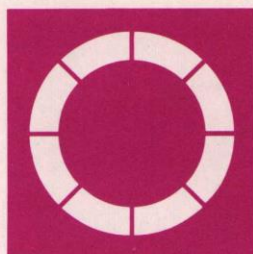


5/69  
3 Feb 69



# Rutherford Laboratory Bulletin

## General News

**OBITUARY NOTICE.** We deeply regret to announce the death of Mr. E.W. Clark of the Nimrod Engineering Department on Wednesday, 29 January. Ernie Clark who was aged 41 joined AERE in 1955 and came to the Laboratory in 1960. He will be sadly missed by his colleagues and friends, in particular by the Recreational Society. He became its Chairman in 1967 having served on the committee since 1963. Our deepest sympathy is extended to his wife and daughter.

**VISITORS.** About twenty pupils and members of staff of the Ridgeway School, Swindon will visit the Laboratory on Saturday, 8 February.

**RADIATION PROTECTION NOTICE - FILM ISSUES.** It is Period 2. Colour Strip - BROWN for  $\beta\gamma$  and fast neutron films. Please check that you are wearing the correct films.

**M.Sc. COURSE.** The University of Bristol have announced details of their one year Graduate course leading to the M.Sc. degree in the Physics of Materials. The course has been accepted as qualifying for the award of S.R.C. Advanced Course Studentships. Further information from H.F. Norris, R.20, Ext: 484.

**FIFTH FINNISH SUMMER SCHOOL IN PHYSICS.** The annual Finnish summer school in theoretical physics will be held at Liperi from 22 July to 2 August. This year the school, which is mainly intended for graduate students, will contain lectures on both high energy physics and low temperature physics. Closing date for applications - 15 April 1969. Further details from H.F. Norris, R.20, Ext: 484.

**QUEEN ELIZABETH II FELLOWSHIPS.** Post-doctoral awards, tenable in an Australian University or approved research institution, normally for two years, in physical and biological sciences. Applications must be received in Canberra by 21 March 1969. Further details from H.F. Norris, R.20, Ext: 484.

**EXTERNAL COURSE.** Reading College of Technology, Dept. of Electrical and Electronic Engineering have published details of a course of six lectures on "Acoustic Noise, Measurement and Control" to be given by visiting specialists. All lectures on Mondays, 19.00 - 21.00 hours, 17 February to 24 March inclusive. Course fee - 50/-. Further information from Mrs. S. Fones, R.20, Ext: 495.

**OVERSEAS VISITS.** Dr. L.C.W. Hobbis, to CERN, 2-3 Feb., to discuss experimental studies of ejection at the CERN-PS.  
Mr. P.J. Litchfield, to the U.S.A., 2-7 Feb., to attend American Physical Society Meeting.

## Machine Schedules

**NIMROD Cycle 2 (21.1.69 - 11.2.69)**  
**Machine Physics:** High Energy Physics (K9, K10S and K8)  
Full details of Cycle 2 were given in Bulletin No. 3/69.

**P.L.A.** The machine will be shut down for one week, 3 - 9 Feb.

## Internal Events

Mon., 3 Feb., 11.30 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. P. Salin (CERN)	A Regge Pole Model with Absorption and Unitarity for $\pi$ Nucleon Scattering.
Wed., 5 Feb., 11.00 a.m. Conf. Room, R.1.	HEP Disc. Group	Dr. A. Anselm (Westfield Coll)	Regge Theory
Wed., 5 Feb. 12.40 p.m. Thurs. 6 Feb., 1.15 p.m. Lecture Theatre	Film	NIMROD:	A Machine to Smash Atoms - Part 1, What is a Proton Synchrotron?

An opportunity for those who missed the previous showing to see the series of programmes made by Granada Television and shown on I.T.V. in February and March 1967. In Part 1, Dr. Pickavance explains why it is necessary to work on such a large scale in one specialised branch of physics. He gives an account of how Nimrod was designed and built and how the physicists go about using it in their research.

Thurs. 6 Feb., 3.15 p.m. Lecture Theatre	Rutherford Laboratory Lecture	Prof. F. Hoyle, F.R.S. (Director, Inst. of Theoretical Astronomy, Cambridge)	"Pulsars"
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Prof. Hoyle will be dealing with some of the latest results from the world's largest radio telescope at Arecibo, Puerto Rico.

