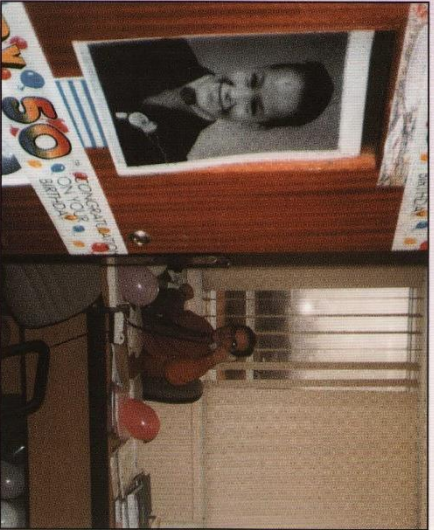




LABNEWS

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Birthdays here! A well kept secret is finally out: Alex Hoare, HR Manager for DL, was 50 on 20 January. His loyal staff were willing to share his information with the rest of site. Various banners, and photographs of Alex throughout his half-century could be viewed all around the site! (photo courtesy Jane Webborn)



RAL cleaner heroine
Kathy Muldoon, a cleaner in SIS, has become a heroine, according to an article in a local paper. She 'fought off a knife-wielding robber' the paper said, who was forced to flee when she was attacked on her doorstep in Harwell.

When he threatened her with a knife, demanding money, she kicked him between the legs, punched him in the face and shut the door on him.

I'm sure everyone will join in raising three cheers for Kathy; if more people were able to successfully thwart robbers like Kathy did without getting hurt, fewer thugs would try their luck!

Doug Levett 1929 - 2000

It is with deep sadness that we report the death of Mr. Doug Levett on 7 January 2000. Doug worked for UKAEA before joining Daresbury Laboratory in December 1964. Many of his years at the Lab were spent as an HPTO in what was then known as Electrical Services, where his vast knowledge of high voltage switchgear made an important contribution to the group. More recently, up until his retirement in October 1994, he worked on electrical decommissioning of the NSF.

In retirement, Doug enjoyed his visits to Dorset to see his daughter and to his family in Cumbria or dying to Switzerland to spend a few days with his son and family.

He will be sadly missed by all his friends and colleagues at Daresbury and our condolences go out to his family.



(DL871379)

Articles, ideas and letters are very welcome!

Articles to the Editor or Correspondent by 15th of the month.

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Training at the Central Laser Facility

Training at the Central Laser Facility

The Central Laser Facility hosted a highly successful two week course providing training for PhD students in use of the Vulcan high-power laser. Funded by EPSRC, the course involved a mixture of classes and practical work enabling a higher level of contribution in complex Vulcan experiments from new researchers. Fourteen students took part representing many of the research groups that regularly use the laser.

Topics covered included safety, plasma diagnostics, clean handling of optics, fast electronics and data capture and target preparation. One of the Vulcan target chambers was available and full power shots were delivered to teach the course members target alignment and use of plasma diagnostic instruments, including an optical spectrometer, X-ray camera, a flat-field XUV spectrometer and a streak camera.

From left to right back row: Paul Burnett (University of Oxford), Declan McSherry and Mark Phillips (Queens University Belfast), Yusef Abu Ali (University of York), Second row: Colin Danson (RAL), Rossie Keenan and Simon Topping (Queens), Rob Grandy and Federico Strini (University of York), Third row: Iliar Amir and Jim Haunertick (University of Oxford), Dan Spens and Barry Walton (Imperial College), Tom McCann and Ian Spenser (University of Glasgow), David Neely (RAL), Front row: Lisa Coffey and Steve Rose (RAL) (00R/C1325)



INSIDE: MIPAS ON COURSE SEE PAGE 2



COUNCIL FOR THE CENTRAL LABORATORY OF THE RESEARCH COUNCILS

MIPAS on course

The Michelson Interferometer Passive Atmospheric Sounder (MIPAS) has been successfully integrated onto the Envisat-1 spacecraft. Due for launch in June 2001, Envisat-1, an advanced polar-orbiting Earth observation satellite will provide measurements of the atmosphere, ocean, land and ice over a five year period.

