Rutherford Appleton Laboratory

Bulletin

A Monthly Newsletter for RAL Staff

September 1994

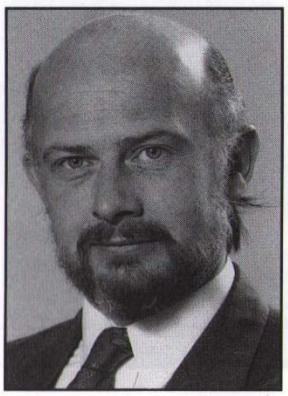
Revised Whitley Constitution signed

On 6 September 1994 Gordon Walker, Head of RAL, and Ken Smith, Staff Side Chairman, met to sign the revised version of the Constitution for the RAL Whitley Committee. Gordon expressed his pleasure in taking on the role of Chairman of the Committee and said that he looked forward to a long and fruitful working relationship with the Staff Side. In response Ken said that the revised constitution represented yet another milestone in the history of RAL Whitleyism. The Staff Side had always recognised the importance of joint consultation and valued the good relationship which had been built up over more than thirty years. He believed it would serve the Laboratory well in these times of change.

A milestone in the history of RAL Whitleyism: Ken (left) and Gordon agree on the revised Whitley Constitution (94RC5094)

International liaison: More opportunities for RAL?

The Laboratory's international liaison activities have been transferred to RAL Research Services with Terry Mawby, pictured below, taking on the day-to-day responsibility but with both Bruce Patchett and Adrian Wheldon also having a hand.

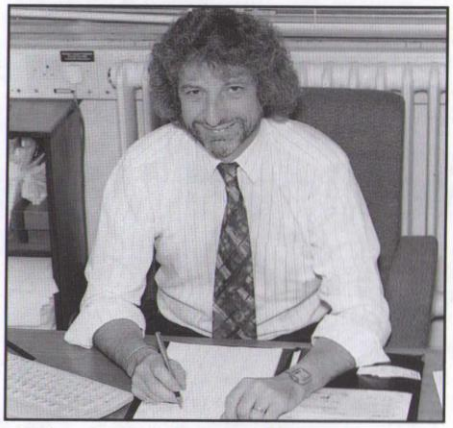


RAL has had a good record in obtaining research awards from the European Commission, but with the Commission about to make 9.6 billion pounds available over the next four years for RTD (Eurospeak for R&D), the time has come to crank up this activity. "The mission is quite straightforward," said Terry, "it's simply to ensure that RAL gets its fair share of the Brussels cake." But Brussels isn't the only potential source of research funding - several countries have large research programmes which RAL is eligible to take part in. "Participation in these programmes would be icing on the cake - and of course, all this international funding is in addition to what we can earn from commercial R&D work." What's the biggest challenge? "Learning Eurospeak!" according to Terry!

Inside

RAL awarded £400,000 EU contract

An award of nearly £400,000 has been made by the Commission of the European Union under its COPERNICUS Programme to the HYPERMEDATA project, co-ordinated by Professor Keith Jeffery of Informatic's Systems Engineering Division. The Programme funds scientific and technological collaboration between European Union member states and the countries of Eastern and Central Europe. RAL's partners in the project are from the Czech Republic, the Slovak Republic and the Slovenian Republic. HYPERMEDATA will develop a multimedia presentation system for medical databases. ■



Professor Keith Jeffery, co-ordinator of the HYPERMEDATA project (94RB4584)

Question Time

Jeremy Curtis, Group Leader in Space Systems Division in Space Science Department and RAL Project Manager for the JET-X project is an avowed optimist, loves acting and enjoys DIY.

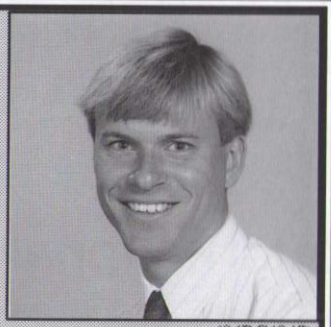
Q How did you come to work at RAL?
When I was at school my ambition was to be a botanist or biologist but a SERC advert in the newspaper offering sponsorship for engineering training caught my eye. Thanks to RAL, I was lucky enough to be able to study for a degree in engineering and get paid for it.

