

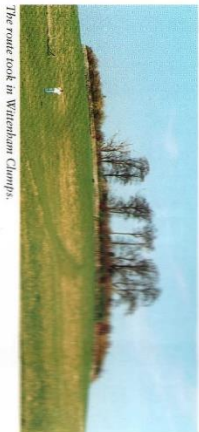
## Treasure hunt searches out cryptic winners



A prizewinning team: Karl and Claire Eaton.

**M**uch preparation went into the recent treasure hunt organised by Culham Social Club and it was unanimously judged a success by all who took part.

Having carefully planned a route, organisers did a dummy run and were amazed when a postbox landmark had disappeared, together with the building on which it was mounted! On the day itself early fog at Culham was lifting to give a fine sunny day as starting



The route took in Wittenham Clumps.

mileages were recorded and instructions handed out.

Maximum points were gained by listing all pubs passed enroute, bringing back ten items matching the colour list, answering every question correctly and remaining on par with the mileage. The 26-mile route took teams on a picturesque tour including Culham Lock, Sutton Courtenay, Wittenham Clumps, Clifton Hampden with the finish in an Abingdon pub ... conveniently at lunchtime!

The first car out was also first back after two and a half hours but it was another hour before other teams returned. Some had pathetically searched for 45 minutes for one tricky clue. The winners with about 88% were the Molesey Crew. The Dowdallers came second only two points behind and last place went to Sir Hanky who made a villainous attempt with a team of only two. The prize! All the fives from the teams that had entered!

## Fair Mile patients enjoy riotous revue

**T**he patients at Fair Mile Hospital, Cholsey had a day to remember on 11 April as they enjoyed The Rotaract Command Performance. The show was a huge success, due in no small part to Harwell and Culham staff.

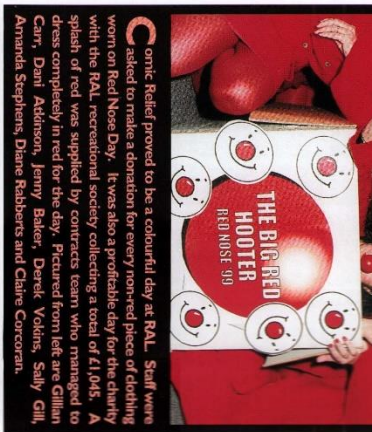
With generous sponsorship from several organisations including UKAEA, a share of money raised at the Harwell Charity Ball in March, and admission/raffle ticket sales to the public, around £800 has been raised for the Sports and Social Therapy Department at Fair Mile. The cash will be used to take patients on summer coach excursions to the seaside and other activities.

Highlights of the show included a varied selection of numbers from the Harwell village based band, The Baggs Tree Baskers (featuring Jim Strickard of AEAT Nuclear Service), The Chervell Wind

Orchestra; a medley of traditional Cockney songs from Wellingford Rotarian Gerry Rhodes; Windsor and Eton Rotaract Club's "Return to the Forbidden Planet", and many jokes and sketches from members of Wellingford, Newbury and Maidenhead Rotaract Clubs.

Plenty of advance publicity was generated, including an interview with the show's producer, Andrew Read (AEAT Environments, Harwell) on BBC Thames Valley FM, and a plug from Pam Ayres on her Radio 2 show! Andrew and his production team, including Gareth Jones of AEAT Energy, Culham, are delighted with the results.

He says "It was an entertaining show, with superb performers and a great team behind it. Everyone's thrilled about the amount of money raised for Fair Mile."



## Wear red or pay up

**C**omic Relief proved to be a colourful day at RAL. Staff were asked to make a donation for every non-red piece of clothing worn on Red Nose Day. It was also a profitable day for the charity with the RAL recreational society collecting a total of £1,045. A splash of red was supplied by concerta team who managed to dress completely in red for the day. Pictured from left are Gillian Carr, Dani Adkinson, Jenny Baker, Derek Volkins, Sally Gill, Amanda Stephens, Diane Flabbers and Claire Corcoran.

## Batteries power deep space mission



**T**he European Space Agency is planning to land a battery-powered craft on the surface of a comet for the first time in one of the most difficult space missions ever undertaken.

In 2003 the Rosetta spacecraft will be carried into orbit by the Ariane 5 rocket to begin its 10-year mission to rendezvous with comet Wirtanen. The mission aims to increase our understanding of the universe and help scientists understand the potential threat from comets.

The Rosetta will be the first European Space Agency mission to be powered by new lithium-ion rechargeable space batteries developed jointly by AEA Technology and the British National Space Centre. The two organisations have been working together since 1997 to produce a new power source for spacecraft as part of the UK National Space Battery Programme.



