making at the workplace are investigated in an Open University course on industrial relations. The course is available on a 'one-off' single basis to people enrolling as Associate Students with the Open University.

It is especially suitable for those who already have some responsibility for industrial relations, or are about to do so. Anyone teaching industrial relations, responsible for industrial relations training, or completing relevant professional qualifications should also find the course useful.

This Industrial Relations course aims to: identify the complexity and diversity of industrial relations; develop the student's awareness of the interaction between industrial relations and the broad range of economic, social, technological and political factors; promote a multi-disciplinary approach to the study of industrial relations; apply concepts and theories developed in the main body of the course to a number of industries, through case studies; develop the student's analytical, interpretative, evaluative and explanatory skills and the ability to apply these to specific issues.

The Open University's Associate Student programme includes several other courses with an industrial theme. Among them are 'Government and Industry' and 'Industrial Archaeology'. These courses are drawn from the undergraduate curriculum in the Faculties of Arts and Social Science, and both are ten weeks long.

'Government and Industry' focuses on intervention by government during the sixties. It also looks at ways in which individual companies can influence the government, and considers the area of worker participation. Initially, the course examines how government intervention in industrial decision making has developed from the seventeenth century to the present day.

'Industrial Archaeology' is a study of the causes and consequences of the Industrial Revolution, its technology, its application and development. One of its objectives is for students to understand the impact of the Industrial Revolution

on their own localities and participate in the observation and recording of industrial archaeology.

Any reader who wishes to apply for 'one-off' courses from the Open University should write to:

ASCO,  
The Open University,  
P.O. Box 76,  
Milton Keynes MK7 6AN.

The application closing date is 9 October for 'Industrial Relations' (course starts February 1980).

For 'Government and Industry', apply from 1 May 1979 to 4 April 1980 for studying in May or August 1980.

The application period for 'Industrial Archaeology' is 1 May 1979 to December 1979 to start the course in February or April 1980.

## GIRL FLIERS GET THEIR WINGS

Cadets of the 1221 Gillingham Unit of the Girls' Venture Corps, the girls' equivalent of the Air Training Corps, received their 'wings' on Thursday 10 May at the ATC Headquarters, Marlborough Road, Gillingham. The wings, badges for proven air ability, are only conferred after extensive examinations in ground work and after flight experience, including aircraft handling under instruction.

The wings and other awards were presented for the Unit Commandant Joan Golding by Malcolm Moulton, Chairman of the Medway Branch of the Royal Aeronautical Society and an Executive of Marconi Avionics Limited, the largest aviation concern in Kent. Mr Moulton congratulated the girls and their Commandant on the excellent standard of work achieved and praised the activities of the ATC which are so very popular in the Medway Towns. The Gillingham Unit, which caters for the 13-18 age group, is the only girls' ATC unit in the Medway Towns.

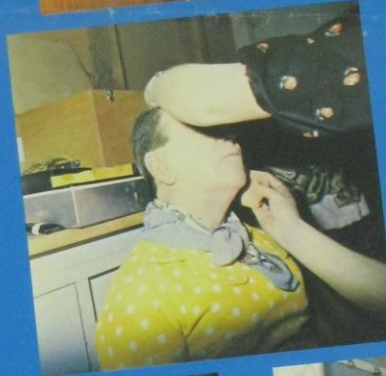
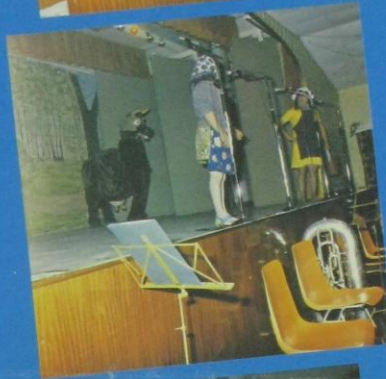
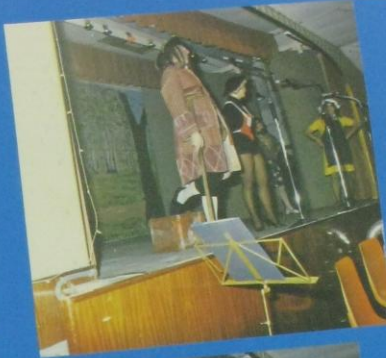
Further information on the 1221 Unit from:  
Joan Golding, ISD Library.



Picture shows (left to right): Lt/Cpl Anne Tucker (Duke of Edinburgh Bronze Medal and Air Ability award), Cadet Geraldine Holmes (Air Ability), Cpl Caryl Oakley (Air Ability), Joan Golding (Unit Commandant), Malcolm Moulton, Cadet Kay Westcott (General Proficiency Badge) and Lt/Cpl Yvonne McKee (Air Ability).

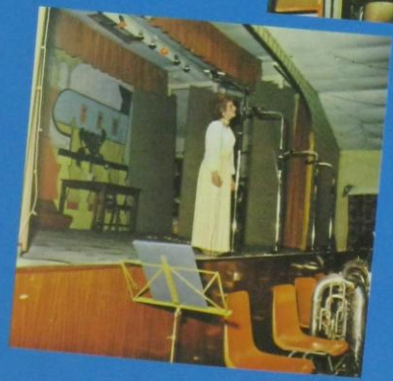
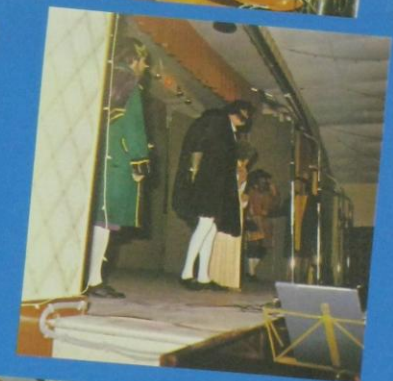
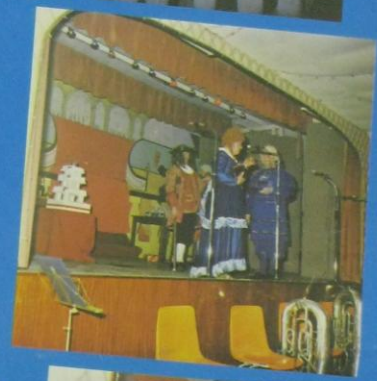
# Tread Island

The Annual Pantomime presented by the Committee of the Elliot Sports Centre. The pantomime, which was performed for six nights and entertained over 1000 people, was drawn from all over the Medway area.



# sure ard

duction by the Management  
and Social Club.  
held in the works canteen, ran  
over 2,400 old age pensioners  
district.



