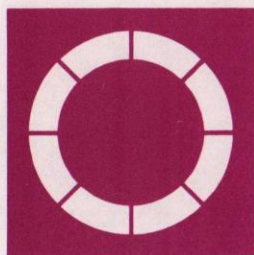
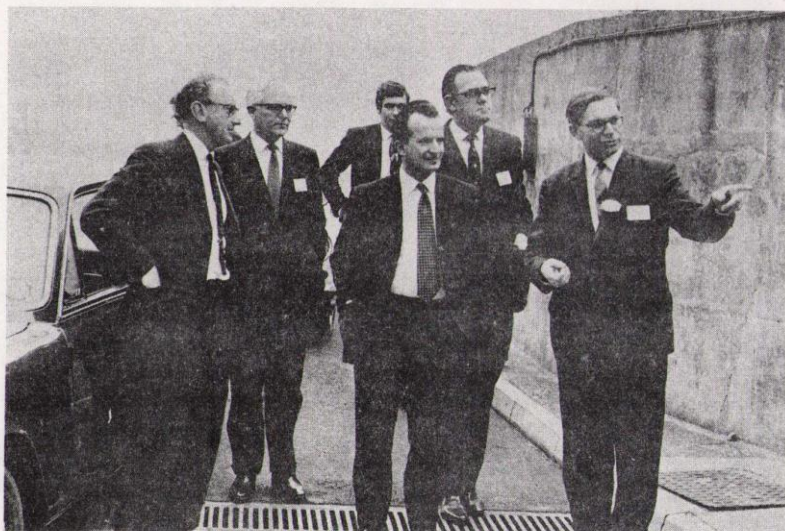


No 5/70  
2 Feb 70



# Rutherford Laboratory Bulletin

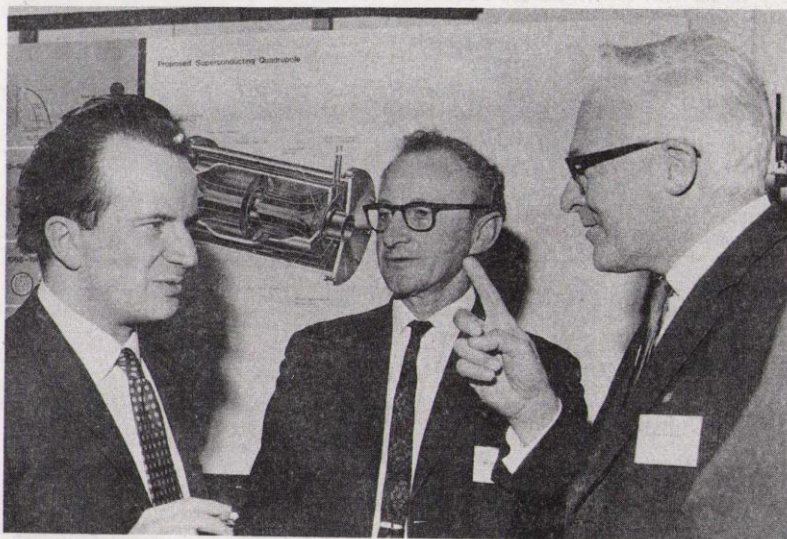


MINISTERIAL VISIT - 28 JANUARY 1970

Outside the Injector Hall, Mr D Gray points to bottle of hydrogen, the source of protons for Nimrod.

Photo (left to right) - Dr Stafford, Dr Pickavance, the Minister, Sir Brian Flowers & Mr Gray.

Dr Pickavance & Dr Stafford discuss Superconducting Magnets with the Minister.



## General News

**EXTERNAL COURSE.** A series of six lectures on Integrated Circuits and their Applications will be given at the School of Engineering, Oxford College of Technology commencing Monday, 9 February at 6.30 p.m. This course is presented in conjunction with Mullard Ltd who will provide Integrated Circuit specialist lecturers. Further information and application forms from Mrs R A Jeans, R20.

**FILM NOTICE.** It is Period 2. Colour Strip - GREEN for 35 films. The fast neutron films issued at the end of Period 1 are to be worn for Period 2 also. Please return all old films promptly.

**OVERSEAS VACANCIES.** ESRO (details on Notice Boards) Senior Research Scientist in Experimental Group, Frascati, Italy.

**OVERSEAS VISITS.** Mr L G Denton, to CERN, 1-4 Feb., to discuss design and manufacture of  $\bar{p}$ -p experiment, liquid hydrogen target. Mr L Phillips and Mr N Swan-Taylor, to CERN, 1-6 Feb., for installation of M.A.S.P. on Dr Bugg's beam line on the synchrocyclotron. The Director, to CERN, 4 Feb for one day, to attend meeting of Nuclear Physics Research Committee.



