



## Rutherford Laboratory

#### **General News**

OBITUARY NOTICE We deeply regret to announce the death of Mr F H Weller on Tuesday 27 April at the Churchill Hospital Oxford where he had been since January. He was aged 47. Frank Weller came to the Laboratory from the Department of Physics, Clarendon Laboratory in January 1967. At the time of his last Illness he was working in the RI8 Electronic Development Section. He will be sadly missed by his many friends and colleagues. Our deepest sympathy is extended to

CIVIL SERVICE BENEVOLENT FUND The SRC was admitted to the Fund in April 1969 and all non-industrial staff are eligible for benefits. Miss M Prosser, who is the Fund's Publicity Officer for this area, will be visiting the laboratory to talk generally about the work of the Fund. Dates and times of the talks are listed below and staff may attend at whichever time is most convenient. It is hoped that staff who were unable to hear Miss Prosser's last talks will endeavour to attend.

Tuesday 4 May	11.00 14.00 \$5.00	)	Common Room, Atlas Laboratory Lecture Theatre R22
Tuesday II May	10.15 11.15 14.00	)	Lecture Theatre R22

Any enquiries should be addressed to Mrs S A Fones, Personnel Group, Building R2O, Extension 510.

NATIONAL SAVINGS CERTIFICATES - WEEKLY CYCLE ENDING 30.4.71 Certificates can be collected from the Cash Office, R20 from 3.5.71 onwards. New members wishing to join the scheme can obtain enrolment forms from the Cash Office. Completed forms must be returned not later than 5 May 71.

FILM NOTICE It is Period 5. Colour Strip - PURPLE for  $\beta\gamma$  and fast neutron packs. Please make sure you are wearing the correct dosimeter and that all old ones are returned. Next film change 17 May.

MISSING EQUIPMENT. The following item of equipment has been reported missing from the RI8 Electrical Workshop:-

Paint Spray Gun

Will anyone with information on the present whereabouts of this item please contact Mr J V Lawler, RIS Extension 578. VISITORS About 20 students attending the High Voltage course at AERE will visit the Laboratory on Thursday 6 May.

OVERSEAS VISITS Dr I F Corbett and Dr J Garvey to CERN 2-4 May for discussions on the Omega project.

Mr P P Swan-Taylor to CERN 2-11 May re-assemble and testing spectrometer magnet for ISR experiment.

Dr A Brandstetter to CERN 3-4 May for discussions concerning Λω paper.

Mr P J Baker, Mr H Wroe and Mr E Higgins to Belgium 3-5 May for S2/68 Executive and Steering Committee meetings at the Institut d'Astrophysique, Liege. Mr I H Payne and Mr R McClure to CERN 3-16 May for installation of equipment.

The Director to CERN 4-5 May to attend meeting of Nuclear Physics Research Committee.

Mr W Turner to CERN 5-7 May for optics discussions and optical measurements on fish-eye windows for the BEBC Chamber.

#### Machine Schedules

NIMROD Cycle 5 (27.4.71 - 18.5.71) Machine Physics: High Energy Physics  $(X3/\pi8, X3/K15, X3/\pi11, X2/K12A, X1/K9, K10s,\pi10$  and P71) Full details of Cycle 5 were given in Bulletin No 16/71.

## Internal Events

Mon 3 May 11,30 am Nimrod Lecture Madame M Gaillard Leptonic K Decays Lecture Theatre Series (CERN) Wed 5 May II am HEP Disc Gro John Malos Kp Elastic Differential Cross-Sections Conf Rm, RI (RHFL) Wed 5 May 1.15 pm Thurs 6 May 12.40 pm Film Show "The Partridge Tureen", a 26 minute colour film Lecture Theatre

This film from the Worcester Royal Porcelain Company is impressionistic in treatment. No historical development nor explanation of techniques is shown although shots of the making of fine china and porcelain such as tableware and animal and bird models, are interwoven with sequences of the Worcestershire countryside and its activities.