MIPAS will measure high-resolution gaseous emission spectra at the Earth's limb. It operates in the near to mid infrared where many of the atmospheric trace-gases playing a major role in atmospheric chemistry have important emission features. The instrument is an extremely complex system of mechanisms, optics and detectors working at cryogenic temperatures. SSTD and Instrumentation Department developed the Shifting Cycle cryogenic cooler drive electronics for MIPAS which was itself more complex than many instruments on board the spacecraft. The unit was delivered to the instrument in September last year after two years of extremely rigorous performance testing. It is now fully integrated with the instrument and "working great" (to quote the ESA instrument manager).

"Oh it is just another electronics box", I have heard said. To those of us who had the pleasure of working on it, the 'box' is a 22kg beast with four microprocessors, 12800 lines of software code and with a power consumption of 120 Watts when the colours are given a full welly."

The work was done through an ESA contract for Dainler Chrysler Aerospace and, as such, is subject to the ESA management and documentation requirements - not for the faint hearted!

Those of you planning to bid for similar contracts should note that we have supplied 457 documents so far and no doubt, as the contract comes to an end, there will be a few more.

Thank you to everyone involved in SSTD and Instrumentation Dept. If you would like to know more about the instrument and spacecraft there is an excellent ENVISAT website at envisat.estec.esa.nl

Richard Browning

Paperclip physics regional heats

Last month's *LabNews* mentioned a regional heat of paperclip physics' at DL. Anne Humphreys takes up the story...

Five teams of students from four local schools took up the IoP's challenge to explain a physics device or law in five minutes.

The first team, four boys from St Ambrose College set a very high standard for the following teams. Their chosen subject, 'principles of rocket propulsion', made good use of balloons, elastic bands, corks and a blown egg to demonstrate how rockets are propelled.

The girls from Belvedere School chose 'electromagnetism rings a bell', and used copious amounts of electric cable, batteries, a doorbell and a wig to ably demonstrate to the judges how a doorbell works.

The next two teams were from The King's School, some current affairs

you should know about' tackled how electrons travelled in the opposite direction to the current and 'if you

can't stand the heat' explained the different forms of heat and how heat cooks food.



(DL00/10/12)

Paperclip physics - Cont'd

The competition closed with Withington Girls' School on the subject of 'diffusion' which made good use of some extremely offensive and cheap perfume to get their message across!

Each group was subjected to some tough questioning from all three

Crystallographers unite

Around 350 macromolecular crystallographers of all ages and from many countries came together over two days at the University of York for this year's CCP4 study weekend. This annual event, held early in the new year, is now an important part of the calendar for the protein crystallographic community.

The weekend was organised by the BBSRC-funded Collaborative Computational Project No. 4 (CCP4), a UK collaboration, co-ordinated by a group at DL. CCP4's principal role is the development and distribution of state-of-the-art software for macromolecular crystallography - the determination of the three-dimensional structure of proteins from the results of X-ray diffraction experiments.

In addition CCP4 promotes the education of practising protein crystallographers in the latest techniques and software, and the study weekend is the flagship activity.

This year's event embraced the increasing importance of low resolution phasing techniques to solve the structure of macromolecules. One of the topics covered both at an introductory and advanced level was the increasing role of electron microscopy in structure determination.

The programme of international speakers was opened by Peter Main

judges. One judge was BBC's NW Education Correspondent, David Guest, a non-scientist who not only had to be convinced by the

presentation but also understand it correctly. The two other judges, Phil Latchem, Deputy Head and Head of Science at Glossopdale Community College and John Hellinwell, Professor

of Structural Chemistry at Manchester University, were there to ensure this.

The winning team, the girls from Withington (who also provided the winning team last year) will travel to London in March for the national final. They are pictured on page 2.



Le Poterton demonstrating the new CCP4 Graphical User Interface to a delegate (DL00/12/12)

(University of York), who welcomed the audience to the university and introduced the topic on which he is a world leader. The audience included three young scientists from China and India who had been awarded CCP4 studentships to enable them to attend the study weekend and to embark on a tour of UK crystallography sites that included Daresbury Laboratory.

During any interlude in the proceedings CCP4 staff, Liz Poterton, Peter Briggs, Alan Ashton and Marjyn Wilm, took the opportunity to talk to delegates on a

more informal basis and to demonstrate the CCP4 software package.

The meeting also included a strenuous social programme designed to mix students with established practitioners. With the intensive series of talks, the study weekend was highly informative and enjoyed by all. The proceedings are published as a special issue of *Acta Crystallographica Section D*.

