

CLRC LABNEWS

DECEMBER 2000

A MONTHLY NEWSLETTER FOR STAFF OF THE COUNCIL FOR THE CENTRAL LABORATORY OF THE RESEARCH COUNCILS

LABNEWS

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This is my first and last Christmas message to staff. For me it is a time for reflecting on the successes that we have had. I was very proud to have had an involvement in the recent Quinquennial Review of CLRC, a requirement for all public sector organisations such as ours. We appear to have passed the test with flying colours and the final report is expected to be full of praise for the high quality of our work. No matter how good our facilities and equipment are, their successful exploitation to support the science and engineering base of this country depends critically on the quality and commitment of our staff. You have met the challenge and, as the holiday season approaches, you can look forward to a well-earned break.

Many of the previous Christmas messages have commented on aspects of our programme. I will not do so. All our science and engineering programmes are important and all staff contribute to our overall successes, either directly or indirectly. Other Christmas messages have recorded the arrival of new grandchildren to the Chief Executive's family. I have none to report, although I can record one for each of the previous six years. My Christmas, as a consequence, is going to be a happy family event and a noisy one. However you plan to spend your Christmas, I can only wish that your Christmas will be as enjoyable as ours.

My wife Una and I wish you a Merry Christmas and a Happy New Year.

Lynda Walker

Would you be willing to write an article for LabNews? Yes/No
If yes, please add your details below.

Any other comments about LabNews?

Please indicate your age:

Under 30 45 - 60
30 - 45 Over 60

Name and address (optional - please complete if you would like to be entered into the prize draw.)

Thanks for your time. Please return this questionnaire to:
CLRC Rutherford Appleton Laboratory, Press & PR R71,
Chilton, Didcot, Oxfordshire, OX11 0QX.

HAPPY HOLIDAYS

Articles, ideas and letters are very welcome!
Articles to the Editor or Correspondent by 15th of the month.

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CCLRC to play pivotal role in e-science

The government's recent announcement of extra funding for e-science was good news for CCLRC. The extra £5 million awarded to CCLRC over three years will enable development of e-science as a key technology for the next generation of major scientific facilities at the Laboratories sites, and to encourage and co-ordinate cross-disciplinary e-science activities. E-science means science increasingly done through global collaboration enabled by the Internet, involving huge volumes of data and using the most powerful computer resources.

Current and future facilities will create ever increasing amounts of data which need to be processed, transported, stored and visualised. It is important to be at the forefront of new computing technology to achieve this. E-science offers possibilities for stimulating cross-disciplinary research through the provision of a common Grid infrastructure, with its own broadly based scientific programme. CCLRC will play a key role in this. CCLRC took the UK into the flagship EU project named DataGrid. This European e-science computing activity focuses on transparent access to geographically dispersed data - application pilots cover genomics, earth observation and particle physics.

Within the DataGrid project, and in other areas, the Laboratories are already active in developing the new technology in setting up elements of the new computing infrastructure, and establishing collaborations with other institutes. One example is with Birkbeck College, London, where Professor Julia Goodfellow (who, incidentally, is newly appointed to our Council) will be working with CCLRC to develop remote control of data collection, analysis, and refinement for studies in structural biology and materials sciences. "This is excellent news and will enable the UK crystallography community to maintain its international standing. Such automation will be important for the development of structural genomics projects," she said.

Commenting on the funding announcement Gordon Walker said, "The extra funding will enable us to give our users unparalleled access to our facilities, enable us to produce highly trained people in this field, and allow full exploitation of our knowledge and advances for the benefit of business and commerce as well as for science and technology".

DataGrid project's home page: <http://grid.nelh.ac.uk/grid/>
E-science Centre at CCLRC: <http://www.escience.dirc.ac.uk/>

RAL partners in new climate change research centre

Environment Minister Michael Meacher officially opened a new multi-million pound climate change research centre on 9 November 2000. The Tyndall Centre for Climate Change Research, which is based at the University of East Anglia, Norwich brings together climate scientists, economists, social scientists and engineers from nine higher education and research institutions to explore and develop radical new responses to climate change and help policy makers make informed decisions for the future.

