

## MOTTO FOR THE MONTH.

"You must first learn to obey before you can command".

# APPRENTICE AGREEMENT SIGNINGS

The 'big night' for the 1978 intake of Apprentices is the time when, after the probationary period they are approved and offered Agreements—sometimes referred to as 'Indentures'. This Annual event took place on 15 March at the Training Centre, Hopewell Drive, Chatham when Mr. W.H. Alexander, on behalf of the Company, handed over the copies of signed Agreements to parents and boys (some girls too).

After the signings and presentation of Agreements, parents and friends toured the centre, and saw work done by the Apprentices, and demonstrations of working exhibits. Light refreshments were served during the evening, 98 Agreements were signed and handed over. The intake includes five girls, one of whom Jane Staff is shown with her parents in the workshop.

Parents generally were greatly impressed by the facilities and the prospects for their child's future. The Apprentices also expressed their appreciation of what they were undergoing. Most were extremely

happy in their work and environment and mothers too said that their child came home happy and contented and was eager to get back to the job each day



Clive Randall with his parents signing the Agreement. Mr. Randall senior is employed by the Company in ATE.(C)

## RECOGNITION IN HIGH PLACES

On Thursday evening, 22 March 1979, Mr. A.J. Harrison, Director of Manufacturing Services, was invited to Buckingham Palace where he was presented to Her Majesty The Queen, The Duke of Edinburgh and The Duke of Kent.

The occasion was a reception for representatives from companies who had received The Queen's Award for Export in 1978.

The representatives from Borehamwood and Basildon were Mr. Jack Unwin and Mr. Les Mullin respectively.



Jane Staff and parents. (C)



Mr. Alexander causing a smile before handing over. (C)



The family group before touring the centre. (C)



Clive proudly showing dad "some of my own work". (C)



Explanations from one of the instructors. (C)



Dave Wilson, Training Officer, pointing out special features on a piece of apparatus produced by a 2nd year apprentice. (C)

## CARTOON COMPETITION

Issue No. 13 January 1979.



This was the best supported competition we have run, and our thanks go to all who entered into the spirit of the contest.

There was a total of 47 entries, and the judging panel had a very difficult task.

The winning caption, as decided by the judges, is

"Okay, now YOU try and fill her up!"

Submitted by:  
Mr. I.D. PODMORE,  
IND Programming,  
Hut 11.  
He will receive a £5 Premium Bond.



# DOWN MEMORY LANE

The winter had come early that year and the enemy bombers droned overhead night after night, for the air was crisp and the sky bright as the moon rose to its full glory. Perhaps because of the Blackout it seemed so much brighter yet mellow with a softness that did not translate itself into the minds.

October had arrived and as we waited for the arrival of our third child, our prayer was that there would be a fog to keep the dreaded bombers away. The arrival was not due until early November so there was still time. The second child, our daughter was then about three years old, had gone to stay with her grandmother thus parting her from her elder brother, who was one year older. The parting was for the duration of the confinement, but when you are four years old three weeks can seem an eternity.

Although surrounded by his own familiar things and having dad all to himself, the lad began to fret for the companionship of his sister, even though she had only been gone away one week.

Saturday came, and joy of joys, dad did not have to go to work for two days, as it was his turn to work only five days that week, but the thoughts were of the absent sister. As we talked and wondered how she had settled down the boy began to plead to get and see his sister. Too late that day so it was decided to get up early on Sunday and, weather permitting, we would go to visit her, our locomotion being a cycle with a child's seat on the cross bar and stirrups hanging down.

Sunday dawned, crisp and cold, and the weather forecast was a 'change on the way' - wintry showers were expected. Should we or should we not? Seventeen miles was a long way even though we had done it many times before but how do you convince a four year old boy, when he says soulfully, "but you promised" That is how we came to prepare for

the journey, wrapped in woollies, coats and scarves, with wrappings of paper round the boy's legs under a pair of football stockings and a hot water bottle under his coat, he was settled on the 'seat', dad mounted and with a brief wave pedalled away.

For the first two miles out of town it was flat then came a hill of about 1 in 20, where we had to dismount and walk up part of the way.

"Are you alright, son?" "Yes dad!"

"Are you warm?" "Yes dad!" When shall we get to Grandma's?" "I don't know it depends on how we go."

Having reached the summit we re-mounted and for another five miles it would be steadily downhill.

Enquiring from time to time if all was well, the answer was always "Yes".

Then we saw the big hill ahead, the skies darkened and wisps of snow began to fall.

Dismounting the boy could hardly stand, urgently enquiring, "Are you alright? are you cold? let us go back home!" The answers were reassuring, but the signs told another story. Plodding on up the hill whilst the storm got worse dad decided, against the fearful pleading "to see my sister", re-mounted and began the return journey. Urgency giving 'wings' we arrived home only to find that sonny was almost frozen stiff teeth chattering and blue face, mother took over to restore circulation with hot wet towels and a mustard bath.

It worked, limbs loosened, teeth became stilled, colour came back to cheeks, and tears began to flow.

The wintry weather continued all day, but a warm though disappointed brother, fell into a sleep, to dream of his reunion which never was.

As a footnote, when on 12 November the third child was born - it was a real pea souper of a fog!

## FACTS ABOUT UNIVERSE AND SPACE

# DO YOU KNOW?

### METEORIODS

Meteoroids are mostly of Cometary origin. A meteor is the light phenomenon caused by the entry of a meteoroid into the Earth's atmosphere. The greatest meteor 'shower' on record occurred on the night of 16-17 November 1966, when the LEONID meteoroids (which recur every 33 1/2 years) were visible over North America. It was calculated that meteors passed over Arizona, USA, at a rate of 2,300 per minute for a period of 20 minutes from 5am on 17 November 1966.

### METEORITES

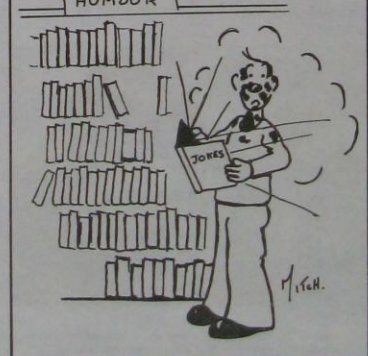
When a meteoroid reaches the Earth's surface, the remnant is described as a meteorite. The largest known meteorite is one found in 1920 at Hoba West, near Grootfontein in South West Africa. This is a block about 9ft long by 8ft broad, weighing 132,000lb (59 tons). The largest meteorite exhibited by any museum is the Tent meteorite, weighing 66,085lb (30.4 tons), found in 1897 near Cape York, on the west coast of Greenland, by the expedition of Commander (later Rear Admiral) Robert Peary (1856-1920). It was known to the Eskimos as the Abnighito and is now exhibited in the Hayden Planetarium in New York City, USA.

