

# Bulletin

of the Rutherford Appleton Laboratory

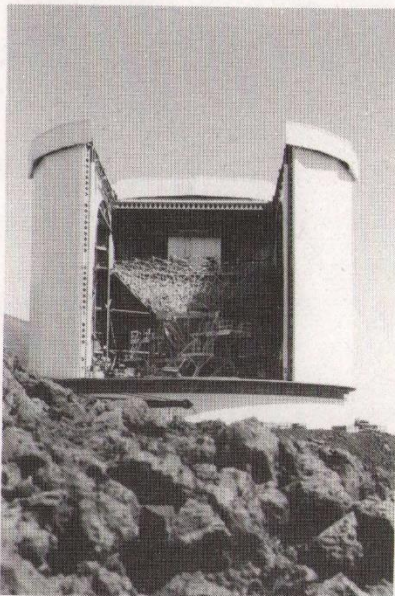
17 Feb 1986 No. 2

## The Hawaiian Connection

In early 1976 the Council Works Unit became involved in a feasibility study for a "Millimetre Wave Radio Telescope". In July 1977 Barry Shenton (the Project Manager based at Culham) formally requested the Unit to take responsibility for the protective enclosure and the related site works.

These were the beginnings of a task that would take us initially to the island of La Palma in the Atlantic Ocean and later to the Pacific Ocean when the siting was changed to the island of Hawaii. To those involved in scientific projects, the occasional shifting of the goal posts is not an unusual event, but in this case the change of location was also accompanied by a requirement to stay within the fixed budget approved. A complete redesign of the enclosure was necessary due to the high cost of construction in America and different site conditions on the 14,000 ft high mountain of Mauna Kea.

In September 1985 the completed enclosure was formally handed over by CWU to the Instrumentation Division of RAL - a transient arrangement because after the installation of the antenna and the associated control and detection equipment, the whole facility is to be handed over to the Royal Observatory, Edinburgh in the spring of 1987.



The Consulting Engineers Council  
of Hawaii

presents its

*1986 Honor Award*

to

*Alfred A. Yee Division ... Leo A. Daly*  
*Consulting Engineers*

and

*Science & Engineering Research Council;*  
*Rutherford Appleton Laboratory*

for engineering excellence  
on the project known as

*Millimetre Wave Telescope*

*Benjamin S. Vetterli* President

*Edward L. Shuman* Secretary

Facsimile of Award certificate.

The design and construction of the enclosure has involved many individuals and firms in the UK and in the USA. Major contributions were made by UK design consultants Messrs Merz & McLellan and by the firm responsible for the manufacture and construction of the 400 tonne rotating carousel, Messrs Robert Watson (Constructional Engineers) Ltd of Bolton.

In Honolulu the CWU retained a US firm of consultants to carry out local design work and project management in

Hawaii. The firm concerned, Messrs Alfred A Yee, has been recently awarded jointly with the CWU the Consulting Engineers Council of Hawaii's 1986 Honor Award (first place) for work on the Millimetre Wave Telescope Project. The citation "for engineering excellence" is a fitting tribute to all those who have contributed to the project since 1975, from the very start with Bert Brooks up to the present day with Fred Gilbert currently in Hawaii tidying up some loose ends.



## The Hawaiian Connection

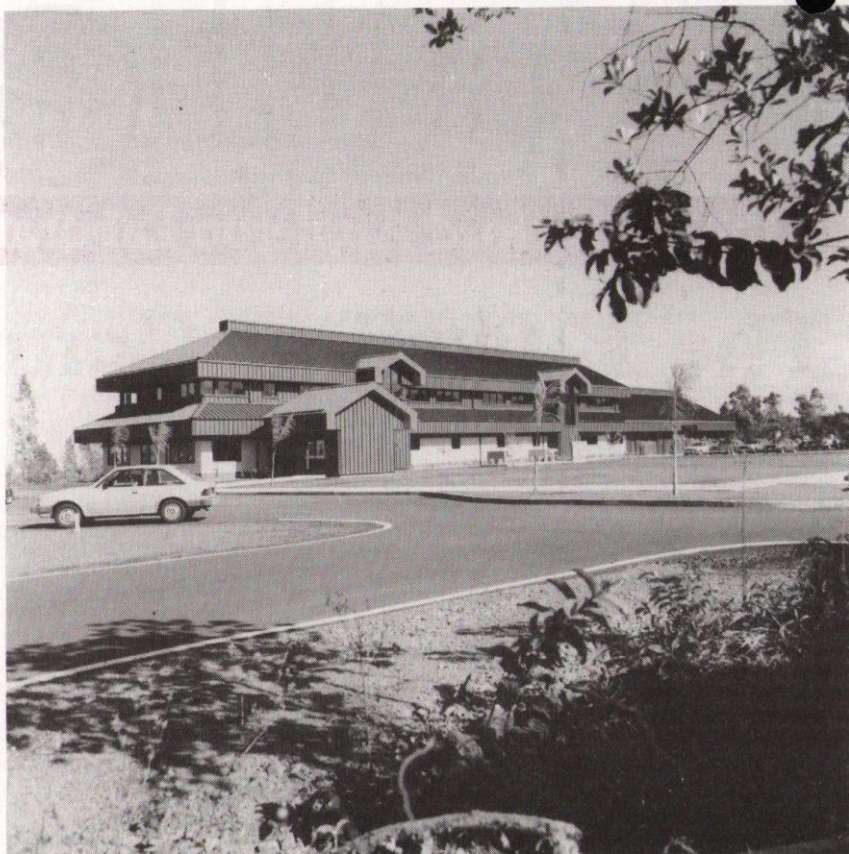
(cont'd from p1)

