

Leisure Magazine of the United Kingdom Atomic Energy Research Group and Associated Organisations



OCTOBER 1977

Lorna Hancock, shown here working in one of the greenhouses, has just completed a year as the first of her sex to be employed as a gardener at HARWELL.

Lorna was trained in horticulture on Lord Norrey's estate in Wantage, where she went immediately on leaving school.

Her father, Frank Hancock, is a wood machinist in the Building Section at HARWELL.

The Grounds Department, very much a bastion of male chauvinism, accepted Lorna without the slightest misgivings. Her colleagues like to call a spade a spade, and the appearance of a swear-box in the mess-room is the only sign that things aren't quite what they used to be.

spade a spade, and the appearance of a swonly sign that things aren't quite what they
HM COASTGUARD - MARINE SEARCH & RESCUE

SELF MADE MEN (2) PERCY BOWLES, OBE

SILVER JUBILEE EXHIBITION

## NORMAN FRIZZELL

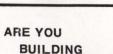
Life & Pensions Ltd.

Appointments can be made for interview in Building 159 through Ext. 2514

35 Station Road, Reading, Berks. RG1 1LS

Tel: 585678





EXTENDING

DECORATING OR MODERNISING YOUR HOME?

### T. H. FIDLER & CO. LTD.,

Bone Lane Industrial Estate, Newbury, Berkshire Tel: Newbury 44898

WE CAN SUPPLY & ERECT

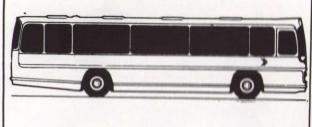
JOINERY MANUFACTURERS · MERCHANTS



The leading Bus & Coach operator in Oxfordshire

- \* Regular bus services throughout the City and the County
- Range of cheap tickets available to cut the cost of commuting — and for days out
- \* Attractive Summer Excursions and round-the-City tours
- \* Coaches and buses for private charter
- \* Carfax Travel Bureau for all holiday needs

we are at YOUR service



Head Office 395 Cowley Road OXFORD OX4 2DJ 0865-774611 Travel Office Bus Station Gloucester Green OXFORD OX1 2BU 0865-41149

Travel Bureau 138 High Street OXFORD OX1 4DN 0865-42263

# Leading Oxford Motor Cycle & Moped Specialists!

To maintain our high standard of trading we have carried out extensive checks on a wide range of machines and thoroughly recommend the latest models of the following makes we stock:-

MOTOR CYCLES

\* Honda \* Yamaha \* Suzuki

MOPEDS

\* Puch \* Honda \* Yamaha \* Suzuki

SPARES - ACCESSORIES and SERVICE

# **FAULKNER & SON**

MOT's while you wait

TEL: 57279

LTD

55 WALTON ST



BRACKNELL ENGINEERING CO. LTD.

MARKET STREET BRACKNELL BERKSHIRE RG12 4EZ

## PROTOTYPE DEVELOPMENT

PRECISION ENGINEERS

"The technical skill and experience we have at our disposal is of the highest standard and no item will prove too difficult if within our machining capacity"

Tel. DAVID JONES, Sales Manager

Contractors to H.M. Government DGI approval No. 12782

**BRACKNELL 24343.** 

# Sira TECHNOLOGY TRANSFER

USE OF THE MICROPROCESSOR AS A COMPONENT IN MEASUREMENT AND CONTROL **EQUIPMENT** 

14-16 February 1978 at Warren Spring Laboratory, Stevenage Intensive course jointly organised by Sira Institute and Warren Spring Laboratory.

MICROPROCESSORS IN MEASUREMENT AND CONTROL 28 February-1 March 1978 at Cutlers Hall, Sheffield Applications symposium jointly organised by Sira Institute and Warren Spring Laboratory.

INDUSTRIAL APPLICATIONS OF SOLID-STATE IMAGE SCANNERS 14-15 March 1978 at The City University, London One of Sira's OPTECH 78 seminars on optical technology and its applications.

These form part of the 1978 season of practical courses, symposia and seminars in areas of major technical interest. The programmes are planned by a panel of acknowledged experts and organised with an industrial audience particularly in mind.

Write or call for further details of the above events to:

Mrs R Keiller, Dept H10, Sira Institute Ltd, South Hill, Chislehurst, Kent BR7 5EH. Telephone 01-467 2636 Telex 896649

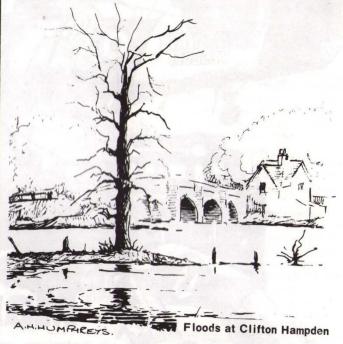
Name	DESCRIPTION OF THE PERSON OF T
Organisation	269
Address	Market Market

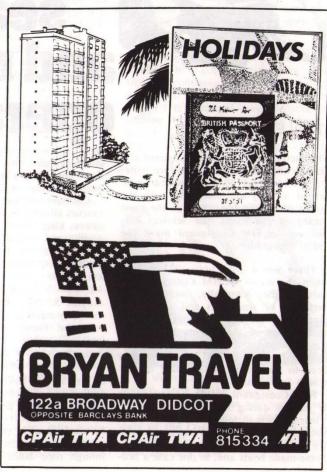
# Harlequin

No. 8(134) Vol. XXI ABINGDON 24141 SALES MANAGER EXT. 2527 TREASURER

EDITOR

**DENNIS TYLER** DON KNIGHT DAVID GULLY ROY WAKEFIELD







The activities of HM Coastguard receive scant publicity but they are none-theless notable for all that. Indeed, concerned as they are essentially with the saving of human life, often in the most hazardous conditions, the services carried out by HM Coastguard merit the widest recognition.