# RETIREMENTS

A period of 22 years covered the time that Edward W. (Ted) Martin spent on the Rochester site, when he retired from the Company on 30 March.

A former member of the Royal Navy, serving for 22 years during which time he rose to the position of Stores Petty Officer, he saw service at Dunkirk as well as in the Korean War. During the latter episode he was serving as a British representative on the USS Enterprise. As a Dunkirk veteran he holds the Dunkirk medal—a rare honour bestowed by the people of Dunkirk—to mark participation in that epic of heroism, fortitude and zeal.

Commenting with the Company in 1957, he then brake service for a few months, returning in 1959, to the Aviation Division Stores. This was followed by IN Division as Stock Control, then to TAC Stores and latterly in FCD Stores, Embodiment Loan Officer and Commercial Assistant.

Ted has been dogged by recurring ill health and prior to retiring had been absent for almost one year. It is hoped his improving health will enable him to have a long and happy retirement.

Mr. D. I. Jackson expressed these wishes when, on behalf of all friends and colleagues he presented a suitably inscribed tankard and travelling clock to serve as mementoes of service and good wishes. A writer of no mean ability, he now intends to devote more time to writing children's stories, of which he has already had some success with published works.

Mr. News hopes to receive contributions from his pen from time to time.



Ted Martin with D. I. Jackson. (C)

Alfred Medhurst, a Painter in Works Engineering Services, retired on 10 April after 18½ years' service with the Company. Previously with Durants, he has been on the Rochester site for the greater part of his working life. Of a rather retiring

nature, but a craftsman of considerable skill, his companionship will be missed.

To mark the occasion, and to express the good wishes of his colleagues for a happy and long retirement, Mr. L. Fell presented him with a portable radio and cheque.

Mrs Gladys Tappenden, of MA Accounts, retired recently amid expressions of good wishes for a happy and long retirement and regret at losing such a charming colleague. During her years of service with the Company, first in the Print Room and the Accounts Dept., she had endeared herself to all who came in contact with her.

To mark the retirement, and to convey the expression of a job well done, her friends and colleagues had subscribed to the gift of a gold Ingot necklace and a house plant.



Gladys Tappenden with her friends and colleagues. (D)

Another link with the originals who formed the basis of the present Company has been broken by the retirement of Ron Howlett. Although commencing in the early days, he never achieved 25 years' unbroken service. His retirement was an opportunity for his many friends and colleagues to show their appreciation of his work, friendship and helpfulness.

For the past seven years he was an Instructor at the Apprentice Training Centre. His career within the Company, at Rochester and at satellite units, covers a period of over 27 years. He was at one time Senior Inspector on Light Machine Shop, and then spent four years as Foreman of Light Machine Shop and Gear Shop, this was followed by five years as Production Manager of the same departments. He went to Dartford, when the units were transferred there and became Manager in charge of Admin, Toolroom, Heat treatment and Standards, before returning to Rochester and Fishers.

A student of Rochester Technical School, he joined Short Bros. as a Fitter/Turner apprentice, for five years. He

then spent three years in the Light Machine Shop, two years as a Toolmaker and seven years as a Senior Toolroom Inspector, before the dispersal of the Company to Belfast when he joined Elliotts in 1946.

He was held in the highest regard, by all those with whom he came in contact, and the gifts to mark his retirement show the extent of this esteem. These included a teamade, tape recorder, electric shaver and bouquet for Mrs Howlett. A specially made cake, and a knife to cut the cake (made by the apprentices) were presented by apprentice L.M. Bradley on behalf of all. Mr. G.D. Perry, the Training Officer presented a pair of binoculars from the members of the Training Dept. and former Gear Shop colleagues, while from the apprentices in the main works Garry Cordier presented a cine camera and film.

Ron is a married man with two daughters, both married, and lists as his hobbies bird watching, cine photography and gardening, all of which he hopes to do more of than he was able to in the past.



Ron Howlett and his family. (C)



Receiving his gift from the apprentices. (C)

# 25 YEARS SERVICE

On receiving a pair of binoculars to mark the passing of 25 years' continuous service with the Company, Anthony (Tony) Richards of FCD reminded his colleagues and friends who gathered for the presentation that if he had his time over again he would not go into engineering II. His progress in the profession however has been one of variation and attainment.

A native of St. Pancras, London, he entered the RN, at the age of 16 years, as an Artificer Apprentice, he then became Electrical Artificer (AIR) and from 1944-47 was in South Africa.

He joined the Company in 1954 at Borehamwood, as a Junior Engineer. Then saw service at Brough on Buccaneer on Flight trials work. In 1963 he came to Rochester with ACD. Resident in USA doing liaison work with Gen. Dynamics on ATE for British F-111, until the cancellation of the project. He then transferred to A.7 HUD programme and remained in USA until 1970. In 1970 Tony joined FCD as Flight Trials Manager at Westland on the LYNX programme, remaining in Yeovil until 1977. On his return to Rochester, he continued with the Division as Jindivik PDS, and doing studies on remotely controlled helicopters.

Tony is married and has one daughter and two step-children (both grown up). His hobbies cover reading, DIY, while he is interested in the arts, being a play and concert goer, and involved in old furniture.



Mr. Richards. (A)

Norman Victor Lord, who was appointed Embodiment Loan Officer, in AS & R Division in 1976, has received his chosen gift to mark the completion of his 25 years with the Company.

His career began in 1954, in the Aviation Division as an Instrument Repair Mechanic later going into the newly

formed AS & R Division. In 1965 he took on a task as Progress Checker, and in 1971 became a Technical Clerk before commencing his present appointment.

Mr. J. Casey, the AS & R Divisional Manager made the presentation.



Norman Lord. (A)

Ron Cole, the genial Chief Draughtsman of FCD has completed his 25 years' unbroken service with the Company and received a clock to mark the event.

Ron came to Elliotts, from the Waddon Rehabilitation Centre at Croydon, after he had had an illness for some two years. This followed service in Palestine, during the troubles there before the British Mandate expired. Originally he trained as a Marine Fitter and Turner in his native Gravesend, before joining the Royal Engineers. He has never had any recurrence of his illness and has been an 'ever present' member of the Company since joining in 1954, in the Aviation Division.

In 1960 in TAC he was the Liaison Engineer with Bendix, dealing with queries of design and manufacture on equipment being made under licence for the VC 10, BAC 1-11. He also covered the early days of Concord. His progress continued and he was made Chief Draughtsman TAC in 1965. On the merger with MASD he became Deputy Chief Draughtsman FCD, until 1973 when he was confirmed as Chief Draughtsman FCD.

