

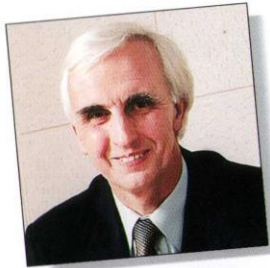
eCHO

THE NEWSLETTER OF THE CULHAM SCIENCE CENTRE & HARWELL BUSINESS CENTRE

FEBRUARY 2000

JET agreement underway

Culham's status as the world's number one centre for fusion research has been guaranteed by the all-new agreement between UKAEA and its partners in Europe.



Following several months of negotiation the JET Implementing Agreement was finalised and came into effect from 1 January 2000, after the current JET Joint Undertaking came to an end. In essence it will enable the JET facility to be used

by all European Fusion Associations including UKAEA. Fusion scientists from all over Europe will be able to take advantage of these unique facilities for at least three more years.

The new implementing agreement comes under the auspices of the broader European Fusion Development Agreement (EFDA) which also covers fusion technology work and Europe's contribution to the International Thermonuclear Experimental Reactor (ITER), known as the 'next step' device.

The Euratom/UKAEA Fusion Association has been awarded a £100m contract -



the JET Operating Contract - to operate the facilities for three years for a collective European programme of experiments as part of the new agreement.

UKAEA's senior manager responsible for JET will be Frank Briscoe (left). The newly appointed EFDA JET associate leader, Dr Jérôme Paméla (right)

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This Month

Bright future



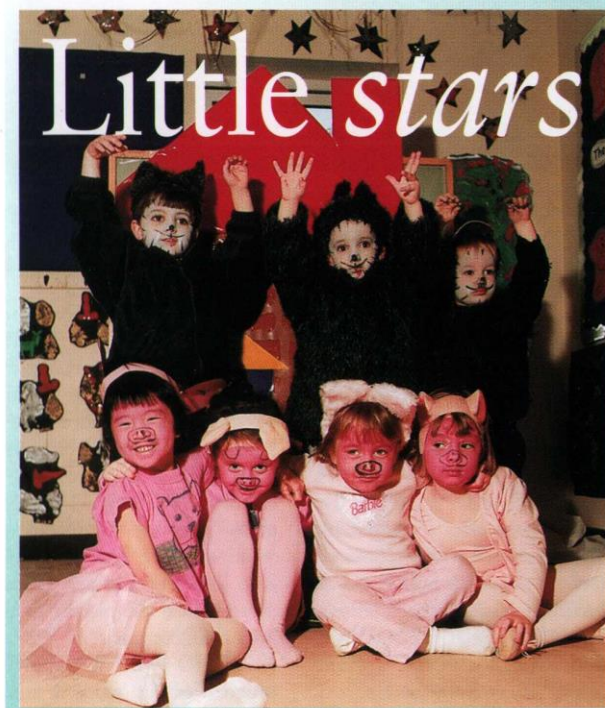
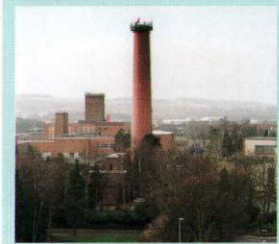
Millennium planet



Surprise Santa



Going going gone!



Little stars

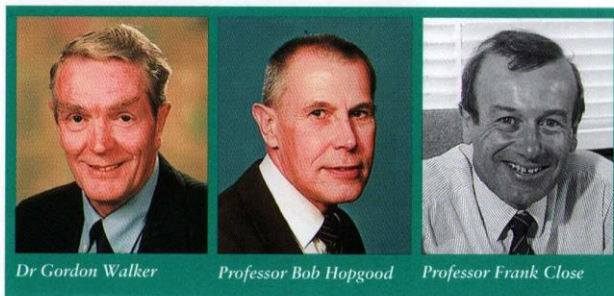
Children at Little Stars Nursery ended the year as they began - enjoying the story of 'The Three Little Pigs'. The nursery, based at CLRC Rutherford Appleton Laboratory, began 1999 with the story as their chosen theme and in December the children performed the story as a play to the delight of parents in the audience. "All the children - aged three to five - enjoyed taking part but we did need to adapt the story line to accommodate a few more pigs and wolves!" said Anne Pearson, nursery manager. The nursery staff and children made scenery for the play and parents made the costumes.

'Wolves' prepare to pounce on the 'pigs' at the dress rehearsal. Front row, from left, Katy Wang (4), Danielle Ediker (4), Amy Hodgson (4) and Eleanor Barry (4). Back row, William Cunningham (4), Alices Atkins (3) and Harry Collins (3).