There was a time, until 1923 in fact, when the duties of HM Coastguard, as part of the Admiralty, included the detection of smugglers and smuggling. Since that time this is no longer so and, as a section of the Marine Division of the Department of Trade, the most important function of HM Coastguard has been to initiate and co-ordinate marine search and rescue.

HM Coastguard tackle a vast range of rescues during the course of a year. Their subjects include not only mariners, yachtsmen and fishermen but people who try to cross the Channel on air beds, home-made boats and, in one case a bedstead. They also rescue people who become stranded on cliffs as well as cattle and domestic animals, often getting bitten and clawed in return.

Consider only two of the outstanding rescues effected by Coastguards in recent times. They show their remarkable versatility and explain why they have won the Coastguard Rescue Shield award. Foremost, perhaps, was the case of the oil tanker Dona Marika which ran aground in a gale off Milford Haven on August 5, 1973. The vessel, which was carrying aviation spirit, was breaking in half, and fumes spread over the area making rescue operations the more hazardous and requiring the evacuation of the nearby village. The mixed crew of Greeks and Pakistanis refused to risk getting into a lifeboat in the heavy seas and Coastguards decided to haul them up the cliff. Rocket apparatus could not be used because of the danger that a spark would cause an explosion. Although rope ladders were being blown

away in the wind and rain the Coastguards scrambled down the cliffs by land line and managed to bring up all 38 members of the crew.

Then there was the incident of a boy who was cut off by the tide on Worms Head, Rhossili near Swansea and, attempting to swim to the shore, soon got into difficulty. Coastguards fired a floating rocket line to the boy and he managed to hang on until a Coastguard went into the surf, and, in spite of being swept away a number of times, brought him to safety.

How, then, do HM Coastguard operate? A marine casualty is notified by radio or a telephoned "999" call or the sighting of a flare at sea or by a personal report to a Coastguard look-out and the information is passed to a Coastguard Rescue Headquarters. The duty officer will organise the most practical means of rescue and retains control until the incident has been satisfactorily closed.

HM Coastguard has a strength of some

600 regular officers and over 8,000 auxiliaries; the latter are members of the public whose knowledge and abilities enable them to play an important part in the search and rescue organisation.



The coastline of the United Kingdom is divided into 11 Divisions each under the command of an Inspector, and each Division is split into Districts of manageable size under the operational control of a District Officer. District Headquarter Stations are known as Coastguard Rescue Headquarters and these are the focal points in, any incident involving search and rescue on the coast or at sea. The Rescue Headquarters are backed by smaller Coastguard Stations maintaining varying degrees of watch or patrol duty according to circumstances and Auxiliary Stations which set watch or patrol as necessary.

The United Kingdom search and rescue organisation consists of a number of different authorities and organisations, such as the Royal National Lifeboat Institution, Service Establishments, Ministry of Posts and Telecommunications, each with different abilities, skills, equipment and availability, all linked by HM Coastguard to form a flexible and practical system.

In days gone by, the winter was the busy time of a Coastguard's life, and indeed leave was not normally granted during the winter months when the number of shipping casualties could be expected to be high. In the last 20 years a different picture has emerged. With the advent of more powerful merchant ships and fishing vessels and the installation of sophisticated navigational aids such as radar, shipping casualties have decreased considerably - though the mere fact of human error and the vagaries of weather around our coasts mean they will never be eliminated en-Nor can Coastguard Breeches



Buoy rescue equipment ever be dispensed with: this is sited around the coastline, for occasionally some vessel will be driven on a rocky shore and aid will have to be given by muscle and manila. Since the 1950's, however, the number of amateur sailors has risen enormously and this has brought with it an associated increase in smaller incidents and small craft casualties which have made the summer months the busiest time of the year.

A change has also been demanded in the Coastguard Officer himself. No longer must he be merely a responsible land-based seaman: he must now be capable of diplomatically sorting out fact from fancy in a frantic "999" call and appreciate instinctively what rescue



facility to bring into action within seconds by reason of his local knowledge and experience. He must frequently carry out protracted detective-like inquiries concerning overdue boats, often of uncertain description and doubtful destination; he must decide upon the limits of a search area, ensure that it is adequately covered, and also decide when the search effort, is to be suspended. He must be trained not to overreact or unnecessarily duplicate rescue effort, at the same time ensuring that everything possible is done to save life. Apart from physical assistance using Coastguard rescue equipment and cliff gear, his job is to co-ordinate the efforts of others, gather intelligence and distribute it, and keep calmly in the background, holding the reins. And it should he emphasised the Coastguard on watch has to make decisions and invariably carry out all the necessary initial action entirely on his own initiative.

Unlike the Police. Ambulance or Fire Brigade, HM Coastguard cannot easily check out the subject of their "999" calls by sending a vehicle. His area of responsibility extends out to a thousand miles from the coast, a lot of sea which is always moving. The "I think I have seen a flare" type of call from a holiday-maker who is strange to the area can often take considerable time, effort and expense to check out, although the network of auxiliaries and contacts covering the whole coastline is of great help.

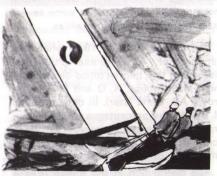
HM Coastguard have close liaison with both professional and amateur lifeguards for, not infrequently, incidents on bathing beaches can escalate into more serious situations requiring the deployment of RNLI inshore lifeboats, Service



helicopters, etc., and this is the type of aid which HM Costguard can initiate rapidly. A report from a beach lifeguard club indicating that an incident is being dealt with satisfactorily prevents duplication should the incident be reported from another source by "999" call; if more assistance is called for, a radio-equipped Coastguard land-rover will be despatched or diverted so that no time is lost in summoning further help and controlling it.

HM Coastguard is a professional service and it is recognised that the only sure way of saving a person on the point of drowning is the help of someone on the spot who has commonsense, knowledge and ability. Although the welfare of bathers is not primarily their responsibility. HM Coastguard are very much involved, and the knowledge that an area is covered by trained lifeguards, generally known personally to the local Coastguard, is reassuring to the Rescue Headquarters covering that stretch of coastline.

