

# HARWELL bulletin

No. 75/15

2 May 1975



## STATUS — goes to town

On 28 and 29 April the Law Society's Gazette held an exhibition in their Reading Hall in Chancery Lane on 'Word Processing and the Law'. This was the first of three Law Society's Gazette exhibitions, of which the others will cover Accounting and Copying/Microfilming. STATUS, the information retrieval system developed in Computer Science and Systems Division at HARWELL, attracted much interest at the exhibition and was, in fact, the only text retrieval program being demonstrated. The photograph (left) shows CSSD staff: from the right John Lauder, Janet Earey and Norman Price who is talking with a solicitor. Lawyers from private as well as commercial practice watched the system in operation, with the terminal linked to the Post Office National Data Processing Centre's computer at Harmondsworth.

STATUS is relevant not only to legal work: it is being used in a wide range of information processing systems. Work is also in progress for the application of the system at HARWELL for the Hazardous Materials Service and the Sales Secretariat.

## ALBRIGHT AND WILSON LTD. — annual research conference at HARWELL

Albright & Wilson Ltd. selected HARWELL as the venue for their Annual Conference of senior research staff this year; the theme of the conference was 'automatic analysis'. The Company is one of Britain's leading chemical manufacturers and was one of the first subscribers to the Separation Processes Service of Chemical Engineering Division/Warren Spring Laboratory.

On 23 April about 25 members of the Company's staff from various departments in the United Kingdom and Canada arrived at HARWELL and were given an introductory talk by Dr. R.K. Webster (M & S Dept.). This was followed by a 'teach-in' arranged by Dr. T.B. Pierce (Applied Chemistry Division) at which different methods of automation were presented ranging from simple logic units and microprocessors to time-shared computer systems. During the afternoon visits were made to Chemistry, Materials Development and Environmental & Medical Sciences Divisions to see how systems can be used to support research projects. These were: Molecular spectroscopy - A.M. Deane;  $\gamma$ -ray spectroscopy in environmental studies - L. Salmon and Solid state instruments - B.W. Mott. During the visit they saw in operation seven different types of computers.

## NUCLEAR POWER COMPANY — five more directors

The Board of the Nuclear Power Company was completed on 24 April with the naming of five further directors. A statement by Lord Aldington, chairman of the National Nuclear Corporation, named Mr. Ron Campbell and Mr. Bill Wadkin as assistant managing directors, and Mr. W.A. Wicks as finance director and company secretary.

The other Board members will be Mr. P.T. Fletcher (recently elected president of the Institution of Mechanical Engineers) and Dr. Tom Marsham, deputy managing director of the AEA's Reactor Group.

Dr. Norman Franklin, chief executive of British Nuclear Fuels, has been appointed chairman and chief executive of the Nuclear Power Company (from May 1) with Mr. J.C.C. Stewart as deputy chairman. (Financial Times, 25 April)

## ORNL — change of name

Oak Ridge National Laboratory, Tennessee has been renamed The Holifield National Laboratory by approval of the U.S. Senate. Congressman Chet. Holifield, who recently retired from Congress after many years' service, played an active role on the Joint Committee on Atomic Energy.

### SEPARATION — of uranium isotopes

For 25 years the only practical way of separating the isotopes of uranium, whether for weapons or for power reactor fuel, was by the tedious, expensive and power-hungry process of gaseous diffusion of hexafluoride ('hex') vapour. In the mid-60s centrifugal separation looked like becoming feasible technically as well as desirable economically, and is now well on the way to being introduced on a commercial scale in western Europe. Two further methods are now being considered seriously and are both the subject of current newspaper reports.