RAL New Years Honours

The work of three CCLRC staff at Rutherford Appleton Laboratory was recognised in the 2000 New Year Honours. OBEs were awarded to Dr Gordon Walker, for services to research, to Professor Bob Hopgood, for services to computer science and to Professor Frank Close, for services to research and the public understanding of science.

Dr Walker has worked at RAL for 37 years and was recently appointed chief operating officer for CCLRC, responsible for the day-to-day operations of RAL and Daresbury Laboratory, its sister laboratory in Cheshire. In his early years at RAL he played a key role in the implementation of electronic detector systems in particle physics research, being the first in the country to use acoustic spark chambers, wire proportional chambers and vidicon cameras in his experiments. In 1986 he was appointed deputy director of RAL, then became director of research and development. He has played a pivotal role in integrating the component institutes of the CCLRC to improve its efficiency and scientific impact.



Dr Gordon Walker

Professor Bob Hopgood

Professor Frank Close

Professor Hopgood has worked on the Chilton site for the last 40 years, initially at Harwell, then the Atlas Computer Laboratory and finally Rutherford Appleton Laboratory. He has been involved in computer graphics since 1959 including pioneering work on computer animation. He currently chairs the BSI committee responsible for computer graphics and image processing standardisation. More recently he has been involved with the World-Wide Web Consortium (W3C) helping to develop standards for the Web and setting up W3C European regional offices including the W3C UK Office at RAL. He is professor of computer science at Brunel University where he has taught since 1968. He also has an

honorary doctorate from the Technical University of Darmstadt, awarded for his trend setting activities in the field of computer graphics.

Professor Frank Close joined RAL in 1975 where he has remained, except for the period 1988 - 91 when he held the position of distinguished scientist at Oak Ridge National Laboratory and the University of Tennessee, USA, and 1997 - 2000, where he is currently senior scientist at CERN, the international particle physics laboratory in Geneva. He returns to RAL in March. Professor Close has written over 200 scientific papers on theoretical particle physics and he has written several popular books on physics including *The Cosmic Onion*, *Too Hot to Handle* and *The Particle Explosion*. He is a

Continued . . .

from France and his team at Culham will co-ordinate the experimental programmes on the EFDA's behalf and will act as the 'customer' for the JET operating contract. European task force leaders will undertake the experimental programme using teams of European scientists.

Martin Cox, manager of the JET integration project, said, "I am pleased that the preparations by UKAEA and the JET Joint undertaking resulted in an uneventful handover at the Millennium. We are now busy working towards the restart of operations in April so that we can be ready for the EFDA Task Forces to start experiments in June".

member of numerous committees and is a Fellow of both the Institute of Physics and the American Physical Society. He is a regular contributor to the media, appearing on television on many occasions including giving the Royal Institution Christmas Lectures in 1994.

AEA Technology non-executive director, Steve (Stephanie) Shirley OBE has been made a DBE in the New Year Honours.

Bomb dump clean-up

AEA Technology has won a contract from UKAEA for the restoration of the Southern Storage Area (SSA). Preparatory work is underway and work is expected to take 18 months before completion.

The SSA has a history going back to the RAF's use of it as an ammunition storage area in the Second World War. UKAEA used the site from 1952 to the

mid-sixties for a variety of waste-handling operations and for the burial of mixed chemical and beryllium-contaminated wastes.

The SSA comprises a fenced



(L-R) Andy Graham (AEAT project manager); Phil Holden (AEAT managing director of Nuclear Engineering); Stan Gordelier (UKAEA director of Southern Division) and Chris Morgan (UKAEA assistant project manager) standing on the SSA.

North Gate entrance – temporary closure

Works will begin shortly on a revised layout of the North Gate entrance, to improve safety and security in this area of the Harwell site. The gate will be closed for approximately six weeks and is expected to start on 14 February. A Property Matters notice will be issued soon detailing the alternative access arrangements for pedestrians and in-muster and out-muster traffic.

off 18-acre site at the south-eastern corner of the former airfield bounded by Chilton Field, a primary school and open land to the east of the Rutherford Appleton Laboratory. Restoration initially began in 1987 since when all buildings, drains and some buried wastes have been removed.

The only liabilities remaining are six small and five larger waste pits. Considerable investigations have been done on these to plan their final removal. Environmental impact assessments have been prepared and subjected to external scrutiny before the contract was placed. The Local Liaison Committee

was given regular updates and presentations also made to Chilton Parish Council, the school and local residents.

Said Stan Gordelier, UKAEA's director for Southern Division; "UKAEA is committed to leaving the SSA, for the long term, in a tidy and safe condition before housing development takes place at Chilton Field. It has taken several years of meticulous planning to get to the position where final restoration is in sight and I'm very pleased to announce the placing of this important contract."