HM Coastguard also discharge other duties apart from marine search and rescue. These cover wide-ranging activities in connexion with oil pollution, wreck and salvage, sea fisheries, the use of the foreshore and other matters concerning the waters around our coasts. A recent addition to their duties is the organisation and manning of the Channel Information Service covering the traffic separation in the world's busiest seaways.



In short, HM Coastguard, a public service rarely in the news, is constantly on watch to help those who use the sea, whether for business or pleasure. The duty of the Coastguard is not so much to guard the coast as the people who work and play there.

They Want Our Blood -

The Oxford Regional Blood Transfusion Service Unit will be paying their six monthly visit to HARWELL FROM MON. 17TH OCT.-THURS. 20TH. They want blood from as many of us as possible.

What is this substance called blood and why do they need so much?

#### A Little History

Ancient Egyptians used blood baths for resuscitation and recuperation, and the Romans were said to have rushed into the gladiatorial arena to drink the blood of dying victims to rejuvenate themselves. Probably the blood was taken by mouth rather than by vein and therefore had very little beneficial effect.

Pope Innocenti VIII in 1492 was supposed to have received blood from three young men to bring him out of a state of coma, but to no avail. Not only did he succumb promptly but so did the three young men.

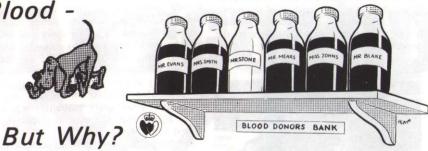
In 1628 William Harvey announced his theory of the circulation of the blood, and this made transfusion possible; the first authorised authenticated report is that of Richard Lowe who made a successful transfusion in 1664 using animal blood.

Following several successful experiments in Paris, a further one was fatal and the resulting long legal battle (although the physician was exonerated of murder) produced such an outcry that transfusion was banned in France. Shortly afterwards, Parliament banned it in England, as did the magistrates in Rome.

Not until the early 19th century was it once more considered in England, and by the 1870s transfusions were performed with increasing frequency, animal blood being used in a number of cases. Lack of knowledge of blood groups, and therefore incompatibilities, resulted in some severe reactions and increased fatalities.

The answer came in 1900 when Karl Landsteiner, a Viennese physician, discovered that human blood divided into three main groups, A, O and B (a fourth group, AB, came later). In different parts of Britain the percentages of these four groups show slight variations, but when countries or continents are compared the differences can be very large.

The distribution in the British Isles is interesting, as it is thought that the early inhabitants were largely of group O and that their descendants retreated to the north and west before the Anglo-Saxon invaders who possessed a much higher percentage of group A.



Blood

Blood consists of a pale straw coloured fluid called plasma in which there are suspended three main kinds of cells: red (to carry oxygen); white (to fight disease), and platelets which participate in clotting and so help to stop bleeding.

Each adult body contains 6-10 pints of blood (with some 21 million million red cells and 2500 million white cells) which is pumped round the circulating system at a rate of 10 pints per minute, rising to 30 pints during brisk exercise, through 60,000 miles of arteries, veins and capilliaries. The latter - tiny tubes servicing the bloodstream - have a total surface area that would cover a one-acre field. Not all these capilliaries are opened at once, otherwise all the blood in the body would drain into them within seconds like flood water into a swamp. Surprising? Not really, when you realise that each living cell, which carries all the chemicals necessary for its own function. has to have access to this blood. All the materials each cell needs must be carried to it, and all those it discards must be removed, via the blood, to the excretory

Valuable stuff, blood - spill one drop and you have lost 250 million red cells (their life cycle is about 127 days), 4000,000 white cells (some with a life cycle of only 12 hours), 15 million platelets and of course some plasma.

#### **Blood Groups**

There are four main groups - AB, A, B and O; each group is also either Rh (Rhesus) positive or Rh negative. With few exceptions a patient should receive blood of his/her own blood group, otherwise a reaction - possibly fatal - could occur.

As well as the ABO system there are many other classifications, some indicated by letters of the alphabet, others by contraction of the name of the person by whom they were first identified, eg, Fy (Duffy), Le (Lewis) etc.

Sophisticated techniques have been developed for the detection of rare blood groups, and publicity is periodically given

to the donors of 'very rare groups'. To put this into perspective: during a recent 12 month period, only 9 out of 750,000 donations for transfusion were for patients with rare blood groups.

#### Recent Advances

The last few years have seen striking developments in the use of blood components, for example: WHOLE BLOOD to restore blood volume after severe haemorrhage; CONCENTRATED RED CELLS to correct anaemia; WASHED RED CELLS to remove antibodies and plasma; FROZEN RED CELLS for preservation for long periods at very low temperatures (only possible on small scale); PLATELETS, whose absence causes bruising and internal bleeding; transfusion can rectify the situation; DRIED PLASMA for long term storage; PLASMA PROTEIN FRACTION, a purified plasma product in liquid form; FACTOR VIII PREPARATIONS which have revolutionised treatment of haemophilia; FROZEN FRESH PLASMA for correcting a variety of bleeding disorders.

This, then, is what happens to your donated blood which in this area has two major users, the Radcliffe Infirmary, a major centre for heart surgery, and the Churchill Hospital where the National Centre for Haemophilia Research and Treatment is located. The haemophilic centre in particular needs vast quantities of fresh plasma for FACTOR VIII preparations - 1000 donations per week!

The Regional Transfusion Centre is responsible for an area within a 60-mile radius of Oxford, and its five Mobile Teams run some 1100 donor sessions each year, collecting over 100,000 donations of blood.

One of their teams is visiting HARWELL FROM MON. 17TH OCT. TO THURS. 20TH. Enquire at your D.A.O.'s office or just turn up at the Upstairs Hall of the Social Club, Bldg.161, between 10.15 and noon and 1.30-3.30. Give ½ hour of your time, about ¾ pint of your blood and you get tea and biscuits, lose a bit of weight and have the satisfaction of knowing that you will be instrumental in saving a life.



