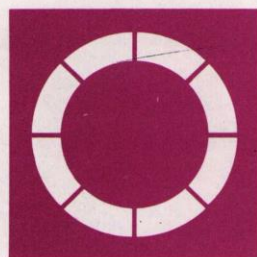


No 13/70
6 Apr 70



Rutherford Laboratory Bulletin

General News

FILM NOTICE It is Period 4. Colour Strip - RED for $\beta\gamma$ and fast neutron films.

Note Please do not open the fast neutron holders as they contain a TLD disc in addition to the film, and should be kept together as a complete 'pack'.

SUGGESTION AWARDS. At the recent meeting of the Suggestions Awards Committee the following awards were made:-

Name	Department	Award
E G Starr	NED R8	£30
A D Wood	NED R8	£ 3
D G Hempstock	ESD R9	£ 2. 10. 0.
D Harris	ESD R9	£ 2. 10. 0.
L Proctor	ESD R9	£ 2. 10. 0.
D Harris) L Proctor) Joint	ESD R9	£ 3. 10. 0.
H McGrath	ESD R18	£ 3
C Lambert	ESD R18	£ 3

VISITORS A party of 5th and 6th form students, attending a "Careers in Science and Technology Course" at AERE will visit the Laboratory on the 8 April.

A party of staff and sixth form students from Mundella School, Nottingham will visit the Laboratory on Saturday 11 April.

OVERSEAS VISITS Dr G H Stafford to CERN 7-8 April, to attend a meeting of the Nuclear Physics Research Committee.
Mr J B Mellor and Mr A G Taylor to CERN 8-10 April, for discussions on accommodation.

Machine Schedules

NIMROD Cycle 4 (7.4.70 - 28.4.70)

Machine Physics
High Energy Physics

Team	Beam	Experiment	
Imp. Coll./Westfield Coll.	X1/K9	2.0-2.8 GeV/c K^+d Interactions	Data
UCL/RHEL	K8	K^-p Differential Cross-Sections, 0.85-2.2 GeV/c K^+p Differential Cross-Sections, 1.6-2.35 GeV/c	Data
Camb. U./RHEL	X2/K13B	Investigation of Bremsstrahlung Anomalies	Data
Oxford U./RHEL	X2/K14A	Polarization Effects in π^+p Elastic Scattering	Data
Imp. Coll./Soton	π^7	Investigation of Narrow Bosons Produced in πp	Setting up

Internal Events

Wed, 8 Apr, 11 am,
Conf. Rm, R1

HEP
Disc Grp.

J Gunson
(Birmingham)

Pomeron Models

Wed, 8 Apr, 12.40 pm.
Thurs, 9 Apr, 1.15 pm
Lecture Theatre

Film Show

"Fast Reactors in Britain", a 16 mins, colour film from the AEA

The film describes briefly the early development of fast reactors and the work of the Dounreay Fast Reactor, leading to the design of Prototype Fast Reactor (P.F.R.), which is explained on a cut-away model.

Thurs, 9 Apr, 3.15 pm
Lecture Theatre

Rutherford
Laboratory Lecture

Dr W Marshall
(Director, AERE)

Harwell's Research Programme

Mon, 13 Apr, 11.30 am,
Lecture Theatre

Nimrod
Lecture Series

Dr W Kienzle or
Miss Focacci (CERN)

Recent Results of the CERN Boson Spectrometer

Social News

AERE HORTICULTURAL SOCIETY. Gardeners - another opportunity to air those problems, at the Lecture and Question Time to be held at the Rutherford Laboratory Lecture Theatre on Tuesday 7 April commencing 7.15 pm. Mr Fowles of the Berkshire College of Agriculture will lecture on "Growing Vegetables for the House", illustrated by slides, and after the interval, he will join Mr Konrad Engbers (Hyde Farm Nurseries) Mr A J Allen (Bosley's Fruit Farm) and Mr C Blocksidge (AERE Grounds Dept.) in a Question Time session. The Question Master will be Mr J Senogels (Matthew Arnold School, Cumnor). Admission is by ticket only obtainable free of charge from Mr R Brabben Rm. 9, R20 or H F Norris Rm. 42, R20.

RECORD SOCIETY. Tues. 7 April 12.30 pm Lecture Theatre.

Beethoven - Symphony No. 7 N.B.C. Symphony Orchestra conducted by Tuscanini - a very famous recording twice re-issued since the war.