Mon., 10 Feb., 11.30 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. M.R. Jane, (RHEL & CERN)	A Measurement of the Phase of $\eta_{00}$ .
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- continued -



## External Events

Mon., 3 Feb., 4.15 p.m. Clarendon Lab., Oxford	Elementary Particle Theory Seminar	Prof. L. O'Raifeartaigh (I.A.S. Dublin)	Saturation of Current Algebra at Infinite Momentum
Mon., 3 Feb., 4.15 p.m. Queen Mary Col., London	Theor. Phys. Seminar	Prof. R. F. Streater (Bedford Coll.)	Symmetry Breakdown and Scattering in the Heisenberg Ferromagnet.
Mon., 3 Feb., 5 p.m. Univ. of Bristol	Phys. and Geo-Phys. Colloq.	Dr. B.M. Watrasiewicz (B.A.C. Filton)	Information Processing by Optical Methods
Thurs., 6 Feb., 4.15 p.m. Univ. of Birmingham	Maths. Phys. Seminar	Dr. J. F. Reading (AERE)	Fun Things with the Schrödinger Equation
Thurs., 6 Feb., 4.15 p.m. Clarendon Lab., Oxford	Theor. Phys. Seminar	Prof. M.K. Sundaresen	Introduction to the Bethe- Salpeter Equation
Fri., 7 Feb., 4.15 p.m. Clarendon Lab., Oxford	Colloq.	Dr. M.J. Aitken (Archaeology Research Lab. Oxford)	Archaeological Dating by Means of Physics
EVENT AT AERE.			
Tues., 4 Feb., 2 p.m. Conf. Rm., Bldg. 8.9	Theor. Phys. Seminar	Dr. C. Osborne	Neutron Scattering from Metals - Momentum Dependent Interactions

## Social News

RECORD SOCIETY, 12.30 p.m., Tues, 4 Feb., Lecture Theatre

"Highlights from Götterdämmerung"

A magnificent stereo recording of scenes from Wagner's great opera, the last of the "Ring" cycle. The numbers include, "Siegfried's Rhine Journey", "Hoi-Ho", "Auf Gunther", Brunnhilde's "Heitige Braud", Siegfried's Funeral and the final "Immolation Scene" depicting the destruction of Valhalla. The soloists are Birgit Nilsson, Wolfgang Windgassen, Gottlob Frick and Dietrich Fisher-Dieskau, with the Vienna Philharmonic Orchestra conducted by Georg Solti.

Truly a feast of sound to which all are welcome.

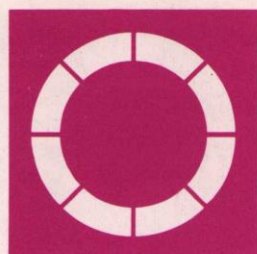
CHRISTIAN FELLOWSHIP. "You've a Bible in your home ..... now add it to your Life", so say the Back to the Bible Broadcast organisation. Mr. N. Lewis, their General Secretary for the U.K. will be at the Fellowship on Friday, 7 Feb., at 12.30 p.m. in the P.L.A. Conf. Rm., R.12. Join him and hear more of this unique organisation.

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

Rutherford Laboratory  
31.1.69.



6/69  
10 Feb 69



# Rutherford Laboratory Bulletin

## General News

**VISITORS.** Six members of the Ministry of Social Security, Didcot and Abingdon, will visit the Laboratory on Tuesday, 11 February.

Twelve members of staff and pupils of the North Berks College of Further Education will visit the Laboratory on Thursday 13 February.

Sixty graduates and students of the Institution of Electrical Engineers, London Branch, will visit the Laboratory on Saturday, 15 February.

**RADIATION PROTECTION NOTICE - FILM ISSUES.** It is Period 2. Colour Strip - BROWN for  $\beta\gamma$  and fast neutron films. Please check that you are wearing the correct films and that all old films have been returned.

**OVERSEAS VISITS.** Mr. D.A. Gray, to CERN, 10-11 Feb., to attend meeting of the 300 GeV Magnet Study Group.

Dr. G.H. Stafford, to CERN, 11-12 Feb., to attend meeting of Nuclear Physics Research Committee.