As an encore to the MMT enclosure project, the CWU was asked by the Royal Observatory, Edinburgh to design and construct a new Headquarters Facility for the UK telescopes on Mauna Kea. A local architect was retained for the design and later a contract for construction was placed with Messrs Constructors Hawaii Inc, site work commencing in July 1984.

In August 1985 a dedication ceremony took place on completion of the first phase of the project. It consists of approximately 16,000 sq ft of office, laboratory, workshop, computer room and library accommodation built on the University of Hawaii campus in Hilo. Very soon after the ceremony, approval was given to go ahead with phase 2 of the development, a further 5,500 sq ft of office and laboratory space to accommodate the MMT operations staff.

Another cost-cutting exercise followed an unsatisfactory tender action and a contract was finally let for the construction in November 1985. Work is now well advanced with anticipated completion in May 1986. The MMT team at present in Hawaii is due to move into the new accommodation in June.

By mid-summer this chapter of CWU work will be drawing to a close. One wonders where the next major project will be - Edinburgh, Tentsmuir Forest, Cambridge, or perhaps even RAL?



Base-camp, Hawaiian style.

85RC 4763

## RAL TECHNOLOGY LECTURES

The next lecture in this series will be held on Thursday 20 February 1986 at 3.15 pm in Conference Room 12 Building R68.

### NEW ARCHITECTURE FOR THE COMMUNICATIONS NETWORK: MORE DISTRIBUTION?

by

PROFESSOR JOHN O LIMB  
DEPARTMENT OF ELECTRONIC  
SYSTEMS ENGINEERING  
UNIVERSITY OF ESSEX

Arguments are presented as to why a high-speed packet switched network appears very attractive for providing efficient delivery of a wide range of telecommunications services including voice, data and video. The existing (predominantly) circuit switched network is rather centralized, whereas a packet switched network could be implemented in a more distributed manner. A distributed implementation with a broadcast mechanism permits very different implementation of many communications functions. The way some functions could be implemented is discussed.

The March lecture in this series will be held on Thursday 13 March 1986 at 3.15 pm in the LECTURE THEATRE Building R22. PLEASE NOTE CHANGE OF VENUE.

### MOLECULAR ELECTRONICS

by

PROFESSOR G G ROBERTS, FRs  
CHIEF SCIENTIST THORN EMI PLC  
AND  
PROFESSOR OF ENGINEERING SCIENCE  
OXFORD UNIVERSITY

Only a modest diminution in the size of electronic circuit components will be required before the scale of individual molecules is reached. Practical systems are unlikely to be realized until the next century but will probably rely on three dimensional molecular assemblies whose architectures depend on the shapes and charge distributions of the units they are built from, as distinct from the methods used to assemble them.

There is a considerable degree of 'self assembly' associated with Langmuir-Blodgett (LB) film technology

in which monomolecular layers are deposited one at a time. Following a historical introduction to the subject the lecturer will describe the relevant preparation and characterization techniques. The multidisciplinary nature of the field will be stressed together with the many practical applications of these organic superlattices.

FOR YOUR DIARY: The next lecture in the series will be held on Thursday 17 April 1986.

## RAL Lectures

The next lecture in this series will be held on Thursday 6 March at 3.15 pm in the R22 Lecture Theatre.

Dr Christopher Howden  
(Forensic Science Laboratory  
Aldermaston)

SCIENCE IN THE FIGHT  
AGAINST CRIME.



## RAL Quiz Win

On 10 February a team representing RAL went to RAOOC Thatcham to compete in the preliminary round of the Civil Service Southern Region Sports Quiz. We called ourselves "The Sportsmen" and entered into the spirit of things by dressing in different types of sporting attire.

In a low scoring semi-final we narrowly beat the Ministry of Agriculture Fisheries and Food 21 - 18 to match ourselves against the home team "Thatcham Thinkers", who were marginal favourites.

However, the promise of a place in the regional final, sponsored by "Fosters" with free lager, produced some early inspiration. We shot to a 13 - 2 lead hanging on comfortably to win 31 - 24.

The team was Kevin Lewis, Melvin Simpson, Steve Cooke and Simon Amos. The regional Final is at a Civil Service Club in Southampton on Friday 7 March at 7.30pm. Anybody wishing to come along to support, heckle or just get drunk, call me on Ext.6713.  
Kevin Lewis

## Christian Fellowship

Meetings of the Fellowship are held in the R2 Conference Room at 12.30 pm on Thursdays. Visitors are always welcome.

