

# Symposium honours

To honour the 70th birthday of Dr J Bryan Taylor, a special symposium entitled 'Fusion, Turbulence and Topology' was organised by the Institute for Fusion Studies at the University of Texas.

Many of Dr Taylor's well-known colleagues and collaborators spoke at the symposium last month including Jack Connor, head of theory and modelling department, at Culham's Fusion division. The social activities included a banquet attended by Bryan and his wife, Joan.

Dr Taylor spent 30 years at UKAEA before leaving in 1989 to take up the Chair of Plasma Physics at the University of Texas. He joined AWMF Aldermaston in 1955 and, after a year as a Commonwealth Fellow in the USA, joined the Culham laboratory when it opened in 1962. He was head of the Theoretical



Dr Taylor will works part-time as an advisor on plasma physics and fusion at Culham.

# 70th Year

nearly three decades, one of the world's finest research groups. Many of Dr Taylor's theoretical papers on the properties of high temperature plasmas are landmarks in the field with fundamental implications for laboratory, space and astrophysical plasmas. The symposium was part of a US-Japan workshop on the topic of 'Non-linear and Non-equilibrium Plasma Phenomena'.

Physics Division, a member of the Management Committee, initially under (Sir) John Adams, and a member of the JET Scientific Council for several years. His principal interest was in research and in 1970 Dr Taylor was elected a Fellow of the Royal Society for his scientific contributions to plasma physics, and was the recipient of many other coveted scientific awards.

During an introduction to Dr Taylor's address he was described as 'unquestionably one of the world's foremost authorities in plasma physics and controlled thermonuclear fusion research. At Culham Laboratory he led, for

## BUS TIMETABLE

Thames Travel has issued an improved timetable, with immediate effect, for the bus service which travels between Harwell International Business Centre (HIBC), Didcot Town and Didcot Parkway Station. Buses leave Harwell North Drive for Didcot Parkway at the following times, Monday to Saturday:-

**07:45** - via Blewbury (does not run on Saturdays) **08:15** - via Blewbury (does not run on Saturdays) **08:57** - Saturday only and via Blewbury **12:40** - via Rowstock and Milton Park **16:40** - via Rowstock and Milton Park **16:45** - via Rowstock (does not run on Saturdays) **08:12** - via Rowstock (does not run on Saturdays) **12:08** - via Blewbury (does not run on Saturdays) **16:08** - via Blewbury

If you have any queries regarding this service please ring Thames Travel on **01491 874216**

## Furniture finds new home

Chair's, office furniture and crockery from the Harwell restaurant which closed last year has been donated by UKAEA to local organisations.

Pupils from Chilton County Primary School are pictured here helping to carry BRONTI for use in their new Oxford headquarters. The wildlife organisation has moved for use in the school's staff room. Dawn Russell, UKAEA property manager, organised the distribution.



(from left) Richard Malbridge (caretaker), Sean Woodley (teacher), Barbara Crocker, Robert Atwood, Anita Pitts and Dawn Russell from UKAEA, Marlon Crocker (parent) and Charlotte Page

## Charitable wishes

In true Christmas spirit, Safeguard International decided that rather than spend money on Christmas cards they would prefer to donate the money to charity. The chosen charity was ABC (Action Against Breast Cancer). Patricia Leadham, director of ABC is pictured here accepting a cheque for £450 from Richard Yelland, SI sales manager.



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# ECHO

THE NEWSLETTER OF THE CULHAM SCIENCE CENTRE & HARWELL BUSINESS CENTRE FEBRUARY 1999

## Europe's newest Battery Technology Centre opened

A new £3.5m Technology Centre has been opened at Culham by John Battle MP, minister for energy and industry. AEA Technology will use the centre to develop a new generation of rechargeable batteries for applications ranging from hand-held computers to electric cars. The combined expertise of some two dozen scientists and engineers will be harnessed to improve the performance of existing lithium-ion rechargeable batteries and to develop the next generation of lithium-polymer batteries to offer greater design flexibility. As Europe's newest specialist battery centre the site includes a large dry room complex and has the capacity to manufacture 1,000 lithium-ion cells a week.



Peter Watson, AEA/AT Chief Executive, John Battle, MP and Rob Neal, MD, AEA/AT Batteries.