Alan Ashton

<http://www.diacuk/CCP4/main.html>



by Jacqui Hitchen

The phone call came from someone at the Today programme I've spoken to, and helped, before. 'Do you have anyone who could talk about the recent news from CERN? They've discovered a new form of matter'. I'd seen the CERN news release, so I contacted Ken Peach for advice. They had interviewed a member of the team so didn't want someone to talk about the project itself, but someone who could give an objective viewpoint - a 'This is a very important step in our understanding of ...' type of interview. Ken agreed - and a time was booked: 7.20am (better than the first suggestion of 6.40am!), I then had to book and, with Chris Osland, test out the ISDN line. The Press Office bought a 'box of tricks' which is kept in the small video conference room in R18 which

enables high quality radio interviews over an ISDN line. It worked fine. Ken, Chris and I were in early, made initial contact with the Today studio, and were waiting to go - listening to the programme over the headphones as we waited. 'Professor Peach - we'll be with you in a couple of minutes...' then the line went dead. We had no idea why. We waited and after about 5 minutes they called us and re-established contact. Could they do the interview at 7.40am? We waited again, then we were on.

'Professor Peach - what have these scientists actually done?'. This was not the type of interview I was expecting, and I finished. Ken didn't. He'd done his homework, and he answered the questions like a pro. Because of the problem with the line, they'd squeezed the story into a shorter time slot, dropped the interview with the team member, and relied on Ken to talk about the project. The interview went well, so well that he was called on to do a rather more

charity interview for Radio 5 Live at 8.15am, and another at 5.40pm for local radio. It was a long day for Ken, who had important visitors in the afternoon, and after the last interview, was off to Cosener's House for an evening meeting. My thanks to him, and to Chris Osland, who sat through each interview with us.

This was the first real test of the ISDN line after intermittent failures bugged us for much of last year. It passed with flying colours, and I'm now considering offering the service to local organisations. So, if you're ever asked for a radio interview, do let me know and, if possible, we'll do it professionally over the ISDN line.

The circulation figures (some with great accuracy!) for the publications mentioned in last month's LabNews are:

► Physics World	19,543
► Times Higher Education Supplement	26,018
► Nature	60,000
► New Scientist	87,533
► Aviation Week and Space Technology	105,000
► Computer Weekly	118,919
► The Economist	122,583
► Times Education Supplement	139,225

It's over to you for exploitation

Those of you who attended the technology exploitation and protection presentations held at DL and RAL in January learnt what is being done to generate further revenues for the laboratories from our own technology and know-how. This is an important topic and one which is expected to have a higher relevance in future.

Just as important is the need to protect new technology or know-how developed within existing programmes, but in a way that does not suppress academic excellence. In a broad ranging review, George

Hanlryn from the Patent Office gave an excellent talk, which was packed with anecdotes, describing the many ways one can protect ideas. Many of these are particularly important when seeking external licence deals or even developing new businesses. To help all inventors a procedure has now been released on the MBD web page in which the steps to be taken in filing any patent at CLRC are described.

There are financial incentives to all inventors whose ideas have generated a demonstrable commercial return to CLRC. These are described in the revised Awards

to Inventors Scheme whose release was timed to coincide with the presentations. As a parting shot, all attendees were set the challenge of identifying prospects for external exploitation resulting from their recent activities, which is extended to all readers of this article. For those who missed the events, video recordings were made and are available from Anne Green at DL or Sonia Moon at RAL.

John Ashton

Investors in People - March update

Assessment

Our assessment for Investors in People has been provisionally booked for the week beginning 12 June. We can expect the assessors to be on site at RAL and DL for several days, speaking to a cross section of staff, visitors and some of our major contractors. They may also wish to observe 'on the job' activities such as meetings and department reviews. There will be a CLRC circular nearer the time explaining the visit schedule and how staff will be involved in the assessment process.

Progress

With less than 3 months to go to assessment it is essential that progress towards meeting the indicators accelerated. Paul Temple has recently interviewed a sample of staff and reports good progress in most areas, although a few departments still have a lot of ground to make up if we are to be successful - their directors know who they are!

Some of the key actions needed before assessment are:

- All departments need to ensure that they have evaluated the training carried out this year.
- All departments need to have business plans and training plans in place for next year.
- All departments need to have improved the effectiveness of their managers in coaching and developing their staff.
- All staff must be fully involved in the APR process this year, including those who have recently transferred from industrial grades.

For Investors in People the most important parts of the APR process are job planning, and learning and development planning. It is important that everyone understands the new APR process and knows how to get the best from it - so please make sure that you attend one of the short training sessions being arranged.