The marquee, larger than it appears here, was one of the world's largest, capable of holding 2,500 people at a time.



London's Silver Jubilee exhibition, near Speaker's Corner in Hyde Park, was the first to be staged in a royal park since the Great Exhibition of 1851.

In the nine weeks of its run up to last month, 600,000 people visited it to see exhibits chosen for their significance to Britain's social and economic life in what proved to be a cross of a trade fair, science museum and crafts display.

There was something for everybody: for the children there was a wonderland of toys; for the older the three-dimensional mystery of the hologram; for the nostalgic a replica of the original Penny Stall opened by Michael Marks in Leeds Market in 1884 with its packets of coloured chalks, slates, cotton reels and Xmas candles, "6 for 1d".

For the more seriously minded this last stall was a

reminder of the battle against inflation in which all the exhibitors from British industry and commerce are today engaged, each exhibit demonstrating a contribution to the life of the country and that of the world. With an exhibition stand, created jointly with British Nuclear Fuels Ltd., the UKAEA made its own declaration of confidence.

One display kept visitors up to date with the number of units of electricity which have been generated in British nuclear power stations since the world's first nuclear station at Calder Hall was opened by the Queen in 1956 - and kept them up to date, not on a daily basis, but as each second ticked by.

This nuclear exhibition was one of the first to cater for the layman since the "Atomic Train" moved from town to town in the 1940's with its message of "Atoms For Peace". It is shown on the following pages.

commentary. An 8-minute audio-visual system comprised which lit up at appropriate moments to over 60 back-lit add point t colour

Picture

Calder Opening Nuclear Power

25 years ago British engineers were designing the worlds first full-scale nuclear power station, and Oct. 1956 her Majesty the Queen

Calder general Well opened it. Calder Hall is still producing power today - steadily, reliably, and up to its design capacity.

Hinkley Hunterston Bradwell, Wylfa

Nine

but

much

nuclear power stations were

were

completed during the 1960s and seventies, and these

followed by five further stations of more advanced design, of which

two are already working.

Domestic scene. £5 note. Transfynnydd. Construction.

Hartlepool,

station (Didcot) Smoking coal rucks of coal. Petrol station Factory.

for transport.

**Vuclear Fuel** 

Capenhurst Springfields Drums of con-Magnox rods centrates

process, to purified oxide pellets.

either converted directly to metal rods or, after an 'enrichment imported uranium oxide by British Nuclear Fuels Limited. Here, it is Nuclear fuel is manufactured at Springfields Works from crude 30-ton trucks of coal, without producing smoke, ash or bulky waste A single 40-inch uranium fuel rod provides as much power as five saving coal and oil for use as vital industrial raw material or as fuel Nuclear power stations burn uranium, an otherwise useless metal proved itself to be clean, reliable and, above all, safe. saves the average householder about £5 a year - but it has also Nuclear power not only generates Britain's cheapest electricity - it stations, and in a very few years this figure will reach 20% About 13% of all our electricity now comes from nuclear power

Oxide pellets.

Reprocessing & Tokai-Mura.

materials and

stations.

Many millions of fuel elements have been assembled from these

shipped for use in British

and overseas power

ast Reactors

for further use.

Waste storage Separation plant. Windscale works. ransporter.

as long as 7 years - it is taken to Windscale, where plutonium and unused uranium are extracted. The radioactive waste products are

So when a fuel element has completed its useful life - which can be

fed to them: the rest would be wasted unless it were reprocessed

But today's power stations can only use about 1% of the uranium

at present stored at the factory as a liquid.

PFR, exterior. Coal train.

fifty times as much energy can be obtained from it. The 40-inch rod then becomes equivalent to 10 trains, each of 25 trucks of coal -

If the recovered fuel is now fed to a 'fast' reactor power station, fully

seven and a half thousands tons in all.

in sunset, no PFR, Zebra,

run out.

Springfields.

diagram. Culham. Billiard Balls

keeps the sun and the stars going.

Meanwhile, British scientists at Culham in Oxfordshire aim to exploit

another kind of energy source - nuclear fusion, the reaction that

Given the will, Britain can undoubtedly perfect the technology of

full-scale fast reactors and be ready to meet whatever the future

18 years of work already undertaken to equip us to meet just such long-term energy needs as will face us when North Sea oil and gas power station is operating at Dounreay in Scotland. This is based on energy-content our total coal reserves, and a prototype fast reactor We already have in Britain a stockpile of uranium that equals in

Drums at

flare showing. North Sea rig





With visitors, Lord and Lady Birwood, and Peter Vey, Director of Information 9 UKAEA and Dr. Ian Blair of HARWELL's Environmental Science Division Services,

from water and lithium respectively. Its fuels are deuterium and tritium, varieties of hydrogen obtainable

Sea and cliffs

Picture

Text

But to make the reaction 'go' temperatures of a hundred million degrees - hotter than the Sun's centre - must be achieved and held, while magnetic fields keep the hot gases in place.

now being made to approach real fusion-reactor conditions. gases in a ring-shaped system. Using larger machines, efforts are In laboratory experiments complex magnetic fields confine the

 and use only a ton or so of fuel to do it. It would not produce any radioactive fuel waste, but parts of the structure would become radioactive. proves successful. It would generate 2000 megawatts of electricity which might be in operation early next century, if development work Culham has produced a design for a possible fusion power station

radioactive waste associated with it. spent fuel from our existing nuclear power stations, and Now let us return to the present and consider the reprocessing of the

rugged stainless-steel-clad glass blocks. together developing a way of converting the stored liquid waste into The Atomic Energy Authority and British Nuclear Fuels Ltd. are

bed, isolated for ever from man's environment. found better to bury them deep below the ground, or on the ocean At first these will stay at Windscale, but in the longer term it may be

man's radiation exposure not much more than a thousandth part of generation - by nuclear power alone - of all the electricity which that big as a man's hand will incorporate all the waste arising from the what nature already gives him. man needs in his lifetime. And the whole nuclear industry adds to To put this waste problem in perspective, a piece of glass about as

heart pacemaker with its tiny plutonium-powered battery, off" in other, more general, fields. Literally vital to some people is a years and more. Implanted in the body, this will keep the patient's heart going for 10 Nuclear power research provides many valuable examples of "spin-

