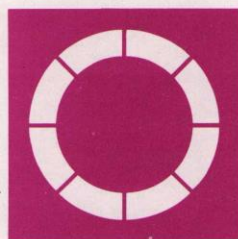


No. 5/68  
5th Feb.68



# Rutherford Laboratory Bulletin

## General News

**RADIATION PROTECTION NOTICE.** Period 2 commenced Monday, 29th January. Colour Strip - GREEN for  $\beta\gamma$  and fast neutron films.  
Please check that you are wearing the correct films and return all old films promptly.

**REPOSITIONING OF BUSES AT DEPARTURE TIMES.** Certain changes in the positions of buses at departure times take effect on Monday, 5th February, 1968. Details are displayed on notice boards; copies may also be seen in Admin. Offices.

**SYMPOSIUM.** The Fourth International Research Symposium on Electrical Contact Phenomena will be held at the University College of Swansea, 15th - 18th July, 1968. Advance details from H. F. Norris, R.20, Ext. 484.

**THE ROYAL SOCIETY.** Information has now been received from the Royal Society on their meetings for February and March. In addition, extracts from papers to be read at these meetings are being received each week. Anyone interested should contact H. F. Norris, R.20 Ext. 484.

**SURVIVAL FILM.** The film, "Emergency Resuscitation", The modern method of reviving the asphyxiated victim, will be shown in the Lecture Theatre on Monday and Tuesday, 12th and 13th February at 10.30 a.m. The film, which is in colour and lasts for 35 minutes, will be introduced by Dr. R. Orr, MB.BS. of the AERE Medical Division. Full details will be given in the next Bulletin.

**QUEST.** Sorry - there has been a few days delay in printing the first edition, but it should be here any day now. Please note an extension to the date for receiving comments etc., to the 13th February. Contributions for the second issue are welcomed and should be sent to the Local Correspondent, H. F. Norris, R.20, Ext. 484, if possible by the 13th February.

**OVERSEAS VISITS.** Dr. G. Manning and Dr. J. J. Thresher, to CERN, 2nd February for several days, to attend E.E.C. meeting. Mr. W. Walkinshaw to the U.S.A., 3rd - 11th February, to attend Symposium on Collective Field Accelerators at Berkeley.  
Dr. N. H. Lipman, to CERN, 4th - 6th February for discussions.  
Dr. L. C. W. Hobbs, to CERN, 7th - 10th February to attend a meeting of E.C.F.A. Working Group 2 and the E.C.F.A. Plenary Meeting.  
The Director to CERN, 8th - 9th February, to attend E.C.F.A. Plenary Meeting.

## Machine Schedules

NIMROD Cycle 2 (6.2.68 - 27.2.68)  
Machine Physics  
High Energy Physics

Team	Beam	Experiment
Imp. College/Westfield College	X1/K9	K <sup>+</sup> p Interactions in the 2.0 - 2.5 GeV/c Range. (National Bubble Chamber)
AERE/QMC/RHEL	K 4	A Study of $\Sigma^-$ Beta Decay
UCL.	K8	K <sup>-</sup> p Elastic Scattering Studies

### P.L.A.

Date	Team	Experiment
5th - 10th February	King's College, London	Elastic and Inelastic Scattering from Ar <sup>40</sup> at 30 and 50 MeV.
11th February		Maintenance.

## Internal Events

Mon. 5th Feb., 11.45 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. G. Shaw	Isospin and SU3 for Electromagnetic Interactions: Experimental Tests.
Wed., 7th Feb., 11 a.m. Conference Room, R.1	H.E.P. Disc. Group	D. Morgan - A. T. Lea -	Recent Work on Pion Nuclear Forward Dispersion Relations. Dispersion Relations in the CERN Phase Shift Analysis.
Wed., 7th Feb. 12.40 p.m. Thurs. 8th Feb. 1.15 p.m. Lecture Theatre.	Film		"In Search of an English Garden", a 20 minute colour film.

English gardens are reputed to be the finest in the world. This is a film to brighten the dreary days of winter, showing the facets used in the making of an English garden. Flowers, shrubs, trees, the harmony of water and the character of stone are shown blended together in a way which will delight the experienced gardener and provide ideas for those not so skilled.

