

RUTHERFORD LABORATORY BULLETIN

No.60, for the week commencing Monday, 5th February, 1962

VISITORS

✓ Professor Kenneth M. Crowe of the Lawrence Radiation Laboratory, Berkeley, California, U.S.A., will visit the Rutherford Laboratory on Monday 5th, and Tuesday, 6th February. Anyone wishing to meet Professor Crowe should contact Dr. G. H. Stafford, Building R.12, Ext. 3361.

VISITS ABROAD

✓ Dr. C. M. Fisher and Mr. J. F. MacEwan of the Bubble Chamber Group left for C.E.R.N., Geneva, on 2nd February, where they will spend approximately one week carrying out shielding experiments on the C.E.R.N. proton synchrotron.

✓ Mr. B. F. Colyer of the Engineering Design Group will spend six months at C.E.R.N., commencing 1st March, under an exchange posting agreement.

Mr. J. J. Hirsbrunner of C.E.R.N. is at present working at the Rutherford Laboratory under the same arrangement.

HEAVY LABORATORY

✓ Building work has started on the new Heavy Laboratory, to be sited to the south of Building R.1. The main wing will be a single-storey structure, 30 ft. high and 17,000 sq. ft. in floor area; it will be used for the development and testing of nuclear equipment for Nimrod and accelerator research. A three-storey office-block to accommodate 100 people will be built adjacent to the laboratory. The building is due for completion by the end of the year.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
X 6th-8th and 10th, 11th Feb.	Clarendon Laboratory	Measurement of Capture Gamma-Rays.

VACANCIES AT C.E.R.N.

Further vacancy notices (Nos. 59-67, 70-76 and 78-83) have been received from C.E.R.N., Geneva. Details may be obtained from the Personnel Section, Room 68, Building R.20.

INTERNAL EVENTS

X Tues., 6th Feb., 11 a.m., Conf.Rm., Building R.1.	Nimrod Lecture Series	Professor K. M. Crowe (U.C.R.L., Berkeley)	Low Energy Pion-Pion Scattering.
Wed., 7th Feb., 2 p.m., Conf.Rm., Building R.12.	P.L.A. Group Seminar	Dr. H.W.K. Hopkins (Clarendon - Laboratory)	A Proposed Experiment for the P.L.A., using the Oxford Deuterium Bubble Chamber.
Mon., 12th Feb., 11 a.m. Conf.Rm., Building R.1.	Nimrod Lecture Series	Dr. G.H. Moorhouse (N.I.R.N.S.)	π -N Scattering - Development of Theory and Experiment.

EXTERNAL EVENTS

X Tues., 6th Feb., 5.30 p.m., Savoy Place, London, W.C.2.	I.E.E. Meeting	Discussion opened by Mr. G.I. Hitchcox	The Measurement of Very High Electrical Resist- ance.
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continued / ...

EXTERNAL EVENTS (continued)

Tues., 6th Feb.,
7.30 p.m., Town
Hall, Oxford.

Inst. Prod.
Engineers
Meeting

Electronic Data
Processing.

X Wed., 7th Feb.,
2 p.m., Conf.Rm.,
B.8.9, A.E.R.E.

Theoretical
Physics
Seminar

Dr. A.K. Kerman
(M.I.T.)

Recent Developments
in Nuclear Theory.

Thurs., 8th Feb.,
6 p.m., Waterloo
Bridge House,
London, S.E.1.

Inst. of
Post Office
Elec. Engrs.
Lecture

Mr. W.S. Proctor

An Introduction
to Data
Processing.

B. E. Kingdon

5th February, 1962.

MSG.

RUTHERFORD LABORATORY BULLETIN

No. 61, for the week commencing Monday, 12th February, 1962.

VISITORS

✓ Thirty members of the Oxford University Scientific Society will visit the Laboratory on Thursday afternoon, 15th February.

NIMROD MAGNET POWER SUPPLIES

✓ During this last week the power supplies on-load commissioning has continued using four octants of the magnet as a load. Pulses have been built up from 480 amps at 30% alternator volts using one-eighth of the convertor plant, to 5,000 amps at 50% alternator volts using half the convertor plant.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:-

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
13th-14th Feb.	N.I.R.N.S.	(p,p) Polarisation.
15th February.	Birmingham University	Measurement of Polarisation. (Double Scattering).
17th-18th Feb.	Birmingham University	P.P.S. Testing

FELLOWSHIPS AND BURSARIES

Information on arrangements for the award of the Robert Blair Fellowships and the Royal Society and Nuffield Foundation Commonwealth Bursaries in 1962 (for study and research overseas) can be obtained from Mr. C. J. E. McDonald, Personnel Branch, Building R.20, from whom the conditions governing the granting of special leave to successful candidates may also be obtained.

COMPUTER CONFERENCE

✓ A Conference on Automatic Programming Languages for Business and Science will be held in co-operation with the British Computer Society at the Northampton College of Advanced Technology, St. John Street, London, E.C.1, on 17th-18th April. The course fee is four guineas. Further details may be obtained from B. E. Kingdon, Building R.20.

EXTERNAL COURSE

✓ A short course on Patents and Patent Law will be held at the Slough College of Further Education, William Street, Slough, on Thursdays from 15th February to 8th March, at 6-8 p.m. The course fee is £1. Further details may be obtained from B. E. Kingdon, Building R.20.

INTERNAL EVENTS

Tues., 13th Feb.: Mobile Exhibition of Imlok Electronic Racks and Consoles, by Messrs. Imhof Limited, Uxbridge, Middlesex.
9.30 a.m. - 12 noon approximately, adjacent to Building R.19.

✓
Mon., 19th Feb., Nimrod Professor D-D Scattering
11 a.m., Conf. Rm., Lecture W. E. Burcham
Building R.1 Series (Birmingham
University)

EXTERNAL EVENTS / ...