He is married with two sons and the family are a fully Marconi Avionics one. His wife works in the Telephone Exchange, one son is with IN Division and the other son is on a Company sponsorship at City University, reading computer science and mathematics.

For hobbies he lists wine making and gardening, but his all absorbing out of work interest is being a licensed Lay Reader of the Diocese of Rochester. This he says is a most rewarding undertaking.



Ron Cole admiring his 25 years' service gift. (D)

William John Lincoln is another long service employee of the Transport Department who has received his award. Having completed 25 years' unbroken service, he joined the Company in 1954, his colleagues gathered to see Mr. S.A. Williams, Works Engineer, present his chosen gift of a gold date watch.

Working continuously in the Transport Department, he has covered some 314 million miles on company business, and thus joins his Chief, Ron Cooke, and Harry Mepstead in working continuously in the same department.

A native of Essex, he came to Kent in 1939. He met his wife the same year in Gillingham, while in the RAF as a Motor Transport Fitter; he married his Susannah. After service at the Isle of Grain refinery, following demob, he joined Swift and Swallow in 1954, and has remained through all the various changes of name of the Company.

He is the father of six children, four boys and two girls, all now married and has eight grandchildren. For hobbies he lists gardening, decorating and caravanning; having a five berth caravan Bill likes to take to the open road as much as possible and go off camping some place. His wife shares his love for this style of camping and they always seem to have some of the children and/or grandchildren with them.

Commenting on 25 years at Rochester, Bill says he is proud to have worked with such an excellent number of people, and enjoyed being a member of a good team.



Mr. Lincoln. (D)



# DOWN MEMORY LANE

The village, built on the side of the hill which rose from the valley wherein the canal ran, with its two reservoirs alongside, is dominated by the striking edifice of Gothic architecture which is the Parish Church. This church, not of great antiquity, is built on the site of a former one, which was the scene of a murder most foul when a Lord Bishop of Lincoln was assassinated during a service. As a consequence, the village was put under an interdict, and for 100 years the church was never used again. Eventually demolished it gave way for the present building. However, the canal brought prosperity to the village and transformed it from a sleepy feudal place to a lively cosmopolitan area.

The dockyard, where narrow boats were built, demanded new skills and trades. What an inspiring sight it is to see the keel of wood planks laid, and the bowed sides built up, with the shaped fore-end developed by the sheer skill of the workmen. The caulking process was completed before launching into the basin and before the priming of the wood. The boat was launched sideways on into the water, and towed into the dry dock for finishing.

The paint work of a narrow boat always arouses interest, with the regular theme of castles, roses and birds. These were painted free hand, by men with an eye for colour and charm. No stencils were used yet each boat was a complete theme, with the utensils water-can, water ladle, and many other items, all part of the scheme.

In addition, the wharves were developed, with warehousing and stabling. Originally the boats were all horse drawn and the village became a centre, as a stop over place, or for the transfer of cargoes. Again bringing in new skills. The correct loading of cargo into the boat was of prime importance to ensure smooth progress and to aid steering.

To the east the land rose sharply, so locks were built to lift the boat from the low to the high level, before entering a tunnel, about 1¼ miles in length. In the summer time the loss of water from the high level, due to boats descending in the locks, had to be made good. Hence a pumping station was built below the bottom lock, connected to the reservoirs, and would pump gallons of water per day to maintain the level in the top pound.

The pumps were steam driven and lifted the water some 80 ft. and pushed it along for four miles. The efficiency of these machines was of the highest, bearing in mind they stood idle for the greater part of the year.


Alas, the wind of change has come, no more does the pumping station work – it has been dismantled – the boats are no longer built, the warehouses are silent, the cranes stilled, and the stables are converted into shops, for the place is now an inland waterway marina. Where trade once flourished, there is now pleasure.

## Anniversary

The first news broadcast in the world was made by W.T. Ditcham on 23 February 1920.  
*(This took place from a factory in New Street, Chelmsford, by the Wireless Telegraph & Signal Company Ltd, later to be known as Marconi's Wireless Telegraph Company Ltd).*

On 25 July 1909 the French Aviator Louis Bleriot (1872-1936) piloted his monoplane from the French Coast to North Fall Meadow, Dover (behind the castle) and so became the first man to fly across the Channel.

The distance was 26 miles, the flight lasted 36½ minutes. The 'plane is now in the Science Museum in London.



### Kitchen Kapers

Summer time is BARBECUE TIME

**LAMB PATE** (curried) 12 portions

2oz butter  
2lbs finely chopped or minced onion  
2 rounded tsp flour  
½pt stock  
2 level tsp curry powder  
½tsp dry mustard  
Pinch mixed herbs  
1½lbs lamb, cooked and finely minced  
Seasoning to taste

**Method:**  
Melt the butter over gentle heat. Add the onion and cook until softened but not brown. Stir in the flour smoothly then add the stock and stir until boiling. Draw off the heat and stir in the lamb meat and the remaining ingredients. Mix thoroughly and check the seasoning. Pack into individual dishes and weight. Serve chilled with French bread.

**APRICOT TORTE** 6 servings

3oz granulated sugar  
1lb apricot halves  
4oz butter  
3oz caster sugar  
1 egg  
6oz plain flour  
2oz ground hazelnuts  
1tsp ground cinnamon  
Pinch of salt  
1tbs cornflour

**Method:**  
Dissolve sugar in 2tbs water. Add apricots and simmer for 15-20 minutes. Drain, reserve syrup. Mix the butter, sugar and egg with the flour, nuts, cinnamon and salt, and knead. Chill. Make the apricot syrup up to ½pt with water. Blend the cornflour with a little of this, place all in a pan, heat, stirring until thickened. Add apricots and cool. Roll out two-thirds of the pastry to line an 8" flan tin. Fill with apricots and glaze. Roll out the remaining pastry, cut into strips and arrange over the top. Bake at 425°F (gas mark 7) for 10 minutes then at 350°F (gas mark 4) for 25 minutes. Cool and serve with cream.

## Homeloan

Special Scheme for First Time Buyers

The Marconi Avionics Group Savings Scheme in conjunction with the Halifax Building Society which has been arranged is extremely successful, both from the number of savers involved and the number of house loans that the Personnel Department has been able to negotiate on behalf of the participants in the scheme.

