

RUTHERFORD LABORATORY BULLETIN

No. 80, for the week commencing Monday, 9th July, 1962

VISITORS A party of nine Russian physicists, who have been attending the C.E.R.N. High Energy Nuclear Physics Conference, will visit the Rutherford Laboratory on Thursday, 12th July.

Professor D. Alpert of the University of Illinois will visit the Laboratory during the week commencing July 16th for discussions on electrical breakdown in vacuum, especially with regard to high field particle separators. Anyone wishing to see Professor Alpert should contact Dr. W. A. Smith, Building R.1, Ext. 600.

VISITS ABROAD Mr. G. N. Venn, Head of the Engineering Supply Group, will visit C.E.R.N. on 10th - 14th July to study engineering problems in connection with nuclear physics experiments.

Mr. D. H. Lord of the Bubble Chamber Group and Mr. J. Burren of the Theoretical Group will visit C.E.R.N. on 15th - 20th July to attend the 1962 International Conference on Instrumentation for High Energy Physics, and the associated Conference on Measuring Machines for Bubble Chamber Pictures.

Mr. M. Snowden, Head of the Bubble Chamber Group, Mr. W. Walkinshaw, Head of the Theoretical Group, and Mr. J. Sparrow will visit C.E.R.N. on 17th - 20th July for discussions on track data processing.

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>
9th - 11th July	A.E.R.E.	Total Cross-Section Measurements
12th - 15th July	Queen's University, Belfast & N.I.R.N.S.	Shell Structure Studies (p-2p)

ELECTRONIC EQUIPMENT MANUFACTURE A number of running contracts for the manufacture of prototype versions and small batches of electrical and electronic equipment are now being operated by the Supply Group. Further particulars may be obtained from Mr. H. E. Wicks, Ext. 470.

NUCLEAR PHYSICS CONFERENCE Intending contributors to the Institute of Physics and the Physical Society Conference on Low Energy Physics, to be held at A.E.R.E. on 12th - 14th September, are reminded that offers of papers should be sent with three copies of abstracts (100 words) to the Conference Secretary, Dr. G. C. Morrison, Nuclear Physics Division, Hangar 8, A.E.R.E., by 23rd July. Programmes and application forms for attending the Conference may be obtained from General Administration, Room G.71, Building 329, A.E.R.E.

EXTERNAL COURSES A number of courses in Radiation Safety and Health Physics will be held at the Liverpool College of Technology during the 1962-63 session. Full details may be obtained from Mr. W. Burrells, Building R.1, Ext. 253.

INTERNAL EVENTS

Tues., 10th July, 5.30 p.m., Conf. Rm., Building R.1	Evening Lecture Series	Mr. E. R. Harrison	Dynamo Theories of the Earth's Magnetic Field.
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(The Nimrod Lecture Series will be resumed in September.)

EXTERNAL EVENTS

9th - 11th July: 17th Annual Electronics, Instruments, and Components Exhibition and Convention of the Institute of Electronics. At the College of Science and Technology, Manchester.

16th - 20th July: International Conference on the Physics of Semi-conductors. Inst. Phys. and Phys. Soc. At Exeter University.

9th July, 1962.

B. E. Kingdon

Scientific Administration

RUTHERFORD LABORATORY BULLETIN

No.81, for the week commencing Monday, 16th July, 1962

VISITORS

A party of members of the National Science Teachers Association of the United States will visit the Laboratory on Wednesday, 18th July.

Sixty members of the Electronics and Measurement Sections of the Institution of Electrical Engineers will visit the Laboratory on Saturday morning, 21st July.

The following American physicists will visit the Laboratory on the dates given below. Anyone wishing to see them should contact the member of staff indicated:-

✓ Dr. J. J. Murray, Brookhaven National Laboratory, 19th-20th July; to discuss beam transport and separation problems, and K-meson experiments. (Dr. W. A. Smith, Ext.600).

Dr. W. A. Wallenmayer, Research Division U.S.A.E.C., 19th-20th July. (Dr. J. Howlett, Ext.547).