**laser separation** is being developed in the United States and in the USSR independently. 'Hex' vapour is subjected to light-rays from a very finely tuned laser beam, which excites the orbital electrons of the lighter uranium-235 atoms but not those of the heavier uranium-238. As a result, the former alone will react chemically when treated with a suitable reagent, thus allowing ready separation by chemical means from the 'hex' containing the unexcited uranium-238. (Guardian, 25 April)

**aerodynamic separation**, in which the gaseous 'hex' is forced through specially shaped orifices, has long been considered as a possible alternative to gaseous diffusion. The South African government has now confirmed that the process which they propose to use in the new separation plant which they plan to build will be of this nature. They claim that it will be 'perhaps the least exacting of the enrichment processes so far developed'. (Financial Times, 23 April)

The significance of these new and relatively cheap separation processes is that they can, in theory at least, provide less highly industrialised countries with their own supplies of enriched uranium, and therefore with the material for nuclear power stations and possibly for nuclear weapons also.

### RESEARCH ORGANISATIONS — join ranks

The formation has been announced of AICRO - The Association of Independent Contract Research Organisations. The seven founder members are Electrical Research Association, Fulmer Research Institute, Huntingdon Research Centre, International Research and Development, Inveresk Research International, Ricardo Consulting Engineers, and Robertson Research International.

No commercial links are being forged between the bodies, which will remain basically independent of each other and also of Government or specific industries. The main object of the organisation is to make a bigger impact in contract research tendering than could be made by any of the members on its own. The move has been prompted to some extent by the increasingly multi-discipline nature of much modern research, states the Association.

The intention is to encourage completely open tendering in all forms of contract research, and also to create a presence in Brussels and Washington in order to obtain better access to research contracts originating there. (Financial Times, 28 April)

### INTERNATIONAL COOPERATION — in action

The following paragraph appeared in 'The Guardian' on 23 April:

"Approval was given at the weekend in **Washington** for an export licence for 1.1 million pounds of natural uranium. The shipment will be by sea, according to officials in **Brussels** - first to **Britain** for conversion and then to the **Soviet Union** so it can be enriched for use in **West German** power plants."

### FOR YOUR DIARY — scientific meetings

'**Defects and their structure in non-metallic solids**' (organised by the International Advanced Study Institute) from 25 August-6 September 1975 at the University of Exeter. Lectures will be given by international experts in four main areas

- Basic features including experimental techniques
- Point defects and simple aggregates
- Defects in low symmetry environments
- X-ray methods and electron microscopy.

'**Excitation of surfaces and adsorbed molecules**' (organised by the Neutron Scattering Group of the Inst. of Physics and the Faraday Division of the Chemical Society) on 7 & 8 July at St. John's College and the Maison Française, Oxford. Invited speakers include Prof. L. Genzel (Stuttgart), Dr. J. Kjems (Risø), Dr. J. Pritchard (London), Dr. P.H. Gamlen (Oxford) and Dr. C.J. Wright (Harwell). Short contributed papers for discussion sessions are invited.

Dr. A.E. Hughes, Materials Development Division, will be pleased to supply additional information on both meetings.

### SRC ATLAS — Symposium no. 7

A symposium 'The computational future of IMAGE PROCESSING, 2-D and other related topics' will be held at the Atlas Computer Laboratory on 12 June 1975, starting at 10.30 a.m. Speakers will include Dr. M. Ackroyd (EMI), Dr. K.G. Beauchamp (Lancaster), Prof. V. Cappellini (Florence), and Dr. P. Rayner (Cambridge) as well as members of Atlas Laboratory staff.

Further details and registration forms can be obtained from Mrs. M. Sherwen of the Atlas Laboratory.

### 'SAVE-IT' CAMPAIGN — 57 varieties

The Government's campaign to save energy entered its second phase on 24 April with the publication of 57 varieties of hints on how to economise. Interest rates on Government loans for energy saving projects is being reduced by 2 per cent to 11½ per cent.

