

Rutherford Laboratory Bulletin

No.6/66
7 Feb 66

General News

EXTERNAL COURSE. The Borough Polytechnic London, SE1 have announced the following course:

"Communication Codes", a course of six lectures to be held on Monday evenings at 6.30 p.m. commencing 21 February.

Further details may be obtained from Mrs. S.A. Fones, Personnel Branch, Bldg R.20 Ext 585.

POST-GRADUATE EDUCATION CENTRE. A series of lectures on "High Voltage Technology" will be given at the Post Graduate Education Centre from 18-26 May, 1966. Applications to attend this course should be made through Division Heads to Mrs. S.A. Fones, Personnel Branch, Bldg R.20 Ext 585 from whom further details may be obtained.

CONFERENCES ETC., The following list gives brief details of various conferences, symposiums etc, which may be of interest:

24 Feb - 9 Mar.	5th International University Seminar on Nuclear Physics at Styria, Austria.
17-20 April	2nd International Conf. on Electron and Ion Beam Science and Technology, at New York, U.S.A.
20-22 April	International Non linear Magnetics Conference, at Stuttgart, Germany
2-5 May	International Conference on Isochronous Cyclotrons (By Invitation only), at Gatlinburg, U.S.A.

OVERSEAS VISITS. Dr. G.H. Stafford to CERN 8-9 Feb, to attend a meeting of the Nuclear Physics Research Committee.

Dr. R.G. Moorhouse to the U.S.A. on 8 Feb to attend a conference on Intermediate Energy Physics at the College of William and Mary, Williamsburg, Virginia. Following this conference, he will be taking 6 months unpaid leave during which period he will be employed at Stanford University in the Linear Accelerator Center.

Mr. T.D. Perry to CERN 10-12 Feb for discussions with HLBC staff.

Mr. P. Clee of the VEC Engineering Group, leaves for the U.S.A. on 8 Feb for a 13 months attachment at the Lawrence Radiation Laboratory, Berkeley, California.

Machine Schedules

P.L.A.

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
7 Feb		Setting up Experiments
8 Feb		Accelerator Physics
9-12 Feb		Maintenance
13 Feb		P.P.S. Tests

Internal Events

Mon, 7 Feb 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. I.M. Blair (A.E.R.E.)	The Present Status of Weak Interactions
Wed, 9 Feb 3.30 p.m. Lecture Theatre	Popular Lecture Series	Dr. G. Manning	A Search for the Decay of the K _S ⁰ Meson into a Charged Pion Pair (N2 Experiment)
Wed, 9 Feb 12.40 p.m. Thurs 10 Feb., 1.15 p.m. Lecture Theatre.	Film	"Strangeness Minus Three" A B.B.C. Film	

This is a repeat showing of a film, made as a B.B.C. T.V. programme, and screened at the Rutherford Laboratory last June. It is concerned with the famous discovery of the Ω^- meson at the Brookhaven National Laboratory in February, 1964. Richard Feynmann is interviewed at the end of the film and discusses what the identification of this particle means for the Unitary Symmetry theory of elementary particles.

Mon, 14 Feb, 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Mr. D.A. Gray (RHEL)	The Physics of Nimrod
Atlas Lab.			
Tues, 8 Feb, 2.30 p.m. Atlas Lab. Conf. Rm.	Talk	Rodney M. Burstall (Univ. of Edinburgh)	A Program for Designing Electricity Distribution Networks.

External Events

Mon, 7 Feb, 6 p.m. Savoy Place W.C.2	IEETE Lecture	G.D. Leydon (CEGB)	Building a Modern Power Station
Mon, 7 Feb, 5 p.m. J.J. Thomson Phys. Lab. Reading	Phys Dept Colloq	Prof. C.C. Butler (Imp. Coll)	High Energy Physics - Recent Achievements and Future Prospects
Wed, 9 Feb, 7 p.m. 37 George St. Oxford.	I.E.E. Oxford Meeting	K.D. Oughton (Elliott Process Automation Ltd)	Computer Control of Industrial Processes
Thurs, 10 Feb 7.30 p.m. J.J. Thompson Phys Lab, Reading.	I.E.R.E. District Meeting	Dr. S. McKenzie (Ministry of Health)	Medical Engineering (will include a description of the new British Myoelectric Artificial Arm)
Thurs, 10 Feb 6 p.m. 1 Birdcage Walk, S.W.1	Inst of Mech Eng. Discussion		The Use of Digital Computers in Simulation and Dynamic Studies
A.E.R.E.			
Thurs, 10 Feb, 3.30 p.m. Conf. Rm, Bldg H.8	Nuclear Phys. Div. Colloq.	Dr. P.E. Hodgson (Oxford Univ)	Coupled Channel Analysis of Nuclear Reactions.

