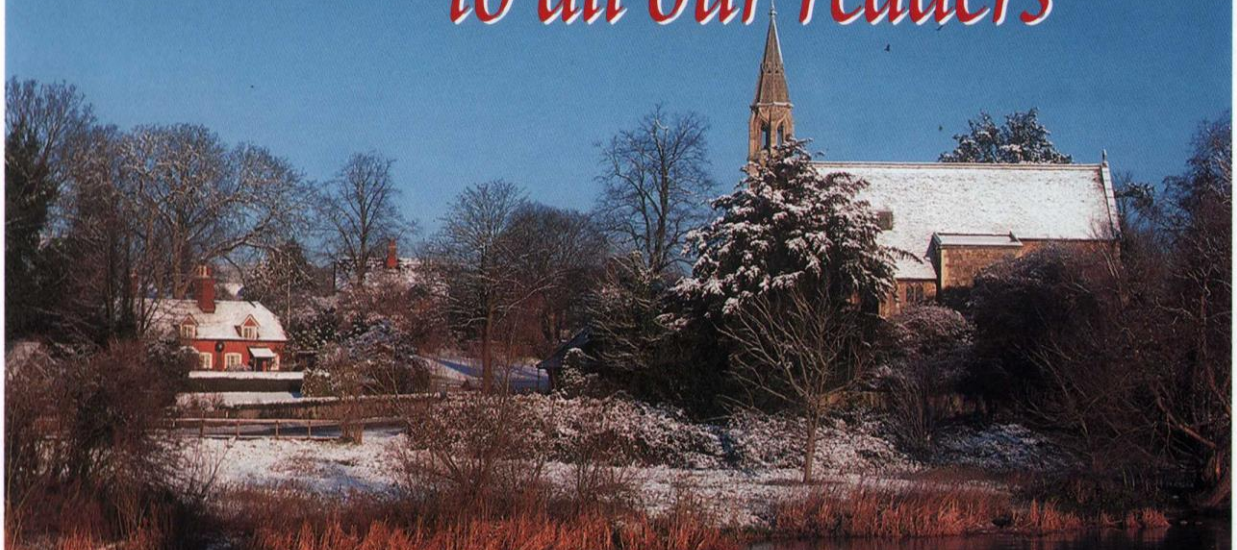
eCHO

THE NEWSLETTER OF THE CULHAM SCIENCE CENTRE & HARWELL BUSINESS CENTRE **DECEMBER 2000**

A merry Christmas and a happy New Year to all our readers



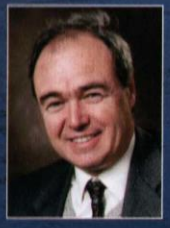
The millennium opened with exciting news of developments on the Culham and Harwell/Chilton sites. We congratulate Rutherford Appleton Laboratory on being selected for the building of the 'light' synchrotron and NRPB on its 30th anniversary.

Culham's status as the world's number one centre for fusion research is guaranteed by the all-new agreement between UKAEA and its fusion partners in Europe in the new contract to operate JET. MAST's achievement of its first million ampere plasma bodes well for the future of the spherical tokamak programme.

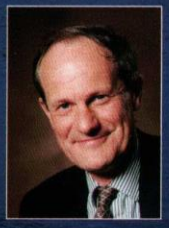
There were major changes to the landscape at Harwell with the construction of AEA Technology's engineering software building, the demolition of the BEPO chimney and restoration of the Southern Storage Area. The opening of the Harwell Innovation Centre led to 19 new companies arriving and the expanding businesses of Crystalox and Verran Freight moved into Culham.

Culham hosted Oxfordshire's Young Enterprise finals and Harwell was chosen to launch National Fire Safety Week. NRPB studied radiation from mobile phones and the Chelton Group acquired AEAT's electromagnetic and lightning division at Culham. The Harwell Drying Service restored damp archives from the East Sussex flooding and UKAEA gained ISO14001 status for environmental management at Harwell.

To all at the sites, to families, friends and neighbours, our best wishes for a happy Christmas and successful New Year.



John Wilkins, head of site, Harwell



Derek Robinson, head of site, Culham

Clifton Hampden Church. Photograph courtesy Eric Jenkins.

• Harwell Innovation Centre •

Unique students *insight*

Knowing what would appeal to students is the secret behind a new enterprise run from Harwell Innovation Centre.

Unique Students Ltd is the brainchild of Stuart MacBride and David Ward, both 23, who recently graduated from Oxford Brookes University. While studying they began to put together a business plan with the help of a few colleagues. They now run a national student shop, selling reasonably priced house wares and gifts aimed at the student market.

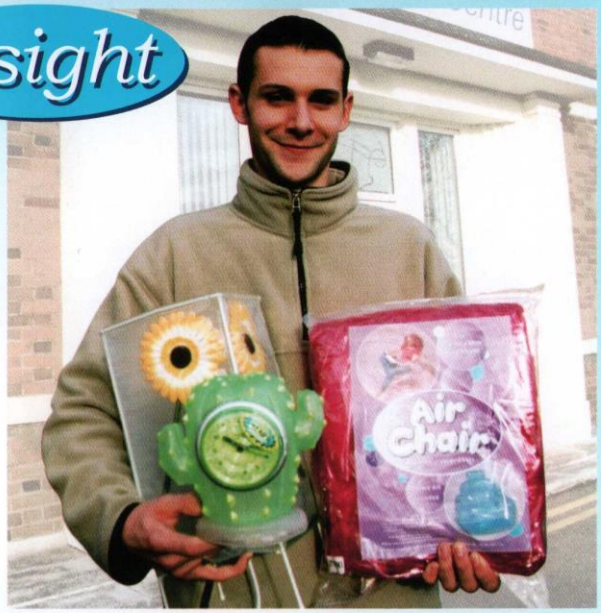
David and Stuart won first prize for their business plan in a national competition held at Venturefest 2000 in June. Dr Russell Smith, one of the judges, was so impressed with the business plan that he was happy to assume the role of chairman of the new start-up company. Roger Mumby-Croft from Oxford Brookes University's Enterprise Centre became non-executive director and the company secured the funding it needed to start trading in the summer. The business is one of the first 'spin out' companies from the university.

Now into its third month, Unique Students Ltd has launched a website and Stuart and David have visited dozens of universities all over the country with a mobile display. Requests for catalogues are pouring in. The business has three selling routes through mail order, e-commerce and, most importantly, direct selling.

"Unique Students Ltd is a unique concept. It is the first national university shop, selling items for students rooms, houses and loads of gadgets and gizmos," comments David Ward. "The response at trading days and freshers fairs has overwhelmed us. We're now preparing for the Christmas rush!"

Student Sets are extremely popular, with students and their parents. A kitchen set, for example, contains enough plates and bowls and glasses for one or two students. Other good sellers are laundry baskets and alarm clocks, in many shapes and sizes! Novelty items such as lava lamps, fibre optic UFO lamps, plasma balls and tubes sell well, as do the micro skate scooters for getting around the campus and folding up for lectures.

The new website can be found at www.uniquestudents.com or telephone 01235 838563.



David Ward with some of the goods on sale - a cactus alarm clock, flower lamp and an inflatable chair.

Harwell Innovation Centre is managed by Oxford Innovation Ltd. It provides premises and services to new science and technology companies on a very flexible basis. Companies and individuals seeking premises are welcome to call Mandy Bennett, manager, Harwell Innovation Centre, tel: 01235 838500. Conference and meeting rooms are also available. Oxford Innovation also runs Oxfordshire Investment Opportunity Network, which helps companies seeking expansion funds in the range of £10,000 to £500,000 or more. For details please contact George Whitehead on 01865 811143.

New look ABC

AGAINST BREAST CANCER

SEE WHAT YOU CAN DO

Harwell-based charity, Action against Breast Cancer (ABC) was re-launched on 1 December with a new name and a new image. London consultants Wolff Olins and Redwood, have donated their services to create a new corporate look for the charity. Now called Against Breast Cancer, the charity will be able to raise its profile and communicate in a more professional manner.

