

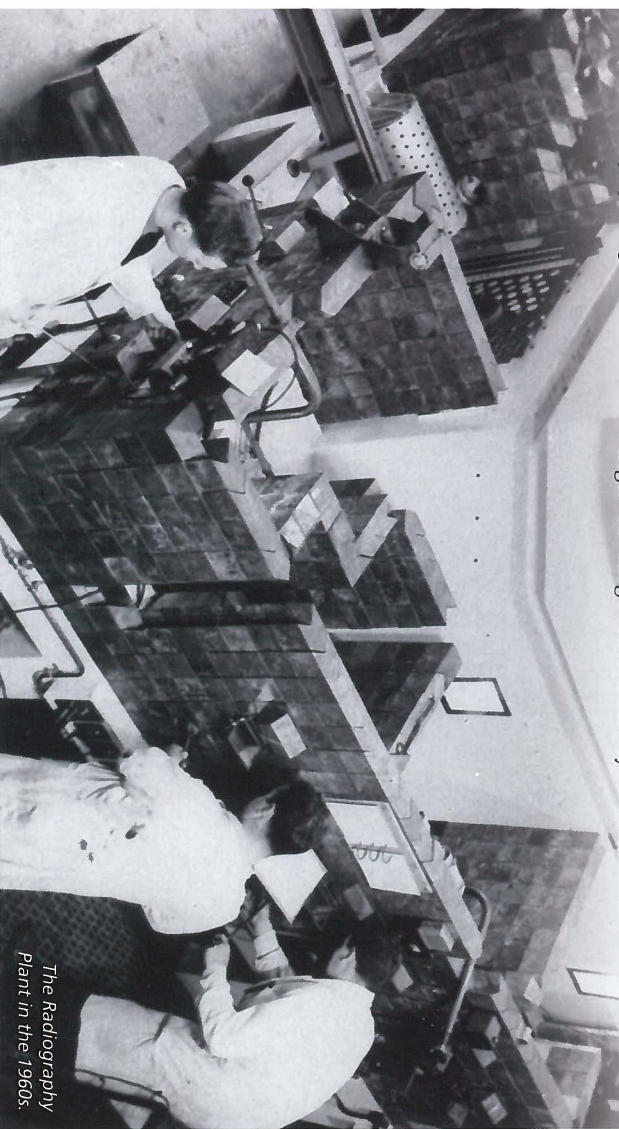
# Amersham project complete

May 2004 saw the conclusion of the removal of the Radiography Plant & Central Store located in Hanger 10. This plant, constructed in 1952, was possibly the longest continuously used plant on the Harwell site.

The successful completion of its decommissioning by Amersham plc staff also coincided with the creation of a new identity for that business, following its acquisition by GE. From 8 April, the former Amersham operations have become part of GE Healthcare, a new business of GE which has over 42,000 employees worldwide. It will be the world's largest medical diagnostics business.



An engraved section of shielding window was presented by Anthony Webb, VP Nuclear Assurance, to Peter Hayes, site manager, and Alan Bullock, project engineer.



The Radiography Plant in the 1960s.



During decommissioning.

The radiography plant was initially designed to explore the potential uses of radioactive isotopes produced in the BEPO reactor. Throughout its life the plant was modified on a number of occasions to meet changing production needs. During this period, the plant was used to produce sealed sources for medical and industrial applications until its principal user, Amersham plc, transferred production to its facilities in Buckinghamshire in 1996.

Following a period of storage to enable short lived radioactive materials to decay, the radiography plant was systematically cleaned and removed by Amersham staff until the central store was made accessible.

At this point it was necessary to build a shielded facility to unload the 60 storage tubes, each 3.5 meters long. The storage tubes were full of a variety of sources, from small high to large low activity

sources. Specialised equipment was designed to view, grab and remove the sources to permit disposal through the appropriate waste route. This new facility was then decommissioned by Amersham staff.

The central store construction consisted of 60 tonnes of extremely hard concrete with iron shot concrete surrounding the central store assembly. A 5-tonne excavator breaker was used for most of the demolition, but specialised processes using 'expanding grout' were also applied successfully to crack the concrete from the inside.

The central store complex was shielded with 8 tonnes of lead shot within a steel housing. The lead shot was removed by drilling through the housing in a number of positions and by draining the shot into storage containers.