## Machine Schedules

*4.4.3.69 - 25.3.69*  
NIMROD Cycle 3 (11.2.69. - 4.3.69.)  
Machine Physics  
High Energy Physics

Team	Beam	Experiment	
Birmingham U.	K 12	$K^+ p$ Differential Cross-section Measurements from 0.45 - 0.85 GeV/c	Data
Cambridge U/RHEL	K 13	Measurement of the Amplitude for $\Delta S = -\Delta Q$ Interactions in $K^0$ Decay.	Data
Westfield Coll./RHEL	K 14	Non-leptonic Decay Parameters of the $\Sigma^+$	Data
Imp. Coll./Southampton	$\pi$ 7	An Investigation of Narrow Bosons Produced in $\pi p$ Collisions.	Setting up
AERE/QMC/RHEL/ Bergen	P 71	pp Elastic Scattering at Large Angles Between 1.5 and 4.0 GeV/c	Setting up
UCL/RHEL	K 8	$K^- p$ Differential Cross-sections, 0.85-2.2 GeV/c	Data
Birmingham U/RHEL	X <sub>1</sub> /K9	Beam Tuning - 4 GeV/c $\pi^+$	Data
P.L.A.		<i><math>\pi^+</math> d Exposure at 4 GeV/c</i>	

Date	Team	Experiment
10 Feb.	RHEL	'D' Parameter Measurements on Al <sup>27</sup> & Co <sup>59</sup> at 50 MeV
11 Feb.	Radiation Protection Foil Calibrations Group (RHEL)	
12-17 Feb.	Birmingham U.	Polarization in Elastic Scattering from Fe <sup>54</sup> and Fe <sup>56</sup>

## Internal Events

Mon., 10 Feb., 11.30 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. M.R. Jane (RHEL & CERN)	A Measurement of the Phase of $\eta_{00}$
Wed., 12 Feb., 11 a.m. Conf. Rm., R.1	HEP Disc. Group	Dr. P.J. Litchfield	Report on A.P.S. Meeting in New York
Wed., 12 Feb., 12.40 p.m. Thurs. 13 Feb. 1.0 p.m. Lecture Theatre	Film		"Our Friend the Atom", a 45 min. colour film. (please note change of time on Thursday).
Wed., 12 Feb., 2 p.m. Conf. Rm. Bldg. R12	P.L.A. Group Seminar	Dr. J.M. Irvine (U of Manchester)	A Review of Nuclear Structure Theory
Fri., 14 Feb., 2.15 p.m. Lecture Theatre.	Staff Meeting		The Director will preside and the agenda will include the Presentation of the John Wilkins Award for 1968.
Mon., 17 Feb., 11.30 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. A. Micheli (CERN)	2 Project

A Walt Disney animated film giving an introduction to atomic theory. History, development and applications of atomic theory are dealt with in a manner which is easily assimilated by non-scientists.



## External Events

Mon., 10 Feb., 4.15 p.m. Clarendon Lab., Oxford	Elementary Particle Theory Seminar.	Dr. L.A. Copley (Oxford)	$\lambda\phi^4$ Theory of Meson-Meson Interactions.
Mon., 10 Feb., 4.15 p.m. Queen Mary Coll., London	Theor. Phys. Seminar	Prof. M. Wortis (Illinois and Imp. Coll.)	Correlations and Scaling in the 3-Dimensional Ising Model
Mon., 10 Feb., 5 p.m., Univ. of Bristol.	Phys. and Geo-phys. Colloq.	Dr. R.R. Hunter (Bristol)	Cosmic X-Ray Sources
Mon., 10 Feb., 5 p.m., Univ. of Reading	Physics Dept. Colloq.	Prof. W.C. Price (London)	Developments in Photoelectron Spectroscopy.
Tues., 11 Feb., 2 p.m. Lecture Theatre, Daresbury	Daresbury Lecture Series	Prof. Cutkosky (Cambridge Eng. & Carnegie Mellon)	$K^+p$ Phase Shift Analysis
Tues., 11 Feb., 2.30 p.m. 21, Banbury Rd., Oxford.	Nuclear Phys. Seminar	Dr. A. Elwyn (Argonne Nat. Lab.)	Intermediate Structure in Neutron Scattering.
Wed., 12 Feb., 2.30 p.m. Univ. of Manchester	Theor. Phys. Seminar	Prof. P. Résibois (Brussels)	Spin Dynamics
Wed., 12 Feb., 7 p.m. S.E.B. Yarnton, Oxford	I.E.E. District Meeting.	A.N. Todd	Computers in Management
Thurs. 13 Feb., 4.15 p.m. Univ. of Birmingham	Maths. Phys. Seminar	Dr. G.L. Tindle (Q.M.C.)	Regge Families
Thurs., 13 Feb., 8.30 p.m. 21 Banbury Rd., Oxford.	Seminar in Elementary Particle Phys.	Dr. G. Oades: Dr. M. Bowler:	$K^+p$ Phase Shift Analysis and the $Z_1$ (1910) Baryon. $\pi^+p$ Collisions in the Momentum Range 600-800 MeV/c. Preliminary Results on the $\pi\pi N$ States
Fri. 14 Feb., 4.15 p.m. Clarendon Lab., Oxford.	Colloq.	Mr. H. Bolton (Imp. Coll.)	Linear Induction Motors and Allied Devices.

