

## Haven't We Seen These Before Somewhere ?

There has been considerable recent publicity in the press and on television of the re-use of ex-Nimrod equipment. In this issue, we thank Harold Wroe for news of some large pieces which are to be used in an instrument for neutron scattering research.

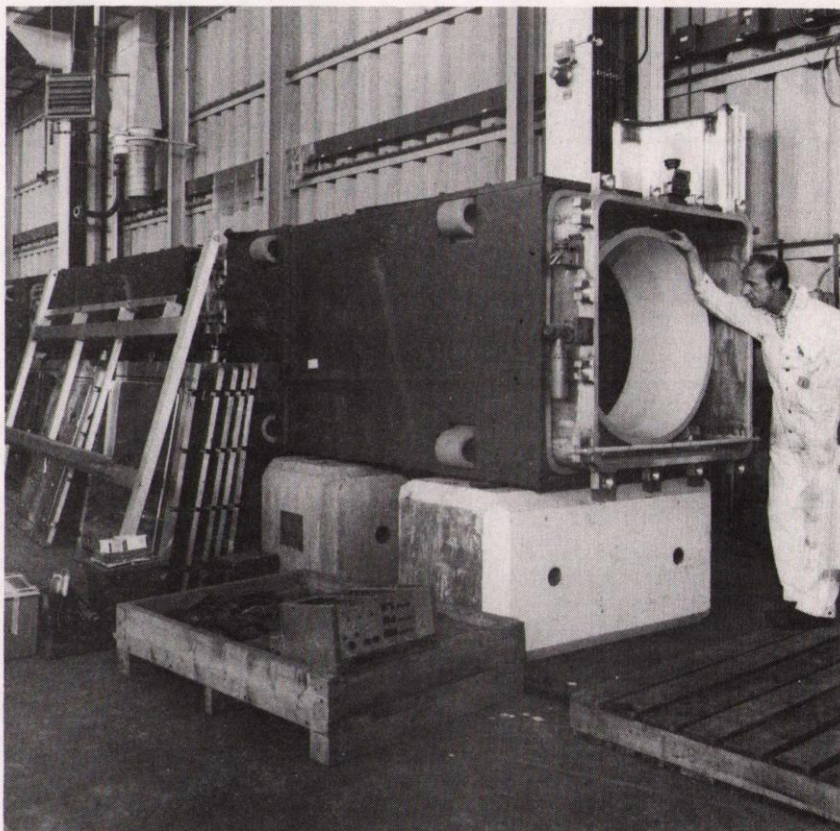
The large vacuum tank in the photograph may look vaguely familiar to veteran Nimrod persons. It is made up of old electrostatic separator tanks bolted together with their original fittings, but with their innards removed. The idea is to use it to house a novel detector for one of the new neutron scattering instruments for the Spallation Neutron Source (SNS) which uses the small angle scattering technique for work in biology, metallurgy, polymer science, magnetism and solid state physics.

### The Vacuum Tanks

A sample Chamber will be mounted on one end with a large gate valve between it and the detector tank so that the sample chamber can be let up to air and pumped down again quickly, while the detector tank remains under vacuum. The vacuum is only needed to reduce the scattering of the slow neutrons by the air. It is proposed to use four 24" diffusion pumps (ex-Nimrod again) to evacuate the main tank. The whole assembly is being mounted on a railway so that the distance between sample and the SNS moderator can be varied.

### New Detector System

On another railway inside the vacuum tank the detector itself can be moved about. This new detector system, developed in the Neutron Beam Research Unit, uses neutron scintillators coupled to a bank of photomultiplier tubes with flexible fibre optics. By using a special coding technique many scintillator elements can be "read" by comparatively few photomultipliers.



Full use has been made of the resulting design flexibility. The detector is in five separate parts - a circular detector 75cms diameter divided into 51 segmented rings known as the 'cobweb', and four separate detectors of 2 rings each. The first detectors are on separate railway carriages and can be placed in any position along the 20m long vacuum tank, thus covering a large range of neutron scattering angles - a unique feature.