Finally the block was removed to just below ground level, and the floor has now been reinstated.

## Six sites in 24 hours

On 20 June at approximately 6pm two men will run a circuit of Culham Science Centre and, an hour later, will do the same at the Harwell site. Their arrival will mark the final stages of a remarkable 24-hour challenge to cover 800 miles by car and some 20 miles in trainers.

Winfrith's Alan Neal and Andy Staples have devised the Six Sites Challenge to raise funds for the Motor Neurone Disease Association after colleague, Richard Peckover, was diagnosed with the disease a year ago. They will be running around UKAEA's six sites, beginning at Dounreay at midnight, and finishing at Winfrith 24 hours later.

Staff are invited to join them as they run at each site. At Harwell Gail Steer, Michelle Wise, Castelle Farlie and Keith Jones will be joining the runners. Sponsorship would also be most welcome as RWE Nukem and AEA Technology have pledged to treble each pound raised up to £5,000, making a potential total of £15,000. Visit the website [www.jinstgiving.com/sixsites](http://www.jinstgiving.com/sixsites)

Vol 16 Issue 5 June 2004

THE NEWSLETTER OF HARWELL CHILTON CAMPUS AND CULHAM SCIENCE CENTRE

# ECHO

## RAL breaks world records

It's official. Record-breaking research is being carried out at Rutherford Appleton Laboratory. Two of RAL's facilities - the Vulcan laser and the ISIS pulsed neutron source - feature in this year's Guinness World Records.

To mark this achievement, David Hawksett, science and technology editor for Guinness World Records, visited RAL and presented certificates to staff from both facilities.

The Vulcan laser is the highest intensity focused laser in the world, capable of producing a beam with a focused intensity of 1021

watts per cm<sup>2</sup>, or a thousand million million million watts. This is equivalent to all the sunshine falling on the Earth focused onto the end of a single human hair.

ISIS is the world's most powerful pulsed neutron source. Covering the size of a football field, it produces 4 x 10<sup>16</sup> (40 thousand million million) fast neutrons per

second. These are focused into beams in a 'neutron microscope' allowing scientists to study, at a microscopic scale, the atomic and molecular arrangements that give materials their unique properties.

As part of the celebration staff from both facilities heard short talks by Professor Henry Hutchinson, director Lasers, and Dr Andrew Taylor, director ISIS, on their past successes and future plans.

While presenting the certificates David Hawksett commented, "The good thing is that I did not have to travel across the Atlantic to make the presentations. It is usually in the USA where this sort of work is done."

Trevor Winstone of CCLRC Central Laser Facility tests a large mirror used in the Vulcan Petawatt Facility.



From left: Ian Gardner (ISIS), David Hawksett (science and technology editor, Guinness World Records) and Colin Danson (Lasers).

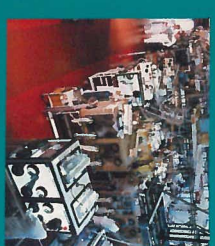
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### Thanks

Mike Walker, who worked in safety and assurance division, would like to thank everyone who contributed to the wonderful gifts given to mark his retirement from Harwell. "I'm sorry not to have been able to thank everyone personally or to have said goodbye to everyone. I have taken away very happy memories of 43 years at Harwell." Mike's gifts included a weather vane, gardening tools, a print of the church at Hagbourne and flowers for his wife Amy.

### John White (1938-2004)



John White, a founding member of the National Chemical Emergency Centre (NCEC), died at home on 6 May following a recent illness. His working life was spent at Harwell where, as a chemist, he was drafted in to manage the Chemical Emergencies Agency Service in the late 1970s. John was a Member of the Royal Society for Health and moved with the NCEC to Culham in 1994. He retired in 1997 and was able to devote more time as a district councillor and enjoy his keen interest in vintage cars. John's widow, Judy, is organising a celebration of his life at 2pm on Tuesday, 29 June at the Abbey Hall, Guildhall, Abingdon where those who knew him are invited to attend. Enquiries about the service can be made to Nick Hance on 01235 436909.

### Progress on chemical clean-up

In April work began to remove chemicals from the 25 disposal pits located at Harwell's Western Storage Area (WSA). To date the contents of four pits, each measuring around 60 cubic metres, has been removed for off-site disposal. Work did not start until emergency plans were in place and tested. These plans were activated on 6 May when chemicals in a pit produced a steam cloud containing chemical vapours. The incident was promptly dealt with and caused no hazard to anyone. Excavations and disposals are expected to continue throughout the year when the pits will be backfilled with freshly quarried materials and the land restored.