## Machine Schedules

NIMROD Cycle 1 (3.2.70 - 24.2.70)  
Machine Physics: High Energy Physics

Team	Beam	Experiment	
Camb. Univ.	X1/K9	Investigation of Anomalies in Bremsstrahlung and Electron Pair Production	Data
Birmingham U./RHEL	X2/K12A	$K^+$ Elastic Scattering and $K^+$ Charge Exchange Scattering between 450 and 950 MeV/c	Setting up
Camb.U./RHEL	X2/K13B	Investigations of Bremsstrahlung Anomalies	Setting up
Oxford U./RHEL	X2/K14A	Polarization Effects in $\pi^+$ Elastic Scattering	Setting up
Westfield Coll/RHEL	X3/ $\pi$ 8	Measurement of Eta Decay Asymmetry	Setting up
Bristol Univ.	X3/K15	$K^+$ Differential Cross Sections from 1.07 - 2.0 GeV/c	Setting up
QC/AERE/Bergen/RHEL	P71	pp Elastic Scattering at Large Angles between 1.5 and 4.0 GeV/c	Data

## Internal Events

Mon. 2 Feb., 11.30 a.m., Lecture Theatre	Nimrod Lecture Series	Dr I.S.Hughes (Glasgow)	$K^+$ Interactions in the Range 0.9 - 1.5 GeV/c and Evidence for a K (2200) in $K^+$ Interactions at 10 GeV/c.
Wed. 4 Feb., 11.00 a.m., Conf. Room, Building R.1.	H.E.P. Disc Group	D.J. Wallace (Edinburgh)	Implications of $SU_3$ and $U_3$ Chiral Lagrangians on the $\tau - \tau'$ system.
Wed. 4 Feb., 12.40 p.m., Thurs. 5 Feb., 1.15 p.m., Lecture Theatre	Film Show		"Combustion Techniques in Liquid Scintillation Counting", a 25 min. colour film from the A.E.C.

This film describes a new refined combustion technique in liquid scintillation counting which has been developed at the Argonne National Laboratory. This combines the simplicity of dry catalytic combustion with the increased efficiency of standard vacuum line techniques and enables the biologist to prepare and measure very low beta energies in large numbers of biological samples.

Mon. 9 Feb., 11.30 a.m., Lecture Theatre	Nimrod Lecture Series	Dr M. Bowler (Oxford)	Recent Studies of the "Q" Bump.
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Rutherford Laboratory Lecture:- Advance Notice. Thurs., 12 Feb, 3.15 p.m., Lecture Theatre. "The Work of the Radiobiology Unit", by Dr R.H. Mole of the M.R.C. Radiobiology Unit, Harwell.

## External Events

Mon. 2 Feb., 4.15 p.m., Queen Mary College	Theor. Phys. Seminar.	Prof. L. Castillejo (Univ.Coll)	Recent Developments in the Eikonal Approximation.
Tues. 3 Feb., 2 p.m., Daresbury Laboratory	Lecture Series	G. Buschhorn (DESY)	Charged Pion Photoproduction.
Tues. 3 Feb., 2.30 p.m., 21 Banbury Rd., Oxford.	Nucl. Phys. Seminar.	M. Thomas (Liverpool)	Experimental Studies of Nuclei at the Beginning of the $F_{7/2}$ Shell.
Thurs. 5 Feb., 2.30 p.m., Clarendon Lab., Oxford.	High Energy Theory Seminar	Dr. H Burkhardt (Birmingham)	Smoothing Veneziano
Thurs. 5 Feb., 4.15 p.m., Clarendon Lab., Oxford	Theor. Phys. Seminar.	Dr. R.B. Stinchcombe	Excitations in Magnetic Systems.

## Social News

CHRISTIAN FELLOWSHIP. Fri., 6 Feb., 12.30 p.m., Conf.Room, R12. Prayer Meeting led by Frank Smith. All welcome.

RECORD SOCIETY. 12.30 p.m., Tues., 3 Feb., Lecture Theatre. Andy Williams in "Love, Andy".

Rutherford Laboratory

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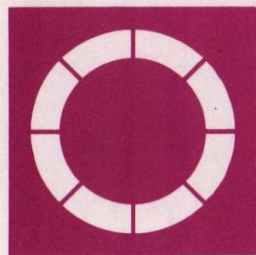
H. F. Norris Ext. 484

Scientific Admin. Group  
Building R.20.

STCP PRESS. A further account and more photographs of the Ministerial visit will be published in next week's Bulletin.



No. 6/70  
9 Feb 70



# Rutherford Laboratory Bulletin

The following message has been received from Mr G T Fowler, Minister of State for Education and Science:-

"I am writing to say how much I enjoyed my visit last Wednesday.

The equipment and the work being carried out impressed me very much. My only regret is that I did not spend more time at the Laboratory.

I very much appreciate all the effort that was made to make my visit a success and I would be grateful if you could thank all of those concerned."