And finally, a reminder...

...Investors in People is not about pay and conditions of employment. Nor is it about always agreeing with management decisions. It is about being clear about what we are trying to achieve, and good management of staff training and development.

The key questions are:

- Do you know what CLRC exists to achieve?
- Do you know what your Department or team exists to achieve?
- Do you know why your job exists and what you are expected to achieve?
- Does your manager help you to develop by regularly planning, supporting and reviewing your learning with you?

If the answer to any of these questions is 'no' please speak to your manager, or me, now!

Rosie Sherry

RAL Computing Training

RAL Computing Training continues to provide a rolling programme of all Microsoft-supported software. We like the programme to include new courses which directly relate to the work of individual members of staff.

Sometimes the course design applies to a particular group, like project managers or budget holders, or it might be of general interest, eg a conversion course to upgrade to the latest version of software.

Whatever the need, RAL Computing Training is always very pleased to listen to and, where possible, provide YOU - our customers - with what you require. We are here to provide what you need in IT training.

Technical courses

During April, the normal programme will be supplemented by some additional courses.

The Accelerated NT4 course is a new course combining the best modules from the two earlier courses, NT4 Administrators and NT4 Core Technology. As the title suggests, it is an intensive course which gives a very good basis for those using or moving into NT4 system/administration.

The Fortran90 course has been run successfully on a number of occasions and the tutor, Professor John Reid is currently Convener of the ISO Fortran Committee WG5. There are still limited places on both of these courses but if you are unable to make the dates, we will be repeating them later in the year.

Learning and Development Plans

If there are other computing courses you need, especially as departments and individuals start discussing and writing their Learning and Development Plans, then please do contact us.

Pat Athawes <pat.athawes@rl.ac.uk>
Ext. 6188

Daresbury pays homage to 'Rabbie' Burns

The anniversary of the birth of famous Scots bard Robert Burns is marked by many by a celebration known as a Burns supper. On 25 January, DL marked the occasion with a Burns lunch-time supper! Our own home-grown piper Colin Watson tuned up the drones and piped his way down the corridor, followed by the magnificent steaming haggis held aloft on a silver platter by two of Arnamark's finest chefs, Ken and Peter. Staff gathered in the corridor following them, Hamelin fashion, to the



Chiefs Ken and Peter with the haggis (DL005172)



Andy Sharp performs his reading whilst Colin Watson plays the pipes (DL 00518)

restaurant. The haggis was placed on a table laid with the flag of St Andrew, DL's Andy Sharp, complete with ruffled cravat, addressed it with Burns' immortalised poem, which begins...

...Fair fa' your honest, sonsie face,
Great Chieftain o' the puddin'-race!

All were then able to partake of the traditional haggis, neeps and tatties, followed by clootie pudding.

Hazel Dale

Meeting of the Third World Academy of Sciences



Sumar Husain attended a reception, for the 83 Fellows of the Third World Academy of Science, in Senegal recently.

The President of Senegal hosted the reception for the fellows who were attending the 11th general meeting of the Third World Academy of Sciences.

The meeting was also attended by Ministers of Science from eleven countries and the President of UNESCO, Sumar is pictured with the President Abdou DIJOUF at his Palace (photo courtesy Sumar)

Prize winning work



Continuing the series of Nobel Prize winners and the reason for their recognition, here are the winners from 1921 to 1939.

N 1921

ALBERT EINSTEIN for his services to Theoretical Physics, and especially for his discovery of the law of the photoelectric effect.

N 1922

NIELS BOHR for his services in the investigation of the structure of atoms and of the radiation emanating from them.

N 1923

ROBERT ANDREWS MILLIKAN for his work on the elementary charge of electricity and on the photoelectric effect.

N 1924

KARL MANNE GEORG SIEGBAHN for his discoveries and research in the field of X-ray spectroscopy.

N 1925

The prize was awarded jointly to **JAMES FRANCK** and **GUSTAV HERTZ** for their discovery of the laws governing the impact of an electron upon an atom.

N 1926

JEAN BAPTISTE PEREY for his work on the discontinuous structure of matter, and especially for his discovery of sedimentation equilibrium.

N 1927

The prize was divided equally between: **ARTHUR HOLLY COMPTON** for his discovery of the effect named after him.

and

CHARLES THOMSON REES WILSON for his method of making the paths of electrically charged particles visible by condensation of vapour

N 1928

SIR OWEN WILLIAMS RICHARDSON for his work on the thermionic phenomenon and especially for the discovery of the law named after him.

