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for the week commencing Monday, 21st August, 1961

VISITORS

✓ Mr. Denzil Freeth, M.P., Parliamentary Secretary to the Minister for Science, will visit the Laboratory on Friday, 25th August.

VISITS ABROAD

✓ Dr. P. J. Duke, who has been attached to the Brookhaven National Laboratory, U.S.A., for the past 18 months, returned to the Rutherford Laboratory on 17th August.

✓ Dr. P. G. Murphy is due to return on 25th August from his 18-month attachment at U.C.R.L., Berkeley, California, U.S.A.

✓ Mr. W. Burrells of the Radiation Protection Group left on 12th August for the U.S.A., where he will visit laboratories at Berkeley, Brookhaven, and Harvard University for discussions on accelerator shielding problems. He is due to return on 22nd September.

✓ Mr. S. H. Cross of the Nimrod Vacuum Group will be in the U.S.A. from 25th to 28th August, where he will visit Princeton University, New Jersey, and the Argonne National Laboratory, Illinois, for discussions on vacuum chamber design.

✓ Mr. J. H. Major of the Engineering Design Group and Mr. J. A. Fox of the Nimrod Operations Group, will visit C.E.R.N., Geneva, from 28th August to 3rd September for discussions on power supply equipment. Mr. Fox will also visit D.E.S.Y., Hamburg, returning on 5th September.

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>
21st-25th August	Birmingham University	Measurement of Polarisation (Double-Scattering)

HIGHER DEGREE AWARD

✓ Mr. David Orr, late of the Nimrod Injector Group, who has now taken up an appointment as Lecturer in the Physics Department, Makerere College, Uganda, has been awarded a Ph.D by London University for his thesis on "Electron model studies of particle motions in spiral ridge magnetic fields and electrostatic quadrupoles".

EXTERNAL COURSES

Details of the following courses may be seen on the Library notice-board, Building R.1:-

✓ (i) At the Borough Polytechnic, London, S.E.1: Evening lectures on Nuclear Power, Nucleonic Circuitry, Nuclear Particle Techniques, and Reactor Instrumentation and Control. Part-time and full-time courses on Nucleonic Techniques and Measurements, and a full-time course on Design, Use and Maintenance of Electronic Equipment used in Nuclear Physics.

✓ (ii) At the Northem Polytechnic, London, N.7: Evening lectures on Recent Developments in the Circuits for Nuclear Particle Counting, Electronic and Microwave Physics, Electrical Discharges in Gases, and Theory of Metals and Semiconductors.

EXTERNAL EVENTS

✓ Tuesday 22nd August, 10 a.m. - 5 p.m., adjacent to Social Club A.E.R.E.: Mobile Exhibition of Pulse Height Analyser Equipment by A.E.I. Ltd.

B. E. Kingdon
Scientific Administration

18th August, 1961

(Appendix overleaf)

APPENDIX

Notes on the Oxford Electrostatic Generator Project

(Contributed by Dr. W. D. Allen)

For some time now a project has been under discussion with Oxford University whereby assistance would be given by the Institute in the construction and installation of an electrostatic generator. A press release was made early in June, giving details of the project: these notes may serve to supplement this release.

In nuclear structure work in the energy range 1-20 MeV (now known as the low energy nuclear field) the electrostatic generator has the primary virtues of precision and flexibility: particle energies are normally known to about one kilovolt, and the energy can be readily varied. Secondary virtues are the precision of beam definition, with consequent low background: and the fact that the beam is D.C., so that conditions for coincidence experiments are improved. The chief limitation has been in the fact that, hitherto, energies above 6-7 MeV have been difficult to attain, whereas, for studies of nuclear structure, a machine delivery up to 20 MeV would greatly increase the range of studies available to the nuclear physicist. The object of the Oxford project is to build such a machine.

The accelerator is a two-stage system, the main acceleration occurring in a horizontal tandem generator, to be purchased from the High Voltage Corporation of America, in which negative ions (say hydrogen ions) are accelerated from ground potential to the central electrode at say 6 MeV, stripped of their electrons and accelerated as positive ions back to earth potential so that the total particle energy is 12 MeV. The step from 12 MeV to 20 MeV is taken by injecting the negative ions, not at 100 KeV as is usual, but at 8 MeV from a vertical Van de Graaff machine. It is the responsibility of the Electrostatic Generator Group of the Institute to design and construct the injector, to provide minor accessories for the tandem, and to commission the whole.