### Design Details

Plywood mock-ups of these detectors have been built to determine, amongst other things, the best way

to provide internal shielding against stray neutrons. One feature of this will almost certainly be two coats of gadolinium oxide loaded paint on the inside walls of the vacuum tank. The models will also be used to decide the best arrangement for the photomultiplier and fibre optic coding.

This is a good example of the use of ex-Nimrod equipment, enabling cost savings to be made on a new project. Mind you, it would have been better if the separator tanks had been just a bit wider ---- and maybe a bit longer ---- and with not quite so many holes ----.



# INTERNAL Events

## NIMROD LECTURE SERIES LECTURE THEATRE - 1130 hrs

- 2 July: A Sanda/Rockefeller  
"Determination of Quark  
Charges and Fits to  $F^3$   
Moments using Improved  
 $\alpha_s(q^2)$ ."  
9 July: Prof G Belletini/Pisa  
"The Physics Case for the  
Haseati Intersecting Rings."

## HEP SEMINARS R61 CONFERENCE RM. - 1100 hrs

- 4 July: T Hagiwara/RL  
"Improved  $\alpha_s(q^2)$ ,  
determination of Quark  
Charge:  $\Sigma e^2$  and revisit to  
QCD Moments."

## COMPUTING SEMINARS R27 COLLOQUIUM - 1400 hrs

- 3 July: Dr M Richards/Cambridge  
"The Tripos Operating  
System."  
17 July: Dr B R Martin/Appleton Lab.  
"Infra-Red Astronomy  
Satellite - Control Centre  
and the Preliminary  
Scientific Data Analysis."

# EXTERNAL Events

## PART. PHYS. DISC. GP BIRMINGHAM - 1615 hrs

- 13 July: Dr G T Jones & Dr F Votruba/  
Birmingham.  
"Report on the Bergen  
Conference."  
27 July: Dr I Bloodworth &  
Dr S W O'Neale/Birmingham.  
"Report on EPS Meeting at  
CERN."

## THEO. ELEM. PART. PHYS. SEMINAR NPD OXFORD - 1430 hrs

- 6 July: Prof S Fubini/CERN  
"Classical Solutions of  
Gauge Theories."

## THEORY GP. SEMINARS DARESBURY - 1400 hrs

- 2 July: Dr M J Stott/Queen's  
Ontario.  
"Some Universal Features  
of Atoms in Solids."  
5 July: Dr T N Rescigno/Lawrence  
Livermore Lab.  
"Separable Potential  
Methods for Electron  
Molecule Scattering."

## THEO. PHYS. SEMINARS CONF. RM. T.P.D. HARWELL - 1400 hrs

- 3 July: Film introduced by  
Dr J R Matthews.  
"The CABRI Experiments."

## NUCLEAR THEORY WORKSHOP. DARESBURY - MAIN LECTURE THEATRE.

- 3 July: An informal theory  
workshop on nuclear theory  
work at Daresbury.  
0930hrs Short presentations by:-  
A Ioannides, M Irvine,  
I Johnstone, R Mackintosh,  
M Nagarajan & M Strayer.  
1400hrs Talk by J McGrory/Oak Ridge  
followed by discussion.

## Please Collect

About July last year someone in the Laboratory ordered a publication entitled "L'INFORMATION DE LA SOCIETE" from a firm called La Documentation Francais Paris. The books were received by Stores, R25 in August 1978 but despite their efforts, they have been unable to trace the origin of the order. The books are now with the Library, who have also tried, so far without success, to find the owner by contacting the firm. If anyone is still waiting hopefully for these books please contact Joan Homer in the Library, Ext 6163, who will be delighted to have the mystery solved.

## Restaurant News

Due to the increase in VAT on 18 June 1979, the prices of confectionery and cigarettes have risen. Unfortunately this will mean changes in confectionery vending - the Kit Kat biscuits sold from the Machine will be smaller and still cost 10p.