ECHO will be reporting progress of the work in future issues.

Culham exchange visits

Staff from JET and UKAEA Fusion took time out last month to 'cross the bridge' and find out more about each others' work in progress as greater integration takes place. The reciprocal visits were the brainchild of Chris Carpenter, UKAEA PR manager for Fusion, and involved well over a hundred staff who took the opportunity to join in this information exchange.



JET staff visit START

Small groups of JET staff toured COMPASS, START and MAST, and visited the ECRH heating group and neutral beam division. A few days later UKAEA Fusion were taken on guided tours of JET areas including the Torus and assembly halls, the remote handling and J2 control rooms, the basement area and the diagnostic hall.

Lasting for several hours

the tours gave staff from all disciplines the chance to explore common ground and ask plenty of questions about the many operational and technical differences. JET staff were especially interested in the development of work at the MAST facility which was still being commissioned before the main campaign begins in February 2000.

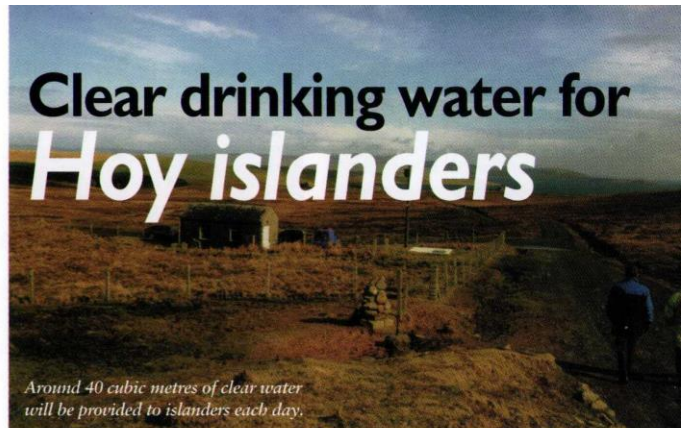
Exhibition judged a success

Approaching 1,000 visitors went to Abingdon Museum to see an exhibition jointly hosted by JET and UKAEA during December. At an informal reception hosted by Dr Derek Robinson to mark the end of the exhibition, organisers were praised for their imaginative work and guests toasted the future success of collaborative projects.

The exhibition tracked the history of fusion research at Culham and placed it within the broader context of Abingdon's industrial heritage. Local dignitaries attending the reception included Cllr David Buckle, ex-chairman of Oxfordshire County Council, who said, "I have been fortunate enough to visit Culham on several occasions and this marvellous exhibition has succeeded in linking the scientists with the people of Abingdon. We are very fortunate to have such exciting

projects on our doorstep." Vice chairman of South Oxfordshire District Council, John Stimpson, who is also the local member for Culham and sits on the local liaison committee, commented, "I am very proud to have this prestigious project in my ward. I am always interested in the progress of the fusion programme and make every effort to foster a similar interest amongst my SODC colleagues."

Former mayor of Abingdon, Cllr Julie Mayhew-Archer, was



Around 40 cubic metres of clear water will be provided to islanders each day.

People living on the remote island of Hoy in the Orkneys will see clear water running from their taps for the first time when a revolutionary new water treatment plant is installed. ERG Environmental Resource Group, part of AEAT, is to build a new plant to remove the peaty brown colour from tap water in the north of the island.

Many parts of the Scottish highlands and islands have distinctive tea-coloured tap water and, while the colour of the water is not a health issue, it looks unappealing and can cause laundry stains. New European water quality directives demand that drinking water must not only be clean and safe to drink, but also clear.

The North of Scotland Water Authority has awarded a £150,000 contract to ERG to install the treatment plant, which is only the second of its kind to be built. The first was installed by AEAT in Armadale, on the north coast of Scotland, where water was particularly dark.

The clarification process normally used by water companies is generally only economic for large municipal

treatment works. AEAT has developed a new crossflow ceramic membrane filtration process that is cost-effective for remote areas. The filters are placed parallel to the direction of the raw water flow instead of across it to ensure that the filters avoid blockage and are constantly swept clean. The process also provides a barrier to bacteria and pollutants such as cryptosporidium, e-coli and toxic metals.

"We are using technology originally developed for the nuclear industry to provide an innovative and cost-effective solution to the problem of brown water," says Neil Buchan, AEAT's general manager in Scotland. "The potential exists to solve similar problems in other remote parts of the UK and the world".



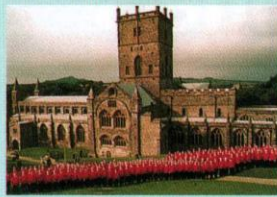
Derek Robinson with Cllr Bryony Newport, vice chairman, VWHDC and her husband

particularly pleased that the exhibition had attracted so many visitors to the museum at a time when many people were busy preparing for the festivities. She commended the material on display which was aimed at local people.