Dr. J. H. Fregeau, Nuclear Physics Branch, U.S. Office of Naval Research, 20th July. (Mr. B. E. Kingdon, Ext.484).

Dr. H. S. White, U.C.R.L., Berkeley, during 20th-24th July, to discuss bubble chamber track measuring devices. (Mr. D. Lord, through Ext.532).

Dr. P. B. Wilson, Stanford University, 23rd July; to discuss R.F. superconductivity. (Mr. J. M. Dickson, Ext.446).

Dr. W. B. Fowler, Brookhaven National Laboratory, 23rd-29th July; to discuss bubble chambers. (Mr. W. Walkinshaw, Ext.532).

VISITS ABROAD

✓ Dr. A. R. Edmonds of the Nimrod Nuclear Physics Group, who is at present on attachment to Imperial College, London, will visit C.E.R.N. on 18th-25th July, to attend a meeting on Track Data Processing.

✓ Dr. W. A. Smith of the Nimrod Magnet and Beam-Handling Group will visit Messrs. Emile Haefely & Co. Ltd., Basle, on 24th-26th July, to discuss details of high voltage power supplies for use with velocity separators.

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 16th-18th July	Queen's University, Belfast & N.I.R.N.S.	Shell Structure Studies by (P ₇ 2p) Reactions.
21st-23rd July	University College London	Measurement of Depolarisation in Proton-Proton Scattering

INTERNAL EVENTS

X Tues., 17th July, 5.30 p.m., Conf. Rm., Building R.1.	Evening Lecture Series	Mr. P. D. Dunn	Unconventional Methods of Elec- tricity Generation.
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(Last lecture in the present series. To be resumed in September).

EXTERNAL EVENTS

X 16th-18th July : International Conference on Instrumentation for High Energy Physics. C.E.R.N., Geneva.

16th-20th July : International Conference on the Physics of Semi-conductors. Institute of Physics and Physical Society. At Exeter University.

RUTHERFORD LABORATORY BULLETIN

No. 82, for the week commencing Monday, 23rd July, 1962

VISITORS

A party of twenty-one students attending the Advanced Physics and Measurement Course at the Isotope School, Wantage Research Laboratory, will visit the Rutherford Laboratory on Monday, 23rd July.

Thirty members of the Sixth Form of Abingdon School will visit the Laboratory on Tuesday afternoon, 24th July.

The following physicists will visit the Laboratory on the dates given below. Anyone wishing to see them should contact the member of staff indicated:-

Dr. P. B. Wilson, Stanford University, 23rd July; to discuss R.F. superconductivity. (Mr. J. M. Dickson, Ext. 446).

Dr. W. B. Fowler, Brookhaven National Laboratory, 23rd - 29th July; to discuss bubble chambers. (Mr. W. Walkinshaw, Ext. 532).

Dr. L. B. Leipuner, Brookhaven National Laboratory, 25th July; to discuss bubble chambers and high energy physics. (Dr. W. H. Evans, Ext. 440).

Dr. J. Ballam, Stanford University, 26th or 27th July; for general discussions. (Dr. R. H. Thomas, through Ext. 517).

Dr. Wang Chia-Ping, Hong Kong University, 27th July; to discuss high energy physics and nuclear instrumentation. (Mr. B. E. Kingdon, Ext. 484).

Dr. H. N. Brown, Brookhaven National Laboratory, 30th - 31st July; to discuss beam transport and analysis. (Mr. R. G. Bennett, Ext. 453).

Dr. L. T. Kerth and Dr. D. Keefe, U.C.R.L., Berkeley, 30th July; to discuss high energy physics. (Dr. G. H. Stafford, Ext. 456).

VISITS ABROAD

Dr. D. J. Nicholas of the Electrostatic Generator Group left on 19th July for a three-week visit to the United States, where he will deliver a paper entitled "The electrical properties of metal surfaces - A new surface analyser" at the Gordon Research Conference on Chemistry at Interfaces, to be held at the Kimball Union Academy, Meriden, New Hampshire. He will also visit the University of Maine.