Fri 7 May II am Conf.Rm, RI2	Seminar in Computing	A J Oxley (RHEL)	Experience with the Rutherford Laboratory HPD's
Mon 10 May 11.30 am Lecture Theatre	Nimrod Lecture Series	Prof M Ferro Luzzi (CERN)	Recent Activity in Baryon Resonances
<b>External Events</b>			
Mon 3 May 4.15 pm Queen Mary Coll, London	Theor. Phys. Seminar	Dr M Marinaro (Naples and QMC)	Different Kinds of Condensation on Boson Systems
Tues 4 May 2.30 pm Nucl Phys Lab Oxford	Nucl Phys Seminar	Dr J Cameron (McMaster Univ Ontario)	Perturbed Angular Correlations in Solids
Wed 5 May 2.30 pm Univ of Manchester	Theor Phys Seminar	Dr P J Siemens (Copenhagen)	Classical Resonances in Heavy Ion Nuclear Reactions
Thurs 6 May 2.30 pm Clarendon Lab Oxford	Theor Phys Seminar	Prof P G Burke (Belfast)	Review of Theoretical Work in Electron- Atom Scattering
Thurs 6 May 3 pm Univ of Cambridge	Joint Theor HEP Seminar	Dr R Brower (CERN & MIT)	.Title to be announced
Thurs 6 May 8.30 pm Nucl Phys Lab Oxford	Seminar in Elemt Part Phys	Prof S Glashov (Marseille on leave from Harvard)	New Model of Weak Interactions
EVENTS AT AERE			The second secon
Tues 4 May 2 pm Lecture Rm Bldg 8.9	Theor Phys Seminar	Dr A M Stoneham (AERE)	On the Quantum Theory of Diffusion
Thurs 6 May 3.30 pm Conf Rm H8	Nucl Phys Collog	Prof J E Draper (Univ of Calif Davis & AERE)	Quasirotational Bands on Soft Nuclei
Capial Maura			

### Social News

RECORD SOCIETY, Tues 4 May at 12.40 pm Lecture Theatre. "Bridge over Troubled Waters", Simon and Garfunkel (in Stereo) Songs in the folk idiom.

CHRISTIAN FELLOWSHIP All welcome to join us for a time of prayer led by Denis Pepler, at 12.30 pm on Fri 7 May Conf Rm, RI2.

AERE PHILATELIC SOCIETY A stamp auction will take place on Wednesday 5 May at 7.30 pm in the Coffee Room of the Recreation Association. Lots will be on view during lunchtime and from 5.30 pm on the day of the auction. Members, their guests and other interested philatelists will be welcomed. Catalogues will shortly be available from members.

SIX-A-SIDE FOOTBALL LEAGUE CUP DO v Atlas, Fri 23 April.

Most of this contest was fought in a downpour but this failed to dampen the enthusiasm of either players or spectators. It turned out to be one of the best games seen for some time. At one period of the first half Atlas were leading by 3 goals to 0 but a penalty awarded to DO just on the interval seemed to give them the will to fight back. Phil Lewis was always the danger man in the DO attack with Dave Lucas a close second. For Atlas Bob Hopgood played a good defensive role along with Gordon Dawson, who it was good to see back again in the Team. Final Result - DO 5 Atlas 6.

Next weeks fixtures (matches played on pitch by RI8). Tuesday 4 May Nimrod v Transport. Wednesday 5 May RI8 v Transport. Matches on Thurs and Fri not finally fixed at time of going to press. Kick-off for all matches - 12.45 pm.

CRICKET Several cricket fixtures have been arranged for this season. A Lab team has been entered in Div II of the AERE Evening League and some weekend matches have also been arranged. The first match against Peasemore CC on Sunday 16 May followed by a Div II game against Atlas on Wed 19 May. Any cricketers prepared to be considered for these games would be welcome. Please contact J Rice, Extension 232.





# Rutherford Laboratory BILLIAN CONTROL CONTROL

### **General News**

ERNIE WERNHAM RETIRES - Building R58 is a small brick structure at the end of the R2O Car Park. It is known to most people as the place from which the photographers sally forth armed with cameras. It is also the home of the Bubble Chamber and Spark Chamber Film Processing Unit. One man who is very familiar with this unit retired on 5 May after II years at the Laboratory.