Work at the centre will initially be organised around six research programmes. Jim Halliday, Head of the Energy Research Unit at RAL, is the deputy coordinator of the research programme on Renewable and New Energy Technologies. This programme will identify and develop new and renewable low-carbon energy sources and investigate ways to integrate them into existing energy systems. "It is widely recognised that renewable sources of energy will be an essential part of a UK climate change strategy. The Energy Research Unit at RAL has carried out pioneering research and development into renewable energy for many years, and is very excited at the prospect of using its skills to help tackle the challenge of climate change in this important new initiative," he explained.

The centre is funded by the DTI and three UK research councils - the Natural Environment Research Council, the Economic and Social Research Council, and the Engineering and Physical Sciences Research Council - who will allocate £10 million over five years to the project. <http://www.tyndall.uea.ac.uk>



Sir Anthony Clencer, Rt. Hon. Michael Meacher, Dr Mike Hulme and Prof John Lenton at the opening of the Tyndall Centre.

Norton Priory A-level biology visit

A small group of A-level biology students from Norton Priory High School recently visited DL to learn just how a scanning electron microscope works. This topic is now included in the A-level syllabus. David Clarke explained how the microscope works and its advantages over optical instruments before the students used the microscope for themselves. They were able to take a closer look at samples of human hair, a leaf, a fly, a blade of grass and a five penny coin. They also took the opportunity to see the high energy transmission electron microscope.

Thanks to David Clarke for all the additional work he undertook which allowed this visit to go ahead.

Anne Humphings



(DL00/10071)

HSL

RAL's Numerical Analysis Group is delighted to announce the release of HSL 2000, which is available to the UK academic community free of charge.

HSL (formerly the Harwell Subroutine Library) is a collection of Fortran packages for large scale scientific computation written and developed by the group and by other experts and collaborators. The library started in 1963 and over the years it has evolved and has been extensively used on a wide range of computers, from Cray supercomputers to modern PCs and high performance workstations. HSL now offers users a high standard of reliability and has an international reputation as a source of robust and efficient numerical software.

The latest release contains codes for automatic differentiation,



Image developed in the PARASOL project using MSC Software

differential equations, eigenvalues and eigenvectors, mathematical functions, sorting, linear programming, linear algebra, nonlinear equations, polynomials, optimisation and non-linear data fitting. New packages include state-of-the-art routines for sparse linear programming, the solution of sparse linear systems, and optimisation.

Free use of HSL 2000 by UK academics

While HSL 2000 is a commercial product, it is also available without charge to anyone working in an academic institution in the UK for teaching and academic research purposes. This innovation is a direct result of much of the core funding for

the Numerical Analysis Group coming from an EPSRC grant. An academic licence for the use of any HSL 2000 package may be obtained without charge by UK academics through the HSL web page <http://www.se.dirc.ac.uk/Activity/HSL>

Information on the commercial use of HSL 2000 can be found by links from the main HSL web page.

For more information on the Numerical Analysis Group, see www.se.dirc.ac.uk/Group/CENMAG

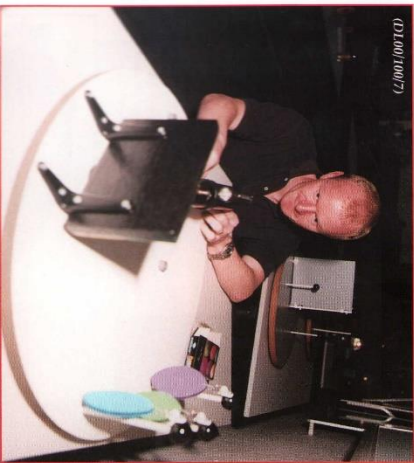


Science 2000

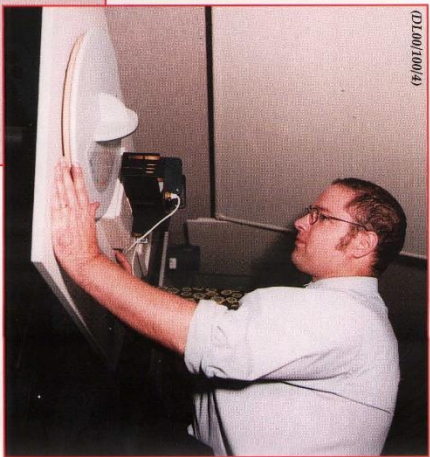
Twenty science teachers from throughout the North West recently spent the day at Daresbury discovering what goes on and what DL can offer schools. Science 2000 was the regional science teacher placement organised for North and Mid Cheshire Training and Enterprise Council. After hearing about the history of DL and