Feb 20. Lent book review

27. Tape Presentation-Richard Heenan

Mar 6. Bible Study:- Jimmy Darius  
The Fellowship of the Holy Spirit

13. Prayer Meeting - Lester Gale

20. Invited Easter Speaker

24-26 Easter Bookstall -  
Eric Greenslade

For further information - Margaret Summers Ext: 5617

## Missing

The following items are the subject of loss reports. Would anyone having any knowledge of any of the items please contact the enquirers.

Casio Calculator Type CASGO  
(Solar Powered)

Miss L Sayers R31 Ext: 5456

Newbury VDU Model 7002

Serial No. 74422

R D Downs, R20 Ext: 6656

AVO Multimeter R002659

J Brown, R25 Ext: 6653

Polaroid Camera type SX70

Inventory Label R031045

R Turner R25 Ext: 6433

Keithly Picoampere Calibration Source

Type 261 Inv. No. V006011

C A Eley, Ext: 6508/5318

Aver Stop-watch, 1/100 sec divisions

RAL No. R006079 Ser. No. WSD.1.

J Hoskins, R68 Ext: 6185

Convactor Heater. Inv. No. R005066

Casio Calculator Type T121A.

Inv. No. R005275

Grundig Pocket Dictation machine

Inv. No. R05598

Phillips Pocket Memo dictation machine

Inv. No. R005470

Citizen Calculator, Type T121L

Inv. No. X000644

Sharp Calculator, Type CS1109

Inv. No. R006657

A C Peters R9, Ext: 6203.

Gloves -

Black leather - removed from RAL restaurant Thurs. 23 Jan. Please return to Gina Stuart, R1. Ext: 6172.

Shannon Tape Cleaner, Type 3000

Inv. No. X010833

J Gourlay Ext: 6478

AVO Model 8 Ser. No.92724269

R McClure Ext.6444

Will the person who now has TWO grey/green Jaeger sweaters please bring back the newest one as this belongs to Colin Walters Ext 5323. Thank you.

## Thanks

Gill and Keith Dancey would like to express heartfelt thanks to friends and colleagues for all the good wishes upon the occasion of their marriage. We were especially pleased with the food processor (always thought that was a baby!) and would just like to say that we will not be spending the honeymoon travelling on S.E.R.C. rail warrants!

Harry Lane sends his good wishes to all friends and colleagues at RAL, especially those he was unable to see personally before leaving. He thanks all for a most generous present, a chaotic send-off and, most of all, for friendship going back almost thirty years.

Harry Norton also thanks his friends and colleagues most warmly for their good wishes on his retirement and for the leaving present.

"I hope to return to see them during 1986 and in the meantime wish them every success and happiness for the future", he writes.

John Stenning expresses his thanks to all for his super card, cheque and two surprise packets "Mine is not sprouting yet, but Gwen's has nearly disappeared!! Happy working days to those I didn't see before I retired.

## Film Badge Notice

It is period 2 Colour Strip RED. Please be sure you are wearing the correct dosimeter and return old ones to Jenny Coates R12.

Next Film Issue.  
Monday 24 February 1986.

## Sales to Employees

The sale of scrap materials to RAL employees will take place on February 28 in the R24 Scrap Compound from 12 noon to 12.30 pm.

## Library Notice

These books have been returned to the Library - but they aren't ours!

Associative Networks  
Edited by Nicholas V Findler  
Academic Press (1979).

Physics of Thin Films  
Eckertova L  
Plenum 1977.

Anyone wishing to lay claim to either, please contact the Library, Ext: 5384.

# INTERNAL Events

NEUTRON DIVISION SEMINARS  
R3 CONF ROOM - 1330 hrs.

25 Feb. M G Hutchins/Oxford Poly  
'Selective thin films for the efficient conversion of solar radiation.

11 Mar. R Lynden-Bell/Cambridge  
'What can we learn about molecular motion in liquids from computer simulations?

ASTROPHYSICS SEMINARS  
R61 CONF ROOM - 1400 hrs.

26 Feb. Dr Keith Mason/MSSL  
'Everything you wanted to know about Cygnus X-3'

12 Mar. Dr M Rowan-Robinson/QMC  
'Cosmological results from IRAS'

26 Mar. Dr Alan Greenaway/RSRE  
'Optical aperture synthesis'

COMPUTING SEMINARS  
ATLAS CENTRE - COLLOQUIUM - 1515 hrs.

4 Mar. David Moody/ELXSI  
'Presentation of the ELXSI system 6400 supermini/supermainframe'

NIMROD LECTURES  
R61 CONF ROOM - 1400 hrs.

17 Feb. K Hagiwara/DESY  
'Probing electroweak theories by W+W production at LEP II.

24 Feb. P Landshoff (Cambridge)  
'Diffraction'

HEP SEMINARS  
R61 CONF ROOM - 1100 hrs.

19 Feb. C Maxwell/Durham  
'KNO scaling notations'

26 Feb. E Gardener/Edinburgh  
'Spin glasses'



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# Bulletin

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