For the time being, until the coin mechanism is altered, Mars Bars will not be sold from machines.

The Cigarette machine at the Security Gate is broken, and the one by the Shop in the Restaurant will only be able to dispense cigarettes from two columns because of limitations on the coin mechanism.

## Rutherford Wives

DO COME ALONG to the final COFFEE MORNING before the Summer break. Join us for a coffee or a glass of orange juice between 10.30 and noon at the Cosener's House, in Abingdon on:

Wednesday 11th July

If you wish to plan ahead, the future dates for Coffee Mornings are:

Friday 7th September  
Wednesday 10th October  
Thursday 1st November  
Tuesday 4th December

For further information please contact Gillian Litt (Abingdon 26009) or Dorothy Gibson (Abingdon 25250).



## Rutherford Laboratory Exhibits at Science Festival

Children from Harwell and Chilton Primary schools went to St Matthew's Church for a special viewing of the Harwell Science Festival Exhibition on Monday 18 June.

The Exhibition, the second of what has become an annual event, was mounted in the Church on 16-17 June, by representatives of all the scientific establishments in the neighbourhood. The Rutherford Laboratory's display illustrated developments in the field of medical diagnosis and treatment, utilising the "spin-off" techniques discovered as a result of pure science research.

The exhibit described an X-ray detector and results on the use of pions for radio therapy.

Brain-child of the Rector of Harwell with Chilton the Festival seems to have been well received as an opportunity for the local community to find out what went on in the various local centres.

The Rector has kindly written thanking the Laboratory for taking part in the Festival - something we were delighted to be able to do.



Doug Reading explaining the Laboratory's exhibit to an attentive audience (almost) of children from Harwell school.

### Christian Fellowship

The Fellowship meets in the R2 Conference Room at 12.30 pm each Thursday.

- 5 July: Tim Packer will be leading the monthly prayer meeting. All are welcome to join for a time of praise worship and intercession.
- 12 July: Gareth Williams, a temporary student at the Laboratory, has recently spent a year in London before going to University. He has been working with the London City Mission, in the Vauxhall and Elephant & Castle districts amongst 'down & outs', folk living in high-rise flats and young people. His aim was to bring the Christian gospel to these people. Why not join him as he tells of the results of this endeavour.

### Library Notice

#### MISSING FROM LIBRARY

The books listed below have been "removed" from the new book display shelf. They already had waiting lists, and the people on those lists would very much appreciate their quick return!

1. BURTON/DEXTER - "Microprocessor Systems Handbook"
2. TIETZE/SCHENK - "Advanced Electronic Circuits"

#### COMPUTING COLLECTION

The greater part of the Library collection on computing and many useful maths books are housed in the Branch Library R27. As this is locked in Silent hours, the Security Warden on duty in R27 will open the door for Staff. Alternatively a card key for the Library door may be obtained from the Police Lodge.

### OVERSEAS Visits

R J Gray to CERN from 2-23 July to install WA42 beam chambers.

K Green to ILL from 2-6 July to work on the EDM expt.

M J Hodges to Amsterdam from 2-6 July to attend 'Tektronix' Course.

L Phillips and R Blatchford to CERN from 2-6 July to dismantle Expt. WA11.

W M Evans to CERN from 3-10 July to work on R807.

C J Adams to CERN and Graz from 5-16 July to attend STELLA meeting and work on STELLA.

A Astbury to CERN from 8-11 July to attend collaboration meeting.

B T Payne and J A Blisset to DESY from 8-14 July to work on TASSO expt.

F M Russell to Los Alamos from 8-16 July to attend 'workshop.'

D J Nicholas to Grenoble from 8-18 July to attend Conference.

L C W Hobbs to Paris from 11-12 July to attend ILL Steering Committee meeting.

C J S Damerell to CERN from 13-20 July to work on NA11.

G H Rees to USA from 15-28 July to attend BNL workshop on 'Beam current limitations in Storage Rings.'