"For British industry to succeed in world markets it must create, and exploit knowledge," said John Battle at the opening ceremony. "AEA Technology is leading the way in battery technology and making it a shorter journey from the science lab to the marketplace. Industry and government must be switched on to science. Applying our world-renowned research capability into marketable products will bring the UK profit and prosperity."

AEA Technology chief executive, Peter Watson, said, "We see batteries as an important route to take technology to market and turn science into profit. The work done here will enable us to maintain our position as the world's leading technology supplier in the development of advanced rechargeable batteries."

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## Duke of Kent visits ISIS

Staff at CLRC Rutherford Appleton Laboratory were honoured by a special visitor in December when HRH The Duke of Kent came to the Chilton site. The Duke toured some of the world-leading facilities at RAL, including ISIS, the world's most powerful pulsed neutron source. He was introduced to a new instrument called MAPPs, the largest neutron spectrometer of its kind, which enables scientists to examine atoms and molecules and the forces holding them together. Over 33 tonnes of steel have been used in the main detector vessel of MAPPs and a jigsaw of 258 panels of boron carbide shielding, weighing around two tonnes, cover the 168 metre internal surface. Amazingly, the detector vessel will be under a vacuum of 0.0000000001 of atmospheric pressure.



Dr Ulrich Strohrieger, project leader for the MAPPs instrument, showing HRH The Duke of Kent a model demonstrating magnetic forces and interactions during his recent visit to ISIS at CLRC Rutherford Appleton Laboratory.

### This Month

3 NRPB reports



5 Julia's recital



5 Kids move into no. 50



5 Recycling furniture



# ECHO BRIEF

## Four-year MOD study

The Ministry of Defence has awarded a contract worth more than £5m to AEA Technology, Milton Searcy, for the extraction and testing of nuclear samples from the reactor systems of submarines. The long term effects of radiation on materials used in the nuclear reactor systems of Royal Navy submarines will be assessed by scientists in a four-year study.

## Advisory appointment



Sir Anthony Cleaver, AEA Technology chairman, has been re-appointed by the Industrial Development Advisory Board as chairman for a further year.

## Software helps heart disease

AEA Technology is leading a consortium which is developing software to improve the design of artificial heart valves and pumps to help cut the death rate from cardiovascular disease. The EU project integrates AEA's computational dynamics software, CFD, with stress analysis software to create the first computer-aided tool for modelling blood flows and cardiac implants.

## Apologies

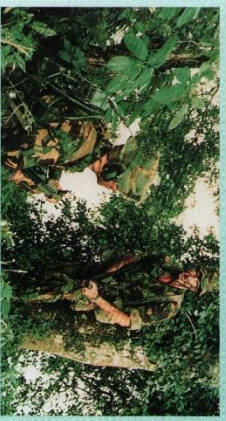
In ECHO's Christmas message reviewing the past year we welcomed new recruit, Emergoz plc, who are of course now known as Xalud Group plc. Many apologies for the mistaken identity.



continued from front page

Lithium-ion batteries are 30% smaller and more than a third lighter than nickel cadmium making them ideal for a wide range of applications from electric vehicles to more specialist uses in satellites, defence communications and medical devices. There is also a growing niche market estimated to be worth some £150m over the next three years, for smart batteries with special characteristics such as a year and a half life in Scotland, which will produce up to 2 million Lithium-ion cells a year and create 130 jobs.

## Better battlefield communications



British troops will soon be equipped with advanced military radios using batteries that last almost 50% longer than conventional batteries. The Tactical Ground to Air Communication System (TAGCA) will give improved communications between ground forces and their supporting aircraft. Supplied to the MOD by Hunting Engineering, the system uses advanced batteries developed by AEA Technology. A large number of 24 volt batteries will be supplied by D58 Special Batteries, a subsidiary of AEAT Batteries.

## A move for Harwell Dosimeters

UKAEA and Harwell Dosimeters Ltd (HDL) recently agreed a new lease on building 540 at Harwell. Following refurbishment of the building, HDL will relocate from their existing accommodation in Hanger 10.

Commenting on the deal the general manager of HDL, Dr Roger Kent, said: "HDL, assessed various local options and concluded that Harwell Business Centre remains the most appropriate for us. We find that many of the services we need are readily available here, and are pleased to say amongst familiar faces. We are looking forward to occupying more comfortable premises when we have refurbished 540."