Ernie Wernham, a native of Wallingford, started work in 1919 and before commencing a career spanning 36 years in the Public Service had 3 jobs in his home town. The longest and most interesting was that of Driver-Salesman for the Anglo American Oil Co. Motor transport was then in its infancy and Ernie has many interesting stories to tell of those days and the old lorries with solid tyres and crash gear boxes.

Like so many people he was hit by the slump of the 30's. He subsequently joined the Wallingford R.D.C. and later the Thames Valley Water Board, being responsible for all the pumping stations in the district. He left this service when it was nationalised and came to the Laboratory in the early days of #960.

He worked in the Nimrod R.F. Section, attending the first Vacuum Training Course for RHEL employees in December that year. In 1965 Ernie joined a new film processing unit which was set up in RI before moving to its new accommodation in R58.

He has lived in East Hagbourne for many years and last week, at a local hostelry was the guest of honour at a retirement party attended by his many friends and colleagues. Ernie who is a keen and talented artist was presented with the appropriate tools of his hobby, canvasses, oils and equipment which should provide him with many hours of enjoyment throughout his years of retirement.

We would like to add our wishes for a long and happy retirement adding one question to Ernie. When can we expect a one-man exhibition in the locality?

#### SOME BEAM STATISTICS FROM NIMROD

In Bulletin No 14/71 we mentioned that Nimrod was in fine fettle. May Day seems to have spurred Nimrod to even greater efforts as during the period 1-3 May, 30675 pulses were accumulated in a spell of 33 hours with an average intensity of 3.14  $\times$  10  $^{\prime}$  protons/pulse.

In one period of 5 minutes the average intensity was 3,346  $\times$  10<sup>12</sup> protons/pulse and over 12 hours an average of 3.3  $\times$  10<sup>12</sup> protons/pulse were recorded. The histogram shows a little over one hours accumulated pulses (950) on 2 May with an average intensity of 5.313  $\times$  10<sup>12</sup> protons/pulse. (peak intensity about 3.4  $\times$  10<sup>12</sup> protons/pulse.

These results were obtained when running at 6 GeV and the Magnet Power Plant at 50% volts.

TOTAL PULSES = 000950 -SD.AVERAGE.+SD 003266.003313.003349



FILM NOTICE - It is Period 5. Colour Strip - PURPLE for  $\beta\gamma$  films and fast neutron packs. Next film change - Monday 17 May.

LECTURE COURSE - "A USERS GUIDE TO THE ELECTRIC SYSTEM". The ELECTRIC system has been devised by members of the Computer Applications Group to enable users to perform file manipulation on-line to the IBM 360/75. A number of facilities are offered including the more efficient handling of large programs, especially those that require periodic updating or multiple versions.

A series of 4 lectures will be given by J Burren, T Pett, and D B Scott aimed specifically at introducing new users to the system. Details of time etc are given in 'Internal Events'.

MISSING EQUIPMENT - The following item of equipment has been reported missing from Lab 15 Building RI2.

Avometer Model 8. Ser/No 140487-C-562

Anyone with information on the present whereabouts of this item is asked to contact Mr C J Reason, Ext 6606

OVERSEAS VISITS - Mr H Hurst to Brussels, 9-II May, to attend the Guide Computer User Conference and SEAS Executive Board Meeting.

#### Machine Schedules

NIMBOD Cycle 5 (27.4.71 - 18.5.71) Machine Physics: High Energy Physics ( $X3/\pi8$ , X3/K15,  $X3/\pi11$ , X2/K12A, X1/K9, K10s,  $\pi10$  and P71) Full details of Cycle 5 were given in Bulletin No 16/71.