Q What does your job currently involve?
I spend about 80% of my time working on the JET-X project. The Joint European Telescope will be launched on the Russian Spectrum-X spacecraft in 1996. I'm also working on a micro-satellite project with Pakistan.

Q What part of your job gives you the most pleasure?
I'm often asked to give talks to schoolchildren about space and engineering. Talking to switched-on and interested kids is really exhilarating and challenging. I recently gave a talk for the Science Museum which included an introduction on how satellites work with the aid of a torch, a mirror and a space-hopper. I also get a great deal from working on international projects with scientists from other countries and cultures. I'm doing my bit by trying to learn Russian, but it's not easy!

Q What do you like least?
Talking to an audience of indifferent and unco-operative children can be very difficult. Luckily, I don't get too many of those.

Q Describe yourself at work.
Determined. I hate to be defeated by a task.



(94RC4947)

Q How do you relax outside work?
Acting and directing for the Old Gaol Theatre Company, gardening, good food (both cooking and eating it), and DIY. I'm currently building a kitchen from scratch at home.

Q What's the best advice that you could give someone?
Not having the appropriate qualifications shouldn't be a bar to achievement. I'm a great believer in the notion that if you have the idea "wouldn't it be nice if ... ", then you're half way there.

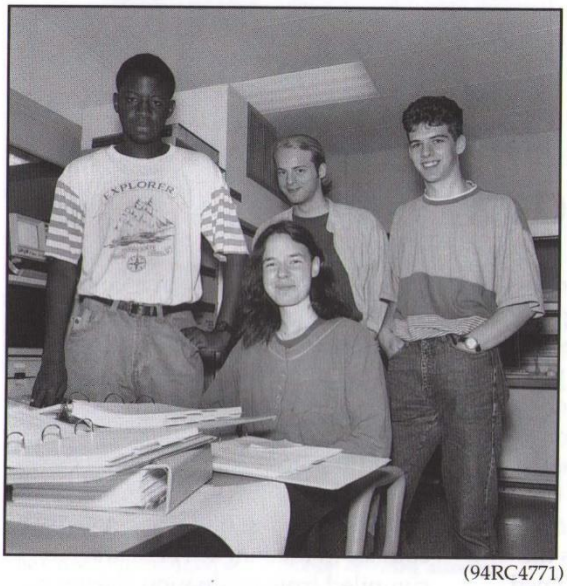
Top students make their mark at RAL

An initiative designed to give students practical experience of engineering in industry has earned high praise from participants, organisers and senior scientists alike. Under the Year in Industry scheme, the very best A level students spend a year working in engineering industry before taking up their university places.

The potential benefits of the scheme to the students and to the employer, in this case Electronics Division at RAL, are clear. The students are better prepared for university; a student from last year felt that she was better able to work on her own and was more self-reliant than her colleagues. The students also develop an understanding of how their theoretical knowledge can be applied and hopefully, their enthusiasm for engineering grows. The Division gains by making early contact with high potential students and by having bright, young and enthusiastic people working with them. Initially, the students lack experience but they learn quickly and ask questions!

This is the third year in the scheme for Electronics Division. This year we took on four students: Gregory Dean, Tim Munro, Ruth Wilcox and Ben Brierton, pictured below. The students worked on a wide range of projects within the Division. Tim worked on a low noise measurement system for the Microplex ASICs and had full responsibility for the MX6 wafer testing. Gregory spent his year in the ISIS Instrumentation Electronics Group where he played a valuable role in a combination of design and test work for the data acquisition system.

From knowing virtually nothing about electronics when she joined the Division, Ruth rapidly became an expert in the use of design packages for Xilinx field programmable gate arrays. The results of her work will be seen in a module for the Daresbury Synchrotron Radiation Source and in the new DAE2 system for ISIS. Ruth is spending her last few weeks with us training new students in the use of the package! Ben played a major part in the project to design and develop the Output Formatter board for the NA48 data acquisition system, a collaborative project with Edinburgh University. A measure of his standing in the project was our choice to send him to the CERN collaboration meeting to give the progress report.