the science of the SRS and its applications, the group toured the site. The afternoon session concentrated on what DL can offer schools and included a demonstration by CSE of their software education package which is being developed with the aid of a small in-house grant with input from local teachers and students. The hands-on session included the light

workshop and the 'D Files' before the afternoon ended with refreshments in the Science Centre. Thanks to Tony Buckley for his excellent presentation, Bill Smith and Alex Cole from CSE and guides Graham Clark and Bob Bilborough. The D Files can be viewed at <http://www.clrc.ac.uk/Activity/ACTIVITY-DFiles>



(DL00/100/7)



(DL00/100/4)



(DL00/100/6)



(DL00/100/9)

Visit of the Bishop of Chester

The Bishop of Chester, The Right Reverend Dr Peter R Forster, visited Daresbury recently to see the SRS and hear about recent scientific developments. He is a keen scientist with a PhD in Chemistry, and currently holds the portfolio advising Canterbury on scientific

matters, especially biotechnology. The Bishop was accompanied by the vicars of the two adjacent parishes, Reverends David Felix and John Harries (pictured second right). John also has a scientific background having previously worked as a researcher at DL, specialising in muscle diffraction.



David Norman explains the use of station 1&1, designed for time-resolved studies of noncrystalline and fibrous materials, to the Bishop of Chester (second left) (DL00/102/15)

Photo caption competition



To mark the success of the continuing collaboration between DL and RIKEN, a joint symposium was held at Spring-8 in November, with presentations both on past work, and future directions. Dr Yoshio Inoue, Director at the RIKEN Harima Institute, and Dr Hitonichi Kamitsubo, centre, Director-General Spring-8, are pictured with Hywel Price and Samar Hasain. Dr Kamitsubo and Dr Inoue subsequently visited Daresbury at the beginning of December on the occasion of the signing of a new DL-Spring-8 agreement - more details on this next month. Can you suggest a suitable caption for this photo? Please email your suggestions to n.d.beal@clrc.ac.uk and Hywel is providing a bottle of champagne for the 'winning' entry.

RAL Christian Fellowship presents: RAL Christmas Carol Service

Where: R22
Lecture Theatre
When: Fri 15 December at 12.30
Why: To celebrate Christmas for what it really is
Who: Everyone - meeting is open to all staff and visitors



Guest speaker is Alistair Brown, General Director of the Baptist Missionary Society

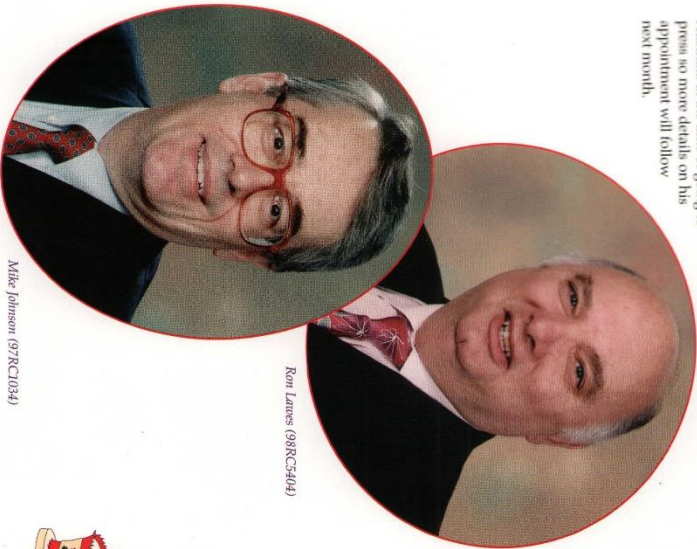
New Directors

Richard Lawrence-Wilson recently announced two new senior staff appointments.

December. Mike has been working at RAL since 1974, most recently as Head of ISIS Science Instrumentation Division.