Mr. J. J. Wilkins and Mr. A. J. Egginton of the Nimrod Magnet and Beam-Handling Group will visit C.E.R.N. on 30th July - 2nd August to discuss developments in particle beams and associated equipment for the C.E.R.N. synchrotron.

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>
23rd July	University College London	Measurement of Depolarization in Proton-Proton Scattering.
24th July	N.I.R.N.S.	Accelerator Physics.

(continued overleaf)

(P.L.A. Schedule - continued)

<u>Date</u>	<u>Team</u>	<u>Experiment</u>
25th-26th July	Clarendon Laboratory	Cross-Section Measurements, O ¹⁶ . (p, p ^{-α}).
27th July	King's College, London	Slit Scattering.
28th July	Birmingham University	Polarization Measurements.

LIBRARY NOTICE

The following books are missing from the Rutherford Laboratory Library:-

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Dushman	-	Scientific Foundations of Vacuum Technique.
Mendelssohn	-	Cryophysics.
Yarwood	-	High Vacuum Technique.
Tegart	-	The Electrolytic and Chemical Polishing of Metals in Research and Industry.
Hughes	-	Fundamentals of Electrical Engineering.
Menzel	-	Fundamental Formulas of Physics, Vol. 2 (Reference copy).

The World Atlas.

INTERNAL EVENTS

Safety Film: "Black Monday"

This eighteen-minute film concerning safety in chemical laboratories has been loaned from Imperial Chemical Industries, Ltd., and will be shown in the Conference Room, Building R.1, on the following dates:-

Tues., 31st July, at 11 a.m.; Wed., 1st Aug., at 2.30 p.m.;
Fri., 3rd Aug., at 11 a.m.

EXTERNAL EVENTS

✓

Wed., 25th July, 9.50-10.50 a.m. and 11.30 a.m.-12.30 p.m. J. J. Thompson, Physical Lab., Univ. of Reading.	Physics Dept. Lectures	Dr. J. Tauc (Czechoslovakian Academy of Sciences)	Plasma Effects in Semiconductors.
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23rd July, 1962
AKF

B. E. Kingdon
Scientific Administration.

RUTHERFORD LABORATORY BULLETIN

Special Issue: Supplement to Bulletin No. 82
26th July, 1962

The following press release has been issued today:-

NEW LABORATORY PROPOSED IN NORTH OF ENGLAND

Lord Hailsham, Lord President of the Council and Minister for Science, has announced the approval of the proposal of the National Institute for Research in Nuclear Science to establish a second laboratory, which will contain a 4 GeV electron synchrotron. The new laboratory will be in the North of England and will be particularly associated with the Universities of Liverpool, Manchester and Glasgow, but scientists from other universities and institutions, as well as scientists on the Institute's own staff will also carry out research there. The estimated capital cost of the laboratory and the synchrotron is about £3½ million. The first Director of the laboratory will be Professor A. W. Merrison, who is being released from administrative responsibilities at Liverpool University for a period of five years so that he may take up this post.

Background note

The N.I.R.N.S. provide equipment needed for nuclear research by scientists of universities and other institutions, which is too expensive to provide to any one university. A 7 GeV proton synchrotron "Nimrod" is under construction at the first N.I.R.N.S. Laboratory at Harwell, Berkshire, and a smaller accelerator, the 50 MeV proton linear accelerator has been in operation there for two years.

Like "Nimrod", the 4 GeV electron synchrotron will be used for research into the nature of the fundamental particles of matter, but as it will produce high energy electrons rather than high energy protons, the experiments done will be quite different. The new accelerator will also be complementary to Nimrod as regards the universities to which it will be conveniently accessible. The Physics Departments at Liverpool, Manchester and Glasgow are particularly interested in this field of physics.

The 4 GeV electron synchrotron was selected as the right machine to build after a very careful study carried out by the N.I.R.N.S. in 1960 and the first half of 1961. The proposal to build it was announced in the Institute's annual report for 1960-61. A similar accelerator is in operation jointly by Harvard and M.I.T. in the U.S.A., and two others are under construction, at Hamburg and in the U.S.S.R.