N 1929

PRINCE LOUIS-VICTOR DE BROGLIE for his discovery of the wave nature of electrons.

N 1930

SIR CHANDRASEKHARA VENKATIA RAMAN for his work on the scattering of light and for the discovery of the effect named after him.

N 1932

WERNER HEISENBERG for the creation of quantum mechanics, the application of which has, inter alia, led to the discovery of the allotropic forms of hydrogen.

N 1933

The prize was awarded jointly to **ERWIN SCHRÖDINGER** and **PAUL ADRIEN MAURICE DIRAC** for the discovery of new productive forms of atomic theory.

N 1935

SIR JAMES CHADWICK was rewarded for his pioneering work which resulted in the discovery of the neutron.

N 1936

The prize was divided equally between) **VICTOR FRANZ HESS** for his discovery of cosmic radiation and **CARL DAVID ANDERSON** for his discovery of the positron

N 1937

The prize was awarded jointly to: **CLINTON JOSEPH DAVISSON** and **SIR GEORGE PAGET THOMSON** for their experimental discovery of the diffraction of electrons by crystals.

N 1938

ENRICO FERMI for his demonstrations of the existence of new radioactive elements produced by neutron irradiation, and for his related discovery of nuclear reactions brought about by slow neutrons.

N 1939

ERNEST ORLANDO LAWRENCE for the invention and development of the cyclotron and for results obtained with it, especially with regard to artificial radioactive elements.

Note: In 1931, 1934 and 1940-2 the prize money was allocated to the Main Fund (1/3) and to the Special Fund (2/3) of this prize section.

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Rod Birchall MBE

Rod Birchall received his New Year's Honour – an MBE – on 22 February 2000.

As well as the festivities on the day Rod celebrated his work and achievements with close colleagues at the Laboratory.

Rod started at Daresbury as a UKAEA apprentice in January 1972. He has worked on most mechanical sections including mechanical services and the NSF. Rod is currently working as a beamline technician on the XUV section in SRD. His scientific work, as



Malcolm Miller, Rod Birchall, Daniel Norman, John West and Elaine Suddan raise their glasses to celebrate Rod's MBE (DL 00811)

well as his strong commitments to charity, has been recognised by this honour. Rod has been the chairman of the Lyman and Warrington Muscular

Dystrophy Group since 1997 and first became involved when his son was diagnosed as having the disease in 1992.

We would all like to congratulate Rod on this award and wish him well with the great work he does for charity.

'Tommy' - a portrait of a Security Lodge cat



About six months old and wary of the Wardens, he was initially fed by leaving food at the base of the flagpole. Gradually 'Tommy', as he was named by Billy Johnson, (in remembrance of a boyhood cat) became more trusting and began to venture into the Lodge.

His unfortunate tendency to sit in the middle of Keckwick Lane, especially at going home time - got Tommy run over one day. He dragged himself off - we thought to die - but he re-appeared about five weeks later. Although he had grown he was becoming thinner and was obviously ill. Two weeks with the RSPCA transformed him though.

Careth Derbyshire started a collection to pay for his treatment and we were soon able to claim him back. With his own box in the Lodge he is now an experienced 'Lodge' cat'. If a seat is vacated for a second, Tommy quickly claims it.

Weighted against this apparent laziness and liking for comfort, is his ability to accompany a lodgeman on full site patrol, in all weathers.

In his livelier moments Tommy has been observed chasing squirrels and on one occasion, welcomed the 'early turn' warden with a baby rabbit minus its head!

A chance conversation with one of the girls from a local stable informed us that Tommy was formerly known as 'Ears'. He had deserted them when a female had produced a litter of kittens. Their loss was our gain and the many visitors that pass through the Lodge are surprised and pleased to watch Tommy 'overseeing' the wardens as they go about their duties.



The Wardens, Daresbury Lodge

Retirement

Tony Borden

Tony Borden retired on 31 January after working at RAL for 38 years. He joined the Laboratory as a member of the Beam Control Section in the Nimrod RF group in 1962 after two years of National Service in the RAF. After the successful commissioning and development of the Nimrod accelerator Tony worked on a satellite project - the UV Sky Scan Experiment on the ID-1A satellite - for two years. The satellite went on to successfully carry out a complete sky scan in the UV spectrum. In 1977 he started work on microprocessors for the beam diagnostics on ISIS - processors which are still operating today; 22 years later, and are a great testament to the remarkable service given by all of the equipment produced by Tony. Over the years he became an expert machine physicist on ISIS.