Thurs. 8th Feb., 3.15 p.m. Lecture Theatre	Rutherford Laboratory Lecture	Prof. J. Rotblat (Bart's).	THE PUGWASH CONFERENCES; Should Scientists have a Social Conscience?
Mon. 12th Feb., 11.45 a.m. Lecture Theatre.	Nimrod Lecture Series	Dr. P. J. Duke	K <sup>-</sup> p and K <sup>-</sup> p Scattering with a Polarized Proton Target. (The K7 Experiment).



Tues., 13th Feb., 11.45 a.m.  
Lecture Theatre

Special Lecture

Dr. E. Jones  
(CERN)

Experiments on the Intersecting  
Storage Ring Model.

## External Events

Mon., 5th Feb. 5 p.m.  
University of Reading

Colloq.

Dr. S. J. Rogers  
(University of Kent)

The Effect of Three Phonon 'N'  
Processes on the Propagation of Heat  
Pulses in Dielectric Crystals.

Mon., 5th Feb. 4.15 p.m.  
University of Bristol

Inst. of Maths  
Lecture

Mr. Gordon Mills  
(Bristol)

The Use of Mathematical Models in  
Economics.

Mon., 5th Feb. 4.15 p.m.  
Queen Mary College

Theor. Phys.  
Seminar

Dr. O. Penrose  
(Imperial Coll.)

Phase Transitions at Complex Fugacities.

Tues., 6th Feb., 2.30 p.m.  
21 Banbury Road, Oxford.

Nucl. Phys.  
Seminar

Dr. C. S. Clement  
(Harwell)

Single Particle Strength in Nuclei.

Tues., 6th Feb., 7.30 p.m.  
Coll. of Tech., Headington

Inst. of  
Mech. Eng.  
Lecture

A. R. Moss  
(Royal Armanent Research  
and Development Establishment)

Arc Plasma Technology  
(Visitors welcome).

Thurs., 8th Feb., 2.30 p.m.  
Clarendon Lab., Oxford.

Low Temp and  
Solid State  
Phys. Seminar

Prof. R. Orbach  
(U. of California)

Magnetic Resonance of Localized  
Moments in Metals: Er Mg.

Thurs., 8th Feb., 4.15 p.m.  
Clarendon Lab., Oxford.

Theor. Phys.  
Seminar

Dr. R. J. N. Phillips  
(RHEL)

High-Energy Predictions from Low-Energy  
Scattering.

Thurs., 8th Feb., 4.15 p.m.  
University College, London.

Elementary  
Particle Phys.  
Seminar

Dr. G. H. Burkhardt

Exponential Asymptotic Behaviour of  
Scattering Processes.

Thurs., 8th Feb., 8.30 p.m.  
Physics Lecture Room,  
21 Banbury Road, Oxford.

Seminar in  
Elementary  
Particle Physics

Prof. J. Sandweiss  
(Yale Univ. and  
CERN).

Bubble Chamber Physics at Yale -  $K^+p$   
Collisions at 12.6 GeV/c

Fri., 9th February, 4.15 p.m.  
Clarendon Lab., Oxford.

Colloq.

Dr. R. Hide  
(Met. Office  
Bracknell)

Planetary Magnetic Fields.

### EVENTS AT AERE

Tues., 6th Feb., 2 p.m.  
Conference Room B.8-9

Theor. Phys.  
Seminar

Dr. A. Scholz

Lattice Energy Calculations of Deformed  
Small Ionic Crystals with Cubic Shape.

Thurs., 8th Feb., 3.30 p.m.  
Conference Room H.8

Nucl. Phys.  
Div. Colloq.

Dr. G. L. Wick

An Experimental Test of Time Reversal  
Symmetry in the Beta Decay of Neon 19.

## Social News

CHRISTIAN FELLOWSHIP. 12.30 p.m. Friday, 9th February, Conference Room R.12

"Integrity in Industry", a talk by P. Charters Esq., Company Director.

All are welcome.

RECORD SOCIETY. 12.30 p.m., Tuesday, 6th February, Lecture Theatre.

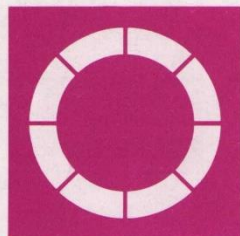
"West Side Story", the sound track from the original stage production.