A feature of the system is the fact that the ion source will be designed to be very flexible, and should deliver, in addition to negative ions (hydrogen, oxygen and sulphur) a range of positive ions (hydrogen, helium, etc.) so that the vertical machine will operate in its own right as well as an injector. Under these circumstances, vertical machine and tandem will operate as separate machines, each with its own target room and control system. The demands on the ion source are therefore considerable, and the size of the top terminal of the injector is 9' 6" x 5' diameter. Access is either by removing the lid of the pressure vessel and the terminal shells, or by hoist up the centre of the machine.

One of the problems with the demand for positive and negative running is that of stabilization. A major virtue of the electrostatic generator in this energy range is its precision; the voltage can be held to a few keV in 5 MeV by a feedback loop which operates a corona spray in the pressure vessel. For a negative running machine, however, this system may lead to difficulties, and alternatives must be sought. To explore these alternatives, a machine of intermediate size has been set up in Hangar 10.2, A.E.R.E. and has operated without an accelerating tube at 4.4 MV. It is expected that problems of stabilization, as well as many other questions of machine operation and design, will be explored during the next 18 months.

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RUTHERFORD LABORATORY BULLETIN NO. 41

for the week commencing Monday, 28th August, 1961

VISITORS

✓ Dr. A. M. D'Rozario, Minister for Science to the High Commission for India (in London), accompanied by Mr. G. R. Ramane visited the Laboratory on Tuesday, 22nd August, where they were received by the Secretary.

✓ 38 members of the Foreign Office and Commonwealth Training Course will visit the Laboratory on Monday, 28th August, for a tour of the Nimrod area.

✓ Mr. Nobuo Okajima, Chief Engineer of the Technical Research Department, Taisei Construction Co. Ltd., Tokyo, will visit the Laboratory on 29th August.

VISITS ABROAD

✓ Dr. A. Segar and Mr. D. Salter of the P.L.A. Group who are at present engaged in an experiment on the C.E.R.N. proton synchrotron are expected to return on 21st and 14th September, respectively.

✓ Mr. P. D. Dunn, Nimrod R.F. Group, will visit Munich from 27th August to 4th September, to attend the Fifth International Conference on Ionization Phenomena in Gases.

✓ Dr. R. H. Thomas of the Bubble Chamber Group will visit C.E.R.N. for three days commencing 28th August, in connection with work on nuclear emulsions.

✓ The Director will leave for the U.S.A. on 5th September to attend the 1961 Brookhaven International Conference on High Energy Accelerators. He will return on 14th September.

✓ Mr. L. B. Mullett, Dr. W. D. Allen, Dr. L. C. W. Hobbs, Mr. J. M. Dickson and Mr. N. M. King will leave on 4th September to attend the Brookhaven Conference. They will subsequently tour various accelerator establishments in the U.S.A. before returning on 1st October.

✓ Mr. J. C. Louth, Engineer in Charge of Nimrod, will visit the U.S.A. from 12th September to 1st October, where he will visit various establishments to discuss the commissioning, operation and maintenance of accelerators.

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>
28th August - 1st September.	Birmingham University	Measurement of Polarisation. (Double-Scattering)

EXTERNAL EVENTS

✓ Tuesday, 29th August,
9 a.m. and 2 p.m.,
Cockcroft Hall,
A.E.R.E.

"Matter in Question" - a 25-minute colour film produced by C.E.R.N., describing the Laboratory and its particle accelerators. (No tickets required. Access from inner or outer gate).

30th August -
6th September,
Norwich.

123rd Annual Meeting of the British Association for the Advancement of Science.

B. E. Kingdon
Scientific Administration

28th August, 1961.

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(Appendix appears on attached sheet)

APPENDIX

The following press release was issued by the United Kingdom Atomic Energy Authority on behalf of the National Institute on Thursday, 24th August.

Contract for "Atlas" Computer

An "ATLAS" electronic digital computer has been ordered for the National Institute for Research in Nuclear Science. The computer, together with the necessary buildings will cost about £3½ million. It will be installed at the Institute's Rutherford High Energy Laboratory, Harwell, for common use by the Universities, the United Kingdom Atomic Energy Authority, Government Departments and the N.I.R.N.S. itself. It should be ready for use early in 1964. As in the case of the Institute's other facilities, university requirements for use of the computer will be judged on their scientific merits, and when accepted will be met without charge to the Universities.