Mike said "The next five years will be exciting and challenging times for CLRC since they should see the building of Diamond, the creation of The Centre for Instrumentation, and the construction of ISIS second target station. I am honoured and delighted to have the opportunity to lead the Instrumentation Department, which will be central to these developments. The Centre for Instrumentation will undertake strategic research in key areas of instrumentation that will underpin the Laboratory's ability to deliver novel instruments for the next generation of sources. I look forward to working with a larger circle of colleagues to deliver these programmes".

Ron Lawes takes up his new position as Director, Engineering on 1 January. The Central Microstructure Facility (CMF), Ron's current group, will also move to Engineering Department on that day. Ron was away in Australia at the time of going to press so more details on his appointment will follow next month.



Ron Lawes (98RC5404)

Mike Johnson (97RC1034)

Christmas fruit cake

- Ingredients:**
- 1 cup of water
 - 1 cup of sugar
 - 4 large eggs
 - 8oz of nuts
- The juice of one lemon**
- 2 cups of dried fruit
 - 1 tsp. of salt
 - 1 cup of baking powder
 - 1 cup of brown sugar
 - 1 bottle of whisky

Method:

Sample the whisky to check the quality. Take a large bowl. Check the whisky again. To be sure it is of the highest quality, pour one level cup and drink.

Repeat.

Turn on the electric mixer, beat one cup of butter in a large sturdy bowl. Add 1 tsp of sugar and beat again. Make sure the whisky is still okay. Cry another tsp.

Turn off the mixer.

Break two eggs and add to the bowl and chuck in the dried fruit.

Mix on the turner.

If the fried druit gets stuck in the beaters, pry it loose with a dewdriver.

Sample the whisky to test for consistency.

Next, sift 2 cups of salt. Or something.

Who cares? Check the whisky.

Now sift the lemon juice and strain the nuts. Add one tablespoon of sugar or something. Whatever you can find.

Grease the oven.

Turn the cake tin to 350 degrees. Don't forget to heat off the turner.

Throw the bowl out of the window, check the whisky and go to bed.



European Commission praise RAL IT project management

In its final report on the EU funded research project *Proflex* the European Commission said: "The management by CLS [a German company involved in the project] was good, and RAL has continued the quality of management and has, with the support of the other partners, showed initiative and competence in rescuing the project and bringing it to a successful close".

Proflex was a 3.4 million euro project, partly funded by the EU Esprit IV programme to develop business process management software. The software tools allow companies to flexibly characterise their business processes, and support delegation of tasks to staff in the organisation, reminding managers when tasks have, and have not, been completed. The tools are more

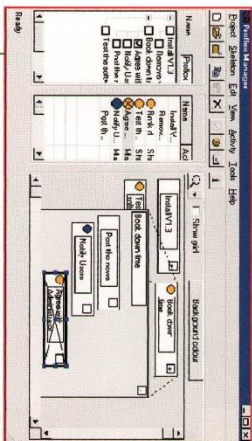
flexible than others in the market which require a complete, detailed description of the processes before they can be first used. *Proflex* only requires those parts of the process to be defined which a manager wants to be, others can be clarified later.

The project co-ordinator was a German company, CLS, which was forced into liquidation in May 1999 putting the future of the project in doubt. The other

partners in the project consortium were WAAK Beschutte Werkplaats vzw in Belgium, Leberstahlle Werkstatt

GmbH in Germany and Alcatel IKO Kabel AB in Sweden who acted as users of the software. Already the leading technology innovator in the consortium, CLRC also took on the role of project co-ordinator to allow the project to continue. RAL's Damian Maekandall replanned the project extending it in time to complete the work, and managed it to its conclusion this June. The CEC have completed their final review of the project, which is now establishing links with companies that can exploit the software in the commercial market.