## Obituaries

### Dr John "Colin" Evans



We regret to announce the death of Dr Colin Evans BSc, former UKAEA chief medical officer, on 27 December 1998 aged 71. He came to Harwell in 1988 and spent his career in Occupational Health where he was able to bridge the gap between science and medicine. He succeeded Dr Short as chief medical officer; the post he held until his retirement in 1988. He leaves his wife Jane and two daughters Anna and Debbie.

### Air Lunney



Harwell's former chief fire officer, Air Lunney, has died at the age of 79. Air grew up in Cheshire. During the Second World War he served in the Parachute Regiment and was a regular visitor to the annual remembrance service at the memorial stone at Harwell, commemorating the D-Day landings. He was first employed by UKAEA at Dounreay before heading up the fire service at the Harwell site, where he worked for 14 years. In 1976 Air was made an MBE, and lived at Chilton before retiring to Gloucestershire with his wife, Dorothy. He leaves a widow, a son and daughter.

# Instrumentation business sold

In December last year, AEA Technology agreed the sale of its specialist instrumentation business to US company, Packard BioScience Company for £6.9m.

The instrumentation business will be merged with Packard's existing operation in the UK, known as Canberra, to form a new company, Harwell Instruments Ltd. This is one of the brand names traditionally used by AEA Technology, which has supplied customers in the nuclear and defence industries with radiation detection, measuring and protection equipment for use in harsh environments.

Harwell Instruments Ltd will operate at the existing premises at Harwell and Winton and the new company will employ some 75 staff. Packard BioScience is based in Connecticut, US, and employs 1,200 staff. The company produces specialised instruments

## SAFETY FACTS

**Lost time accidents** C H recorded more lost time accidents than the fiscal year (98/99) 1 1 Total reported to HSE (98/99) 0 6 Total days lost in 98/99 1 51

**Minor accidents** (no time lost) recorded more last year 7 1 than this fiscal year (98/99) 34 72

**There were three non-radiological reportable incidents since the last issue of ECHO.**

A tenant's employee strained his back when he rose awkwardly, a visitor sustained a deep cut to his shin when he fell outside the Air Hall in the evening dressings and a contractor tore a muscle in his arm whilst demolishing brickwork with a Kangoo hammer.

**Public Meeting**  
Harwell's Discharges Application Following receipt of UKAEA's application for revised radioactive discharge limits, the Environment Agency are holding a Public Meeting on Wednesday 27 April at 7.30 pm, the UKAEA will describe its application and the EA will explain the public consultation process. Any member of the public may attend. Further details from Zoe Wyatt on 01491 829461.



for the biomedical and physical sciences markets and trades in 66 countries worldwide.

Dr Chris Wright, chairman of AEA Technology Instrumentation, commented, "We believe this will be a good deal for our customers. Our instrumentation experts are among the best in the world and will be joining a company that is an international market leader with more than 30 years' experience in the field".

## Annual report traces year's achievements

Both public and private sectors in the UK have many varied needs for radiological protection. In its Annual Report (1997-9) NRPB shows how it can cater for these needs, ranging from high level advice to government departments, to the provision of dosimetry services to hospitals and industry.

NRPB work on laser safety has been important during the year as cheap laser pointers became available on the market for casual use by the public. NRPB advised the Department of Trade & Industry and local authority trading standards officers on safety standards for laser pointers and many devices were withdrawn from sale.

The annual report shows the range of research carried out at NRPB, including work on the biological effects of ionising radiation, on cosmic ray exposures to aircrew and passengers on radon exposures in homes and on non-ionising radiation. This latter topic continues to generate media and public concern, particularly with the rapid expansion of mobile phone use.

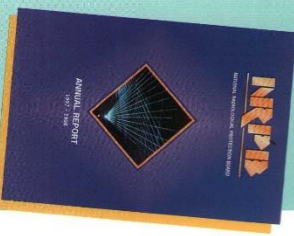
Copies are available free of charge from the information office, NRPB, tel: 01235 822742, fax: 01235 822746, email: information@nrbp.org.uk

During the coming year NRPB expects to run over 150 specialist training courses from its centres at Chilton, Glasgow and Leeds.