### LARGEST CRATERS

Due to size, weight and speed, a meteorite can gouge out great defiles in the Earth's surface, by the impact. Aerial surveys in Canada in 1956 and 1957 brought to light a gash or astrobleme 8 1/2 miles across near Deep Bay, Saskatchewan, which may have been caused by a very old and very oblique meteorite. There is a possible crater-like formation 275 miles in diameter on the eastern shore of Hudson Bay, where the Nastapoka Islands are just off the coast.

The largest proven crater is the Coon Butte or Barringer Crater, discovered in 1891 near Canyon Diablo, Winslow, in Northern Arizona, USA. It is 4150ft in diameter and now about 575ft deep, with a parapet rising 130-155ft above the surrounding plain. It has been estimated that an iron-nickel mass with a diameter of 200-260ft and weighing about two million tons, gouged this crater in about 25,000BC, with an impact force equivalent to an explosion of 30 million tons of TNT.

## HUMOUR



The discussions were taking place about relative value, and our sense of appreciation of the other man's plight, which inspired our poet, a former Bevin Boy\*, to give some light on a MINER'S LOT.

This ode is dedicated to all those who "go down the mine, to get the coal".

## Have you thought about it?

The question how much are they worth,  
Those who go down the Bowels of the Earth?  
They start the shift with a ride in a cage,  
Dropping down and down, for what seems an age.

Packed tight like sardines in a tin,  
Dirty and wet, before you begin,  
And when down below you're off on your way,  
At least half an hour or more you can say.

Trudging up hill and down the other side,  
For it's not every Pit where you can ride!  
The air gets warmer, the tunnels get low,  
Warmer and smaller the further you go.

At your place of work, at last you arrive,  
And up to now you're still alive!  
By now you've taken off most of your clothes,  
As the coal dust and sweat start to run off your nose.

We slog away to get out the coal,  
And you think to yourself My God! what a hole,  
And if for a moment, I should turn out my light,  
It's darker down here than the blackest night.

You shore up the roof to stop falling rocks,  
And you're dripping with sweat, as it runs in your socks,  
And that at last, it's time for your break,  
So, you squat on the floor with your sandwich and cake.

Your hands are all black, dirty and wet,  
But they haven't put wash basins down the pits yet!  
From your water bottle, you take a drink,  
And contrary to what some people might think,

You can't get tea or coffee or beer,  
Because they don't have canteens down here.  
Some drink four pints of water they say,  
To replace the moisture lost in a day!

And if nature should call and you just can't wait,  
Then you go where you can, there's no other fate,  
And just for the record in case you don't know,  
They have no lavatories down below!

If you're still in one piece when you finish the shift,  
You return to the world on that so called lift.  
Then you take a deep breath and look at the sky,  
And you ask yourself the Question . . . . . WHY?

Do you spend two thirds of your life in the dark,  
Do you think it's done just for a lark?  
A third while you're working, a third while you sleep,  
And the third that is left, to play, drink and eat.

You never know what it's like when down below,  
If it's raining, sunshine, hail or snow,  
Until you've crawled out of that hole in the earth  
So I'll ask you again, HOW MUCH IS IT WORTH?

J.S.C.

\* The Conscription Act of 1939 was amended to include the direction of suitable men of ages 18-40 to work in the coal mines, instead of Service in the Armed Forces. As the late Ernest Bevin was Minister of Labour and responsible for the Act (and manpower generally) all those conscripted into the mines were dubbed 'Bevin Boys'.



## MARRIAGES

Mandy Stirling, a clerical trainee with IND Admin, married Mick Searle, who works for ECV - Fisher, on Saturday 17 March 1979 at St Phillips and St James Church, Walder-slade.

All her friends and colleagues in IND wish the happy couple every happiness in the future.

## IN MEMORIAM

We regret to record the death of Pat O'Connell, at the age of 59 years, on 1 March 1979. He had served the Company well for the past 22 years doing duty in AEI, ADD and ASSRD.

Well liked by his fellow workers, he will be greatly missed being one of those to whom one could turn for help and advice and find it willingly and cheerfully given.

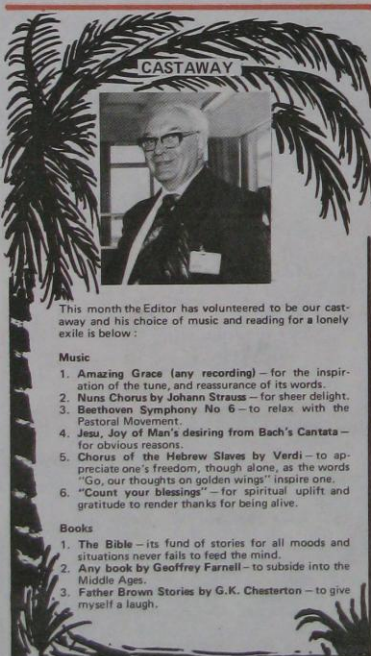
His working life began with an apprenticeship at Shorts, then followed a period of service with the Forces, Army Signal Corps and RAMC, during which he spent a good deal of time in India. He was a member of the Elliotts 'Ham' Radio Club, by which means he had contacts throughout the world.

## Letter to the Editor

I read with interest the comments on the behaviour of some employees whilst the choir were singing carols on the 13th December (last) and as the choirmaster of that choir I too was appalled, however, since it was not intended to be a church service and some people get their own enjoyment out of inconveniencing others, one must only conclude that it may be better to withdraw the entertainment of many as a sacrifice to deprive the 'animals' of the opportunity of getting their pleasure by interfering with someone else's pleasure.

D. Lucas

(Editor's note: This correspondence is now closed)



This month the Editor has volunteered to be our cast-away and his choice of music and reading for a lonely exile is below:

### Music

1. Amazing Grace (any recording) - for the inspiration of the tune, and reassurance of its words.
2. Nuns Chorus by Johann Strauss - for sheer delight.
3. Beethoven Symphony No 6 - to relax with the Pastoral Movement.
4. Jesu, Joy of Man's desiring from Bach's Cantata - for obvious reasons.
5. Chorus of the Hebrew Slaves by Verdi - to appreciate one's freedom, though alone, as the words "Go, our thoughts on golden wings" inspire one.
6. "Count your blessings" - for spiritual uplift and gratitude to render thanks for being alive.