The "ATLAS" computer made by Messrs. Ferranti, has been developed in co-operation with scientists at the University of Manchester, where the prototype is now being assembled. The United Kingdom Atomic Energy Authority and certain universities have substantial requirements for time on such a machine, but the "ATLAS" can cope with so much work that it was decided to provide one machine for common use in the first instance, and the Institute were invited to manage it. While they have accepted the responsibility in this instance, the Institute's own view is that future computers of this size for university use should preferably be located at individual universities.

The Atomic Energy Authority have been intimately concerned with the development of the project now entrusted to the Institute, and will continue to be closely associated with it. They are also handling the contract negotiations for the Institute.

Note for Information

The power of the electronic digital computer lies in its ability to carry out arithmetical and logical processes at extremely high speeds and to operate with large quantities of data. It is a universal tool, for all exact scientific work is based on mathematical statements of the laws of nature. The computer enables the consequences of these laws to be followed with speed and precision. Serving so many different users, the "ATLAS" will work on a very wide range of problems a few of which are indicated in the following.

The Atomic Energy Authority is the largest user of computers in this country; large amounts of computation have gone, for example, into the design of nuclear power reactors and the study of their behaviour. At Harwell the biggest demands on "ATLAS" are likely to be made by the Culham Laboratory team (located at present at Harwell) and by the Solid State physicists. The central problem of the Culham work is the study of the behaviour of a mass of plasma - a gas containing positive and negative ions - when acted on by electric and magnetic fields including the magnetic field produced by its own movements. This is a most complex problem and it has become clear that a real understanding of the behaviour of thermo-nuclear devices will require computations of the greatest intricacy and of the largest size. The need to understand the physics of solids is of great importance in all work on the materials used in nuclear reactors including the fuel elements, the moderators and the structural materials. To predict the behaviour of these materials in the severe conditions of temperature and irradiation in a reactor again requires very extensive calculation. In addition to such major projects a scientific institution as large and varied as Harwell has a permanent need for computation at all levels of size and complexity and "ATLAS" will allow a very fast and efficient service.

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University research, of course, covers the whole field of science and the universities are finding a rapidly increasing need for large scale computation. The "Atlas" is intended to supplement the resources of the individual universities and to enable attacks to be made on problems of exceptional size such as those of astrophysics, cosmology, fluid dynamics and molecular structure, the last including the exceedingly complex and important work on protein and virus structure. As one example; in the field of crystallography and structural chemistry an entirely new approach to the problems has become possible. The structure of vitamin B1 was worked out by the analysis of X-ray diffraction patterns on a computer and work of a similar kind but on a much larger scale is already in progress on the protein myoglobin.

The National Institute itself will require a very large amount of computation in the work of interpreting the experiments made with the 7,000 MeV proton synchrotron NIMROD which is under construction at the Rutherford Laboratory. An ORION computer is to be installed to deal with the bulk of this but there will be much that is beyond the ORION capacity for which "ATLAS" will be used. It will be used also in theoretical studies of future high energy accelerators, involving calculations of the motion of charged particles in electric and magnetic fields which vary both in space and in time.

Of the Government scientific establishments, the Meteorological Office is likely to be one of the main users. The idea of predicting the weather by computation is about 50 years old but the scale of the task made this quite impractical until the electronic computer was developed; the mathematical problem is the integration of the partial differential equations for the pressure and temperature distribution and the motion of the atmosphere. The Meteorological Office has been working on this problem with the help of its MERCURY computer for some years and is now using numerical methods for part of its forecasting. The "ATLAS" will allow a big extension to be made, first in the research and later, it is hoped, in the actual forecasting service.

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RUTHERFORD LABORATORY BULLETIN NO.42

For the week commencing Monday, 4th September, 1961.

VISITS ABROAD

✓ Dr. P. G. Murphy of the Nimrod Nuclear Physics Group, will be in France for 8 days commencing 13th September, to attend the International Conference on Elementary Particles at Aix-en-Provence.

✓ Dr. R. C. Hanna of the P.L.A. Nuclear Physics Group will also leave on 13th September for the Aix-en-Provence Conference, and will subsequently visit C.E.R.N. to discuss hydrogen targets. He will return on 23rd September.

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 September.	Birmingham University	Measurement of Polarisation (Double-Scattering).
5th-7th September.	University College, London, and N.I.R.N.S.	Measurement of Spin Correlation in p-p Scattering.
8th September.	Kings College, London.	(a) Total Reaction Cross-Sections for Protons. (b) Elastic and Inelastic Proton Scattering with Scintillation Counters.