The Personnel Department can now arrange for you to benefit from the special Homeloan Scheme for First Time Buyers. Basically you need to save for at least two years and you will qualify for a cash bonus of up to £110 and this is in addition to the good rate of interest that your savings will attract. Additionally you can also qualify for an extra loan of £600. The loan is paid to you by the Government and you do not normally have to start repayments or pay any interest on that £600 for five years. After five years your mortgage repayments will be increased to pay off the £600 over the remaining life of the mortgage.

The Homeloan Scheme is open to all prospective first time buyers. If you are already saving or you wish to save through the Group Savings and take advantage of this scheme, full particulars can be obtained from John Neate of Personnel Department or the Chatham District Office of the Halifax Building Society.

## Farewell

Mrs. Mavis Logan (nee Woods) joined the Company in October 1968, on Production Wiring in MAC and continued in that employment when by amalgamation FCD was created. In 1974 she joined the Progress Dept. in FCD on the Boeing Contract.

Married to Doug Logan, the Chief Buyer in ISD, she leaves to start a family.

Friends subscribed to a farewell gift of a Baby Changing Unit, which was presented by Mr. D.K. Webster, Assistant Production Manager.



Mavis Logan and friends. (B)

## DO YOU KNOW?

### FACTS ABOUT THE COUNTY OF KENT

- 1) The highest point of the County is at Westerham (an old fort trig. point) at 824 feet above sea level.
- 2) Kent is home for the following trees, being tallest in their species:

ALDER (common)	85 ft. in Sandling Park.
CHESTNUT (sweet)	118 ft. in Godington Park.
GINKGO	90 ft. in Linton Park near Maidstone.

(does anyone know what it is like?)

POPLAR (Black Italian)	140 ft. in Fairlawne.
SYCAMORE	110 ft. in Cobham Hall Park.

Our neighbour SUSSEX can boast the following:

CEDAR	132 ft. at Petworth House.
CHESTNUT (Horse)	125 ft. at Petworth House.
OAK (Red)	115 ft. at West Dean.
YEW	85 ft. at Midhurst.

### FACTS OF UNIVERSE & SPACE

#### COMETS

Halley's Comet, last seen in Britain in 1910, will appear again in 1986 late on 9 February, 76 years after the last appearance, which was on 19 April 1910.

#### Earliest recorded

Records of Comets date from 7th Century BC, and speeds of the estimated two million comets vary from 700 mph in outer space to 1,25 million mph when near the sun.

The successive appearances of Halley's comet have been traced to 466 BC. It was first depicted in the Nuremberg Chronicle in AD 684. Edward Halley (1656-1742), whose name has been given to the comet, first predicted its return on Christmas Day 1758, which it did, exactly 16 years after his death.

#### Closest approach

On 1 July 1770, Lexell's Comet, travelling at a speed of 24 mps, relative to the sun, came within 1.25 million miles of the earth. On 19 May 1910, however, the earth is believed to have passed through the tail of Halley's Comet.

## Anniversaries

We congratulate Charles and Lilian Trevor on the Celebration of their Diamond Wedding, on 7 June. Charles (the Welshman) was for some years employed by the Company in IN Stores.

Our Congratulations also to Sid and Joan Golding on the celebration of their Pearl Wedding (30 years) on 1 August.

Sid is in FCD, on Inspection Planning, while Joan is in ISD Library. They have a son David, in MASD-DO, and a daughter Anne in ISD-Progress Dept.

*We needed a new boss for AS & R  
H.E. was going to places afar  
Speculation ran amok  
Were we all in for a shock?  
Bets went first on Julie Frier  
(With knockers like hers you could hardly pass by her)  
Then somebody suggested Mo  
Can't be many angles that she doesn't know  
But no, we found that we'd got Jim  
At first, aghast, we cried "Not IMI!"  
For J.A.G.C. as you will note  
Couldn't even keep his boat afloat!  
But we've re-thinked and in conclusion  
Whilst struggling against disillusion  
Better to have an old devil you know  
Than some other strange so and so  
So congrats Jim, Boss Bionic  
Who'll sign this P.U. for gin and tonic?  
(Annie get your gun - you'll need it!)*

## A Brief History to 1970

In view of the complexity of the Company's structure and the wide scope of its business, the history of product development since 1958 is probably best treated by groups of products. Usually, these will have been associated directly with a similarly-named Division.

### Military aircraft automatic flight control systems

**1958** In 1958 work was started at Borehamwood on a new automatic flight control system for the English Electric 'TSR 2', a high performance aircraft for use both for strike and reconnaissance purposes, with airborne electronic equipment of a new order of complexity compared with earlier RAF aircraft. With the formation of Aircraft Controls Division, a separate section was established to act as a project team for this development, which continued to expand as the project proceeded and eventually became the major part of the engineering team in Military Aircraft Controls Division. The complete system of automatic control equipment, hydraulic power controls, simulated control surface forces, and simulated aerodynamic characteristics was assembled at Rochester in a special test area, and extensive proof testing was in hand throughout 1963.

**1958** For flight trial purposes a data link was established to relay the results of measurements directly from the aircraft to a recording centre at Rochester, so that minimal delays would be occasioned in predicting adjustments to the system to improve the performance. As is well known, the entire TSR 2 project was abruptly cancelled in 1964 shortly after the first flight of the aircraft, at a time when engineering effort was only a little past its peak, and pre-production preparation was in a period of intensive activity. It was greatly to the credit of the Company that it was resilient enough to cope with a major cancellation of this nature. In spite of the large number of people engaged on the project at the time, only a handful had to be declared redundant. There was some loss of valuable technical staff who chose this moment to leave the Company, but the vast majority of people were redeployed on to alternative work. The size of the Division was greatly reduced almost overnight.

**1962** Before the debacle of the TSR 2 cancellation, work had been started on the development of autostabilizer equipment for several types of aircraft, which were then being studied by Hawker-Siddeley Aviation. The reliability required for safe hovering flight in this type of aircraft is extremely high, and the control problems are very different from those of conventional aircraft. This work led to the provision of equipment for the HSA 'P.1127', of which a small batch of aircraft were built, and later for the RAF squadron-service version of the aircraft, the 'Harrier'.

**1964** Some of the effort which had become surplus in Military Aircraft Controls Division was taken up in the manufacture of flight control equipment under licence from the (USA) General Electric Company, for installation in McDonnell 'Phantom' aircraft ordered for service in the RAF.

**1960** A further extension of the automatic flight control field was to be the Company's venture in the development of a system for a helicopter, the Westland 'WG 13'. This equipment is currently undergoing flight trials.