Ian Roberts, production manager for spacecraft batteries with the 1 kWb development module.

## Melanie wins £60,000 dream prize



Deciding to buy sunglasses from her local Co-op store was a wise decision for the winner of a £60,000 prize holiday home in the Lake District. Melanie Green, who works for AEAT Environment at Culham, bought pre-paid sunglasses from Oxford Swindon & Gloucester Co-op in Northport Road, Abingdon and entered the free prize draw. As the winning entry from a total of 32,000 from across the UK, she received her prize at the store a few weeks ago.

Lying just around the corner the is an almost daily visitor to the Co-op store and her children, Edwin, 23 and Annabel, 20, have both worked there in the past. Speaking about how she won the prize, Melanie said, "I thought I'd enter the competition because the Lake District is one of our favourite holiday destinations. I just couldn't ride it in when I heard that I'd won this fantastic prize."

## This Month Go faster bikes



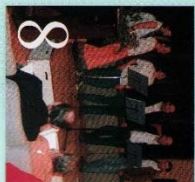
## Fusion on TV



## Culham treasure



## Fair Mile performance



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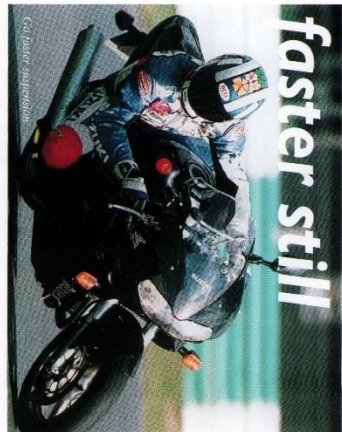


# Superbikes go faster still

**A**s the World & British Superbike Championships get underway, ten teams will be tackling the high speed corners with improved suspension, thanks to AEA Technology.

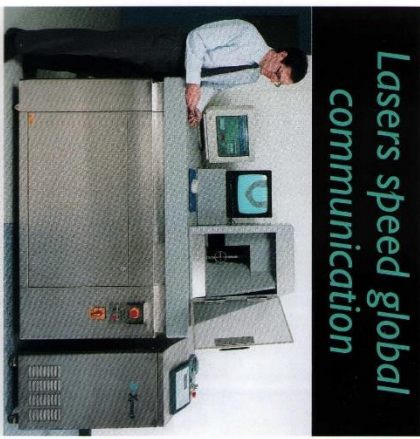
The speed and handling of these 190hp/250cc superbikes has previously been hindered by friction that causes the suspension to stick. AEA Technology Race Engineering has applied its non-implantation process to the front forks of the bikes to change the surface property of the material. They were initially

approached by Tech 2000 which supplies components for these high-powered bikes, looking for a solution. The problem affected handling under heavy braking and when the bikes hit an uneven surface, forcing them to slow down. In response, AEA/T has developed IonPly™ to reduce the sliding friction.



Col laser suspension

## Lasers speed global communication



Cutting a lens onto optic fibres less than a hair's breadth

**A**EA Technology has developed a laser system which can cut a lens onto the end of optic fibres that are thinner than a human hair. The breakthrough will greatly speed global data transmission and save millions of pounds in cables and boosting equipment.

When data is sent via telephone or email an electric current is converted to a light signal before it enters the optic fibre. The speed of data transmission can be increased if more light is captured and

focused by a lens as it enters the fibre. AEA/T Products & Systems has supplied a £250,000 laser system to Hewlett Packard to help the company improve the efficiency of optic fibre communications.

## Mobile phone working group

**N**Tessa Jowell, the minister for public health, to set up an independent expert working group to assess the current state of research into possible health risks from mobile phone.

**NRPB** welcomes the development given its expertise in this area and its existing advisory group on non-ionising radiation. Speaking about the decision, Tessa Jowell commented, "To date there has been no consistent evidence suggesting risk to health but there is continuing public concern about the possibility which it would be wrong to ignore. This is a highly specialised and fast moving area of technology - the use of mobile phones is increasingly part of our lives - which is why the expert group will also be charged with advising on the implications of new developments".



## New MRC chairman visits Harwell

**T**he name of Sir Anthony Cleaver will already be familiar to many staff on site given his role as chairman of AEA Technology plc. He was of course also chairman of the UKAEA from 1993 - 1996.

In October 1998, Sir Anthony was appointed chairman of the Medical Research Council and as

part of a series of orientation visits to MRC establishments nationwide, he recently visited the MRC units at Harwell.