## General News

### NEWS FROM NIMROD - X<sub>3</sub> EXTRACTED PROTON BEAM

Preliminary commissioning tests were carried out during the last week of January on a "Thin-Septum" Extraction System for the X<sub>3</sub> Extracted Proton Beam at Nimrod.

Results have been extremely encouraging: a conservative estimate is that  $9 \times 10^{10}$  protons per pulse were delivered at the external target within a 1.0 cm diameter spot. This corresponds to about 45% extraction efficiency, a factor 1.5 greater than the normal X<sub>3</sub> system.

The thin-septum scheme uses a new extractor magnet, XM9 in Straight 4, with a 1.0 cm septum; and it dispenses with the plunged quadrupole in Straight 1. To capture the emergent beam, two specially designed "Header-tank Quadrupoles", XHQ2 and XHQ3, are required in Octant 5, located inside the Nimrod vacuum header vessel.

For the recent tests, only XHQ2 was installed: a further increase of efficiency (to 60% or more) is anticipated when XHQ3 arrives later this year. It is hoped to try an improved version of the 1.0 cm extractor magnet before the middle of 1970.

**PHYSICS EXHIBITION** The 1970 Physics Exhibition will be held at Alexandra Palace from 2 to 5 March inclusive. Tickets are now available from H F Norris R20, Ext 484. Details of the Rutherford Laboratory's contribution will be given in a later Bulletin.

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

**OVERSEAS VACANCIES:** CERN: (details in Room 68 R20) Telex Operator, Grade (4) 5; Computer Operations Supervisor, Grade (7) 8; Safety Inspector Grade (7) 8; Designer- Draughtsman (Mechanical, Grade (6) 7; Systems Analyst/Programmer (Administrative) Grade 8; Electrical Engineer or Physicist (Nuclear Physics Div) Grade (9) 10; Electrical or Electro-Mechanical or Electronics Engineer (Nuclear Physics Div) Grade (8) 9; Shorthand Typist, Grade 5; Technical Assistants (Electronics) Grade (7) 8; External Work Assistant Grade 7; Laboratory Technicians (Electrical, Electronic and Mechanical Grade (6) 7.

**OVERSEAS VISIT.** The Director, to Paris, 10-13 Feb, to attend meetings of European Physical Society Executive Committee and Council.

**MINISTERIAL VISIT.** Owing to lack of space and the fact that a comprehensive display of photographs were on show in the R1 Foyer unexpectedly early we have decided against printing anymore in the Bulletin despite last weeks 'Stop Press' announcement.

## Machine Schedules

NIMROD Cycle 1 (3. 2. 20 - 24. 2.70)

Machine Physics : High Energy Physics (X1/K9, X2/K12A, X2/K13B, X2/K14A, X3/TT 8, X3/K15 & P71) Full details of Cycle 1 were given in Bulletin No 5/70.

## Internal Events

Mon, 9 Feb, 11.30 am. Lecture Theatre	Nimrod Lecture Series	Dr. M Bowler (Oxford)	Recent Studies of the "q" Bump.
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Wed, 11 Feb, 11 am. Conf. Rm, R1	HEP Disc Grp.	"Theorist Suggest Experiments". The last of three meetings in which members of the theory group suggest areas where future experiments may be of most value.	
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Wed. 11 Feb, 12.40 pm. Thurs 12 Feb, 1.15 pm. Lecture Theatre	Film Show	"Himalayan Tapestry", a 31 min. colour film from Shell.	
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Kashmir, lying at the foot of the Himalayas, is the setting for the film which shows some of the most beautiful scenery in the world. The famous Moghul Gardens planned centuries ago to delight an emperor, forest ringed lakes, the Kashmiris working at their traditional crafts, making exquisite shawls rings and jewellery, and the breeding of silk worms are all shown.

Thurs, 12 Feb 3.15 pm Lecture Theatre	Rutherford Laboratory Lecture	Dr R H Mole (MRC Radio- biology Unit, Harwell)	The work of the Radiobiology Unit.
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Mon, 16 Feb, 11.00 am. Lecture Theatre	Nimrod Lecture Series	Dr J Neale and Dr J Kushbrooke (Cambridge)	Anomalies in Electromagnetic Processes (to be followed immediately by two proposal lectures.
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1. Proposal 77. "A Proposal for an Experiment in the 1.5m. HBC to Investigate Anomalies in Electromagnetic Processes". Cambridge Bubble Chamber Group - the lecture will be given by Drs. Neale and Kushbrooke.

2. Proposal 78. "A proposal to Investigate Bremsstrahlung Anomalies", Cavendish Laboratory Cambridge/RHEL Collaboration. The lecture will be given by Dr. K Riley of Cambridge University.