EXTERNAL EVENTS

Tues., 13th Feb., 4.15 p.m., 21 Banbury Road, Oxford.	Clarendon Laboratory Seminar	Dr. M. Petravic and Dr. L. G. Kuo	The n-n Scattering Length.
Tues., 13th Feb., 5 p.m., Southampton University.	Physics Department Colloquium	Dr. A.A. Shepherd (Messrs. Ferranti Limited)	Recent Developments in Transistors.
Tues., 13th Feb., 7 p.m., Employment Exchange, Oxford.	A.S.E.E. Lecture	Mr. R.P. Williams (S.W.O.)	The Design of a Large Electrical Installation.
Wed., 14th Feb., 2 p.m., Conf., Rm. Building 8.9, A.E.R.E.	Theoretical Physics Seminar	Dr. G. Rowlands	Universal Instabilities.
Fri., 16th Feb., 4.15 p.m., Clarendon Laboratory, Oxford.	Colloquium	Professor E. N. Andrade, F.R.S. (Imperial College)	Flow of Metals.
16th-20th Feb.: International Exhibition of Electronic Components, Paris.			
16th-24th Feb.: International Inventions and Commercial Development Exhibition, Central Hall, Westminster, London.			
Mon., 19th Feb., 7 p.m., 26 Portland Place, London, W.1.	Soc.Inst. Technology Meeting	Mr. W.L. Marks and Dr. I.A. Dempster	Lectures on Digital Position Control.

B. E. Kingdon

12th February, 1962.

MSG.

RUTHERFORD LABORATORY BULLETIN

No. 62, for the week commencing Monday, 19th February, 1962

VISITS ABROAD

✓ Dr. R. G. Moorhouse of the Theoretical Group will visit C.E.R.N., Geneva, for four days commencing 19th February, to give a lecture and to have discussions with the Theoretical Division.

✓ Mr. J. A. Fox of the Nimrod Operations (Engineering) Group will visit the U.S.A. for four weeks commencing 24th February, where he will discuss synchrotron power supply systems with Harvard University and Princeton University.

NUCLEAR PHYSICS SYMPOSIUM

✓ The Institute of Physics and Physical Society Symposium on "High Energy Nuclear Physics" will be held at Imperial College, London, on 26th-27th March. The closing date for applications is 2nd March. Application forms and further details may be obtained from B. E. Kingdon, Building R.20.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:-

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
20th -22nd Feb.	Birmingham University	Measurement of Polarisation (Double Scattering)

A.E.R.E. LIBRARY

✓ In future the A.E.R.E. Library will remain open to N.I.R.N.S. and attached university staff until 7 p.m., i.e. an hour later than previously. Staff and visitors who wish to use the A.E.R.E. Library are reminded that they should hold a reader's ticket. These can be obtained through the N.I.R.N.S. Library, Building R.1.

ESSAY COMPETITION

✓ The journal "Discovery" offers two prizes of £100 each (one for scientists and one for non-scientists) for essays, not exceeding 3,000 words, on the subject "What is Science for?" The closing date is 30th April, 1962. Free entry forms and conditions can be obtained on application, in writing, to: "Discovery" Essay Competition, Mercury House, 103-119 Waterloo Road, London S.E.1.

INTERNAL EVENTS

Mon., 19th Feb., 11 a.m., Conf. Rm., Building R.1.	Nimrod Lecture Series	Professor W.E. Burcham, F.R.S. (Birmingham Univ.)	D-D Scattering
Wed., 21st Feb., 2 p.m., Conf. Rm., Building R.12.	P.L.A. Group Seminar	Dr. R. J. Griffiths	Proposed Experiment: Investigation of Shell Structure in Direct Interactions.
Mon., 26th Feb., 11 a.m., Conf. Rm., Building R.1.	Nimrod Lecture Series	Mr. M. Snowden	Bubble Chambers and the Rutherford Laboratory.

EXTERNAL EVENTS

19th-24th Feb.: International Inventions and Commercial Development Exhibition, Central Hall, Westminster, London.

(Continued)

Mon., 19th Feb., 7 p.m., 26 Portland Place, London W.C.1.	Soc. Inst. Technology Meeting	Mr. W. L. Marks and Mr. I.A. Dempster	Lectures on Digital Position Control.
Tues., 20th Feb., 4.15 p.m., 21 Banbury Road, Oxford.	Clarendon Laboratory Seminar	Mr. D.F. Measday	Nuclear Models for Radiative Proton Capture.
Tues., 20th Feb., 4.45 p.m., Univ. of Southampton.	Physics Department Lecture	Professor W.E. Burcham, F.R.S. (Birmingham Univ.)	Research in Physics at Birmingham.
Wed., 21st Feb., 2 p.m., Conf. Rm., Building 89, A.E.R.E.	Theoretical Physics Seminar	Dr. D. J. Thouless (Cambridge Univ.)	Collective Motion in Nuclei.
Wed., 21st Feb., 6 p.m., Keppel St., London W.C.1.	Brit. I.R.E. Meeting	Dr. P. Alexander	Sensitivity of Cells to Ionizing Radiation.
Thurs., 22nd Feb., 2 p.m., Cockcroft Hall, A.E.R.E.	Culham Laboratory Colloquium	Dr. F. D. Kahn	Damping of Plasma Insta- bilities of Finite Ampli- tudes.
(Persons wishing to attend should contact B. E. Kingdon, Extn. 585)			
Fri., 23rd Feb., 4.15 p.m., Clarendon Laboratory, Oxford.	Nuclear Physics Colloquium	Professor W.E. Burcham, F.R.S. (Birmingham Univ.)	Experiments with 650 MeV Deuterons.
Mon., 26th Feb., 4.45 p.m., Univ. of Bristol.	Physics Department Colloquium	Dr. C.J. Waddington	High Energy Particles from the Sun.

CONTRIBUTIONS TO THE BULLETIN

Those who wish to contribute items to the Bulletin are asked to notify B. E. Kingdon, Building R.20, by Thursday morning of the week previous to the date of issue.

B. E. KINGDON

Scientific Administration

MO.

16th February, 1962

RUTHERFORD LABORATORY BULLETIN

No. 63, for the week commencing Monday, 26th February, 1962

VISITORS

✓ Dr. Y. Wakuta, a nuclear physicist from Kyushu University, Japan, visited the Laboratory on Tuesday, 20th February.