## Social News

CHRISTIAN FELLOWSHIP "Every Man a Bible Student". Sometimes the word temptation is used in the Bible in the sense of testing. The Devil tempts, but God tests; it is necessary to distinguish between the two. David White is leading the study at the P.L.A. Conf. Rm., Fri., 14 Feb., 12.30 p.m. Come and swell the numbers.

RECORD SOCIETY. 12.30 p.m., Tues., 11 Feb., Lecture Theatre.  
"Organ Showcase" (Stereo tape-recording).

A miscellany of items, light and serious, to delight the heart of any organist (and others!); including Bach from the Royal Festival Hall; César Franck from St. Thomas', New York; Bossi from York Minster, and various theatre organ items. The main work is Mozarts' "Fantasia in F. Minor" (K.608), played by Simon Preston in Westminster Abbey.

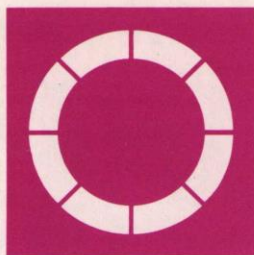
If last weeks' Wagner programme was a "feast of sound", this one is truly "orgiastic".

Rutherford Laboratory  
7.2.69.

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



7/69  
17 Feb. 69



# Rutherford Laboratory Bulletin

## General News

**OBITUARY NOTICE.** We deeply regret to announce the death of Mr. F. S. Abbott of the Nimrod Engineering Department on Friday, 7 February. Fred Abbott who was aged 56 joined the Laboratory in August 1962 as a craftsman and was promoted to Technician II in November 1964. He was both popular and respected by his colleagues and will be sadly missed. Our deepest sympathy is extended to his wife.

**RADIATION PROTECTION NOTICE - FILM ISSUES.** It is Period 2. Colour Strip - BROWN for  $\beta\gamma$  and fast neutron films. Next film change - 24 February.

**MISSING EQUIPMENT.** The following item of equipment has been reported missing from Room 1.43, Building R.1:-

Socket Set, Type A.F. (thought to be King Dick) in a blue coloured box.

Will anyone with information on the present whereabouts of this item, please contact J. A. Beaney, R.1, Ext. 6236 or P. R. Pitts, R.1, Ext. 6158.

**SHORT ADVANCED COURSES AT THE UNIVERSITY OF SALFORD.** Twenty-seven short courses, from one day to two weeks, intended mainly for graduates, professionally qualified people or those experienced in the particular field, will be offered between 31 March and 16 July 1969. The Departments concerned are:- Chemical Engineering, Chemistry and Applied Chemistry, Civil Engineering, Electrical Engineering, Mechanical Engineering and Pure and Applied Physics. Further information from H. F. Norris, Room 42, R.20 Ext. 484.