## External Events

Mon, 9 Feb, 5 pm. Univ. of Reading	Colloq	Prof H Hahn (Clarendon Lab)	Title to be announced.
Tues, 10 Feb 2.30 pm. 21 Banbury Rd, Oxford	Nucl. Phys. Seminar	S. Perez (Oxford)	Inelastic Scattering and the Nuclear Shell Model
Wed, 11 Feb, 2.30 pm. Univ. of Manchester	Theor. Phys. Seminar	Dr R J Eden (Cambridge)	Theorems on High Energy Collisions.
Wed, 11 Feb, 3.0 pm. Univ. of Cambridge	High Energy Phys. Seminar	H. Osborn (Glasgow)	Duality and Chirality
Thurs, 12 Feb, 2.15 pm. Univ. of Southampton	Particle Phys. Seminar	C A Coulson (Maths Inst. Oxford)	Commutator Brackets as a Way of Solving Wave Equations.
Thurs, 12 Feb, 5.30 pm. Imp. Coll, London	Inst. of Maths Meeting	Prof. M J Lighthill (Camb)	will show and discuss a film entitled "Aero-dynamic Sound Generation.
Thurs, 12 Feb, 8.30 pm 21 Banbury Rd, Oxford	Seminar in Elementary Particle Physics	Dr T Novey (Argonne)	Current Experimental Work at the ZGS Accelerator.
Fri, 13 Feb, 4.15 pm. Clarendon Lab, Oxford	Colloq	Prof R H Dalitz (Oxford)	Superstructure for Elementary Particles.

### EVENTS AT AERE

Tues, 10 Feb, 2 pm Conf Rm. B 8.9	Theor. Phys Seminar	Dr R Cheshire	Scheduling Theory
Thurs, 12 Feb, 3.30 pm. Conf. Rm. H.8	Nucl. Phys. Colloq	Dr J E Lynn (N P Div)	Recent Developments on the Stritinsky Potential

## Social News

**CHESST TOURNAMENT 1969/70.** Seven rounds completed, two to go and once again Bill Turner with 7 points, is in the lead by  $1\frac{1}{2}$  points. Following Bill is Noel Stewart with  $5\frac{1}{2}$ , Peter Craske and Lindsay Duncan with 5 points a piece and four people, Fred Lunn, Ray Culliford, Mick James and Alan Oxley on the  $4\frac{1}{2}$  points mark.

**RECORD SOCIETY** 12.30 pm., Tues, 10 Feb, Lecture Theatre

"Brubeck Compadres Mulligan".

At a time when Dave Brubeck had officially disbanded his quartet, this tour of Mexico was mooted. Gerry Mulligan was a natural on the saxophone having stood in many times with the quartet. This recording made live during the tour will bring to all who appreciate artistry and genius, the feeling of sharing in relaxed jazz on a truly memorable tour.

**CHRISTIAN FELLOWSHIP** Interest in Black Magic, the worship of Satan and the study of the Occult has increased during the last few years. Do spiritual powers above our own earthly plain really exist or are they figments of the imagination. Ernie Newbold will be leading a study on this for the next two Fridays (13 & 20 Feb) at 12.30 pm in the P L A Conf. Rm.

**C S M A OXFORD GROUP** Film Show, at 8 pm, in the Clubroom, the Old White House, Abingdon Rd, Oxford on Friday 13 February.

Programme:- Disc Brakes, Return to Kerry, In the Rover Tradition, and In Search of the Kalahari Bushmen

Further details from the local representative, Mr L N Dutton, R25, Ext 224.

**TAIL PIECE.** Another of those addresses:

The Science Research Council, Chilton, Berkshire.  
for the attention of Mr Rutherford (Building R1).

Rutherford Laboratory  
6.2.70

H F Norris Ext 484  
Scientific Admin Group  
Building R20.

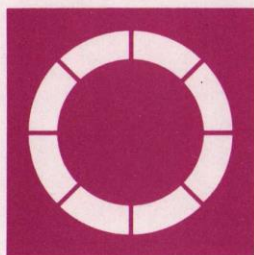
### STOP PRESS

Fri, 13 Feb 2.30 pm. Clarendon Lab. Oxford	High Energy Theory Seminar	Mr P Brooker (Oxford)	PCAC and	Decay
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SAW



No 7/70  
16 February 70



# Rutherford Laboratory Bulletin

## General News

### A COMFORTABLE RETIREMENT.

On Friday 6 February, Mr A C Watkins retired, two days before his 68th birthday. He joined AERE Harwell, in 1958 and arrived at Building 412 (now known as R 12) in September 1959 and apart from a few months in R 1 has served the P.L.A. as a messenger, literally from start to finish.

Arthur started work in 1915 on a farm, becoming head cowman in 1922. In 1931 he was promoted (if that was the right word in 1931) to farm baliff, only leaving this way of life in 1958 when he joined Harwell.

On his last day but one, Professor Allen on behalf of his many friends, presented Arthur with a cheque for £28, and a card on which were 210 signatures. Professor Allen remarked on the large number of people who had gathered for the presentation, and spoken of the invariable kindness and helpfulness that Arthur had always shown. Suggesting he should write his own memo, "The Scientist, is he human?", Professor Allen expressed deep concern on who was going to provide the threepenny pieces for the tea machine in future.