Professor A. W. Merrison is 38. He was educated at Enfield Grammar School and King's College, London, and worked as a research physicist at the Signals Research and Development Establishment, Christchurch from 1944 to 1946 and at the Atomic Energy Research Establishment, Harwell from 1946 to 1951 when he was appointed to the staff of Liverpool University as Leverhulme Fellow and lecturer. Here he took part in the research in elementary particle physics, with the Liverpool 400 MeV synchro-cyclotron. He received his Ph.D. from Liverpool University in 1957 and in the same year joined the staff of the European Organisation for Nuclear Research (C.E.R.N.) in Geneva where he continued research in elementary particle physics with C.E.R.N.'s 600 MeV cyclotron and 30 GeV (30,000 MeV) proton synchrotron. He was the leader of a group which did experiments showing that the pi-meson can decay directly into an electron, in addition to its more usual mode of decay via a mu-meson. In 1960 he was appointed to the Chair of Experimental Physics at Liverpool.

RUTHERFORD LABORATORY BULLETIN

No. 83, for the week commencing Monday, 30th July, 1962

MAYOR OF ABINGDON'S APPEAL

✓ A cheque for £8, raised in the recent collection from members of the staff, has been sent to the Mayor of Abingdon in response to his appeal for the Display of the Corporate Plate. The Director wishes to thank all those who contributed.

VISITORS

The following visitors will be at the Laboratory on the dates given below:-

Dr. L. T. Kerth and Dr. D. Keefe, U.C.R.L., Berkeley, 30th-31st July, for discussions on high energy physics with Dr. G. H. Stafford, Ext. 456.

✓ Dr. Bengt Carlson, Head of the Computation Division, Los Alamos Laboratory, 2nd - 3rd August, to see Dr. J. Howlett, Ext. 547.

Dr. A. V. Crewe, Director of the Argonne National Laboratory, 3rd August.

Dr. L. Wiesner, Department of Radio-Chemistry and Radiation Chemistry, Hanover College of Technology, 3rd August.

Dr. Lee Teng, Director of the Synchrotron Division, Argonne National Laboratory, 10th August.

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>
2nd - 3rd August	King's College, London	Slit Scattering
4th - 6th August	A.E.R.E.	Pick-up Reactions (Time of Flight)

HYDROGEN BUBBLE CHAMBER

✓ Staff are asked to note that access to the Bubble Chamber Annexe in the Nimrod Experimental Area, Building R.6, can now only be obtained through the watchman in the Bubble Chamber Plant Room, Building R.7.

EXTERNAL COURSES

✓ Battersea College of Technology is holding a Summer School on "Materials (metallic and non-metallic) for Vessels and Containers for Low Temperatures", on 18th - 21st September, 1962. Details may be obtained from B. E. Kingdon, Building R.1, Ext. 484.

✓ A number of courses in Radiation Safety and Health Physics will be held at the Liverpool College of Technology and Battersea College of Technology during the 1962-63 session. Full details may be obtained from Mr. W. Burrells, Building R.1, Ext. 253.

INTERNAL EVENTS

Safety Film: "Black Monday"

✓ This eighteen-minute film concerning safety in chemical laboratories has been loaned from Imperial Chemical Industries Ltd., and will be shown in the Conference Room, Building R.1, on the following dates:-

Tues., 31st July, at 11 a.m.; Wed., 1st Aug., at 2.30 p.m.;
Fri., 3rd Aug., at 11 a.m.

(Continued Overleaf)

EVENTS AT A.E.R.E.

X Tues., 31st July: A.E.I. film "The World of Semi-conductors", (based on a Faraday Lecture by L. J. Davies). At 10.45 a.m. in the Cockcroft Hall. (No tickets required. Running time 40 minutes. Outer gate open and inner gate manned 10.35 a.m. - 11.35 a.m.).

30th July, 1962.