TECHNICAL TRAINING

The following arrangements regarding enrolment for the 1961-62 Session have been announced:

✓ Oxford College of Technology:

Science Dept: Representatives will visit the Rutherford Laboratory, Building R.20, on Monday, 11th September, between 10 a.m. and 12.30 p.m. Enquiries should be made to Mrs. A. Ashworth, Room 60, Building R.20.

Engineering Dept: Enrol on first day of class or as otherwise instructed. (Time-table not yet available).

South Berks. College, Newbury:

Enrol on first day of class as follows:

- Applied Physics S2, Monday 11th September.
- " " S3, Tuesday 12th September.
- Computations Friday 15th September.

EXTERNAL EVENTS

4th-7th September, at Manchester University: Rutherford Jubilee International Conference on Nuclear Physics.

X 4th-8th September, at 14 Belgrave Square, London, W.C.1: Imperial College of Science & Technology Symposium on Photo-Electronic Image Devices as Aids to Scientific Observation.

4th-9th September, at Belgrade: Third International Conference of the International Association for Analogue Computation.

5th-8th September, at New College, Oxford: National Inspection Conference by the Institution of Engineering Inspection and the National Committee on Non-Destructive Testing.

Continued overleaf / ...

5th-12th September, at Brookhaven National Laboratory, New York: Second International Conference on High Energy Accelerators and Instrumentation.

6th-8th September, at Savoy Place, London, W.C.2: Institution of Electrical Engineers Conference on Microwave Measurement Techniques.

B. E. Kingdon

Scientific Administration

th September, 1961.

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RUTHERFORD LABORATORY BULLETIN NO.43

for the week commencing Monday, 11th September, 1961.

NUCLEAR INSTRUMENTS SYMPOSIUM

An international symposium on nuclear instruments, sponsored by Manchester University, will be held in the Cockcroft Hall, A.E.R.E., on September 11th and 12th, following the Rutherford Jubilee Conference on Nuclear Physics held at Manchester on 4th-8th September.

Invitations to this symposium have been arranged by the Rutherford Jubilee Conference Organising Committee; all places have been filled.

On Wednesday, 13th September, the delegates will be visiting A.E.R.E., the Culham Laboratory and the Rutherford Laboratory.

VISITS ABROAD

Mr. E. J. Jones and Mr. A. G. Hewitt of the Accelerator Research Group will leave for the U.S.A. on 20th September, where they will visit the Oak Ridge National Laboratory, U.C.R.L. Berkeley, and the University of Colorado, Boulder, in connection with the Chemists' Cyclotron project. Mr. Jones will also visit the University of California, Los Angeles, and the University of Illinois, Urbana, and Mr. Hewitt will visit the Argonne National Laboratory before they return on 7th October.

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>
11th-15th September	Dr. R. Griffiths (N.I.R.N.S.)	Investigation of p-d Reactions by Fast Coincidence Techniques.
16th September	Dr. R. Thomas (N.I.R.N.S.)	Neutron Survey.

The P.L.A. will be closed down from 10 a.m. till 4 p.m. on Wednesday, 13th September, for the benefit of visitors attending the Nuclear Instruments Symposium.

EXTERNAL EVENTS

14th-20th September, at Aix-en-Provence, France: International Conference on Elementary Particles.

13th-15th September, at E.M.I. House, Manchester Square, London, W.1: Symposium on Photo-Multiplier Tube Applications.

B. E. Kingdon

Scientific Administration

8th September, 1961.

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RUTHERFORD LABORATORY BULLETIN NO.44
for the week commencing Monday, 18th September, 1961.

VISITORS

✓ A party of twelve apprentices from Messrs. Edwards High Vacuum Ltd., Crawley, Sussex, will visit the Laboratory on Wednesday, 20th September.

✓ Dr. A. Stewart Denholm of Goodrich - High Voltage Astronautics Inc., Burlington, Massachusetts, U.S.A., will visit the Rutherford Laboratory on Thursday, 21st September, for discussions on high voltage bushing design. Anyone wishing to see Dr. Denholm should contact Dr. R. G. Bennett, Building R.1, Extension 3196/43.