During this visit, he met staff and talked to them about their work - he was kind enough to later express his gratitude for their patience in explaining this in understandable terms! His

tour included the new state of the art microarraying facility (one of only a handful in the UK) and the specialist alpha radiation sources. He showed particular interest and insight into the problem of how to communicate complex scientific ideas both to the public and to other scientists working in different fields.

## UKAEA's first audience with MPs

**F**our years' persistence paid off when UKAEA set up its exhibition stand at the House of Parliament. Entitled 'Restoring our Environment', the stand was situated in the busy Upper Waiting Hall, ideally placed to capture the attention of MPs, members of the House of Lords, civil servants and visitors to the House.

The exhibition was launched at an official reception attended by the stand sponsors - MIs Ian Bruce from Winfrith and Donmoney's Robert Mademan - also Robert Jackson MP whose constituency includes Harwell and Martin O'Neill MP, chairman of the Trade & Industry Committee.

Leading a small UKAEA team were chairman Sir Kenneth Eaton and chief executive John McKeown. Guest of honour at the reception was John Bartle MP, minister of state at the DTI with direct responsibility for the nuclear industry. In his welcome address he expressed his pride in the level of expertise in the UK nuclear industry, saying "Expertise which is able to compete in worldwide markets and take its place as one of the premier environmental industries of the twenty first century".



HOUSE OF COMMONS LONDON SW1A 0AA



Local MP Robert Jackson, learns more about UKAEA's activities.

## Lighting up at East Hendred

**S**ome of the streets of East Hendred will be brighter thanks to UKAEA which last year donated five redundant lamp posts from Harwell following site improvements. Our photo shows the first light in place at Home Farm Close, a largely residential area, whose occupants will now enjoy greater security at night. Mike Hupp of UKAEA's property management team is pictured centre with Stan Francis, vice chairman of the parish council (left) and Dr John Sharp, parish council chairman. The lamp posts will supplement existing street lighting in East Hendred. "The villagers really appreciate UKAEA's help and we are naturally delighted that the lights have found a new home" says Mike.



## White goods for recycling

**N**early a million tonnes of electrical goods are thrown away each year in Britain but a new European directive may force us to recycle scrap items. AEA Technology Environment is preparing a report for the Department of Trade and Industry about how white goods such as washing machines, tumble dryers and fridge freezers could be re-used.

The new European guidelines may require member states to collect at least 4kg of electrical waste per head per year and recycle between 70-90% of this amount. Many goods are thrown out when they get old and may still be working or easily repaired. While some machines are refurbished by charities, most are sold as scrap. AEA/T's report will be aimed at companies and local authorities who collect such waste and will look at how refurbishment could be carried out on a large scale.

## More car parking

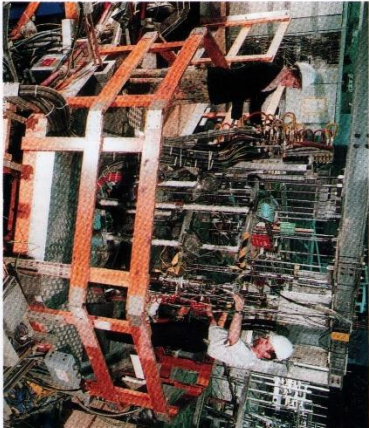
**T**wo new car parking areas have been completed at Harwell close to B525 and B540, creating an additional 137 spaces - 116 at B540 including 3 disabled spaces and 41 at B525. The car parks have been built on existing concrete slabs from demolished buildings and have lighting and drainage. UKAEA's property management carried out the work, which was in addition to the original project to construct three new car parks last year. The work completes a two-year project to further upgrade site facilities for tenants at Harwell Business Centre.

## COMPASS-D back in action

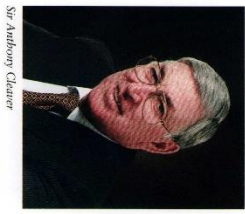
**C**ulham's fusion research and running again, after being dormant for nearly a year during construction of the new MAST (Mega Amp Spherical Tokamak) device. The shut down has been used to upgrade and improve many of the COMPASS-D systems.

"The rapid re-commissioning of the tokamak is a testament to the skills and experience of the physics and engineering teams", commented COMPASS-D programme manager, Brian Lloyd.