Schools resource launched

Rutherford Appleton Laboratory recently hosted an event to launch a new schools initiative. The Oxford Trust, together with the South Oxfordshire Education Business Partnership, has secured funding from Shell to provide a new resource for local secondary schools to explore environmental issues. The resource comprises six sets of equipment available to schools to carry out problem-solving activities. Themes include wind energy, the hole in the ozone layer, Earth observation from satellites, plastics recycling, water pollution and biomass fuels.

Plans for hotel and leisure complex

A major hotel company is in discussion with Harwell International Business Centre with a view to locating a 140-bed hotel and leisure complex at the site.

The proposed development, currently awaiting planning permission, will give staff access to a first-class leisure complex providing squash and tennis courts, swimming pool, multi-gym, dance studio and full spa facilities. It will also be open to people in the local community on an annual membership basis.

Ian Rodham, commercial manager at Harwell's central property unit said, "This development is an important part of the strategy for the business centre and will significantly enhance the amenities and facilities available to the growing business community on the site.

"If approved, the hotel will provide high quality accommodation for business and scientific visitors and the neighbouring campus, while the conference facilities and restaurant will also be of direct benefit to the local business community."

New centre for innovation

UKAEA's fusion and industry team has unveiled plans to open an Innovation Centre for UK businesses at the Culham Science Centre as part of a series of new initiatives designed to forge closer links with industry.

The Innovation Centre is intended for engineering and technology start-up companies who may be able to benefit from the skills and technologies used in fusion research.

UKAEA Culham Science Centre is recognised as a world leader in fusion research. Cleve Forty, fusion and industry manager, says, "Our research brings together an enviable set of engineering skills and expertise for companies to tap into. For example, our simulation and modelling skills are as applicable for financial modelling as they are for increasing the efficiency of gas-turbine engines.

"We are in discussions with one the country's leading organisations specialising in new business development within the engineering and science community," he said.

"With plans for the Innovation Centre at an advanced stage, we are inviting UK companies to consider locating part of their activities in the Innovation Centre, where they might benefit from fusion consultancy."

In mid-2001, UKAEA is hosting the Venturefest conference, bringing together scientists and entrepreneurs from Oxfordshire and the Thames Valley to present their ideas to business support agencies and venture capitalists.

For more details about the Innovation Centre and other fusion and industry initiatives contact Cleve Forty on 01235 463534 or e-mail cleve.forty@ukaea.org.uk

"Start-up companies will have access to the skills and technologies used to develop MAST," says Cleve Forty.

ENVIROSQUANTISCI

knowledge innovation solutions

Environmental consultant, Enviros QuantiSci, has taken over 3,000 sq ft of office space at Culham Science Centre. The company's new office in D5 will be a centre for environmental assessment and related software applications, focussing on hazardous waste management. Previously based at Henley-on-Thames, Enviros QuantiSci cited proximity to like-minded businesses and a high quality labour pool as the key reasons for relocating to Culham.

Graham Smith, environmental assessment group leader, commented: "Culham Science Centre is an excellent incubator for our business with many like-minded companies located close-by. It offers good travel connections and gives us easy access to our clients. Culham provides us with a high quality labour pool, from which to recruit skilled professionals. We are currently seeking to recruit a graduate for our software applications team, and further vacancies are expected in the near future as the business grows."

Enviros QuantiSci is part of the Enviros group of companies, which together provide environmental consultancy and products, as well as specialist IT applications. The consulting arm of Enviros is organised into five client-facing business units covering quantitative risk assessment, waste strategy, climate change, corporate environmental services, and due diligence.

For more information see the website at http://www.enviros.com/quantisci/

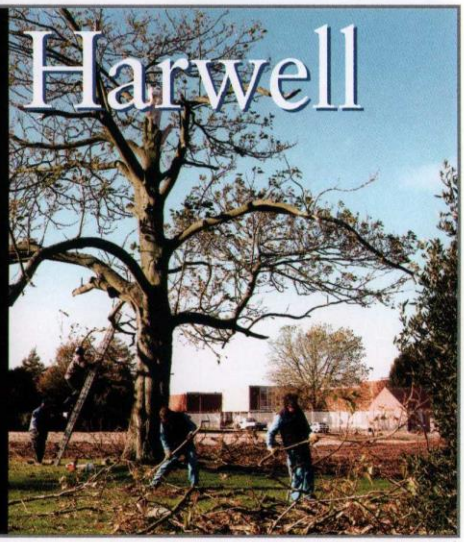
For safety's sake

Take care during the festive season! When did you last have your Christmas tree lights and electric blanket tested? If you are in any doubt about their safety, seek advice from an expert. Be especially careful with candles; a night-light used on an acrylic bath started a fire that gutted a house and caused two fatalities. Have a good Christmas and stay safe.

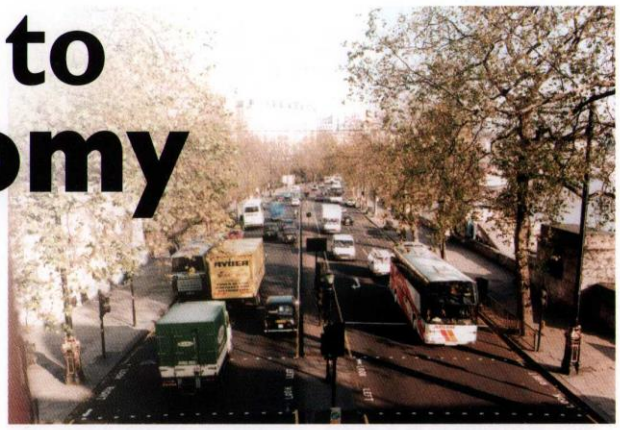
Storms hit Harwell

Oxfordshire did not escape the onset of Britain's winter storms and Harwell grounds staff had rather more than just fallen leaves to sweep up on Monday 30th October. Seen here, at Harwell, are workers removing fallen branches and making safe a tree that lost its crown overnight. Elsewhere ravaged trees were removed and drains unblocked so that flooded roads could clear. Some staff had lengthy detours to make on their way to work, caused by flooding in several Thames Valley villages.

Remedial tree repairs on the site of the former Harwell restaurant.



Getting wise to fuel economy



A typical heavy goods vehicle will use £25,000 of diesel every year. A five per cent saving will therefore reduce bills by £1,250. Whatever the outcome of recent protests, two things are clear. The cost of fuel will continue to make up a large proportion of transport costs and reducing fuel consumption cuts the amount of harmful emissions being discharged into the environment.

In response to these factors - and a belief that UK industry did not give sufficient emphasis to fuel efficiency - a new company was formed in 1994. Called Fuelwise it would offer specialist fuel consultancy, drawing on the considerable experience of its two founding directors, Paul Randon and Ken Atkins, who had both reached senior positions within the transport industry. In 1998 Richard Bungey joined Fuelwise from the BOC Group, where he had spent 21 years in the distribution industry.

Earlier this year Fuelwise opened an office at Harwell to partner the existing base in Bristol. Richard Bungey heads the Harwell operation located in B166.

"One of the biggest problems is obtaining good quality information about current performance," comments Richard. "To this end Fuelwise has developed software that can analyse and 'clean-up' fuel data to give accurate consumption information. During the past six years we've also investigated many different fuel saving products. We've experience of fuel monitoring and test procedures that we've developed as part of contracts undertaken."

The target market for Fuelwise services is a large one. It includes road transport and distribution companies from road haulage to taxi operators and public transport, car and van fleet operators, and government departments and associated bodies such as DETR and ETSU. Fuelwise also deals with manufacturers of equipment designed to improve fuel efficiency, and suppliers to the transport industry such as oil companies, vehicle manufacturers and tyre producers.