✓ Dr. U. Grossmann of Messrs. Sulzer Brothers, Winterthur, Switzerland, will visit the P.L.A. Group on Monday, 25th September, for discussions on low temperature refrigeration. Anyone wishing to see Dr. Grossmann should contact Mr. K. G. McAinsh, Building R.12, Extension 3164/118. (See "Internal Events" below).

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>
18th-22nd and 25th September.	A.E.R.E.	Time of Flight Survey [A(p-d)B]

INTERNAL EVENTS

Monday, 25th Sept., 2 p.m., Conference Rm., Building R.1	Lecture	Dr. U. Grossmann (Sulzer Bros., Switzerland)	"Low Temperature Refrigeration"
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EXTERNAL EVENTS

18th-22nd September, at the College of Aeronautics, Cranfield, Bletchley, Bucks.: Symposium on Network Theory.

Wed., 20th Sept., 2 p.m., Conf. Rm., Bldg. 8.9, A.E.R.E.	Theoretical Physics Seminar	Dr. T. H. Skyrme (A.E.R.E.)	"Effective Range Theory of the Three-Body Problem"
Thurs., 21st Sept., 3 p.m., Cockcroft Hall, A.E.R.E.	Chem. Eng. Div. Safety Conference	Mr. S. Woodhouse (A.E.R.E.)	"Safety in the Laboratory"

(Plant safety - mechanical, electrical and explosion aspects - and hazard elimination will be discussed. No tickets required; access from inner or outer gate).

21st-22nd September, at Bangor, N. Wales: Physical Society Conference on Radio Frequency in Solids.

B. E. Kingdon
Scientific Administration

15th September, 1961.

MSG.

RUTHERFORD LABORATORY BULLETIN NO.45

for the week commencing Monday, 25th September, 1961

VISITORS

✓ Professor Yasutomo Ozawa of Hokkaido University, Japan, will visit the Rutherford Laboratory on 26th September for discussions with Mr. P. D. Dunn.

✓ Dr. Luke Yuan of Brookhaven National Laboratory, New York, U.S.A., will visit the Rutherford Laboratory on 5th and 6th October for discussions on high energy physics experiments with the Director and Dr. W. Galbraith. Anyone wishing to see Dr. Yuan should contact Dr. Galbraith, Building R.1, Extension 3196/53.

CONSULTANT

✓ Mr. M. J. Moore of the University of Liverpool has been a Consultant to the A.E.R.E. mainly in connexion with the Nimrod project. It has recently been agreed that this arrangement should in future be direct with the Institute and Mr. Moore has accepted appointment as a Consultant to the Institute with effect from 1st September, 1961.

SYMPOSIUM

X It is proposed to hold a small informal symposium at the Rutherford Laboratory on 23rd and 24th October, to discuss the most fruitful lines of research using the polarized proton beam from the 50 MeV proton linear accelerator. A number of speakers have been invited to attend and it is hoped to leave plenty of time available for discussions. Groups who would like to contribute papers are asked to send details as soon as possible to Dr. C. J. Batty, Building R.12, from whom application forms and a detailed programme can be obtained.

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 25th September	A.E.R.E.	Time of Flight survey (A (p-d) B)
26th-28th Sept.	Clarendon Laboratory, Oxford	Measurement of Capture Gamma-Rays

✓ The P.L.A. will be shut down for approximately one month commencing 29th September, in connexion with building work on the extension to the Experimental Area.

EXTERNAL COURSES

✓ Full-time courses in radiobiology will be held at the Liverpool College of Technology, Byrom Street, Liverpool 3, on 8th-19th January and 7th-18th May, 1962. Lectures on radiation physics, chemistry and biology will be included, together with practical work. Full details are given on the Library notice board, Building R.1.

EXTERNAL EVENTS

26th Sept-6th Oct., at Olympia, London: Heating, Ventilating and Air Conditioning Exhibition and Conference.

X Wed. 27th Sept. 2.00 p.m. Conf. Room, Building 8.9 A.E.R.E.	Theoretical Physics Seminar	Dr. R. E. Watson	"The Mossbauer Conference"
Thurs. 28th Sept., 3.30 p.m. Wantage Radiation Laboratory	Isotope Research Talk	Mr. S. Jefferson	"Recent Developments in the Use of Large Radiation Sources".

25th September, 1961

B. E. Kingdon
Scientific Administration

RUTHERFORD LABORATORY BULLETIN NO.46

for the week commencing Monday, 2nd October, 1961.

ELECTRIC SHOCK NOTICES

✓ A small quantity of "Treatment for Electric Shock" Notices are held by the Safety Section. Requests for these notices should be forwarded to Room 13, Building R.19.