Social News

RECORD PROGRAMME 12.30 p.m. Tuesday 8 Feb, Lecture Theatre

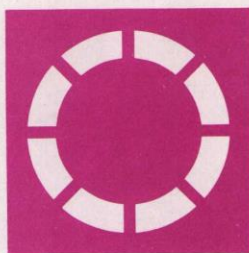
Piano Music, played by Roger Williams

CHRISTIAN FELLOWSHIP. Meetings are now held weekly, at 12.30 p.m. on Thursdays, in the P.L.A. Conf. Rm R.12. The next meeting will be on 10 February when the Rev. Graham West of Trinity Methodist Church, Abingdon, Will speak on "Man in the Light of the Bible, - the Greek". A hearty welcome is extended to all. Further details from B.E. Kingdon, R.20 Ext 6297.

Rutherford Laboratory
4.2.66.

H.F. Norris Ext 434
Scientific Admin Gp
R.20

No.7/66
14 Feb 66



Rutherford Laboratory Bulletin

General News

ENDEAVOUR PRIZE ESSAY Prizes totalling over £200 are offered by Imperial Chemical Industries Ltd., publishers of the international scientific review ENDEAVOUR, for essays submitted on scientific subjects. In addition to the cash prizes, the prizewinners will receive invitations to attend the whole of the British Association meeting at Nottingham from 31 August to 7 September 1966. Accommodation will be provided in Nottingham, and travelling expenses within the United Kingdom will be paid. The latest date for receipt of entries is 1 June 1966. Further details are available shortly from H.F. Norris, Bldg R.20 Ext 484.

VISIT. A party of students from the Department of Mechanical Engineering, Nottingham University will visit the Laboratory on Wednesday, 16 February.

SEMINAR A seminar has been arranged for the afternoon of Thursday, 24 February commencing at 2 p.m., in the Lecture Theatre. The subject under discussion will be "What constitutes the most useful undergraduate mathematics syllabus". The principle speakers will be, Mr. A.R. Curtis (AERE), Dr. J. de Wet (Oxford) and Dr. A.G. Howson (Southampton). This seminar is one of a series organised jointly by AERE, Culham and the Atlas Laboratory. Details of the programme and application forms may be obtained from Miss D.A. Prince, Bldg 8.9 AERE, Harwell, Ext 72-2866.

OVERSEAS VISITS Mr. M.H.J. Baylis and Dr. D.B. Russell, to CERN 13-19 February to carry out tests on the CDC 6600 for purposes of comparison with Atlas and for general exchange of ideas on computer techniques.

Mr. H.C. Brooks to Germany and Geneva, 17-23 February for discussions with Brown Boveri & Co. Ltd and also to CERN.

Machine Schedules

P.L.A.

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
13-14 Feb		PPS Tests
15-20 Feb	Birmingham Univ.	Polarization Studies at 30 MeV

Internal Events

Mon, 14 Feb 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. D.A. Gray (RHEL)	The Physics of Nimrod
--	-----------------------------	-------------------------	-----------------------

Wed, 16 Feb 12.40 p.m. Thurs 17 Feb, 1.15 p.m. Lecture Theatre	Film	"The Manufacture of Glass" a 27 mm colour film
--	------	---

This film produced for Pilkington Brothers Ltd., is in four parts and deals with the raw materials, the flat drawn sheet process, the manufacture of polished plate glass and in the final part, the manufacture of Float glass

Mon, 21 Feb, 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. I.J.R. Aitchison (Camb. Univ)	Final State Interactions among Three Particles
---	-----------------------------	--------------------------------------	---

Atlas Lab.

Wed, 16 Feb, 2.30 p.m. Atlas Lab. Conf. Rm.	Talk	Mr. H.R.F. Swinnerton-Dyer (Camb. Univ)	A Small Fast Autocode Compiler for Atlas II
---	------	--	--

External Events

Tues 15 Feb, 2.30 p.m. 21 Banbury Rd, Oxford.	Nuclear Phys Seminar	Dr. F.J. Farley (CERN)	Experimental Limits on Validity of Quantum Electrodynamics
Thurs, 17 Feb, 3 p.m. Silver St. Cambridge	Theor Phys Seminar	Dr. I.T. Drummond	Some Aspects of Three Particle States and Complex Angular Moments
A.E.R.E.			
Tues, 15 Feb, 2 p.m. Conf. Rm. Bldg 8.9.	Theor Phys Div Seminar	Dr. P.K. Kabir (RHEL)	Long-lived K^0 Decay
Thurs 17 Feb 2 p.m. Conf Rm Bldg 8.9.	Applied Maths Gp Seminar	Mr. M. Stern	Optimal Integration Formulae
Thurs, 17 Feb, 3.30 p.m. Conf Rm H.8	Nuclear Physics Div Colloq	Dr. G. Dearnaley	Ions and Semiconductors