"One of the vital areas is staff motivation," comments Richard. "We've helped produce a training video for drivers about how driving technique can improve fuel efficiency.

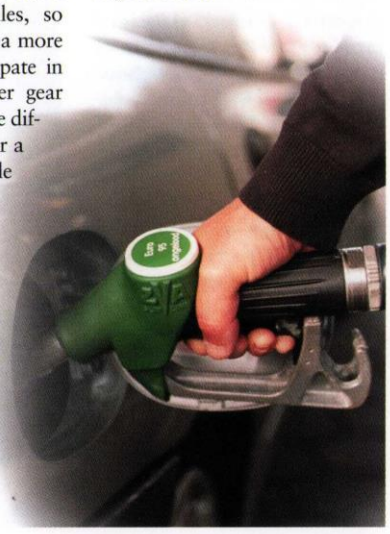
"A heavy goods vehicle normally uses a gallon of diesel every seven to ten miles, so learning how to drive in a more measured way, to anticipate in advance and make fewer gear changes, will make a huge difference. It also makes for a much more relaxing style of driving."

For fleet operators, Fuelwise has designed a 'fuel management excellence' programme. This includes a driver training manual, videos, leaflets and posters. On-board equipment to monitor vehicle and driver performance is part of the package.

A fundamental tool in its work is Fuelsense. This software, developed by Fuelwise, takes into account many factors such as routes, seasonal variations, different vehicles within the fleet and their fuel types, etc. It can import data from other sources such as direct from pumps, from fuel card suppliers and other fuel software.

Fuelwise has worked closely with ETSU for a number of years. Fuelwise has given advice for the Environment and Energy Efficiency Helpline and are currently involved in two major ETSU / DETR projects - rewriting the Fuel Management Guide for HGV operators, and writing guidance for fleet operators to assess and evaluate fuel saving devices. They also provide support to Helpline enquirers under the recently introduced 'site specific advice scheme'.

"Everyone is much more aware of fuel as a scarce resource and green issues are an increasingly important objective for everyone we work with," says Richard.



Halloween fun

Witches, ghosts and ghouls from the Little Stars Nursery at Rutherford Appleton Laboratory celebrated Halloween at a party on 31 October. Many of the children dressed up, and they all thoroughly enjoyed the occasion. "Surprisingly, none of the children were scared by the wonderful costumes and faces - but I can't say the same for the staff!", commented Melanie Pease, manager of the nursery. Displaying some Halloween magic in our photograph are (from left) Harry Collins, Joshua Barton & Aidan Jennings.

AEAT helps destroy US weapons

A system developed by AEA Technology could be used to destroy much of the 30,000 tons of chemical warfare agent stockpiled in the United States. The US army is testing the SILVER II system which reduces highly toxic organic chemicals to harmless carbon dioxide, water and salt.

Two SILVER II plants have been built in the UK and shipped to US army bases in Maryland under a contract worth around £7m. The plants will be used to demonstrate the safe destruction of hazardous weapon components such as chemical agents, high explosives and solid rocket propellants.

The work is being carried out under the USA's assembled chemical weapons assessment programme which was launched in 1997 after Congress ordered the army to demonstrate at least two alternatives to incineration for the destruction of stockpiled chemical weapons. SILVER II is being tested alongside four other systems.

Based on the test results, contracts will be let for the construction of full-scale demilitarisation plants at chemical weapons storage sites. At Blue Grass, Kentucky, 70,000 rockets armed with Sarin and VX nerve agents, are held, and at Pueblo, Colorado, munitions containing mustard gas are stored.

Terry Graham of AEA Technology said, "Residents living close to weapons storage sites have been concerned for some time to see them destroyed. However, there is also growing pressure to ensure that the destruction does not harm the environment and techniques such as incineration have resulted in public opposition. SILVER II can provide the means to remove these weapons forever in a completely safe and environmentally responsible manner."

About SILVER II

SILVER II was developed in 1987 by AEA Technology as a means of destroying organic wastes generated by the nuclear industry. The name derives from the silver ions which are formed during the destruction process and which attack the chemical agent or organic waste. The nuclear programme led to the construction and operation of a 4kW demonstration SILVER II plant at Dounreay, Scotland. A similar size plant was built by AEA Technology in 1996 at the UK Chemical and Biological Defence Establishment, Porton Down, for live chemical warfare agent testing. Tests have confirmed that SILVER II can safely destroy agents such as Sarin and VX nerve agents, blister agents such as Mustard and Lewisite, various explosives including TNT, RDX and Semtex, and solid rocket propellants.

AEA Technology *half year results*

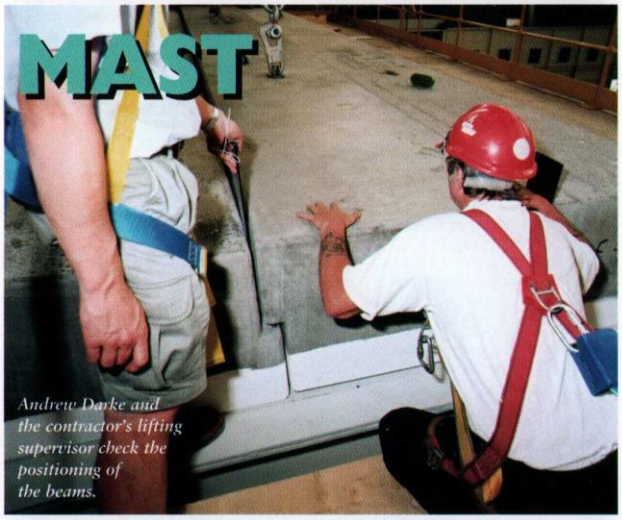
Turnover	- £171.9m
Operating Profit	- £2.7m

550-tonne roof over MAST

There are exciting developments at the MAST (Mega Amp Spherical Tokamak) fusion experiment at Culham. The first MAST operating campaign was a resounding success, with results that fulfilled every expectation, including the production of a plasma of more than 1 million amperes.

A new physics campaign is planned to start in January 2001. This will include high power deuterium neutral beam injection, which produces neutron radiation. To minimise any radiation leakage a 600mm thick pre-cast concrete roof weighing 550 tonnes has been installed during the shutdown.

The roof's construction tested the boundaries of concrete manufacturing technology, as the 69 T-shaped interlocking beams, varying in length from 3.5 m to 8.6 m, were made to a very tight tolerance of +/- one millimetre. As Andrew Darke, project manager commented, "This was essential to ensure the absolute minimum of radiation leakage and was very successfully achieved. The preparation and installation of the beams was completed without problems in a matter of days."



Andrew Darke and the contractor's lifting supervisor check the positioning of the beams.

Political heavyweights at Harwell

Tickets are being sent out for the live radio broadcast of 'Any Questions?', from the Cockcroft Hall at 8pm on 15th December. The panellists include Jack Straw, home secretary, with John Redwood and Paddy Ashdown. Unfortunately Lord Jenkins is indisposed and cannot now appear on the programme.

A small number of free tickets may still be available from Nick Hance (nick.hance@ukaea.org.uk).

All change on the buses

The last date of operation of the Johnson Controls home to work service will be Friday 12 January 2001. The home to work service has had to be withdrawn because it had been making substantial losses for some time and Johnson Controls could not continue to operate it on this basis without additional external financial support. Johnson Controls would like to thank everyone who has used the service.

The new Stagecoach service begins on Tuesday 2 January 2001. All organisations should by now have received timetable details and a public transport guide is currently in production.

OUT & ABOUT

The Tough Princess

Stagelights present The Tough Princess, on 7, 8 and 9 December at the Old Mill Hall, Grove. The production has been adapted from a children's book and follows the life of an unconventional princess. Clara Jeffery, a local young composer, has created some songs to be performed by Stagefright, a local children's theatre group. Great fun for all the family with a matinee performance on Saturday 9 December. Tickets available from Bretts in Wantage or tel. 01235 770736.