B. E. Kingdon
Scientific Administration

RUTHERFORD LABORATORY BULLETIN

No.84, for the week commencing Monday, 13th August, 1962

VISITORS

✓ A party of senior Contracts Officers of the U.K.A.E.A. will visit the Laboratory for a tour of the Nimrod project on Tuesday afternoon, 14th August.

Professor Sir Mark Oliphant of the Australian National University, Canberra, is expected to visit the Laboratory during the week commencing 20th August.

VISITS ABROAD

✓ Dr. D. J. Thompson, Mr. K. W. Tarry and Mr. M. H. R. Donald of the Nimrod R.F. Group left for Hamburg on Sunday, 12th August, for discussions on the R.F. system of the D.E.S.Y. Electron Synchrotron. They will return on Wednesday, 15th August.

✓ Dr. N. D. West of the Nimrod Injector Group and Mr. K. Batchelor of the P.L.A. Group will leave for New York on Saturday, 18th August, to attend a conference on linear accelerators at Brookhaven National Laboratory. Mr. Batchelor will return on 28th August. Dr. West will also visit the Argonne National Laboratory and the Lawrence Radiation Laboratory, Berkeley, for discussions on linear accelerators before returning on 6th September.

NIMROD INJECTOR

✓ The first 15MeV proton beam was obtained from the Nimrod Injector on 1st August, 1961. Over the past year many difficulties have been overcome to make full energy operation reliable, and the output beam current has reached 10 milliamps with 600 microsecond pulse lengths. This is without the pre-buncher cavity being used.

It is intended eventually to produce currents of more than 20 milliamps with pulse lengths up to 2 milliseconds. To this end, two sections of the Injector are receiving particular attention:

The ion source performance is gradually being improved. Internal sparking at present limits the output currents and leads to shorter lifetimes than can be accepted. Currents of over 50 milliamps can be reliably obtained, but it may be necessary to increase this to as high as 100 milliamps with longer pulse lengths. 100 milliamps has been obtained intermittently with 600 microsecond pulse lengths.

The R.F. power which can be fed to the linac at present is barely adequate to establish the accelerating fields and to cope with beam loading. Several methods of feeding in more power are under consideration.

The remaining installation work on the Injector is well in hand. Experimental work, i.e. investigating the physics of linear accelerator behaviour and optimising the Injector performance in preparation for putting beams into the synchrotron, is proceeding very satisfactorily.

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-15th August	N.I.R.N.S.	Neutron Time-of-Flight.
16th-20th August	Queen's University, Belfast, and N.I.R.N.S.	Deuterium Break-up by Correlation Methods.

CONFERENCES, ETC.

The following meetings will be held by the Institute of Physics and The Physical Society:-

✓ Conference on Low Energy Nuclear Physics. At A.E.R.E., Harwell, on 12th-14th September. (Programmes and application forms may be obtained from General Administration, Room G-71, Building 329, A.E.R.E.).

16th Annual Conference on Dynamic Problems in Stress Analysis. At the University of Leeds, on 18th-21st September.

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CONFERENCES, ETC. (contd.)

Seminar and Conference on Neutron Beam Research in Solid State Physics.
At Imperial College, London, on 25th-28th September.

A meeting on Optical Masers. At University College London, on 27th-28th
September.

Conference on X-ray Diffractometry. At the Institution of Civil
Engineers, London, on 16th-17th November.

X A meeting on Mass Spectrometry. At the Imperial College of Science and
Technology, London, on 19th December.

Conference on Ultra High Energy Physics. At the University of Bristol,
on 7th-8th January, 1963.

Conference on Electronic Processes in Dielectric Liquids. At the
University of Durham, on 23rd-25th April, 1963.

Advance information on the above events is available from B. E. Kingdon,
Building R.1., Exten.484. Unless otherwise stated, full details and application
forms may be obtained from the Administration Assistant, 47 Belgrave Square,
London, S.W.1.

EVENTS AT A.E.R.E.