Leonard Bernstein's music is so well known as to warrant little comment. His score for West Side Story is, probably one of the finest ever written for a musical show. To those who saw the show this should bring memories flooding back of the wonderful settings and the brilliant choreography which set a new standard in the world of the entertainment.

H. F. Norris, Ext. 484  
Scientific Admin. Group.  
Building R.20.



No. 6/68  
12 Feb.68



# Rutherford Laboratory Bulletin

## General News

**RADIATION PROTECTION NOTICE.** Period 2 commenced Monday, 29th January. Colour Strip - GREEN for  $\beta\gamma$  and fast neutron films.

Please check that you are wearing the correct films. Next film badge change - Monday, 26th February.

**MISSING EQUIPMENT.** The following items of equipment have been reported missing:-

Channel Preamplifier Plug-in Unit, Type C.A. Serial No. 103090 - last seen early 1967 in K7/K7' experiments. Since then it was lent, or borrowed, probably during the K7' period. Would the present holder please contact Mr. P.J. Coleman Rm. 1.3, Bldg. R.1, Ext. 213.

Anglepoise lamp No. 15194; taken from Office G2 in Bldg. R.2 on Friday, 2 February.

Anyone with information on the present whereabouts of this item is asked to contact Mr. R.C. Carter, Ext.6250/536.

**VISITORS.** Five members from Hatfield College, Herts will visit the Laboratory on Thursday, 15 February.

**BURSARY AND SANDWICH COURSE AWARDS 1968.** A limited number of awards are available to members of staff who wish to undertake full-time or Sandwich courses at Universities. Details may be obtained from the Personnel Group, and anyone who would like to be considered for such an award should contact Mr. D. Williams, R.20, Ext.495.

**LECTURES FOR EXPERIMENTALISTS.** A series of lecture on theory for experimentalists will commence on Tuesday, 20 February at 12 Noon in the Lecture Theatre and continue on successive Tuesdays. The lectures are intended for the experimental physicist and the first four lectures will be given by Dr. D. P. Jones, who will talk on Elementary Scattering Theory.

**OVERSEAS VISITS.** Mr. J. M. Dickson, Mr. G. E. Gallagher-Daggitt, Mr. J. E. Boon, Mr. R. J. Stanhope and Mr. J. F. Connolly to Saclay and CERN, 11-18 Feb., for discussions on the design and construction of Linear accelerators, etc.  
Dr. D. Thomas, Dr. R. Newport and Mr. P. T. M. Clee, to CERN, 11-14 Feb., for discussions on Bubble Chamber superconducting coils, etc.  
Mr. J. H. Swain and Mr. B. R. Diplock, to CERN, 12-13 Feb., for discussions on Bubble Chamber expansion system.  
Mr. J. Sparrow, to CERN, 12-14 Feb., for discussions.  
Mr. D. David, to CERN, 13-16 Feb., for discussions with Dr. J. T. Hyman involving computer control at CERN and RHEL.

## Machine Schedules

NIMROD Cycle 2 (6.2.68 - 27.2.68)

Machine Physics: High Energy Physics (X1/K9,  $\pi^+$  and K8)

Full details of Cycle 2 were given in Bulletin No. 5/68.

### P.L.A.

Date	Team	Experiment
12 - 15 Feb.	RHEL 1	(p,He <sup>4</sup> ) Scattering
16 - 19 Feb.	Birmingham U.	O <sup>16</sup> Cross-Section Measurements

## Internal Events

Mon. 12 Feb., 11.45 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. P.J. Duke	$\pi^-$ -p and K <sup>-</sup> -p Scattering with a Polarized Proton Target (The K7 Experiment).
Tues. 13 Feb., 11.45 a.m. Lecture Theatre	Special Lecture	Dr. E. Jones (CERN)	Experiments on the Intersecting Storage Ring Model.
Wed., 14 Feb., 11 a.m. Conference Rm., R.1	HEP Disc Group	Dr. D. Bugg and Dr. J. Perry (AERE)	Discussion Meeting on p-p Scattering and Possible pp (2220) Resonance.
Wed., 14 Feb., 12.40 p.m. Thurs., 15 Feb., 1.15 p.m. Lecture Theatre	Film		"Atom Smashers", an 18 minute, U.S.A.E.C. colour film

This new film deals with various types of accelerators and how they work. The film is so new that little information on its content is available although impressions gained from a telephone call suggest that it is of general interest rather than of a specialised nature.