Thames Craft Guild exhibition

An exhibition to mark the 20th anniversary of the Thames Craft Guild is being held on Saturday 9 December between 10am-4pm at St Nicolas Church, Market Place, Abingdon. The Millennium Embroideries for St Nicolas Church will be on display and refreshments available.

Christmas tree sales

On Sunday 10 December and Sunday 17 December, Christmas trees will be on sale between 12noon-2.30pm near Sandhurst, Berks. Scots Pine trees that don't drop their needles will be available. Sales organised by BBOWT. Meet at the no through road off Rackstraw Lane, SU850629. Contact D Rylands on 0118 959 8318 or C Winder 01753 854393 for more details.

Boxing Day walk

Forsake the TV and the cold turkey and join a BBOWT ranger for an amble at Shotover, Oxford, on Boxing Day, Tuesday 26 December. Mulled wine and mince pies on sale afterwards. Suitable for families with young children. Meet at 11am, Shotover Country Park. Contact A Roberts on 01865 715830.

'Kill-a-Watt' campaign

AEA Technology is embarking on a group-wide campaign to save energy. The initiative highlights easy steps that all staff can take to help save energy in the workplace, and at home.

To name the campaign AEA Technology ran a competition. The winner was Tony Duffin, from AEA Technology Environment's sustainable technology group, for his suggestion, 'Kill-a-Watt'.

The aim is to reduce overall electricity use by three to five per cent across AEAT UK sites during the first year. AEA Technology Environment has piloted the scheme on its buildings and was able to make substantial savings in the first 12 months. They have now been commissioned by AEA Technology property and facilities group to broaden the scope to all sites and businesses.

Overall co-ordinator is Mike Birks, with energy managers appointed for each business as the focus of the campaign and the first point of contact for queries. Awareness will be heightened through the Intranet, articles, posters and 'notices in strange places' (on-the-spot reminders to staff to save energy wherever possible).

New photo sensitive lights have been installed outside B156. Moira Simpson and Mike Burks are pictured.

Mike Birks and Tony Duffin (who suggested the 'Kill-a-Watt' name) check energy saving advice on the website.

"Reducing energy use has dual benefits", says Mike Birks. "First of all, wasted energy contributes to global warming and, secondly, AEA Technology spends a significant amount on electricity and gas. By following simple ideas we can all help AEA Technology save energy and money and we can also do the same at home. Each AEA Technology business has made a commitment to the initiative and has set targets. It's just a question of awareness and putting good intentions into effect."

The potential for energy saving is huge. For example:

- A photocopier left on overnight uses enough energy to make 5300 A4 copies.
- It's a myth that it's cheaper to leave fluorescent lights on. Energy is saved if they are turned off when you leave the room for more than a few minutes.
- Many PCs in AEA Technology are left on overnight or over the weekend. Turning off a PC for any lengthy break during the day can achieve energy saving of up to 60 per cent. For maximum efficiency, always switch equipment off at the plug when it's not needed.

If you would like to know more about the campaign please visit the AEA Technology Environment website www.intranet.aeat.com/AEAT_Environment/html/a-z.html and then click on Kill-a-Watt or contact your energy manager.

Chilton Children's Club – the 3 C's

The 3 C's is an after school club for the children of Chilton Primary School which aims to provide high quality after school care in a safe, relaxing and happy environment. A leader and assistant are employed at each session to run an extensive programme of activities from 3.15-5.30pm, Monday to Friday. These include arts, crafts, board games, drama, cookery and sports. A quiet area is available for children with homework. All that and a pet hamster too!

If you would like further details, please contact the school office on 01235 834263.

EXPLORING HARWELL'S ECOLOGY

In this issue of ECHO the centre pages feature a special ecology supplement that describes the diverse wildlife to be found at Harwell. Readers may wish to keep the publication for reference during the coming year. Further seasonal articles will be published in most issues.

EXPLORING HARWELL'S ECOLOGY

HARWELL INTERNATIONAL BUSINESS CENTRE FOR SCIENCE AND TECHNOLOGY

A clear strategy exists to develop Harwell International Business Centre by decommissioning redundant facilities and constructing new buildings, site infrastructure and amenities. Within this strategy there is scope to respect the diverse wildlife present on the site in various habitats ranging from grassland, wetland and wooded areas to more formal landscapes.

The business centre is located in an Area of Outstanding Natural Beauty in the North Wessex Downs, within the celebrated Vale of the White Horse. At some 260 hectares or 640 acres, the UKAEA's estate can play a vital role in protecting and encouraging native plant and animal species. With growing interest in our natural and man-made environment, a new approach has been adopted to site management. This is designed to preserve areas of particular richness and to ensure that new landscaping does not stifle the natural environment created over many years. Quite apart from the benefit to wildlife this creates a more attractive workplace for everyone at Harwell.

The new approach means that an ecology plan has been integrated into the complex seasonal schedule of grounds work. It marks a departure from the old style of estate management. While there are still formal flower and shrub beds and close mown lawns, a better balance is being restored with more informal natural settings to encourage native flora and fauna.

In essence, the plan involves:

Grassland – The site has extensive grassland that requires a carefully planned mowing regime in harmony with the lifecycles of wildflowers. Colonies of various orchids across the site and some newly created wildflower meadows require grass-cutting at specific times to help flowering and seeding.

Trees – The large stock of mature trees (last recorded at over 7,000) in both formal and woodland settings will be managed to create the best possible habitat for wildlife. Deadwood supports insects which, in turn, attract birds. Some standing and felled deadwood will therefore be kept in situ. Planting new trees will create further habitats and also provide screening and windbreaks.

Hedges – As more hedging disappears in farmland situations, Harwell can provide a vital link in the north-south 'corridor' for migrating and nesting birds. New hedges using native species will be created across the site.

Wetlands – Pond and wetland areas support their own rich diversity of wildlife. Lagoons have been created on the site with regard for the flora and fauna they can support.

Nest boxes – Small mammals living in the grass and scrubland provide food for birds of prey. Good sites for nest boxes have been identified.

Eco-sites – Four specific eco-sites have been earmarked across the site as specific projects, namely the lagoon on the site of Hangar 9, Frome Road grassland, the 'mound' behind B521, and the Dido Road lagoon. Plans are described on the back page of this brochure.

Setting

The escarpment of the Downs rises immediately to the south and the lower-lying land fringing the Thames Valley spans out to the north. The surrounding countryside is characterised by sweeping arable farmland and, centred on Harwell village, orchards sustain the long tradition of local fruit-growing.

Geology

The main underlying geology is Lower Chalk with several bands of harder ground known as Chilton Stone and Melbourn Rock. Soils have a high content of calcium carbonate and montmorillonite clays; these have high pH value – in excess of 7 – and are heavy in consistency. Being rich in mineral nutrients they have been favoured as prime arable land since prehistoric times. At Harwell the construction of the RAF airfield and its subsequent role as the Atomic Energy Research Establishment, further altered the geological make-up. However, this is not entirely to its detriment ecologically. Land has escaped treatment with agro-chemicals allowing many wild plants to colonise parts of the site.

Archaeology

Although there are no ancient monuments, the Icknield Way crosses the northern part of the site. Also the local parish boundaries of Harwell, Chilton and East Hendred meet up within the bounds of the campus. Other old tracks border and cross the estate. These include the old Hungerford road which is still clearly visible as a green track adjacent to the northern boundary of the estate.

Note: Anyone visiting areas described in this leaflet, whether within or outside the fenced area, should note that these areas can be hazardous due to uneven or wet ground, extensive growth (especially in season) and similar natural hazards. A number of plant species at Harwell are protected by law and their unauthorised removal is an offence. Harwell International Business Centre is a private estate owned by UKAEA. Only authorised access is allowed and particular parts of the site may be further restricted.

A new lagoon has been created on the former Hangar 9 site.

A word from BBOWT...