EXTERNAL EVENTS

* 2nd-11th October, at Grand Hall, Olympia, London: Business Efficiency Exhibition.

2nd-6th October, at Olympia, London: Heating, Ventilating and Air Conditioning Exhibition and Conference.

X * Wednesday, 4th October, at the Physical Chemistry Laboratories, South Parks Road, Oxford: Mobile Exhibition of Precision Frequency Measuring and Synthesizing Equipment (0-30,000 Mc/s) by Messrs. Schomandl K. G., Munich, arranged by Elliott Brothers Ltd.

* 4th-12th October, at National Hall, Olympia, London: Second Electronic Computer Exhibition and Symposium.

Thursday, 5th October, 2.30-4.30 p.m., Instruments Section, Bldg. 388.1, A.E.R.E.: Demonstration of Transfer Function Analyser by Messrs. Servomex Controls Ltd.

* 10-12th October, 11 a.m.-8 p.m., at Londonderry House, 19 Park Lane, London, W.1: "The Fight Against Corrosion", Exhibition by Messrs. Henry Wiggin and Co. Ltd.

* (Tickets and further information can be obtained from B. E. Kingdon, Building R.20, Ext. 3196/66).

B. E. Kingdon
Scientific Administration

29th September, 1961.

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RUTHERFORD LABORATORY BULLETIN No.47

for the week commencing Monday, 9th October, 1961.

ACCIDENT

✓ Mr. E. C. Gibbs of the Engineering Services Group was seriously injured by an explosion which occurred in the Bubble Chamber Plant Room, Building R.7, soon after 9.00 a.m. on Tuesday, 3rd October. Mr. Gibbs has been detained in the Radcliffe Infirmary, Oxford. No one else was injured and the material damage was confined to a small area. A Board of Enquiry appointed by the Director is carrying out an investigation.

VISITORS

✓ A party of 18 members of the Newbury Borough Council will visit the Rutherford Laboratory on Wednesday, 11th October.

VISITS ABROAD

✓ Dr. F. M. Russell of the Accelerator Research Group is leaving for the U.S.A. on 12th October, where he will spend approximately 14 months at the Oak Ridge National Laboratory working on the Isochronous Cyclotron, ORIC, under an exchange visit programme.

SANDWICH COURSE AWARDS

✓ Applications from N.I.R.N.S. personnel for Technical College awards for courses beginning January, 1962, should be made to the Personnel Officer, Building R.20, by 31st October, 1961. Further details and application forms may be obtained from Personnel Branch, Room 69, Building R.20, Ext. 3196/75.

INTERNAL EVENTS

Wed., 11th Oct., 9.30 a.m. Conf. Room, Building R.1	Nimrod Lecture Series	Mr. W. Walkinshaw	"The Brookhaven High Energy Accelerator Conference."
Thurs., 12th Oct., 11 a.m., Conf. Room, Building R.1	Nimrod Lecture Series	Dr. R. C. Hanna	"The Aix-en- Provence Conference" (Experiments).

(Dr. P. T. Matthews of Imperial College, London, will lecture on the theoretical aspects discussed at the Aix Conference, at a later date).

Mon., 16th Oct.,
Building R 12.9

Demonstration of Data Recording Equipment for use with A.E.R.E. 100-channel Analyser Type 1524.

(Further information may be obtained from Mr. R. C. M. Barnes, A.E.R.E. Electronics Division, Ext. 3164/140).

EXTERNAL EVENTS

Mon., 9th Oct., 4.45 p.m. Univ. of Bristol	Physics Colloquium	Dr. E. Braun (A.E.I., Harlow)	"Semiconductor Surface Physics."
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✓ *9th-11th October, at Grand Hall, Olympia, London: Business Efficiency Exhibition.

*9th-12th October, at National Hall, Olympia, London: Second Electronic Computer Exhibition and Symposium.

*10th-12th October, at Londonderry House, 19 Park Lane, London, W.1:
"The Fight Against Corrosion", Exhibition by Messrs. Henry Wiggin & Co. Ltd.

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EXTERNAL EVENTS (continued)

Wed., 11th Oct.,
2 p.m., Conf. Room,
Building 8.9,
A.E.R.E.

Theoretical
Physics
Seminar

Dr. J. K. Perring "Analysis of the
Nucleon-Nucleon
Interaction."