### Books

1. The Bible - its fund of stories for all moods and situations never fails to feed the mind.
2. Any book by Geoffrey Farnell - to subsidise into the Middle Ages.
3. Father Brown Stories by G.K. Chesterton - to give myself a laugh.



## CO-OPERATION Pan Atlantic style

Flight Control Division have for the past six weeks played host to two of our American colleagues. Based at Atlanta GA, USA, and members of the staff of Marconi Avionics Inc., Paul Jeffs who has been with the Company for 13 years, and Len Cooper with 25 years service have been at Rochester to gain experience on the products generally, but specifically on the Boeing Autothrottle. Their time has been spent mostly in the Test Dept. of FCD with a short period in AS & R.

For both it was their first visit to England, and they were greatly impressed by the Kentish countryside, and fell in real love with the 'old buildings' such as historic places, castles and cathedrals. Succumbing to the magnetism of that great tourist attraction, Canterbury Cathedral, they have become slaves to its beauty, dignity and majesty as well as its peace and calm.

Impressed deeply by the magnanimity and deep rooted friendship of those with whom they have worked during their stay, they take back to the States, a lasting picture of friendliness, co-operation, skill and devotion to duty. The hospitality received also drew applause from them, especially as to how they were 'treated as one of the family', where they were boarded for the period of stay. They noted the typical British characteristic of being reserved, until both sides accepted each other, then the flood gates of friendliness were opened up.



Our photograph shows Len Cooper on the left and Paul Jeffs on the right backed up by colleagues of the work force and departmental management. (D)

## Around the Divisions

Basildon site of Marconi Avionics Ltd has received a contract worth £1½ million and is a boost to the potential of work in that area.

The contract is for supplying five major radio systems for the Boeing Vertol HC-MK1 CHINOOK helicopters, of which 33 have so far been ordered for the Royal Air Force. The systems will aid the CHINOOK'S effectiveness in supporting British Army logistics operations, troop movement, load lifting and casualty evacuation.

Deliveries are scheduled for 1980 and 1981. Engineering assistance is also being given to harmonize the equipment already fitted to the helicopter. This has entailed the development and supply of new interface units for bench and flight evaluation, prototypes of which have already been delivered to Philadelphia, with 16 weeks from programme commencement.

## Apprentice News

The following apprentices have completed their training and have been posted to the Division and Departments shown. Our best wishes, for many years of satisfying service in their chosen profession and duties, go with them as they fill their new role in life.

Samner N.M.	1.4.79	ATE Mechanical Fitter
Baxter S.R.	5.4.79	IND Test
Newton J.	6.4.79	MASD Insp.
Colton P.J.	24.4.79	FCD Test

## THE RIB

God made women from man's rib  
Not from his heel to be under his feet  
Nor from his head to be above him  
But from his side to be near him  
Near his arm to be protected by him  
And from near his heart to love him.

## APPOINTMENT



The recently announced appointment of Sid G. Clayton to further duties and responsibilities, comes as a tribute and reward to jobs already successfully done.

Starting life as an apprentice Electrical Fitter, with the Oswald Jones electrical firm in Maidstone, he graduated there to running the workshop in the early war days. He joined the RAF and became interested in photographic work and developed this interest into a private hobby/business. Meeting up with old friends, he was persuaded to join CAV at the Esplanade until he moved to Blaw Knox as a Maintenance Engineer (electrical). When his friend and chief moved up to the Airport Site, he eventually followed, being part of the maintenance team.

His knowledge of and interest in photography being well known, use was made of his talents in this direction and eventually he was enabled to set up a Photographic Dept. on a budget of £45. His responsibilities in this sphere grew and an establishment Reprographic Dept. was placed under his control. This with the ancillary service of stationery stores created a larger field of management.

It is interesting to note that besides the regular service of the Print Room, which issues 80,000 DO prints, the department produces 2,000 35mm microfilm drawings, 1,500,000 16mm microfilm items, 180,000 sheets of text per annum.

The services of the photography section are well known to readers, as the great majority of photographs and pictures used are the work of the four full time photographers.

Besides the Print Room, reprographics and stationery, he is now responsible for the Company Library (Chief Librarian J. Lockyer) Marconi Avionics Inc, Rochester Office.

Having made his hobby his career, he is able to pass on his skill and expertise to those under his command, but for personal relaxation Sid likes to indulge in DIY carpentry, golfing and gardening.

# SCHOOL LEAVERS... JOIN THE EXCITING WORLD OF AVIONICS TECHNOLOGY

Exciting is certainly no overstatement, because here at Marconi Avionics in Rochester we can provide you with the opportunity to train for a really interesting career. For we're a world leader in the design, development and manufacture of electronic systems including control, navigational and instrumentation equipment for some of the world's most advanced aircraft like the Tornado, Concorde, the American F-16 and many others.

Choosing a career is, perhaps, one of the most difficult decisions you'll ever have to make. Choosing a company which can provide you with the training and experience you require to make something of that career can be just as difficult.

By joining Marconi Avionics Limited you'll have the best of both worlds. For not only can we provide a range of training courses designed specifically to match your abilities and ambitions, but we can ensure that you have every possible opportunity to develop your career.

Whether you have CSE's, 'O' levels or 'A' levels, you'll be bound to find a training scheme to suit you, either in the technical or commercial areas of our company, so take your pick. All the training schemes are of course, open to both young men and women and we are seeking applications for our September 1979 entry.

### Student Technologist

This is either a thick or thin sandwich course with periods spent both within the Company and at university or college and is directed towards obtaining a degree in Electrical/Electronic or Production Engineering. You will need two or three 'A' levels including Maths and Physics or a good OND pass.



### Trainee Programmer

This is a three-year sandwich scheme leading to a HND followed at a local technical college coupled with practical computing experience in the Company. Minimum entry qualifications are GCE passes in four subjects including Maths, one of which must be at 'A' level.

### Trainee Draughtsperson and Technical Writer

You will receive either 20 or 30 weeks basic engineering training and a specialist course in either Draughting or Technical writing according to the career chosen followed by 'on the job' training. Trainees study for either a mechanical or electronic qualification by day release and applicants should be taking 'O' level or equivalent in Maths, Physics, English and preferably Technical Drawing to apply. On completion of training you will join either a detail draughting team or a technical publications department assisting in the writing of technical manuals.