In medical diagnosis, radioactive isotopes render internal organs malignant cells deep in the body. visible, while in therapy piercing gamma rays are used to attack

rays, has led to a quiet revolution in clinical procedures. The use of packaged surgical equipment, pre-sterilised by gamma

locate valuable minerals. in industry they are used to help in the fight against pollution, or to follow them through the life cycles of crop plants and insects, while Agricultural researchers use radioisotopes to "tag" chemicals and

track inspection systems, at Harwell are working closely with railway engineers to improve another device designed by nuclear engineers inspection of super-tanker bottoms is now routine, thanks There are other less direct practical benefits. For example, scientists while unmanned underwater

electrical generator for unattended use in remote areas is now being Power is naturally of special interest, and a small, non-nuclear,

car exhaust fumes. Nuclear scientists are even tackling the problem of pollution from

These are just a few examples of the ways in which Britain's nuclear

Torso plasma. Sun.

Reactor model.

Dite.

Nuclear Waste Transporter

of spent fuel

underground Impression block. Harvest glass at Harwell. Harvest plant

Glass block held in hand. Open Sea. store.

nuclear power station. Pylons at Isotopes

Therapy unit. of thyroid Diagnostic scan Thyroid dose dministration Pacemaker in

Syringe etc

Tin borehole probe in mine. Crop plants. River survey

Traffic pollution Non-Nuclear itting Fecralloy High-speed diesel train. Tanker. generator. mechanical Thermo-

exhaust unit.

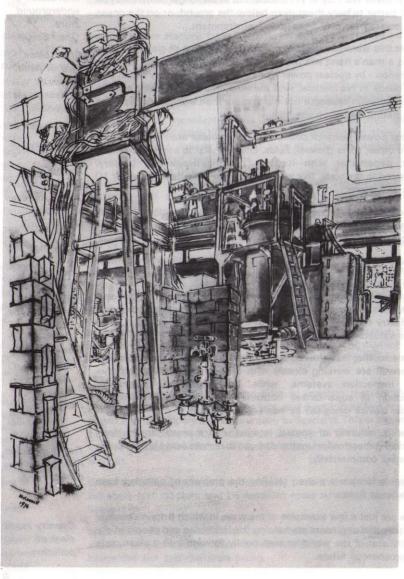
country and of the world to step boldly forward into a clean, safe and prosperous future. scientists and engineers are helping the industries and people of our pollution. clear of Country roads Walking through the reactor core: Prince Philip and Sir John Hill



The dominant feature of the stand was the simulation of a reactor core, shaped as the normal protective neutron shielding. Associated sound and lighting effects helped to simulate the inaccessible heat of an operating nuclear power station reactor as the visitor walked through it.

"Harlequin" noticed that small children, looking through its transparent floor, would tip-toe from one fuel element to another, as though over stones across a stream. One elderly lady also held on to the wall as if her life depended upon it, before being helped off at the end.

The stand was manned by volunteers, from both BNFL and the UKAEA. All agreed that the various displays created much interest and stimulated many questions from the 600,000 visitors.





The Rt. Hon. Sir David Renton and Lady Renton, accompanied by Miss Heather Isaacs of HARWELL's Information Office.

The DITE experiment at Culham Laboratory
- by Seton McConnell

# Savill Garden is a lovely corner of Windsor Great Park

Towards the south-east corner of Windsor Great Park stands an obelisk to commemorate the services to his country of William, Duke of Cumberland. Nearby Savill Garden, with its unusual collection of alpine plants, contains three of the ponds engineered by Duke William.

Written and illustrated

By Reg Wilkinson, MRC

OWARDS the south-east corner of Windsor Great Park stands a magnificent obelisk which was erected by George II to commemorate the services of his second son, William, Duke of Cumberland. A tablet on the monument carries the following inscription:

THIS OBELISK RAISED BY THE COMMAND OF KING GEORGE THE SECOND COMMEMORATES THE SERVICES OF HIS SON WILLIAM DUKE OF CUMBERLAND THE SUCCESS OF HIS ARMS AND THE GRATITUDE OF HIS FATHER. THIS TABLET WAS INSCRIBED BY HIS MAJESTY KING WILLIAM THE FOURTH.

Duke William inflicted a bloody defeat on the Young Pretender and his followers at Culloden and earned for himself the nickname "Butcher Cumberland". The flower Sweet William was named after him, but in Scotland it is usually known as "Stinking Billie".

However, the Duke did not spend all his time in warlike pursuits. His father appointed him ranger of Windsor Park and he was responsible for setting out many of the grass rides and for planting the huge beech and sweet chestnut trees which exist to this day.

He also organised the damming of various streams which pass through the section of parkland near his obelisk. The ponds and lakes that formed as a result of this scheme add enormously to the beauty of the surroundings. They include Great Meadow Pond, Obelisk Pond and Virginia Water, in addition to several smaller expanses of water.

Virginia Water is at the lowest level and covers over a hundred acres. Fortunately, it never needs to be dredged, because all the silt which is carried downstream settles out in the higher ponds. These are relatively easy to clean out, and because of this they serve an extremely useful purpose as well as being very attractive.

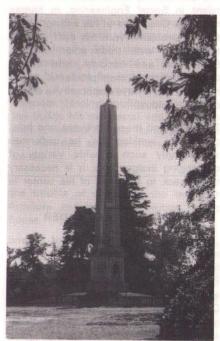
Savill Garden, which is located close to Duke William's obelisk, now contains three of the ponds which he engineered. The garden covers about thirty-five acres and was named after Sir Eric Savill, who started its cultivation in 1932. Initially it was called Bog Garden, but George VI decreed that it should take its creator's name when Sir Eric was made deputy ranger of the park.

