Bulletin
of the Rutherford and Appleton Laboratories 15 June 1981 No.10.

Energy Secretary Visits Abertridwr Project

The Abertridwr 'Better Insulated Houses' project for which RAL developed the energy monitoring system, was visited on Tuesday 12 May by John Moore, Joint Parliamentary Under-Secretary of State in the Department of Energy and Michael Roberts, Parliamentary Under-Secretary of State for Wales. This project is the most detailed study of methods and standards of insulation ever undertaken in occupied houses in the UK, and has just completed the first winter of monitoring. They were welcomed by Mr W Craig of the United Kingdom Housing Association (UKHA), developers of the site. Professor P O'Sullivan of the Welsh School of Architecture IWUST (project manager) described the aims of the project, after which Dr W A Smith (RAL) explained the physical experiments and Mr P McGeevor (a sociologist at UWIST) the knowledge gained on how differing living pattern of residents affected the results.

Both visitors showed great interest in the project and spoke of their satisfaction that Energy Conservation research had gathered such impetus in the past 10 years.

Bill Smith explains the finer details of the heat meter to John Moore and Michael Roberts. Philip McGeevor is also interested. 35642

The Project

The project initiated by the Department of the Evironment and jointly sponsored with the Science and Engineering Research Council, is monitored by a sophisticated collection of instruments designed by the Energy Research Support Unit of RAL. It aims to provide detailed information on the cost effectiveness of the higher standards of insulation, the operating efficiency in actual service of domestic gas central heating boilers, and the problems of such design innovations, and how to overcome them. It also gives data for the correct sizing of heating systems, the design of control systems, the calculation of energy usage and running costs, and the understanding of the users needs and living patterns. This knowledge should serve as a data base against which future innovations can be modelled and tested, and guidance for new architectural design.

Built by the UKHA and designed by the archiects at UWIST, the houses perch on a hillside in a very exposed position. A sample of 19 houses are used as a control group and are insulated to current standards. The remaining 20 are "highly insulated" to about double the standard of the others. These modifications consist of a 30mm thick internal lining on the outer walls, double thickness roof insulation, and an internal perimeter slab of floor insulation 1m wide by 1m deep. Because the heat requirements of the test houses is much less a smaller heating system was installed.

Mini Monitored

When domestic gas central heating boilers are operating on light loads they cycle on and off at frequent intervals under control of the boiler thermostat, so that the flow and return temperatures are always changing. To be able to monitor their heat output in these circumstances mean that the temperature must be read several times a minute. On site there are 40 of these boilers. If this amount of data were to be stored it would fill reels of magnetic tape every day, so a computer is used to integrate the results and store at less frequent intervals. This work only occupies part of the mini-computers time, so it is also used to drive the rest of the data logging system. The energy input to the houses is read from modified electricity and gas meters (five to each home) and all rooms have their temperatures monitored on a five minute basis. The meteorological conditions, sun, wind, rain, humidity and temperature are also recorded. All this detail allows the differing occupancy patterns to be

(Cont'd p.3)

INTERNAL Events

ASTROPHYSICS SEMINARS
CONF. ROOM R61 - 1400 hrs

24 June Dr Andrew Murray/RGO
'The HIPPARCOS Project'

NIMROD LECTURES
CONF. ROOM R61 - 1400 hrs

29 June Prof A Donnachie/Manchester
'$\gamma\gamma$ Processes in Hadron-Hadron Collisions'

HEP TECHNIQUES SEMINARS
R61 CONF. ROOM - 1400 hrs

25 June Dr B J Charles
'Networking in the Scientific Research Community'

2 July Dr P P Haskell
'GRACES': SNS Control Language

Obituaries

Mrs M Athawes

It is with deep regret that we have to announce the death of Mrs Margaret Athawes, aged 57.

Margaret was well known throughout the Laboratories, having been a Messenger for the past 12 years.

A conscientious worker, helpful and supportive when occasion demanded, she was much respected, as donations in her memory to the 'Ken Thomas Scanner Appeal' reflect. She will be sadly missed by all her friends and colleagues.

Dr J Butterworth

Dr Jack Butterworth died on 30 May after a short severe illness. All his friends and colleagues in the Laboratory will be shocked by this news and will wish to offer Sylvia, his wife, and Pat, his daughter, their heartfelt sympathy.

