

Bulletin

of the Rutherford Appleton Laboratory

23 Dec 1985 No.16

A Christmas Message



1985 is drawing to a close. Our programme has again been successful thanks to your efforts. I am confident that the reward for the enthusiasm, endeavour, skill and dedication you have shown will not be only in the success achieved in 1985 but will also be pivotal in our continuing to have a full programme in 1986 and beyond.

Our current work shows a dramatic change from that of 10 years ago. That essential transition has only been possible because of your willingness to accept change and to be positive and flexible when faced with new challenges. That attitude will be equally important for the future. 1986 will see moves towards internationalisation of ISIS; a major involvement in the British National Space Centre; a possible involvement in a super-computer service for all Research Councils, Universities and Polytechnics. These important developments will require that you continue to show the flexibility that you have shown in the past. I am confident that you will rise to the challenges.

I give all of you my thanks for the efforts you have made, I offer congratulations for the many successes you have achieved - they are too numerous to list. I wish you and your families a happy Christmas and I confidently predict that we will have a happy and successful New Year.

Geoff Manning

Mele Kalikimaka from Hawaii

(Merry Christmas)

There has been a very successful start to the installation of the Millimetre Wave Telescope in Hawaii. The telescope structures have been transported, without incident, from the Netherlands and fully installed in the enclosure.

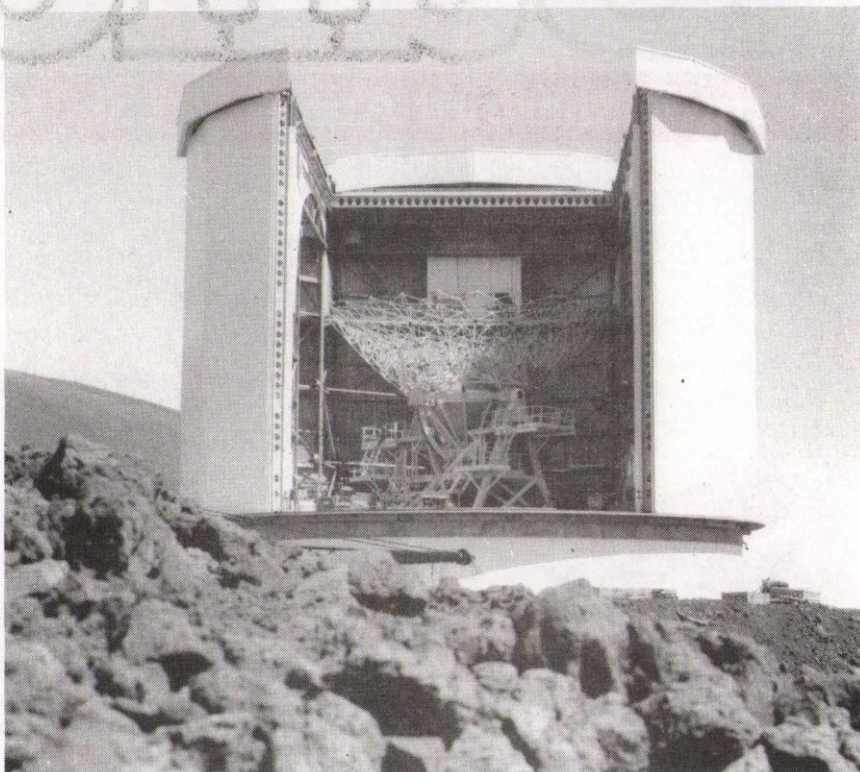
The initial installation was completed in a remarkably short period of five weeks by the enthusiastic team of British and Dutch residents ably assisted by local contractors and a few RAL staff. Since then the progress has been less dramatic. However, all the 828 surface panel adjusters have been installed, wired up and aligned so that the 276 panels can be installed.

Inside the subframe, the insulated receiver cabin has been built and been used as a temporary location for the temperature measuring equipment. The full complement of platinum resistance thermometers has been installed on the backing structure and some encouraging measurements have been taken, albeit in somewhat unrepresentative conditions.