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**1957** From the early days of the Aviation Division it had been hoped to enter the civil aircraft flight control field, in order to reduce dependence on military projects. The opportunity to take this step came with the planning of the 'VC 10' for which Elliott Brothers secured an order to provide a complete automatic flight control system. This would not have been possible without a degree of reliance on Bendix experience, and a licence was negotiated with them to make use of their latest autopilot series, the PB 20, from Eclipse-Pioneer Division.

From the outset, the 'VC 10' system was planned to make provision for fully automatic landing of the aircraft. It was realized that certification to make this permissible in airline service would be several years away, but long experience at the RAE Blind Landing Experimental Unit had demonstrated its feasibility. For certification ease to be possible an extremely high standard of reliability was essential, and even in the case of failure of the equipment it was a requirement that the aircraft must not be subjected to violent manoeuvres. After a detailed study of possible alternatives, the solution chosen was to duplicate the whole of the major system, one half to be operative while the other was to be 'standing by', with a changeover mechanism of the utmost reliability to permit instant switching from one to another.

**1960** By 1960 the basic development was substantially complete and the requirements for automatic landing were being explored in detail. The first phase of this was to provide an 'autoflare' facility, by which the aircraft could be flared out automatically from its descent path, for final landing by the pilot. This was followed by the true 'autoland' facility, development of which was started in January 1963.

**1963** Successful development of the 'VC 10' system resulted in the opportunity to supply broadly similar equipment for the British Aircraft Corporation 'BAC 111', which has been produced in substantial numbers.

**1963** Early in 1963 joint proposals were made, together with Bendix, for a flight control system for a proposed super

sonic civil transport. This was the forerunner of what became the 'Concorde'. When Anglo-French agreement was reached for joint development of the 'Concorde', a formal agreement was signed for co-operation between Elliott Brothers and Bendix, although the Company became the leader of the project and later acquired a further partner, the French firm SFENA. This equipment was based on contemporary semi-conductor technology, and may be considered to be of a different generation from the earlier systems. Pre-production equipment was used for initial test-flying of the first two prototype aircraft, and continues in service.

**1964** A completely new kind of control system was required for the giant Lockheed 'C5A' military transport aircraft, later named the 'Galaxy'. To simplify landing in the presence of a cross-wind, which causes the aircraft to drift, the whole of the landing gear is arranged to be rotated through the angle of drift until after touch-down. The landing wheels are arranged to rotate through the angle as it rolls along the runway. To control the rotation of the landing gear a special computer was required, which was designed and supplied by the Company.

**1967** A further development of the E3 platform, the E3R, which permitted a wider range of manoeuvre, was specified for the BAe/Breguet 'Jaguar' fighter, and is currently entering production. Should the forecasted number run of this equipment.

**1970** In order to carry out the computations necessary to display the required navigational information to the crew, Inertial Navigation Division relies heavily on support from Airborne Computing Division, which supplies digital computers and supporting programming facilities for this class of work.

**1962** In an attempt to make use of the experience gained in designing the inertial navigator for 'Blue Steel', the Company embarked on the development of a general-purpose instrument for aircraft navigation, and an experimental stable platform, E5, was built. This project was not completed, as it was realized that the platform was likely to be too bulky for many applications, and improvements in technique appeared to offer scope for a reduction in size. This was realized in the E3 stable platform, using a novel gimbal system which permitted a very compact construction. This design entered production for the Hawker-Siddeley Aviation 'Nimrod' maritime strike and reconnaissance aircraft, and is currently giving good service.

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### Fuel system and engine instrumentation

**1954** Early experience with engine tachometers, and Bendix-type fuel flowmeters, formed the basis for Aircraft Engine Instruments Division, established in 1959. Main emphasis continued to be on fuel flow-rate sensors and associated instrumentation, using variants of the Bendix sensor which detected only an approximation to the mass rate of flow of fuel, the quantity to be measured for jet-engine operation. Equipments were supplied in large numbers for 'Victor' and 'Vulcan' bombers, 'Viscount', 'Vanguard', and 'BAC 111' airliners, and a number of other aircraft. In order to improve the accuracy of mass flow measurement, the Company initiated the development of a new sensor to detect true mass flow precisely, and brought this to a successful conclusion with the installation in the 'VC 10'.

**1962** Design study work had been carried out on fuel contents gauge indication, but first experience in practice was gained with the acquisition of Firth Cleveland Instruments Limited, whose work in this field and in turbine-type fuel flowmetering was later transferred to Rochester. Shortly afterwards, a licence was negotiated to manufacture Minneapolis-Honeywell contents gauging equipment for the Lockheed 'Hercules', in service with the RAF as a heavy transport aircraft. The Division is now well established in this field.

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**1966** In succession to 'Verdan' the Company developed its own range of miniaturized digital computers, the 920 Series, variants of which have been extensively applied, notably in 'Nimrod' and 'Jaguar' aircraft, and as components of display and automatic test equipments developed by other Divisions.

**1966** Current emphasis on digital techniques results in continuing demands on computer experience, and in particular on that of highly reliable and densely packed types of electronic assembly originally designed for computer use. An important aspect of design is the study of heat flow from the electrical components to prevent excessive temperature rise: this has become highly significant in spite of the low power levels of semi-conductor devices owing to the compactness of present-day designs.

**1963** Airborne Display Division was first established at Rochester in 1963, and began by directing attention to conventional types of flight director instrument. In 1965 the interests of Rank Cintel Limited in this field were acquired. This company had developed a cathode-ray tube 'head-up' display system, by which instrument data was presented to the pilot reflected in a glass screen placed in his normal line of sight. The pilot could read his instruments, for manual flight control, navigation, or weapon-aiming purposes, without refocussing or redirecting his eyes from the scene in front of him.

**1966** After a brief association with test equipment activities, the Division was reformed, and developed a similar system using more modern techniques for supply to USA. This gave practice in developing complex equipment against very stringent requirements, both technically and contractually.

**1968** This experience proved to be extremely valuable in handling a much larger contract for the supply of a 'head-up' display system to Vought Aeronautics Division of L.T.V. Aerospace Corporation for the 'A7' naval aircraft. To secure this contract represented a major export achievement, and indicated that the Company was a world leader in airborne display techniques. In addition, extremely high standards of reliability and maintainability had to be achieved to attain contractual targets, calling for a highly refined electronic, mechanical and optical design.

**1961** As already indicated, the Divisions concerned with test equipment have undergone a series of changes, basically as a result of the Company's policy from early days of making available a range of test equipment to simplify calibration and repair of its products, and supporting this with the most effective business organization.