CHRISTIAN FELLOWSHIP. Fri. 10 April, 12.30 pm, P.L.A. Conf. Room, R12. Bible Study, led by Robin Elliot. All welcome.

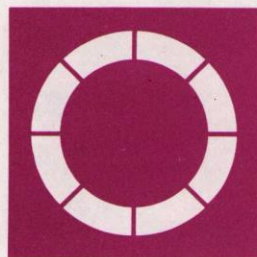
Rutherford Laboratory
3.4.70.

H F Norris Ext 484
Scientific Admin Group
Building R20

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● Supplement

to
No 13/70
6 Apr 70



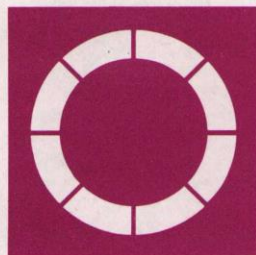
Rutherford Laboratory

Bulletin

Rutherford Laboratory Lecture

The lecture by Dr W Marshall, Director AERE, on Harwells Research Programme, will be given at 10.30 am on Thursday, 9 April and not at 3.15 pm as stated in this weeks Bulletin.

No 14/70
13 Apr 70



Rutherford Laboratory Bulletin

General News

LECTURE SERIES During the period 15-22 April., Dr N Dombey (Sussex Univ.) will give a series of five lectures on the general topic of "High Energy Physics for the Seventies". The lectures will commence at 9.15 am, in the Lecture Theatre as follows:-

Wednesday, 15 April	Electrons and Muons
Thursday, 16 April	Neutrinos
Friday, 17 April	Photons
Tuesday, 21 April	Colliding Beams
Wednesday, 22 April	Hadrons

Please note that the order of the first three lectures has been changed from that given in individual notices already sent out.
VISITORS Twenty-two students and members of staff from the Mundella School, Nottingham will visit the Laboratory on Saturday, 11 April.

Two parties of fourteen participants of the Low Temperature Course at AERE, will visit the Laboratory on Tuesday and Thursday, 14 and 16 April, respectively.

VACUUM FURNACE A vacuum furnace has been installed in the Engineering Services Department workshop in R9. The hot zone size is - 12" diameter x 18" high and the maximum temperature is 1400°C. Anyone requiring work to be done in this furnace is asked to contact Mr G Fallon or Mr M Arnold on Extension 558.

HOSTELS FEEDER BUSES From Monday, 20 April 1970 - feeder buses will leave AERE Hostels (A and B mess) at 7.30 am and 8.20 am.
POSTCODES The use of postcodes has been extended to the London Office area, and should be used on all post addressed to State House. The code allocated to the London Office address is - WC1R 4TA.

INTERNATIONAL CENTRE FOR THEORETICAL PHYSICS Under an agreement concluded between the International Atomic Energy Agency (IAEA) and the United Nations Education, Scientific and Cultural Organization (UNESCO) the International Centre for Theoretical Physics in Trieste became a joint IAEA/UNESCO operation on 1 January 1970. Member states of both Agencies are entitled to participate in the work of the Centre. Further details of the forthcoming activities of the Centre and six-month fellowships can be obtained from H F Norris Rm.42, R20 Ext.484

Machine Schedules

NIMROD Cycle 4 (7.4.70 - 28.4.70)

Machine Physics: High Energy Physics (X1/K9, K8, X2/K13B, X2/K14A and I17)

Full details of Cycle 4 were given in Bulletin No 13/70

Internal Events

Mon, 13 Apr, 11.30 am, Lecture Theatre	Nimrod Lecture Series	Dr D Botterill (CERN)	Recent Results of the CERN Boson Spectrometer
Tues, 14 Apr, 11 am., Conf.Rm.Bldg. R12	Nuclear Phys Grp. Seminar	Dr F D Becchetti (Neils Bohr Inst. Copenhagen)	The (He^3, t) Reaction in the 1f - 2p Shell
Wed, 15 Apr, 9.15 am, Lecture Theatre	Lecture Series	Dr N Dombey	Part 1 :- Electrons and Muons (See Gen.News. for complete details)

The next meeting of the HEP Discussion Group will be on Wed, 22 April

Wed, 15 Apr, 12.40 pm	Film Show	Horizon - Cern, a 40 min colour film made by the BBC
Thurs, 16 Apr, 1.0 pm	Lecture Theatre	

We are most grateful to Brian Southworth for his efforts in obtaining the loan of this film. It differs in many ways from CERN's own film (which it is still hoped to show again before long) and should interest a wide audience. It gives an excellent picture of not only the various parts of the centre but also shows its location in the surrounding country side. Many eminent physicists appear in this film including a good many shots of John Bell. An excellent commentary is given by Chris Chattaway.