Chris Carpenter, PR manager for UKAEA Fusion, said, "We were delighted with the enthusiasm shown by local councillors and as a result will be inviting them to visit the UKAEA and Fusion facilities at Culham in the near future".

Out & About

Sound of Wales



The South Wales Male Choir (which includes Nick Portsmouth of AEA Technology and Geoff Smallbone and Paul Franklin of Johnson Controls) presents "Sound of Wales", a Gala Concert to celebrate St. Davids Day, at Cheltenham Town Hall on February 26th, at 7.30pm. The choir will be conducted, for the first time, by Haydn James, who also conducts the London Welsh Male Voice Choir.

Tickets cost £10.50, £8.50 & £5.00 (concessions are available). Contact the Town Hall Box Office on 01242 227979.

'In the Lions Den'

February 23rd-26th, the Unicorn Theatre, Abingdon

The Studio Theatre Club presents 'In the Lions Den' by Felix Mitterer. Set in Vienna 1938 the play traces a Jewish actor driven into exile by his Nazi colleagues. He dreams up an extraordinary and flamboyant revenge. The production is sponsored by the Austrian Cultural Institute and supported by Oxford University and St. Anne's College.

The STC has been performing a wide range of scripted drama for about twenty-five years, including original material and the ever-popular series of Discworld adaptations. They are always ready to welcome new people - and no auditions! If you are interested either in joining the STC or coming along to the show then please contact Stephen Briggs, PO Box 655, Oxford, OX4 3EU or email Sbriggs@cix.co.uk or phone 01865 776766.

Tickets available from Modern Music, Abingdon, at £6. Telephone 01235 524316.

MRC Spring Seminars

The MRC Spring seminar programme runs until mid-April with presentations on an almost weekly basis. Speakers include Professor Bryn Bridges (MRC Cell Mutation Unit, Brighton), Dr Elspeth Stewart (University of Manchester) and Professor Peter Cook (Sir William Dunn School of Pathology, Oxford). All seminars will be held in the lecture theatre at 11.30am on Tuesdays. Check the up-to-date seminar programme on the MRC website: <http://www.har.mrc.ac.uk/events.seminar.htm>

Fond memories of Harwell library

Following the closure of the Harwell Information Service in March 1999, the two remaining staff have retired, having completed their task to redistribute books, reports and records to interested parties. Mary Haynes and colleague, Wendy Maskell, have served 25 and 31 years respectively at the library and have fond memories of the service when, at its peak, some 50 staff were employed.

Mary spent a year at the library back in 1969 before attending library school and working for the British Council. She returned to Harwell in 1974 and rose to become the librarian in charge. The library has occupied different 'homes' over the years and Mary recalls the purpose-built building (465) where it was established in the early 1960's, having moved from B329. As the operation was scaled down during the last decade the library was relocated to B149 and a major down-sizing exercise was required.

Even though she started in 1968, Wendy Maskell does not remember meeting the formidable Kitty Gossett who was the original founder of the library but her reputation as a very strong-minded person was well-known by all staff. Wendy recalls very clearly a

dramatic moment in the early 90's when fire was discovered in the roof cavity of B465. Workmen had been using blowtorches in the roof space and there was a strong smell of smoke which many staff put down to an overworked photocopier! When smoke began billowing down from the ceiling the alarm was sounded and the fire service were quickly on the scene. Staff were evacuated to the canteen next door for an hour while firemen made certain that no smouldering material had been overlooked. Luckily no damage was done to stocks.

The principal purpose of the library was to keep a central collection of all Harwell records and purchase relevant material on behalf of AEA Technology, supplemented by various UKAEA library projects. As these



Mary Haynes, retiring

corporate services have become more difficult to justify and as AEAT needs less research material the library has been gradually scaled down. All books have been offered to local organisations including Abingdon College, RAL and NRPB. AEAT Nuclear Science has made use of much of the material. A collection of AEAT reports is now held in B329 and managed by John Lauder. UKAEA now also holds its own records.

With extra time Mary plans to visit more art galleries and express her own artistic talents with acrylic and mixed media painting while Wendy is keen to see some winter sun and take an Australian holiday. We wish them both well!