### Technician Apprentice

This scheme lasts three to four years and entry age is up to 18. After learning basic mechanical and electrical skills in our training centre, you will gain experience in such areas as drawing office, test, production planning, quality control, commissioning or technical writing. You should be taking 'O' levels in Maths, Physics, English and preferably Technical Drawing.

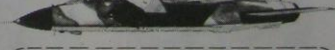
### Craft Apprentice

If you like working with your hands we can teach you the practical skills of fitting, turning or instrument making in our Training Centre and production shops. You should preferably expect some CSE's and be aged 16-17. There will be the opportunity to study for a City & Guilds qualification.

### Commercial Trainee

You will receive training in a wide variety of areas including accounting, costing, production administration or contract work during which time you will study for ONC, HNC or a Degree in Business Studies according to qualifications and age on entry. At 16-17 you should have at least four 'O' levels. Alternatively you can start at 18-19 if you have two 'A' levels.

If you would like to apply for any of these training schemes, fill in the coupon and send it to The Manager, Training Services, Marconi Avionics Limited, Airport Works, Rochester. Apply now, there is no need to wait until you hear the results of examinations.



I would like more information about the \_\_\_\_\_ scheme(s).  
Please send details and an application form.

Name \_\_\_\_\_  
Date of Birth \_\_\_\_\_  
Address \_\_\_\_\_

**MARCONI  
AVIONICS**  
A Ltd., Marconi Electronic Company

[www.rochesteravionicarchives.co.uk](http://www.rochesteravionicarchives.co.uk)



# NAMES TO FACES

The canteen staff, perhaps the chief of all the service units which has contacts with the majority of employees, is featured this month. To most people they, are the silent brigade, and though some are known by their christian names, nothing else is known.

MAv News takes pleasure in presenting this gallery of personalities as a tribute to a very worthwhile job very well done.



Jim Collins, Secretary of Social Club and Head of Canteen Services, 24 years service



Eileen Papworth, Secretary to Jim Collins, 17 years service



Alex Antonin, Chef, 4 years service



Doris Cox, Cook, Gads Hill, 2 years service



Winifred Hill, Vegetable Cook, 17 years service



Margaret McCrea, Stores Assistant, 2 years service



Doris Kenneswell, Canteen Assistant New Road, 11 years service



Kath Uden, Cook Apprentice Training School, 6 years service



Lilian Stratford, Canteen Assistant New Road, 1 year



Win Crouthers, Cashier, 2 years



Elsie Bunting, Canteen Assistant, 13 years



Dot Eastwood, Canteen Assistant, 1 year



Lilian Harper, Canteen Assistant, 6 months



Eve King, Canteen Assistant, 7 years



June Parker, Canteen Assistant, 4 years



Jackie Roberts, Canteen Assistant, 2 years



Jean Tyler, Canteen Assistant, 4 months



Dot Wells, Canteen Assistant, 4 years





Phyllis Stevens, Manageress, 20 years service



Winnie Buckley, Management Tea Service, 2 years service



Hilda Chilman, Head Cook, 16 years service



Ann Budd, Pastry Cook, 4 years Service



Mabel Taylor, Canteen Assistant, Blue Room Waitress 19 years service



Peggy West, Service Room Head Waitress, 21 years service



Eirwen (Gwen) Brooman, Visitors Room Head Waitress, 24 years service



Rose Elcombe, Canteen Assistant, 16 years service



Pat Barry, Canteen Porter, 3 years



Philip Malone, Canteen Porter, 4 years



Angela Allen, Canteen Assistant, 14 years



Agnes Bailey, Canteen Assistant, 1 year



Margaret McGarrigle, Canteen Assistant, 11 years



Gwen Mates, Assistant Cook, 2 years



Olive Nicholls, Canteen Assistant, 4 months



Eileen Parker, Canteen Assistant, 2 years



Margaret Wheeler, Canteen Assistant Gads Hill, 1 year



Gwen Williams, Canteen Assistant, 7 years



Sue Humphrey, Canteen Assistant, 1 year

**In addition :**

Mrs Happer - 6 years  
Mrs Dungey - 3 years  
Mrs Regwell - 4 years  
Mrs Moat - 1 year  
Miss Jessup - 8 years  
Mrs Clark - 18 years  
Mr Frank Smith - 10 years

Unfortunately, omitted from our pictures



# RETIREMENTS



Our photograph shows Noel Drew and Mr. P. Burrows holding the picture with smiles of pleasure.

The recent retirement of Noel Drew, from active works in CMS, breaks another link with the early aeronautics in the Medway towns.

Noel, worked for Shorts Bros. at Rochester, and later went with them to Belfast where he remained for 15 years. He came to Elliotts 18 years ago, and began work in AEID, remaining there until the Division merged with FID, when he joined the sheet metal section of CMS.

To mark the retirement and to express the goodwill of all those with whom he worked, he was presented with a picture of a countryside scene, by Mr. P. Burrows the production manager.

A man of more simple tastes he hopes to use his retirement to further his interest in the Kent countryside and its history, and as opportunity permits to do all the jobs that crop up from time to time.



Anna Clay

Anna Clay, of CMS Cost & Budget Dept., has retired on attaining her retirement age after 12 years 2 months 5 days. Her precise timing is evidence of her origin. She came to Elliotts when she was widowed, her late husband being the Asst. Production Manager of the old 281 Division.

A native of Germany, she met her husband in Hanover, after the end of hostilities. She travelled to many places with him on service duty, and recalls visiting Hawaii and Christmas Island.

Her love for her adopted country is immense and though she revisits her family in Germany from time to time, is not anxious to return permanently. She now has the time to do many things which have been left undone. With a philosophy that "life is what you make it", she is well able to cope with the situation which retirement offers. When she was asked if she felt lonely, or bored she replied "No! Never! — I have made so many friends that I haven't time to feel lonely or bored."

All her friends and colleagues gathered to wish her well in a long and happy retirement. For the record she was known by the abbreviated name of Anne, the full name being Annelise.



Charlie Cox and Mr. Harry Cruttenden with the radio.

As we pass through life we are bound to make some impact and most hope to leave behind something by which we are remembered. When that period of our working life comes to an end, if we have given something of value as we journeyed on, then our service is not in vain.