UKAEA supports the Berks Bucks and Oxon Wildlife Trust (BBOWT) both as a corporate member and through sponsorship of local projects such as the creation of wetlands at Cholsey Marsh Nature Reserve. The Trust is delighted to see that UKAEA is managing its site at Harwell to benefit wildlife as well as encouraging staff to take an interest in their surroundings. We hope that the good relationship between our two organisations will continue and that the Trust's endorsement will further aid the ecological projects underway on site.

Charlotte Francis, fundraising manager, BBOWT.

Berkshire
Buckinghamshire
Oxfordshire

The wildlife TRUSTS

EXPLORING HARWELL'S ECOLOGY

1 *Measshill plantation*
A diverse collection of trees including beech, lime, horse chestnut, ash, hazel, elder and sycamore. The grass swards are quite rich in toadstools.

2 *Specimen trees*
A remarkable range of specimen and ornamental trees was planted about the site after the war.

3 & 4 *Recent tree plantings*
Examples of newer, well-varied tree plantings can be seen in the area between B540 and the bus park. Another area is by the southern stretch of Rutherford Avenue. This comprises young trees rescued by grounds staff from Snelsmore Common before construction of the Newbury by-pass.

5 *Autumn colour*
The foliage of trees creates a dramatic effect during autumn months, for example those on the mound by B521.

A population of cowslips.

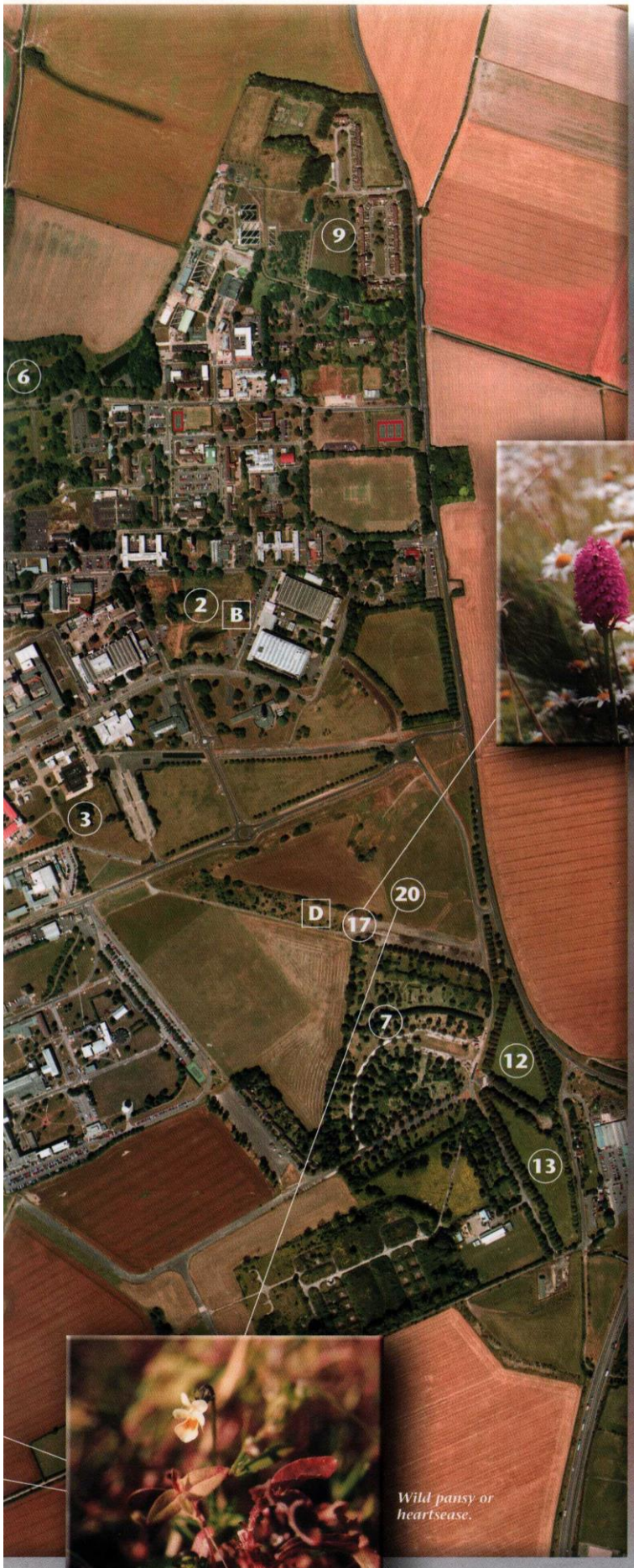
6 & 7 *Established tree habitat*
A mosaic of mature trees, hedges and orchards can be seen on the old garden plots of the 'pre-fab' estates to the north of Hillside (6) and towards Chilton (7). The planned housing development at Chilton provides for the retention of various species of mature trees.

6 & 7 *Developing hedges*
Garden or boundary hedges have grown into an attractive hedge of hawthorn, privet, hornbeam, willow, ash and beech.

Warm autumn shades can be seen on the 'mound' behind B521.

8 *Blackthorn belt*
A substantial belt of suckering blackthorn, providing prime nesting habitat, is spreading in the area outside the boundary fence where it skirts Dido Road.

9 *Mixed scrub*
A pleasing area of open and mixed scrub can be seen between the Icknield Way and the water treatment plant, including hawthorn, wayfaring tree, hazel and field maple, as well as cherry and oak.

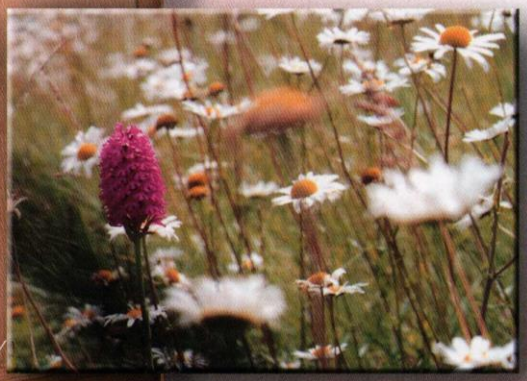


10 & 11 *Diverse hedges*

There are substantial hedges along various stretches of the estate boundary, particularly on the western side. An especially rich feature of both archaeological and ecological interest is the double hedge lining the old green track of Hungerford Lane.

12, 13, 14 & 15 *Grassland communities*

In addition to ryegrass and creeping bent, other more diverse species occur including fine-leaved fescues, crested dogstail, cocksfoot, Yorkshire fog and golden oat-grass. Herbs include daisy, yarrow, smooth hawksbeard, autumn hawkbit, ribwort plantain, white and red clovers, black medick and germander speedwell. Lady's bedstraw can be seen in abundance in one area opposite Down Side.



Ox-eye daisies and pyramidal orchid.

16 *Cowslips*

A successful population of cowslips can be seen on a fragment of grassland adjoining the boundary fence at the southern tip of the site.

17 *Species-rich grassland, butterflies and insects*

Where the chalk turf has lain undisturbed and uncultivated, grassland of prime ecological importance can be found. The best example is alongside Frome Road where soil was used to cover old runways after the war. As well as upright brome-grass, classic chalk downland species are present including quaking-grass, crested hair-grass, glaucous sedge, salad burnet, greater knapweed, marjoram, wild basil, self-heal, bird's-foot trefoil and the rare blue fleabane. Pyramidal orchids have also been abundant in past years.

The habitat is ideal for invertebrates including marbled white and small heath butterflies, the rare brown argus, the six-spot burnet moth, many kinds of hoverfly, social and solitary bees and wasps, and yellow and black meadow ants.

18, 19, 20 *Arable flora*

Field margins and areas which were previously under cultivation, have a specific collection of flora. Typical examples include blackgrass, field pansy, scarlet pimpernel, sow thistles, field bindweed, fool's parsley, corn poppy, forget-me-not, cleavers, Persian and wall speedwell. Other rarer species found are knotted hedge parsley and Venus's looking-glass.