✓ Twenty-one members of the Royal Military College of Science, Shrivenham, visited the Laboratory on Wednesday, 21st February.

✓ A party of twenty-five post-graduate physics students from the Imperial College of Science and Technology, London, will visit the Laboratory on Wednesday, 28th February. They will be accompanied by Professor C. C. Butler.

VISITS ABROAD

✓ Dr. P. J. Duke of the Nimrod Nuclear Physics Group left on 12th February for a six week visit to C.E.R.N., Geneva, where he is preparing an experiment on μ -meson capture, using the C.E.R.N. synchro-cyclotron.

✓ Mr. M. C. Morris of the National Hydrogen Bubble Chamber Group will visit C.E.R.N. from 26th February to 2nd March, in connection with the installation of magnet coils and commissioning of the gas-holder for the British National Hydrogen Bubble Chamber.

BURSARY AND SANDWICH COURSE AWARDS

The Institute is prepared to assist selected staff to undertake full-time or sandwich courses at universities or colleges of technology in certain circumstances. Details of these awards may be obtained from the Personnel Branch, Room 69, Building R.20. Applications for awards for courses beginning in September, 1962, should be forwarded to Mr. C. J. E. McDonald, on a form obtainable from him, by 30th March.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:-

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
X 27th-28th February	Queen Mary College	Longitudinal Polarisation
1st March and 3rd-4th March	N.I.R.N.S.	(p,p) Polarisation

CONFERENCE

X The Institute of Physics and the Physical Society are holding a Conference on "Diffusion and Mass Transport in Solids", at the J. J. Thompson Physical Laboratory, University of Reading, on 10th-11th April, 1962. The closing date for applications is 16th March. Copies of the programme and application forms may be obtained from B. E. Kingdon, Building R.20.

EXTERNAL COURSE

✓ A course of six weekly lectures on "Organisation and Methods" will commence on Monday, 26th February at 6.30 p.m., at the College of Technology, Headington Road, Oxford. All enquiries should be addressed to the Registrar.

INTERNAL EVENTS

X Mon., 5th March 2.15 p.m., Conf. Rm., Building R.1. (Please note the time of this lecture)	Nimrod Lecture Series	Dr. D. H. Perkins (Bristol Univ.)	Nuclear Collisions in the Region of $10^3 - 10^6$ BeV.
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(Continued)

EXTERNAL EVENTS

Tues., 27th Feb.,
4.15 p.m., 21 Banbury
Road, Oxford.

Clarendon
Laboratory
Seminar

Dr. L. Cranberg
(Los Alamos
Laboratory)

Nuclear
Temperatures.

Wed, 28th Feb.,
4.30 p.m. University
College, London.

Physics
Department
Seminar

Professor W.
Fowler (Pasadena
and Cambridge
University)

Nuclear Clues
to the Early
History of the
Solar System.

Wed., 28th Feb. at 6 p.m.; Programme of award-winning Scientific and Technical
Films, from recent international festivals. At A.E.I. Ltd., 33 Grosvenor Place,
London, S.W.1.

B. E. Kingdon
Scientific Administration

26th February, 1962

RUTHERFORD LABORATORY BULLETIN

No. 64 for the week commencing Monday, 5th March, 1962.

MEMBERSHIP OF THE INSTITUTE

✓ Professor B. H. Flowers of Manchester University has been appointed a Member of the Institute in succession to Professor R. E. Peierls of Birmingham University, whose term of office recently expired.

N.I.R.N.S. FOURTH ANNUAL REPORT

✓ The Fourth Annual Report of the Institute was published on 28th February. Copies are being distributed to Laboratory staff.

VISITS ABROAD

✓ The Director will visit C.E.R.N., Geneva, on 5th March, to attend a meeting of the Advisory Committee for the Conference on Instrumentation for High Energy Physics, to be held in Hamburg on 16th - 18th July, 1962.

✓ Mr. M. Snowden and Dr. C. M. Fisher of the Bubble Chamber Group will visit C.E.R.N. on 5th - 7th March to discuss a propane bubble chamber experiment.

NIMROD VACUUM VESSEL

✓ The first production section of the outer vacuum vessel for Nimrod was installed in Octant 5 (adjacent to the shielding bridge) on 26th February. The section was received from the manufacturers, Marston Excelsior Limited of Wolverhampton, on 2nd February and vacuum tests were carried out between 11th and 19th February.

NIMROD MAGNET POWER SUPPLIES

✓ The commissioning of one motor-alternator-flywheel set and half of the convertor installation has continued using four octants of the magnet as a load. As part of the test series this load has been pulsed at full voltage and 10,500 amps (standard pulse plus 15%) continuously for 24 hours. This first stage of the power supplies on-load testing has now ended. During the next three weeks various parts of the plant have to be examined, and some modifications carried out. The total number of test pulses to date is estimated to be a little over a quarter of a million.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
6th - 8th March	N.I.R.N.S.	(p, p) Polarisation
10th - 11th "	"	(p, He) Polarisation

LECTURE COURSES

✓ A number of short courses of technical lectures will be run after working hours at the Laboratory in the near future. The possible range of subjects is large, but the choice will be determined by demand. Anybody with ideas on what these subjects should be should contact Mr. T. R. Walsh, Bldg. R.1, Ext. 438.

SAFETY SECTION

The Rutherford Laboratory Safety Section is now accommodated in the East end of Building R.16. Telephone numbers are as follows: Safety Officer: Mr. K. C. Myers, Ext. 329; Records Office: Mr. E. T. Jones, Mr. S. H. Spanner, Ext. 314.

Inspection of a small permanent display of safety equipment, including goggles, gloves and dust masks is invited.

(Continued)

INTERNAL EVENTS

Mon., 5th March, 2.15 pm., Conf. Rm., Building R.1. (Please note the time of this lecture)

Nimrod Lecture Series

Dr. D. H. Perkins (Bristol Univ.)

Nuclear Collisions in the Region of 10^3 - 10^6 BeV.

Mon., 12th March, 11 am., Conf. Rm., Building R.1.

Nimrod Lecture Series

Prof. J.C. Gunn (Glasgow Univ.)

High Energy Electron Physics.