With a memory of six years in CMS, Charlie Cox retired recently and heard Mr. Harry Cruttenden, deputy Production Manager CMS, say that he would be remembered by the "excellent standards he set".

Beginning his working life with Aveling and Porter, he later worked with Shorts for about 12 years, then joined Hobourn when they came to Medway and stayed with them for 25 years.

Charlie lists his hobbies as reading and travel, which he hopes to indulge in to a greater degree. He has married daughters and grandchildren in New Zealand and hopes to make visits there as opportunity permits, he has already spent three months "down under" and rates it a marvellous place.

His retirement gift of a portable radio will enable him to remember as he listens.

Continued from March edition (Pg 5.)

## MARCONI AVIONICS LTD/MARCONI-ELLIOTT AVIONIC SYSTEMS LIMITED ELLIOTT FLIGHT AUTOMATION LIMITED

# A Brief History to 1970

With a view to rapid expansion of the range of instruments available for production manufacture in the Aviation Division, Elliott Brothers entered into licence negotiations with Bendix Aviation Corporation in the United States, since the products of their Eclipse-Pioneer Division were of interest. At that time Bendix were reluctant to licence their range of civil autopilot equipment, no doubt because the Aviation Division was obviously too small to provide the amount of application engineering required for a British installation, but offered an indicating accelerometer and a range of fuel flowmetering equipment. The first was known to have an immediate market for British military aircraft in substantial numbers. The instrument called for a high standard of manufacture and provided an excellent training for production staff. The market for flowmeters was less certain, and a meeting was called in May 1953 to which representatives of aircraft constructors, engine manufacturers, and airlines, were invited. Their support was encouraging, and a licence was negotiated. Subsequently orders were received for flowmetering equipment for the Handley Page "Victor" and A.V. Roe "Vulcan" bombers, and for some types of Vickers "Viscount" civil airliner. The volume of work was far too much for the experimental fuel flow test rig which had been built, and in January 1957 a new Test House was opened by the Minister of Supply.

### First attempts at exporting

It can be seen that by early in 1953 the Aviation Division was very active, but examination of the work in hand showed that it was almost entirely dependent on British Government contracts for military aircraft equipment. This was felt to be hazardous, as an attempt was made to open up an export market. The area selected was France, and the product autobalancers, with which the Company had now gained considerable experience. Orders were obtained for trial installations on four aircraft: Marcel Dassault "Mystère IV A" and "Mystère IV B" (fighters), SNCASO "Vautour" (light bomber), and SNCASE "Baroudeur" (miniature fighter). All of these installations operated satisfactorily, although optimum characteristics of the equipment could only be determined empirically, but unfortunately none of them led to production orders. The exercise had proved to be instructive and worth while financially, but had not achieved the main aim, that of providing a volume of production turnover.

### More autopilots

The beginning of 1954 saw a fresh spurt of activity in autopilot design. At Borehamwood work had just been started on a brand-new autopilot specially designed for a new British fighter aircraft, destined to be known to the Royal Air Force as the English Electric "Lightning". This was the first autopilot to be designed wholly by Elliott Brothers, and called for intensive study of aircraft stability theory, and the acquisition of an aerodynamicist for the first time. The influence of hydraulic power control units on the system had to be investigated, which entailed close liaison with the makers. After preliminary experience with an Elliott-made analogue computer, for stability studies, a special simulator was built, and used extensively on this and subsequent autopilot developments.

In providing input signals to the "Lightning" autopilot, use was made of Bendix experience in the design of air data

computers. These were mechanical analogue computers operated by capsule elements, used to calculate signals representing, for example, true airspeed or Mach number, from basic pressure measurements. Early manufacture of licensed designs formed the foundation for an extensive range of Elliott-designed products of later years.

It had become apparent to RAE that variants of the Type B "drone" autopilot would be required in some quantity. This was a fairly complex and expensive set of equipment, and consideration was given to possible development of a simpler and cheaper set. The Company carried out a design study and proposed a radically simplified design to be known as Type L, based on first principles. Test flying was carried out from Rochester Airport to demonstrate that the concept was sound, and development was allowed to proceed. This resulted in the forerunner of a series of "drone" autopilots that are still in production, although the latest versions would hardly be recognizable as tracing their ancestry back to the 1954 design study.

Successful experience with the autopilot development for the "Lightning" resulted in a further contract to develop an autopilot for a new naval aircraft, later to be known as the Blackburn "Buccaneer". At first this was expected to be merely an adaptation of the earlier equipment, but the tactical application of the aircraft was entirely different from that of the RAF fighter, so that the requirements soon proved to be incompatible. The "Buccaneer" autopilot therefore became effectively a completely new design. Both these military autopilot developments led to production runs extending over several years which are still alive.

**Inertial navigation: early experience**  
Early in 1955 the Company was fortunate in obtaining a Government contract for the development of automatic navigation equipment for a new weapon, the "stand-off" bomb named "Blue Steel". This was virtually a miniature pilotless aircraft, jet-propelled, which was to be dropped from a "Vulcan" bomber while the aircraft was still far from its target. The bomb was then to make its own way to the target independently of any further command guidance, by means of an automatic navigator controlling its autopilot. Since the intended time of flight would be substantial, the primitive type of equipment envisaged for the 1952 freely-falling bomb would have been hopelessly inadequate, and it was necessary to develop a stable platform of very high precision to carry the accelerometers that served as a source of essential navigational data. Previous experience with the Master Reference Gyro was of great value, and obviously contributed to the selection of Elliott Brothers as a contractor for this project. The development, including a period of flight trials carried out in Australia using a pre-production batch of equipment was necessarily lengthy, and was followed by an order for production quantities. This presented a formidable task, calling for a rapid expansion of manufacturing facilities, both for mechanical engineering work of superlative quality and for electrical and electronic assembly.

**Divisions and mergers**  
It will be apparent from the foregoing that towards the end of 1956 the Aviation Division was heavily engaged on several fronts. A merger had recently been effected between Elliott Brothers' interests and those of Associated Automation Limited, the combination of companies being named Elliott Automation Group. A key policy in building up this group had been the establishment of semi-autonomous Divisions for the exploitation of different areas of the overall instrument and automation market, and it was felt that the magnitude and spread of the Aviation Division's business was now sufficient to justify further subdivision. Accordingly the Aviation Division was split into four Divisions, Aircraft Controls, Inertial Navigation, Aircraft Engine Instruments and Aviation Service and Repair, each to be run by its own Divisional Manager under overall direction from a central management. The last of these Divisions had started life as a Repair Section, and had been built up initially by overhauling Bendix instruments from North American "Sabre" aircraft, then in service with the RAF. It now occupies extensive premises at Rochester, and has recently established a repair facility close to London Airport to permit even better service to civil airlines.