COMPASS-D - its name derived from the two words compact and assembly - is a highly adaptable research tokamak equipped with a powerful microwave heating system which will also be deployed on MAST. Unlike the spherical plasma configuration in MAST, in COMPASS-D the



plasma is doughnut-shaped, similar to that in the much larger JET tokamak and in its projected successor, the International Thermonuclear Experimental Reactor (ITER). Operation of COMPASS-D will now alternate with MAST, since some elements of the control systems and power supplies are common to the two tokamaks.



Sir Anthony Cleaver



## Out & About

### D-Day remembered

The annual D-Day Service takes place at the RAF Memorial, Scone, from 5 June. Representatives of RAF Associations, the Royal British Legion and Harwell/Culham organisations will honour those that gave their lives in their combat service and by wreaths in their memory.

### BNES talk

On Wednesday 12 May, Nigel Buttery, technical and safety support manager, British Energy, will present a talk entitled 'Surreal B Power Station Operational Performance'. The title of an Advanced Performance Review (APR) report, which led to the ETRU licence, the building of B3 Harwell at 17.30 for 1800 light refurbishments are provided after the talk. Enquiries welcome. Contact Louise Gould on 01865 774916.

### Walk for Wildlife

The Sunday 4 June the eighth annual sponsored walk for wildlife takes place in east London for various conservation in North, Bucks and Oxon through BMOHT. The route follows the original and scenic routes from Aylesford through Wendover to Pottery near Abingdon. Walks are 20 miles or as a team or as individuals. A floppy pen to the town along the most links to register or for more information please call BMOHT on 01865 774916.

### MRC summer talks

11 May - 'Sunlight, sunscreens and DNA damage'. Dr John Knowland, Dept. of Biochemistry, University of Oxford.

18 May - 'The truth about cancer'. Dr Yvonne Boyd, Mammalian Genetics Unit, MRC.

25 May - 'Anterograde axon development in mouse'. Dr Valerie Wilson, Centre for Genome Research, Edinburgh.

### National Mills Day



On Sunday 9 May you can visit Venon Hill, Gifford, or Abington and Charney Bassett Mill, or East Hamney between 2-5pm as part of National Mills Day. Venon Hill is a rural water-powered corn mill on a tributary of the River Ock. Wholesome flour ground from locally-grown wheat is on sale. Charney Bassett Mill dates from 1807 and has been restored by the Yale of White Horse Industrial Archaeology Group.

## Emergency Services on display to all

On Thursday 13 May there is an opportunity to learn more about the various organisations providing site emergency services. A series of demonstrations and displays will be staged at the Harwell fire station from 10am to 3pm.

The programme includes demonstrations of equipment used in road traffic accidents, breathing apparatus, ladder drills and a rescue from the tower. Oxfordshire Fire Services plan to bring their hydraulic platform on site and the UKAEA Constabulary will be manning a stand giving crime prevention advice. Staff from RCIT will also be on hand to explain their range of occupational health services.

Prayers publishing the event will shortly be distributed. Everyone is welcome to come along to gather advice and to find out more about the organisations that provide a safe and secure site. For more information call H1450.

### Emergency services on site at Harwell are provided by three organisations:

- Johnson Controls, fire and ambulance services
- UKAEA Constabulary, police presence
- RCIT Ltd, health support services

Although each has different objectives and mostly work independently, when the situation demands they collaborate to



Emergency team from left: PC Philip Cudman, Ken Wright emergency medical technician, Reg White, Gordon Swearing (firefighter), John Black station officer and Stan Hillhouse leading firefighters.

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## Pricelless guinea pigs



Some of Helen's treasures - varieties include Dalmatian, Abyssinian, Rex and Sheltie.

Is there room in your back garden for a little living piece of South America? No, not an exotic plant, but guinea pigs which originated in the Peruvian Andes. These little furry animals make excellent pets and are very easy to care for, according to self-confessed guinea pig fanatic, Helen White.

Helen works in the IT department at AEAT's National Chemical Emergency Centre, Culham, but was formerly a veterinary nurse. She knew she would miss contact with animals so started her own family of guinea pigs with one male and three females to alternate breeding. Since then Helen estimates that she has seen bred around 100 babies, all successfully bonded, and has 17 she simply can't do without.

# Culham & JET 25 years on

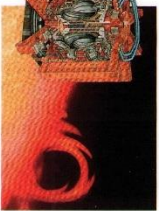
Following the "Atoms for Peace" Conference in Geneva the first results in controlled thermonuclear fusion were declared and EURATOM decided to foster fusion research in the Community.



JET staff witness pioneering TFTR experiments in the control room.

The European National Laboratories involved in fusion progressively became part of the EURATOM collaborative programme through "Contracts of Association", and quickly focused on magnetic confinement fusion.