Jack was born in Oldham, Lancashire in 1921 and joined AERE Harwell in 1955 after a career in Government telecommunications research, during which he served (1946-48) with the Allied Control Commission in Germany.

During 1963/64 he was a Research Associate at the University of California, Berkeley, and returned to Harwell as leader of the Solid State Physics Group. Subsequently he served as Harwell's Programme and Planning Officer before joining the Energy Technology Support Unit in 1975.

From 1975 until 1980 he was Assistant Head of AERE Harwell's Energy Technology Support Unit.

In 1980 Jack was seconded from Harwell to the RAL to be the Energy Projects Coordinator for SERC. He was the head of the Energy Research Support Unit (ERSU) and has in his very short period in the Laboratory achieved a great deal in forming a programme involving the Universities, Industry and SERC. He has been instrumental in defining the role that SERC should play in the Coordination of Energy Research in the UK and has set up collaborative programmes with various nationalised industries in the Energy field.

All who knew him will have been impressed by the enthusiasm, wisdom and knowledge that he brought to RAL. He will be greatly missed but he leaves behind him a great deal more than existed when he arrived and this will provide a lasting memory of a friend and colleague.

Dr K Burrows

Staff will have been saddened to learn of the death of Dr Keith Burrows of Geophysics and Radio Division. Keith Burrows joined the Radio and Space Research Station in 1966, but prior to that time he had led a varied career. After leaving University with a degree in physics, he served in the Royal Air Force as a pilot. On leaving the service he joined an air survey firm and worked with them for some time, including a spell in the Antarctic. He then returned to academic life as a research student at Imperial College, where he worked on magnetometer experiments in rockets. After taking his Ph.D, he moved to the USA and continued his studies of the magnetic field from space vehicles.

Arriving at Slough, he began to build up a group to study magnetic fields in space and also to do optical work on atmospheric phenomena. He was the first in this country to use the image isocon for low light level measurements and had other novel ideas for optical devices. He made valuable contributions to the study of ionospheric magnetic fields in storms, in the equatorial electrogit and in sporadic E.

In recent years, he worked on several problems in optical and infra-red transmissions as affected by atmospheric constituents, in studies of optical scatter by water-vapour complexes and set up a tunable infra-red radiometer for measurements of atmospheric ozone. He was planning some further work using laser transmissions to study atmospheric absorption.

Keith's friends and colleagues at both sites of the Laboratory were shocked to hear of his premature death, and we extend deepest sympathies to his family in their loss.

Missing

Would anyone knowing the whereabouts of a Morphy Richards convector heater, SRC 14/1364 (R00602) please contact the SNS Admin Office, Building R2.

Wanted

Operation manual for CTI Model 1020 Cryodyne Refrigerator.

If you have an unwanted copy lying around please contact Len Denton R66, Ext. 6611.

Training

Information for Designers 1981. The 1981 Conference and Mini-exhibition for designers organised by the University of Southampton Design Group will be held on 15-17 July 1981.

The conference is devoted to information services relevant to design and methods of communicating technical information.

For further information please contact Training Section, R20, Ext. 266.

Film Badge Notice

It is PERIOD 7 Colour Strip RED.

Please check that you are wearing the correct film badge and that all old ones are returned.

NEXT FILM CHANGE
Monday 13 July.

Trade Exhibition

Flightspares (Terminal Division) Ltd, will be holding a one day exhibition at Cockcroft Hall on Thursday 18 June from 0930-1530 hrs. On show will be a range of AMP-AMPLIVERSAL terminals, connectors, solderless wiring devices, cable binding equipment and tooling.

Abstridwr *(cont'd from p.1)*

taken into account when comparing the test and control houses. It is clear from the results so far that higher standards of insulation have reduced the space heating requirements by half. This is so, even if the occupants 'drive' their houses badly. The boilers chosen seem to be more efficient than most experts forecast even when operating on very light loads.

One spin-off of the work could be the development in collaboration with a flow-meter firm, of a heat meter which could make measuring of heat used in district heating schemes more accurate and reliable.