Social News

RUGBY INTERNATIONAL. A number of field tickets are available for the England v Ireland match on Saturday 12 Feb. The tickets are 5/- each and anyone who is interested should contact Geoff Hackett, Ext 322 Bldg R.2.

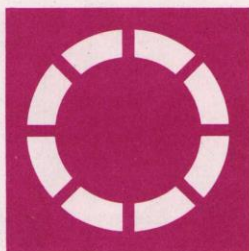
RECORD PROGRAMME 12.30 p.m. Tuesday, 15 Feb, Lecture Theatre.

Irish Folk Music also Folk Songs by "The Seekers"

CHRISTIAN FELLOWSHIP. The next meeting will be on Thursday 17 Feb at 12.30 p.m. in the P.L.A. Conf Rm, R.12 when Mr. Graham White of the AERE Electronics Group will lead Bible Study on the Epistle to Titus. All are welcome. Further details from B.E. Kingdon R.20 Ext 6297

Rutherford Laboratory
R.20
11.2.66.

H.F. Norris Ext 484
Scientific Administration Group



Rutherford Laboratory Bulletin

No. 8/66
21 Feb 66

General News

EXTERNAL COURSES. The Borough Polytechnic, London SE1 have announced the following course:

"Design, Use and Maintenance of Electronic Equipment used in Nuclear Physics", a two weeks laboratory and lecture course, Monday 27 June, to Friday, 8 July. The fee is £7 10s. Further details may be obtained from Mrs. S.A. Fones, Personnel Branch, Bldg R.20 Ext 585.

The Northampton College of Advanced Technology, London EC1 have announced a course of five lectures on "The Law of Copyright and Registered Designs, " to be held on Tuesday 6.30 - 8.30 p.m. commencing 8 March. The fee is three guineas. Further details may be obtained from Mrs. S.A. Fones, Personnel Branch, Bldg R.20 Ext 585.

FOUND A pair of men's gloves was recently left in a car by an ex-pupil of Havant Grammar School, now working at the Laboratory. They may be claimed from Mr. H.F. Norris Bldg R.20 Ext 484.

VISIT. A party of students from the Reading University Physical Society will visit the Laboratory on the afternoon of Wednesday 23 February.

CONFERENCE. The second residential conference, organised by The Institute of Mathematics and its Applications on "The mathematics of control systems", will be held at the Sunderland Technical College, 3-6 April. The closing date for registration is 1 March. Further details from Mrs. S.A. Fones, Personnel Branch, Bldg R.20 Ext 585.

OVERSEAS VISIT. Mr. A. Accensi and Mr. H.J. Down to CERN 20-24 February, for discussions on bubble chamber peripheral devices.

Machine Schedules

NIMROD Period 1 - Cycle 2 (21.2.66.-14.3.66.)

Machine Physics
Extracted Proton Beam Development
High Energy Physics

<u>Team</u>	<u>Beam</u>	<u>Experiment</u>	
AERE/UCL/ Southampton	P3	Study of $\pi^- + p \rightarrow \begin{matrix} n + x \\ p + x \end{matrix}$ processes	Setting up
Imperial Coll.	ϕ 1	A study of the $\phi \rightarrow e^+ + e^-$ decay	Setting up and Data
Hydrogen Bubble Chamber Collabora- tion	K1	Study of η^0 decays in deuterium	Data
RHEL/Oxford	K7	$\pi^- p$ polarization measurements	Setting up
UCL/Westfield Coll	π 2	$\pi^+ p$ differential cross-section measurements	Setting up
Oxford Univ.	K4	A study of the decay modes of the K^+	Setting up and Data
Birmingham/ Cambridge/RHEL	K6	K^- -nucleon total cross-section measurements	Setting up and Data
UCL	P3X	A study of the η^0 meson	Data

P.L.A.