EXTERNAL EVENTS

Mon., 5th March, 5 p.m., Univ. of Reading.

Physics Dept. Colloquium

Dr. E.L. Hahn (Clarendon Laboratory)

Nuclear Spin Temperature in the Rotating Frame.

Mon., 5th March, 8.30 pm., Inorganic Chemistry Lab., Oxford.

Chem. Soc. and Royal Inst. Chem. Meeting

Mr. A. W. Adamson

Surfaces of Metals.

Tues., 6th March, 5.30 pm., Savoy Place, London W.C.2.

I.E.E. Lecture

Mr. J. E. Thompson

Magnetostriction and Transformer Noise Generation.

Tues., 6th March, 4.15 pm., 21 Banbury Road, Oxford.

Clarendon Laboratory Seminar

Mr. G. C. Thomas

Giant Dipoles in Theory and Practice.

6th-30th March: U.K.A.E.A. "Atoms at Work" Exhibition. 10 a.m. - 6pm. weekdays, 2.30-6p.m. Sundays. At the Science Museum, South Kensington, London S.W.7.

Wed., 7th March, 2 p.m. Conf. Rm., Bldg. 8.9, A.E.R.E.

Theoretical Physics Seminar

Mr. M.J.D. Powell

A Method of Finding the Minimum of a Function of Several Variables.

Wed., 7th March, 4.30 p.m., University College, London.

Physics Department Seminar

Dr. R.J. Blin-Stoyle (Oxford Univ.)

The Nucleus and Elementary Particle Interactions.

Wed., 7th March, 7.30 p.m., Technical College, Reading.

I. Mech. E. Lecture

Mr. J. M. Burgess (A.W.R.E.)

Numerically Controlled Machine Tools.

Thurs., 8th March, 5 p.m., Univ. of Bristol.

Physics Department Colloquium

Prof. D.W. MacKay (Univ. Coll. of North Staffs.)

The Mechanization of Inductive Processes.

Mon., 12th March, 5.30p.m., 47 Belgrave Square, London S.W.1.

Inst. Phys. & Phys. Soc. Lecture

Mr. R.V. Jones

Problems Facing University Physics Departments.

12th-16th March: "Science Films from the U.S.A." Five programmes of films, at Mullard House, Torrington Place, London W.C.1.

B. E. Kingdon

Scientific Administration

RUTHERFORD LABORATORY BULLETIN

No.65 for the week commencing Monday, 12th March, 1962.

✓ VISITORS. Thirty members of the Bristol University Physical Society will visit the Laboratory on Wednesday afternoon, 14th March.

✓ VISITS ABROAD. Dr. W. A. Smith of the Nimrod Magnet Group will visit C.E.R.N., Geneva, and S.A.M.E.S., Grenoble, from 12th to 15th March, for discussions on H.T. equipment for use with beam separators.

✓ Mr. J. M. Scarr of the Bubble Chamber Group, will spend approximately two months at C.E.R.N., commencing 15th March, in connection with bubble chamber experiments.

P.L.A. The programme scheduled for the P.L.A. during the current week is as follows:-

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
X 13th-15th March	University College, London.	Measurement of Spin Correlation in p-p Scattering.
17th March	Queen Mary College, London.	(p,d) Polarisation in Silicon.
18th March	N.I.R.N.S.	Accelerator Physics.

✓ LECTURE COURSES. A number of short courses of technical lectures will be run after working hours at the Laboratory in the near future. The possible range of subjects is large, but the choice will be determined by demand. Anybody with ideas on what these subjects should be should contact Mr. T. R. Walsh, Building R.1, Ext. 438.

ESSAY COMPETITION. Details of the tenth Essay Competition for the Waverley Gold Medal and money prizes, sponsored by the journal "Research", can be seen on Laboratory notice boards. The closing date for entries is 31st July. Entry forms may be obtained from B. E. Kingdon, Building R.20.

LIBRARY NOTICE. The following books are missing from the Rutherford Laboratory Library, Building R.1. Would anyone who has any knowledge of their whereabouts please contact Mrs. P. J. McWilliam, Building R.1, Ext. 273.

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- (i) Millman & Taub - Pulse and Digital Circuits (Ha 24073)
 - (ii) Schiff - Quantum Mechanics (Ha 23343)
 - (iii) Semat - Introduction to Atomic and Nuclear Physics (Ha 22786)
 - (iv) Wilson & Littauer - Accelerators: Machines of Nuclear Physics (Ha 29643)

INTERNAL EVENTS

Mon. 12th March 11 a.m., Conf.Rm., Bldg. R.1	Nimrod Lecture Series	Prof. J.C. Gunn (Glasgow University)	High Energy Electron Physics.
X Mon., 19th March 11 a.m., Conf.Rm., Bldg., R.1	Nimrod Lecture Series	Prof. E.H. Bellamy (Westfield College, London.)	Some Experiments on Photo-Meson Production.
Tues., 20th March, 2.15 p.m., Conf. Rm., Building R.1	Lecture	Prof. D. Bohm (Birkbeck College, London.)	Space-Time and Elementary Particles.

EXTERNAL EVENTS

X 12th-16th March: "Science Films from the U.S.A." Five programmes of films at Mullard House, Torrington Place, London, W.C.1.

X 12th-30th March: U.K.A.E.A. "Atoms at Work" Exhibition, 10 a.m.-6 p.m. weekdays, 2.30 p.m.-6 p.m. Sundays. At the Science Museum, South Kensington, London, S.W.7.

EXTERNAL EVENTS / ...

