

# Bulletin

of the Rutherford Appleton Laboratory

8 Nov 1982 No.17

## The 360/195 is Dead

JEAN BANFORD  
R 20

After eleven years' service, almost to the day on which it was commissioned, the first of RAL's IBM 360/195 computers ran its last program.

To mark this end of an era, a Closing Ceremony took place in the Atlas Centre on the evening of Thursday 21 October at which over one hundred of its 'admirers' gathered to say farewell to a superb machine.

### Genesis

Originally installed in November 1971 in R1 for use by the high energy physics community of the Rutherford Laboratory, 20% of its time was allocated to the Atlas Laboratory, then a separate entity under the direction of Dr Jack Howlett. It cost £3 Million, was the top of IBM's 360 range and was designed specifically for the science and engineering community. The hardware was commissioned and accepted in 15 days - a remarkable feat for those days - and provided mainly a batch service. It also supported an ever increasing terminal system (ELECTRIC) and a remote job entry network.

Throughout the next few years the demand for computing continued to rise and in 1976 with the merger of the two Labs and a second 195 being installed at the Atlas Centre, the original was moved from R1 to join it. This configuration was the heart around which RAL's computing facilities expanded to become one of the most comprehensive systems in Europe.

### Thanksgiving

Opening the ceremony Dr Geoff Manning (Director of RAL and former Head of Atlas Computing Division) welcomed everyone to what he termed the 'Wake'. He gave a brief history of the computer, extolled its virtues, passed quickly over some of its lovable little foibles and expressed himself very satisfied with the overall performance. He warmly thanked IBM for their excellent support over the years also RAL staff past and present, most of whom he was very pleased to see in the audience. Lastly he expressed his thanks to the Users "without whom there would be no computing and no future".



Bob Taylor keys in the last commands, watched by (l to r) Bill Walkinshaw, Doug House, Harry Hurst and Geoff Manning. (82 RC 5161)

Mr David Livermore (Sales Director of IBM) commented that it seemed very British to have a wake for a computer. "I hope it is because of happy memories!" He thanked Geoff Manning for his kind words about the reliability of the 195 and concluded "On behalf of all the staff of IBM, I say it has been a real pleasure to work with you. It is a source of pride to us to be connected with you".

Mr Bill Walkinshaw (former Head of Computing and Automation Division) shared reminiscences of the beginning and marvelled at the changes that had occurred since the late '50s when there was little computing power in the UK. "Today the work done at RAL is excellent", he said.

### Finis

The company then repaired to the machine room where Dr Bob Taylor explained that the program being run was a very early program designed to exploit hardware features unique to the 195. Its last messages were

END OF LAST JOB ON 195  
STOP 195

Bill pushed the power-off button and so ended an era of a splendid computing engine undoubtedly unique in its time and which will be remembered with affection by all who worked with it.



# INTERNAL Events

## HEP SEMINARS

R61 CONF ROOM - 1100 hrs

- 10 Nov Prof T Walcher/MPI Heidelberg  
'A New Measurement of the  
p p Excitation Function at  
Momenta between 370-1100 MeV/c'
- 17 Nov Dr E Corrigan/Durham  
'Monopoles'

## NIMROD LECTURES

R61 CONF RM - 1400 hrs

- 15 Nov F E Close/RAL  
'Theoretical Problems with  
the Electrodynamical and QCD  
Interactions of Composite  
System: Atoms, Nuclei and  
Hadrons, (pedagogical and  
incomplete)'
- 29 Nov Dr C Michael/Liverpool  
'Hadronic Spectrum in Lattice  
QCD'

## CONDENSED MATTER SCIENCE SEMINARS

R3 CONF RM - 0930 hrs

- 16 Nov P Wohlfarth/IC  
'Metallic Magnetism at High  
Pressures'
- 30 Nov A J Leadbetter/RAL  
'Smectic Liquid Crystals'

## GEOPHYSICS SEMINARS

R61 CONF ROOM - 1400 hrs

- 11 Nov Dr P Morgan/JET  
(3.00pm) 'Scattering of Electro-  
magnetic Radiation as a  
Plasma Diagnostic'
- 23 Nov Dr P Taylor/IOS Wormley  
'Evaluation of the Seasat  
SMMR'

## ASTROPHYSICS SEMINARS

R61 CONF RM - 1400 hrs

- 17 Nov Prof T Kiang/Dunsink  
(R20 CONF RM) Observatory  
'Is the Universe Closed  
or Open?'
- 24 Nov Prof Roger Taylor/Sussex  
'The Neutron and  
Cosmology'

## RAL TECHNOLOGY LECTURE

LECTURE THEATRE - 1500 hrs

- 18 Nov Dr D B Thomas/RAL  
'Information Technology and  
SERC'

# EXTERNAL Events

## ELEM PART PHYS SEMINARS

NPL - OXFORD - 1430 hrs.