The garden contains numerous great trees, including some planted by Duke William. Many of the oak trees are thought to date from before the Norman Conquest, and the garden is furnished with seats fashioned from the trunks of oaks of similar age which originated from other parts of Windsor Park.

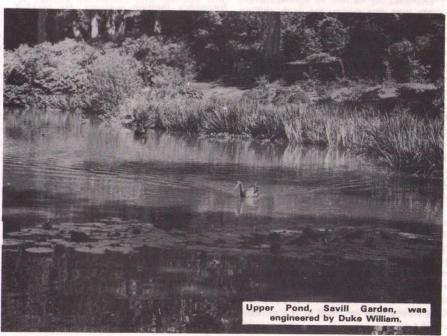
An unusual feature of Savill Garden is the use of raised alpine beds to replace conventional rock gardens. The beds are protected by walls which were constructed in 1947 with bricks from bombed buildings in London.

The alpine plants are best seen in spring, along with the camellias and the less robust rhododendrons in the hothouse. During May the outdoor rhododendrons are in full bloom and in midsummer the roses are predominant, while the trees and shrubs are at their best in autumn. In fact there is something of interest to be seen throughout the whole of the growing season.

Savill Garden is about a mile from Englefield Green and is open from March 1 to October 30, between 10 am and 6 pm daily. Picnics are not allowed but there is a cafeteria which supplies lunches, teas and light refreshments from April to September. Duke William's obelisk is at the end of Rhododendron Ride, not far from the Wick Lane en-



The obelisk erected by George II



## SELF-MADE MEN (2) PERCY BOWLES, OBE

A cheerful crowd gathered recently to wish a long and happy retirement of the Chief Engineer of the Rutherford Laboratory. They came from HARWELL and from RHEL, and even out of retirement.

Speaking to many of Percy Bowles' old colleagues, one is struck by the similarity of their remarks and the emphasis they place not so much on his academic achievements or the variety of projects he has successfully undertaken but on his talent in Social Engineering, in human relations. One hears of his willingness to discuss problems with his staff and his relationship with trade union officials, both local and national, and of his understanding of their problems. Above all, Percy has always respected the dignity of the individual.

To understand these attributes and how, during his working life, he undertook successfully such a wide variety of challenging assignments, it is necessary to go back to the start of his career in 1928.

#### CLIMBING THE LADDER

Percy left school at the age of 14, and his first job, as a glorified office boy with a firm of builders, lasted about 7 months. Pay: 6/- a week. There followed an electrical apprenticeship with the Burnley Co-op, which in those days had its own generating plant and a variety of electrical apparatus. As a 'closed shop' was operated, he joined the ETU, his subscription being 3d a week. Pocket money was one penny for each shilling earned so, as his pay was 7/6 a week, he recalls having a rounded-up figure of 8d a week. He also attended night school, obtaining a National Certificate by the age of 17.

While at Burnley he won an Edwards Stokes-Massey scholarship, worth £100 a year, to go to university - only to discover he was unqualified to take it up. So after six months' hard work, two matriculations allowed him to enter Manchester University, where eventually he was to obtain a First Class Honours degree.

In pre-war days, the General Manager of Rolls Royce, later to become Lord Hives, Chairman of RR, offered two apprenticeships to graduates in mechanical and electrical engineering from each university, expecting only 40% to stay the 2-year course. Percy became a Rolls Royce man in 1938 at the princely sum of £5 a week.



RL Director, Dr. Stafford, and Mr. and Mrs. Bowles.

The war brought big changes at Rolls Royce and plenty of opportunities. Percy soon became a member of a group dealing with many unusual problems, both exciting and exacting. On behalf of RR, he took out many patents on wire strain gauges, high frequency ignition systems, torque motors for measuring aircraft engine performance in flight, and high frequency ignition systems. He tackled many difficult problems, ranging from high altitude performance of the famous Merlin engine used in the Hurricane and Spitfire fighters to the problems of mounting cannon on these aircraft.

On a naval vessel, if a gun tore away from its mounting, one added an odd hundred pounds of metal and all was well - but not so in an aircraft, especially a fighter. His work on 'impulsive loads in flight' provided material for an external thesis and his M.Sc. Later he turned to the development of the NENE and DERWENT jet engines, successors to Whittle's first jet. Again, on behalf of RR, he took out a number of patents. During this period he was elected a Member of the IEE and the I Mech E, later in life being elected Fellow of these Institutions and becoming active in both as a committee member.

When the war ended, having worked at RR from 1938 to 1947, Percy sought a change. An open competition for

established PSO posts in science and engineering at the newly established HARWELL attracted him, and he was successful in his application. After early work with W.D. Allen (now Prof. Allen of Reading University and Rutherford Laboratory) on both the small and large EM plants, he took over the Services and Operations Engineering Group. Projects undertaken included the 'tank farm' and Building 220 and 351 - in fact in conjunction with the Ministry of Works, he was concerned in getting Harwell built. Percy moved over to the other major engineering group, Design and Manufacturing, and with the merger of these groups, became the Head of Engineering Division which at its peak reached a strength of 2,200 staff. He was later to become Deputy Chief Engineer of HARWELL

For three years an unsuccessful search for another site resulted in a request by the Director, Sir John Cockcroft, for Percy to see what he could turn up. Within his own stated time of three months he had selected a site in Dorset which was to become the Winfrith Reactor Research Establishment. Amongst a whole range of problems, the most important was the disposal of radio-active waste. Following many, tests, involving the use of naval vessels and helicopters, and Percy

donning a diving suit and inspecting the sea bed, he came up with the answer: a 2-mile pipe line out to sea.

