

Jean Banford.

Bulletin

of the Rutherford Appleton Laboratory

17 Dec 1984 No. 19



A Christmas Message

It is a pleasure to report again that the past year has been one of considerable achievement for the Laboratory. Our Astronomy Space and Radio Board programme has been in the public eye through the rescue mission for the SMM (Solar Maximum Mission) spacecraft and subsequently with the launch of AMPTE in August and the first lithium ion releases in September. The next notable occurrence will be a 'new star in the sky' on Christmas Day with the release of barium ions resulting in a 'comet' visible from Earth with the naked eye - regrettably only from the west coast of America.

For the Engineering Board, 1984 has seen the Laboratory involvement in the Alvey programme firmly established and it does show that RAL is considered to be a 'centre of excellence' in this area and others refer to us as a 'national asset'.

The discovery of the W^\pm and Z^0 intermediate vector bosons during 1983 has been recognised by the award of the Nobel Prize for Physics to Carlo Rubbia and Simon Van der Meer. The experiment continues to yield new results and has produced good evidence for the discovery of the sixth quark which is called 'top'. The evidence is not completely compelling and further data is being gathered. No doubt 1985 will bring new excitement.

For the Science Board area both major facilities have achieved successes. The Laser facility produced 12 high power green beams onto a target and has reached plasma densities in excess of 10^{20} gm/cc. The SNS has accelerated beam to 540 MeV and extracted the beam at the first attempt. We still hope to produce an extracted beam onto a Uranium target and to measure the neutron spectrum from a cold moderator as a last splendid achievement before Christmas.

I have not been able to cover all our work but I offer my warm congratulations to ALL of you for another excellent year's work. I wish you and your families a Merry Christmas and a Happy New Year. I am confident that 1985 will bring further success and that there are many challenges and achievements ahead.

Scott Manning

INTERNAL Events

SPACE PLASMA PHYSICS SEMINARS R68 CONF RM -

15 Jan Dr D Jones
'Myrametric Radiation in the
Magnetosphere'

GEOPHYSICS SEMINARS R68 CONF RM - 1400 hrs

18 Dec Dr J Pyle/RAL
'Studies of Middle Atmosphere
Chemistry and Dynamics Using
Satellite Data.'

ASTROPHYSICS EVENTS R68 CONF RM - 1400 hrs

19 Dec Mr P Sandford/UCL
'Trends in Gas Ionisation
Photon Counters and their
Applications in Space'



The next lecture in this series will
be held on Thursday 20 December 1984
at 3.00 pm in the R22 Lecture Theatre.

PROFESSOR G MUSGRAVE
BRUNEL UNIVERSITY

CAD YOU CAN'T LIVE WITHOUT IT

The lecture will deal with specification, simulation, testing as well as project planning and system production. Although the vehicle used to illustrate this lecture will be the microelectronics field, broader issues will be dealt with, and aspects of education and retraining could be items for discussion.

FOR YOUR DIARY: The next lecture in the series will be held on Thursday 31 January 1985 by Dr Paul Bryant, Computing Division, and will be entitled "The Invisible Local Area Network".

Rest Room in R32

Room 15 in R32 is now available as a Rest Room. You can go there if you are mildly unwell and need somewhere to lie down quietly for a while. Please let your Supervisor or one of your colleagues know where you are.

As ever, if you are taken ill at work telephone 2222 or arrange for a colleague to do so. You will then be looked after by the Harwell Medical Service and the Laboratory will arrange for you to be taken home if necessary. If you are in any doubt whether it is serious or not, do NOT go to the R32 Rest Room; telephone 2222.

Poppy Appeal

The Royal British Legion Poppy Appeal collection at RAL totalled £139.19½. The generosity of SERC is always greatly appreciated and I would like to convey heartfelt thanks on behalf of the Legion, writes Mrs Brenda Cairns of Welfare Branch, Harwell.

Well done, RAL Messengers, who always fit this task in amongst the many others they perform.

Thanks from Jean

As the year 1984 draws to a close, I would like, once again, to express my thanks to all who have helped with the production of the Bulletin.

As always, my colleagues in the photographic and reprographic sections and in the typing centre have, somehow, fitted my deadlines in with their own heavily committed schedules. My sincere gratitude is due to them all.

To those who have contributed articles and kept me up to date with information on all aspects of Lab life, my indebtedness is no less great.