- 11 Nov Dr Hong-mo Chan/RAL \*  
'Some Theoretical Aspects  
of Magnetic Monopoles'
- 18 Nov Dr K Green/RAL  
'An Experiment to Search for  
Neutrino-Antineutrino  
Oscillations'

## THEO. PHYS SEMINARS

DAMPT - CAMBRIDGE - 1500 hrs.

- 12 Nov Chris Michael/DAMPT Liverpool  
'Lattice Gauge Theories'
- 19 Nov George Thompson/Southampton  
'BRST and Slavnor Taylor  
Identities'

## THEO. PHYS SEMINARS

TPD - HARWELL - 1400 hrs

- 9 Nov K A Cliffe/Harwell  
'Numerical Calculations of  
Bifurcations in Problems of  
Fluid Flow'
- 18 Nov Dr J Adler/IC  
'Thermal Explosion Theory for  
an Infinite Reacting Slab'

## PHYSICS COLLOQUIA

HH WILLS LAB - BRISTOL - 1700 hrs

- 15 Nov Prof R H Hockney/Reading  
'Computer Simulations Using  
Particles'
- 22 Nov Dr R West/E. Anglia  
'Positron Annihilation Studies  
with Positron Sensitive X-ray  
Detectors'

## PHYSICS COLLOQUIA

CLARENDON LAB - OXFORD - 1615 hrs

- 12 Nov Dr J D Lawson/RAL  
'Inertial Confinement Fusion,  
Driven by Particle Beams'
- 19 Nov Prof G E Bacon/Sheffield  
'Neutron Studies of the  
Texture of Bones'

## HEP SEMINARS

MANCHESTER - 1430 hrs

- 24 Nov Dr Ian Halliday/IC  
'Lattice Gauge Theories'

## THEO PHYS SEMINARS

MANCHESTER - 1430 hrs

- 10 Nov Dr L Goldfarb/Manchester  
'Anatomy of Heavy Ion  
Scattering via the Folding  
Model'
- 17 Nov Prof D Wallace/Edinburgh  
'Metastability and First  
Order Phase Transition'
- 24 Nov Dr I Halliday /IC  
'Lattice Gauge Theories'

## THEO GROUP SEMINARS

DARESBURY - 1400 hrs

- 15 Nov Dr J A Evans/Sussex  
' $\alpha$ -clustering in  $^{16}\text{O}$ '
- 22 Nov Dr R C Johnson/Surrey  
'Theory of Nuclear Reactions  
with Polarised Lithium Beams'

## ELEM PART PHYS

NPD - OXFORD - 1430 hrs

- 19 Nov P Stevenson/CERN  
'The Renormalisation-Scheme  
Ambiguity of Perturbation  
Theory - the Real Problem is  
Its Resolution'

## PART PHYS DISC GP MEETINGS

BIRMINGHAM - 1615 hrs

- 10 Nov Dr K Ledingham/Glasgow  
'How to Measure a Neutrino  
Mass'
- 19 Nov Dr A Hodson/Leeds  
'Core Flattening in Cosmic  
Ray Extensive Air Showers  
and Its Implication for High  
Energy Physics'
- 26 Nov Dr A Clark/CERN  
'Results from the First UA2  
pp Run'

## RAL TECHNOLOGY LECTURES

The first lecture in this new series will take place in the Lecture Theatre on Thursday 18 November at 3 pm.

### INFORMATION TECHNOLOGY AND SERC

by  
Dr D B Thomas  
Associate Director : Engineering  
RAL

The increasing industrial importance of Information Technology (IT) has been reflected, and in some areas spearheaded, by activities supported by SERC. The speed with which the subject is developing means that today's research is the basis of tomorrow's commercial product and this brings the need for close collaboration between universities, government laboratories and industry.

RAL provides considerable support to SERC's activities in this area, operating facilities in microelectronics such as the Electron Beam Lithography; in computing, the Interactive Computing Facility; and in communications, the Project UNIVERSE research network involving satellite links. Equally important is the work of the Coordinators from RAL of university-based programmes in Distributed Computing Systems, Software Technology and Microelectronics. Technology transfer of the research results into UK industry is an important feature of these programmes.