Thurs, 16 Apr, 9.15 am Lecture Theatre	Lecture Series	Dr N Dombey	Part 2 :- Neutrinos
Frid, 17 Apr, 9.15 am Lecture Theatre	Lecture Series	Dr N Dombey	Part 3 :- Photons
Mon, 20 Apr, 11.30 am Lecture Theatre	Nimrod Lecture Series	Dr G Cohen-Taunoudji (Saclay)	Duality and Unitarity

External Events

Tues, 14 Apr, 7.45 pm Univ. of Reading	British Computer Soc. Branch Meeting	D Barber (N.P.L. Teddington)	The NPL Data Network
Thurs, 16 Apr, 7 pm Univ of Reading	IERE Branch Meeting	Annual General Meeting (Members only) of the Thames Valley Section - Reading	
Thurs, 16 Apr, 7.30 pm Univ of Reading	IERE Branch Meeting	P J Baxandall (R.R.E.)	The Design of Solid State Audio Amplifiers (visitors welcomed at this meeting)

EVENTS AT AERE

Tues, 14 Apr, 2 pm Conf.Rm.Bldg. 8.9	Theor Phys Div. Seminar	Prof. W M MacDonald (U. of Maryland & AERE)	Resonance States in Oxygen -16
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Social News

CHRISTIAN FELLOWSHIP Fri, 17 Apr, 12.30 pm., PLA Conf. Rm. R 12
Jack Hemmings from AERE will introduce a film strip about the work of the Missionary Aviation Fellowship in Africa. All welcome

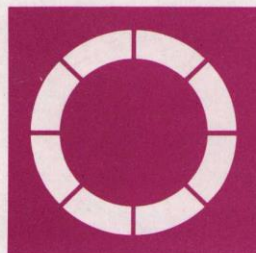
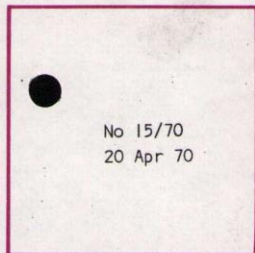
C.S.M.A. OXFORD GROUP. Fri, 17 Apr, Annual General Meeting 8 pm. at The Old White House, Abingdon Road, Oxford. Help to elect the Officers and Committee and bring your ideal and suggestions with you. To follow the AGM, a speaker from the Consumers Association will give a talk on subjects of interest to all. Local Rep. L N Dutton R25 Ext.224

RECORD SOCIETY Tues, 14 Apr, 12.30 pm Lecture Theatre

' Secret Songs for Young Lovers' - André Previn, piano accompanied by the David Rose Orchestra
Pleasant light music showing the virtuosity of this now famous conductor.

RUTHERFORD LABORATORY
9.4.70

H F Norris Ext 484
Scientific Admin Group
Building R 20



Rutherford Laboratory Bulletin

General News

VISITORS. Thirty students and members of staff from Imperial College, London, will visit the Laboratory on Saturday, 25 April.

MISSING. A ladies black Parker Slim fold fountain pen is missing from Room 65, R20. Would the finder please contact Mrs D A Patchett, Ext 505.

METRICATION IN THE DESIGN OFFICE. Oxford Polytechnic is now proposing to hold a series of one day courses on this subject. Syllabus from Mrs R Jeans, Ext 555.

CONFERENCE ON MICROELECTRONICS. A conference on the "Use of Microelectronics" is to be held at the Royal Garden Hotel London on 28-29 April. The main theme will be "The Interface between Integrated Circuit Manufacturers and their Customers". Further information from H F Norris, R20 Ext 484.

FILM NOTICE. Period 5 commences Monday, 20 April. Colour Strip - YELLOW for 8y films and fast neutron packs. Please change your dosimeter promptly and return all old ones. TLD change for people whose surnames commence with Q, R, S, T.