Although Arthur has a busy life planned with his own garden and his son's small-holding, he obviously intends to take some time off as the cheque will be used to purchase a new armchair.

We are sure his many friends will join us in wishing him a long and happy retirement - but Arthur, not too many retirements to that armchair!



### OXFORD SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE (O.S.S.R.S.)

The British Society for Social Responsibility in Science was inaugurated at the Royal Society on 19 April 1969. Local Societies are being formed throughout the country, and the Oxford Society held its preliminary meeting on 13 January 1970.

The four aims of the society are as follows: to stimulate among scientists an awareness of their work and their corresponding social responsibility; to draw the attention of both scientists and the public to the political, economic and social pressures affecting the development of science; to create an informed public which can exercise choice over the implication and consequences of scientific development; to seek international exchange on these matters with similar groups in other countries.

The Society is forming study groups to relate the aims of the society to specific local and national issues.

For further information on O.S.S.R.S. please write to Miss P A Graham, Convenor, 85A Banbury Road, Oxford, Telephone 57351 (evenings) or contact Mr D R Perry, Building R 20 at the Laboratory.

**VISITORS** Approximately twelve teachers from the surrounding district will visit the Laboratory on Wednesday 18 February.

Forty undergraduates from the University of Oxford will visit the Laboratory on Saturday 21 February.

**FILM NOTICE.** It is Period 2. Colour Strip - GREEN for  $\beta^0$  and fast neutron films. Next film change - Monday 23 February.

**MISSING EQUIPMENT.** The following item of equipment has been reported missing from Building R 25:-  
Transformer and Soldering Iron No RL 3500

Anyone with information on the present whereabouts of this item is asked to contact Mr A B Jones R 25 Ext. 502

The following items of equipment has been reported missing from Lab G5-G9 Building R 25:-  
Type 'O' Plug-in Unit for Tektronic Oscilloscope, Ser. No 1001  
Model 8 Avometer, Ser. No 50920-C-856

Anyone with information on the present whereabouts of this item please contact either Mr I.S.K. Gardner or Mr R A Swales, R 25, Ext. 6614

**A THANK YOU.** Mrs. G M Wilkinson thanks all those who sent her their Christmas Cards to be used to aid those suffering from multiple sclerosis.

**OVERSEAS VISITS.** The following will be visiting CERN on the dates shown:-

Mr J A Fox, 15-19 Feb., 300 GeV Machine committee meeting and related discussions.

Dr G R Stevenson, 15-21 Feb., 300 GeV "Radiation Problems" meeting and target yield experiment

Mrs D M Squier, 17-21 Feb., Target yield experiment

Dr L C W Hobbs, 15-20 Feb., 300 GeV Study Group meeting and Machine Committee meeting

Mr G Stapleton 17-19 Feb., Mr G Levine and Mr G Hall, 17-20 Feb., radiation problems meeting also to participate in dosimetry experiment.

Mr D A Gray, 16-17 Feb., 300 GeV Magnet Working Party meeting

Dr C M Fisher, 18-20 Feb., to discuss target development for 1.5 m chamber etc.

Dr A Bradstetter, 18-20 Feb., for discussions on B/C Hydrogen Target

Mr J M Dickson, 19-24 Feb., for discussions on computer control work at the PS.

Mr P Trowbridge and Mr V Thorp, to ESTEC, Netherlands, 16-17 Feb., for discussion on T.D.1 Project.



## Machine Schedules

NIMROD Cycle 1 (3.2.70-24.2.70)

Machine Physics: High Energy Physics: (X1/K9, X2/K12A, X2/K13B, X2/K14A, X3/W8, X3/K15 and P71) Full details of Cycle 1 were given in Bulletin No.5/70.

## Internal Events

Mon., 16 Feb, 11 a.m. Lecture Theatre	Nimrod Lecture Series	Dr W Neale and Dr J Rushbrooke (Cambridge)	Anomalies in Electromagnetic Processes (to be followed by proposal lectures, shown below).
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1. Proposal No 77 "A Proposal for an Experiment in the 1.5 m HBC to Investigate Anomalies in Electromagnetic Processes" Cambridge Bubble Chamber Group. The lecture will be given by Dr W Neale and Dr J Rushbrooke.
2. Proposal No 78 "A Proposal to Investigate Bremsstrahlung Anomalies". Cavendish Laboratory, Cambridge/RHEL. The lecture will be given by Dr K Riley of Cambridge University.

Wed., 18 Feb, 11 a.m. Conf. Rm, R1	HEP Disc. Grp.	Mr D Morgan (RHEL)	S Channel View of KN and NN Scattering.
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Wed., 18 Feb, 12.40 p.m. Thurs., 19 Feb. 1.15 p.m. Theatre	Lecture Film Show	"Sea Born Treasure" a 25 min, colour film from the Gas Council
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Sea Born Treasure vividly highlights the background to the discovery of the major new indigenous source of power since coal; the progress in bringing the natural gas ashore; and the isolation and hardships endured by the crews of the drilling rigs.