Thurs., 12th Oct.,
11 a.m.-4 p.m.,
Social Club,
A.E.R.E.

Demonstration of "Hotfoil" Laboratory Heating
Equipment by the Midland Electric Installation
Co. Ltd.

Thurs., 12th Oct.,
3.30 p.m., Wantage
Radiation Lab.

Isotope
Research
Talk

Prof. G.F.J. Garlick "Luminescence
(Hull University) and Photo-
conductivity"

*(Tickets and further information may be obtained from B. E. Kingdon,
Building R.20, Ext. 3196/66).

ARTIFICIAL RESPIRATION

Training sessions have been arranged for about ten persons at 9 a.m. and
10.45 a.m. on the following dates:-

Tuesday - 17th October
Tuesday - 21st November
Tuesday - 12th December

Names should be submitted to the Safety Section, Building R.19, Ext. 3196/30.

B. E. Kingdon

Scientific Administration

10th October, 1961.

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RUTHERFORD LABORATORY BULLETIN No.48

for the week commencing Monday, 16th October, 1961.

VISITORS

- ✓ Twenty five members of staff of the British Telecommunications Research Technical Society will visit the Laboratory on Wednesday, 18th October, 1961.
- ✓ Four reactor engineers from the O.E.E.C. Halden Reactor Project, Norway, will visit the Laboratory on Friday, 20th October, 1961.

VISITS ABROAD

- ✓ Mr. N. M. King and Mr. J. W. Gardner of the Theoretical Group will visit C.E.N., Saclay, France, for three days commencing 18th October, for discussions on beams for the 16-inch Imperial College Hydrogen Bubble Chamber.

ARTIFICIAL RESPIRATION

- ✓ Training sessions have been arranged for about ten persons at 9 a.m. and 10.45 a.m. on the following dates:-
 Tuesday, 17th October; Tuesday, 21st November; Tuesday, 12th December.
 Names should be submitted to the Safety Section, Building R.19, Ext. 3196/30.

SANDWICH COURSE AWARDS

- ✓ Applications from N.I.R.N.S. personnel for Technical College awards for courses beginning January, 1962, should be made to the Personnel Officer, Building R.20, by 31st October, 1961. Further details and application forms may be obtained from Personnel Branch, Room 69, Building R.20, Ext. 3196/75.

INTERNAL EVENTS

Mon., 16th Oct., Demonstration of Data Recording Equipment for use with Building R.12.9 A.E.R.E. 100-channel Analyser Type 1524.
 (Further information may be obtained from Mr. R. C. Barnes, A.E.R.E. Electronics Division, Ext. 3164/140).

Mon., 16th Oct., 11 a.m., Conf. Rm., Building R.1 Nimrod Lecture Series Dr. P. G. Murphy "An Experimental Measurement of Hyperon Asymmetry Parameters".

Wed., 18th Oct., 11 a.m., Conf. Rm., Building R.1 Nimrod Lecture Series Mr. W. Walkinshaw "The Brookhaven High Energy Accelerator Conference".

(Postponed from 11th October)

Mon., 23rd and Tues., 24th October: Symposium on Polarization Processes below 50 MeV. (Further details may be obtained from Dr. C. J. Batty, Building R.12, Ext. 3164/137).

EXTERNAL EVENTS

Tues., 17th Oct., 7.15 p.m., Small Town Hall, Reading. Inst.Mech. Engineers Lecture Mr. P. D. Dunn (A.E.R.E./N.I.R.N.S.) "Electricity Generation by Unconventional Methods".

Tues., 17th Oct., 7.30 p.m., Employment Exchange, Oxford. A.S.E.E. Lecture Mr. J. Gomersall (Evershed and Vignoles Ltd.) "Earth Loop Testing and Earth Resistance Measuring".

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Wed., 18th Oct., Theoretical Dr. A. R. Curtis "FORTRAN for the
2.15 p.m., Conf. Physics (A.E.R.E.) ATLAS Computer
Room, Building Seminar What it does".
8.9, A.E.R.E.

Thurs., 19th October, 11 a.m. - 4 p.m., Games Room, Social Club, A.E.R.E.:
Exhibition of Galvanometer Recorders etc., by New Electronic Products Ltd.

X
Thurs., 19th Oct., Theoretical Dr. W. N. Cottingham "On the Two-Pion
4.30 p.m., Physics (U.C.L.) Contribution to
University College, Seminar the Nucleon-
London. Nucleon Potential".