**Fri., 16 Feb., ONE DAY SEMINAR.** A seminar on Metal Oxide Silicon Semiconductor Techniques and Applications will be held in the Lecture Theatre on Friday, 16th February from 10 a.m. to 3.30 p.m. The speaker will be Dr. Martello Corretti of General Instruments and the seminar has been arranged by Semicomps Limited. Further details may be obtained from B. E. Kingdon, R.20, Ext. 6297

### STOP PRESS

Mon., 12 Feb., 10.30 a.m. Thurs., 15 Feb., 10.30 a.m. Lecture Theatre	Film	"Emergency Resuscitation" Introduced by Dr. R. Orr MB.BS. Medical Division.
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The modern method of reviving victims of electric shock, drowning, gassing, suffocation, etc. This film produced by the Admiralty shows artificial resuscitation being carried out under various conditions by Sisters and Nurses of Queen Alexandras Royal Naval Nursing Service and Naval and Army Personnel.

A "must" for everyone interested in survival



## External Events

Mon., 12 Feb., 4.15 p.m.  
Queen Mary College

Theor.Phys.  
Seminar

Prof. E.P. Wohlfarth  
(Imp.Coll.)

Itinerant Electrons and Spin Waves  
in Metals.

Tues., 13 Feb., 8.30 p.m.  
21 Banbury Rd., Oxford.

Nuclear Phys.  
Seminar

Dr. A. P. Stamp  
(Oxford)

Hartree Fock Descriptions of S-D Shell  
Nuclei.

Tues., 13 Feb., 7.30 p.m.  
Univ. of Reading

Inst. of  
Electronics and  
Radio Eng. Meeting

Dr. R. C. Butchart  
(I.C.I. Plastic Div.)

On-Line Control

Wed., 14 Feb., 4.45 p.m.  
Royal Fort, Bristol

Phys. and  
Geophys. Colloq.

M. F. Osmaston  
(Imp. Coll.)

Global Growth and Continental Displace-  
ment - Prime Factors in the Evolution of  
the Upper Mantle and Crust.

Thurs., 15 Feb., 2.30 p.m.  
Clarendon Lab., Oxford

Low Temp. and  
Solid State  
Phys. Seminar

Prof. O.V. Lounasmaa  
(Tech. Univ. of  
Helsinki)

Mössbauer Experiments using a  $\text{He}^3/\text{He}^4$   
Dilution Refrigerator

Thurs., 15 Feb., 4.15 p.m.  
Univ. Coll. London

Elementary Part-  
icle Phys.  
Seminar

Dr. D. K. Aitken

The  $\pi\pi$  System Between 1.0 and  
1.5 GeV.

Thurs., 15 Feb., 8.30 p.m.  
Phys. Lecture Room, 21  
Banbury Rd., Oxford.

Seminar in  
Elementary Particle  
Physics.

Dr. J. G. Taylor  
(Q.M.C.)

Magnetic Monopoles.

Fri., 16 Feb., 4.15 p.m.  
Clarendon Lab., Oxford.

Colloq.

Dr. B. B. Goodman  
(B.O.C.)

The Vortex Line Lattice in Type II  
Superconductors.

### EVENTS AT AERE

Tues., 13 Feb., 2 p.m.  
Conf. Room, B8.9

Theor. Phy. Div.  
Seminar

Dr. L. Colquitt  
(Imp. Coll.)

Ferromagnetic Resonance in Solids.

Thurs., 15 Feb., 3.30 p.m.  
Conf. Room, H8

Nucl. Phys.  
Div. Colloq.

Dr. B. Macefield  
(Oxford)

A Real Time Multi-User Computer  
System.

## Social News

**MUSICAL GROUP.** The first meeting of interested members was held on Friday last, 2 February.

Now is the time for all musicians to come out of hiding. We are especially keen to contact players of the OBOE, HORN, GUITAR, and PERCUSSION. Enquiries to Mrs. M. S. Gilbert, R.20, Ext. 6143.

**CHRISTIAN FELLOWSHIP** 12.30 p.m., Friday 16 February, Conf. Rm. R.12.

Bible Study - "Faith", led by Mr. J. L. Thomas.