May you all enjoy your Christmas, and may 1985 bring the happiness and success you would wish yourselves.

Jean Banford
Editor

Coffee at Cosener's

All RAL wives are invited each month to join us for coffee at The Cosener's House, Abingdon from 10.30 am until noon. Newcomers to the area would have the opportunity of meeting other wives, too. Pre-school children are very welcome.

The following dates have been fixed for next year:

Wednesday 16th January
Tuesday 19th March
Thursday 11th April
Wednesday 8th May

Please make a note of them in your diary, and we look forward to seeing you there!

In February, we have arranged a Buffet Supper Party for members of the group and their husbands. This will be on: Friday 15th February.

Tickets are £8 per head, inclusive of wine and a sherry reception. As numbers are limited, please telephone Zoe Patrick for details as soon as possible, but no later than 31 December.

For any information about the group gatherings, please telephone:

Suzanne Litchfield	(Abingdon 21310)
Zoe Patrick	(Wantage 68809)
Savita Shah	(Abingdon 29136)

AMPTE's Christmas Comet

On Christmas Day, if all goes well, the World's first man-made 'comet' will appear in the skies over the Western United States and Eastern Pacific Ocean.

The artificial comet will be the result of one of seven plasma injection experiments being performed during the AMPTE mission. Because of the Earth's annual motion around the Sun the IRM and UKS will, in late December, no longer penetrate the upstream solar wind but will be ideally positioned for a release of barium ions at the dawn flank of the magnetosphere, where they will produce the 'comet'. The progression of the orbits is such that this event, with the IRM in the head of the 'comet' and the UKS in the tail, is scheduled to take place on Christmas Day at 12.18 G.M.T.

From the Western U.S. the comet will be visible for about 20 minutes, as a red-yellow green apparition for the first minute of its life and purple-grey thereafter.

The UKS will not, unfortunately, be 'visible' from the UKOCC at the time of the release. There will however be an opportunity to put the spacecraft into a suitable mode of operation and to check this up to approximately 1 hour beforehand. For the event itself the UKOCC will be in voice contact with the mission progress worldwide. The measurements will be relayed via the Deep Space Network some time later for replay in the Control Centre the following day. If for any reason the release has to be postponed a second attempt will be made on 27 December at 12.32 G.M.T.

Comets are thought to be icy bodies from which the Sun's heat boils off a variety of gases, creating bright envelopes and the spectacular tails

AMPTE Mission Profile

- Two (invisible) lithium injections were performed on 11 and 20 September 84 ahead of the bow shock.
- Artificial Comet:
A barium release at the morning flank of the magnetosphere (25 Dec. 84).
- Two Ba and two Li injections in the geomagnetic tail will follow in spring 1985 (dates and times not firmly predictable).

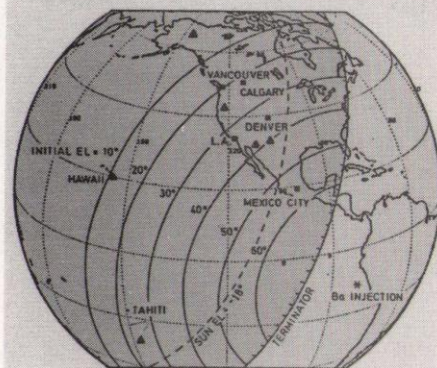
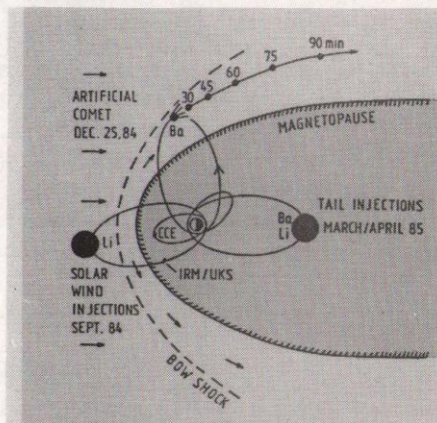
Reasons for Choice of Date

Only on 25 December 84 are the following conditions simultaneously fulfilled:

- new moon
- satellite position in view of observation sites in Western USA and Eastern Pacific
- sun below -18°
- IRM and UKS near apogee and aligned along flow line of solar wind

for which comets are famous. The most widely known comet, is, of course, Halley's Comet which is due for another appearance in 1986.