EXTERNAL EVENTS (continued)

Mon., 12th March, 5.30 p.m., 47 Belgrave Square, London, S.W.1.	Inst.Phys. & Phys.Soc. Lecture	Mr. R.V. Jones	Problems Facing University Physics Departments.
Tues., 13th March, 4.15 p.m. 21 Banbury Road, Oxford.	Clarendon Laboratory Seminar	Mr. R.M. Spector	The Beta Decay of RaE.
Tues., 13th March, 5 p.m., University of Southampton.	Physics Department Colloquium	Mr. E.G. Auld	Solid State Particle Detection.
Tues., 13th March, 7.30 p.m., Employment Exchange, Oxford.	A.S.E.E. Lecture	Staff of Messrs. J.A. Crabtree & Co. Ltd.	Protection of Domestic and Industrial Installations.
13th-15th March: Plastics Institute Conference: "Testing for Performance." At I.E.E. Headquarters, Savoy Place, London, W.C.2.			
Wed., 14th March, 3.45 p.m. University of Leeds.	Physics Department Colloquium	Prof. R.A. Smith (Sheffield University)	Optical Properties of Semi- Conductors.
Wed., 14th March, 4.30 p.m., University College, London.	Physics Department Seminar	Dr. T.C. Griffith	Measurement of Triple Scattering Parameters in N-N Scattering.
Wed., 14th March, 5 p.m., University of Sheffield.	Inst.Phys. & Phys.Soc. Lecture	Mr. N.F. Astbury	Ceramics.
Wed., 14th March, 7 p.m., Coll. of Science & Tech- nology, Bristol.	Brit.I.R.E. Lecture	Dr. A.D. Booth	Recent Applications of, and Refinements in, Electronic Digital Computers.
Wed., 14th March, 7.30 p.m., Pressed Steel Co., Oxford.	Inst.Prod. Engineers Meeting	"Communications with Industry" (Discussion and Brains-Trust)	
Thurs., 15th March, 6 p.m., 1 Birdcage Walk, London, S.W.1.	I.Mech.E. Symposium	"The Computer and the Mechanical Engineer"	
Thurs., 15th March, 7 p.m., Roadway House, Oxford St., Newcastle.	Soc.Inst. Technology Meeting	Mr. L.M. Bennett	Electromagnetic Flowmeters.
Fri., 16th March, 6.30 p.m., James Watt Institute, Birmingham 3.	Plastics Institute Lecture	Mr. L.S. Evans	The Chemical Resistance of Rubber and Plastics.
Fri., 16th March, 6.30 p.m., South Dorset Tech.Coll., Weymouth.	I.E.E. Meeting	Films on Transistors, Radio Astronomy, Magnetism and Linear Accelerators.	
Mon., 19th March, 4.45 p.m., University of Bristol.	Physics Department Colloquium	Dr. P.H. Fowler	Nuclear Interactions at Energies of 10,000 BeV.

B. E. Kingdon

9th March, 1962.

RUTHERFORD LABORATORY BULLETIN

No. 66, for the week commencing Monday, 19th March, 1962

VISITS ABROAD

✓ Dr. J. Howlett, Head of the new N.I.R.N.S. Atlas Computer Laboratory, will be in the U.S.A. from 29th March to 6th May, to participate in the North American Recruiting Campaign. He will also visit various computing organisations and attend mathematical conferences at Chicago and Atlantic City.

✓ Mr. K. B. Shaw of the Radiation Protection Group will visit C.E.R.N. for three months commencing 19th March to work with the Health Physics Group.

✓ Mr. D. Whiteside of the Theoretical Group will visit C.E.R.N. for eight weeks commencing 21st March, in connection with design work on high energy beams for Nimrod.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:-

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
20th-22nd March	University College, London.	Measurement of Spin Correlation in p-p Scattering.

DEMONSTRATION OF CALCULATING MACHINES

✓ The Muldivo Calculating Machine Co. Ltd. will hold an exhibition of calculating machines from 10.30 a.m. to 4.30 p.m. on Thursday, 22nd March, 1962, in Room 1.45, Building R.1. Amongst the equipment to be demonstrated will be the latest models of MADAS fully automatic calculators, the advanced MADAS 1CR hand calculator with automatic division and live storage, and the new high-speed ULTRA 804 large-capacity Printing Calculator.

TELEPHONE BOX

✓ A coin telephone box is now available in the main entrance to Building R.1 in addition to the one in the West entrance hall.

INTERNAL EVENTS

Mon., 19th March, 11 a.m., Conf.Rm., Building R.1	Nimrod Lecture Series	Prof. E. H. Bellamy (Westfield College, London).	Some Experiments on Photo-Meson Production.
Tues., 20th March, 2.15 p.m., Conf.Rm., Building R.1	Lecture	Prof. D. Bohm (Birkbeck College, London).	Space-Time and Elementary Particles.
Wed., 21st March, 2 p.m., Conf.Rm., Building R.12	P.L.A. Group Seminar	Dr. A.M. Lane (A.E.R.E.).	Theoretical Implications of Recent Data on (p,n) Reactions.

(There will be no lecture in the "Nimrod" series on Monday, 26th March).

EXTERNAL EVENTS

Mon., 19th March, 4.45 p.m., University of Bristol.	Physics Department Colloquium	Dr. P. H. Fowler	Nuclear Inter- actions at Energies of 10,000 BeV.
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EXTERNAL EVENTS (continued) / ...

EXTERNAL EVENTS (continued)

Tues., 20th March, 4.45 p.m., University of Southampton.	Physics Department Lecture	Dr. N. Kurti (Clarendon Laboratory, Oxford).	Nuclei - Hot and Cold
Tues., 20th March, 5.30 p.m., 47 Belgrave Square, London, S.W.1.	Inst.Phys. & Phys.Soc. Lecture.	Mr. P.C. Banbury	Semiconductor Surfaces.
Tues., 20th March, 7.30 p.m., Royal Hotel, Bristol.	Inst.Metal Finishing Lecture.	Mr. E. Laker	Instruments for Measuring Coating Thickness.

20th and 21st March: Demonstration of the SC 30 Analogue Computer, by Solartron Laboratory Instruments Limited.
10 a.m.-4 p.m., in the Conference Room, Cockcroft Hall, A.E.R.E. (No passes required).

20th-24th March: 11th Electrical Engineers (A.S.E.E.) Exhibition, at Earl's Court, London. (Tickets may be obtained from B. E. Kingdon, Building R.20).