The U.K.A.E.A. colour film "Fuel for Nuclear Power" will be shown in the
Cockcroft Hall on the following dates:-

X
Tues., 14th Aug. : 10.45 a.m., 12.45 p.m., 3.45 p.m.
Wed., 15th Aug. : 12.45 p.m.
Thurs., 16th Aug. : 3.45 p.m.
Fri., 17th Aug. : 10.45 a.m., 12.45 p.m., 3.45 p.m.

The running time is 35 minutes. No tickets are required. Passes are
necessary for all showings, except those underlined above, for which the outer
gate will be open and the inner gate manned.

EXTERNAL EVENTS

X
14th-17th August : International Conference on Precision Electromagnetic
Measurements. At Boulder, Colorado, U.S.A.

15th-22nd August : Twelfth International Congress of Mathematicians.
At Stockholm.

14th-16th August : Cryogenic Engineering Conference. At Los Angeles,
California, U.S.A.

Building R.1.,
Rutherford Laboratory.

B. E. KINGDON
Scientific Administration

10th August, 1962

RUTHERFORD LABORATORY BULLETIN

No. 85, for the week commencing Monday, 20th August, 1962

VARIABLE ENERGY CYCLOTRON PROJECT

Construction of a new A.E.R.E. cyclotron to be known as the Variable Energy Cyclotron will shortly begin on the site of the old bus park by the South Gate of the A.E.R.E. The Cyclotron Group at the Rutherford Laboratory are designing this machine (previously known as the Chemist's Cyclotron) for the A.E.R.E. and will also be responsible for supervising construction, installation and commissioning.

This cyclotron will be the most versatile of its kind in Western Europe and will provide high intensity beams (up to 100 micro-amps) of protons, deuterons or alpha particles having energies up to 50 MeV, or heavy positive ions having much greater energies (e.g. nitrogen, neon or argon ions with energies up to 10 MeV per nucleon). It will also be possible to carry out internal target irradiations.

The cyclotron will have a 200 ton magnet with a poleface diameter of 70". The poles will be fitted with spiral ridges to permit the acceleration of continuous beams.

The machine will be used primarily for studies in the fields of radiation chemistry, radiation damage, radiochemistry and solid state physics and will enable experiments to be carried out more simply and in less time than is possible using nuclear reactors or existing accelerators. In addition the combination of high intensity and variable energy for a wide variety of possible bombarding particles will permit an important extension of current studies on the nature of the nuclear fission process. Similar machines have recently been completed at Berkeley, California and at Oak Ridge, Tennessee, in the U.S. University workers, in addition to A.E.R.E. staff, will be able to use the accelerator. The total cost of the machine and the building housing it is estimated at about £1,600,000, and it is expected to come into operation in 1965.

VISITOR

Dr. Frank S. Crawford Jnr., from U.C.R.L., Berkeley, will visit the Laboratory on 27th August for discussions on high energy physics with Dr. R. Newport, Ext. 440.

ATTACHED STAFF

Professor D. Walker, Professor of Physics at the University of Wellington, New Zealand, arrived on 1st August for a six months' attachment.

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 Aug.	Queen's University, Belfast and N.I.R.N.S.	Deuterium Break-up by Correlation Methods.
23rd August	University College London	Measurement of Depolarisation in Proton-Proton Scattering.

The P.L.A. will be shut down for five weeks from 24th August until 28th September, when new quadrupoles will be fitted in the drift tubes of Tank 3 and general maintenance carried out.

COURSES

Details of the following courses may be seen in the Library, Building R1:

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.

17th August, 1962

H. F. Norris
Scientific Administration

RUTHERFORD LABORATORY BULLETIN

No. 86 for the week commencing Monday, 27th August, 1962

VISITS ABROAD

✓ Dr. R. C. Hanna, Dr. R. J. Griffiths and Dr. C. J. Batty of the P.L.A. Nuclear Physics Group will leave on 2nd September for Padua, Italy, to attend the International Symposium on Direct Interactions and Nuclear Reaction Mechanisms which is being held from 3rd-8th September.