QUEST. The April issue has been distributed, and read? Comments, good or otherwise are welcomed. Please send them to your local correspondent before 27 April so that they can be raised at the next Editorial Board meeting. Local correspondent is H F Norris Room 42, R20, Ext 484.

OVERSEAS VISITS. Dr R J Phillips to CERN, 20-21 April for discussions.

Dr T G Walker, Mr N M King and Mr D Maden, to CERN, 19-22 April, to attend 300 GeV Utilization Meeting.

Dr I Butterworth, to the U.S.A. 20 April - 10 May, to attend the Duke Conference, North Carolina; the Washington A.P.S. Conference and the Experimental Meson Spectroscopy Conference, Philadelphia. In addition he will visit Argonne, Berkeley, M.I.T. and B.N.L.

Dr G R Stevenson, to CERN, 22 - 24 April for discussions and to attend the 300 GeV Radiation Problems Study Group meeting.

Dr L C W Hobbs, to CERN, 23 - 24 April, to attend meeting of the 300 GeV Radiation Problems Study Group.

Dr P J Duke, to the U.S.A. 23 April for 2 - 3 weeks, to attend Washington A.P.S. Conference.

Dr C J S Damerell, to the U.S.A. 23 April - 18 May to attend Y* Conference at Durham, North Carolina; the Washington A.P.S. Conference and to visit S.L.A.C., Berkeley, A.N.L., N.A.L., and B.N.L.

INFRA-RED TRANSPARENCIES FOR USE ON OVERHEAD PROJECTORS. Future users of this facility please note - the MAXIMUM size of an original is 10½" x 8½", it is essential to use either carbon based ink, a 2B pencil or a xerox copy, which must be black, in order to make the original from which a transparency can be made. A leaflet is available giving full details on this and other facilities in the Lecture Theatre, from H F Norris, R20 Ext 484.

Machine Schedules

NIMROD Cycle 4 (7.4.70. - 28.4.70.)
Machine Physics: High Energy Physics (X1/K9,K8,X2/K13B,X2/K14A and π 7)
Full details of Cycle 4 were given in Bulletin No 13/70.

Internal Events

Mon, 20 Apr, 11.30 am, Lecture Theatre	Nimrod Lecture Series	Dr G Cohen-Taunoudji (Saclay)	Duality and Unitarity
Tues, 21 Apr, 9.15 am, Lecture Theatre	Lecture Series	Dr N Dombey	Part 4:- Colliding Beams
Wed, 22 Apr, 9.15 am, Lecture Theatre	Lecture Series	Dr N Dombey	Part 5:- Hadrons
Wed, 22 Apr, 11 am, Conf. Rm, Bldg. R1	HEP Disc Grp.	R C Johnson (Durham)	Theory of Low Energy S-Wave $\pi\pi$ Scattering.
Wed, 22 Apr, 12.40 pm, Thurs, 23 Apr, 1.15 pm Lecture Theatre	Film Show	The First Chemical Separation of Lawrencium, a 17 min colour film from the U.S.A.E.C.	
Wed 22 Apr, 3 pm, Lecture Theatre	Staff Meeting (Invitation only)	The Director will preside (See Circular 7/70 for full details).	

Mon, 27 Apr, 11.30 am,
Lecture Theatre

Nimrod
Lecture Series

Prof G Bellettini
(CERN and Pisa)

Polarisation in High Energy Hadron
Scattering; also discussion of I.S.R.
Experiment.

External Events

Tues, 21 Apr 2 pm,
Daresbury Laboratory

Lecture Series

F J M Farley
(Royal Mil. Coll. Shrivenham)

Recent Developments in Q.E.D.

Fri, 24 Apr, 4.15 pm,
Clarendon Lab, Oxford.

Theor. Phys.
Seminar

Prof H A Bethe
(Cornell)

Nuclear Matter

Tues. 21 Apr - Wed. 29 Apr. Engineering '71 Exhibition, combining International Welding and Metal Fabrication Exhibition, Olympia and the London International Engineering and Marine Exhibition, Earls Court.

EVENT AT AERE

Tues, 21 Apr, 2 pm,
Conf Rm. Bldg. 8.9

Theor.
Phys. Div.
Seminar

Dr A J Taylor
(AERE)

Rotational and Vibrational Excitation
by Molecules by Atomic Impact.