Wed., 21st March, 2 p.m., Conf.Rm., Building 8.9, A.E.R.E.	Theoretical Physics Seminar	Mr. A.E. Warburton (Cambridge University)	The Plus/Minus Ratio for Meson Photo- production from Nucleons.
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Wed., 21st March, 4.30 p.m., University College London.	Physics Department Seminar	Professor D. R. Bates	Heavy Particle Collisions.
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Wed., 21st March, 6.30 p.m., College of Technology, Portsmouth.	I.E.E. Lecture	Dr. D. G. Kiely	Some Modern Microwave Valves.
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Wed., 21st March, 6.30 p.m., Technical Institute, Crawley.	I.E.E. Lecture	Mr. J.A. Stokes and Mr. M. Monk	Problems in Electronic Control of Machine Tools.
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Wed., 21st March, 6.30 p.m.: "Corrosion Science in Research and Industry".
Conversazione and Exhibition. At the Society of Chemical Industry, 14 Belgrave
Square, London, S.W.1. (The Exhibition remains open on Thursday, 22nd March,
10 a.m.-4 p.m.)

Thurs., 22nd March, 2 p.m., Cockcroft Hall, A.E.R.E.	Culham Laboratory Colloquium	Dr. P.F. Little (Passes required)	Ion Waves in Plasma.
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Thurs., 22nd March, 6.15 p.m., Elect. Eng. Dept., Univ. of Birmingham.	Brit.I.R.E. Lecture	Dr. P.R. Stuart (Non-members wishing to attend should contact B. E. Kingdon).	Cryotrons
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Fri., 23rd March, 7.30 p.m., Belle Vue Hotel, Cheltenham.	Soc.Inst. Technology Lecture	Mr.E.A.Neppiras	Applications of Ultrasonics in the Processing Field.
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Mon., 26th and Tues., 27th March: Institute of Physics and Physical Society
Symposium on High Energy Physics. At Imperial College, London.

B. E. Kingdon

16th March, 1962.

MSG.

RUTHERFORD LABORATORY BULLETIN

No. 67, for the week commencing Monday, 26th March, 1962.

VISITORS

✓ A party of eleven members of the Engineering Society, City and Guilds College, London, visited the Laboratory on Saturday, 17th March.

✓ Professor N. M. MacElwee, Professor of Electrical Engineering, Canterbury University, Christchurch, New Zealand, accompanied by Mr. J. G. Smith of Associated Electrical Industries Limited, Reading Office, will visit the Laboratory on Friday, 30th March. Anyone interested in meeting Professor MacElwee or Mr. Smith should contact B. E. Kingdon, Ext. 585.

VISITS ABROAD

✓ Dr. W. A. Smith and Dr. P. A. Chatterton of the Nimrod Magnet Group left for the U.S.A. on 24th March, where they will visit the Brookhaven National Laboratory and firms in New York and Boston, for discussions on H. T. sets for use with particle separators. They will return on 31st March.

✓ Mr. W. Walkinshaw and Mr. A. G. Wilson of the Theoretical Group will visit C.E.R.N. on 28th March for discussions on the C.E.R.N. Summer Study Group. They will return on 30th March and mid-April respectively.

Dr. T. G. Walker of the Nimrod Nuclear Physics Group, who is at present on attachment to C.E.R.N., will visit the Rutherford Laboratory on Wednesday, 28th March. Anyone wishing to see Dr. Walker should contact Dr. G. H. Stafford's Office, Building R.12, Ext 456.

NIMROD MAGNET

✓ Live tests on the Nimrod Magnet and its power supply will recommence within the next few days. For safety reasons, access to the Nimrod Magnet and Injector Rooms will be restricted to authorised personnel from Monday, 26th March, until further notice. Anyone without a permit who requires to enter this area should apply to Mr. R. G. Russell. Similarly, access to the Alternator House and the Converter House will be restricted, and application to enter should be made to Mr. H. C. Brooks.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
27th-29th March	Queen's University, Belfast, and N.I.R.N.S.	Shell Structure Studies
31st March and 1st April	N.I.R.N.S.	Accelerator Physics

NEW ELEMENTARY PARTICLE

✓ The discovery of the xi-minus antiparticle has been announced by physicists working at C.E.R.N., Geneva, and the Brookhaven National Laboratory, New York. Details are given in "Physical Review Letters" for 15th March, also in C.E.R.N. Press Release No. PR/9/62, which may be seen in the Library, Building R.1.

ATTACHED STAFF

✓ Mr. R. J. Burleigh, a Mechanical Engineer from U.C.R.L. Berkeley, California, has recently joined the Cyclotron Group on attachment for a period of approximately twelve months.

NIMROD CABLE CODING SYSTEM

✓ Personnel are advised that a cable coding system for Nimrod exists with the Nimrod Electrical Control Section, R.1 Link Building. Code allocations are made only through this Section, and details may be obtained on request to Mr. C. H. Booth, Room 2.65, R.1 Link, Ext. 259.

(Continued)

INTERNAL EVENTS

(There will be no lecture in the "Nimrod" series on Monday, 26th March).

Mon. 2nd April, 11 a.m., New Conf. Room, Bldg. R.1.	Nimrod Lecture Series	Prof. A. W. Merrison (Liverpool University)	Weak Interactions.
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EXTERNAL EVENTS

Mon., 26th and Tues., 27th March: Institute of Physics and Physical Society Symposium on High Energy Nuclear Physics. At Imperial College, London.

Tues., 27th March, 6.15p.m. I.E.E., Savoy Place, London, W.C.2. (See Monday, 2nd April, below)	A.S.E.E. Lecture	Mr. W. C. Ferguson	Plastics in the Electrical Industry.
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Tues., 27th March, 6.30 p.m., Tech. Coll., Nottingham.	I.E.E. Lecture	Mr. J.R. Acton	Electroluminescence.
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Tues., 27th March, 7p.m., 26 Portland Place, London W.1.	Soc. Inst. Technology Lecture	Mr. G. Williams	Organisation of an Instrument Mainten- ance Department.
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Wed., 28th March, 2 p.m., Conf. Room, Bldg. 8.9, A.E.R.E.	Theoretical Physics Seminar	Dr. M. K. Pal	Hole-Particle Pairing Interaction in Nuclei.
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Wed., 28th March, 3.15 p.m., Conf. Rm., Bldg. 451/T, A.E.R.E.	Lecture	Mr. M. Harris (Thorn Electrical Industries)	New Relays and Associated Equipment.
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Wed., 28th March, 6 p.m., 1 Birdcage Walk, London S.W.1.	I. Mech. E Lecture	Sir Lionel Heald	The Engineer and the Law.
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Thurs., 29th March, 2 p.m., Cockcroft Hall, A.E.R.E. (No passes required)	Culham Laboratory Colloquium	Dr. R. Latham (Imperial College, London)	Linear Pinch Work at Imperial College.
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Mon., 2nd April, 5.45 p.m., Reactor School, A.E.R.E.	A.S.E.E. Lecture	Mr. W.C. Ferguson	Plastics in the Electrical Industry.
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2nd-4th April: Brit. I.R.E. Symposium on "Recent Developments in Industrial Electronics". At the School of Pharmacy, Brunswick Square, London W.C.1. (Details may be obtained from B. E. Kingdon).