### FORTHCOMING CONFERENCES DURING MARCH 1969.

- 5-7 Mar. 1969 Particle Accelerator Conference, at Washington U.S.A.
- 15-15 Mar. 2nd Conference on Nuclear Isospin, at Pacific Grove, U.S.A.
- 17-22 Mar. Spring Meeting on High-Frequency Physics and Molecular Physics at Bad Nauheim, Germany.
- 17-22 Mar. Spring Meeting on Semiconductor Physics, Metal Physics, Low Temperature and Thermodynamics, at Munich, Germany.
- 24-27 Mar. 16th International Scientific Congress on Electronics, at Rome, Italy.
- 24-27 Mar. Conference on Low Temperature and Electric Power, London, England.
- 24-27 Mar. 2nd Conference on Semiconductor Device Research, at Munich, Germany.
- 24-29 Mar. Spring Meeting on Nuclear Physics, Germany.
- 26-28 Mar. Conference on Elementary Particles, at Cambridge, England.

**JOHN WILKINS AWARDS 1968.** At the Staff Meeting on Friday, 21 February, the Director, Dr. T. G. Pickavance will be presenting the John Wilkins Prizes for 1968. The Scientific Assistant Award goes to Mr. Graham Waters who joined the Laboratory on December 1964. He left school with six O-levels and continued his studies, by day release in Oxford, where he obtained O.N.C. in Science. Mr. Waters, who holds the Duke of Edinburgh's Gold Medal, is now a student at the City University where he is taking the B.Sc. sandwich course in Applied Physics.

Mr. Richard J. A. Bevan receives the Apprentice Award for 1968. He joined the Laboratory as a Student Apprentice in January 1966 having reached 'S' level in Physics and Chemistry at Oundle Public School.

Mr. Bevan is at present reading for his degree in Electrical Engineering at Imperial College, London, and was successful in passing the Part II examinations during 1968. He will complete his degree course during 1969.

**OVERSEAS VISITS.** Mr. J. A. Fox, to CERN, Paris and Rome, 18 Feb - 3 March for discussions with French, German and Italian Power Supplies Companies.

## Machine Schedules

NIMROD Cycle 3 (11.2.69 - 4.3.69)

Machine Physics: High Energy Physics (K12, K13, K14,  $\pi^+$ , P71, K8 and X1/K9). Full details of Cycle 3 were given in Bulletin No. 6/69.

### P.L.A.

Date	Team	Experiment
18 - 23 Feb.	R.H.E.L.	'D' Parameter Measurements on $A^{27}$ and $Co^{59}$ at 50 MeV

## Internal Events

Mon., 17 Feb., 11.30 a.m., Lecture Theatre	Nimrod Lecture Series	Dr. A. Michelini (CERN)	$\Omega$ Project
Wed., 19 Feb., 11 a.m., Conf. Rm. R.1	H.E.P. Disc. Group	Mr. D. Morgan	A survey of Recent Developments in the Veneziano Model.
Wed., 19 Feb. 12.40 p.m. Thurs. 20 Feb., 1.15 p.m. Lecture Theatre	Film		NIMROD, Part 2.

In Part 2, Dr. Pickavance continues the story and deals with the design and construction of Nimrod upto the point of the actual commissioning of the machine.

Mon., 24 Feb., 11.30 a.m., Lecture Theatre	Nimrod Lecture Series	Dr. P. Sonderegger (Saclay)	The Reaction $\pi^- p \rightarrow \pi^0 \pi^0 \pi^0$ at High Energy.
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## External Events