## B220 closure

Nearly 60 years of nuclear research and development in one purpose-built laboratory at UKAEA's Harwell site has come to an end with the closure of the radio-chemical facility, B220.

The facility was the first to be built at Harwell specifically for the nuclear programme in 1948, the year after GLEEP, Europe's first reactor began operating in a converted aircraft hangar on the site.

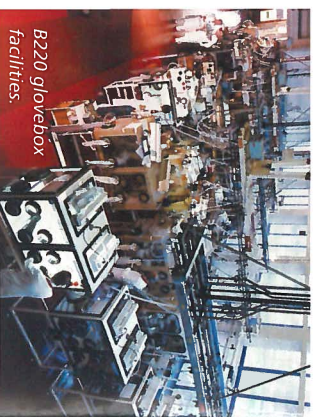
Chemists, engineers and physicists worked side by side to progress the UK's civil nuclear research programme, pioneering world technology. Such was the success of Harwell scientists, B220 was extended in the 1950s and again in the 1980s.

Much of the building was taken up with laboratories used for the remote handling of nuclear materials. Using 'glove-boxes' and heavily shielded facilities, scientists were able to safely work with radioactive materials. Over the years experimental work was carried out to support almost all aspects of the nuclear fuel cycle including reactor fuel fabrication, fuel properties,

reactor chemistry, reprocessing and radioactive waste management. In addition, isotopes were prepared for use in industrial and medical applications.

In recent years, much of the facility had been leased to AEA Technology for their commercial nuclear services and research programme, but this has now ended. UKAEA will begin decommissioning the older and redundant parts of the building. The more modern facilities will be used to support interim waste management operations for wastes arising from Harwell's site restoration programme.

UKAEA's head of site at Harwell, John Wilkins, said, "The closure of the radiochemical facility is a milestone in UKAEA's restoration of the Harwell site. I am proud to have been one of the many scientists who worked in the building. Although it is the passing of an era with the closure



of the UK's oldest nuclear research laboratory, Harwell continues to look to the future with the development of the joint-venture campus to nurture the development of business and science & technology."

## Suave winners

**S**elling tie-dyed t-shirts, socks and underwear made impressive profits for a team of students from St Helen and St Katherine School in Abingdon and won them the top spot in this year's Young Enterprise Awards.

Held at Culham Science Centre the awards were opened with an address from Brian Phillips, managing director, Culham Electro Magnetic and Lighting. UKAEA had also supported the event by printing the programme and sponsoring the category for best financial report. This was won by Polka Dot, another team from St Helen and St Katherine School, who made earrings from varnished sweets.

The winning enterprise was called Suave Designs and took several other awards including best trade stand for a sales display at John Allen Centre in Cowley in February, and best presentation on the awards night. They go on to represent the area in the south east regional finals.

Teams from schools across the county took part by starting up their own small enterprises and running them for a year. Each had the support of a link teacher and mentors from local companies.

## New chapter for library

Staff who used to work in UKAEA's library (B465) at Harwell helped start a new chapter for the building.

Originally built in 1959 as a library and reprographic centre, the building has been transformed into a state-of-the-art office complex following a £15 million deal between UKAEA and commercial developer, Deeley Properties.

To commemorate the completion of work UKAEA and Deeley Properties invited former library staff to see how their old workplace had changed.

Barbara Clarke, who worked as an information officer in the building for 15 years before retiring in 1994, said, "It's incredible to see how much space there is. When I was here, it was divided into reading rooms and there were so many bookshelves. Now it has been opened up and you are



The 1950s architecture has been successfully combined with contemporary office design.

able to see the building in full. "The library closed in 1999 and it is wonderful to think that it will be fully occupied. It had begun to look a bit tired but this has really brought it back to life."

RWE NUKEM, a leading independent provider of nuclear engineering, consultancy and support services, has agreed a 10-year lease for the whole of the first floor of the building. The ground floor of the Library,

which has been divided into three suites with a total of 67 car parking spaces, is still available.