B. E. Kingdon

Scientific Administration

23rd March, 1962

RUTHERFORD LABORATORY BULLETIN

No. 68, for the week commencing Monday, 2nd April, 1962

VISITORS

✓ Dr. D. L. Smare, Head of the Department of Physics, Bradford Institute of Technology, will visit the Laboratory on Friday, 6th April.

VISITS ABROAD

✓ Mr. J. D. Lawson, Dr. J. H. Coupland, Mr. T. C. Randle and Mr. P. T. Clee of the Cyclotron Group will visit the U.S.A. from 7th to 28th April, where they will attend a Conference on Sector-Focused Cyclotrons at the University of California, Los Angeles, and laboratories at Oak Ridge, Argonne and Berkeley.

NIMROD VACUUM SYSTEM

✓ Vacuum vessels for the straight sections of Nimrod have recently been delivered to the Laboratory. The Inflector vessel, manufactured by Messrs. H. and E. Lintott, Horsham, Surrey, is now installed ready for the preliminary magnetic survey checks on Octants 1 and 8. Three vessels manufactured by Messrs. Harland and Wolff, Belfast, have been delivered, one of which is for the Extractor magnet and the others for experimental straight sections.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
X 4th April	King's College London	(a) Proton Reaction Cross-sections for Carbon (b) Slit Scattering
5th-9th April	A.E.R.E.	Time of Flight Survey (A(p-d)B)

CONFERENCES

X The Institution of Electrical Engineers will hold a Symposium on "Flame-proofing, Intrinsic Safety and Other Safeguards in Electrical Instrument Practice" on Friday, 27th April, at Savoy Place, London W.C.2.

The Institute of Physics and the Physical Society will hold an International Conference on "The Ionosphere", at Imperial College, London, on 2nd-6th July.

(Details of each of the above events may be obtained from B. E. Kingdon, Building R.20, Ext. 585).

EXTERNAL COURSE

✓ A two-weeks course on "Design, Use and Maintenance of Electronic Equipment used in Nuclear Physics" will be held on 25th June to 6th July at the Borough Polytechnic, London S.E.1. The course fee is £5. Details may be obtained from B. E. Kingdon.

REPRINTS

✓ Authors of papers submitted for publication are reminded that they should return the publisher's reprint order form through the Librarian, (Building R.1) so that extra reprints, (additional to the author's own requirements) may be ordered for the Library.

VACANCIES AT C.E.R.N.

Further vacancy notices, covering a wide range of posts, have been received from C.E.R.N., Geneva. Details may be obtained from the Personnel Section, Room 68, Building R.20.

(Continued)

INTERNAL EVENTS

Mon., 2nd April, 2.15 pm., Conf. Room, Building R.1.	Nimrod Lecture Series	Prof. A. W. Merrison (Liverpool University)	Weak Interactions. (Please note the change of time for this lecture)
Wed., 4th April, 2 pm., Conf. Rm., Building R.12.	P.L.A. Group Seminar	Dr. A. Johnston (Belfast University)	Proposed Experiment: Measurement of Polarization in p-d Elastic Scattering.
Fri., 6th April, 10.30 a.m. Old Conf. Rm., Building R.1.	Lecture	Mr. R.J. Burleigh (U.C.R.L., Berkeley)	The Berkeley Spiral-Ridge Cyclotron.

Nimrod Series Lecture on 9th April - Details to be arranged.

EXTERNAL EVENTS

2nd-4th April: Brit. I.R.E. Symposium on "Recent Developments in Industrial Electronics". At the School of Pharmacy, Brunswick Square, London W.C.1. (Details may be obtained from B. E. Kingdon).

Mon., 2nd April, 5.45 pm., Reactor School, A.E.R.E.	A.S.E.E. Lecture	Mr. E. Pendrill (Foster Transformers, Ltd.)	Voltage Stabilisation.
Tues., 3rd April, 5.30 pm., Savoy Place, London, W.C.2.	I.E.E. Lecture	Mr. D. M. Taub	Read-only Memories for Digital Computers.
Tues., 3rd April, 7.30 pm., Social Club, Caversham, Reading.	A.S.E.E. Lecture	-	Current Trends in Testing.
Wed., 4th April, 8 pm., Civic Centre, Wood Green, London, N.22.	A.S.E.E. Lecture	Mr. S. J. Emerson	Accidents and Fire and Explosion Hazards.
Thurs., 5th April:	Demonstration of Ortec and Tennelec Equipment, by Nuclear Enterprises (Great Britain) Ltd. 11.45 a.m. - 4 p.m., in the foyer of Building 429, A.E.R.E.		
Fri., 6th April, 6 p.m., Savoy Place, London, W.C.2.	I.E.E. Discussion Meeting	-	Analogues.
Fri. 6th April, 6.45 p.m. 10 Blackfriars St., Manchester, 3.	Plastics Institute Lecture	Mr. B. J. Phipp	Reinforced Plastics.
Mon., 9th April, 5.30 p.m., Savoy Place, London, W.C.2.	I.E.E. Lecture	Mr. J. T. Kendall	Epitaxial Technique in Semiconductor Devices.
Mon., 9th April, 7.15 pm., White Hall Hotel, Bloomsbury Sq., London, W.C.1.	A.S.E.E. Lecture	Staff of the Electric Construction Co. Ltd.	Electric Rotating Machinery.