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## Table Tennis

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The AGM of the Rutherford Laboratory Table Tennis Club was held on 12 June, the main item on the agenda being the loss of R15 and possible plans for the future.

As yet, no date has been given for the re-erection of R15, and there is a strong possibility that it will not be done before the start of the next season. We are therefore looking for temporary accommodation.

There are two distinct requirements. Lunchtime players need only somewhere to put up a table or two, and their requirements for lighting and space are not demanding. Evening players require far better facilities for official league play where the rules demand minimum standards. The Committee was urgently requested to try to satisfy the needs of both groups as soon as possible.

If any readers know of suitable areas that might be used, please get in touch with Eric Thomas R27 Ext 6219.

News of Club achievements is brighter. John Varley won the Didcot and District Table Tennis Association 3rd Division individual championship, and Bryan Wyborn did the same in the 5th Division. Congratulations to them both. The 'B' team were runners up in Division 3, and the 'D' team won Division 5. We also, have two teams taking part in the AERE lunchtime competition (with more enjoyment than success).

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## Lost & Found

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On Wednesday 13 June between 1200 and 1230 hrs an umbrella - a large black one - was mistakenly taken from the Restaurant. Could the person concerned please contact D Rowley Ext. 406 in order to exchange.

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## Opening Ceremony

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Mrs Shirley Williams will officially open the Electron Beam Lithography Facility in the afternoon of Monday 16 July.

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## Golf

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### RL Win Golf Tourney!

The Rutherford Laboratory 'A' team easily won the 1979 SRC Golf Tournament over 36 holes at Wrexham Golf Course on Friday 15 June. Daresbury Laboratory were our hosts this year and organised another good competition. The weather was sunny with some clouds, but with an extremely high wind which made accurate golfing difficult. We must congratulate our 'A' team for their win in such conditions.

The team consisted of Jim Valentine (Captain), John Connolly, Doug House, Geoff Manning, Peter Gregory and Norman Beadle. Congratulations are also due to our 'B' team who golfed their way into second place in the competition.

The SRC Golf Tourney is a 36 hole medal event and open to teams from all SRC Establishments. This year the RL teams were competing with Daresbury Laboratory, Royal Greenwich Observatory, Royal Observatory Edinburgh, Appleton Laboratory and Swindon Office. The 'Host' Laboratory for the Tourney next year will be RGO.

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## Art & Craft Exhibition

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### A REMINDER FOR YOUR DIARY

The exhibition of work by members of the Rutherford Laboratory will take place in the R12 Conference Room from 1200-1400 hrs on the following dates:-

Tuesday 3 July  
Wednesday 4 July  
Thursday 5 July

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## Sales to Employees

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Sales of scrap metal/plastics as set out in RLN 12/73 will be made on 13 and 17 July at the scrap compound, rear of R40 from 1200-1230 hrs.

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## Fog-Index

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Here's an interesting little game to play with piles of papers that land on your desk, when you're tired of trying to understand them.

Take a sample 200 words.

1. Find the average number of words per sentence.
2. Find the average number of words with 3 or more syllables per 100 words.

Ignore:-

"combination words" eg. nevertheless.

verbs which end in - ed or - es.

choose 3 technical words or phrases e.g. Electron beam lithography, microprocessor, and delete throughout.

3. Add 1. and 2. together.

The score should range between 20 and 40. The lower the "fog-index" the better for readability. Having completed this exercise you will then be in a position to evaluate whether there is any point in continuing your struggle for comprehension.

Fog-Index for this particular passage of deathless prose - 24!

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## Film Badge Notice

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It is period 7, Colour Strip BLUE for beta-gamma films.

Please check that you are wearing the correct badges.

Next Film change - Monday 16 July.

Please note Radiation Protection Group has moved to building R12.

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## Whose Book?

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Will the person in R1 who requested a catalogue from Reliance Gear Co Ltd Huddersfield please contact H Aldred R1. Ext 223.



RUTHERFORD LABORATORY

Deadline for Insertions

# BULLETIN

1000hrs Tuesday, 10 July 1979

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