As well as those for radiation protection supervisors, courses are aimed at more general users of ionising radiations in indus-



(Clockwise from back left): George Serrano, Canberra president; Ian Baldwin, AEAT former MD; Hil Michael Zelnarb, HI MD; David Linsley, AEAT; Chris Wright, chairman of AEA Technology Instrumentation; Emory Olson, Packard BioScience chief executive; and Charlie Hippley, AEAT.



A new brochure giving all course details is now available free of charge through the NRPB information office, tel: 01235 822742, fax: 01235 822746, email: information@nrbp.org.uk

**New professional courses**

As the country's leading supplier of radiological protection training, NRPB is introducing a series of new short courses. Designed to improve competence, particularly for certification, under the revised UK Ionising Radiations Regulations, the course each focuses on a different aspect of radiation protection. Customers will be free to select courses to meet their own training needs, offering flexibility to both students and employers.

The Postgraduate Radiological Protection (PGRP) course, which has long been the mainstay of professional level radiological protection training, will no longer be offered. The Advanced Radiological Protection (ARP) course will be replaced by short topic focussed courses designed to update the experienced radiological protection professional.

# 25 years of JET

– History in the Making

Culham is the venue for a fascinating exhibition which looks at JET, tracing its scientific and technological history and the contributions it has made to fusion research. From Monday 8th February to Friday 12th February it will be displayed on the balcony in E3 just outside the restaurant.

The exhibition has already been seen at Marseilles during the 1998 Symposium on Fusion Technology, and at Yokohama for the 17th Plasma Physics meeting of the IAEA. JET has been a major and unarguably successful part of the life of Culham since the design team started work here 25 years ago. It's a must see for Culham and Harwell staff.

## Out & About

### MRC Harwell Lecture

Monday 1 March 1999  
Cockerill Hall, Harwell

Dr Paul Nurse, director general of the CEF, and director of the Cell Culture Laboratory, will present this year's MRC Harwell lecture. Entitled 'The Cell Cycle' the lecture begins at 4pm, preceded by tea and coffee from 3.30pm and followed by refreshments from 5 to 6.30pm. Tickets are available from Julie Cox at MRC, tel: 01235 8344393, fax: 01235 834476, email: jcox@mrc.ac.uk

### MRC spring seminars

The 1999 spring seminar programme from MRC includes:

**Tuesday 9 February** - The medical genetics of breast primery

**Tuesday 22 February** - Neural history of a diabetes polymorph, by Dr Simon Bennett, Oregon Ltd, Milson Park, Abingdon.

Seminars are held in the large seminar room at 11.30am. An up-to-date programme can be found on the MRC website <http://www.har.mrc.ac.uk/events/seminar.html>

### BNES winter lectures

The British Nuclear Energy Society (general England branch) has organised a programme of evening lectures.

**Wednesday 24 February**, Praxairisation and the effects on health, Front 8 by Chris Davies, British Energy.

**Wednesday 17 March**, Sustainable development, the energy by Paul Thomas, AEA Technology.

Meetings are held at 6.30pm in the ETSU Lecture Room, B153, Harwell. Coffee is served from 6pm and light refreshments afterwards. Contact Phil Holden on H4980 or Louise Gould on H2827.

### Romantic rail rendezvous

**Sunday 14 February** - Valentines Sunday, including an 'Eat Your Heart Out' quiz, will be held at the Railway Centre on 01235 817200.

### BBONT calendar

**Sunday 14 February** - Plant a tree for your Valentine. Plant a token of your affection in the arborescence of native trees. Meet at Hill Farm, Little Wittenham at 10am. Bring a spade! Contact D. Shelton, 01865 407192.

**Tuesday 16 February** - Orbits of Orionshine, an illustrated talk by S. A. Jones at 7.30pm. Contact: G. Phipps (e-mail: g.hipps@nrc.rl.ac.uk) or G. Phipps (tel: 01865 372867).

**Friday 19 February** - Where Red Kites Dare. A talk on the resurrection of the red kite into the Chilterns area. Meet Longmow Hill, Stokenchurch, Bucks at 9pm. Contact T. Drew, 01491-489238.

**Wednesday 24 February** - Poets in Oxfordshire: Wildlife research. Dr J. Binks of the Vincent Wildlife Trust will give a talk on this interesting topic. Meet at 7.30pm, Poplars, Caversham, Oxon. Contact: G. Phipps, 01869 249307.