Thurs., 19 Feb., 2 p.m. Lecture Theatre. Lecture and demonstration of low cost Computer Peripheral Equipment, by Sintrom Electronics Ltd. of Maidenhead Berks. Informal talks:- Mr John Koch - Synerdata. "A New Series of Low Cost Line Printers". Mr Theo Meier - Time Shares Peripherals. "Remote Plotting Techniques". Mr T Dalzell - Sintrom Electronics Ltd. "Low Cost Disc Files". Please see posters or contact H F Norris R 20 Ext. 484 for further details.

Mon., 23 Feb., 11.30 a.m. Lecture Theatre	Nimrod Lecture Series	Prof. R G Moorhouse (Glasgow)	High Energy Photo production
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## External Events

Mon., 16 Feb., 7.30 p.m. Oxford Coll. of Technology	British Computer Soc. Branch Meeting.	Mr K L Smith (IBM (UK) Ltd)	The Job and Social Consequences of Computers
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Tues., 17 Feb., 2 p.m. Daresbury Laboratory	Lecture Series	G Thomas (CERN)	Veneziano Model for Two and Three Body Reactions
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Tues., 17 Feb., 2.30 p.m. 21 Banbury Rd., Oxford	Nucl. Phys. Seminar	Prof. D. H. Perkins (Oxford)	Quarks and Protons
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Tues., 17 Feb., 7.45 p.m. Univ. of Reading	British Computer Soc. Branch Meeting	Mr O D Griffiths (Molins Machine Co)	Automation of Workshop (including a film on System 24, which is based on an IBM 1130)
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Wed., 18 Feb., 3 p.m. Univ. of Cambridge	HEP Seminar	J D Dowell (Birmingham)	Evidence for a Possible Z <sup>0</sup> Resonance
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Wed., 18 Feb., 7.30 p.m. Univ. of Reading	IERE Branch Meeting	Dr A M Andrew (Reading)	Cybernetics (deductions made from the writings and activities of Wiener et al)
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Fri., 20 Feb., 2.15 p.m. Univ. of Southampton	Particle Phys. Seminar	E Leader (Westfield)	A Review of Daughters, Conspiracy and Lorentz Poles
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Thurs., 19 Feb., 4.15 p.m. Clarendon Lab. Oxford	Theor. Phys. Seminar	Prof D J Thouless (Birmingham)	Width of Critical Region in a Phase Transition with Long-Range Forces.
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Fri., 20 Feb., 2.30 p.m. Clarendon Lab., Oxford	High Energy Theory Seminar	Dr G Fox (Cambridge)	Barbarous G Pierces the $\pi$ to Reveal $\pi$ -B Exchange Degeneracy
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Fri., 20 Feb., 4.15 p.m. Clarendon Lab., Oxford	Colloq.	Prof. E L Hahn (U. of California)	Seal-Induced Transparency
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### EVENTS AT AERE

Tues., 17 Feb., 2 p.m. Conf. Rm. Bldg. 8.9	Theor. Phys. Seminar	Prof. C W McCombie. (Reading)	Damping in Mechanical and Quantum Mechanical Systems
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Thurs., 19 Feb. 3.30 p.m. Conf. Rm., H.8	Nucl. Phys. Colloq	Dr P Fowler (Bristol)	Super Heavy Elements among the Cosmic Ray Primaries
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## Social News

RECORD SOCIETY. Tues., 17 Feb., 12.30 p.m. Lecture Theatre

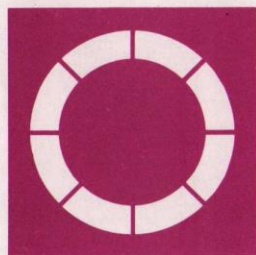
Symphony No 5 in C Minor, Op.67 by Beethoven with the Concertgebouw Orchestra of Amsterdam conducted by Erich Kleiber

Three G's and an E flat, perhaps the most famous four note phrase in symphonic music, open this work. This fine dynamic performance by Kleiber brings out the structure of the work in a manner which has not been equalled since it was recorded in 1954.

CHRISTIAN FELLOWSHIP. Friday, 20 February - Continuation of a Study on Black Magic and the occult, led by Ernie Newbold, at 12.30 p.m. in the P.L.A. Conference Room. All welcome.



No 8/70  
23 Feb 70



# Rutherford Laboratory Bulletin

## General News

**OPEN DAYS 1970.** The Laboratory is planning a series of Open Days to be held during the period 1-4 July. The last of these days which is a Saturday, will be for families of Laboratory staff and associates. Further items of news will be published as the planning progresses, and a detailed announcement of the Saturday details will be made during June.