A crucial element of the facility is the protective membrane which covers the viewing aperture of the enclosure. In this area too, the progress has been exceptionally good. All components, including the 17 x 35 metres woven polytetrafluoroethylene membrane (possibly the world's largest sail - it was made by sailmakers after they had coped with this year's Cowes Regatta) have been delivered to Hawaii and all mechanical components have been installed. This includes the two 35 metre long curved tracks in which the edge of the membrane slides, both of which can be moved by means of electrically driven screwjacks to maintain a given tension in the membrane. Trial installation of the membrane itself is expected to take place early next year.

The enclosure, although itself completed by the end of 1984, has now been 'fitted out' by the installation of electrical power and lighting systems, including connection to the observatory power generator. The control/computer room, a crew room with toilet facilities and an instrument preparation room all linked by an internal telephone system, together with two outside lines, have also been constructed.

Despite the change in emphasis to the site in Hawaii, the construction of equipment in both the United Kingdom and the Netherlands has continued at a high level. At RAL the 276 surface panels together with some 40 spares have been completed very successfully. Not only do more than half the panels have an rms accuracy of less than 12 microns but the weighted rms accuracy of all panels is better than 11 microns, which is to be compared with a specified 25 microns. Apart from spares, all panels are over in Hawaii ready for installation. This was not achieved however, without incident. The merchant vessel carrying a container full of panels and equipment for the membrane system was passing



The Telescope structure installed in its enclosure.

85RC 4915

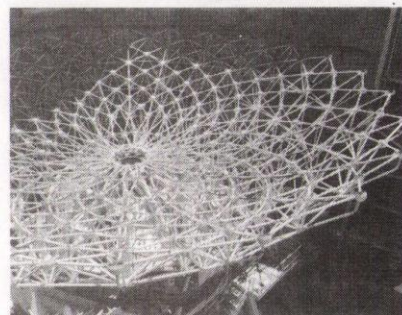
Viewed from on high.

the coast of Mexico at the time of the earthquake, en route for Los Angeles.

It was a few days before its whereabouts and integrity could be established, causing a sleepless night or two for the project management - the panels took one year to make, and the estimated value of the shipment was £600,000.

There has been a continuous flow of items from the United Kingdom to Hawaii since the project took up residence in the summer. The latest items to be shipped are the VAX 11/730 computer which has been used at MRAO, Cambridge to develop software for the control of the telescope and the surface measuring machine which has been developed at RAL. The latter has been fully assembled and all systems tested without having measured points on a reference surface. Most importantly the optics block servo system which relates the laser interferometer measurements to the reference laser has been shown to work to specification. The only remaining major element required to complete the telescope is the secondary mirror system which is being built at the University of Utrecht. This is on schedule for delivery to Hawaii in March 1986 after a test programme is completed in the Netherlands.

There are, of course, still receiving systems to be delivered. The first of these systems, from MRAO, Cambridge is scheduled for delivery by March 1986 and will allow observations at 230 GHz.



85RC 4922

The second system from the Royal Observatory, Edinburgh is a continuum receiver using filters to select up to ten different frequencies in the range 150 - 690 GHz. This receiver is already enroute for Hawaii where it will be used on the United Kingdom Infra-Red Telescope until the summer of 1986 when it will be transferred to the Millimetre Wave Telescope for the commissioning programme. The third system, a 345 GHz line receiver, is being developed at the National Foundation for Radio Astronomy, Dwingeloo and is expected to be available during the second half of 1986. The fourth and last system to be produced during the construction phase of the project is a 470 - 490 GHz receiver which is being developed by a collaboration between MRAO, Cambridge, RAL and Queen Mary College, London and is expected to be available in the spring of 1987.

R W Newport

RAL Apprentices Excel

Three RAL apprentices received awards at the Harwell Apprentice School Prizegiving Ceremony held on Wednesday 20 November.