We thank Dr Bill Smith for the information contained in this article

Science Festival Weekend

At Harwell Church
Saturday 20 1000-1800 hrs
Sunday 21 1200-1800 hrs
Monday 22 For Schools

RAL will be taking part in this exhibition of the work of all local Research Establishments.

RAL Report 1980

The Annual Report for the calendar year 1980 is now available. Copies may be obtained from the Main Library.

Death Benefit Scheme

The Committee has requested me to bring the above scheme to the attention of all staff. It only costs 60p to join and because the finances are in a healthy state, subscriptions are currently suspended, but could be reintroduced at the discretion of the Management Committee, and would be 10p per month or 2p per week.

At our last meeting, the present level of benefit was raised from £75.00 to £100.00, payable to your nominee without fuss or formality.

An application form will be made available for your completion if you are interested in supporting the scheme and can be obtained from myself.

Sylvia Fones
Personnel Group
Room 64, R20

Short-term visitors to CERN

The UK liaison office at CERN frequently receives requests to pass messages to short term visitor to CERN. However, in some cases the office does not have information as to where visitors can be contacted.

As it is possible that a message could be of extreme urgency, all short term visitors are advised to ensure that either their home establishments, or the liaison office, is given information on how they can be located (for example, appropriate telephone numbers or people to contact).

Windsor S Spinks
Vice Chairman
Royal British Legion


35775

The next twelve months are going to be be very eventful and busy ones for Windsor Spinks of the Energy Research Support Unit (ERSU). In its Diamond Jubilee year the Royal British Legion has elected him National Vice-Chairman.

'Win' is the second member of his family to hold such a position in the Legion, following in the footsteps of his uncle Major J T Spinks a past National Chairman, a record equalled in Legion circles only by the Haigs.

Born in Cardiff 57 years ago, 'Win' read Mining Engineering at the University of South Wales and Monmouthshire. He volunteered for the RAF in 1942 and served until 1946 on flying duties and as an Educational and Vocational Guidance Instructor. On demobilisation he took a Social Studies Diploma (Youth and Community Service) at King's College, Durham, and youth work has been central to his life ever since. His initiation into practical service work was as a Case Worker in the Newcastle area. As a result of cuts in Community Service in the early '50s he reverted to his science career and joined AERE Harwell. From thence he joined NIRNS in 1961 and worked on the PLA, in nuclear emulsions, managed the Bubble Chamber Film Processing Unit, set up the Photographic Section and worked in Cancer Research projects before joining ERSU. It was during his period in the PLA group that he published a book on Vacuum Technology which is still regarded as a good basic introduction to the 'art'.

In 1945 'Win' joined the Hagbourne & District Branch of the British Legion, was branch secretary from 1950/60, President of the Didcot & District Amalgamation 1964/80, Vice-President Vale of White Horse Group 1963/81, Berkshire County President 1975 to date, South Eastern Area Chairman 1972/1975, and has served in posts and on committees too numerous to list here. Reading his Record of Service one can only wonder how he managed to get so much into a mere 36 years.

Asked which facet of his years of service to the community has given him most satisfaction, he will cite his involvement in youth projects. He speaks with obvious pleasure of the snowballing of involvement of many more branches, in encouraging young people to participate in community service.

His activities and interests, apart from his Legion Service have been diverse, and have included involvement in many aspects of village community life. A basic interest in people led at one time to his involvement in politics as an active Constituency member and delegate and he has also been involved in Union matters being at one time Staff Side Secretary of the Rutherford Laboratory whilst holding offices in the IPCS.

His wife, Bridie also has a strong record of service to the Legion. 'Service Not Self' the Legion motto, appears to be also that of the family.

We congratulate 'Win' on his election, and wish him and his wife a successful and fulfilling year in office - a year we are sure they will always remember with pride.