Air travel increases UK radiation exposure

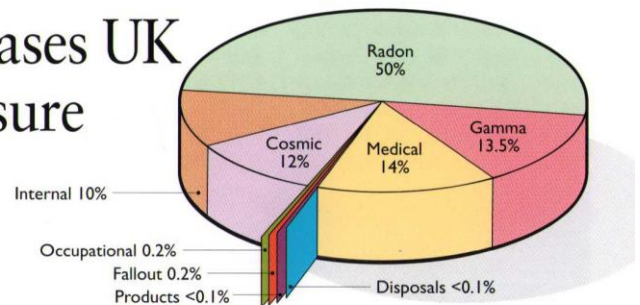
NRPB has recently published its sixth report in the series examining radiation exposure. The first study began in 1974 and the latest covers the period between 1992-7, detailing levels of exposure from natural and man-made sources of ionising radiation.

The average UK annual dose from all sources remains at 2.6mSv in the population of 59 million. The one component that has shown an increase is cosmic radiation, mainly due to increased air travel and improved measurements. Natural radiation makes up 85% of the annual average dose, half being from radon exposure, unchanged since the previous review.

Medical uses of radiation account for the largest man-made contribution at 14%. CT scanning has increased and now makes up 4%, but may account for more than 40% of the col-

lective dose from all diagnostic radiology procedures. Improved techniques in conventional radiology led to a decrease of about 30% in average dose per radiograph between 1984-95.

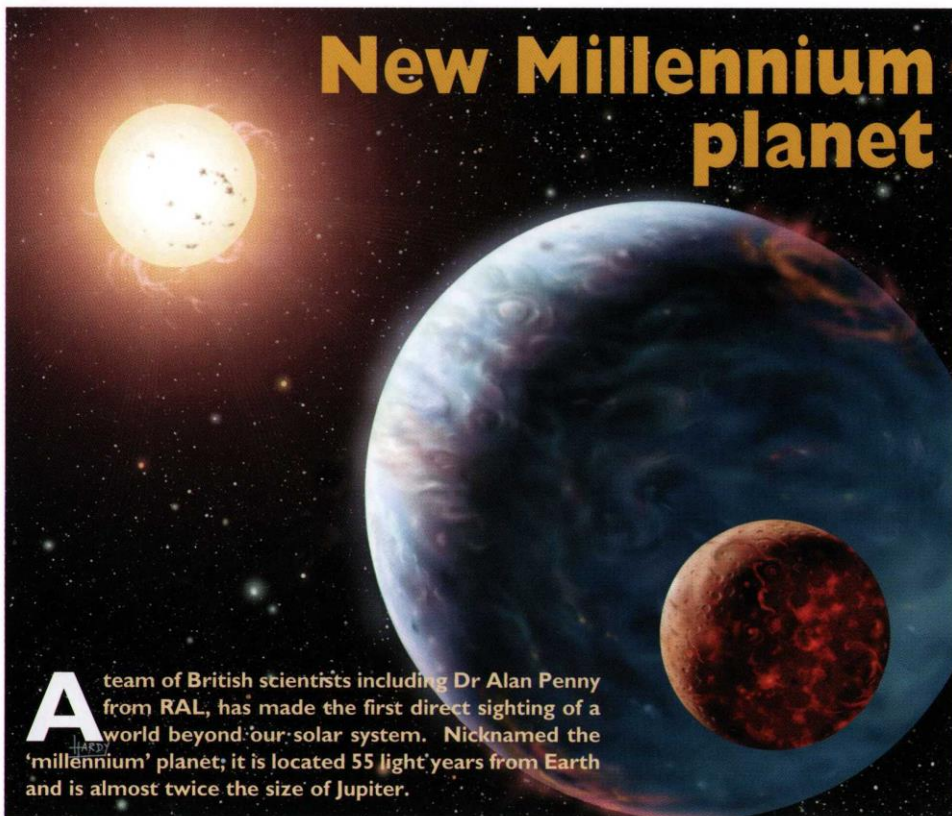
Annual doses from other artificial sources such as radioactive waste, nuclear fallout and consumer products, have fallen slightly. Occupational exposures continue to be low with a downward trend. Most of the elevated individual doses are from radon exposure at work and this continues to provide the largest contribution to occupational exposure.



The average annual dose to the UK population from all sources of ionising radiation is 2.6mSv. Natural radiation accounts for 85% of annual exposure, with 15% from artificial sources.

Childhood cancer study

The results of the first part of the UK Childhood Cancer Study (UKCCS) were published in December 1999 in the Lancet. It is the largest study of childhood cancer to date and was started in 1992 to examine a number of factors that might be implicated in the disease. Commenting on the study results, NRPB stated that they provided no evidence that exposure to magnetic fields associated with electricity supply in the UK would increase risks for childhood leukaemia, cancers of the central nervous system, or any other childhood cancer. The study was a population based case control study involving 3838 cases and 7629 controls.



A team of British scientists including Dr Alan Penny from RAL, has made the first direct sighting of a world beyond our solar system. Nicknamed the 'millennium' planet, it is located 55 light years from Earth and is almost twice the size of Jupiter.