## Religious

### The red hat of Pope Pius IX was just one of the relics kept in the glory hole at Stonyhurst College near Clitheroe in Lancashire.

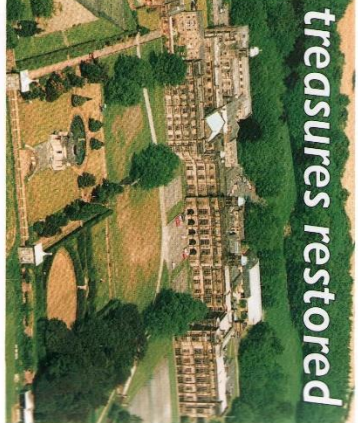
Stored in this large, walk-in Victorian cupboard are many treasures, some of them unique. When a pipe in the cupboard burst, water began to soak the contents, causing water damage.

Harwell Drying Restoration Services came to the rescue. Divisional manager, Stefan Alsop, recalls, "We called in one of our colleagues, a professional conservator, as several items needed immediate stabilisation to move them without causing further damage. We also recommended that the remaining, dry materials be removed from the glory hole to minimise the risk of mould growth in the humid conditions created by the water leak and lack of ventilation."

The majority of articles for restoration were photographs and albums dating from the turn of the 19th century and engravings from the 18th and 19th centuries. By virtue of their great age alone, most are historically valuable and many unique. Most of the engravings were restored using special washing procedures complemented by other novel cleaning processes. The photographs were freeze-vacuum dried with further work carried out on albums and bindings once the contents had been safely restored.

Curator of the collections at Stonyhurst College, said, "When we saw what had happened in the glory hole, we were extremely concerned. However, Harwell Drying Restoration Services responded rapidly, and I was impressed by its efficiency and organisation. Given the amount of work needed and the speed with which the materials had to be moved, the restoration charges were extremely reasonable."

## treasures restored



Valuable religious treasures are kept at Stonyhurst College. Photo courtesy of the Lancashire Evening Telegraph

## New instrument for ISIS

Our photograph shows Dr Andrew Taylor, director (left) and Dr Bert Westwood, CLRC chief executive officer (right) with Professor Lucio Bianco, president CNR, drinking a toast to the newly inaugurated Toresca instrument. Toresca will be used by scientists looking to discover how the atomic structure of materials affects their characteristics. The ceremony was led by Dr Philip Mitchell (Chemistry Department of the University of Reading) whose team is experimenting without being changed in the process. He said, "Neutrons provide us with a unique means of probing the surface chemistry of a catalyst. Toresca will enable us to get more results in a shorter time, with greater accuracy."

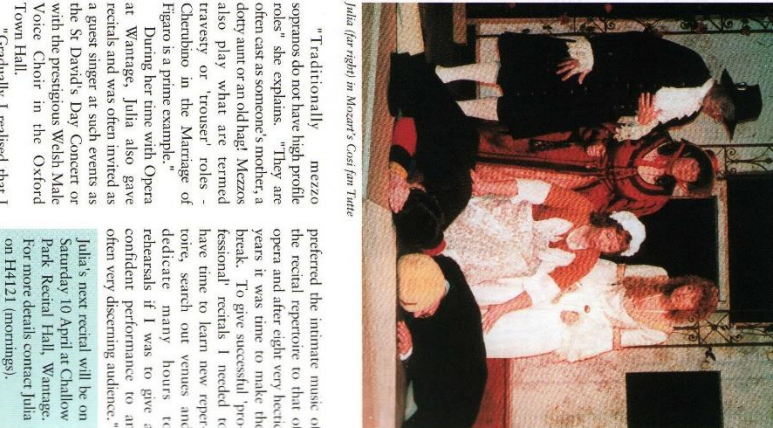
## Julia tunes up for spring recital

When Julia Reynolds was persuaded to sing a dirge at a quiet an impression. As a result she was invited to return to Wantage's twin town to give a full recital.

Julia, who works for UKAEA in B220, has always been interested in classical music and played the piano and violin from an early age until she injured her hand. About 15 years ago a colleague was talking about rehearsals at a local amateur operatic group and persuaded Julia to join in as they were desperately in need of altos. That was the beginning of her passionate affair with the world of opera, operetta and song!