Peter Deeley of Deeley Properties said, "We thought it would be nice to invite the people who worked in the library

The next phases of the development have been given the green light. Planning permission has been granted to develop five new two-storey buildings. Called 'The Business Park @ Harwell', the new buildings will offer approximately 40,000 sq ft of space, ranging in size from 2,000 up to 25,000 sq ft, and accommodating around 300 jobs. A third phase of the business park has received outline planning permission and is available for larger office enquiries up to 50,000sq ft.



Sir John Cockcroft at the ceremony to start construction of B465 in 1959.

to see how much the building has changed. While we have totally refurbished the building, we have maintained the 1950s architecture and mixed it with contemporary office design, providing distinctive office space."

## Library Gate moves

The opening of Harwell's new Library Gate marked the culmination of a project to resolve three separate issues under a joint venture with UKAEA and developer, Deeley Properties.

A year ago the area around the fenced site. The new position of Library Gate includes improved security measures to meet regulatory requirements and refurbishment of the Library building is now complete. Bringing these issues together has brought advantages out of potential problems.

The next major security project will see changes to Fermi Gate with work scheduled to begin in the summer.



## Special D-Day

A final reminder that the special 60th anniversary service to commemorate D-Day will be held at Harwell on Saturday 5 June. Everyone is welcome to attend the open-air service starting at 5.30pm at the RAF Commemoration Stone in Frome Road, Harwell. Gazelle helicopters will make a dramatic flypast and children from Chilton School will be laying single poppies. A marquee will be open from 2pm with displays about the history of the RAF at Harwell and the 50th anniversary of UKAEA. Also on display will be the work of RAL and details of the construction of the £235m Diamond Light Source.

- On the same day an 'open tower' is being held at All Saints Parish Church in Chilton between 2-5pm. Details of the restoration of the Chilton bells will be on display and at 4.30pm there will be a 15-minute peal as part of the D-Day remembrance ceremony.



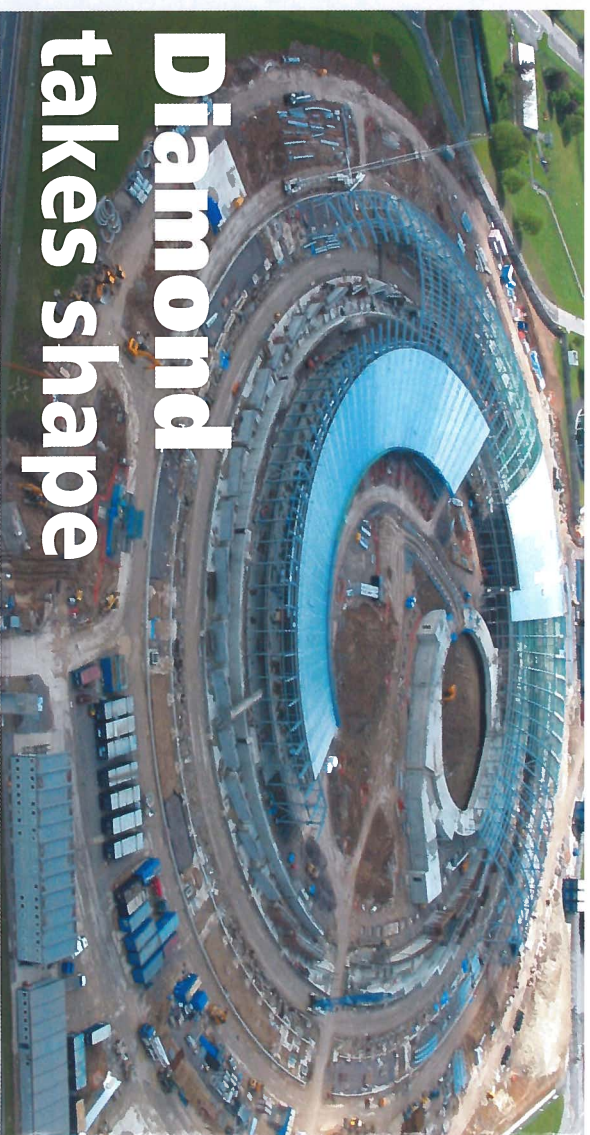
A trip down memory lane for ex-library staff who were invited to look around the new building.

With each new day there are changes to observe for staff passing the Diamond construction site. What is very evident is the magnitude of this impressive building project.