Wild pansy or heartsease.

ECO-SITES (see back page)

A	The mound by B521
B & **C**	Hangar 9 and Dido Road lagoons
D	Frome Road runway area

EXPLORING HARWELL'S ECOLOGY

The nest-like seedheads of the wild carrot provide shelter for insects.

Paths were mown during summer months to help staff enjoy the wildflowers.

Wildflower meadows

Wildflower grass mixtures have been used successfully to create diverse grassland. Species include alsike clover, sainfoin, kidney vetch, yellow and white melilots, black medick and wild carrot. More permanent plants include ox-eye daisy, lesser knapweed, yarrow, musk mallow, meadow buttercup, self-heal, marjoram and common St John's-wort. Common blue butterfly and grasshoppers can also be seen. Wild carrot seed-heads attract a variety of insects including ladybirds, earwigs and some spectacularly marked shield-bugs.

Bird-spotting at Harwell

Sightings of more unusual birds have been made at Harwell. Skylarks can be seen in abundance where the site borders arable land and dunnock and yellowhammer make use of bordering hedgerows and other cover. Partridge (both native grey and the introduced red-legged species) and pheasant visit Harwell. Quail have also been recorded in the past, although not recently. Another transient visitor was an eagle owl while barn owls and kestrels have nested in various locations at Harwell. Bats have also been found in other areas, most recently during the decomissioning of ducts by Hangar 10. Care is taken during all projects to check resident fauna and seek specialist advice on handling. As part of its environmental management system UK Nirex has installed six nesting boxes on trees outside building 587 in various sizes suitable for woodpeckers, tree creepers, robins, owls and bats.

Mysterious orchids

Orchids require specific conditions to germinate so are not a commonly seen wildflower. However, several types of orchid have successfully established colonies around the Harwell site and their locations have been incorporated into the grass-cutting programme to ensure that their habitats are not disturbed at the wrong time of year. Impressive colonies of white helleborines which flower in late May can be seen opposite B424. Bee orchids which flower in late June have been found across the site including a recently discovered patch near B521. Both bee and pyramidal orchids grow on top of one of the disused RAF runways. To extend the orchid population still further some 250 common spotted orchids have been planted around the lagoon areas by members of the Hardy Orchid Society.

Bee orchids miraculously grow across the site.

Lapwing favour this site.

ECO-SITES

A The mound

Remedial work has opened up glades and paths across the mound.

Measuring over six acres the 'mound' is believed to date back to RAF days when it was a spoil tip and has since seen the addition of soil excavated when the foundations were dug for new buildings at Harwell. In the 1950s it was planted with poplar, maple and horse chestnut trees creating a significant landscape feature at the south west end of the site.

In the late 1990s the woodland floor had been over-run with nettles and fallen trees so remedial action was taken to open up glades and lay out a path. Dead or fallen trees were removed selectively leaving some for fungi and invertebrates and others for woodpeckers to use as nesting.

A major planting operation has been completed to attract wildlife including oak and ash trees and dogwood, holly and blackthorn. Woodland wildflowers will complete the scheme and bluebells and violets have already been planted.

B & C The Hangar 9 and Dido Road lagoons

These lagoons were built to balance rainwater surges on the site. The surrounds of the Hangar 9 lagoon have been planted with marsh marigold, yellow flag iris and other aquatic and marginal plants. A wildflower meadow has been sown around the wider edge of the plot. In addition to butterflies and grasshoppers, the wetlands have attracted mallard and other water birds. Some goldfish and koi carp have been introduced by site occupants. Although not ideal in a wildlife pond, due to their appetite for plants and insect larvae, the fish undoubtedly add interest to the lagoon.

The Hangar 9 lagoon balances rainwater surges on site.

The Dido Road lagoon has likewise been planted with mixed grasses and wildflowers, which have established well. It has provided a particular attraction to dragonflies and damselflies.

D Frome Road runway

The BBOWT (see front page) initially helped to identify the ecological richness of this area and ways of maintaining its diversity. For a number of years this diversity has been encouraged by minimal intrusive maintenance. While the development of the business centre may require changes in this area, these will be designed, as far as possible, to retain established flora.

Harwell
International Business Centre for Science & Technology

Published by UKAEA, 150 Harwell, Didcot, Oxon OX11 0RA
Contact: Harwell PR Manager on **01235 436909**

11/2000

ISO14001 for UKAEA

UKAEA at Harwell has gained certification against ISO14001, the prestigious environmental management standard. The award of the certificate resulted from two years work involving a wide range of Harwell staff led by Graeme Stonell and Kathy Slark.

Graeme explained what was involved, "The Standard requires an organisation to demonstrate commitment to three key principles: prevention of pollution, compliance with legislation and continuous improvement in environmental performance. We had therefore to take a comprehensive look at all aspects of our work to identify their potential environmental impact and then work towards improvements."

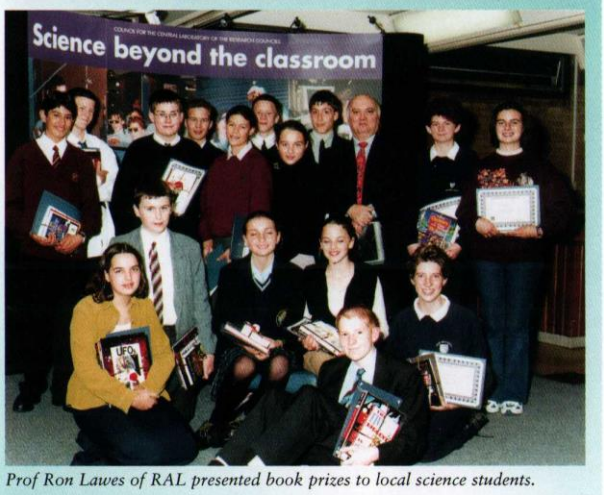
The auditors focussed on the work and operations of UKAEA at Harwell, visiting the site in May and returning for a week during September to examine arrangements in more detail. This covered responsibilities in the more obvious areas such as decommissioning of nuclear facilities, but also extended to 'landlord' activities providing services to other organisations on the Harwell campus.

Environmental improvement objectives have been incorporated into the work programmes of different departments. These focus on production and disposal of waste, the use of water, electricity and gas, emissions to air and discharges to local watercourses.

Following certification, the ISO 14001 approach means that UKAEA will be looking year on year to develop working arrangements that benefit the environment.

Anyone wishing to find out more can contact Graeme Stonell at Harwell on ext 3839 or Kathy Slark on ext 2491.

Books for young scientists



Prof Ron Lawes of RAL presented book prizes to local science students.

Science books on topics as varied as evolution, astronomy and particle physics have been awarded to pupils from 36 schools in Oxfordshire, Berkshire and Hampshire at a special ceremony at Rutherford Appleton Laboratory.

One pupil from each school - chosen by their science teacher for their effort and enthusiasm - was awarded science books to a value of £30. They were also given a guided tour of some of the world-leading facilities at RAL. Parents and teachers joined them at the award ceremony.

Professor Ron Lawes, head of the central microstructure facility at RAL that carries out and co-ordinates research into micro and nanotechnology, presented the books to the students.

"I am delighted to see the next generation of scientists making such good progress and pleased that our laboratory is helping to provide further encouragement in their career development", he said.