An impression of how the 'millennium' planet might look. The moon in the foreground is imaginary but it is possible that the planet could have a moon

Alan and his colleagues used the 4.2 metre William Herschel Telescope on La Palma in the Canary Islands in conjunction with a tailor-made computer programme. In the weeks leading up to the dawn of the new millennium they managed to 'untangle' the faint light from the distant planet from the blinding glare of its parent star, Tau Bootis.

The star is easily seen by the naked eye but its planet has only been suggested by the 'wobble'

in the light coming from the star as the planet travels around it. In the past four years a total of 28 planets have been indirectly inferred using the 'wobble' method, though none has been confirmed by direct detection of its own light until now.

"To be one of the first people on Earth to see a completely new planet is an awesome experience," says Alan, "especially as we move into a new millennium. Our discovery is a major step in

finding out what these planets are really like - a step that could lead to finding planets like Earth."

The planet is about 1.8 times bigger than Jupiter but eight times its mass. Orbiting very close to its star the planet is expected to be a chemical cauldron at a temperature of around 1,100°C. Its colour is rather puzzling, as yellow, red and violet light are absent so the planet appears to have a faded blue colour.

Solar physics takes UK schools by

A sum of £70,000 has been awarded to a project devised by local scientists and science teachers that links the excitement of solar physics to the science content of the National Curriculum.

"The project will help to inform the public about the scientific successes in the UK and the studies of the Sun and its environment" explained co-ordinator, Dr Dave Pike from RAL. "Because of its influence on the Earth's environment, the Sun has a direct impact on our daily lives, so this field of science is exciting and relevant, especially as we approach the solar maximum - the period when the Sun is at its most active."

Dr Pike is also keen for the

presentations to be made by young researchers to whom the school pupils will be able to relate more easily. "We're hoping to help dispel the impression that science is only done by white-coated, sandal-wearing, middle-aged eccentrics", he added.

Scientists from RAL at Chilton, the University of Cambridge and the University of St Andrews in Edinburgh have teamed up with local teachers to provide educational material based on the physics of the Sun

and its environment.

The money, provided by the Particle Physics and Astronomy Research Council (PPARC) under its competitive National Award scheme, supports projects which further the public understanding of science, and in this case will provide a website, CD-ROMs and educational material.

Mrs Vicky Fleming, head of science at the Downs School, Compton is acting as an educational consultant to the project.

SAFETY Update

There were three reportable incidents at Harwell and none at Culham since the last issue of ECHO. All the events involved more than three days lost time and were therefore reportable under the Reporting of Injuries Diseases and Dangerous Occurrences Regulations (1995). A contractor slipped and fell fracturing his thumb. A UKAEA member of staff and a contractor both sustained back strains during lifting/manual handling activities.



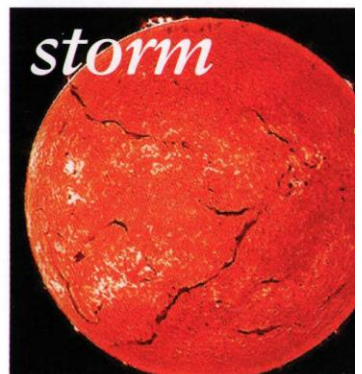
UKAEA
Restoring our Environment

Bun wagon on trial!

A new bun wagon is currently being tested around the Harwell site. Organisers would appreciate any feedback about the service. If you have any suggestions, please contact Dawn Shackelford at the Harwell Conference Centre by fax (H2816). She would like to encourage Harwell staff to make full use of the bun wagon service because it can continue only with your support!

Retirement thanks

Sheila Woolloff would like to thank everyone for the good wishes and gifts given on the occasion of her retirement in early December and say 'cheerio' to those friends and colleagues she was unable to see personally.



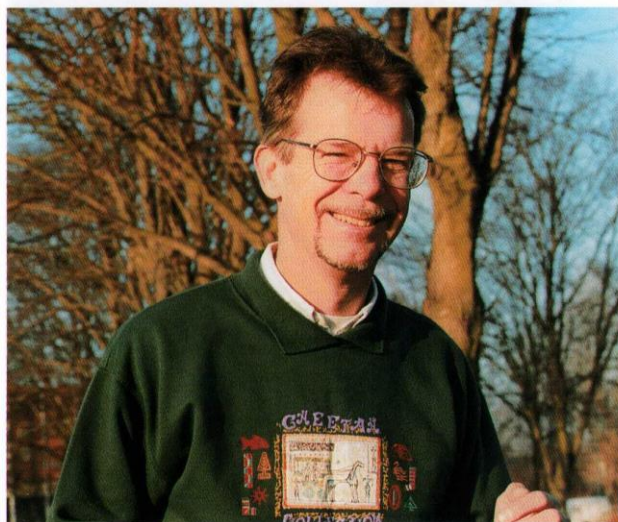
She said, "There is a real shortage of materials for classroom use on this topic. This funding means that all UK secondary schools will eventually have access to a brilliant interactive teaching resource."