Ian Gardner thanked Tony for his dedicated service and presented him with a digital camera, a framed picture of the first neutrons on ISIS, and other mementoes from his friends.



Tony thanked his friends for the gifts, adding that as a keen photographer he would be putting the camera to good use taking photos of their 4½-year-old granddaughter and 5½-year-old grandson.

Tony Kersjane

Dear Natalie
I am writing to thank all my friends at RAL, and especially in PRS, for the send-off they gave me on 28th January.

Thank you for my various presents. The Black and Decker tools and their accompanying box of bits - suitable for drilling holes for mice - will be very useful, as will the booze with which I shall drink the health of the mice as they march towards the mouse-trap you gave me! Thanks, too, for ordering me to go to 'Jongleurs' on Friday evening - if I hadn't gone I'd have never heard my name read out by the compere!

Our move down to Devon hasn't been particularly smooth, and we are finding the problem of 'unpack or decorate first' to be somewhat troubling. There are no cupboards or bookshelves here, so everything remains in cardboard boxes; the washing machine won't spin.

and the removals men have damaged our 18th century grandfather clock... However, things could be worse, I could still be at RAL with you lot!

Joking apart, I will miss you all. My role as PRS Receptionist enabled me to make contact with people from all over site and that's a happy memory that I'll never forget.

With many thanks, and best wishes to you all!

Paul Mallett



Dear Natalie
 Can I thank all the people who came to my farewell and to all those who contributed to my splendid leaving present. I would like to say 'cheers' to all those
 people I worked with during my time at RAL and wish everyone a happy and successful future.

Martin Emms



Martin (centre) with his girls - Left to right: Heather Wenzel, Vicki Rose, Maria Henderson, Sue Knight, Fran Childs, Sylvia Fones and Ann Bell (00RC1248)



(00RC1248)

Dear Natalie
 I would like to express my thanks to all my friends and colleagues at RAL who contributed to my beautiful presents on the occasion of my retirement.

Also many thanks to everyone who attended the lunchtime bash and made it such a happy celebration. Please also say 'goodbye' to all those I did not get to see personally.

Yours sincerely
Mavis Herman



Setton Brancker trophy - 19 January 2000

Daresbury's Pete Weatherhead travelled to RAF Halton, Buckinghamshire, having been selected to run for the Civil Service veterans' team in this prestigious annual triangular fixture against the RAF and Middlesex county.

The 10 km, two-lap course was dry and produced a fast race. The RAF, on home ground, won the senior and veterans team race. However, Peter ran well as a third counter for the Civil Service earning them the runner-up position in the team race.

The second leg will take place in July on the athletics track when the overall winning team will be decided.

Physics review

An international panel of physicists under the chairmanship of Alexander Bradsshaw of the Max-Planck Institute for Plasma Physics, has been set up to review physics research in the UK.

The remit of the review is simple: to obtain a perspective on the quality, breadth and balance of physics research in the UK, compared to world standards; and to assess whether that position is changing.

It will look at all branches of physics research funded by the OST, principally through EPSRC and PPARC, in universities and central laboratories, and will look at the British contribution to international programmes.

See *Physics World* (February 2000, page 45) for more details and the full list of the panel members.

Time capsule
 Peter Loveridge, a RAL sandwich student who is studying mechanical engineering at Cardiff University, had an unusual project - the result of which was buried and won't be dug up for at least 50 years!

Janet Haylett, Schools Liaison Officer, was approached by Tom Kempson, a teacher at Didcot Girls' School, to ask if RAL could provide them with a water-tight container for a CD-Rom. The CD was to hold the thoughts and aspirations of the girls from the school, and was to be buried in a Millennium time capsule.

The result was an impressive aluminium alloy container with a

special weather-resistant rubber seal. Peter was invited to the ceremony at the school when it was buried, together with other memorabilia from the school and from local radio station Thames Valley FM, in a bright yellow capsule made by Transco Ltd.

"It was an interesting project", commented Peter, "and certainly very different from other projects which sandwich students have been involved in".

The next important question to ask though is - will there be any CD players around when they plan to dig up the capsule in 50 years time?



(00RC147)