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
21-22 Feb		Maintenance
23-27 Feb	RHEL & QMC(1)	Neutron Polarization Studies

Internal Events

Mon, 21 Feb, 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Dr. I.J.R. Aitchison (Camb. Univ.)	Final State Interactions among Three Particles
Tues, 22 Feb, 3.30 p.m. Lecture Theatre	Nimrod Proposal Lecture	Dr. D. Miller (U.C.L.)	Proposal No. 38 - Proposal for a 2.3 GeV/e K ⁻ run in the UCL Chamber at Nimrod
Wed, 23 Feb, 12.40 p.m. Thurs, 24 Feb, 1.15 p.m. Lecture Theatre	Film	"The Vacuum Vessel" A Rutherford Laboratory Colour Film.	

This repeat is intended for staff who have recently joined the Laboratory, or who may have missed the previous showings.

Wed, 23 Feb 3.30 p.m. Lecture Theatre	Popular Lecture Series	Dr. C.M. Fisher (RHEL)	Bubble Chamber Experiments
Mon, 28 Feb, 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Prof. A.W. Wolfendale (Univ. of Durham)	Title will be announced in the next bulletin

External Events

Wed, 23 Feb, 5.30 p.m., Imp. Coll. London	Inst. of Maths Lecture	Dr. J.W.S. Cassels FRS (Camb. Univ)	What are p-adic Numbers?
Thurs, 24 Feb, 4.15 p.m. Clarendon Lab.	Theor. Phys. Seminar	Dr. T.W.B. Kibble (Imp. Coll.).	Interactions of Laser Beams with Electrons
Tues, 22 Feb, 2.30 p.m. 21 Banbury Rd, Oxford.	Nuclear Phys. Seminar	Prof. J.C. Willmott (Univ. of Manchester)	Nuclear Structure Research at Manchester
Fri, 25 Feb, 4.15 p.m. Clarendon Lab. Oxford	Colloq.	Dr. N.J. Stone	Some Recent Developments in Low Temperature Nuclear Orientation

A.E.R.E.

Tues, 22 Feb, 2 p.m., Conf. Rm, Bldg 8.9	Theor. Physic. Div. Seminar	Dr. I.J.R. Aitchison (Cambridge)	Dispersion Theory and the 3-Body Problem
Thurs, 24 Feb, 2 p.m. Lecture Theatre, RHEL	Applied Maths.Gp. Seminar	A Half-day Symposium on "What Constitutes the Most Useful Undergraduate Mathematics Syllabus" (Details from Miss D.A. Prince, Ext 72-2866)	
Thurs 24 Feb, 2.30 p.m. Conf. Rm, Bldg 7.21	Atomic Physics Seminar	Prof. C.A. Coulson (Oxford)	Recent developments in Molecular Orbital Theory
Thurs, 24 Feb, 3.30 p.m. Conf. Rm, H.8	Nuclear Phys. Div. Colloq.	Dr. F.J.M. Farley (CERN and Univ. of Bristol)	Recent Experimental Tests of Quantum Electro- dynamics.

Social News

RECORD PROGRAMME. 12.30 p.m. Tuesday, 22 Feb, Lecture Theatre.

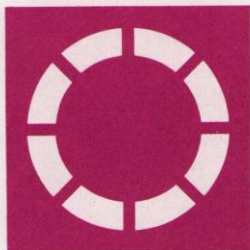
Irish Folk Music, also Folk Songs by "The Seekers". (The error in the programme announced last week is much regretted).

CHRISTIAN FELLOWSHIP. Meetings are held weekly at 12.30 p.m. on Thursdays, in the P.L.A. Conference Room, R.12. On Thursday 24th February we shall hold a devotional and prayer meeting. Please contact B.E. Kingdon, R.20, Ext 6297 for further information.

Date for your diary: 1-26 March. Ideal Home Exhibition.

Rutherford Laboratory
Building R.20 18.2.66.

H.F. Norris Ext 484
Scientific Admin Group



Rutherford Laboratory Bulletin

No. 9/66
28 Feb 66

General News

OXFORD PROJECT. The injector for the Oxford project has accelerated 2 microamperes of negative hydrogen ions to about 10 million volts: the precise energies attained are subject to nuclear calibration. In operation coupled to the tandem, a beam of up to one quarter microampere at energies up to 20 million volts has been delivered on target in an experiment. Tests on the acceleration of helium positive ions, and of oxygen and sulphur negative ions, are under way.