Stephen Pill gained a Merit Award as best 2nd Year Mechanical Apprentice, whilst Gabriel Nicholson and Brian Ford were the recipients of Special Prizes. The AUEW Craft Prize presented by the Union to the final year apprentice showing outstanding craft ability, went to Gabriel. Brian's prize was the Harold Tongue Cup. This, the premier award of the scheme, is awarded to the final year apprentice who is deemed to have made the most of his apprenticeship and acquired a high degree of competence in, and a sound understanding of, the techniques and practices of his craft.

Making the presentations was Guest of Honour Mr John Collier, one of the first intake of Harwell apprentices in the 1950s. Mr Collier went on to university, became Head of the UKAEA's Atomic Energy Technical Branch, and is now Director General, Development and Construction Division of the CEBG.

Brian Ford on behalf of the apprentices thanked Mr Collier for presenting the prizes. The presence of such a distinguished "old-boy" was a great incentive to current apprentices he said.

Stephen (top), Gabriel (centre) and Brian receive their awards from Mr John Collier. (Photos-Harwell)



Audrey Foster's Investiture

Harwell.

Miss Audrey Foster, was honoured with the award of MBE in the 1985 Birthday Honours List. On Wednesday 20 November she had the pleasure of going to Buckingham Palace to receive her medal at the hands of Her Majesty The Queen.

Here she describes the protocol attached to the investitures.

Six investitures are held each autumn with about 120 recipients attending each one. The ceremony itself commences at 11.00 am and The Queen has a few brief words with each person as she bestows her Honours at an approximate rate of 2 per minute. Only absence abroad or ill health ever prevents Her Majesty from holding an investiture herself.

From the moment of entering the Palace both guests and recipients are guided and advised by members of The Queen's Household and soothed by the music of an orchestra of Foot Guards. Thus is created a delightfully informal atmosphere amidst the splendour of fabulous paintings, china, baroque and gilt; along with cool calm precision.

Two guests are permitted to accompany the recipients. On arrival at the Palace guests are ushered into the Ball Room while those to be honoured go to an ante-room to be briefed on Court etiquette and await their turn to be gathered into line before slowly making their way to the Ball Room to

receive their Honour. The recipients then retire to have their insignia taken off and placed in a box before rejoining their guests to watch the remainder of the ceremony.

Time then, to absorb the memorable occasion: The Queen so simply dressed, in magnificent surroundings, standing among some eight or ten officials and backed by the Yeomen of the Guard.

Audrey, daughter and MBE.



25RC 5661.

Obituary

Donald B Falconer

We deeply regret to announce the sudden death on Saturday 30 November of D B Falconer of ISIS Division.

Although initially an RAF apprentice at Halton and qualified as an instrument maker, Don eventually trained as a pilot and instructor of navigators and bomb aimers and flew the famous Wellington aircraft.

At Springfields and then Capenhurst he was a NT II foreman involved in vacuum testing on the Diffusion Plant.

Don, who had just passed his 63rd birthday, had been at RAL since 1959 when he came here from Capenhurst to join the vacuum team constructing Nimrod. His particular expertise was invaluable in those early days and his was a major contribution to the successful completion of the vacuum system. Later he became involved in the mechanical engineering of the accelerator and continued in this field into the construction of ISIS.

Throughout his career, Don, whose brisk and forthright character enlivened all around him, took an interest in all aspects of the life of the Laboratory. He still followed aircraft development, was a committee member of the IPCS and a founder member of the RAL Golf Society.

At the request of his family, to whom we offer our sincere condolences, his friends and colleagues have made it possible to donate a Trophy to the Golf Society to be competed for in his memory.

1985 Poppy Appeal

The collection made at RAL for the Royal British Legion Poppy Day appeal came to £175.65.

Many thanks on behalf of the Legion to all the collectors and contributors who gave to this worthy charity.

Missing

The following items are the subjects of loss reports. Would anyone knowing the whereabouts of these items please contact the enquirers.

1" Wolf Drill
14/6790.