GEC's New Baby Safely Delivered

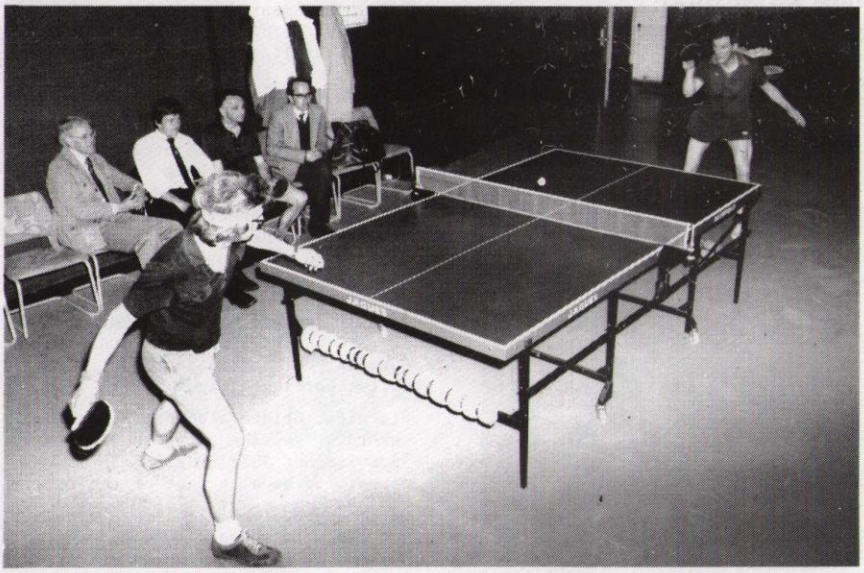
A 1.5 Mbyte GEC 4090 computer was installed in the Computing Division on Monday 7th May. This machine is the first of GEC's new 32 bit mini computers to be installed in the country and is, in fact, a preproduction model. As engineers and scientists have become more aware of the potential of interactive machines, their demands have become greater. This machine will play an important part in meeting this need which has until now been dominated by American manufacturers. A series of tests and benchmarks are planned to find out just what it is capable of.

The machine is upward compatible from the other GEC 4000 series machines and runs the tried and trusted OS4000 operating system which runs on all the ICF GEC minis. The machine gets its added power from a faster processor, a 16 Kbyte cash memory and a 32 bit highway to the store. In addition new instructions have been added to get over the restricted addressing range which was a problem on large FORTRAN programs. Currently the machine is running identical software to that on the other GEC machine but software to exploit the new instruction will be delivered very soon. On account of the added power the machine has 1.6 Mbytes of store which is comparable to the large PRIME 750, and VAXs. The machine is, of course, connected to the SERC network to allow benchmarks to be transferred from distant parts of the empire with ease.

The machine was installed and commissioned in two days which must be good for a prototype machine. Thanks to the GEC engineers and all who helped with the antenatal and delivery.

We thank Dr Paul Bryant for this encouraging news.

Table Tennis



The RLTTC has made good progress this year mainly due to having a good table tennis room which was available at lunchtimes. The total membership is now around 50 members, 11 of these are Evening League Players. It is hoped that the Evening League part of the club will expand a little next season.

The new REC. SOC. premises in Building R58 were made available to members in April 1980. The Club was given the full use of the Games Room, this has proved to be a very useful room for one table. It is excellent for League matches. Two floodlights have been fitted over the table.

Evening League

The table tennis season draws to a close with our three teams in the Didcot and District League all doing moderately well. The 'A' team finished in 9th position out of 12 in the First Division. This may not sound very good but this was the third time the team had played in the 1st Division and the first time we have avoided immediate relegation!

The 'B' and 'C' teams finished 7th and 6th in the 2nd and 3rd divisions respectively. Actual results were:-

	P	W	D	L	F	A	Pts	Pos^{n}
RL 'A'	22	7	3	12	101	119	17	9
RL 'B'	22	8	4	10	104	116	20	7
RL 'C'	22	10	2	10	116	104	22	6

Best individual performances were recorded by John Varley for the 'A' team with 36 matches won out of 66; Bob Hopgood with 29 out of 54 for the 'B' team and Harry Jarvis with 34 out of 51 for the 'C' team.

Our players also features among the awards in the recent Didcot Closed Championships. John Varley won the Veterans Handicap Singles and Peter Horton won the merit award for the best performance by a non-first division player. Peter's achievement was in the Men's Singles in which he won his group round, beating a first division player in the process, and narrowly lost to another first division player in the next round.