ROAD SAFETY MEETING and EXHIBITION. The AERE Joint Sub-Committee on Health and Safety have organised a road safety meeting and exhibition to be held at 7.30 p.m. on Monday, 4 April 1966 in the Cockcroft Hall, AERE

Peter Wilks, Technical Director, Rover Company, will be speaking on safety aspects of car design; John Gott Chief Constable of Northamptonshire and BMC Rally Team Captain, 1955-1961, will speak on motorway driving and Alec Laylee, Medical Officer, AEE Winfrith will present the medical viewpoint. Many manufacturers have agreed to supply items for the exhibition such as safety seats, safety belts, the non-skid brake, the collapsible steering column and the rear fog lamp. There will be a reaction-timing machine and a plan of the Rowstock Corner road improvements. There will also be a question session and a film. Admission for employees and their families (including the Rutherford Laboratory) is free although tickets are required. Tickets may be obtained from the Safety Secretariat, Building 424 A.E.R.E., on the basis of "first come, first served".

INTERNATIONAL SCHOOL OF PHYSICS 1966. The school will be held at Trapani - Erice, Sicily from 19 June - 4 July and the subject will be "Strong and Weak Interactions - Present Problems". Further information from H.F. Norris, R.20 Ext 484 or from notice boards.

OVERSEAS VISIT. Mr. J.V. Cresswell to the U.S.A. on 1 March for seventeen days where he will visit Princeton, Brookhaven, M.I.T. E.E.C, R.C.A. and Syvania for discussions on electronic instrumentation.

Machine Schedules

P.L.A.

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
28 Feb-1 Mar	RHEL & QMC(1)	Neutron Polarization Studies at 30 MeV.
2-7 March	Birmingham Univ.	Polarization Studies at 30 MeV

Internal Events

Mon, 28 Feb, 11.15 a.m. Lecture Theatre	Nimrod Lecture Series	Prof. A.W. Wolfendale (Univ. of Durham)	Cosmic Ray Neutrinos
Wed, 2 Mar, 12.40 p.m. Thurs, 3 Mar 1.15 p.m. Lecture Theatre	Film	"Right Down the Line" a 25 min colour film from Standard Telephones & Cables Ltd.,	

This is a film tracing the development of railway signalling techniques from semaphore systems to modern electronic methods of tracking and describing trains.

External Events

Mon, 28 Feb 5 p.m. J.J. Thompson Phys Lab. Reading	Phys. Dept. Colloq.	Prof. P.D. Dunn (Univ. of Reading)	Thermionic Electrical Power Generation
Mon, 28 Feb, 7.30 p.m. Ct. Western Hotel Reading.	ASEE District Meeting	Mr. F.H. Last (C.E.G.B.)	The CEGB Network, with particular reference to the Cross-Channel Link

Tues, 1 Mar 2.30 p.m., 21 Banbury Rd, Oxford.	Nuclear Physics Seminar	Mr. P. Davey (Oxford)	The Oxford PEPR Programme
--	-------------------------------	--------------------------	------------------------------

Wed, 2 March, 10 a.m. and 2.30 p.m. - I.E.E. Electronics Division are holding a Joint Colloquium on Microphones, at Savoy Place, London W.C.2.

Thurs, 3 March, 3 p.m. Univ. of Cambridge	Theor Phys Seminar	Prof. R.H. Dalitz (Oxford)	The Elementary Particles
---	--------------------------	-------------------------------	--------------------------

Thurs, 3 March 4.15 p.m. Clarendon Seminar Lab. Oxford.	Theor Phys.	Dr. J.E. Young	Theory of Intermediate Structure in Nuclei
---	-------------	----------------	---

A.E.R.E.

Thurs, 3 March 2 p.m. Conf. Rm, Bldg 8.9	Applied Maths Grp Seminar	Dr. R. Fletcher (Univ. of Leeds)	The Solution of Simultaneous Non-Linear Algebraic Equations
--	---------------------------------	-------------------------------------	---

Culham Lab.

Mon, 28 Feb, 3.30 p.m. Lecture Theatre	Culham Colloq	Dr. R. Wilson	The European Large Astronomical Satellite
--	------------------	---------------	--

Social News

RECORD PROGRAMME. 12.30 p.m. Tuesday, 1 March, Lecture Theatre

This week the programme is devoted to one of the last works of Bartok, the "Concerto for Orchestra", first performed in 1944. This is a show piece for the orchestra and is probably the most approachable of all the composer's works. The recording, in stereo is by the Royal Philharmonic Orchestra, conducted by Kubelik.

CHRISTIAN FELLOWSHIP. The present Bible Study series on the Epistle of Titus will continue on Thursday, 3 March at 12.30 p.m. in the P.L.A. Conference Rm, R.12, when Mr. Ernest Newbold of the Accounts Group will lead the meeting. All are welcome. Details from B.E. Kingdon, R.20 Ext 6297.

Rutherford Laboratory

25th Feb 1966.

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