This process of subdivision was repeated in later years. After a short life, Aircraft Controls Division was split into two, Transport Aircraft Controls and Military Aircraft Controls, which exist to this day. Four new Divisions were formed the following year, Gyro, Automatic Test Equipment, Airborne Computing and the Environmental Research Laboratory, later to change its name to Flight Automation Research Laboratory when its scope was broadened.

With the growth in the number of Divisions devoted to aircraft equipment, a separate management company was formed in 1962 and named Elliott Flight Automation Limited. In the same year Elliott — Automation acquired Firth Cleveland Instruments Limited and changed its name to Elliott (Treforest) Limited. Two years later the aviation interests of this company were absorbed by Aircraft Engine Instruments Division. Also in 1962 Flight Instrument Division was established, primarily to market air data sensors and computers, and is still active.

Later, three more Divisions were formed, Airborne Display, Precision Test Equipment and Fuel Flow Laboratory. The test equipment and display Divisions were subject to a succession of amalgamations and fissions as their workload varied: first Precision Test Equipment and Automatic Test Equipment were combined to form Flight Support Equipment, then Airborne Display was added to form Flight Data Analysis and Display Division, and finally this was split to form once again Automatic Test Equipment and Airborne Display, on the acquisition from Rank Cintel Limited of their aviation display business. Since 1967 both have become established as substantial businesses in their own right. The Fuel Flow Laboratory was absorbed into Aircraft Engine Instruments Division in 1966.

Elliott — Automation merged in 1967 with English Electric Company Limited, and the combined group was merged with the General Electric Company Limited in 1968. With this latter merger, Elliott Flight Automation became a subsidiary of GEC — Marconi Electronics Limited, but a year later was grouped with kindred divisions of The Marconi Company (earlier a member of the English Electric Group) to form Marconi — Elliott Avionic Systems Limited, which is the situation today.

to be continued



## PERSONALITY



Dave Calloway at the 'mike' and console.

When one's offspring makes the decision as to their future career, one can only give guidance and hope that they will make a success of that chosen profession. To Len and Jessie Calloway (Len is in CMS Production Services) they can look at their son David and feel proud of the success already achieved.

David attended Warren Wood School and became a member of St. Stephen's Church Choir. At the age of fourteen years he had a small discotheque which he used at church youth-club parties.

His realization of the attractions of all types of music led him to explore the possibilities of reproducing musical sound for the delight of many. With his father's assistance and guidance, added to his own basic engineering knowledge, he began to develop and create his own sound and audio equipment and the attendant lighting.

A good listener with a delight in meeting people he took note of criticisms of discotheques and decided to try to change the style and presentation to an acceptable level. This he has done, and now runs his own Road Show and through it endeavours to prove his own theory that 'discotheque' does not mean an ear splitting, raucous, cacophony of sound and dazzling, headache provoking light. His experiences so far in his chosen profession enable him to provide music in a small sitting room area for four couples to dance to as well as in large ballrooms where a Highland Reel, Gay Gordons, or a sing song in addition to the traditional modern or old time dances are called for, with acceptable levels of sound for enjoyment and appreciation.

Launching out into the entertainment world is always a risky and enigmatic event, but David Calloway seems to have made a great start by innovation, believing that the customer is right and ensuring that his offerings are accepted and appreciated.

He is available for bookings for all types of functions, family affairs, public dances, dinners or social evenings.

His advertisements, reproduced herewith, indicate the extent to which his talents and achievements have reached.

FOR ENQUIRIES OR ADVICE PLEASE RING  
DAVE ON WEDNEY 4800

**US TWO DISCOTHEQUES**

- ★ Stereophonic
- ★ Meticulous Presentation
- ★ Versatility
- ★ Extensive Light Shows
- ★ Large and Small Venues

**AND REMEMBER!  
OUR REPUTATION  
IS YOUR GUARANTEE!**

**US TWO MOBILE  
DISCOTHEQUES**



The full set up of a mobile discotheque.

## GRAVE AND GAY

The growth of the Company, is evidenced by the provision of additional accommodation in the form of Portakabins. The effective covering of the car park, alongside the canteen, has provided not only more space to work, but better conditions and the creation of a sense of humour.

The area is now dubbed 'Portalooville' by its occupants, among whom is PSD, while the satirists of that division have not been slow to react.

The outcome is the production of a picture, drawn by Frank Wooler, caricaturing the new estate. Suit-

ably framed it has become the proud possession of the Division and Mr. Ron Howard, Director and General Manager, accepted an invitation to 'unveil' the masterpiece and present it for permanent exhibition to the Divisional Manager, PSD, Dr. Buswell. This will hang in the entrance hall until a more permanent headquarters for the division is provided.

Mr. Howard, after the unveiling, took the opportunity of addressing the divisional personnel on prospects and outlook for the future, both of which were bright and offered opportunities for everyone to develop and grow with the Division, and the Company as a whole.

Our photograph shows Ron Howard and Dr. Buswell admiring the picture.

The special easel and obscuring curtains were designed and produced by the Works Engineering Carpentry Dept. under Cyril Cawley (foreman) and Fred Westcott (leading hand).



## Where from? Where to?

Estimated at approximately 400,000 before the arrival of the white man, pushed back to the most inhospitable regions of the Continent, the Australian Aborigine appeared to be doomed in 1930 to extinction. They had already been exterminated from Tasmania.

The Federal Government took action, creating hospitals, canteens, schools and centres for apprenticeships, hence the survival of this race seems to be assured. Now said to number 50,000, with 100,000 half breeds, they make up 35% of the population of the Northern Territory, yet elsewhere their proportion to the populace is insignificant.

With particular physical traits, which can also be observed in the populations of Melanesia and the islands between Australia and the South of India, they have a height of some 5ft 6in with brown (not black) skin and curly hair. They could have come from Java and neighbouring islands at the time that the sea level was lowered during the last Ice Age.