(94RC4771)

The scheme in the Thames Valley area is run by Marjorie Hoek at Oxford Brookes University. The University matches students to employers and provides training courses during the year. It also organises the presentation evening for all the students in the area. This year it was held at the National Grid Control Centre near Reading. The displays by the RAL students were impressive, drawing praise from the guest speaker, Government Chief Scientist, Sir William Stewart. During the afternoon, panels of judges questioned the students in detail about their projects, followed in the evening by the prize-giving ceremony, the highlight of the day. We were delighted when Ben won the Institution of Electrical Engineers prize for the best electronics project. This is the third year that one of our students has won the prize.

The success of the scheme is perhaps best summed up by the students themselves. "I feel that I have been given the best chance yet to find out what I really want to do," said one, "I have realised that, with a bit of effort, I can achieve what may at first seem impossible. The enthusiasm for the work here has shed new light upon the reason for my training." Needless to say, we have taken on four more students this year. Watch this space ... ■

Steve Quinton
Electronics Division

Evaluation of JTS management training

In the past there has been little attempt to assess the effectiveness of the management training provided by JTS in improving the management skills of RAL staff who attend. The imminent changes to the structure and operation of the Laboratory provide an ideal opportunity to evaluate the current provision of management training to see whether it is meeting the needs of the Laboratory.

A detailed questionnaire was sent to all RAL staff who have attended a JTS management course since June 1993 (Management I, II, III and Management for Senior Grades). The questionnaire sought overall comments on the usefulness of the training but was particularly designed to investigate whether the knowledge could be put into practice at the Laboratory.

The response to the questionnaire was extremely good with 66% of the questionnaires returned and we would like to thank everyone who replied providing us with some very useful comments.

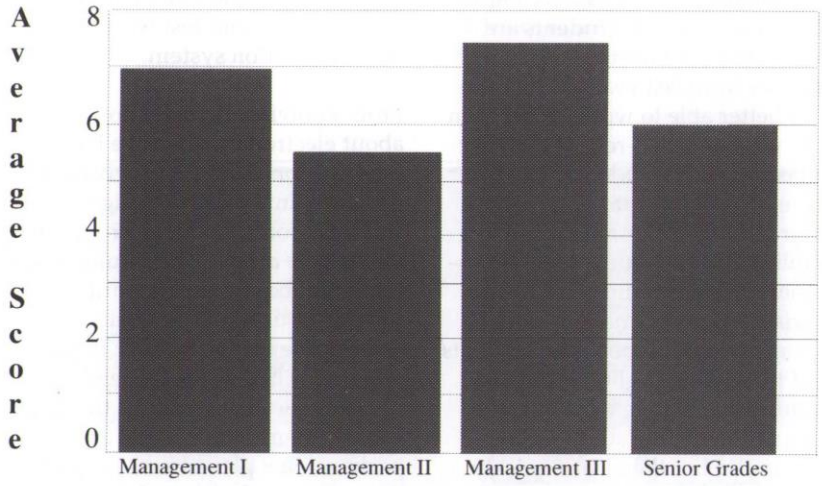
As the graph shows, JTS scored relatively highly on people's overall opinion of management courses. However, some staff felt that Management II was very demanding and stressful with a number leaving the course with negative feelings. Interestingly, people who attended the Management II course more recently, seem to have found the course more beneficial which may be due to the fact that the number of participants have been reduced from twelve to six. Effectiveness across almost all of the topics investigated increased as staff progressed through the three-part management series. The topics which were considered to be especially useful were:

- Identifying work objectives
- Leading and taking part in meetings
- Giving feedback
- Time management
- Dealing with conflict

The training overall was perceived to be useful and the knowledge gained during the courses can be considered to have been transferred to the Laboratory.

The results of the survey were conveyed to JTS at a recent Management Series Evaluation meeting and were gratefully received. Again, thank you to everyone who participated in the survey. ■

Sue Tappern



0 (extremely poor) - 10 (excellent)

RAL signs up to National Training Index

Have you ever spent time trying to identify the type of training you require to do your job more effectively only to discover that you are unable to find a course which will provide it? Alternatively, are you overwhelmed by the number of courses available and want to know which one will really suit your needs? Training Section has the answer. We have recently joined Daresbury Laboratory in membership of the National Training Index. The index gives details of thousands of courses run in the UK, along with locations, dates and cost.