For further information see <http://www.wild.circ.ac.uk/Activity/Proflex>

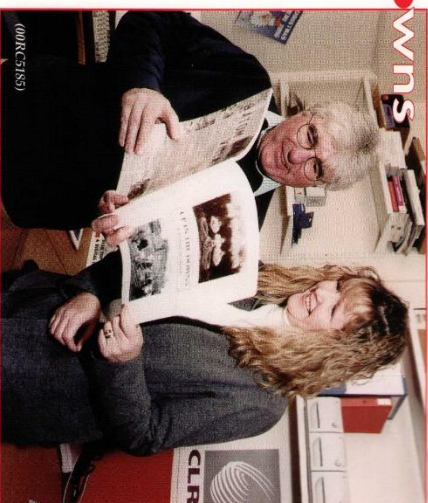


Screen image of the activities in the task of producing a demonstration including posters, linked in the *Proflex* flexible business process management tool

Up in the Downs

RS's Carol Chung played a key role in Chilton village's Millennium project, a history in pictures entitled 'Up in the Downs'. Carol laid out the text and photographs and is pictured, right, admiring the finished work with Frank Dumbleton, the project co-ordinator.

Frank came in to present Carol with a copy of the book and a gift for all her hard work. Copies of the book, priced at £10.00 each, are available from The Rose & Crown Public House, Chilton and Liz Morris, Parish Clerk, at 6 Lutton Close, Chilton, tel: 01225 834233 or email <liz_morrischilton@yahoo.co.uk>.



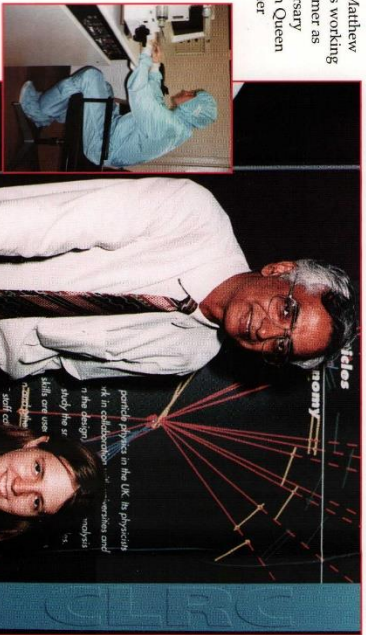
(00RC5185)

Nuffield Bursary scheme

Catherine Davison and Matthew Hagger spent six weeks working at RAL during the summer as part of the Nuffield Bursary scheme. Catherine, a pupil from Queen Anne's School, Reading spent her placement in Particle Physics with Norman McCubbin and Bill Murray, whilst Matthew, from Bloxham School, Oxford spent his time in the Central Microstructure facility with Ted Blatchford.

The scheme is coordinated by The Oxford Trust and they provide £65 a week as payment to the pupil. RAL provides a placement which lasts between 4-6 weeks which gives the student an insight into a career in science.

Janet Hayler, RAL's Schools Liaison Officer said, "We hope to be able to offer at least two placements again next year. The young people who take up the places give up their summer holidays for the experience and the students that have been to RAL over the years have been of a very high quality and willing to learn. Previous supervisors have commented on the contribution that the students have made to the work here. If anyone has a project which might be suitable, or would like to talk about the possibilities, please contact me".



Catherine pictured with Gian Copel from Particle Physics Department (00R/C250)

European Latsis Prize 2000

The European Science Foundation has awarded this year's European Latsis Prize to Professor Kenneth Charles Holmes, Director of the Max-Planck Institut für Medizinische Forschung, for his outstanding contributions to structural biology, studies of great scientific and social significance for European progress. The prize, worth 100,000 Swiss Francs, is awarded by the ESF to an individual or group who, in the opinion of their peers, has made the greatest contribution to a particular field of European research. The chosen field of the 2000 prize was 'molecular structure'.

Throughout his career Professor Holmes has been a major figure in structural biology. He was a pioneer in the development of both theoretical and experimental X-ray diffraction methods for elucidating the structures of biological macromolecules. His work in the 1960's on the development of stronger X-ray sources paved the way for the novel use of synchrotron radiation as an X-ray source for the studies of the structure of matter, particularly for biological structures. His work has been essential for revealing the atomic structures of the proteins actin and myosin in muscle. He is acknowledged as a leading authority on the mechanism by which the contractile protein components of muscle turn the chemical energy of ATP into work.