**1964** With the increasing complexity of equipment, and the need to test systems as well as individual items, attention was turned to the development of automatic test equipment in 1961. This has progressed to the state where extremely elaborate computer-controlled automatic test equipment has been developed, and applied for testing the avionics systems of the 'Nimrod' and the head-up display equipment supplied for the 'A7' aircraft. This equipment is capable of thorough checking of the system under test, and automatic recording both of divergences from the specified performance and the location of faults.

**Research**

In order to provide a central service to individual Divisions of the Company, an Environmental Research Laboratory was established in 1961, primarily for type-testing of newly-developed equipment. Two years later the scope of activity was widened and the title changed to Flight Automation Research Laboratory. Research work covering a wide spectrum of activities has been carried out since this time, notably in highly-reliable hydraulic actuators, contributions to servomechanisms and precision measurement techniques, and to new types of sensor; and latterly to novel methods of high-speed digital data transmission and extremely versatile cathode-ray display methods. Much current work is devoted to extensions of digital technique, which it is foreseen will supplant existing analogue methods of computation for automatic control systems in the fairly near future. Maintenance of a research organization independent of the day-to-day pressures of a manufacturing Division is seen as one method of ensuring that the Company will remain in the forefront of technological progress.

**Conclusion**

Looking back over the twenty-five years during which Elliott Flight Automation took shape, became established, and emerged as a major force in the field of aircraft automatic controls and electronic equipment, it can be seen how the acquisition of particular contracts, sometimes in themselves of no great value, have laid the foundations for future progress and major expansion. The present high reputation which the Company enjoys, both nationally and internationally, is largely due to insistence throughout its activities on the highest standards of technical competence and manufacturing quality. This alone has made it possible to achieve, in the very difficult American market, a significant success, which has received the accolade of the Queen's Award to Industry in three successive years, 1968, 1969 and 1970, the last with a double citation for both export and technological achievement. The Company looks to the future with confidence.

Subsequently there have been other Queen's Awards made to the Company. For details see issue 13 January 1979.

**Growth of Company Organization as at 1968**

<b>Divisions</b>	Gyro RL A/C C IN AEI ASBR TAC MAC ATE Env RL AC FI AD FARL FPL PTE FSE FDAD CMS	Gyro Research Laboratory Aircraft Controls Inertial Navigation Aircraft Engine Instruments Aviation Service and Repair Transport Aircraft Controls Military Aircraft Controls Automatic Test Equipment Environmental Research Laboratory Airborne Computing Flight Instrument Airborne Display Flight Automation Research Laboratory Fuel Flow Laboratory Precision Test Equipment Flight Support Equipment Flight Data Analysis and Display Central Machine Shop
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<b>Companies</b>	RC Ltd E (T) Ltd	Rank (Int'l) Limited Elliott (Treforest) Limited
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<b>Locations</b>	(W) (LI) (B) (R) (T) (SI) (H)	Wembley Lowsham Borehamwood Rochester Treforest Sydenham Hayes
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# Sports and social club round up

**TOM SMITH MEMORIAL TROPHY**

The trophy, in memory of the late TOM SMITH, drew another large entry of cribbage players to contest the event. This annual competition raises funds for Leukaemia Research and is a worthwhile activity.

The winner in 1979 is Mr. B. Shallocross of ATE Engineers, who received congratulations on his success, as well as the Trophy (held for one year) and a glass decanter as a souvenir. The runners up were 2nd Mr. J.M. Collins, Social Club Sec. 3rd, Mr. R. Jeffery, ATE. 'A' team, Consolation Mr. D. Boniface, Apprentice Training Officer.



Mr. B. Shallocross

**YEovil NEWS**

On 18 April, 1979, the whole of the Marconi Avionics team at Yeovil was asked to report to the local Police Station . . . . . no it was not a mass arrest but our fixture with the Police in our local skittles league.

We met around the corner and decided against parking our cars in the 'nick' car park, some of them being rather old we were worried in case they were towed away. Resisting the temptation to make the obvious comments like "allo 'allo, wot 'ave we 'ere" and comments about Policemen's bal . . . . . sorry skittle woods, we entered the reception. What did bring a smile to our lips was the comment from one of our supporters club (well a third of it to be precise) to the effect, was it safe to leave her coat in the bar!

We were escorted up to the well stocked bar on the fourth floor of the station which had an unparalleled view of Yeovil. Especially a good view of one of the main roads that one of our members regularly speeds up. In his unusual sports car!

The skittle alley itself was in the loft of the police station and we had to climb up a very steep spiral staircase to get at it. The game was very close with the MAV (Y) team winning the most important round of the game, the beer round. This is where you are paired with your opposite number for one round and the loser buys the winner a drink. Believe you me, it's not easy trying to climb a steep spiral stair case with a pint of beer in one hand and a purse in the other, and the women had even more trouble!

We maintained our record of just losing (we had heard that they were bad losers and we didn't fancy being asked to blow in their little bags). However, we thoroughly enjoyed the game and we crept out of the back door of the police station, at a time we promised not to divulge, with a good time had by all.

Jackie Gingell

**R.A.F.A.**

The Royal Air Forces Association exists to promote the welfare, by charitable means, of those who are serving or have served (and their dependants) in our Air Forces. The Medway Branch of the Association, situated in Dock Road, Chatham, extends a welcome to all persons serving or who have spent a minimum of three months in the Royal Air Force.

The Branch offers a good club atmosphere where you can enjoy a drink and a chat. In addition frequent functions are organized by an active entertainments committee. As a member you may visit any of the excellent branches during your travels, the writer having spent many enjoyable evenings on such occasions.

If you are eligible and would like to know more about us, why not call at the branch in Dock Road (five minutes walk from Chatham Town Hall) any Monday or Friday evening, you will be most welcome. Subscription rates are £1.75 on enrolment followed by £1.50 annually or, if you can afford it, £20 for life membership. Remember, it will cost you nothing to find out. We look forward to seeing you. Peter T. Curran (Chairman) (Int. 601)

**ROYAL AERONAUTICAL ASSOCIATION I**

**Lecture Programme for 1979/80**

- 10 Oct 1979 'The Ark of the winds' (a light hearted survey of Aviation) J. Bagley
- 14 Nov 1979 Airline Operation of Boeing 747 Capt. R. Seed, British Airways
- 12 Dec 1979 North Sea Exploration, and the role of the Helicopter D.J. Courtney, British Airways
- 9 Jan 1980 Investigation of Aircraft Accidents F.H. Jones, RAe.
- 13 Feb 1980 Schriener Trophy F/Lt. R. Barker, R.C. Austin, Westland Helicopters
- 12 Mar 1980 Remotely Piloted Helicopters R. Dabbs, British Aerospace
- 9 Apr 1980 B.A.C. Hawk
- 14 May 1980 AGM plus film show

**Notes selected from the newsletter**

**"Spitfire Parachute.**  
The Parachute and Harness kindly donated to the Branch, by RAF Coningsby, was in fact the one used by the Battle of Britain Flight Spitfire. It is time expired, of course. The parachute was presented to us by F/Lt Hawkins, the son of one of our members and a navigator of the Lancaster in the Battle of Britain Flight. We extend our thanks to F/Lt Hawkins and RAF Coningsby."