**PHYSICS EXHIBITION 1970.** Extra tickets are now available from H F Norris, R20. The Rutherford Laboratory is represented with four exhibits:- Concrete insulation for large electromagnets; Flat-top field pulsed magnets; Superconducting magnet technology, and Electronic analogue wattmeter. These can all be seen on stand No 8. The exhibition is open daily from 2-5 March inclusive.

**SUMMER SCHOOL- CARGESE 1970.** As each year, a NATO Summer Institute will be held in Cargese (Corsica) This year it will be from 28 June to 25 July. The session will be devoted to: quantum Field Theory: Renormalization and Non Perturbative Approximations. Further information and application forms from H F Norris, R20 Ext 484.

**BRITISH NUCLEAR ENERGY SOCIETY.** The Society in conjunction with the Institution of Mechanical Engineers is holding a conference on "Nuclear Gas Turbines" at the Institution of Civil Engineers, London on 8-9 April 1970.

**SUMMER INSTITUTE-HEIDELBERG.** The Heidelberg-Karlsruhe International Summer Institute in Theoretical Physics will be held from 20-31 July. The session will be devoted to strong Interaction Physics. Further information from H F Norris, R20 Ext 484.

**EXTERNAL COURSE.** The Borough Polytechnic have announced details of a course of six lectures on "Principles of Logic Design" to be given on Thursday evenings from 6.30 - 8.30 pm commencing 12 March. Further information from Mrs R A Jeans, R20, Ext 555.

**OXFORD SOCIETY FOR SOCIAL RESPONSIBILITY IN SCIENCE.** The Inaugural meeting of the Oxford Society will be held in the Inorganic Chemistry Laboratory, (next to the Radcliffe Science Library, opposite Rhodes House), South Parks Road, Oxford, on Wednesday, 4 March, at 8 pm.

The meeting will be chaired by Prof. Dorothy Hodgkin, Nobel Prize-winner and the speakers will include Prof. Eric Burhop and Prof. Steven Rose. Further details from the Membership Secretary, Miss P A Graham, 85A Banbury Road Oxford or Mr D R Perry, Bldg R20.

**VISITORS.** Approximately thirty students from U.C.L. will visit the Laboratory on Saturday 28 February

**MISSING EQUIPMENT.** The following item of equipment has been reported missing from Lab 7 Bldg R1:-

Hot Air Blower - No. AERE 21267

Anyone with information on the present whereabouts of this item is asked to contact Mr B Payne Ext 301.

**FILM NOTICE.** Period 3 commences Monday 23 February. Colour Strip - PURPLE for  $\beta\gamma$  and fast neutron films. Please return all old films promptly. TLD change for people whose surnames commence I.J.A.L.

**Important** - Please make sure your  $\beta\gamma$  film is worn in the holder correctly. Both colour strip and number must be visible in the OPEN window and this side of the badge should be worn facing away from the body.

**OVERSEAS VISITS** Mr J A Fox, to the USA, 22 Feb - 6 March, to visit N.A.L., Batavia to give a talk on power system experiments and to discuss N.A.L. power supply designs for booster and main ring.

Mr H Hurst, to the USA, 25 Feb - 11 March, for discussions in Poughkeepsie on Large Computer Systems - Operational implications and to attend SHARE (360 users) Conference in Denver.

Mr E G Sandels and Mr C Power, to CERN, 25 Feb - 11 March, to install and test a time interval analyser on the CERN PS.

## Machine Schedules

NIMROD Cycle 1 (24.2.70 - 17.3.70)  
Machine Physics: High Energy Physics

	Team	Beam	Experiment	
1	Camb. Univ	X1/K9	Investigation of Anomalies in Bremsstrahlung and Electron Pair Production	Data
	Birmingham U./RHEL	X2/K12A	$K^+n$ Elastic Scattering and $K^+n$ Charge Exchange Scattering between 450 and 950 MeV/c	Setting up
	Camb. U./RHEL	X2/K13B	Investigations of Bremsstrahlung Anomalies	Setting up
	Oxford U./RHEL	X2/K14A	Polarization Effects in $\pi^+p$ Elastic Scattering	Setting up
2	Westfield Coll/RHEL	X3/ $\pi^+p$ 8	Measurement of Eta Decay Asymmetry	Setting up
3	Bristol Univ.	X3/K15	$K^+p$ Differential Cross Sections from 1.07 - 2.0 GeV/c	Setting up
	QMC/AERE/Bergen/RHEL	P71	pp Elastic Scattering at Large Angles between 1.5 and 4.0 GeV/c	Data
	UCL/THEL	K8	$K^+p$ Differential Cross Sections, 0.85 - 2.2 GeV/c; $K^+p$ Differential Cross Sections, 1.6 - 2.35 GeV/c	Data
4	Imp. Coll/Soton	$\pi^+p$ 7	Investigation of Narrow Resonances Produced in $\pi^+p$	Setting up