In addition to this information, the National Training Index also includes independent assessments of the courses in the index. These are compiled from evaluation sheets

completed by staff in member companies. The Laboratory can access these assessments either by telephone or in writing so Training Section can assist you in finding the most appropriate and effective training course.

As a member of the training index, DRAL has a responsibility to contribute to the course assessments. For that reason, when you return from an externally-run course you will now be asked to complete an appraisal form which will be forwarded to the National Training Index. Please help Training Section to contribute to the index by completing and returning these forms as we will all benefit from honest assessments.

In the meantime, if you are looking for a particular course, or would like to know what is available in a certain subject area, please contact the Training Information Service on OV/VM TIS or on ext 5361. ■

Dawn Wood

CAMRa: A radar for all seasons!

It is now 20 years since the first radar was installed on the 25-metre antenna at Chilbolton near Winchester, initially for studying the effects of precipitation on communications systems. Since then, it has grown into a unique weather research facility, operated by RAL's Radio Communications Research Unit (RCRU), for the benefit of an expanding range of scientific programmes relating to microwave propagation, cloud physics, hydrology and meteorology. The facility has been dubbed CAMRa, the Chilbolton Advanced Meteorological Radar*.

Early developments

Following initial commissioning of the radar in the late 1970s, the first major development was to construct and install a polarisation switch. Although the theoretical concept for this originated from Ohio State University, the first implementation of a practical system, anywhere in the world, was achieved at Chilbolton. Developed by RCRU, this allowed the structure of precipitation to be studied in much greater detail than had hitherto been possible, such as by precisely distinguishing areas of ice from areas of water within a cloud system. Although SERC ceased funding the Chilbolton facility in the mid 1980s, the successful application of polarisation radar data to modelling the effects of precipitation on communications systems ensured that the Radio Communications Agency of the Department of Trade and Industry took over the main funding role. This support continues to the present day but the unique capabilities of the radar have attracted additional funding from a variety of organisations and scientific disciplines. For example, Bradford and Essex Universities, supported by SERC, have made extensive use of the radar data to develop and test new propagation models, most recently in conjunction with the European Space Agency's (ESA) Olympus communications satellite.

The CAMRa installation at Chilbolton showing also the small 35 GHz radar system (94RC4459)

Widening horizons

Away from the communications area, the UK Meteorological Office has used the Chilbolton radar to improve the algorithms used to extract rainfall information from their FRONTIERS radar network (as seen on TV!) but the most important collaboration in the meteorological area has been with cloud physicists at Reading University and the Joint Centre for Mesoscale Meteorology. The Natural Environment Research Council (NERC) provided funds for initial investigations of the use of

Cont'd on page 6

CAMRa (cont'd)

polarisation radar to study thunderstorm evolution and ice crystal populations. More recently, this support has enabled a joint Reading and RCRU team to add phase coherency to the radar, using a novel technique to circumvent the basic incoherency of the magnetron, thus avoiding the purchase of expensive coherent devices such as klystrons. The result is the addition of a Doppler and phase capability to the radar which has widened the applications to both dynamical meteorology and hydrology, where the radar plays an important role in flood monitoring and forecasting. The European Commission (EC) has recently funded a project, STORM, to improve methods of flood monitoring using satellites, radars and raingauges, involving RCRU, Bristol University and several European institutes.

Satellites play a vital role in our understanding of world climatology and global warming. With an eye to future satellite radar missions, ESTEC (the European Space Research and Technology Centre) is currently funding a consortium of RCRU, Essex University and French and Belgian institutes in a programme of algorithm testing, making use of CAMRa data to simulate precipitation as would be seen by a higher frequency satellite radar. Along similar lines, studies have been carried out with Japanese scientists to quantify errors which may arise when a satellite radar is used to estimate global rainfall. A 14 GHz radar, built by Space Radar Group at RAL, shares the 25-metre antenna and should provide useful data obtained at the same frequency as the first satellite precipitation radar (a joint US-Japan mission) which is due to be launched in 1997.