#### Internal Events

Mon 10 May, 11.30 am Lecture Theatre

Mon, 10 May 2.00-3.30 pm Tues, 11 May 3.30-5 pm. Wed., 12 May 10.30-12 pm Thurs, 13 May 2.00-3.30 pm

Wed., 12 May, 11 am Conf. Rm. RI

Thurs., 13 May II am Conf Rm., RI

Nimrod Lecture Series

Lecture Course to be held in the Lecture Theatre

Special Nimrod Lecture

HEP Disc Group

Prof M Ferro Luzzi (CERN)

Recent Activity in Baryon

"A Users Introduction to the ELECTRIC System" (see Gen News for more details)

Prof Chan Hong Mo (CERN)

Dr J Phelan (RL) and Dr R J Miller (RL)

Predictions of Regge Theory at

Inclusive Reactions

Washington A.P.S. Conference Report

A small demonstrative unit from Dargue Brothers Limited will be visiting the Laboratory Fri 14 May 2.30 - 4.00 pm during these hours and will be parked outside Building R25. Their main exhibit will be a Simplon Executive combined drawing/writing desk. Amongst several other items on show will be a 'V' line unit.

Monday 17 May, 11.30 a. Lecture Theatre

Nimrod Lecture Series

Dr G Shaw (Daresbury)

Exotic EM Current and CP

Violation

## **External Events**

Mon, 10 May 4.15 pm. Queen Mary Coll. London

Thurs., 13 May., 4.15 pm Clarendon Lab, Oxford Thurs, 13 May 8.30 pm

Nucl. Phys Lab, Oxford

Fri., 14 May 2.30pm Clarendon Lab, Oxford

Tues, II May, 2 pm Conf Rm Bldg 8.9

EVENT AT AERE

Theor. Phys. Seminar

Theor. Phys. Seminar

Seminar in Elemt Part Phys.

Elemt Part Theory Seminar

Theor. Phys. Seminar

Dr Hong-Mo Chan (CERN)

Dr A L Fetter (Stanford & Cambridge)

Dr Chan Hong-Mo (CERN)

Prof Sir Rudolf Peierls

Dr M T Hutchings

The Decay Pattern of High Spin Resonances.

Review of Theoretical Work in Electron-Atom Scattering

The Decay Patterns of High Spin Resonances According to the

Veneziano Model.

Why the Attempts at Non-Local Theories Failed?

Experimental Investigation of Static & Dynamic Correlations in a One Dimensional Ideal Antiferromagnet.

#### Social News

RECORD SOCIETY - Tues, II May, 12.40 pm, Lecture Theatre - Rossini - 'La Boutique Fantasque (arr.by Respighi)

Galliera with the Philharmonic Orchestra playing music from the famous ballet, La Boutique Fantasque. The ballet, first performed on 5 June 1919 at the Alhambra Theatre in Leicester Square has remained a great favourite for children of all ages. The toy shop situation on the quay-side at Nice is the setting for the ballet and the merchandise consists of a party of dolls. Probably the most popular of all the items in this ballet is the can-can although all the music is delightful.

CHESS PLAYERS FORWARD - It is proposed to enter a team (or teams) in the Oxford and District Chess League for the 1971/72 season. This will involve something like 14 games to be played between September 71 and April 72, half at the Lab, against such teams as Oxford City, Wantage, Cowley etc. Six players are required for a team but 10-12 players on call are obviously necessary. If you are interested in playing please contact P Craske Ext 232 or A Gilby Ext 541 and please indicate which nights they are available.

OXFORD CSMA GROUP AGM - Election of officers and committee 8 pm on 14 May at the Duke of York Oxford, followed by a talk by a representative of the Trading Committee with samples of accessories available.

SIX-A-SIDE FOOTBALL - Wednesday 5 May, RI8 V Transport. This was a game watched and enjoyed by the largest number of spectators yet. RI8, always an attractive side with an unbeaten record came very close to losing this game which brought together the top and bottom teams. Transport fielded their most experienced side so far with Ray Smith in goal bringing off some terrific saves and Dennis Stock and Barry Towner tying up well in defence and breaking very effectively in attack when necessary. Eddie Smith supplied the required thrust in the forward line causing RI8 some anxious moments in defence. This Transport side will need watching in the future. Result - RI8 - 4, Transport - 3.