Contact John Hirst, Ext: 5285

Brookdeal phase sensitive detector
type 9412A. Ser. No. 358
Inv. No. V011763.

contact A W J Dawkins, Ext: 6533.

Missing from R3 Basement Tape Store.
7 x exchangeable 176 Mb Disk packs.
Serial Nos. 207790, 208299, 218839,
240448, 3513147, 5890253,
5890278.

Contact: Andrea Roberts, Ext: 6384.

Saying Their Farewells

Two very well known RAL-ites said their farewells to friends and colleagues at presentations held on Friday 22 November. Caroline Cooper (Librarian) and Gordon Bartlett (Security) will be very much missed and this was made very clear to them by Dr Nick Lawrence having a busy morning doing the honours on behalf of the crowds of colleagues gathered to wish them well.

Caroline came to join the Library for 3 months - 8 years ago! But, unlike the subject of the joke, was much appreciated for doing so.

"We very much regret her going", said Nick. She has an amazing dedication to Librarianship, and I for one will miss her knowledge of how to handle INFO and the RAL archives. Now she is embarking on a new occupation of motherhood and we wish her well. We shall miss her guiding hand around the Lab.

Thanking all for the gift of a food processor ("good for mushy bananas") and a Ray Roberts card ("worth leaving for"), Caroline spoke of her enjoyment of working in the stimulating atmosphere of the RAL library. "The Library staff are a great team", she said, "Support your Library!".

Gordon Bartlett arrived at RAL with some of the best references ever - from the Chief Constable, Thames Valley Police. As village "bobby" in the Wallingford area he was well liked and respected and this didn't change in his time at RAL. "He has been a friend to many of us and we give him our thanks for looking after us so well" said Nick presenting Gordon with a brass clock on behalf of Gordon's many friends and colleagues, "Do come back for a visit".

Gordon thanked Nick for his kind words, everyone at RAL for the clock, and also absent friends for cards and personal gifts. "You've all been most generous", he said, "Retiring means



a great change in life for me. I have been in uniform since 1941 and this will be the first Christmas I have spent at home with my family. It has been a privilege to share in some of the Lab's moments of joy and sorrow, and I shall miss you, but I've plenty to do (the wife is compiling a list) and we look forward to travelling, both in the UK and abroad. Thank you and God bless you all".

Coffee at Cosener's

Coffee mornings for RAL wives' are now booked for 1986. Please note them in your diary.

Tuesday	21 January
Wednesday	19 February
Thursday	20 March
Tuesday	15 April
Thursday	15 May

All meetings are held at The Cosener's House, Abingdon from 10.30 am until noon. Pre-school children, babies and newcomers are all especially welcome.

We shall be circulating our Newsletter at the beginning of the New Year. If there is anyone who wishes to be a regular recipient please let us know as soon as possible. We are also glad to hear of any visitors or newcomers to the area, so please inform us if you know anyone who has recently arrived.

For further information contact:

Celia Lockwood	Zoe Patrick
6 Long Barn	3 Bosley's Orchard
High Street	Grove
Sutton Courtenay	Wantage
Tel: Abingdon	Tel: Wantage
847266	68809

Thanks from SSNAP

The donation of £50. to this charity collected at the RAL Arts and Crafts Exhibition is being put towards the purchase of a Neo-Natal Multi-Function Monitor for the Special Baby Care Unit at the John Radcliffe Hospital.

This Monitor is used for critically ill babies and measures a baby's heart rate, breathing rate, temperature and blood pressure continuously.

"On behalf of everyone concerned with the Special Care Baby Unit may I say a very sincere thank you," writes Mrs Clark the SSNAP Donations Secretary.

Scanners Reunion

Since the Bubble Chamber Group started scanning film in 1962 there have been almost 250 scanners, predominantly women, working all hours round the clock. On Friday 29th November fifty of us managed to gather in the Roysse Room in Abbey Hall Abingdon, some staggering from their sick-beds in order to be there!

After a superb meal the reminiscences started! The years had dealt with all of us kindly i.e. we could still recognise each other! The chatting went on to nearly midnight, it was the best, and longest, coffee-break of them all.