Mon., 23rd Oct., Physics Dr. A. M. Andrew "Self Optimising
5 p.m., University Department (Autonomics Learning Machines".
of Reading Colloquium Division, N.P.L.)

B. E. Kingdon
Scientific Administration

13th October, 1961.

MSG.

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RUTHERFORD LABORATORY BULLETIN No. 49

for the week commencing Monday, 23rd October, 1961

VISITS ABROAD

Mr. J. J. Wilkins, Mr. A. J. Egginton and Dr. P. F. Smith of the Nimrod Magnet and Beam Handling Group will visit the U.S.A. from 30th October to 19th November. They will attend the Conference on High Magnetic Fields at the Massachusetts Institute of Technology on 1st - 4th November, and also visit the Brookhaven National Laboratory, Argonne National Laboratory, U.C.R.L., Berkeley and the California Institute of Technology, Pasadena, to discuss synchrotron and beam transport physics and the production and use of high magnetic fields.

HIGHER DEGREE AWARD

Mr. P. A. Chatterton of the Nimrod Magnet and Beam Handling Group has recently been awarded a Ph.D by Liverpool University for his thesis on "Some investigations into low current discharge in electronegative gases".

INTERNAL EVENTS

Mon., 23rd and Tues., 24th Oct: Symposium on Polarization Processes below 50 MeV.
(Further details may be obtained from Dr. C. J. Batty, Bldg. R.12, Ext. 3164/137)

Wed., 25th Oct., 11 a.m., Conf. Room Building R.1. (Postponed from 12th October) Nimrod Lecture Series Dr. R. C. Hanna "The Aix-en-Provence Conference (Experiments)"

Mon., 30th Oct., 11 a.m., Conf. Room Building R.1. Nimrod Lecture Series Dr. P. T. Matthews (Imperial College London) "The Aix-en-Provence Conference" (Theory)

EXTERNAL EVENTS

Mon., 23rd Oct., 5 p.m., University of Reading. Physics Department Colloquium Dr. A. M. Andrew (Autonomics Division, N.P.L.) "Self-Optimising Learning Machines"

Mon., 23rd Oct., 5.45 p.m., Reactor School, A.E.R.E. A.S.E.E. Lecture Mr. E. Harvey Nicholson (Ether Ltd.) "Servomechanism Components and their applications"

Tues., 24th Oct., 4 p.m., Imperial College, London. Theoretical Physics Seminar Dr. K. W. Ford (Brandeis Univ., U.S.A.) "The Magnetic Moment of Negative Muons"

Tues., 24th Oct., 5 p.m., University of Southampton. Physics Department Colloquium Dr. J. G. McEwen (Southampton University) "High Energy Cosmic Ray Interactions"

Wed., 25th Oct., 2 p.m., Conf. Room Bldg. 8.9, A.E.R.E. Theoretical Physics Seminar Dr. I. C. Pyle "FORTRAN for the ATLAS Computer: How it does it"

Wed., 25th Oct., 6 p.m., at the London School of Hygiene and Tropical Medicine, Gower Street, London, W.C.1: Brit. I.R.E. Symposium on Digital Differential Analysers. (Details may be obtained from B. E. Kingdon, Bldg. R.20, Ext.3196/66).

Wed., 25th Oct., 6.45 p.m., Univ: College, Swansea. Soc. of Inst. Technology Lecture Mr. H. W. Gosling "Precision Temperature Measurement and Control"

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EXTERNAL EVENTS (continued)

Mon., 30th Oct., I. Mech. E "The Extent to which Data can be made
6 p.m., 1 Birdcage Discussion available for Engineering Design"
Walk, London, S.W.1. Meeting

EVENING TUTORIALS IN NATIONAL CERTIFICATE SUBJECTS

✓ It has been agreed that N.I.R.N.S. staff may participate in the tutorial scheme being arranged by the A.E.R.E. Training Office. Applications in writing should be made to the A.E.R.E. Technical Training Officer, Building 328/T, stating subject, stage, available evenings and whether or not the student holds an A.E.R.E. pass.

CASTELL INTERLOCKS

✓ In order to prevent duplication, staff who propose to use Castell Interlocks for high voltage or other apparatus should contact the Safety Officer, Mr. K. C. Myers, Building R.19, Extension 3196/30, who will allocate and register appropriate letter/figure arrangements.

B. E. Kingdon
Scientific Administration

20th October, 1961

PLH.