The lecture aims to give an overview of these SERC activities, showing how they comprise a concerted attack on the research aspects of IT and how they will fit into a proposed nationally-coordinated programme now before the Government for approval. It provides a basis from which later lectures in this series dealing with some of the more detailed aspects of IT can be viewed.



## Long Live the 3081

Although the Central Computing Complex at RAL is in the middle of its most major upheaval for many years, the user population should see nothing other than an improvement in the service.

In May this year, Council approved two major computer purchases for RAL: the IBM 3081D, and the ICL Atlas 10. The 3081D, one of IBM's new series of machines, has almost as much power as both the 360/195s together.

The system was delivered on 7 July 1982 and installed within a day. After checkouts, operator training etc it entered service on the 19 July 1982, replacing one of the 360/195s. It was configured to take on the 'front-end' role (supporting the interactive and communications work as well as batch) on 12 August 1982, two weeks ahead of the initial schedule. There have been no problems apart from one early fault involving the replacement of a processor component.

The second 360/195 is to be removed from service in October, and then both the 360s are physically to be removed from the building - a major exercise in itself. Fortunately the cost of this is amply compensated for by the scrap value, which, since there is gold in many of the circuits of these old computers, is considerable.

### and Atlas 10

The ICL Atlas 10, is one of the most powerful IBM-compatible computers in the world - its single processor has about three times the power of a 360/195. The Atlas is expected in the middle of next year but since it will be the first of its kind in the UK, RAL and ICL will take a few months subjecting it to various tests before it enters full service in October 1983.

This will complete the major processor replacements, and enable RAL to concentrate on plans for other hardware and on a software programme which will bring the facilities once more up to the standard demanded by our scientific users at RAL and in universities and polytechnics throughout the UK.

### Trade Exhibition

Marconi Instruments Ltd  
Tuesday 16 November  
R20 Conf. Room, 1000 - 1600 hrs.

Signal generators (low frequency to microwave), modulation monitors, spectrum analysers and frequency counters.

BICC Verospeed  
Wednesday 24 November

Mobile exhibition outside R20  
1000 - 1600 hrs.

## Unispace '82

The United Nations conference on the "Exploration and Peaceful Uses of Outer Space", UNISPACE '82, held in Vienna in the summer was complemented by a large-scale International Space Exhibition open to the public.

RAL was well represented in the European pavilion which highlighted the practical applications of British space research and technology. The exhibit was grouped into three areas: telecommunications, space science and remote sensing.

The telecommunications area showed the development of satellites in which Britain had played a major part. The experiment in high-speed information transfer using a satellite link - the UNIVERSE project - a joint venture involving British industry, UK universities and SERC - being of special interest.

Man's desire to explore space has provided a stimulus for new technology and the space science section illustrated this. Panels explained the infra-red sky survey that is to be undertaken during the IRAS mission, the X-ray studies of the EXOSAT mission, and the observations to be taken during the HIPPARCOS study. There was a half-scale model of the Wide Field Camera to be flown on ROSAT and a model of the Space Telescope being deployed from Space Shuttle. Solar Science displays included a half scale model of the UK satellite which will form part of the AMPTE project.

The remote sensing exhibit outlined the important role which British technology will have in ESA's first remote sensing satellite ERS-1, due to be launched in 1987. Britain is supplying the main instrumentation package and SERC in partnership with UK universities will develop the along-track scanning radiometer (ATSR), an infrared sensor capable of measuring the absolute surface temperature of the ocean to about  $\frac{1}{2}^{\circ}\text{C}$ . A dynamic half-scale model of the ATSR was extremely popular with the visitors.

### Special Lecture

"How Do We Get to 10TeV"  
by  
J D Lawson  
RAL

R22 Lecture Theatre  
Wednesday 10 November  
2.30 pm

A recent ECFA-RAL Conference in Oxford discussed the feasibility of various acceleration mechanisms which could give energies well above those currently projected (eg LEP, Tevatron). Following a short introduction by Frank Close - "Why do we want to get to 10 TeV?" - John Lawson will review the various ideas which came up at the Conference.



The ATSR Exhibit.  
**ISAMS**

Further British technology was demonstrated by a full-scale model of the improved stratospheric and mesospheric sounder (ISAMS), developed by Oxford University in collaboration with RAL. ISAMS is specially designed to measure the constituents of the upper atmosphere. It will be incorporated in NASA's Upper Atmosphere Research Satellite (UARS), due for launch in 1988.

University College London provided an interesting video programme on weather and cloud formation over western Europe, derived from METEOSAT data. RAL's work with the Scott Polar Research Institute, on the movement of ice sheets in Polar regions was also featured.