First marathon at 51

Last year in a moment of weakness Peter Wood, who works for AEA Technology Environment at Harwell, applied for a place in the London Marathon. Luckily, or maybe, unluckily, he was successful in obtaining a place and opted to run for The British Brain and Spine Foundation, aiming to raise in excess of £2000 in sponsorship.

The Foundation funds research and education into neurological disorders ranging from multiple sclerosis, Parkinson's Disease, brain tumours and nervous system degeneration. It has amongst its patrons such people as Sir Roger Bannister, Julia Somerville - who has herself had a brain tumour - Sir Tim Rice and Michael Parkinson.

"Running the marathon will be a significant personal challenge for me. I haven't run any distance since I was at school in the 60's and even then I probably never ran more than 2 or 3 miles," admits Peter. "I shall also be 51 when I attempt the run! I'm confident that I shall complete the course, albeit



Peter Wood will run for the British Brain and Spine Foundation.

not first past the finishing tape, and probably not second. I've been training for some 10 weeks and have so far achieved only 10 miles."

Nevertheless, Peter is looking forward to the opportunity to raise significant sums of money to enable the Foundation to fund further research. "If anybody feels that the founda-

tion is worthy of their support then they should please contact me; they never know, perhaps one day they or a close relative may benefit from the work that it does".

Contact Peter about sponsorship on : Telephone H3122 Fax: H3355 e-mail: peter.a.wood@aeat.co.uk

Harwell
Laboratories
RECREATIONAL
ASSOCIATION

Tennis AGM

Notice to all members of Harwell Labs Lawn Tennis Club of the Annual General Meeting.

The AGM of the Harwell Labs Lawn Tennis Club will be held on Thursday 17th February 2000 at 12:30pm in the Upstairs Function Room of the Harwell Recreational Society.

Please make an effort to attend. Your committee, who meet once every month, would welcome your attendance as a chance to have some feedback in the running of the club.

Any items for inclusion on the agenda should reach the Club Secretary, Lorna Claringbold, c/o Harwell Rec. Soc. B161, AEA by Thursday 3rd February. Nominations for positions on the committee can be made prior to the AGM. They should be made in writing to the secretary, seconded and approved by the nominee.

Lorna Claringbold
(Secretary) - January 2000

JCL backing spurs on footballers

Sponsorship by Johnson Controls Ltd (JCL) has inspired a boys football team to reach the top of the league. JCL has provided full kit to the Porton Under 10's playing in the Andover HAS League. Since donning the new kit Porton has won all nine games played and scored an impressive 51 goals with only nine scored against them.

Chris Davis is assistant manager in his spare time and works at JCL at Culham. His son, Drew, has followed in his father's footsteps by playing for the team. The home pitch is based at the Chemical Defence Establishment of DERA at Porton Down near Salisbury and the league draws teams from Winchester, Southampton and Andover. The original Porton



Winning formula so far! Drew Davis is pictured back row, far left.

team dates back to the 60s and today plays to rules which differ slightly from those of FIFA.

Chris explains, "We have smaller pitches and teams are seven per side to promote better ball control. We also have a rolling substitution from a squad of around ten so that everyone gets a game and there is no off-side rule."

Santa interrupts party

Santa was the surprise guest visitor at a Christmas party for around 50 children which was staged for the second year running by UKAEA at Harwell Business Centre.

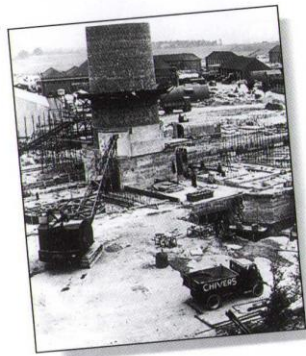
Managers of Harwell's liquid effluent treatment plant organised the festive occasion that included a disco, magician, face painting, bouncy castle and party food. Children and grandchildren of UKAEA staff were invited and over £100 raised for local children's charities.

Said UKAEA manager, Mike Storey, "The party was rudely interrupted by a red-suited character desperate to donate presents! Particular thanks go to Dave Wilkins for organising the event and Colin Brown for giving Santa Claus a helping hand."