#### THE NIMROD ERA

A number of other major projects came along, but Percy has no doubt that the construction of Nimrod was the biggest job ever tackled by HARWELL. He became the project engineer for Nimrod in 1957, arriving on site with a complement of nine engineers. He says "Nimrod was a demon to build. There were so many problems, not least the vacuum chamber made of an epoxy resin glassfibre laminate." The successful completion of the project was recognised in 1963, when he was invited to give the Hunter Memorial Lecture at the IEE, and in 1966 by the award of the OBE in the New Year's Honours.

In Nimrod and in other major projects, one sees his individual approach and, maybe, a dislike of the 'committee' syndrome. He admits that, although there are often several ways of approaching any given project, having chosen a particular path, one should follow it to the end. This approach requires a broad-based

knowledge of electrical, mechanical and civil engineering which he has undoubtedly demonstrated during his career.

It is interesting to note that, although he never took a doctorate himself, he has been an examiner for the Ph.D in engineering, for six years was on the Appointments Board of Reading University and for the Institute of Electrical Engineers he set papers and acted as examiner.

#### THE PRESENTATION

Dr. Stafford remarked that it was a great pleasure to see so many old colleagues present, from HARWELL as well as the RHEL. After briefly reviewing his career, Dr. Stafford emphasised the good relationship Percy had built up with the Trade Union Side while being for many years Chairman of the LJCC, previously acting in this capacity for HARWELL.

Before presenting farewell gifts, Dr. Stafford said, "The first thing to give you is a letter which establishes once and for all that you have retired" - a remark which

produced much laughter. After presenting Mrs. Bowles with a bouquet of flowers, Dr. Stafford took on the mantle of a conjuror, producing from the side of the stage a succession of gifts before the climax of the main item: a splendid Dent's Carriage Clock.

In reply, Percy reminisced about his 50 working years and some of the more unusual jobs he had undertaken. The clock was something he had always wanted, but every time he had thought he could afford one, the price had risen. Now at last he had one - and at the right price. He ended by paying a tribute to his wife, Florence, who had always given him so much support.

Percy will still be seen around some days of the week working on a major project for the SRC: the new £5 million headquarters at Swindon. This will still leave him time for his outside interests which over the years have included ballroom dancing, cycling, radio and TV (he builds his own sets) and, of course, cars. A friend of his told 'Harlequin': "He is the man they send for when the AA has trouble!"



"DEAD FOR A DEAD THING"
by Patrick Turnbull
New English Library, Holborn
From Mallows, AERE Shopping Centre,
95p.

Written by local author Patrick Turnbull, this is an exciting story about the French Foreign Legion during the Algerian war for independence. As an expert on military operations, his details of the campaign give it a chilling reality.

The three main characters are dealt with in such a way as to portray a passionate and often fanatical belief, and in doing so give the reader the human side of war, the fears, the suffering, the excitement. Yes, compelling reading, without the sensationalism often found in today's reading matter.

"CHILTON CHATTELS"

by F.J. Denzey

ole from the author at Lar

obtainable from the author at Larkfield, Chapel Furlong, Upton, Didcot for 95p + 15p for p. & p.

After twenty-five years as headmaster of the primary school which serves Chilton Village and the nearby housing estates at the Atomic Energy Research Establishment, Harwell, Frank Denzey had to retire recently due to ill health. It is therefore appropriate that *Chilton Chattels* should appear at this time and in the preface he says that it is written "in grateful recognition of half a lifetime's happy days spent at Chilton".

In the first chapter of his book Mr. Denzey gives a potted history of Chilton and tells of his own introduction to the village. The remaining chapters are concerned with the wills and testaments of various individuals and families who lived in and around Chilton during the first Elizabethan era, together with inventories of their possessions at time of death - hence the title of the volume.

As men became more affluent and the containment of family wealth gained importance, it became common practice for the rich to distribute their possessions after death by means of a will. It was also necessary to itemize the deceased's goods and chattels in an inventory, and eventually this requirement became law during the reign of Henry VIII.

The inventories were used as probate documents and were processed through the ecclesiastical courts. During Tudor times the number of inventories increased considerably and as many of them have been carefully preserved they provide a valuable source of information for genealogists and local historians. Many of the documents are rich in detail and in some cases the executors even went to

the trouble of describing the testator's furniture and its exact position in his house.

In order to produce Chilton Chattels Mr. Denzey consulted scores of documents in a variety of places including Chilton Church, the Bodleian Department of Western Manuscripts in Oxford, the Diocesan Record Office at Salisbury, the Berkshire Records Office and the House of Lords. To make life easy for his readers he has taken a great deal of trouble to define the meanings of certain phrases and to explain the uses of the obsolete household and agricultural articles mentioned in the wills and inventories.

At the beginning of his book, Mr. Denzey has reproduced part of John Freeman's inventory of 1564 and he would have done better to have illustrated the text throughout with similar documents instead of with line drawings. The latter are small and most of them have not reproduced satisfactorily. There is a map of Old Chilton on the back cover, but this is difficult to read because it is printed on a dark background.

Apart from these two small points the book is well-produced and it is not without its amusing aspects, especially when Mr. Denzey branches out into what he terms "lateral thinking".

Perhaps Mr. Denzey will find time in his retirement to write a complete history of Chilton. R.W.

#### Letter to the Editor

Please accept my thanks for the copy of August magazine "Harlequin". Your article was most complimentary.

The picture on another page depicting St. Aldates in Oxford brings a nice little story to mind. As you know, the Town Hall is seen in the picture and it appears that when new it was opened by the Prince of Wales in 1888. The University were of the opinion that the Oxford City Police would not be able to cope with boisterous undergraduates, and requested them to obtain the services of the Metropolitan Police Mounted Branch. This was arranged and within ten minutes of them appearing outside the Town Hall they were all dismounted and undergraduates were riding the horses.

There was something of a riot and the first person to be arrested was an undergraduate named Smith who was taken to the new Police Station at the rear of the Town Hall. As he was taken to the cells, he waved the Police officers back and entered the cell. Saying "I declare this cell officially opened", he slammed the door. I should add that his initials were F.E. and he was, of course, the famous Lord Birkenhead.

Yours etc., George Pulley.