Social News

CHESS CLUB SUCCESS. The club had an enjoyable evening when they met in Wantage on Monday last. The result was a convincing win for the Lab club by seven matches to three, reversing the previous match result which Wantage won. The winners were Lindsay Duncan, Roy Culliford, Ken Bird (Atlas), Fred Lunnon (Atlas), Colin Uden, Bill Glasgow and Graham Stevenson. And the losers - Colin Moss, John Mogford and Peter Craske. Wantage are very keen to get their revenge so a return match has been arranged for Monday, 27 April. The result are awaited with interest.

RECORD SOCIETY. Tues, 21 Apr, 12.30 pm, Lecture Theatre.

Romeo and Juliet - a dramatic symphony by Berlioz.

The London Symphony Orchestra and Chorus conducted by Pierre Montreux

CHRISTIAN FELLOWSHIP. Late correction - Fri 17 Apr.

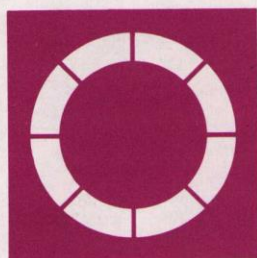
Change of meeting Jimmy Darius will be leading a Bible Study, at 12.30 pm in the Conf Room, R12.

Fri 24 Apr. Jack Hemmings from AERE will introduce a film strip about the work of the Missionary Aviation Fellowship in Africa, at 12.30 pm in the Conf. Room R12. All welcome to both meetings.

Rutherford Laboratory
17.4.70.

H F Norris Ext 484
Scientific Admin Group
Building R20

No 16/70
27 Apr 70



Rutherford Laboratory Bulletin

General News

VISITORS. Thirty pupils and members of staff from the Maidenhead Grammar School will visit the Laboratory on Saturday 2 May.

PRIVATE TELEPHONE LINE - STATE HOUSE/RUTHERFORD LABORATORY. This is now operational and users can contact the telephone switchboard at State House by dialling 74. There is no ringing tone on the line, but an "engaged" tone will be heard if the line is in use.

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

Stop Watch - Ser/No. 60/0168

Anyone with information on the present whereabouts of this item is asked to contact J D Milne, Lab 5, RI, Ext 318

Would the 'borrower' of the Dymo machine, which is engraved "R20 Admin" please return the machine to Mrs Walker, R 20, as it is needed urgently.

FILM NOTICE. It is Period 5. Colour Strip - YELLOW for B_y films and fast neutron packs.

Please check that you are wearing the correct dosimeter and that all old ones are returned.

OVERSEAS VISITS. Dr J J Thresher, Dr W R Holley, Dr A S L Parsons and Dr A Love, to the USA on 26 Apr., returning 10, 17, 17 and 24 May respectively. They will all be attending the A.P.S. Meeting and with the exception of Dr Parsons will be visiting a number of establishments in the USA for discussions. Dr Love will attend the Conference on Experimental Meson Spectroscopy at Philadelphia and visit Berkeley.

Mr L Phillips, Mr E Towndrow, and Mr P O'Brien, to CERN 28 Apr., - 1 May, to modify Dr Bugg's beam line apparatus.

Machine Schedules

NIMROD Cycle 5 (28.4.70 - 19.5.70).
Machine Physics: High Energy Physics

Team	Beam	Experiment	
Camb. Univ.	XI/K9	Investigation of Anomalies in Bremsstrahlung and Electron Pair Production	Data
Westfield Coll/ RHEL	X3/ π 8	Measurement of Eta Decay Asymmetry	Setting Up
Bristol Univ.	X3/K15	K ⁺ p Differential Cross Sections from 1.07-2.0 GeV/c	Setting Up
Imp. Coll/ Soton	π 7	Investigation of Narrow Bosons Produced in π^-p	Setting Up