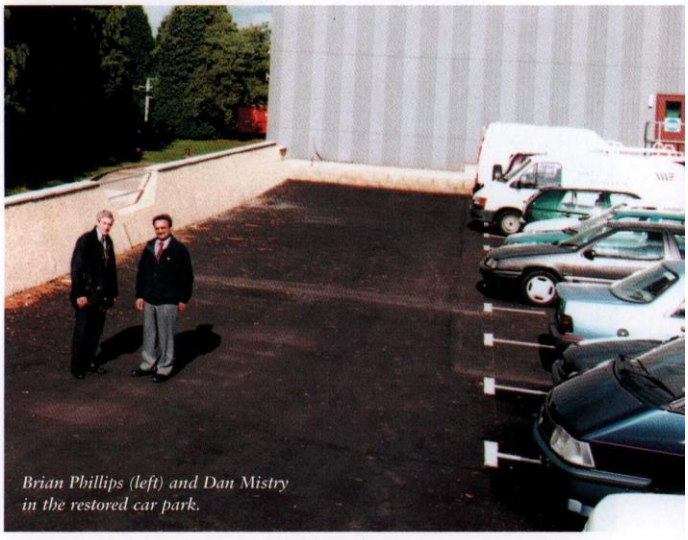
Not another car park!

"It's not another car park but a replacement of the old one", said UKAEA project manager Dan Mistry, referring to recent work at Harwell's Liquid Effluent Treatment Plant (LETP).

In the mid-1960s six large brick and concrete delay tanks, used to store radioactive liquid wastes, were taken out of service and demolished. Permission was granted to UKAEA for the remaining lightly contaminated rubble to be overlaid with concrete and converted into a car park.

For many years cars had been parked safely on the site but as part of the current programme for removing nuclear liabilities at Harwell it was decided to remove all traces of remaining radioactive material. Dan explained how it was achieved, "The old car park was excavated and resulting low level wastes disposed of to the Drigg landfill site in Cumbria."

Brian Phillips, LETP manager, commented, "We are happy to have our car park back again, albeit at a lower level! There were no difficult problems and the remediation work was completed safely."



Brian Phillips (left) and Dan Mistry in the restored car park.

Culham Conference Centre re-launch

A major new campaign has been launched to attract more businesses to use the conference facilities at Culham. Colourful leaflets and brochures are being produced to promote the venue for conferences, board meetings and courses.

Caroline Rebbetts has been appointed as conference manager. A new simplified pricing structure provides an all-inclusive delegate rate for refreshments throughout the day, standard equipment and free parking. A new range of buffet lunch menus will be launched in January 2001.

Culham Science Centre is able to offer seven purpose-built rooms from the John Adams lecture theatre seating 280 people in tiered theatre style, to smaller rooms for 6-60 delegates. Many local companies looking for a venue may not be aware that these facilities are available. It is well located in the centre of the country with good road and rail links.

For more details contact the conference manager on C3494 (01235 463494).

Calendar captures children's ideas

(from left) Eric Jenkins, Angela Vincent, Sue Bradbury, Claire Crofts, Caroline Craig, Collette McMullen, Beth Taylor and Jonathan Harrison.

From the huge number of entries received twelve winning posters were picked to feature in a UKAEA safety and health calendar.

As part of European Week for Safety and Health 2000, UKAEA organised a children's picture competition and a dozen winners, ranging in age from five to twelve, will have their work featured in the calendar. The difficult task of judging was carried out by Claire Crofts, a professional artist, Eric Jenkins, UKAEA photographer, and Beth Taylor, head of corporate communications. Everyone who entered will receive a small gift as a thank you.

The winners were:

Caitlin Stead (age 5), daughter, Sarah Stead, Harwell
Eleanor Jackson (11), daughter, Alison Jackson, Harwell
Sarah J Dunnett (10), daughter, Graeme Dunnett, Dounreay
Lucy Owen (6), daughter, Guy Owen, Dounreay
Annabel Milverton (10), daughter, Paul Milverton, Winfrith
Steven Pearce (10), son, Robert Pearce, Culham
Nicola Farrer (10), daughter, David Farrer (UKAEAC), Sellafield
Mark Johnston (8), son, Brian Johnston, Dounreay
Rachel Pugh (8), niece, Dawn Heath, Winfrith
Leona Keith (7), niece, Kathleen Mackay, Dounreay
Jasmine Ward (11), granddaughter, Hedley Ward, Winfrith
Madeleine Mason (12), daughter, Miriam Mason, Culham

'Turn your back on back pain'

At an informal gathering in K1 inner foyer at Culham, prizes were presented for the European week for Safety & Health competition. Before making the presentation Dr Frank Briscoe, operations director, spoke about the importance UKAEA places on safety in the workplace. Organisers were grateful for the generous prize sponsorship from companies at Culham Science Centre including Amey, Alstec, UKAEA, Fircroft, The Shop, Morson, Sovereign and Johnson Controls.

Some of the prizewinners are pictured here with Frank Briscoe, operations director, and Trevor Hayes, Culham division safety supervisor.

Emergency teams exercised

About a hundred staff from several organisations at Harwell were put through their paces at the annual emergency exercise.

Each year the Nuclear Installations Inspectorate (NII) requires UKAEA to demonstrate its ability to handle a nuclear emergency. This year's exercise, code-named 'Robert', took place during the morning of 2nd November. The scenario involved a vehicle accident, an injured worker and spillage of intermediate level waste.

From left, Jonathan Wright (AEAT), Tony Tierney (UKAEA), Jason Claridge (AEAT) and Simon Haycox (AEAT).

Emergency teams raced to the incident area and the Emergency Control Room was manned. The klaxons sounded and staff were confined to their buildings for the next two hours. Local residents had previously been informed to ignore the klaxons and carried on normally!

The exercise provided a realistic opportunity for the control room team to put into practice the 'Command and Control' training which they had received during the summer.

To add some realism an external PR company was hired to play the roles of members of the public, journalists and a TV film crew. They injected over a hundred telephone calls into the exercise, most of which had to be handled by UKAEA's corporate communications staff. Mary Hills, UKAEA's property manager, was called to give TV interviews at the main gate.

NII observers witnessed the exercise and pronounced it 'an adequate demonstration'.

From left, Angela Vincent, Clare Stead and Sue Bradbury of UKAEA's corporate communications team dealing with simulated calls from 'anxious members of the public'.

Level II exercise

Staff are reminded that a Level II site emergency exercise will take place at Harwell on Wednesday 31 January 2001. The klaxons will not be sounded and the majority of staff will be able to continue working normally. However the Emergency Control Room will be manned and a group of staff will travel to the Thames Valley Police HQ at Kidlington. Level II exercises are conducted every three years to demonstrate to the Nuclear Installations Inspectorate arrangements for dealing with a Harwell site emergency having possible off-site repercussions. During the exercise the emergency team will test arrangements for participating with national and county organisations.

Residents visit

(L-R) Local residents meet the police and their dogs on the 521 'mound'. PC Frank Cox with 'Duke; PC Chris Berry explained how the dogs helped guard the site; PCs James Bailey and Nick Firkettle played the parts of the 'villains' and PC Brett Bodiam was in charge of 'Jack'.

Local residents, living close to Harwell's security fence, visited the site during a recent Saturday afternoon to see what goes on, the other side of the fence.