We have scanned about fifty experiments from collaborations worldwide with data from many spark and bubble chambers. In the early seventies there were as many as a hundred of us in various groups, now the remaining nine stagger on to scan the last experiment (from Fermilab). It would be nice to think that we could survive to our 25th anniversary but we shall fizzle out in 1986 "not with a bang but a whimper".

We are mostly redeployed elsewhere in the Laboratory but we retain many friendships and memories, have produced much valuable data and leave a basement full of film!



Bulletin

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Atlas 10 Gets into Top Gear

During November, the Atlas 10 computer recorded the highest weekly-accounted use by its customers since the introduction of the MVS* Operating System for batch-submitted jobs, in April 1985. The Atlas 10 delivered 110 CPU hours in the week, which, for the old-lags, is equivalent to some 250 to 300 hours on the IBM 195! By a strange coincidence, the IBM 3081 computer recorded the highest use of the CMS* interactive system, during the same week. Does this mean there is an element of competition between rival machines? Are they becoming intelligent? A more likely explanation is, of course, that users are at last beginning to implement their demand for computer power. Demand has been sluggish for the first half of the Financial Year 1985/86. A few of the major users, such as High Energy Physics Experiments, have suffered delays in getting started on data taking. As an example of the effect their use can have on the machine; during the record week, one quarter of the MVS machine activity was from two HEP experiments. During this period users have also been gaining familiarity with the new MVS operating system. With the introduction of direct charging at the beginning of 1985/86 some users may have been scared of spending too much too soon, of course.

An Editor's Thanks

Christmas Greetings and sincere thanks to all friends and colleagues for yet another year of help and support in the publication of the Bulletin.

Salutations to Alma and Sheila for their sterling efforts with the typing, to my contributors for their literary masterpieces, to the photographic section for works of art and to reprographics for actually getting it onto paper.

I wish I could promise you all that I will be more farsighted, less demanding etc next year - but I probably won't. So, many, many thanks to all for your patience.

Jean

In the case of CMS usage, demand has certainly been getting more PROfligate. The evidence suggests that more and more staff are finding an essential use for the PROFS system. The pilot scheme has been very successful and PROFS can be said to be definitely fully fledged now.

The message for all users is "Keep up the demand; you can only qualify for your 'free' 20% bonus by achieving the committed requirement first. The more you use, the cheaper it gets!" Let's see what ATLAS's top speed really is.

A happy Christmas and a busy New Year for all our users!

* For the uninitiated MVS stands for the Multiple Variable Storage Operating System. CMS stands for the Conversational Monitor System. If you are still feeling uninitiated, MVS allows lots of jobs, using varying amounts of the central processor, to be processed simultaneously. CMS allows users to interact directly with program, data and information files in the machine.

J R Smith

Rec Soc BAR

Now that the Bar is open and in full swing from 12.00 - 13.30 and Christmas decorations have been put up by Sarah (and helpers) why not pop in, have a pint, and admire the decor? Bitter is 60p a pint, larger 70p. The bar also carries a good stock of other popular drinks and snacks. See you there soon.

ISIS Goes International

ISIS has officially become an International Facility.

On 10 December a "Memorandum of Understanding" was signed by Mr George Walden, junior Minister at the Department of Education & Science, Professor Hubert Curien, French Research and Development Minister and Signor Luigi Granelli, Italian Minister for Co-ordination of Scientific Technological Research.

The agreement marks a further step in development plans for ISIS, already the most powerful pulsed neutron source in the world.

Under the Memorandum, three bodies will be established:

- a Council, with members from the UK, France and Italy and observers from other countries, whose main task over the next year will be to make arrangements for ISIS to be jointly funded by European countries and operated for the benefit of European scientists;
- a Project Group of UK, French and Italian experts which will prepare costed plans for additional technical developments to maintain the international standing of ISIS into the 21st century;
- an international Science Advisory Committee with members from several countries to provide a forum for wider consultation and discussion on developments at ISIS.