They have lived in the centre and east of Australia for at least 16,000 years. Their way of life is Nomadic, living by gathering, hunting and fishing. This ancient way of life, however, is now practised by only a small number of individuals. They had no knowledge of agriculture or cattle-rearing; and before the arrival of the white man no domestic animals or corn, yet they had some ingenious inventions on hand, such as the boomerang. In the present day, their occupations cover herdsmen, tractor and lorry drivers, with large groups settling in Darwin and Alice Springs.

With a stabilization of the race, there is a return movement to their ancestral art, and they could become a force of importance within the Northern areas of the Australian continent.

## Kitchen Kapers

For this month's recipes, we give typical South East specialties.

1) **Pulborough** on the River Arun is popular for its freshwater fishing; it is also the birthplace of this steamed eel pudding.

**Pulborough Eels** 6-8 portions

2lb skinned and boned eels  
2lb savoury suet pastry  
5oz chopped pork  
4 hard boiled eggs  
1 tablespoon chopped onion  
2 tablespoons chopped parsley  
salt and pepper to taste

**Method:** Cut the eels into 1" pieces. Put the trimmings into a pan with water and bring to the boil, simmer for 10-15 minutes. Line a 3 pt greased pudding basin with three quarters of the suet pastry. Fill the basin with the eels, pork, onions and chopped eggs; sprinkle the layers with parsley mixed with salt and pepper. Strain the fish stock and pour ½ pt over the eels. Cover the basin with remaining pastry. Cover and steam for 1½ hours.

2) **Kidneys in Onions** 8 portions

For this dish of onions stuffed with kidneys, choose large well shaped onions with a level base so that they will stand upright.

8 large onions (6oz each)  
8 lamb kidneys  
½ - 1pt brown stock  
¼pt red wine  
1oz cornflour

**Method:** Oven 350°F; gas mark 4, 1½ hours. Peel the onions, trim the base and cut off the top for a lid; hollow out each onion until a kidney, stripped of its suet, will fit into the centre. Replace the onion lid and place the onions in an ovenproof dish; pour stock into the dish until it reaches halfway up the onions. Cover and bake for 1 hour in the oven. Add the red wine and bake for a further 30 minutes. Drain off the liquid, reduce slightly and thicken with blended cornflour. Serve in individual bowls with the sauce poured over.

3) **Brown George Pudding** 6-8 portions

6oz white breadcrumbs  
2oz plain flour  
½oz bicarbonate of soda  
3oz brown sugar  
4oz finely chopped suet  
1 egg  
½lb black treacle  
milk

**Method:** Mix the breadcrumbs, flour and bicarbonate of soda with the sugar and suet; mix to a dough with the lightly beaten egg, milk, and treacle to give a soft dropping consistency. Steam for 2½-3 hours in a 2½pt greased pudding basin tied down with foil or greaseproof paper. Serve with jam or treacle.



# Sports and social club round up

## INDOOR GAMES

The results are up to and including 26 & 28 March respectively

### MONDAY LEAGUE

DARTS	P	W	L	F	A	Pts
Mt. Shop 'A'	9	8	1	34	11	16
ATE 'A'	10	7	3	29	17	14
CMS	9	6	3	29	16	12
LOP	10	6	4	26	24	12
MASO	10	6	4	26	24	12
AS & R 'A'	10	5	5	25	21	10
Fisher	11	5	6	26	29	10
FCD D/O	9	4	5	16	30	8
GYRO N/R	10	3	7	22	29	6
IN D/O	10	3	7	21	29	6
Fac. Apps	8	2	6	14	26	4
Apps. Sup.	8	2	6	10	30	4

EUCRE	P	W	L	F	A	Pts
Fisher	11	9	2	34	21	18
IN D/O	10	6	4	26	14	16
MASO	10	6	4	22	18	16
ATE 'A'	10	7	3	31	19	14
GYRO N/R	10	5	5	28	24	10
AS & R 'A'	10	5	5	25	25	10
EDP	10	4	6	24	26	8
FCD D/O	9	4	5	21	24	8
Apps. Sup.	8	3	5	21	19	6
CMS	9	3	6	17	26	6
Mt. Shop 'A'	9	1	8	18	27	2
Fac. Apps	8	0	8	0	40	0

### WEDNESDAY LEAGUE

DARTS	P	W	L	F	A	Pts
IN	10	9	1	34	16	18
ISO Eng.	9	7	2	28	17	14
Mt. Shop 'B'	10	7	3	29	21	14
ATE Eng.	8	6	2	24	21	12
Mt. Services	10	6	4	25	25	12
ADD D/O	10	5	5	28	21	10
AS & R 'B'	10	5	5	28	22	10
Training cen.	9	3	6	22	33	8
FCD 'B'	8	3	5	18	22	6
FCD 'A'	10	3	7	16	34	6
Accounts	7	1	6	8	27	2
GYRO	8	0	8	14	26	0

EUCRE	P	W	L	F	A	Pts
Mt. Services	10	7	3	32	18	14
AS & R 'B'	10	7	3	31	19	14
IN	10	7	3	27	18	14
ISO Eng.	9	5	4	25	25	10
Mt. Shop 'B'	10	5	5	26	24	10
FCD 'B'	8	5	3	21	19	10
GYRO	8	4	4	23	17	8
ADD D/O	10	4	6	25	24	8
ATE Eng.	9	4	5	18	27	6
FCD 'A'	10	4	6	19	31	6
Accounts	7	3	4	16	19	6
Training cen.	9	2	7	16	29	4

CRIBbage	P	W	L	F	A	Pts
GYRO N/R	10	8	2	28	21	16
Mt. Shop 'A'	9	7	2	31	14	14
ATE 'A'	10	7	3	29	21	14
MASO	10	6	4	23	22	12
Fisher	11	6	5	28	27	12
FCD D/O	9	5	4	28	17	10
IN D/O	10	5	5	29	21	10
CMS	9	5	4	23	22	10
AS & R 'A'	10	4	6	25	26	8
Apps. Sup.	8	2	6	15	29	4
EDP	10	2	8	20	30	4
Fac. Apps	8	0	8	0	40	0

COMBINATION	P	W	L	F	A	Pts
ATE 'A'	30	21	9	93	57	42
MASO	30	20	10	88	64	40
Fisher	33	20	13	88	77	40
IN D/O	30	18	12	86	64	32
Mt. Shop 'A'	27	15	12	53	52	32
GYRO N/R	30	16	14	77	73	32
AS & R 'A'	30	14	16	79	71	28
CMS	27	14	13	69	66	28
FCD D/O	27	13	14	64	71	26
EDP	30	12	18	70	50	24
Apps. Sup.	24	7	17	46	74	14
Fac. Apps	24	2	22	16	106	4