Progress is rapid thanks to Symonds, the building project managers, and main contractor, Costain. This large-scale project is also highly complex. Every piece of steel and pane of glass used is drawn separately. In total this equates to over a thousand drawings by Jacobs Gibb, the architect/engineer, and thousands more from the sub-contractors involved.

Iain Gilmour, associate director for Symonds, explains that the most intense period of the construction programme has been reached. Timing is geared to give access to Diamond's engineers, technicians and scientists by September this year.

"We have recently finished the roof of the Linac and Booster, which completes the concrete work in this area," he says. "The inner and ratchet walls of the storage ring tunnel



## Diamond takes shape

Diamond - the most intense period of construction has been reached.

are nearly complete. The technical services building, which houses the main plant rooms, is progressing well with structural steelwork and inner lining of the roof complete."

"Work has begun to erect the pre-cast concrete roof beams to the storage ring tunnel. The key mechanical and electrical services are being installed with the construction of the ductwork that will branch off to serve the Experimental Hall."

Diamond's office block is also taking shape with roof

decking over the atrium complete and curtain glass walling well underway.

Professor Gerhard Maretlik, chief executive at Diamond Light Source, comments, "It is very exciting that this facility is progressing so fast. Constructing a synchrotron is never an easy mission. The complexity of such a facility requires a huge team effort. We have ensured that the best skills have been gathered from home and abroad to deliver this synchrotron for the UK research community."

## Dragon boat drama

Although not on the winners' podium, both JET and RAL teams entering the Dragon Boat race, were jubilant after a day of messing about on the river.

The JET 'Lost Boys' won their first race then lost their balance and capsized in race two. The temperature of the water was a bit of a shock, according to team member Kerry Bell, and buoyancy aids were much appreciated. The £2000 raised will be



divided between the Oxford Children's Hospital Appeal, Cancer Research and Abingdon Vesper Rotary Club who organised the event.



RAL Rowers (nearest) in a photo finish with Welfield Press.

The RAL Rowers involved staff drawn from every department at RAL and produced a team of various shapes, sizes and fitness levels. This may have been a handicap to success - the side was unplaced in two races but achieved a photo finish in the third - but did not spoil their enjoyment. Friends and families joined them for a wonderful day in spring sunshine which will see the team raise almost double their initial £2000 fundraising target.

The RAL team brought together staff from all departments.

## Once in a lifetime

Astronomers through-out Europe will

witness a rare astronomical phenomenon when the planet Venus lines up directly between Earth and the Sun on Tuesday 8 June. Seen as a small black disk against the bright Sun, Venus will

take about six hours to cross the face of the Sun, known as a 'transit'. The whole event will be visible from the UK, weather permitting, however no-one should attempt to watch the event without proper viewing equipment. The last transit of Venus took place on 6 December 1882 and the next will not be until 2247. The imminent transit on 8 June begins shortly after sunrise at about 6.20 BST. It will be observed by two solar observatories in space, namely TRACE and SOHO. RAL has been involved in an instrument on SOHO and the laboratory is planning to have a number of telescopes trained on the transit.

Article and photographs by Bill Temple, ex-Harwell employee and conservation officer of the Hardy Orchid Society

This photograph of a migrant hummingbird hawk moth (*Macroglossum stellatarum*) pollinating a fragrant orchid (*Gymnadenia conopsea*) was taken a few miles from the Harwell site at the end of June last year.

From June to September this extraordinary moth is found in southern Britain. It feeds on honeysuckle (*Lonicera*) species and other nectar rich flowers. In the photograph you can see the pollinia of the orchid on the moth's proboscis. As an orchid enthusiast, I believe this is the first time that this day-flying moth has been recorded pollinating an orchid. If any readers spot this species of moth in their garden I would be interested to know which plants it visits.

The orchid flowering season is now well under way. Early spider orchids flower in April, early purple, green winged, lady, military, monkey and bird's nest orchids and white helleborines flower in May. In June it is the



A hummingbird hawk moth pollinating a fragrant orchid. The photo was taken a few miles from the Harwell site.

## Moths and orchids

turn of the bee, common spotted, southern marsh, fragrant and pyramidal orchids to flower.

The common twayblades, with their well-camouflaged flowers, have a long flowering season and can usually be found from May until July. The orchids present on site at Harwell are white helleborine, bee, pyramidal, common spotted and twayblade. As there are more than 6000 orchids on site I am hoping that they will flower in abundance this year.