9th-13th April: "Pipes, Pipelines, Pumps and Valves". 2nd International Exhibition and Convention, at Earl's Court, London.

B. E. Kingdon
Scientific Administration

30th March, 1962

RUTHERFORD LABORATORY BULLETIN

No. 69, for the week commencing Monday, 9th April, 1962

VISITORS

✓ A party of those attending the A.E.R.E. Reactor School Science Masters' Course will visit the Laboratory on Tuesday 10th, and Wednesday, 11th April.

P.L.A.

The programme scheduled for the P.L.A. during the current week is as follows:-

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
X 9th, 12th and 13th April	A.E.R.E.	Time of Flight Survey (A(p-d)B)
14th - 16th April	Queen's University, Belfast, and N.I.R.N.S.	Shell Structure Studies

EXTERNAL COURSES, ETC.

The Institution of Mechanical Engineers will hold a Symposium on "Some Developments in Techniques for Temperature Measurement", on 26th April, at 1 Birdcage Walk, Westminster, London S.W.1. The closing date for applications is 12th April.

✓ An Advanced Course on "Neutron Crystal Spectrometry" will be held on 18th - 27th June at Kjeller, Norway, by the Netherlands'-Norwegian Reactor School. The closing date for applications is 1st May.

✓ A Summer School of Theoretical Physics will be held at Cargèse, Corsica, on 25th June - 31st July, by the University of Paris, Faculty of Sciences, Orsay. The closing date for applications is 24th April.

✓ A Course on "Advanced Physics and Measurements" (including lectures on proportional and gas counters, counting statistics, etc.) will be held at the Isotope School, U.K.A.E.A. Wantage Research Laboratory, on 16th - 27th July.

(Details and application forms for the above may be obtained from B.E. Kingdon, Building R. 20, Ex. 585).

INTERNAL EVENTS

Mon., 9th April,
2.15 p.m., P.L.A.
Conf. Rm., Bldg. R.12. Series

Nimrod Dr. P.H. Fowler
(Bristol University)

Some Details of Nuclear Interactions at 10^6 GeV.

(Please note the time and place for this lecture)

X Mon., 16th April,
11 a.m., New Conf.
Rm., Building R.1.

Nimrod Mr. D. Morgan
(N.I.R.N.S.)

Pion-Pion Scattering.

Wed., 18th April,
2.15 p.m., New Conf.
Rm., Building R.1.

Lecture Prof. S.D. Drell
(Stamford Univ.
and C.E.R.N.)

Peripheral Interactions and High Energy Processes.

EXTERNAL EVENTS

X Mon., 9th April,
5.30 p.m.,
Savoy Place,
London W.C.2.

I.E.E. Mr. J. T. Kendall
Lecture

Epitaxial Technique in Semiconductor Devices.

Mon., 9th April,
7.15 p.m., White Hall
Hotel, Bloomsbury Sq.,
London W.C.1.

A.S.E.E. Staff of the
Lecture Electric Construction
Co. Ltd.

Electric Rotating Machinery.

(Continued)

EXTERNAL EVENTS (contd.)

9th - 13th April: "Pipes, Pipelines, Pumps and Valves". 2nd International Exhibition and Convention, at Earl's Court, London.

Tues., 10th April, 4 p.m., I.E.E., Savoy Place, London W.C.2.	Plastics Institute Symposium	_____	The Mixing and Compounding of Thermoplastics.
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Tues., 10th April, 6 p.m., Savoy Place, London W.C. 2.	I.E.E. Lecture	Mr. D. J. Isaacs	Education or Technical Instruction?
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Tues., 10th April, 7.30 p.m., Employment Exchange, Oxford.	A.S.E.E. Lecture	Mr. J. B. Spokes (Messrs. Woods Ltd., Colchester)	Fans and their Applications.
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10th - 12th April: "Inelastic Collisions of Atoms and Simple Molecules". Faraday Society. General discussion, at the University Chemical Laboratory, Lensfield Road, Cambridge.

Wed., 11th April, 6 p.m., Imperial College, London S.W. 7.	Society of Environmental Engineers	Discussion Meeting	Random Vibration Testing.
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Thurs., 12th April, 3.30 p.m., Cockcroft Hall, A.E.R.E.	Lecture (No passes required)	Dr. F. J. Norton (General Electric Co., New York)	The Permeation of Gases through Solids.
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Thurs., 12th April, 6 p.m., 1 Birdcage Walk, London S.W. 1.	I. Mech. E. Symposium	Non-conventional Lubricants and Bearing Materials used in Nuclear Engineering.	
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Thurs., 12th April, 7 p.m., 4 Hamilton Place, London W. 1.	Inst. Prod. Engineers Lecture	Messrs. F. Kay, D.A. Larner and T. Hamilton	Modern Applications of Pneumatic Control.
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Thurs., 12th April, 7.15 p.m., 10 Chesterfield St., London W. 1.	Inst. Prod. Engineers Lecture	Mr. J. A. Shepherd	Metal and Ceramic Spraying.
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Fri., 13th April, 10.15 a.m., Clarendon Lab., Oxford.	Royal Photographic Society	Symposium (General Electric Co., New York)	Extraction of Data from Photographic Records.
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Fri., 13th April, 2 p.m., Cockcroft Hall, A.E.R.E.	Culham Laboratory Colloquium	Dr. A.N. Dellis (No passes required)	Whistler Mode Propagation in the Laboratory.
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Fri., 13th April, 7 p.m., Tech. Coll., Basingstoke.	Brit. I.R.E. Lecture	Dr. D. G. Keily	Recent Advances in Low Noise Micro- wave Valves.
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(Persons wishing to attend should contact B. E. Kingdon, Ex. 585).

Mon., 16th April, 8 p.m., Royal York Hotel, Bath.	A.S.E.E. Lecture	Mr. R. Coombes	Crane Electrical Installations.
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16th - 26th April: 19th International Conference on Large Electric Systems, Paris.

6th March, 1962

B. E. Kingdon
Scientific Administration