**RECORD SOCIETY.** 4.15 p.m., Tuesday, 13 February, Lecture Theatre. (PLEASE NOTE NEW TIME)

George Gershwin - "Concerto in F for Piano and Orchestra".  
Julius Katchen with Mantovani and his Orchestra.

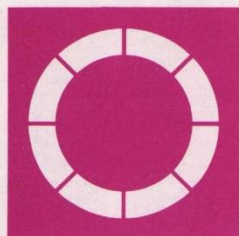
Composed at the invitation of the Symphony Society of New York and Walter Damrosch, its conductor, it was first performed at the Carnegie Hall on 3 December, 1925, with Gershwin playing the solo part. It is often argued as to whether Gershwin was really true to jazz although his understanding of the idiom is in no doubt. This music is in the American racy style with subtle and sensitive melodies.

Rutherford Laboratory  
9.2.68

H. F. Norris, Ext. 484  
Scientific Admin. Group.  
Building R.20



No. 7/68  
19 Feb 68



# Rutherford Laboratory Bulletin

## General News

**RADIATION PROTECTION NOTICE.** It is Period 2. Colour Strip - GREEN for  $\beta\gamma$  and fast neutron films.  
Next Film Badge Issue - Monday, 26 February.

**P.L.A. NEWS.** During the shut-down in November 1967, a number of significant improvements were made to the P.L.A. (See Bulletin No. 41/67).

The Low Energy Drift Space (L.E.D.S.) has been re-designed to incorporate a double buncher system and a de-buncher has been fitted upstream of the Area 2 switching magnet. In addition the field law of the first tank has been re-adjusted.

The peak output now measured is 400 micro-amps and very precise control of output is possible by controlling aperture sizes and quadrupole focusing power in the new L.E.D.S. With the new field law of Tank 1 and with the double buncher and debuncher in operation there is an improvement in beam resolution of at least a factor of two.

The resolution ( $\Delta E/E$ ) now obtained at 30 and 50 MeV is 0.08% Full Width at Half Height. This improved energy resolution will in most cases, more than double the efficiency with which Nuclear Physicists can utilize the proton beam.

**OVERSEAS VISITS.** Mr. J.V. Cresswell, to the U.S.A. on 18 Feb, for approx five days where he will visit the General Electric Co at Syracuse for discussions on semiconductors used in the electronic instrumentation for Nimrod.

Mr. R. Sheldon, to CERN, 18-19 Feb, for discussions and to Zurich, 20-21 Feb to visit OERLIKON for discussions on the insulation of magnet windings.

Mr. P. Bowles, to Oerlikon, Zurich, 20-21 Feb, for discussions on magnet windings and to discuss the 3rd International Conference on Magnet Technology.

## Machine Schedules

NIMROD Cycle 2 (6.2.68 - 27.2.68)

Machine Physics : High Energy Physics (X1/K9,  $\pi^4$  and K8)

Full details of Cycle 2 were given in Bulletin No. 5/68.

### P.L.A.

Date	Team	Experiment
20-21 Feb.		Maintenance and Setting Up.
22-25 Feb.	Oxford U.	(p,He <sup>3</sup> ) Reactions at 50 MeV.

## Internal Events

Mon, 19 Feb. 11.45 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. A. Donnachie (Glasgow)	Nucleon Phrenology
Tues, 20 Feb. 12-1.15 p.m. Lecture Theatre	Lectures for Experimentalists	Dr. D.P. Jones	Elementary Scattering Theory
Wed, 21 Feb. 10 a.m. Lecture Theatre	Special Lecture	Mr. J.D. Lawson	The Berkeley Symposium on Collective Field Accelerators and the Stability of Electron Rings
Wed, 21 Feb. 11 a.m. Conf. Rm, R1.	HEP Disc. Grp.	Dr. P.K. Kabir	Parameters of $K^0 \rightarrow 2\pi$ Decay
Wed, 21 Feb. 12.40 p.m. Thurs, 22 Feb. 1.15 p.m. Lecture Theatre	Film	"Nuclear Power - Today and Tomorrow", Part 1 of the colour film version of the 1966/67 Faraday Lecture by R.V. Moore - 40 minutes each part.	