To find out more about orchids visit the website <http://fp.orchidmag.co.uk>



Bee orchid.

## London to Brighton

A team of UKAEA staff from LETP will be travelling the 58 miles from London to Brighton, on their bikes. The sponsored cycle ride on 20 June will raise funds for the British Heart Foundation.



The cyclists make the 58-mile trek on 20 June.

The route is sure to get cardiac systems working well as it takes in some steep hills near the end. In preparation the team of ten has been busy training. "It's been hard for those of us who are not fit but we are hoping to make a lot of money through sponsorship," says organiser, Dave Wilkins. Referring to our photograph he comments, "If you think we look bad now, wait 'til you see the pictures from the ride!"

The team comprises Gareth Thomas, Steve Jones, Phil Denton, Alan Thomas, Alistair Deans, Gayle Baston, Matthew

Baston, Caroline Raine, Dave Wilkins and Richard Moore. If you would like to pledge your support please call Dave or Richard on H1630 or H4403.

## Cycle season

Nearly 30 cyclists enjoyed a free breakfast as a reward for cycling to work as part of the last 'bike to work day' organised by HarBUG (the Harwell site Bicycle Users Group). Most encouraging was the fact that some had cycled to work for the first time. A few were novice bikers and others were keen leisure-time cyclists who had not previously come to work by pedal power. It can be a daunting prospect but the opportunity to cycle as a group was a great incentive. The day finished with a social gathering at The Plough in Sutton Courtenay.

The next bike to work day will be held on 16 June. The new route 44 cycle route is officially opened on 10 June and more details will appear in the next issue of *Echo*.

## OUT about

### Male voice choir

Wantage Male Voice Choir is holding a concert in Wantage Methodist Church, Newbury Street, on 12 June as part of the Wantage Summer Festival. The concert, in aid of Wantage Community 1st Responders, starts at 7.30pm and tickets costing £7 (£6 concessions) are available from the Tourist Information Centre, Vale and Downland Museum, Church Street, Wantage, tel: 01235 760176.

### Bairn dance

Wantage Festival Barn Dance takes place on 19 June, 8-11pm at Old Mill Hall Grove. John Meecham is calling and music is by Penragon. Tickets are £6.50 each including ploughman's supper. Bar available. For more details call 01488 71294 or 01235 83148.

### International theme

Chilton School is holding its Summer Fair on Saturday 26 June at 2pm. The fair is the school's biggest fundraising event of the year and this year's theme is an international one. Organisers are planning to hold races, games (adults and kids!), taster foods from various countries and even the chance for visitors to dress up in any international costume, if they wish! There will be a barbecue, beer, refreshments, ice cream, raffle (£75 cash prize), bouncy castle, archery, cakes, a dog agility display and much more.

### Flowers, fruit, vegetables

Didcot Railway Centre is holding its first Flower Fruit & Veg Show on Saturday 26 and Sunday 27 June. The event will be open from 10am to 5pm daily with other attractions including craft stalls, demonstrations and tastings, competitions and steam train rides. This special weekend celebrates two bicentenaries - the first steam railway engine and the birth of the Royal Horticultural Society - and aims to promote the wide variety of high quality, local produce that is available in the region. Anyone interested in taking part in the displays or competitions should call Didcot Railway Centre on 01235 817200 or email [diddy@jfabainet.co.uk](mailto:diddy@jfabainet.co.uk)

### Summer fete

A summer fete will be held on Saturday 3 July at St Peter's Church, Newlands Avenue, Didcot, 12noon to 4pm. Many stalls, games, a grand draw, refreshments and attractions including Cornucopia Appalachian Step Dancers.

## HLRA cricket 25 not out



(l-r) David Bart-Rawden, chairman HLRA, Penny Oliver, secretary HICC, Nigel Bateman, chairman HICC and Tony Betteridge, administrator HLRA.

To celebrate the 25th season of the reformed Harwell International Cricket Club, HLRA and members of the cricket club have been working hard over the winter to launch the new season with renovated facilities.

Sightcreens have been repaired and repainted, the field roller restored to full working order, new practice nets are on

order and the tea room has had a complete make over. As part of the makeover HLRA was grateful for the donation of a complete fitted kitchen from B477. Thanks go to Tony Betteridge who installed kitchen units, decorated the kitchen and installed a new floor.