✓ Dr. H. H. Atkinson of the Nimrod Injector Group will leave on 29th August for Delft, Holland, where he will present a paper on "Electron Beams of Very High Perveance, and some effects of Space Charge Neutralization" at the 4th International Congress on Microwave Tubes to be held from 3rd-8th September.

COURSES

✓ The Physics Department, Northern Polytechnic, London, N.7, will hold a course on "Electronics and Microwave Physics" on Fridays from 6 p.m. to 9 p.m. commencing Friday, 28th September. Preliminary enquiries should be addressed to the Head of the Physics Department.

The following evening courses will be held at the Polytechnic, 309 Regent Street, London, W.1:

Advanced Mathematics
Mathematical Statistics
Automatic Digital Computers
Modern Electric Network Theory
More Advanced Electronics
Microwave Principles and Practice
Nuclear Physics
Physics of the Solid State and
Solid State Devices including Masers.

Details may be obtained from H. F. Norris, Building R.1, Ext. 273.

24th August, 1962

H. F. Norris
Scientific Administration

RUTHERFORD LABORATORY BULLETIN

No. 87, for the week commencing Monday, 3rd. September, 1962

VISITORS

✓ Professor John R. Pasta of the Digital Computer Laboratory, University of Illinois, with Dr. Robert B. Marr and Dr. Yoshio Shimamoto of the Brookhaven National Laboratory will visit the Rutherford Laboratory on 10th and 11th September for discussions with Dr. J. Howlett, Ext. 547.

Dr. A. C. Downing, Assistant Director of the Mathematics Panel, Oak Ridge National Laboratory, will visit the Laboratory on 11th September, also for discussions with Dr. J. Howlett.

VISITS ABROAD

✓ Mr. H. Hadley of the Engineering Design Group and Mr. J. J. Hughes of the Inspection and Progress Department will visit A.C.E.C., Brussels, Belgium, on 5-6th September, for discussions on the Heavy Liquid Bubble Chamber magnet.

NIMROD MAGNET POWER SUPPLIES

The second alternator of the Nimrod Power Supplies has completed its works' tests at English Electric, and installation is planned to begin early in September.

✓ During the magnetic survey, which has been completed according to programme, the power supplies plant operated more satisfactorily than was anticipated, and certainly very much better than plants of similar size on similar duty have done at an equivalent stage of early operation. There is still much final commissioning to be carried out, however, and this is planned for January and February, 1963.

The following operational information may be of interest:-

Total running hours on rotary plant since installation in October 1961:- 1,400
" " " " " " for magnetic survey (April-August, 1962):- 750
" pulsing hours for magnetic survey:- 400
(300 of these hours were at standard pulse + 15% setting)
Approximate number of pulses during magnetic survey:- 132,000
" " " " " , Oct. 1961 to end of August 1962:- 400,000

INTERNAL EVENTS

X Mon., 10th Sept., Informal Prof. J. R. Pasta The Bubble
2.30 p.m., Conf. Talk (University of Chamber Track
Rm., Bldg. R.1 Illinois) Recognition
Programme
at Illinois.

3rd September, 1962

CMP.

H. F. Norris

Scientific Administration

RUTHERFORD LABORATORY BULLETIN

No. 88, for the week commencing Monday, 10th September 1962

VISITORS

Dr. Glenn T. Seaborg, Chairman of the United States Atomic Energy Commission, will visit the Laboratory on Thursday, 13th September.

Professor G. M. Frye of the Case Institute of Technology, Cleveland, Ohio, will visit the Laboratory on 11th-12th September.

A party of 21 members of the Hampshire-Isle of Wight Group of the Engineering Industries Association will visit the Laboratory on Tuesday, 11th September.

CONFERENCES

The 16th Annual Conference on "Dynamic Problems in Stress Analysis" will be held by the Institute of Physics and the Physical Society on 18th-21st September, at the University of Leeds. Application should be made to the Administration Assistant, 47 Belgrave Square, London S.W.1.