CRIBbage	P	W	L	F	A	Pts
Mt. Shop 'B'	10	8	2	31	19	12
GYRO	8	6	2	25	15	12
IN	10	6	4	29	21	12
Mt. Services	10	6	4	26	24	12
ISO Eng.	9	5	4	24	21	10
AS & R 'B'	10	5	5	26	24	10
ADD D/O	10	5	5	24	26	10
ATE Eng.	10	5	5	24	26	10
FCD 'B'	7	3	4	17	16	6
ATE Eng.	9	3	6	18	27	6
Accounts	8	3	5	17	23	6
Training cen.	9	2	7	14	31	4

COMBINATION	P	W	L	F	A	Pts
IN	30	22	8	93	57	44
Mt. Services	30	19	11	83	62	38
Mt. Shop 'B'	30	18	12	86	64	36
AS & R 'B'	30	17	13	85	65	34
ISO Eng.	27	17	10	77	54	34
ADD D/O	30	14	16	79	71	28
ATE Eng.	27	13	14	60	75	26
FCD 'A'	30	12	18	56	93	24
FCD 'B'	34	11	23	57	63	22
GYRO	24	10	14	42	58	20
Accounts	21	7	14	43	64	14
Training cen.	27	7	20	52	83	14

### FIVE-A-SIDE FOOTBALL

The season started off in a mediocre condition, but a recent improvement in form would give hope that the mid-table position will be maintained for the rest of the season. New members are now coming into the team and after a little more experience playing together, should be a force to be reckoned with. Among the notable newcomers are **Dave Humphrey, Mick Smith and Gary Turner** of MASD. The leading goal scorer to date is **Dave Golding**, MASD.



### TENNIS SECTION

The new season begins on 1 May 1979, and all old and NEW members are especially welcome. For details and membership data, contact **Peter Baker**, ISD Cost & Budget (Int. 515).

## FOR YOUR DIARY

### MARCONI SAILING CLUB

(President J. Pateman CBE)  
extend an invitation to all employees  
of **MARCONI AVIONICS LTD., ROCHESTER**,  
to take part in a series of competitions  
on the **BLACKWATER RIVER**  
Saturday 2 June 1979

For further details and all information  
contact Colwyn Stone (Int. 614)  
Tower 2 Floor 4

### FUZE DIVISION REUNION

Friday 6 July 1979  
at the CLUB-HOUSE

Details from Edna Thompson  
IN Stores

Watch for future announcements

### NOTICE

Kent County Constabulary  
**OPEN DAY**  
8 September 1979  
Sports Field - Police Headquarters

**"It's a Knockout  
Competition"**

Marconi Avionics have been invited  
to enter a team  
**VOLUNTEERS REQUIRED  
IDEAS FOR GAMES**  
Particulars from FC, LATTER  
Training Dept Flying School  
or Editor

## SWAPSHOP

1 cylinder vacuum cleaner for sale at £15.  
Spare parts for Mk 1 Cortina (after breaking up) as  
available.  
1 full face size 1 crash helmet @ £10.  
If interested please contact K.S. Brennan, PSD,  
(int. 935).



### MEDWAY OPERA COMPANY

proudly presents

1st - 5th May

**PATIENCE**

by GILBERT and SULLIVAN

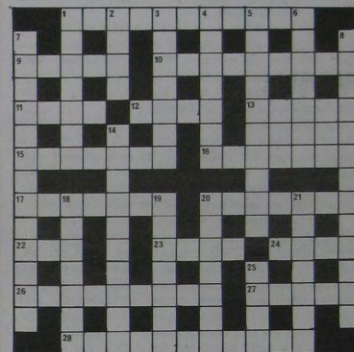
at 7.30 p.m.

**Town Hall, Chatham**  
**Seats £1.25**

Reductions for Children  
For all bookings prior to 1st April, 1979  
Tel: Sittingbourne 24755 (evenings)

After 1st April, 1979  
CENTRAL HALL BOX OFFICE, CHATHAM

### CROSSWORD No. 16



#### ACROSS

- Announced with a force figure (4, 7)
- Short Alan chances his (5)
- Dad's favourite, after working but not in charge (4, 5)
- Short maps in forces (4)
- Gleam from ebb to flow, when reversed (4)
- The wicket keeper's aim to whip (5)
- Its pretty and smells light-hearted (4, 3)
- The capital sounds like macera without sea (7)
- Could be verbose, but see (7)
- For ten before the river (7)
- In pods and whistles (3)
- One time of Peterborough (4)
- A bucket, or modern without a hole (4)
- Manned after short reprise (9)
- For clinging to, or keeping in (5)
- So miners get it, or thugs make it? (6, 5)

#### DOWN

- A Killer whale, near to college ground (7)
- The gentle kind, March entry or exit (5)
- Not Sundays, or weekend (7)
- The winner's reward when horsey (7)
- Bit by bit, or little by little outside metric (4, 2, 4)
- The slippery slope from past ages (7)
- The start of a career, if acting (7, 2, 4)
- Sudden breeze welcome thro' tunnel (5, 3, 5)
- Forceful attitudes to impress (10)
- Changed and a bargain returned (7)
- To catch without warning, like rabbits (7)
- A peer's area, what is in a name? (7)
- From the bank or cashier, on Friday perhaps (4, 3)
- A gun of famous name (4)

For amusement only

### SOLUTION TO CROSSWORD No. 15

#### ACROSS

- Drum Major, 6 Inlay, 9 Widen, 10 Bold Front, 11 Treetop, 12 On Roads, 14 Easter-trek, 15 Epee, 18 Ride, 19 Humming Top, 23 Halibut, 25 Nominee, 26 Radiogram, 28 Trend, 29 Rump Steak.

#### DOWN

- Down-to-earth, 2 Undressed, 3 Minstral, 4 Jab-spot, 5 Roll one, 6 Infirm, 7 Loofs, 8 Yet, 13 Steeple Jack, 16 Potentate, 17 Enamel, 20 Utterer, 21 Minin, 22 Abroad, 24 Ladle, 26 Rat.

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

The views and opinions expressed by contributors are not necessarily those of the Editor or Company. Any such opinion or comment are those of the contributor alone, and are printed solely as a matter of interest.  
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