Anyone wishing to play cricket at Harwell for HICC or in the evening league should see the website [www.hlra.co.uk](http://www.hlra.co.uk) or phone the HLRA office (01235) 831072 for contract details.

## Diana celebrates 40!

The Diana Tournament for archery celebrates its 40th anniversary this year. Spectators are invited to watch the shoot which begins at 11am on the Central Sports Field, Harwell, on 6 June.

Depending on their age, gender, ability, and confidence, the archers will start shooting at 80, 60, 50 or 40 yards. There are several awards being made on the day as there are different classes for ladies, gentlemen and juniors (with four age groups), and different classes for up various bow types.



The main award though, and the one after which the tournament is named, is the Diana Trophy. This is a silver statue of Diana the Huntress which stands nearly three feet high. The trophy is presented to the best team of four archers (which must include at least one lady or junior) shooting the longest distance round, known as the Albion.

## Golfers welcome



The Harlequin Golf Society is looking for new members. The society is open to anyone who would like to play golf once or twice a month at local courses in and around Oxfordshire. There is a regular monthly medal, Stableford competitions and a knockout competition. This friendly society, formed around 15 years ago, welcomes players of all standards with no handicap certificate is required. For more information contact Stan Hillhouse on 01235 434680.

- Against Breast Cancer is holding a charity golf day on Friday 17 September at Southfield Golf Club, Hill Top Road in Oxford. Teams of four are invited to enter this 18-hole four-ball Stableford competition. On-course challenges include nearest the pin and a putting competition with some superb prizes to be won. Tee times from 10.30am. The cost to enter is £180 per team of four including coffee on arrival, dinner (rolling buffet) and prize presentation. Contact Louise Musgrove at ABC on 0870 7744288.

## Technology on show

The Technology 2004 exhibition came to Harwell for the first time this year. The event began 10 years ago and is now held at eight venues around the UK, including Culham Science Centre. Some 40 organisations set up exhibition displays for visitors who included engineers, designers, technologists and those with an involvement in the assessment, provision or purchasing of technology components and equipment. The event was organised by Nu-tech Associates and hosted by UKAEA. The event ensures UKAEA can source the best products and services in the most cost-effective way, particularly in preparation for the arrival of the NDA (Nuclear Decommissioning Authority) in April 2005.



(l-r) Natalie Vincent, Lisa Jones-Taylor (Nu-Tech Associates), Barry Shine (deputy director, F&CD) and Angela Vincent (Communications).

Adverts on this page are free to all staff at Culham, Harwell, JET, MRC, Nirex, NRPB and RAL. Please submit your ad (30 words maximum) to the editor, Valerie Judd, by e-mail: [vjt@globalnet.co.uk](mailto:vjt@globalnet.co.uk) or by fax: 01865 331154. They can also be sent to Nick Hance, UKAEA, B521, Harwell, Didcot, Oxon OX11 0RA. For next copy deadline see back page.

All ads, apart from holiday accommodation, will be run for one month. Please resubmit any ads to be repeated. Telephone prefixes are: C Culham; H Harwell; J JET; M MRC; NI Nirex; N NRPB; and R Rutherford Appleton Laboratory.

### Test Print

## Pilates class

Due to popular demand a second Pilates class is being held at Culham. The original class currently runs on Monday from 12-1pm in the Culham Social Club, C2. A further class will be introduced in June from 1-2pm.

Both are run by an experienced Pilates instructor. The course is suitable for both men and women and the only equipment needed is an exercise mat and loose and comfortable clothing. Pilates teaches how to exercise without injury, using the body itself as a weight, creating strength, flexibility and mobility. Kathy Clarke of Forensic Alliance, says, "I was first introduced to Pilates by a rugby player who found it helped his recovery from a back injury. I am now a definite convert and, having a degenerative spine condition, am sure that Pilates keeps me much more flexible and mobile than I could have imagined." To book a place contact Kathy on 01235 551804 or [kathy.clarke@forensicalliance.com](mailto:kathy.clarke@forensicalliance.com)



### SAFETY Update

Two members of staff who were passengers in a van suffered whiplash injuries when the driver stopped suddenly while reversing. This resulted in more than three days off work making the event reportable to the HSE under RIDDOR.