CHRISTIAN FELLOWSHIP - Friday 14 May at 12.30 pm. RI2 Conf Rm. "What do Christians think about current events?" Everyone welcome to meeting led by Frank Smith.

Rutherford Laboratory

H F NORRIS Ext 484 Scientific Admin Group Building R20





# Rutherford Laboratory BIG ETT

## General News

UNIVERSITY APPOINTMENT Congratulations to Dr Iam Butterworth, Head of the Bubble Chamber Research Group, who has been appointed to the Chair of Physics of the Imperial College of Science and Technology.

OFFICE SERVICES NOTICE Will the person who ordered orange floor marking tape printed "Access do not obstruct" please ring Ext 238.

FILM NOTICE Period 6 commences Monday 17 May. Colour Strip - ORANGE for  $\beta\gamma$  films and fast neutron packs. TLD change for people with surnames commencing U V W X. Please change all dosimeters promptly.

OVERSEAS VISITS Dr N H Lipman to CERN 17-19 May to attend Omega Meeting.

Mr W M Evans to the USSR 17-28 May for scientific discussions at the Joint Institute for Nuclear Research, Dubna.

The Director and Mr A P Banford to Geneva 18-19 May to attend meeting of European Physical Society Conference Committee.

## Machine Schedules

Tues 18 May

2.30 pm Nucl

Phys Lab, Oxford

NIMROD Cycle 6 (18.5.71 - 8.6.71) Machine Physics High Energy Physics

Team	Beam	Experiment		
B'ham Univ/RHEL	X2/K12A	K <sup>±</sup> n Elastic Scat from 0.45-0.95 G	tering and K <sup>±</sup> Charge Exchange	Data
Surrey U/B'ham U/RHEL	πΙΟ		cross-Sections for Pions on Nuclei	Setting up
Oxford Univ	KIOs	Study of Neutral	States in K p Reactions	Setting up
Internal Events				
Mon 17 May 11.30 am Lecture Theatre	Nimrod Lecture Series	Dr G Shaw (Daresbury)	Exotic EM Current and CP Violatio	n
Wed 19 May 11 am Conf Rm RI	HEP Disc Grp	H Nielsen (RHEL)	Low Energy π-N Interaction	
Thurs 20 May 3 pm Lecture Theatre	Staff Meeting	The Director will (Closed circuit See RLC No 11/71	television will be in use in the Co	ffee lounge -
Mon 24 May 11.30 am Lecture Theatre	Nimrod Lecture Series	Prof D H Perkins (Oxford)	Deep Inelastic Electron Scattering	
Mon 24 May 2 pm Lecture Theatre	Seminar in Computing	J .F MacEwan	Looking to the Future of On-Line Ha	ardware Systems
<b>External Events</b>				
Mon 17 May 4.15 pm Queen Mary Coll, London	Theor Phys Seminar	Dr C Di Castro (Rome)	Renormalisation Group and Scaling	Laws

18-21 May London Electronic Component Show at Olympia and the Electronic Components Conference at the Royal Garden Hotel. Further details from the Editor.

Dr J Cameron

Ontario)

(McMaster Univ

Perturbed Angular Correlations in Solids

Nucl

Phys Seminar

Wed 19 May 2.30 pm, Univ of Manchester	Theor Phys Seminar	Dr H S Fricker (Manchester)	Some Applications of "Band Structure" Methods to Quantum Chemistry
Thurs 20 May, 3 pm, Univ of Cambridge	Joint Theor HEP Seminar	Dr V Alessandrini (CERN & Geneva)	(Title to be announced)
Thurs 20 May, 8.30 pm, Nucl Phys Lab, Oxford	Seminar in Elemt Part Physics	Prof A Persner (CERN, on leave from John Hopkins U	Diffractive Interaction in a Deuterium Bubble Chamber Baltimore)
Fri 21 May, 2 pm Univ of Southampton	Surface Phys Grp	Dr B J Hopkins	Report on Florence Conference
Fri 21 May, 2.30 pm, Clarendon Lab, Oxford	Elemt. Part Theory Seminar	Dr V Alessandrini (CERN & Geneva)	(Title to be announced, probably connected with analogue models in Veneziano theory)

## Social News

CHRISTIAN FELLOWSHIP Friday 21 May at 12.30 pm, R12 Conference Room.