## Internal Events

Mon, 23 Feb 11.30 am Lecture Theatre	Nimrod Lecture Series	Prof R G Moorhouse (Glasgow)	High Energy Photoproduction
Wed, 25 Feb, 11 am Conf Rm R1	HEP Disc Grp	Dr H Osborne (Glasgow)	Relationship 'Between Reality and Chirality
Wed 25 Feb 12.40 pm Thurs, 26 Feb 1.15 p.m. Lecture Theatre	Film Show	'Hellmarking' a 15 min colour film from the worshipful Co. of Goldsmiths	



All genuine gold and silver articles made in Britain have one thing in common - hallmarks. These represent a guarantee of quality for the purchaser and are based on stringent tests carried out at one of the four assay offices in this country. The film shows this work being performed followed by an explanation of what is signified by the individual imprints of which a hallmark is composed.

Mon, 2 March 11.30 am  
Lecture Theatre

Nimrod Lecture  
Series

Dr G C Fox (Cavendish Lab.  
Cambridge)

B<sub>2</sub>, God's Gift to the Bubble Chamber.  
(Report on recent Rutherford Laboratory  
Topical Conference).

## External Events

Mon. 23 Feb 4.15 pm  
Queen Mary Coll.

Theor Phys Seminar

Dr R Eden (Camb)

Relations Between Cross-Sections at  
Asymptotic Energies.

Tues, 24 Feb, 2pm  
Daresbury Laboratory

Lecture Series

G Thomas (CERN)

Venziano Model for two and three Body  
Reactions

Tues, 24 Feb 2.30 pm  
21 Banbury Rd Oxford

Nucl. Phys Seminar

Dr I Blair (Harwell)

Our Latest Look at the Moon

Wed, 25 Feb 2.15 pm  
Univ of Southampton

Particle Phys Seminar

L Castillejo (Univ. Coll)

Review of Recent Developments in the  
Sikonal Approximation in Particle Physics

Thurs 26 Feb 2.30 pm  
Clarendon Lab. Oxford

Theor Phys Seminar

Prof L I Schiff (Stanford  
& Imp Coll)

Gravitation - Induced Electric Field near  
a Metal

Fri 27 Feb 2.30 pm  
Clarendon Lab. Oxford

High Energy Theory  
Seminar

Prof G Moorhouse (Glasgow)

Photons, Duality and Quarks

Fri 27 Feb 4.15 pm  
Clarendon Lab Oxford

Colloq

Prof L I Schiff (Stanford &  
Imp Coll)

The Stanford Relativity

EVENT AT AERE

Tues 24 Feb 2 pm  
Conf Rm Bldg 8.9

Theor Phys Div  
Seminar

Dr R Huby (Liverpool)

Spectroscopy of Unbound Levels with the  
aid of Weinberg's Quasi-Particles.

## Social News

RECORD SOCIETY 12.30 pm Tues 17 Feb, Lecture Theatre

Mendelssohn Concert - Violin Concert in E Minor, Opus 64.  
Campoli with The London Philharmonic Orchestra conducted  
by Eduard van Beinum

Symphony No 4 in A Major ('Italian') Mario Rossi  
Conducting the Turin Symphony Orchestra.

Two very popular works are presented this week. The violin Concerto has long been a favourite and this version has the added attraction of Campoli as the soloist. It was once described to the editor as portraying Mr Mendelssohn and his family out for a walk in the country on a summers day whilst the Italian Symphony, another very popular work seemed, at one period to haunt the editor so much that it appeared on the programme of every concert be attended. Both works show the innate refinement and melodic charm that is characteristic of Mendelssohn's music.

CHRISTIAN FELLOWSHIP. On the 27 February, the Rev. Don Elliot from Wallingford Baptist Church will be speaking, in the P L A Conf. Rm, R12, at 12.30 pm. Everyone welcome.

LUNCH-TIME DARTS LEAGUE. By the end of last week, Barry Crane and Mike Rose (Team 16) were leading in the League Championship with 7 points followed by Ken Feakins and John MacKerness (Team 10). In the Singles, Dave Holland and Bob Marshall share the lead with 13 wins apiece closely followed by Barry Crane and Bernard Keen, each with 12 wins. The Doubles Total is even more closely contested as Ken Feakins and John MacKerness (Team 10) lead with 7 wins but are being pressed by two teams each with 6 wins, Barry Crane and Mike Rose (Team 16) and Bill Butler and Jeff Rouse (Team 4)

SUPPER DANCE Come and join the fun at the HEP Supper Dance, on Friday 20 March 1970, in the Restaurant. Dancing to "The Nazzy G.B." and "The Dawn". There will be a bar extension to midnight and dress is optional (this doesn't mean with or without!). Tickets, 10/- will be on sale from the end of February, from Mrs V E Goodwin, R1, or from Group Leaders Secretaries.

Rutherford Laboratory

20-2-70

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Scientific Admin Group  
Building R20

SAW