Earlier this year, the large Chilbolton antenna 'spawned' a much smaller companion, a 35 GHz radar from the University of Toulouse. Operating at a higher frequency, this radar is sensitive to the smaller particles present in non-precipitating ice and water clouds. Greater knowledge of these clouds is essential to improve the accuracy of Global Circulation Models, as small changes in cloud water and ice contents can significantly alter predictions of global warming. This radar provides a bridge between the existing CAMRa system and a new 94 GHz radar which is currently under development in Italy, and which is to be installed at Chilbolton in mid-1995, with financial support from ESTEC and the EC. This will enable extensive studies of cloud systems, mainly in collaboration with Reading University, as a precursor to a possible satellite cloud radar mission at the end of the century.

It is evident that although the Chilbolton radar facility remains a remote and isolated site, it is central to a growing range of international scientific programmes. The decision to use the 25-metre antenna for radar meteorology, taken over 20 years ago, has proved to be a particularly far-sighted one, confirmed by the present and planned wide-ranging applications of the facility. ■

**See RAL Report 94-011 for more details of the radar.*

John W F Goddard
Head of Radar Group
Radio Communications Research Unit

End of the road for RAL bus

After 20 years, 210,000 miles and two, no doubt, very careful owners, RAL's single-decker bus has almost certainly driven its last mile. The bus, which was bought from AEA in 1983 for approximately £2,000, is soon to be sold, probably as scrap.

As anyone who has travelled on it will know, the bus was not built for speed or comfort, consequently it was used mainly for local journeys: the lunch-time run to the Harwell shops and back, ferrying people to fire-fighting courses at Harwell and the occasional 'long-haul' trip to Didcot station or The Cosener's House.

You might expect the Transport Section to be a little upset by the loss of their faithful old bus. Not quite. It's apparently been cussed more times than any other vehicle on the yard, particularly in winter. "Glad to see the back of it!" seems to be the consensus among the drivers. ■

Transport Section: from left to right: Brian Turner, Brian Baker, Les Harris, Eddie Smith, Matt Fitzgerald, Mick Quinn, John Culley, Aidan Shoebridge and the soon-to-be-sold bus (94RC4864)

Rounders round-up

Of the 24 teams entered into this year's Harwell Rounders Competition, 4 came from RAL: the defending champions Paper Tigers, Pen's Plonkers, the Oddballs and for the first time, D:RAL Students(ish). The draw meant that that there were two RAL teams in each of the leagues from which teams then qualified for the knockout stages.

In league 'B', Pen's Plonkers blitzed the opposition and finished in first place with a combination of good hitting and a dress sense that seemed to use all the colours of the rainbow at the same time! Their only defeat came at the hands of the Oddballs who, without much fuss, once again qualified for the knockout stage of the competition by coming fourth.

The Paper Tigers soon found that as defending champions, everyone tried just that little bit harder against them this year but they showed what a hard act they are to beat by coming third in League 'A'. The D:RAL Students(ish) impressed everyone with their enthusiasm for the game but unfortunately, this alone was not enough to win and they finished 12th.

The Oddballs advanced to the quarter final stage after a replay in the preliminary round but then demonstrated a fine ability to grasp defeat from the jaws of victory against HTFS. Pen's Plonkers also got no further than this stage, losing a close game to Murphy's Marauders. The Paper Tigers now played the team they had beaten by half a rounder in last year's final and, in what was a very entertaining game for the crowd, they won again by a score of seven to six and a half.

Bad luck: Gordon Walker, Head of RAL, presenting joint captains of The Paper Tigers, Jo Murray and Adam Baird with their runners-up trophies (94RC4850)

In the semi finals, Paper Tigers despatched HTFS to another year of dreaming and now played The Slappers in the final. In front of a very large crowd The Slappers took control early on by restricting The Paper Tigers to just half a rounder in their first innings. This proved to be the foundation for The Slappers to win the match by nine rounders to The Paper Tiger's four. However, even in defeat The Paper Tigers showed that sportmanship had prevailed during this year's competition by presenting The Slappers' captain with a bottle of bubbly and a bunch of flowers.