**"Memorial to Captain Albert Ball VC.**  
... the interest shown by one of our members in the almost forgotten memorial to this very distinguished aviator has borne fruit. A party set out from RAF Wildenrath and after much searching located the memorial stone. They cleaned it up, photographed it and have arranged to visit it again in two years' time to clean it and put it truly vertical again."

**Editor's Note**  
There was a very interesting book published in the 1930's about Capt. Albert Ball VC, written I believe by his father, containing not only an account of his life but copies of letters written during his service. These letters show the spirit of the young men in those days, and their acceptance of values, which today seem to be forgotten.

**Wanted - Metalworker**  
The preservation group requires most urgently the services of an experienced metal worker to carry out some interesting work on Spitfire TB752. It is estimated that the total work would not demand more than four hours of work per week over a four month period. Perhaps you could do it in less. Please contact Mr. Lewis Deat, tel. Medway 65028 or Mr. Roy Saxby, int. 408 if you can assist in any way.

**Marconi Avionics' visit to Marconi Sailing Club.**

Once again the intrepid sailors of Marconi Avionics pitted their wits and skill against the might of the Marconi Sailing Club at their headquarters on the River Blackwater in Essex. The MAV team was made up as follows:

G. Belcher	FCD	Enterprise
D. Jibb	ADD	Enterprise
A. McConachie	ADD	Mirror
R. Stone	R	Laser
R. Moulton	R	Mirror
C. Stone	MAv	Dragonfly
J. Pateman	MAv	Golden Hind
A. Macfadyen	FCD	Fireball

Most of the team arrived on Friday evening, 1 June, and got themselves organized to camp out overnight. Saturday dawned with very breezy prospects and it was with some trepidation that Alastair Macfadyen, crewed by 17 year old David Bryan, launched his Fireball into a very lumpy Blackwater. After some hairy sailing they returned ashore to pronounce conditions as 'interesting'. The first race was set for 11.30, by which time the wind had come down to about force 3-4, with a much flatter river as well.

The race started well, apart from the usual congestion at the start (MSC please note!), with a good beat to the first mark. Macfadyen was unfortunate in picking the wrong buoy for the mark however, and lost a lot of ground correcting his mistake. The course was of the 'Triangle-Sausage-Triangle' form, and it was possible to carry spinmakers on the third leg of the triangle and the return leg of the sausage. One 420 from MSC managed to carry his kite on the second leg of the triangles as well - well done David Jibb had to retire after an inexplicable gear failure, and the Fireball had a silly capsize caused by running aground on the lee shore.

After a brief lunch, the second race started at 1.45, with a triangular course being set. Another good start ensued, and in the wind of about force 3, a keenly contested race followed. After a brief respite, the keener members went on to join a local race round Osea and Northey islands, which was much enjoyed.

A pleasant evening followed in MSC club-house, after which the various parties retired to their tents and caravans, ready for an early return in the morning.

Our thanks to Marconi Sailing Club for their hospitality, and to Colwyn Stone for organizing our end of the visit.

**RESULTS**

<b>First Race</b>		
1. J. Chisnall	MSC	
2. G. Belcher	MAV	
3. R. Greyyoose	MSC	
4. F. Savill	MSC	
5. J. Witter	MSC	
6. R. Stone	MAV	
7. A. Macfadyen	MAV	
8. S. Oaker	MSC	
D. Jibb retired		
<b>Second Race</b>		
1. R. Greyyoose	MSC	
2. T. Diment	MSC	
3. R. Stone	MAV	
4. F. Savill	MSC	
5. J. Chisnall	MSC	
6. G. Belcher	MAV	
7. S. Oaker	MSC	
8. J. Witter	MSC	
9. A. Macfadyen	MAV	
10. R. Moulton	MAV	
11. E. Witter	MSC	
A. McConachie retired		

# Sports and social club round up

## INDOOR GAMES

FINAL PLAYED ON WEDNESDAY 23 MAY

### MONDAY LEAGUE

DARTS				
P	W	L	F	A
Msl Shop 'A'	11	10	1	44
CMS	11	8	3	36
ATE 'A'	11	7	4	35
MASD	11	7	4	31
EDP	11	7	4	29
AS & R 'A'	11	6	5	32
Fisher	11	5	6	29
FCD D/O	11	5	6	18
IN D/O	11	4	7	26
GYRO N/R	11	3	8	23
Fac. Apps	11	2	9	19
App. Sub	11	2	9	12

CRIB				
P	W	L	F	A
Msl Shop 'A'	11	8	3	36
GYRO N/R	11	8	3	30
FCD D/O	11	7	4	37
MASD	11	7	4	33
ATE 'A'	11	7	4	31
CMS	11	7	4	31
IN D/O	11	6	5	32
Fisher	11	6	5	28
AS & R 'A'	11	5	6	25
EDP	11	3	8	25
App. Sub	11	3	8	17
Fac. Apps	11	0	11	0

### FINAL TABLES

EUCHRE				
P	W	L	F	A
IN D/O	11	9	2	41
Fisher	11	9	2	34
ATE 'A'	11	8	3	34
MASD	11	8	3	34
GYRO N/R	11	6	5	31
FCD D/O	11	6	5	34
EDP	11	5	6	29
App. Sub	11	5	6	26
AS & R 'A'	11	5	6	25
CMS	11	4	7	24
Msl Shop 'A'	11	1	10	18
Fac. Apps	11	0	11	0

### WEDNESDAY LEAGUE

DARTS				
P	W	L	F	A
IN	11	10	1	37
ISD Eng	11	8	3	33
Msl Shop 'B'	11	7	4	31
AS & R 'B'	11	6	5	31
FCD 'B'	11	6	5	29
ATE Eng	11	6	5	26
Msl Shop 'B'	11	6	5	27
ADD D/O	11	5	6	31
Training Cen	11	4	7	27
Accounts	11	4	7	38
FCD 'A'	11	3	8	16
GYRO	11	1	10	23