AUTUMN SCENE Dr. CULLIFORD, SRC -from the 1976 HARWELL ART EXHIBITION. This year's EXHIBITION will be held from Oct. 24-29.



# **CODE-WORDS**

THIS crossword puzzle has only one cluethe word that is already printed in it.

SOLUTION TO 1 N; 2 O; 3 S; 4 E; 5 D; LAST PROBLEM 6 I; 7 T; 8 R; 9 A; 10 B; 11 Y; 12 L; 13 U; 14 M; 15 P; 16 K; 17 V; 18 C; 19 F; 20 W; 21 G; 22 H

SOLUTION TIMES:-

Experts, 12 to 15 minutes;

Other CODEWORDS are now obtainable in book form - 128 of them for 35p - from bookstalls or from Tandem, 14 Gloucester Road, London S.W.7.

goodish, 20 minutes; average, 30 minutes.

Š	10	9	8	17	6	176	13	5	: 11	17	10	19	10	12	4
100	4		14		12		12		A		0		A		No
rds	13	14	A,	15	14	3	78		12	0	10	T8	14	06	L
words	Q		12		A,		16		17		3		14		17
Cross	7	A	2	4	No		A,	L5	Ls		TB	a	A	18	3
5	1,		4		17		4	4	la		06		18		78
0	A	18	18	16	12	4		A		A	17	1,	h	12	la
_	19					A,	17	17	9	L					18
101	15	A,	To	4	3	T8		7		19	16	18	13	4	T8
isari	4		A,		4		h	146	18		1		16		14
dra	78	0,	16	TB	3		A	13	Q		19	17	N 10	13	Q
ning Gill	4		N 10		3		13		15		4		3		a
turo	14	h	TB	14	1,	A.	L		L	16	14	12	20	16	17
15	1		4		06		4		06		T8		06		4
ris	3	18	14	0	N 10	13	3	16	17	17	06	14	8	4	14
	The Person of the Person of	-													THE RESERVE AND ADDRESS OF THE PERSON NAMED IN

NATIONALA / E / MAM

"HARLEQUIN", G159, Bldg. 77, AERE, HARWELL, OX11 ORA

'Phone Abingdon 20360

19 Norman Avenue, Abingdon.

**INSURANCE BROKER** MORTGAGE CONSULTANT INVESTMENT ADVISER

Attends AERE Social Club, Room 3, each Tuesday Appointments: Ext. 2107 or Abingdon 20360

INVESTMENT

Small and large

INSURANCE All classes of insurance

transacted With profits

**HOUSE PURCHASE** 

Personal guidance

MORTGAGES

arranged

Advice given on

**BUILDING SOCIETY** 

Investments

Competitive quotations for

**HOUSE, CONTENTS & CAR** 

insurance by 1st class long-established companies

This mobile heater can help



Calor Gas Super Ser Radiant

Runs on Calor Gas—up to 20% cheaper than electricity\*

• Mobile for instant warmth where you want it. • No wasted heat. • Push button ignition—3 settings give up to 4.25kW of heating power. • Helps to save on central heating costs.

• Pay as you go—no big quarterly bills. • Carries its own Calor Gas supply. • no conpocting wires on poises and to proceed the contract of the contraction of th Gas supply – no connecting wires, no pipes – and no power cuts.

• £63.56 Rec. Retail Price excluding VAT. (New Calor users will

See the wheel-it-where-you-want-it heater at



TEL. OXFORD 778123

THINKING OF INVESTMENT? In your own interest . .

THE BUILDING SOCIETY WITH THE BUILT-IN EXTRA



LOCAL OFFICE 1A HIGH ST ABINGDON

TEL.

ABINGDON.

20528

**BRANCH MANAGER** A.D. GARNETT

# THE COMPLETE SERVICE **ARTWELLS**

#### OF ABINGDON LTD

AUSTIN · MG · WOLSELEY

JAGUAR · ROVER · TRIUMPH · DAIMLER

COVERED USED CAR DISPLAY

SELF SERVICE **TYRES** 

LEYCARE M.O.T.

PETROL

SELF DRIVE HIRE

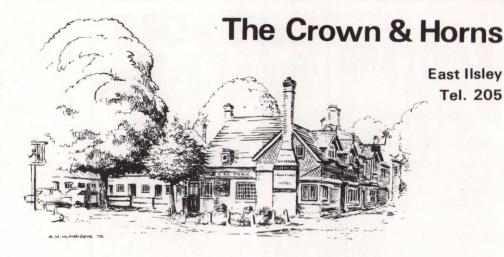
DRAYTON ROAD ABINGDON

TELEPHONE 22822



Special terms for A.E.R.E. employees are offered by Eagle Star for car, home and life insurance. Get in touch direct with your local Eagle Star office. You'll find the address in the telephone directory.

almost Branches/everywhere



Come and enjoy a wide selection of hot and cold pub food

FULLERS EXTRA SPECIAL BITTER

WADWORTHS 6X

Tel. 205

COURAGES DIRECTORS

TRY OUR 6 'REAL ALES'

MORLANDS PA

ARKELLS BBB

**FULLERS MILD** 

SKITTLE ALLEY NOW OPEN FOR BOOKINGS

A FREE HOUSE - LESS THAN 4 MILES FROM A.E.R.E. - JUST OFF THE A.34



## INTRODUCING THE **VOLVO 343. A SENSIBLE CAR** IN A CRAZY WORLD.

With the new 343, Volvo are restoring a little sanity to a world where motoring has gone mad.

It's spacious inside, yet compact outside. To cope with crazy traffic conditions.

It's aerodynamically styled for economy. To cope with the crazy cost of motoring.

It has a big boot and wide tailgate. To cope with a family's crazy demands.

And it has agile handling and a Volvo-strong body. To cope with the crazy behaviour of others.

A test drive will reveal all these features. And many more.

Phone John Lidsey for a demonstration

or just drop in to

Challey Roa Wantage 2493

Challow Road WANTAGE