In the early 1970's Kenneth Holmes and his student Gerald Rosenbaum were the first to build an optical bench for X-ray diffraction at a synchrotron. Their demonstration of X-ray diffraction from insect muscle using synchrotron radiation at DESY, in Hamburg, in 1971 was a major breakthrough. The results paved the way for the establishment of the EMBL outstation at DESY where Holmes served as acting head during its founding years.

Maths is Magic



Dear Mabel and Jack, I think I have a really good idea for a project. I was thinking of making a model of a house. I can use wood and glue to make the walls and roof. I can also use some string to make the windows and doors. I think you would like it. I can show you when you come to school. I will be happy to hear from you. Thank you to Mrs. Copel.

Dear Mabel, I have a very good idea for a project. I was thinking of making a model of a house. I can use wood and glue to make the walls and roof. I can also use some string to make the windows and doors. I think you would like it. I can show you when you come to school. I will be happy to hear from you. Thank you to Mrs. Copel.

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299 local school children visited RAL in October to participate in the Magic Maths Circus. The 9-11 year-olds spent half a day having fun with a series of hands-on maths activities. Many of the children were cheering coming to the Lab for a maths lesson but all of them were amazed at what fun it really is. Some of the teachers commented that the pupils had really applied themselves and some were actually looking forward to their next lesson at school!

Warrington Chamber of Commerce members visit Daresbury Laboratory

Daresbury Laboratory is a member of both the Warrington and Halton Chambers of Commerce (CoC). The Warrington Chamber holds monthly 'business after hours' meetings where members can network

and learn about the host member in more detail. Daresbury Laboratory recently hosted one of these events and a number of useful commercial contacts were made.

Thirty CoC members were given a presentation on the analytical service

capabilities available commercially through DARTS followed by guided tours of the synchrotron. Several members expressed amazement at the range of work carried out at the lab and stayed well into the evening discussing potential opportunities for DARTS.



Chamber President Ian Outton (centre) with Hybrid Price and Business Development Manager Chris Pickles

Christmas

Why do we bother with Christmas?
I'd really like to know,
It really is a waste of time,
We never get any snow!

I hate writing all those cards,
It seems a waste of time,
I'll send you your card and,
You can send me mine!

Carol singers knocking on the door,
I'd wish they'd go away,
They'll only sing a single line but,
still they want their pay!

And buying Christmas prezziets,
It really is a chore,
A whole afternoon spent wrapping,
Whilst sitting on the floor!

Chocolates bring me out in spots
And my crackers never snap,
The whole thing makes me weary,
I'll have to take a nap!

Mince pies make me shudder,
So does Christmas cake,
I'm glad I don't like tifle,
The jelly makes me shake!

So I'm off now to hibernate,
Until the January sales,
Thoughts of spending more cash,
My depression never fails!

Clare Watley



Retirements

Derek Cragg

After a career spanning 38 years Derek Cragg retired from full time employment at RAL in September. However, he is staying on for a while as a consultant to work on some new contracts that require his particular expertise.

At Derek's presentation, Elwyn Bayrham recounted a career which started in 1962 when he joined the Nimrod Vacuum Group as an Experimental Officer. After three years he transferred to the then General Physics Group to specialise in commissioning a variety of cryogenic equipment. When the Group became part of Technology, his job changed from commissioning cryogenic equipment to cryogenic design. As was said at the time: "If it doesn't meet the specification you will have to moan at yourself and not some poor unfortunate in the Design Office". Equipment he has designed can be found all over RAL and at the CERN and DESY laboratories. As Elwyn said, "I ask you to take note, this guy' has done it all - at least twice!"

Elwyn also recounted a story about Derek during the commissioning of the HI Solenoid in Hanbury. Derek had arrived early one morning to find all the vacuum gauges on the solenoid indicating a high pressure - very bad news! However, after some diagnostic work he discovered it was a vacuum gauge problem and in fact everything

was well. After getting the gauges to read the correct pressure he heard Elwyn coming and promptly switched them all back again and gave him the bad news in an emotional sob story. Being somewhat dismayed Elwyn felt in need of a cup of coffee and went off to make one so Derek reset all the gauges one more time and in the ensuing discussion, Derek pointed to the gauges and said he couldn't see a problem as everything seemed to be okay. Elwyn's been trying to get his own back for over ten years!