A conference on "Components for Microwave Circuits" will be held by the Institution of Electrical Engineers on 19th-21st September at Savoy Place, London W.C.2. Programmes and application forms may be obtained from B. E. Kingdon, Building R.1.

A symposium on "Standardisation in Non-Destructive Testing" will be held by the Institution of Production Engineers on 20th-22nd September at the Old Swan Hotel, Harrogate. Application should be made to the Secretary, 10 Chesterfield Street, Mayfair, London W.1.

INTERNAL EVENTS

Mon., 10th Sept.,
2.30 p.m., Conf.
Room, Bldg. R.1.

Informal
Talk

Prof. J. R. Pasta
(University of
Illinois)

The Bubble Chamber
Track Recognition
Programme at
Illinois.

Mon., 17th Sept.,
11.15 a.m., Conf.
Room, Bldg. R.1.

Nimrod
Lecture
Series

Mr. J. A. Newth
(Imperial College,
London)

The Use of Image
Intensifiers to
View Scintillation
and Cerenkov
Light.

(First lecture in the new series)

EVENTS AT A.E.R.E.

A mobile demonstration unit from Solartron Laboratory Instruments Limited will be showing a range of new Electronic Instruments at the rear of the Social Club, Building 161, on Wed., 12th and Thurs., 13th September from 10 a.m. to 4 p.m.

12th-14th Sept: Institute of Physics and Physical Society Conference on "Low Energy Nuclear Physics".

EXTERNAL EVENTS

16th-22nd Sept: Institute of Physics and Physical Society Eighth International Conference on Low Temperature Physics.

B. E. Kingdon

Scientific Administration,
Building R.1.
7th September 1962.

MAS

RUTHERFORD LABORATORY BULLETIN

No.89, for the week commencing Monday, 17th September, 1962

Visitors

✓ Dr. P. R. Aron of U.C.R.L., Berkeley, is expected to visit the Laboratory on 24th-25th September for discussions with Dr. R. Newport of the National Hydrogen Bubble Chamber Group.

Nimrod Magnet Power Supplies

✓ The main parts of the second alternator of the Nimrod Power Supplies arrived on site on Tuesday, 11th September, from the English Electric Company, Stafford, and installation work is now proceeding.

Library Notices

✓ Dr. J. Howlett, who has recently attended the 1962 International Federation for Information Processing (IFIP) Congress in Munich, has a set of pre-prints of the proceedings, which may be borrowed by anyone interested. A list of the titles of the papers can be obtained from his office, Room 2-32, Building R.1.

Would the person who has the loan copy of "Elementary Particles" by C. N. Yang please contact Miss J. Fraser, Exten.384. A reference copy of "The World Atlas" is also missing from the Library.

Conferences

X A conference on "Sorptions Properties of Vacuum Deposited Metal Films" will be held by the Institute of Physics and The Physical Society on 17th-19th April, 1963, at the University of Liverpool. Details may be obtained from B. E. Kingdon, Exten.484.

Scholarships

✓ The Royal Military College of Science, Shrivenham, are offering a limited number of scholarships for courses leading to the External degrees of London University in mathematics, science and engineering. Full details may be obtained from Mr. P. J. Clare, Personnel Branch, Building R.20., Exten.495.

Internal Events

X Mon., 17th Sept., 11.15 a.m., Conf. Room, Bldg.R.1.	Nimrod Lecture Series	Mr. J. A. Newth (Imperial College, London)	The Use of Image Intensifiers to View Scintillation and Cerenkov Light.
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(First lecture in the new series)

A weekly Evening Lecture Series on "Fundamentals of Accelerators" has been arranged, and the first lecture will probably be given on Tuesday, 25th September. Further details will be announced next week.

External Events

X Mon., 17th Sept., 7.30 p.m., Physics Dept., Bristol University.	Soc. Inst. Technology Lecture	Mr. H. Sutcliffe	Novel Transducers.
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19th-28th Sept. : International Factory Equipment Exhibition, Belle Vue, Manchester.

Building R.1.

B. E. KINGDON

14th September, 1962