Lord Cudlipp is to join the Government's advisory group on the energy campaign. The Department of Energy itself is doing its saving bit. One senior civil servant at the department is making his personal contribution by regularly wearing long underpants. (The Guardian, 25 April)

### OPEN DAYS — at NPL, TRRL and WSL

HARWELL has received invitations for members of its staff to attend Open Days on the following dates:

National Physical Laboratory	Tues.	20 May 12.00 to 17.00
	Wed.	21 May 10.00 to 17.00
	Thurs.	22 May 10.00 to 17.00
Transport and Road Research Laboratory	Wed.	11 June - Fri. 13 June 9.30 to 16.30 daily
	Tues.	17 June - Fri. 20 June 10.00 to 17.00 daily

If it is relevant to your work for you to attend any of these events (and you have not already received an invitation direct) please complete the proforma on page 3 and send to Dr. F.J. Stubbs, Bldg. 329. The proforma requires a Group Leader's counter-signature. (Extra copies on request to Ext. 2424).

**DIARY OF EVENTS**

1975

Theoretical Physics Division Seminar (postponed from 29.4.75)	Dr. N. Louat	'The theory of grain growth'	Tuesday 6 May at 2.00 p.m. Conf. Room, Bldg. 8.9.
Chemistry Division Colloquium	Mrs. K.M. Glover	'Actinide nuclear data measurements'	Wednesday 7 May at 9.00 a.m. Large Conf. Room, Bldg. 220.24.
Metallurgy Division Deformation and Fracture Seminar	Dr. E.D. Hondros (N.P.L.)	'Grain boundary segregation and fracture'	Thursday 8 May at 9.30 a.m. Large Conf. Room, Bldg. 351.15.
Materials Physics Division Seminar	Dr. C.G. Windsor	'New uses for new linacs'	Thursday 8 May at 11.00 a.m. Conf. Room, Bldg. 521.
Nuclear Physics Division Colloquium	Mr. K. Kandiah	'Recent advances in nuclear counting techniques'	Thursday 8 May at 3.30 p.m. Conf. Room, Bldg. 8.

**EVENTS AT RUTHERFORD LABORATORY**

Nimrod Lectures	Prof. K. Berkelman (Cornell/DESY)	'Latest $\psi$ results from DORIS'	Monday 5 May at 11.30 a.m. Lecture Theatre, R22.
	Prof. C. Michael (Liverpool)	'Resonance production at high energies'	Monday 12 May at 11.30 a.m. Lecture Theatre, R22.
Rutherford Laboratory Lecture	Prof. D.C. Phillips, F.R.S. (Oxford)	'Macromolecular architecture'	Thursday 8 May at 3.15 p.m. Rutherford Laboratory Lecture Theatre.

continued overleaf

To: Dr. F.J. Stubbs  
PR Group  
Building 329

From: Name ..... Grade .....

Division .....

Building .....

I would like to attend the OPEN DAYS as indicated below (tick appropriate date)

NPL	TRRL	WSL
Tues 20 May .....	Wed 11 June .....	Tues 17 June .....
Wed 21 May .....	Thur 12 June .....	Wed 18 June .....
Thur 22 May .....	Fri 13 June .....	Thur 19 June .....
		Fri 20 June .....

I support the above application

Signed ..... Group ..... Date .....

**DIARY OF EVENTS (cont'd)**

1975

**OUTSIDE EVENTS**

Oxford Metallurgical  
Society, A.G.M. and  
**LECTURE**

S.F. Pugh

'Nuclear metallurgy today'

Tuesday 6 May  
at 7.15 p.m.  
Dept. of Nuclear Physics,  
Banbury Road, Oxford.

Visitors welcome

Oxford Univ.  
Colloquium

Dr. H.M. Rosenberg  
(Clarendon Lab.)

'Composite materials - some technology  
and some physics'

Friday 9 May  
at 4.15 p.m.  
Lindemann Lecture Theatre,  
Clarendon Laboratory,  
Parks Road, Oxford.

Oxford Dept. of  
Engineering Science,  
Mechanics Colloquium

Dr. E. Igenbergs  
(Univ. of Munich)

'Hypervelocity accelerators and impact  
simulators'

Friday 9 May  
at 2.15 p.m.  
Lecture Room 1,  
Engineering Laboratory,  
Parks Road, Oxford.

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