Everyone welcome to a Bible Study on the First Epistle to Timothy, Chapter I, led by Dennis Williams.

RECORD SOCIETY Tuesday 18 May, 12.40 pm, Lecture Theatre

Excerpts from D'Oyly Carte recording of the Mikado (Mono)

Rutherford Laboratory 14.5.71

H. F. NORRIS Ext 484 Scientific Admin. Grp. Building R20.





## **General News**

BULLETIN NOTICE - This issue covers two weeks. Items for inclusion in the next issue No 21/71 dated 7 June should be sent to the Editor, Room 42 R2O, not later than Wednesday 2 June and if possible by Wednesday 26 May.

CUCKOO-IN-THE-NEST? Not quite but the new computer hall, RI has become operational many months ahead of schedule. Amidst all the noise and bustle a blackbird has successfully built a nest and reared some healthy youngsters. At the time of going to press, time-of-flight experiments had commenced with apparent great success.

RUTHERFORD LABORATORY LECTURE The next lecture in this series will be given by Professor E W J Mitchell, Professor of Physics at Reading University at 3.15 pm on Thursday 27 May in the Lecture Theatre. He will be talking on "The Use of Neutrons in the Study of Condensed Matter" and has sent the following summary:

"Neutrons have characteristics which make them invaluable in the study of the physics and chemistry of solids and liquids. The reason for this will be discussed, and a resume of the experimental requirements will be given. Examples of current work will be discussed."

FOUND A sum of money has been found in Building R2 and a piece of jewellery adjacent to Building R10. Enquiries on both these Items should be made to Mr D Williams, Personnel Group, Room 57, R20, Ext 495.

MISSING EQUIPMENT The following item of equipment has been reported missing:-

Kelvin Hughes Potentiometric 6 Channel Recorder, Thpe HPR/A6/MOD2, Ser No P1083. Avometer Model 8, Ser. No 1509 Anyone with information on the present whereabouts of either of these items is asked to contact Mr F S Gilbert, R2, Ext 330 as soon as possible.

FILM NOTICE It is Period 6. Colour Strip - ORANGE for  $\beta\gamma$  and fast neutron packs. Please check that you are wearing the correct dosimeters and that all old ones are returned.

OVERSEAS VISITS Dr J J Thresher, to CERN, 23-25 May, to attend the ECFA Working Group Executive Committee.

Messrs R T Elliott, J E Ellis and H J Olive to CERN, 23 May returning 4 June, 29 and 29 May respectively, for testing of
High Field Pulsed Magnet equipment. Dr G Manning to CERN, 24-25 May for discussions on ISR experiment.

Mr W Walkinshaw to Belgium, 24-27 May, to attend IBM Seminar at Ottignies. Dr R G Roberts to Helsinki, 24-28 May
to attend Conference on Multiparticle Dynamics. Dr T P Shah to CERN 24-28 May for 14 GeV/e K p experiment.

### **Machine Schedules**

NIMROD Cycle 6 (18 5 71 - 8 6 71) Machine Physics: High Energy Physics (X2/K12A,  $\pi$ 10 and K10s) Full details of Cycle 6 were given in Bulletin No 19/71.

#### Internal Events

Mon 24 May 11.30 am	Nimrod Lecture	Prof D H Perkins	Deep Inelastic Electron Scattering
Lecture Theatre	Series	(Oxford)	
Mon 24 May 2 pm	Seminar on	J F MacEwan	Looking to the Future of On-Line Hardware
Lecture Theatre	Computing		Systems at RHEL

This Lecture will review the current state of the hardware of the RHEL on-line systems and will also comment on some of its limitations. Some of the newer equipment which might be of use to the user groups will also be reviewed, along with the problems of introducing these possible new facilities into the on-line system.