Lunchtime Play

This is a very popular part of the Club. Many of our members come over to have a few games of table tennis whilst other players might just practice stroke play. It is always in use every weekday lunchtime. Sometimes we do put a second table up so that players do not have to wait too long. Lunchtime competitions have not been set up yet because there is only room enough for one table. Lunchtime play will continue during the Summer in R58 and we would be pleased to see any new players, particularly those moving to the site from Ditton Park.

The club A.G.M. will be held on June 30th at 12.30 in the Games Room in R58 so could all club members new or old please make very effort to attend. Thank you.

Brian Wyborn
Hon. Secretary RLTTC
Building R25, Ext. 447

Art & Crafts Exhibition

A REMINDER FOR YOUR DIARY

The exhibition of work by members of the Rutherford & Appleton Laboratories will be held in the R12 Conference Room from 12 noon - 2 pm on the following dates:-

Tuesday 30 June
Wednesday 1 July (also evening 5.15 pm - 8 pm)
Thursday 2 July

Committee:
Jenny Coates Ext 430
Myra Gilbert Ext 6143
Jan Aird Ext 349
Daphne Barrand Ext 6172
Joan Juggins Ext 6206
Elaine Wright Ext 6280

DISCO

in the

R22 Coffee Lounge

Wednesday 24 June
7.30 to Midnight

Dancing to the '*MODERN MOOD*'

Tickets £2 including
Supper of Chicken and Chips

Contact Peter Craske Ext.232
Tudor Morgan Ext.563

Come one, come all, and make the event a success.

Christian Fellowship

All members of staff and visitors are welcome to attend any of the meetings of the Fellowship. We meet on Thursdays at 12.30 pm for a time of Bible Study discussion or prayer in the conference room, top floor of building R2.

Suggestions Awards

Congratulations to all whose suggestions were approved (and rewarded) at the April meeting of the Local Suggestions Award Committee.

Mr J Akhurst	EBW	£5
Mr R G Jones	"	£5
		£5
Mr T Morgan	"	£10
Mr P J Champ	SNS	£15
		£5
Mr H Kidd	"	£50
Mr J R Pattinson	"	£5
Mr C Adair	Tech	£20
		£20
		£50
		£100

Bulletin

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Deadline for insertions: Mon 22 June

EXTERNAL Events

THEORY GROUP SEMINARS
DARESBURY - 1400 hrs

22 June Dr L Pendrill/Oxford
'Parity Non-Conservation in Atomic Bismuth'

29 June Dr C W Clark/Daresbury
'Diffraction by a Potential Ridge'.

NPD COLLOQUIUM
CONF. ROOM H8 - HARWELL - 1530 hrs

18 June Prof W R Phillips/Manchester
'The Experimental Programme for the NSF'

THEO. PHYS. SEMINARS
T.P. LECT. TH. 424.4 HARWELL-1400 hrs

2 June Dr J M Irvine/Manchester
'Nuclear Reactors and Fundamental Coupling Constants of Nature'

THEO. PHYS. SEMINARS
CLARENDON LAB - OXFORD - 1615 hrs

18 June Prof K W McVoy/Groningen & Wisconsin
'Coincidence Method for Comparing Atomic and Nuclear Lifetimes'

ELEM. PART PHYS. SEMINARS
N.P.L. - OXFORD - 1430 hrs

18 June Prof M Koshiba/Tokyo
'Search for Monopoles, Quarks and Nucleon Decays in the University of Tokyo'.

25 June Dr R M Brown/RAL
'Recent Results from the CERN Hyperon Beam'.

26 June Prof T Kinoshita/CERN & Cornell
'Very High Precision Tests of Quantum Electrodynamics'.

PHYSICS COLLOQUIA
HH WILLS LAB - BRISTOL - 1700 hrs

22 June Prof S Chandrasekhar/Raman Res. Inst.
'Liquid Crystals'.

PART PHYS DISC. GP. MEETINGS
BIRMINGHAM - 1615 hrs

19 June Dr P F Smith/RAL
'Are There New Heavy Particles in Matter?'

26 June Dr H M Chan/RAL
'Topology, Monopoles and Quarks'.

HEP SEMINARS
MANCHESTER - 1430 hrs

17 July Dr F Loebinger & Dr R Barlow
'Report of Lisbon Conference'