Internal Events

Mon, 27 Apr, 11.30 am, Lecture Theatre	Nimrod Lecture Series	Prof. G Belletini (CERN and Pisa)	Polarisation in High Energy Hadron Scattering: also discussion of I.S.R. Experiment
Mon, 27 Apr, 2.15 pm, Lecture Theatre	Nimrod Users Meeting	1 Long Term Schedule 2 Phase II, Hall III 3 R F Separated Beams 4 A Design for a Stopping Kaon Beam	- N H Lipman - N H Lipman - A Carne - D Maden
Wed, 29 Apr, 11 am, Lecture Theatre	HEP Disc Group	Prof A Donnachie (Daresbury and Manchester U)	Regge Poles and Phase Shifts In K ⁺ p Scattering
Wed, 29 Apr, 1.15 pm, Thurs, 30 Apr, 12.40 pm, Lecture Theatre	Film Show	NIMROD: A Machine to Smash Atoms - Part I, What is a Proton Synchrotron	
To finish off the 1969-70 film season, the film on Nimrod is being repeated for the benefit of people who have joined the Laboratory in the 15 months since it was last screened. In Part I, 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 physicists go about using it in their research. (Late news - An Oxfam film will be shown shortly)			
Wed, 29 April. Demonstration by Wang Europe SA of their Model 700A desk top computer, a third generation machine, in the East Wing Conference Room, RI, between 9.30 am and 1.0 pm. A limited number of Technical Information Sheets are available in advance of the demonstration from H F Norris, Rm, 42, R20			
Mon, 4 May, 11.30 am, Lecture Theatre	Nimrod Lecture Series	Dr K Winter (CERN)	Experiments to Test the Validity of the $\Delta S/\Delta Q$ Rule

External Events

The Department of Physics, University of Oxford, have announced a provisional programme of two courses of lectures to be given at 21 Banbury Road, Oxford by Dr I Towner and Dr H G Benson.

Dr Ian Towner: Weeks beginning 27 April, 4 May, 11 May. Monday and Tuesday 10.15 am to 11.15 am.

Provisional Synopsis

- 1 Introduction to Macfarlane-French diagrammatic techniques.
- 2 Calculation of c.f.p.s.
- 3 Simple effective interaction calculations for n-particle systems. Average energies.
- 4 Sum rules and selection rules for one- and two-nucleon transfer reactions.

Dr H G Benson: Weeks beginning 18 May, 25 May, 1 June. Monday and Tuesday 10.15 am to 11.15 am.

Provisional Synopsis

- 1 Shell Model Calculations in neutron-proton formalism
- 2 Use of projected wavefunctions from a deformed well as an approximation to full intermediate coupling wavefunctions.
- 3 Link with Rotational Model. Generation of intrinsic wavefunctions from Nilsson Potential or by Hartree-Fock techniques.
- 4 Different techniques of Handling Projection.
- 5 Many-particle many-hole wavefunctions, Zamick's Rule and microscopic treatment to estimate energies.
- 6 Deformed state calculations. Centre of mass motion in Shell Model Calculations.

Wed, 29 Apr, 5.30 pm, 26 Portland Place London W 1	Inst. of Maths Presidential Address	Prof. G A Barnard	Mathematics and Our Social Problems
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Thurs, 30 Apr, 4.15 pm, Clarendon Lab, Oxford	Theor. Phys. Seminar	Dr G Karl (Guelph)	Electric Dipole Transitions in HD and HD ⁺ Molecules
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EVENTS AT AERE

Tues, 28 Apr, 2 pm, Conf. Rm, Bldg. 8.9	Theor. Phys.Div. Seminar	Prof. P N Butcher (Warwick U.)	Acousto-Electric Phenomena
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Social News

RUTHERFORD LAB. DARTS LEAGUE 1969-70. A very successful season ended with a play off for the singles championship and in this and the other events one name, that of Barry Crane, stands out.
League Champions - Team 16, Barry Crane and Mike Rose. Mike and Barry from RI had a very successful season winning 14 of their 15 matches, losing only once to Team 10, John Mackerness and Ken Feakins.
Doubles Champions - Team 16 again, winning 13 out of 15 games
Singles Champion - Barry Crane. This was a very close thing between four players, Barry Crane, Bob Marshamm, Dave Holland and Bernard Keen, for most of the season. It eventually ended with a tie between Barry Crane and Bob Marshall both with 24 wins from 30 games. In the resulting play-off Barry won 2-1 after 3 very closely contested games.

It is hoped that next season will be as successful and future plans include a Summer League and a Knock Out Cup Competition. IN addition, RHEL will be entering 2 teams in the AERE Knock Out Cup on 8 May.

RECORD SOCIETY. Tues, 28 Apr, 12.30 pm, Lecture Theatre.

Symphony No 8 in F - Beethoven played by the Royal Philharmonic Orchestra conducted by Sir Thomas Beecham.

CHRISTIAN FELLOWSHIP. Fri, 1 May, Conf. Rm, R 12
All welcome to come along for a short time of prayer