However, Harwell Drying Restoration Services responded rapidly, and I was impressed by its efficiency and organisation. Given the amount of work needed and the speed with which the materials had to be moved, the restoration charges were extremely reasonable."

By this time Julia, and her various teachers, had discovered that her voice was not alto, but was in fact mezzo soprano, with colouratura qualities, being able to sing fast runs and highly ornate passages of music typical of Rossini. This flexibility broadened the range of roles for Julia.



Julia (far right) in Mozart's *Così fan Tutti*

"Traditionally mezzo sopranos do not have high profile roles" she explains. "They are often cast as someone's mother, a dairy aunt or an old hag! Mezzos also play what are termed 'travesty' or 'trouser' roles - Cherubino in the Marriage of Figaro is a prime example." During her time with Opera at Wantage, Julia also gave recitals and was often invited as a guest singer at such events as the St. David's Day Concert or with the prestigious Welsh Male Voice Choir in the Oxford Town Hall.

"Gradually I realised that I preferred the intimate music of opera and after eight very hectic years it was time to make the break. To give successful professional recitals I needed to have time to learn new repertoire, search out venues and dedicate many hours to rehearsals if I was to give a confident performance to an often very discerning audience."

Julia's next recital will be on Saturday 10 April at Challenge Park, Rectory Hall, Wantage. For more details contact Julia on H4121 (mornings).

## Jubilee House for Aldfields Nursery

An all-weather playhouse for the children of Aldfields Nursery, Harwell arrived in time for Christmas. It was paid for by UKAEA, owners of next-door Harwell Business Centre. In recognition of the nursery's 50th anniversary. The new playhouse has proved popular with the 40 children at the nursery which has recently received an outstanding OFSTED report.

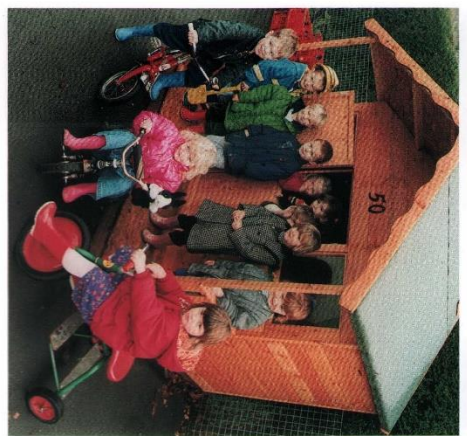
Said Nick Hance, UKAEA's PR manager at Harwell, "The nursery was one of the first six to be opened by the county in 1948, and was originally housed in the RAF's Salvation Army hut for the children of staff. UKAEA was pleased to mark the jubilee with a donation for the playhouse."

These days the nursery takes 3-5 year-olds from a wide catchment area and feeds into 15 different primary schools, mainly in Didcot, Abingdon and Wantage. Janet Gaines, head-teacher said, "A new building was built in 1953 and the nursery was transferred from the former Parkes CC to Oxfordshire in 1974."

Jane is only the third head teacher to have served in the nursery's 50 years and she is assisted by a dedicated band of teachers and nursery nurses that includes the school's longest serving staff member in Ann Harry, the secretary.

## Dragon Boat Challenge

Dragon boat racing is one of the newest and most colourful water sports, catering for all ages, male and female and people of mixed sporting abilities. It requires no previous experience and, above all, it's great fun. The Abingdon Vesper Rotary Club is holding a Dragon Boat Challenge on Sunday 16 May 1999 and is looking for teams of 25 people to enter. The main charity is Culham-based Action against Breast Cancer (ABC) and teams can raise funds through sponsorship. This gala day by the river Thames will be a fun day out for all the family. In addition to the water sports there'll be stalls, side-shows, refreshments and a bouncy castle. All boats, instruction and life-jackets are provided. For more information contact Bruce Gow on 01865 863919 or Chris Tomlinson on 01235 525076 (work) or 01235 525920 (home). There's a limit of 30 teams so don't delay.



Nursery children at the Jubilee playhouse (L-R) front row on the left: Roy Harrison, Hayley Jessop and Vicki Pollard. Standing: Aaron Sanders, Jack McLeod, Phillip Ross, Leanne Higgins and Alice Murphy. Inside the house: Lorna Jubbens, Hannah Gardner and Jack O'Reagan.