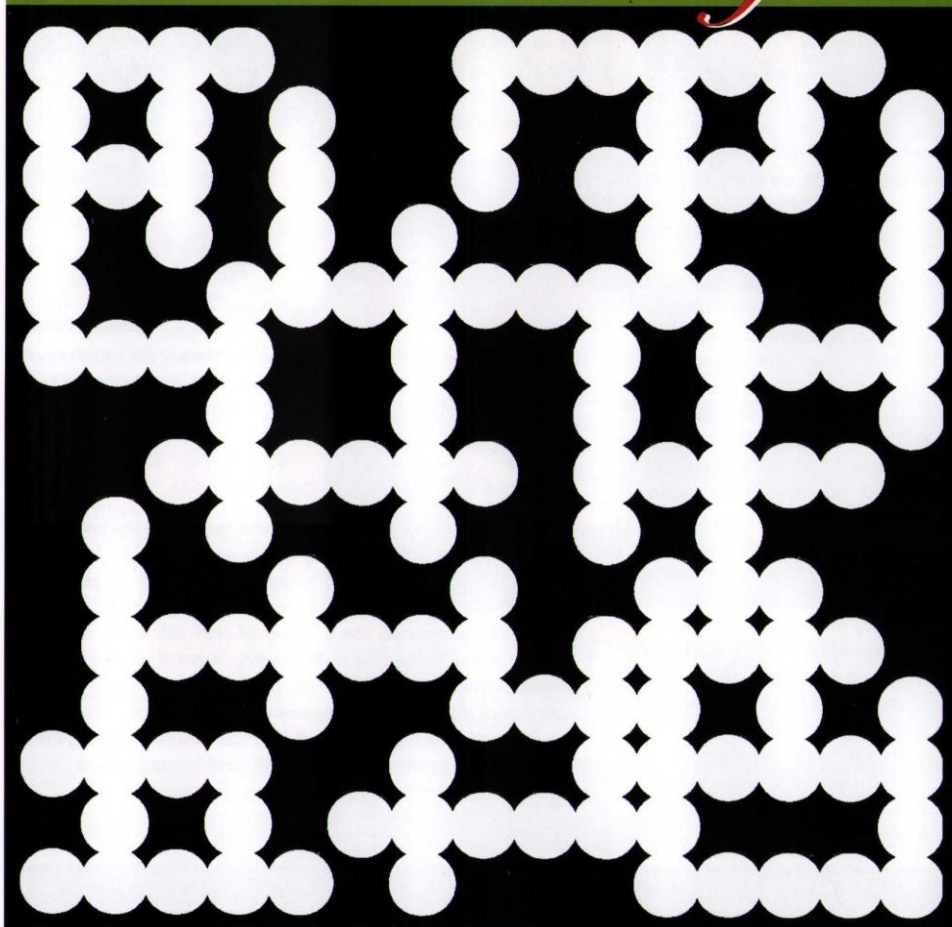
UKAEA's head of site, John Wilkins, invited residents of North and South Drives and Severn Road, to see some of the work of UKAEA at Harwell. Some residents, who previously worked at Harwell, were surprised to see how much the site had changed in the years since they had retired. Others, who had recently moved into the area, were grateful for the opportunity to learn something about Harwell for the first time.

It was 'hands on' for the locals as they were able to try the manipulator arms used in the intermediate level waste Vault Store building, under the eye of Gary Preston, who explained how radioactive waste was stored there. Later John Buffery took the visitors to the top of the decommissioned DIDO reactor block. He explained that the reactor and its distinctive 'shell' would remain a Harwell feature until 2040.

Finally, two police dogs gave a lively demonstration of their prowess in tracking down and 'arresting' an intruder at a special show staged for the visitors at the rear of UKAEA's HQ building. Then it was back to the Harwell Training Centre for afternoon tea and cakes.

Christmas Wordfit

Fit the listed words into the grid. One word is left over. Which one?



Words to fit

3 LETTERS

ARC • FIR • ICE
INN • LOG • MUM
NEW • PIE

4 LETTERS

ARCH • BRAN
CARD • CASH
CRIB • HALO
LAMP • MALL
NEON • SNOW
WAIF • YULE

5 LETTERS

ANGEL • CAROL
CLAUS • MERRY
MINCE • ROBIN
SANTA

6 LETTERS

CORNER • HO HO HO
INDOOR • RIBBON
TINSEL • TURKEY
YUM-YUM

7 LETTERS

CRACKER
PACKAGE
PRESENT
SHARING

9 LETTERS

CHRISTMAS

FOR A COPY OF THE SOLUTION, PLEASE CONTACT CARL ALDER ON H6906.

Operation Christmas Child

This year Christmas preparations started early for many Culham staff. Throughout recent months staff have been filling shoeboxes with toys, sweets and toiletries for needy children in Eastern Europe.

Staff joined forces with 5th Abingdon Rainbows and Abingdon Kindergarten to prepare 86 boxes. These were donated to the charity, Samaritan's Purse, for distribution to homeless children, those who live in orphanages or children whose lives have been torn apart by war or conflict.

The appeal hopes to generate more than last year's total of 600,000 shoeboxes. Many of the gifts are destined to help refugees such as those in Kosovo.

"This is a wonderful achievement and shows what can be done when many people work together for the common good. I have been overwhelmed by everyone's generosity and would like to thank you all for making a difference." said Jenny Gibbard, who has co-ordinated the collection.

A total of 86 boxes will be despatched to give homeless children and orphans a gift at Christmas.

Christmas post

Last posting dates are as follows:

7 Dec. - International post (excluding Europe)
14 Dec. - Europe
18 Dec. - Second class
20 Dec. - Parcels
21 Dec. - First class

Harwell staff using couriers should contact the following numbers for more details:

H3203 - Harwell AEA Technology Post Room
H5732 - Harwell UKAEA Post Room
H2268 - Import/export
H4102 - Despatch

Culham staff using couriers should contact:

C4231 - Culham AEA Technology Post Room
C3263 - Culham UKAEA Post Room

21 years of local liaison

The LLC meets at the NRPB's Training Centre.

The Harwell Local Liaison Committee (LLC) 'came of age' at its November meeting. The committee has provided an active forum for the exchange of views and news between representatives of the local community and Harwell management since 1979.

John Wilkins (right) and Cllr Vernon Butt

Initially held once a year under the chairmanship of the then site director, Harwell's LLC started meeting three times a year in 1993, a pattern that has remained ever since. Its 21st anniversary meeting was held at the NRPB's training centre on 24 November and was attended by 35 people.

Representation comprises local government councillors and officers, special interest groups such as local chambers of commerce, the Oxfordshire federation of Women's Institutes and the National Farmers Union. Also represented are the regulators, including the Nuclear Installations Inspectorate, the Food Standards Agency and the Environment Agency. Staff unions send representatives, as do campus organisations, such as RAL, NRPB, MRC and Nirex. AEA Technology, as Harwell's largest tenant, is also represented.

John Wilkins, UKAEA head of site, chairs the meetings and the Chair of the Vale of White Horse District Council (VWHDC) sits alongside as John's deputy. The largest representation is by VWHDC councillors and officers, but local parish councils such as Harwell, Chilton, East Hendred and Sutton Courtenay attend and a member of the local press sits in on its deliberations.

During the course of a year the committee considers a number of regular agenda items, such as safety and environment reports, as well as discussing the current work on the site. The advent of e-mail means that news about Harwell can be transmitted at any time, at the touch of a button, to local stakeholders including LLC members.

SAFETY Update

There has been one reportable incident at Harwell and none at Culham since the last issue of ECHO.

At Harwell, some ventilation alarm signal transducers were past their due calibration date.

Beanie Babies raise cash

Paul White, UKAEA director of finance drops in to purchase Beanie Baby Christmas presents for younger members of his family.

Beanie Baby fans at Harwell helped raise £145 for this year's BBC Children in Need campaign. Fellow collectors, Melany Kingdon and Sue Bradbury, who both work for UKAEA in B521, arranged a number of activities to raise some cash from colleagues. They organised a Beanie Baby sale, a raffle and an auction featuring a rare bear toy called Buckingham who is exclusive to the UK.

ECHO 2001 Publication Dates

A cut out and keep list of copy deadlines and publication dates for ECHO during 2001.

Issue	Copy deadline	Published on
FEBRUARY	Mon. 22 January	Wed. 7 February
MARCH	Mon. 19 February	Wed. 7 March
APRIL	Mon. 19 March	Wed. 4 April
MAY	Thur. 19 April	Wed. 9 May
JUNE	Mon. 21 May	Wed. 6 June
JULY/AUGUST	Mon. 18 June	Wed. 4 July
SEPTEMBER	Mon. 20 August	Wed. 5 September
OCTOBER	Mon. 17 September	Wed. 3 October
NOVEMBER	Mon. 22 October	Wed. 7 November
DEC/JAN	Mon. 19 November	Wed. 5 December

THE COPY DEADLINE FOR THE NEXT ISSUE IS: Monday 22 January for publication on Wednesday 7 February 2001.

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