Mon., 17 Feb., 4.15 p.m., Clarendon Lab. Oxford	Elementary Particle Theory Seminar	Prof. B. W. Lee (Stony Brook and Orsay)	Renormalization of the Sigma Model.
Tues., 18 Feb., 7.30 p.m., Univ. of Reading	I.E.R.E. District Meeting	Mr. P.C.F. Wolfendale (Automatic Systems Laboratories Ltd.).	Positional Transducer and Precision Electrical Measurements.
Wed., 19 Feb., 2.30 p.m., Univ. of Manchester	Theor. Phys. Seminar	Dr. J. S. Faulkner (Sheffield) (postponed from 29 January)	Calculation of Constant Energy Surfaces by the Korringa-Kohn-Rostokov Method.
Thurs., 20 Feb., 4.15 p.m. Univ. of Birmingham	Maths. Phys. Seminar	Dr. M. B. Hooper (Oxford)	Isospin Coupling in Stripping Reactions.
Thurs., 20 Feb., 4.15 p.m., Clarendon Lab. Oxford	Theor. Phys. Seminar	Dr. Daphne Jackson (Surrey)	Nuclear Structure Information from Two-Particle Knock-Out Reactions.
Thurs., 20 Feb., 8.30 p.m., 21 Banbury Rd., Oxford	Seminar in Elementary Particle Physics	Prof. D. H. Miller (L.R.L. on leave at CERN)	Where are Quarks?
Fri., 21 Feb., 4.15 p.m., Clarendon Lab., Oxford	Colloq.	Dr. M. J. Whelan (Oxford)	Electron-Optical Techniques for the Study of Materials.
EVENT AT DARESBURY			
Tues., 18 Feb. 2 p.m. New Lecture Theatre	Daresbury Lecture Series	Dr. A. Donnachie (Glasgow)	Report on the CERN Weak Interaction Conference.
EVENTS AT AERE			
Tues., 18 Feb., 2 p.m. Conf. Rm. Bldg 8.9	Theor. Phys. Seminar	Prof. M. F. Kahn (Manchester)	Pulsars
Thurs., 20 Feb., 3.30 p.m. Conf. Rm. H.8.	Nuclear Phys. Colloq.	Dr. Keith Jones (Brookhaven and Oxford)	Some Effects of Neutron Bombardment on Germanium Gamma-Ray Detectors.

## Social News

**DATE FOR YOUR DIARY.** H.E.P. Division are playing host at a dance on Friday, 21 February, at the Abbey Hall, Abingdon, commencing at 8.0 p.m. They will be pleased to see you and your friends. Tickets - 10/- from H.E.P. and P.L.A. Admin. Offices.

**CHRISTIAN FELLOWSHIP.** The Datchett Fellowship is comprised of retired missionaries and ministers, but is very very much alive to our needs in 1969. The Reverend McIntosh, from this Fellowship, is speaking to the Rutherford Fellowship on Friday, 21 February at 12.30 p.m. in the P.L.A. Conf. Rm. and request the pleasure of your company at the meeting.

**RECORD SOCIETY.** 12.30 p.m., Tues., 18 Feb., Lecture Theatre.

"Fifty Stars, Fifty Hits of Country Music".

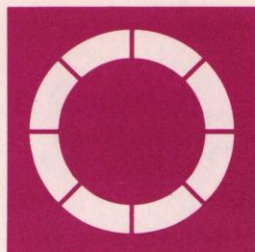
A selection of county music including such stars as Patsy Cline, Red Hayes, Roger Miller, Minnie Pearl, Texas Ruby and Archie Campbell.

Rutherford Laboratory  
14.2.69

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



8/69  
24 Feb 69



# Rutherford Laboratory Bulletin

## General News

**VISITORS** Thirty Oxford University Undergraduates will visit the Laboratory on Saturday, 1 March.

**RADIATION PROTECTION NOTICE - FILM ISSUE** Period 3 commences next Monday, 24 February. Colour Strip - BLUE for  $\beta\gamma$  and fast neutron films. Please change films promptly and return all old ones.

**OVERSEAS VISITS** Mr. K. B. Shaw to the U.S.A., 23 Feb.-8 March, to attend 1969 Particle Accelerator Conference at Washington and to visit other Laboratories for discussions.

Mr. H. Hurst to the U.S.A., 26 Feb.-12 March, to attend I.B.M. Users Conferences at Los Angeles and to visit other centres for discussions.

Dr. G. H. Stafford, to CERN, on 27 Feb., to attend meeting of Organizing Committee for Florence Conference.

**1969 PHYSICS EXHIBITION** The 1969 Physics Exhibition will be held at Alexandra Palace, N. London from 10-13 March inclusive. The Laboratory is showing three exhibits on the S.R.C. Stand No. 10. They include:-

1. Automatic data read-out from spark chambers using an on-line digital computer - exhibited by HEP Division, Counter Group B.
2. Hall-effect magnetic field probe - exhibited by the PLA Nuclear Physics Group.
3. Apparatus for performing mechanical tests at 4.2°K - exhibited by the Engineering Services Department, Chemical Technology and Radiochemistry Group.

Admission tickets are now available and can be obtained from H. F. Norris, R.20, Extn. 484.