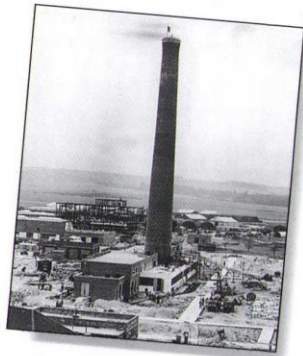


Santa puts his boots up after emptying his heavy sack. From left: Joella Mistry (6) and sister Janella, seated (4); Caroline Drake (8); Kane Darby (7); Santa and Alison Drake (4).

Going — going — gone!



Work starts on the BEPO stack in the snows of the 1947 winter



The 'topping out' ceremony in 1948



The Union Flag symbolises the 'detopping' in 2000. The scaffolding was lowered from the top, as the chimney shortened, and held in place by a clamping band.

Harwell's tallest feature, the 200ft BEPO chimney has been demolished, brick by brick, by a skilled team of steeplejacks. The demolition forms part of UKAEA's environmental restoration works during 2000.

The chimney or 'stack' was constructed by Devizes firm, WE Chivers & Sons, whilst transforming the former RAF bomber station into a redbrick nuclear research campus. Construction started in the bitter conditions of the 1947 winter and was completed with a 'capping out' ceremony the following year (see photograph).

Demolition, 52 years later, started with the removal of the Portland stone cap early in January 2000. Subsequent

courses of bricks, up to five courses at the base, were dropped down the chimney and removed by a 'bob-cat' operating inside one of the air-ducts. Steeplejack, Paul Wakefield of Connell Brothers, said; "The chimney is a tribute to the local craftsmen who built it. We used jack-hammers to loosen the bricks but being so well built our progress was slow." The special 'engineering' bricks, weighing 5 kg each, were monitored and then used to backfill the cavernous air ducts

leading underground to the BEPO reactor.

BEPO, a prototype for Britain's Magnox power station series, needed five tons of air every minute to cool the natural uranium pile to a temperature of 200 degrees Centigrade. The original Ministry of Supply specification called for an octagonal chimney to exhaust the filtered air, but Chivers said they could build a circular one quicker and their advice prevailed.

Massive fans sucked air through 10x8ft underground ducts and these had to be tested before BEPO's start-up. Staff, and people in Didcot, were

dismayed to hear a booming note being emitted from the stack! It is said that a scientist went home for a set of tuning forks to calculate the frequency. BEPO engineer Bob Jackson, now aged 78, recalled advice was sought from the National Physical Laboratory and the cause being found by Metropolitan Vickers in the ducting of their fan systems. A simple modification silenced the problem without delaying the project.

In addition to being the world's largest organ pipe, people recall that hot air from the BEPO stack pierced the densest of winter fogs!

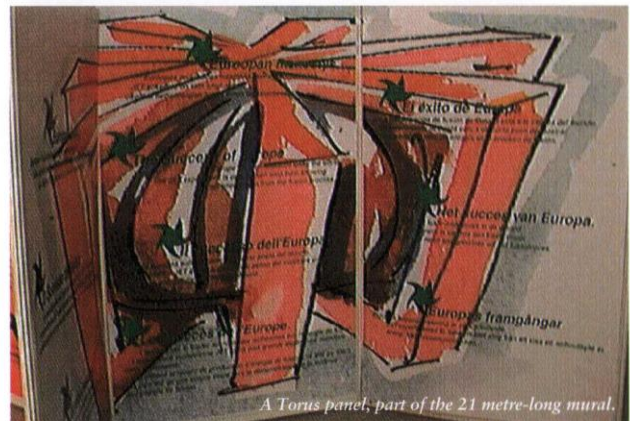
Designs on the future

Local graphics company, Milagro Design, was recently invited to design and stage an exhibition highlighting the benefits of fusion as a future energy source at the European Parliament in Brussels. Co-ordinated by Culham's Fusion PR team, the event brought together all the fusion associations to promote the co-operation between the various European groups.

"We are used to producing large exhibition stands," said Stuart Roper of the Wantage-based studio, "but for this event we had to create a 21 metre long mural, with the added challenge of liaising with representatives from 14 countries and preparing information in 10 languages!" Stuart may be remembered by staff at Harwell where he worked in the PR department

between 1980 and 1984.

The brief, to convey a highly complex scientific subject in a simple and informative way, was achieved by the use of bold images on a timeline demonstrating man's inventiveness, together with simple explanatory panels and a central water feature representing how little fuel will be needed by a fusion power plant. This was backed up by more detailed litera-



A Torus panel, part of the 21 metre-long mural.

ture in ten languages presented in a unique Fusion Future wallet.

"The response from the MEP's was fantastic," says Chris Carpenter, PR manager for UKAEA Fusion. "The mural

was very eye-catching and a complete departure from the usual technical exhibition." Part of the display will be moving to Germany where it will be exhibited for a month.

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