The organisers would like to thank everyone who took part in this year's competition. Players are invited to attend the AGM on Wednesday 5 October at 12:30pm in the function room of the Harwell Social Club. ■

Crate alert

Did you know that 'Crates Day' was
the 18th of July?
If you were in the library, perhaps
you realise why.
100 dark green plastic crates arrived
upon that day,
And took up quarters in the Stack,
booked for a two-month stay.

Gavin, Sophie, Michele and Tim are
Keepers of the Crates,
Loading and unloading them at quite
stupendous rates.
Robert leads this gallant team,
directing all the packing,
Making sure that all's correct and
nobody is slacking.

Moving crates from A to B the Heavy
Gang do labour,
Even though the weight of them puts
trolley wheels in danger.
Every day at ten to nine precisely,
there's the van,
Playing its reversing tune to let us
know they've come.

We bought some smart new shelving
back in 1993,
Alas, it's since been languishing in
Care and Custody.
But now we've had the go-ahead, a
room we have been given,
To make into a Library Store - R3, G37.

Meanwhile in the library, events are
moving fast.
Everything is on the move - blink and
you'll be lost.
"Where's that journal?", you may
ask", "I saw it on that shelf ..."
"Aha, but that was *yesterday*.
Today it's somewhere else".

Cont'd on page 8

Noticeboard

Cont'd from page 7

"But what", you may be wondering,
"is all this effort *for*?"
Well, first we moved the old reports
to R3 Library Store.
That left space to shift the older
journals to the Stack,
And merge into the Reading Room
the Atlas Library stock.

Overall we're sure the new arrangement will be better,
Putting all the most used and most recent stock together.
But if you need assistance or you'd like a library tour,
Do please ring the library desk - ext 5384.

Su Lockley

• • • • • • • • • • • •

RAL and Swindon Office Death Benefit Scheme

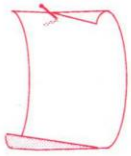
Note from the Chairman and Committee

Due to the reorganisation of the Research Councils and the formation of EPSRC and PPARC, your Committee has had to make the following decisions:

1. New membership applications from Swindon Office staff on or after 1 April 1994 will not be accepted.

2. Swindon Office staff who were members prior to 1 April 1994 will remain members.

Please note that all RAL members remain so and that at RAL new members are still being accepted. If you are not already a member of the scheme, may I take this opportunity to point out its advantages. In the event of your death your next of kin or nominated recipient will receive a cash sum of £200. This can help ease any financial burden over a short period when it may be needed most.



The monthly payment is just pennies (25p per month at present) and is deducted directly from your salary or wages. When the scheme reserves are at maximum the contribution will be suspended, only being reintroduced when reserves reach a predetermined low level. It is therefore possible to have free periods of membership from time to time. The initial joining fee is £1.

I am sure that you will agree that the scheme is very good value for money and that it makes sense to be a member. Please see notice boards for further details or contact the scheme's Secretary, David Williams, Room 2.29, R71, ext 5560.

Joe Hoskins
Chairman R&SDBS

Acknowledgement

Arnold Tucker - "I would like to thank all those who made my working life at RAL such a pleasant one. I am very grateful for the generous donations from my colleagues which raised £94 for the Save the Children Fund. Watch out for the green 'moggy' and give us a wave as you pass!"

Diary

HEP seminars

21 September 11:00am CR3, R61
CP-violation and neutrino masses in R-parity broken Supersymmetric Model
M Nowakowski, Frascati

Lost

Technitron Phase Demodulator - Type 1151D, serial no. 857, inventory label no R14288. A plug-in unit for the Microdyne 1100 series of telemetry receivers. If anyone knows the whereabouts of this equipment, please contact Peter McPherson, Room G16, R68, ext 6477 or OV/VM PMCP.

Step Aerobics

...is back! Every Tuesday at 12:00pm in the R58 games hall. Newcomers welcome.

RAL Bulletin
Published by:
Press and Public Relations
Rutherford Appleton Laboratory
Chilton
DIDCOT
Oxon OX11 0QX
Tel: 0235 445484

Editor: Monica Brown

Articles and ideas are welcome!
Deadline for publication is 15th of every month.