CRIB				
P	W	L	F	A
Msl Shop 'B'	11	7	4	34
GYRO	11	7	4	34
IN	11	7	4	32
ISD Eng	11	6	5	29
Accounts	11	6	5	27
Msl Shop 'B'	11	6	5	28
FCD 'A'	11	6	5	27
AS & R 'B'	11	5	6	28
ADD D/O	11	5	6	29
ATE Eng	11	5	6	29
FCD 'B'	11	4	7	22
Training Cen	11	2	9	16

### FINAL TABLES

EUCHRE				
P	W	L	F	A
Msl Shop 'B'	11	8	3	35
AS & R 'B'	11	8	3	34
GYRO	11	7	4	36
IN	11	7	4	32
ISD Eng	11	6	5	30
Msl Shop 'B'	11	6	5	29
ADD D/O	11	4	7	27
Accounts	11	4	7	24
FCD 'A'	11	4	7	38
Training Cen	11	3	8	19
ATE Eng	11	2	9	18

### DARTS

Model Shop 'A' v IN	11	8	3	35
Model Shop 'A' v GYRO	11	8	3	34
Model Shop 'A' v IN	11	7	4	36
Model Shop 'A' v GYRO	11	7	4	32
Model Shop 'A' v IN	11	6	5	30
Model Shop 'A' v GYRO	11	6	5	29
Model Shop 'A' v IN	11	4	7	27
Model Shop 'A' v GYRO	11	4	7	38
Model Shop 'A' v IN	11	3	8	19
Model Shop 'A' v GYRO	11	2	9	18

\* After best of three leg play off on finals night.

### DARTS AND CARDS FINAL RESULTS 1979

WINNERS		RUNNERS-UP	
DARTS	Model Shop 'A'	IN	IN
EUCHRE	IN D/O	Msl Shop 'A'	GYRO
CRIB	Model Shop 'A'	IN	IN
COMBINATION	ATE 'A'	IN	IN

PAIRS		WINNERS		RUNNERS-UP	
DARTS	R. Hanson & R. Tilbury, Model Shop 'A'	V. Cass & M. Ridge, AS & R 'A'	R. Richards & I. Groves, Msl Shop 'A'	A. Crampton & B. Johnson, Fisher.	J. Guillon & R. Jeffery, ATE 'A'
EUCHRE	R. Richards & I. Groves, Msl Shop 'A'	A. Crampton & B. Johnson, Fisher.	H. Hamblin & M. Dwane, FCD 'A'	R. Jeffery, ATE 'A'	
CRIB	H. Hamblin & M. Dwane, FCD 'A'	R. Jeffery, ATE 'A'			



Model Shop 'A' - darts league winners.



Model Shop 'A' - crib league winners.



Model Shop 'A', R. Manson and R. Tilbury, darts pairs winners.



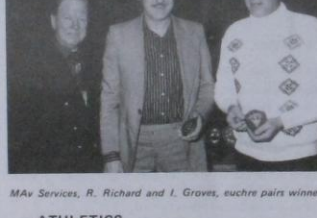
FCD 'A', M. Hamblin, M. Dwane, crib pairs winners.



IN D/O - Euchre league winners.



ATE 'A' - combination league winners.



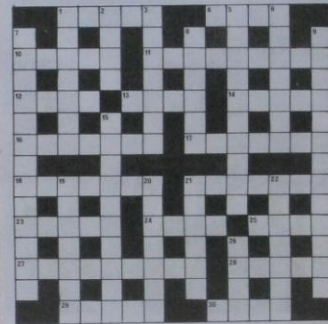
Msl Shop 'A', R. Richard and I. Groves, euchre pairs winners.

### ATHLETICS

#### Programme Forecast

Date	Fixture	Venue
Aug 11	LBH 10 mile Championships	Hendon
18/19	Southern Senior Championships, Youth and Junior 3000m Championships	Crystal Palace Dartford
25	Dartford Gala Meeting	—
26	Young athletes League Final (Auxiliary)	—
27	Bexley Borough A.C. Invitation Meeting	Erith
Sept 1	Southern League Sept. Shield and Top Sport Trophy	Copthall
8/9	Kent Senior and Junior Decathlon	—
9	Young Athletes League Final	—
22	Southern Junior Decathlon and Youth Octathlon	Copthall
23	LBH 4 x 3/4 mile Road Relay (LT)	Kenton

### CROSSWORD No. 17



#### ACROSS

- Game or coney stealing (5)
- Fruit of the hen (4)
- Usually with wings (5)
- Little value if drinking (5, 4)
- The current of heat (4)
- The other lot (4)
- The Fiddler keeping warm (4)
- Places to build (5)
- A fallen eastern empire (7)
- Delightful punishment (7)
- A total before famous battle place (7)
- Yankee greets to save (7)
- With a cox form the crew (5)
- The centre can be (4)
- A cup or Mrs. Mopsy (4)
- If needing professional help, one among many (8)
- A funny canal (5)
- The law puts a damper on (5)
- Whipping, maybe mail (4)

#### DOWN

- Colouring by swine (7)
- Seaman of low rank (2)
- On the scrap heap, why? (3, 4)
- The current of heat potential (4, 6)
- The staff of regal power (7)
- The orator quoted not verbatim (5, 2, 6)
- Disappear quickly (3, 3)
- A liquidizer does it now (5, 3, 5)
- Elfish dock pose (10)
- If alone, they are greedy (7)
- To climb the ladder of fame (7)
- Where the trotters live (6)
- To succeed the one before (7)
- Shortened force (4)

For amusement only.

#### SOLUTION TO CROSSWORD No. 16

#### ACROSS

- Gale warning, 9 Alarm, 10 Easy chair, 11 Kips, 12 Edit, 13 Balls, 15 Nose gay, 16 Eritrea, 17 Observe, 20 Decoder, 22 Pee, 23 Soke, 24 Fall, 26 Reprimand, 27 Ropes, 28 Danger money.

#### DOWN

- Grampus, 2 Lamb, 3 Weekday, 4 Rosette, 5 Inch by inch, 6 Glacier, 7 Walking on past, 8 Fresh air blast, 14 Aggression, 18 Swapped, 19 Ensnare, 20 Dukedon, 21 Draw pay, 25 Bren.

Photographs taken by the Staff Photographers will be acknowledged in the following way (A) Alan Kats, (B) Susan Ruddickson (C) Linda Jones (D) Tim Murray.

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