The film follows closely the script of the lecture which, like all Faraday Lectures, was set at a level suitable for the general public. After explaining briefly how electricity is generated the first part deals with the basic science: atomic structure, the difference between chemical and nuclear reactions, and the nuclear fission process, leading to the basic components of a reactor. The practical application of the basic concept to the Calder Hall reactors is explained diagrammatically followed by shots taken during construction. Part 1 ends by summarising the advances made and demonstrates the practicability of nuclear power. This film maintains a very high standard both in content and presentation and can be highly recommended to all employees of the Laboratory.

Prof. Dalitz will give the Nimrod Lecture on Monday, 26 Feb. (Title not available).

## External Events

Mon. 19 Feb. 4.15 p.m. Queen Mary College.	Theor Phys. Seminar	Prof. E. Leader (Westfield Coll.)	Conspiracy, Evasion and Daughters
Mon. 19 Feb. 5 p.m. Univ. of Reading	Colloq.	Prof. S.F. Edwards, F.R.S. (Manchester U)	Topology and Polymerised Materials
Tues. 20 Feb. 8.30 p.m. 21 Banbury Rd, Oxford.	Nuclear Phys. Seminar	Dr. L.E. Carlson (Oxford)	Ge(Li) Study of Radiative Proton Capture on Al <sup>27</sup>
Wed. 21 Feb. 4.45 p.m. Royal Fort, Bristol	Phys and Geophys. Colloq.	Dr. P. Lloyd (U. of Bristol)	Electron States in Disordered Systems.
Thurs. 22 Feb. 2.30 p.m. Clarendon Lab. Oxford.	Low Temp. & Solid State Phys. Seminar	Prof. F. Imbusch (Univ. Coll. Galway)	Optical Detection of EPR



Thurs. 22 Feb. 4.15 p.m. Clarendon Lab. Oxford	Theors Phys Seminar	Dr. G.H. Burkhardt (Birmingham)	Unitarity Restrictions with Exponential High - Energy Behaviour.
Thurs. 22 Feb. 8.30 p.m. Phys. Lecture Rm. 21 Banbury Rd, Oxford.	Seminar in Elementary Particle Phys.	Prof. D. Perkins (Oxford)	Progress Reports (Design and Planning) on the U.S. 200 - 400 GeV Project and the European 300 GeV Project.
Fri. 23 Feb. 4.15 p.m. Clarendon Lab. Oxford.	Colloq.	Prof. R.E. Peierls (Oxford)	The Reversibility of Atomic Physics and the Irreversibility of Thermodynamics.
EVENTS AT AERE			
Tues. 20 Feb. 2 p.m. Conf. Rm. B.8.9	Theor. Phys. Div. Seminar	Prof. N.H. March (U. of Sheffield)	Vacancies and the Theory of Melting.
Thurs. 22 Feb., 5.30 p.m. Conf. Rm. H.8.	Nucl. Phys. Div. Colloq.	Mr. M.C. Moxon	Neutron Measurements on the Resonance Region.

### Social News

RECORD SOCIETY. 1.15 p.m. Tuesday 20 Feb. Lecture Theatre

Symphony No.4 in A Major ("Italian") by Mendelssohn  
played by the Turin Symphony Orchestra conducted by Mario Rossi

The "Italian" Symphony was commissioned from Mendelssohn in 1932 by the Philharmonic Society of London and was mostly written during a tour of Italy. It is light and gay and is very suitable for this time of year.

Date for your diary: Tues, 22 Feb. 8.15 p.m. at the Barn Theatre Didcot.  
For the Traditional Jazz Fans - Eric Silk and his Southern Jazz Band.  
(See notice boards for details)

CHRISTIAN FELLOWSHIP. 12.30 p.m. Friday, 23 Feb. Conf. Rm, R.12.

Prayer Meeting, led by Frank Smith. All are welcome.

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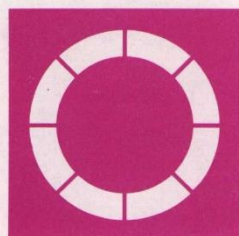
QUEST INQUEST. Readers of the first issue of Quest will no doubt be interested to know that the numerous views expressed to your local correspondent were fully presented to the meeting held at State House, last Wednesday. The efforts made by many people to provide their opinions so quickly is gratefully acknowledged. Sufficient to say at this time that issue No. 2 should contain quite a few changes which it is hoped will meet the majority of criticisms expressed over the first number.