The exhibition provided an opportunity to present UK expertise in space science and technology at international level and attracted over 160,000 visitors.

### Obituary

#### Len Goodall

We are deeply sorry to report the death of Mr Len Goodall on Saturday 16 October. Len, who had been a member of Advanced Apparatus Group both in Technology Division and later in Instrumentation Division retired earlier this year because of ill health. He served the Laboratory well for many years and will be very much missed by his many friends and colleagues at RAL. We send our condolences to his widow, Vera and to his son, Neil on this very sad occasion.



## Mrs Hunt Retires

Mrs Hunt manageress of the Cosener's House, Abingdon for the past nine years, was 'At Home' for the last time on Monday 27 September.

Appreciative friends and colleagues gathered to present her with a fiddle barometer "to remember us by", and to express their sincere thanks for all her efforts on behalf of RAL.

"You will always be remembered with gratitude and affection by all who have been made so welcome at Cosener's House for conferences, courses, workshops etc.", said Geoff Manning, making the presentation on behalf of us all "We wish you the very best for the future".

Mrs Hunt, thanked everyone very much for all the nice things that had been said about her. "The Barometer will be a lovely reminder of my time at Cosener's - stormy to fair" she laughingly concluded.



## Le Havre Weekend

A small group of RAL staff under the guidance of Mme. Ashby visited Le Havre for an "educational weekend". All were members of the RAL French classes and the visit was arranged in order to practice and improve their conversational French.

The Friday night crossing proved reasonably calm and uneventful but the first breakfast was a different matter. A practical demonstration, with some student participation, was given, on how to "chat up" the ship's French restaurant staff. This was quite enlightening as we ended up with recommendations for a good hotel and restaurant for Saturday night. Saturday morning disembarkation, including passport inspection (just a cursory glance to ensure we had one), was achieved in less than fifteen minutes and by about 9 am hotel accommodation had been found. Second breakfast was then taken in a nearby bar and this was followed by a visit to the shops where we bought our supplies of wine and sampled and purchased some typically French perfumes. By this time some members felt rather tired and returned to the hotel for a rest. The remainder then visited the restaurant (as recommended by the ship's French staff) in order to make a reservation for that evening. Although it was normally closed, the proprietor invited the group in and proudly produced the fish he intended using for that evening, carefully naming the different types (Much better than reading the names under a picture in a book!).

After a snack the group then proceeded by local bus to Honfleur about 1 hours ride away. Again the group was given a practical demonstration in "chatting up", this time it was the bus driver who then demonstrated his ability to drive and look over his shoulder at the same time, but almost driving over the side of the Pont de Tancarville in the process. We arrived safely, if a little shaken, at Honfleur, where we wandered around the shops and took tea and sampled the delicious French patisserie in a local tea shop. Honfleur is a really delightful and picturesque fishing port, especially out of season and the visit was most rewarding. Part of the return journey to Le Havre was with the same driver and after some verbal exchanges he put all the lights out (despite the other passengers) and we managed to sleep a little. The evening was spent enjoying excellent French cuisine at the typical small restaurant. It was hoped to visit a disco later, but by midnight we found it full and we retired to a nearby bar for a "digestif", before turning in rather late.

Sunday morning did not commence very early. After fresh bread and croissant we walked to the pebbly beach and watched the rough sea breaking over part of the front. Sadly it was time to leave and by 1205 hrs. we were on our way home.

The return trip was quite exciting with quite a choppy crossing and several members feeling somewhat under the weather. Glasses were thrown off tables (the bottles were saved!) and at times it was difficult to walk about without holding on. However it was a most enjoyable weekend, with

some improvement in French but certainly an increase in the confidence to use it.

## Horticultural Society

An illustrated lecture entitled "Islands in the Sun" will be presented in the RAL Lecture Theatre at 7.30 pm on Wednesday 24 November. The lecturer Mr A W A Baker is treasurer of the RHS Lily Group and his talk, about plant collecting in the Mediterranean Islands, promises to be both interesting and stimulating.

For tickets please contact:-

Mrs B Miles AERE Ext 4712  
Mr J Hogston RAL Ext 6692

## Sales to Employees

The sale of scrap metal and plastics will take place, subject to the usual conditions, on Friday 12 and 26 November in the R40 Scrap Compound from 1200 - 1230 hrs.

## Missing

Please contact Beryl Triplow, Ext 5624 if you can provide information on the following inventory items,

Casio Calculator Type EX-30  
Casio Calculator Type AS-A  
Farnell Output Unit P0/A

# Bulletin

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