Wed 26 May 10 am onwards in the R12 Conf Rm, Demonstration by Nuclear Enterprises of their Laben Modular 8000 Multichannel Analyser also other equipment. The above is subject to confirmation; further details will be available from the Editor shortly.

Wed 26 May II am Conf Rm, RI	HEP Disc Group	Prof Marc Ross (Westfield & Michigan	No title at present
Thurs 27 May 3.15 pm Lecture Theatre	RL Lecture	Prof E W J Mitchell (Reading Univ)	The Use of Neutrons in the Study of Condensed matter
Wed 2 June II am, Conf Rm, RI	HEP Disc Grp	Dr J Malos	Provisional Title - K <sup>+</sup> p Elastic Scattering around I GeV/c

Conf Rm, RI2	Computing	K A ROSNEr	The Use of Small Computers at RHLL
<b>External Events</b>			
Mon 24 May 5 pm Univ of Bristol	Phys Colloq	P M Holtham (Bristol)	De Haas-van Alphen Effect and Fermi Surface of Thallium
Mon 24 May 5 pm Univ of Reading	Colloq	Prof V M Brockhouse (AERE)	Crystal Dynamics of Alloys
Tues 25 May 2.30 pm Daresbury Laboratory	Lecture Series	M Ross (Michigan Univ)	Two Body Reactions
Wed 26 May 2.30 pm Univ of Manchester	Theor Phys Seminar	Dr M R H Rudge	Electron-Atom Collisions
Fri 28 May 2.30 pm Clarendon Lab, Oxford	Elemt Part Theory Seminar	Dr M A Moore	Extension of Phase-Transition Ideas to some Problems in Field Theory
Tues I June 2.30 pm Nucl Phys Lab Oxford	Nucl Phys Seminar	Dr A R Barnett (Manchester)	Nuclear Tunnelling Reactions below the Coulomb Barrier
Wed 2 June 2.30 pm Univ of Manchester	Theor Phys Seminar	Dr J E Inglesfield (Cambridge)	Electrons, and the Crystal Structure of Alloys

#### Social News

HORTICULTURAL SOCIETY VISIT An evening visit has been arranged to the Nuneham Courtney Arboretum on Thursday 27 May. Members and friends wishing to attend should meet at the 'Peacock Gate', which is the first large gate on the left on entering the village of Nuneham Courtney from the South, not later than 7.30pm. The tour of this new Arboretum will be led by Mr K Burras, Director of the Oxford Botanic Gardens. Further information from the Editor.

BETATOMIC '71. Friday 18 June 8.30 pm to 1.30 am, Harwell Restaurant. Tickets are on sale at the Cash Office, R20, at 80p. each.

RECORD SOCIETY Wednesday 26 May 12.40 pm Lecture Theatre

Brahms Symphony No. 4 in E Minor - Arturo Toscanini conducting the NBC Symphony Orchestra (Mono) An historic recording of one of the most mature works in the symphonic idiom.

CHRISTIAN FELLOWSHIP Fri 28 May 12.30 pm, RI2 Conf Rm. All welcome to a meeting led by the Rev Don Elliot of Wallingford Baptist Church.

SIX-A-SIDE FOOTBALL R36 v Atlas Thursday I3 May
Despite sweeping changes in the R36 team, Atlas after leading I-O at half-time snapped into top gear and ran out victors
by 5-I, Gordon Dawson scoring their best goal of the match. DO v R9 Friday 14 May

Although DO fought hard back from 2-0 deficit at half-time they never quite made it and R9 held on to win 3-2.

R18 v R36 Wednesday 19 May

Another top and bottom of Table clash with R36 doing well to hold the R18 team for 20 minutes. Gavin Shand with a well taken header from a lovely cross scored the first goal. Jeff Bizzell R18's dangerous striker was well marked by Peter Gear and only on odd occasions did Jeff elude Peter's close attention. Hard luck R36. Final socre R18 - 2 R36 - 0.

Rutherford Laboratory 21 5 71 dg

H F NORRIS Extn 484 Scientific Admin Grp Building R20