Rutherford Laboratory  
16.2.68.

H.F. Norris, Ext. 484  
Scientific Admin. Group.  
Building R.20.



No. 8/68  
26 Feb. 68



# Rutherford Laboratory Bulletin

## General News

**THE PHYSICS EXHIBITION 1968.** The exhibition will again be held in The Great Hall, Alexandra Palace, Wood Green, London, N.22. The Science Research Council's stand (No. 40) will show a hydrogen pressure dosimeter, developed at the Rutherford Laboratory. This instrument has been designed to enable precise radiation dose measurements to be made in the megaregion. The other contribution from the S.R.C. will be the showing of the film on 'NINA', the Daresbury Electron Synchrotron.

The exhibition will be open from Monday, 11 March to Thursday 14 March inclusive although the first morning is for members only. A limited number of tickets are available from H.F. Norris, Bldg. R.20, Ext. 484.

**RADIATION PROTECTION NOTICE.** The next film badge issue commences Monday, 26 February. Colour Strip - Blue for  $\beta$  and fast neutron films.

Please change your films promptly and return all old films as soon as possible.

**LIBRARY NOTICE.** 'The German - English Technical and Engineering Dictionary' and supplement has been removed from Library R.20. Will the person who has removed these reference books please return them immediately, as their absence is causing considerable inconvenience to many people.

**MISSING EQUIPMENT.** Would anyone who knows the whereabouts of a 6ft. IMHOF rack containing N.M.R. measuring equipment (built at Aldermaston) and last seen in the heavy lab R.25, please contact Mr. J. Moir, Ext. 6634.

**VISITORS.** Twenty-two students from the Hogere Technishe School, Dordrecht, Netherlands, will visit the Laboratory on Friday, 1 March.

**OVERSEAS VISITS.** Dr. N.H. Lipman, to CERN, 23-27 Feb, for discussion of cascade experiment to go to CERN and for the final drafting of the K<sup>2</sup> paper. Dr. G. Manning, to CERN, 25 Feb. - 5 March, for discussions and to attend the E.E.C. meeting.

Dr. D.V. Bugg, to CERN, 25-27 Feb, for discussions on the feasibility of an experiment on the SC.

## Machine Schedules

NIMROD Cycle 3 (27.2.68 - 19.3.68)

Machine Physics.  
High Energy Physics.

Team	Beam	Experiment	
Westfield/Imp.Coll.	X1/K9	(i) $\pi^+$ + p Interactions, 1.1 - 1.9 GeV/c, Hydrogen Bubble Chamber	Data
Birmingham U./RHEL		(ii) $\pi^+$ + p Interactions, 4 GeV/c, Hydrogen Bubble Chamber.	Data
AERE/QMC/RHEL	$\pi^+$ 4	A Study of $\Sigma^-$ Beta Decay	Data
Univ. Coll. London	K8	K p Elastic Scattering Studies	Setting up
Oxford Univ.	K10S	Studies of Neutral Final States in K p Interactions	Setting up
Birmingham U.	X2/K12	Kp Elastic Scattering	Setting up
RHEL/Cambridge U.	X2/K13	Test of $\Delta S = \Delta Q$ Rule	Setting up
RHEL/Westfield Coll.	X2/K14	Decay Parameters of $\Sigma^+$	Setting up
RHEL/Oxford U.	X2/K14A	$\pi^+$ p Polarization	Setting up

### P.L.A.

Date	Team	Experiment
26-28 Feb.	Manchester U.	Scattering Chamber and Beam Line Tests.
29 Feb - 5 Mar.	Queens' Univ. Belfast & Westfield Coll.	$\text{He}^4$ (p, $\alpha$ ) & (p, t) Reactions at 50 MeV.