## Machine Schedules

**NIMROD** Cycle 3 (11.2.69-4.3.69)

Machine Physics: High Energy Physics (K12, K13, K14,  $\pi$  7, P71, K8 and X1/K9)

Full details of Cycle 3 were given in Bulletin No. 6/69.

**P.L.A.** The machine will be shut down for one week, 24 Feb.-2 March.

## Internal Events

Mon., 24 Feb., 11.30 a.m.  
Lecture Theatre

Nimrod Lecture  
Series

Dr. P. Sonderegger  
(Saclay)

The Reaction  $\pi^- p \rightarrow \pi^0 \pi^0 n$  at high energies.

Wed., 26 Feb., 11 a.m.  
Conf. Rm., R.1.

HEP Disc.  
Group

Dr. C. M. Fisher

Possible Future Bubble Chamber Experiments using the Muon-Hydrogen Target Technique.

Wed., 26 Feb., 12.40 p.m.  
Thurs. 27 Feb., 1.15 p.m.  
Lecture Theatre

Film

"Impulses", a 26 min., black and white and colour, NATO film.

A film telling the story of communication through the ages from the earliest days when watchers gave warning of an advancing enemy by lighting flares on mountain tops to the latest Ballistic Missile Early Warning System. The early struggles of Marconi and the first days of radio and television are described and the film which begins with two reels in black and white, ends with a third reel in colour describing the progress in communications since 1960.

Mon., 3 March, 11.30 a.m.  
Lecture Theatre

Nimrod Lecture

Dr. Arne Lundby  
(CERN)

$K^+$  Elastic Scattering in the Intermediate and the High Energy Region.

## External Events

Mon., 24 Feb., 4.15 p.m.  
Clarendon Lab., Oxford.

Elementary Particle  
Theory Seminar

Dr. P. V. Landshoff  
(Cambridge)

Regge Cuts: A Review of the Theory

Mon., 24 Feb., 4.15 p.m.  
Mary Coll., London.

Theor. Phys.  
Seminar

Prof. G. Lüders  
(Göttingen)

Critical Fields in Superconductors.

Mon., 24 Feb., 5 p.m.  
Univ. of Reading.

Colloq.

Dr. K. Mendelssohn  
(Oxford)

States of Aggregation.

Tues., 25 Feb., 2 p.m.  
Lecture Theatre, Daresbury

Daresbury Lecture  
Series

Prof. A. B. Clegg  
(Lancaster)

Utilisation Study of the NINA Booster.

Thurs., 27 Feb., 8.30 p.m.  
21 Banbury Rd., Oxford.

Seminar in Elementary  
Particle Physics

Dr. D. Miller  
(U.C.L.)

Coherent Production of  $p\pi^+\pi^-$  States for 28 GeV/c Protons in the Neon-Hydrogen Chamber at Brookhaven.

Fri., 28 Feb., 2 p.m.  
Lecture Theatre, Daresbury.

Daresbury Lecture  
Series

Dr. Kamal

Pion Form-Factors and  $\pi-\pi$  Phase Shifts.



EVENT AT AERE

Tues., 25 Feb., 2 p.m.,  
Conf. Rm., Bldg. 8.9

Theor. Phys.  
Seminar

Dr. Lynn  
(AERE)

Intermediate Structure in Fission  
Phenomena.

**Social News**

RECORD SOCIETY 12.30 p.m., Tues., 25 Feb., Lecture Theatre

Rachmaninoff: Piano Concero No. 1 in F<sup>♯</sup> Minor

An opportunity to hear a rarely-heard but characteristic work (Opus. 1) of this most popular composer, played in a superb new stereo recording by Valentina Kameniková, who although Russian born is now a professor in the Prague Conservatory. The Brno State Philharmonic Orchestra is conducted by Jiří Pinkas.

The programme will commence with the "Fidelio" Overture by Beethoven, played by the Concertgebouw Orchestra of Amsterdam, conducted by Wolfgang Sawallisch. This is also a stereo recording.

CHRISTIAN FELLOWSHIP Prayer is communion between man and his Maker. Does prayer change things? Join the prayer meeting on Fri., 28th Feb. at 12.30 p.m., P.L.A. Conf. Rm., when the leader will be Ken Potter.

H. F. Norris, Extn. 484

Scientific Admin. Group, Building R.20

Rutherford Laboratory

21.2.69

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