Comet tails always point away from the Sun. There are two types of tails; dust tails propelled by the pressure of sunlight and tails of ions which this mechanism cannot explain. Because many unresolved



questions remain concerning how the solar wind affects comet tails, the AMPTE artificial comet is expected to provide considerable data on how the force of the solar wind is passed to cometary ions and how the tail of a comet develops.

Film Badge Notice

It is period 13 Colour Strip PURPLE. Please check that your film badge is current and that all old ones are returned.

NEXT FILM ISSUE

Tuesday 1 January 1985

Sales to Employees

The sale of scrap metal and plastics will take place, subject to the usual conditions, in the scrap compound R40 at 12.30 p.m. on Friday 21 December 1984.

Library Notice

All three copies of 'Introduction to Plasma Physics' by F F Chen have disappeared from R61 Library. The Library Staff would be grateful for the return of any or all of them!

From the display stands 'Information Processing Systems for Management' by Hussain has also vanished. It would be helpful if it reappeared.

Dick Mackey's Farewell



Doug House, Robbie Roberts, Dick, Mrs Mackey, Jack Howlett, Bob Hopgood and all the farewell tokens.

84 RB 4890

You could see that Dick Mackey's farewell ceremony was going to be special, from the tower of parcels that nearly obscured him from the view of the Colloquium-full of friends who had come to wish him well.

'Dick is one of the longest serving members of the Atlas Centre, and undoubtedly one of the best liked', said Doug House to whom the pleasure of performing the ceremony had fallen. (Bob Hopgood's voice had suddenly given out.)

Dick was born in Kilkenny, Southern Ireland and lived there until he was 14 when he came to England as an Apprentice Jockey. Like many people, the war upset his career and from 1939-46 he was a driver in the army. This included driving Sir Alanbrooke (who later became Viscount Alanbrook, Chief of Staff at the War Office). He was a Staff Car Driver in Europe taking part in the activities at Arnheim, Falaise Gap, Nijmegen, Brussels (including its liberation) and Germany. After the war, he combined his two main interests - horses and cars - by becoming travelling head lad and box driver with responsibility for the security of horses to and from the race course.

Dick joined the Atlas Computer Laboratory on Monday 23 November 1964 (missed 20 years by only 7 days!). Among his many duties Dick acted as driver to Atlas Director Dr. Jack Howlett and was responsible for the fleet of Atlas Vehicles (3 cars and a 4-wheel drive landrover for getting

shift crews to work under any weather conditions). He was also responsible for the cleaning crew.

Most of the stories people remember concerning Dick normally involve cars and either his driving expertise or his helpfulness and dependability. In the early days, Dick spent a great deal of time meeting people at the airport. University visitors used to say whatever problems they had had so far, if they saw Dick's face at the Airport, their troubles were over. Dr Howlett remembers missing a plane in Paris and eventually catching a later one - Dick was still there to meet him.

The cars themselves were kept in immaculate condition (to the envy of others not a million miles away). He also attempted to keep everyone else's cars running as well.

'I have only one fault to find with Dick's performance over the years', joked Doug, 'and it is a serious one in somebody so reliable. In all the time I have worked with him (20 years less 7 days), he has not once given me a decent racing tip!

The tower of gifts took time to open and revealed a carriage clock, binoculars, a radio, Waterford Glass tumblers, a tankard, and a tray bearing an aerial view of the Atlas Centre. Thanking everyone for all the gifts, Dick remarked how pleased he was that so many old friends had come along for the occasion. "I have enjoyed my working career", he ended to applause.

Incantation to SNO

Deity of Neutron Sources

We beseech that you remember

Unleash for us your mighty forces

And brighten up this drear December

Make silent the sceptics at our door

Placate the scientists gathered in
queues

That we can raise our heads once more

And make headlines in Neutron News

O gracious Deity hear our pleas

To chase away our winter blues

But grant one wish above all these

Be it only a sign on our VDU s

Some Neutrons strike upon our sample

O But for an hour and t'would be ample.

Moving On

The Bulletin Editor has moved office again. This time to room 2.7 R1. The telephone number is still the same.

Acts & Omissions

This safety film is relevant to everyone's work in the Laboratory. It will be shown in R22 Lecture Theatre on Tuesday 8 JANUARY 1985 and since it is rather longer than usual (35 mins) there will be only two showings, one at 13.00 hrs and one at 13.40 hrs.

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