(00RCA167)

Derek said that he felt very privileged to have worked at RAL. His career had been very enjoyable and he liked being paid for something he enjoyed doing. He felt privileged to have worked with his colleagues over the years and with Elwyn in particular. Derek had once told Elwyn that at his age he now only worked for people who he respected both as a person and for their technical expertise. He was pleased to say Elwyn had passed the test on both counts!

Derek's wife, Pamela, accompanied him to the presentation and was presented with a bouquet of flowers as part of the celebration. Derek received a technological memento in the

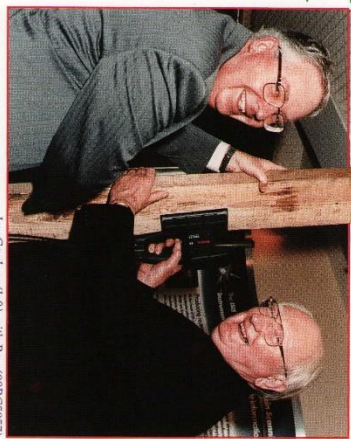
form of an ice pick mounted on a sample of super-conducting cable. The ice pick could be used to break the ice in any gin and tonics that might be consumed in the future. Derek was also presented with some money to further his collection of Jack Vettriano pictures. We are told that having located the one wanted he felt it only right to pay for it with the actual money collected, much to the amusement of the people in the shop. It worked out well - he had eight pence change!

Derek can be seen around the Laboratory from time to time desperately trying to fit working a couple of days a week into his schedule. He was heard to say that starting a new regime can be a bit daunting and working part-time means the wife who is used to having the middle of the day to herself hasn't had the chance to say "I may have married you for better or for worse but I didn't marry you for lunch!"

Retirements continued..

Roy Church

Prior to joining RAL, Roy spent three years with the Post Office followed by two years in the RAF working on wireless equipment. Having developed an interest in RF he went to work at Farnborough in the Guided Weapons Department. In 1961 Roy was successful in his application for post 'VN36' at the Lab (then known as NIRENS). He progressed rapidly and in the following year was promoted to work on Nimrod operations as a Duty Officer. Roy was one of the few people to hold this position both on Nimrod and SIS.



Jan Gardner (left) with Roy (00RC5057)

Leaving operations behind, Roy worked with the synchronon RF cavities, ferrite test rig and Nimrod 2nd harmonic project. He developed the Liquid Resistor (without which ISIS beam

intensity was limited), and was instrumental in, amongst many others, the linac high power pulsed RF system development, De-Buncher RF driver amplifier, filament regulator and finally the RIQ project.

Roy's wife, Mary, with a basket of flowers and Roy with a Liquid Resistor top, which will, no doubt, be displayed in a prominent position. He also received a card signed by all his friends and colleagues, a finishing sander and a cheque.

Jean Kent

Jean retired this month after 27 years at RAL (on its various guises). Her last day on site was Friday 1 December when a group of her colleagues gathered to watch her being presented with a number of gifts. Her gifts included a copy of The Royal Horticultural Society's (RHS) shorter dictionary (which at least 4" thick, one wonders how big the larger dictionary might be), a membership to the RHS, a

bottle of Amaretto and two liqueur glasses. The much-prized Roy Roberts card and a bouquet of flowers completed the ensemble.

After her presentation, Jean hosted a buffet lunch which included a very palatable red wine - much appreciated by her many friends and colleagues, who polished it off with great gusto!

Jean's time at RAL covered a range of groups and departments and she spoke of her fond memories. She will miss her friends at RAL but will be kept busy by her three granddaughters, foreign travel, her work as a School Governor, helping the local Liberal Democrats Party and supporting the Wantage Arts Festival.

We wish her well in her retirement and hope that she will stay in touch and maybe visit us from time to time.

John Webber



Cross reference

The object is to discover which letter of the alphabet each number in the diagram represents. Repeat the three starter letters wherever their numbers occur; this should give you enough clues to start guessing at likely words. Answers next month.

1	2	3	4	5	6	7	8	9	10	11	12	13
B			Q									
14	15	16	17	18	19	20	21	22	23	24	25	26
		L										

N O P Q R S T U V W X Y Z