The Tokamak concept was invented by Russian scientists in the early sixties, EURATOM and the Associated Laboratories decided to set up the Joint



JET - reaching temperatures far higher than the sun.

## Fusion features in Thames documentary

You may wonder what connection Fusion has with the river Thames. The answer lies in a documentary series being compiled by the BBC. Four 55-minute programmes each explore a different part of the river and Culham is featured in the last programme on the upper reaches of the Thames. Writer and presenter, Patrick Wright interviewed Chris Carpenter and Tom Todd at Culham.

It examines the vision that William Morris and his arts and crafts movement had of this idyllic backwater in past times. By contrast the modern picture is a very different one, epitomised by the hi-tech work taking place at Culham. Oxford Instruments and Oxford

Team delivered a "JET Design Report", and had it approved. There were periods of real uncertainty during 1975-77, as political agreement was sought on a site for JET. Eventually on 25 October 1977, Research Ministers decided on Culham. This came about in a most unusual way. Release of the political tension is attributed to Chancellor Schmidt's gratitude for British help in the successful rescue of a Lufthansa flight which had been hijacked to Mogadishu by the Baader-Meinolf gang.



Construction began in March 1979. The first operations of the machine took place during 1983-84 with additional heating systems used during 1984-86. These early JET results had a major impact on the tokamak programme world-wide.

In 1991 JET conducted a ground breaking experiment, producing a significant amount of controlled fusion energy for the first time. The results had an unprecedented impact in the media and created a broad public perception of the potential of fusion energy.

By the end of 1991, JET had largely fulfilled its original objectives. However, the high performance could only be maintained for very short periods. A pumped divertor system to control impurities in the machine was considered the most promising solution.

A major programme of additional work was carried out to install new diagnostics, power supplies, plasma control, and control and data acquisition. In late 1997 following months of intensive preparation, the original designers hopes for JET were fulfilled. Using optimal fuel mixtures (50%D-50%D<sub>2</sub>), JET set several world records.

The success of JET and the history outlined here has been described in a travelling exhibition that has visited fusion conferences in Marseilles and Yokohama already and will go to Maersk and Albuquerque (New Mexico, USA) later this year.

JET's results and those of other fusion devices around the world have shown that we now have a clear understanding of how to design and construct a fusion experimental reactor.



Exquisite Ladies - a born pose.

Far from being unaffordable, each have different personalities and communicate their emotions in an endearing way. "When they hear me coming they give little shrieks and will make a bubbling noise when they're contented"

Helen. "To show real happiness they pop-poo and, as the name suggests, they literally hop around with delight!" At birth a cavy - the technical term - is hamster-sized





JCL lift club to success

Johnson Controls has sponsored the Harwell International Football Club...

Motor club drives on

There has been a motor club on the Harwell site since 1951. Founded as the AERE Motor Club...

First Wantage triathlon



The triathlete includes a 35 km ride along the Ridgeway...

- British Touring Car Championship. Silverstone, 17-18 April. Le Mans 24 hour race, Le Mans, France, 12-13 June...

Harwell Motor Club also runs a discount scheme to enable our members to join the RAC or reduced rates...



Club member John Lunt, in a special vehicle he built for autocrossing.

ECHO FREE CLASSIFIEDS

Staff classified advertisements... BABY CARE ITEMS all VCC including cot & bedding, bath, combined pushchair & carrycot...

WANTED WANTAGE CONCORDS BOYS FC 30th Anniversary, Dance 3 July... ACCOMMODATION ARBINGDON, Modern fully furnished two-bedroomed room...

MOTORS FORD FIESTA 1.3 SX, 3 door, K reg, metallic silver, sun roof, stereo, tow bar, alarm, MoT September... HOUSE CLEARANCE quality, quantity...

HOLIDAY ACCOMMODATION CONNORWALL, Newquay, modernised cottage, three bedrooms... PERSONAL FITNESS TRAINING, Qualified trainer/coach available for one to one sessions...

AEAT take top slot in football honours

A team from AEA Technology beat nine other companies in the Corporate Football League to take the treasured trophy...

SAFETY FACTS Last time accidents C H Colman/Harwell 0 0 Recorded since last issue 0 14 Total this fiscal year (98/99) 0 14 Total reported to HSE (98/99) 0 28 Total days lost in 98/99 1 86 Minor accidents (one time loss) 0 68 Recorded since last issue (98/99) 4 87 Total this fiscal year (98/99) 4 87 There was one non-radiological reportable incident at Harwell since the last issue of ECHO...