## Internal Events

Mon, 26 Feb, 11.45 a.m. Lecture Theatre.	Nimrod Lecture Series	Prof. R.H. Dalitz	Meson Resonances.
Mon, 26 Feb, 2.15 p.m. Lecture Theatre	Nimrod Proposal Lectures.	(i) Proposal to study the Reaction $\pi^+ + d \rightarrow p + p + 2\pi^0$ using a Deuterium Target in the 1.5 metre National Bubble Chamber, by Dr. M. Bowler (U. of Oxford) (ii) A Proposal for the Study of $\Lambda^0 \beta$ Decay, by Dr. C.M. Fisher.	
Wed. 28 Feb. 11.a.m. Conf. Rm, R.1.	H.E.P. Disc. Grp.	Dr. R.J.N. Phillips (RHEL)	High Energy Predictions from Low Energy Scattering



Wed, 28 Feb. 12.40 p.m.  
Thurs, 29 Feb. 1.15 p.m.  
Lecture Theatre

Film

Nuclear Power - Today and Tomorrow.  
Part 2. 40 minutes, colour.

Part 2 of this film discusses the economics of nuclear power; the effects achieved due to changes made to produce the design of the Advanced Gas-cooled Reactor; the principles of various types of water reactors, in particular the Steam Generating Heavy Water Reactor at Winfrith and reasons for the choice of the Advanced Gas-cooled Reactor for the second British nuclear power programme.

The final stage of the story is concerned with the development of fast breeder reactors using plutonium as fuel and the film ends with a survey of the nuclear fuel cycle. As mentioned last week, this film sets a very high standard both in content & presentation.

Mon, 4 Mar. 11.45 a.m.  
Lecture Theatre.

Nimrod Lecture  
Series

Mr. D. Morgan

Single Pion Production in  $\pi N$  Collisions  
below 1 GeV

### External Events

Mon, 26 Feb. 5 p.m.  
Univ. of Reading

Colloq.

Prof. W. Cochran  
(Edinburgh U.)

Neutron Spectroscopy of Ferroelectrics.

Thurs, 29 Feb. 2.30 p.m.  
Clarendon Lab. Oxford.

Low Temp &  
Solid State  
Physics Seminar

Dr. J. Lowell  
(Clarendon Lab)

Flux Motion in Superconductors.

Thurs. 29 Feb. 4.15 p.m.  
Univ Coll. London.

Elementary Particle  
Phys. Seminar

Prof. A. Ashmore

High Energy  $\pi$ -P Scattering and  
Regge Poles

### EVENTS AT AERE

Tues, 27 Feb. 2 p.m.  
Conf. Rm, B.8.9

Theor. Phys.  
Div. Seminar

Dr. L.J.B. Goldfarb  
(U. of Manchester)

Direct Reactions in the Coulomb Field

Thurs, 29 Feb. 3.30 p.m.  
Conf. Rm, H.8

Nucl. Phys. Div.  
Colloq.

Prof H.A. Medicus

Level Density and Spin Cut-off Parameter  
Determinations from Photonuclear Reactions.

### Social News

RECREATIONAL SOCIETY NEWS - CHESS CLUB TOURNAMENT. As mentioned in previous Bulletins, the Chess Tournament has been a success from the start with considerable interest being shown throughout the Laboratory. It was probably fitting that the final two rounds produced a dramatic finish with the first place resulting in a tie between Bill Turner (High Field Bubble Chamber Group) and John Davies (Birmingham Univ) each with 15 points. Both were undefeated with five wins and three draws apiece. On 12 points came Noel Stewart, Lindsay Duncan and Bill Morris who came from behind with a final rush of two wins. Alan Oxley and Peter Smith finished joint third on 11 points.

The organisers wish to thank all the players for their co-operation during the four and a half months the tournament was running. Each player will receive a complete list of results as soon as possible. It is hoped to make the tournament an annual event and with the high standard of play, there is a feeling that a challenge from any other SRC team might be accepted.

RECORD SOCIETY. 1.15 p.m. Tues, 27 Feb, Lecture Theatre.

"Fantasia on a Theme by Thomas Tallis" and "Fantasia on Greensleeves", Vaughan Williams  
played by the London Symphony Orchestra, conducted by Anthony Collins.

In contrast to last weeks programme, these two works are truly English. The Tallis Theme is neither the rather strict Elizabethan nor the very free modern kind of fantasia. The Greensleeves however is based on folk songs, indeed it is a mixture of two. Both works have one thing in common in that the mood is similar, depicting an age which no longer exists.

CHRISTIAN FELLOWSHIP. 12.30 p.m. Fri, 1 March, Conf. Rm. R.12.

Bible Study - "The Atonement", led by Ray Powell.

All are welcome

Rutherford Laboratory  
23.2.68.

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Building R.20.