

Archive Listing

TRE 1943 -1946

TRE Technical monograph, 1942, No 1, Waveguides, copy 29, RSR/MDB

Bridge circuits for Microwaves, 1942, W A Tyrrell,

2 files course notes, bibliography, etc relating to Waveguide course.

Document detailing waveguide symbols used in drawing

MAP, Specification No DCD WT 1000, General requirements for RAF Radio Apparatus.

7 notebooks and 3 practical notebooks relating to TRE induction, RADAR and waveguide course.

3 day to day notebooks used by BGL House 8, Group 9, for notes and drawings.

MAP, drawing ATR65229, Stabilised scanner schematic diagram, 1944

3 TRE drawings for test set 205, 1943

MAP TRE drawing for test gear standing wave detector relay circuit, checked by BGL 4/44.

Report T1690, Waveguide report for HF unit TR3523, copy 46, By Mullett, June 44., with 6 related drawings associated with TR3523.*

3 TRE MAP drawings related to Amplifier unit AU226, 1944.

TRE MAP TR3523C wiring diagram, 1945*

TRE MAP Holders crystal Type 39 drawing 1945

Report T1712, waveguide test set 232, Loach and Mullett July 44, with 2 1946 copies of the related X Band Test Gear drawing list. Also extra copies of Plate photos.*

1000 Megacycle (3cm) Waveguide Test Bench, BICC Ltd publicity document, 1945

Report manuscript, X Band Tubular feeder runs- Aircraft- Bench sets – trailers, Mullett 1944.

Reports T1686 and T1687, X Band Tubular feeder runs- Aircraft- Bench sets – trailers, Mullett 1944 (2sections)

Report T1855 manuscript. English to American Size X-Band waveguide transformers, 1945, BGL.*

Report, manuscript, Waveguides in practice, Mullett, 1945.

The Laws of the house of MAP, humour.

Letter from MAP to Resident TO, ref procedure for the design, Manufacture and installation of wave guides, april 44, and 3 copy letters by BGL to RRDE ref waveguides, contracts etc.

2 hand drawn charts on back of MAP drawings showing organisation atBBRL.

Photo of cutaway component, dated 15/11/44 ref 4313.

IEE journal sept 44

IEE journal mar 45

IEE journal, sep 45

IEE journal mar 46

IEE journal may 46

Waveguide Glossary, by Panel 16 committee, Jul 46

Maintenance Handbook for AN/APS-15 (H2S) Aircraft Radar Equipment, 1944*

Advice and Instructions on the composition of technical reports, MAP, 1945.

IEE Journal special report on Radiolocation Conference, 1946, 9 parts.

TRE Accelerator phase 1946-1953

Surface guides treated by means of the impendence concept, Lawson, March 46.

Linear accelerators (Dr Cockburns notes), 4/46

The Group Velocity and some other relationships in waveguides, Harvie, Jan 46

Linear electron accelerators, Harvie, 4/46

TRE Report T2021 Corrugated Rectangular guides for linear accelerator, July 46.Mullett*

TRE Report T2029 Experimental work on corrugated waveguide for linear accelerator, Mullett, Loach, Gregory, Aug 46*

TRE Report T2037 Theory of circular corrugated guide for linear accelerator, Walkinshaw, Aug 46*

TRE Report T2038 Design of circular corrugated waveguide for bunching section of linear accelerator, Walkinshaw , Aug 46*

File of meeting minutes and memos covering 1946

Report AE1000 Corrugated guide linear accelerator for electron energies in the 100 to 500 MeV region., Taylor, Dec 46

Report AE1004 Experimental work on corrugated circular guides having variations of phase velocity, Mullett and Loach, 1947*

Photo TRE 7496, May 47, Length of circular waveguide*

Photo TRE 7499, May 47, Gun end of 0.5 MeV accelerator*

Photo TRE 7498, May 47, Other view of 0.5 MeV accelerator*

Report AE1007 A Travelling wave linear accelerator for 0.5 MeV electrons, Mullett, May 47*

Nature Vol 160, No 4063, Sep 47, article Travelling wave linear accelerator for electrons.

Reprint of the above.*

TRE Physics dept lecture 1947, Theory of waveguides and magnetrons, GG MacFarlane.

Magic Tee Waveguide Junction, Saxon and Miller. Wireless Engineer reprint, May 1948.

3 reprints of Report AE1004 Experimental work on corrugated circular guides having variations of phase velocity, Mullett and Loach, 1947 as printed in Proc of Physical Society 1948.

Proceedings of Physical Society, 1st September 1948, includes the above article and others by Walkinshaw, Harvie, Goward.*

Photocopy of above.

TRE photo 7496, 1 May 47, 4MeV accelerator waveguide being inserted into vacuum envelope?

TRE photo 7642, 29 oct 47, BGL standing at rack of equipment relating to vacuum valves.

TRE photo 7643 29 oct 47, special vacuum valve on vacuum pumping table.

TRE photo 7632, 29 oct 47, ditto*

TRE photo 7634, 29 oct 47 4MeV waveguide on bench, BGL meter above.*

TRE photo 7636, 29 oct 47, ditto*

TRE photo A5219, 4 nov 47, 4MeV guide, gun etc*

TRE photo A5220 4 nov 47, various waveguides etc*

TRE photo A5221, 4 nov 47, coils ready to receive waveguide*

TRE photo A5218, 4 nov 47, 4 MeV envelope on stand*

TRE photo A5282, 3 dec 47, length of waveguide*

Report, Vacuum equipment for the 4MeV electron accelerator, BGL, E1/R229, March 49.*

TRE photo 8405, 9 mar 49, valve on pumping table

Report Control and display equipment for the 4MeV linear electron accelerator, Gregory, AERE G/R 224, Aug 48*

Another ditto, less photos

Working instruction manual for Monitor Radiation Gamma, Type 1006, as referred to in R224.

TRE photo 7852, 5 apr 48, magnetron source for accelerator*

TRE photo 7857, 5 apr 48, ditto*

TRE photo 7853, 5 apr 48, control cabinets for accelerator?*

TRE photo 7855, 5 apr 48, ditto?*

TRE photo 7851, 5 apr 48, ditto*

TRE photo A5337, 31 mar 48, magnetron ??*

TRE photo A5336, 31 mar 48, gun on accelerator?*

TRE photo A5338, 31 mar 48, magnetron source*

TRE photo A5335, 31 mar 48, control equipment*

TRE photo A5333, 31 mar 48, ditto*

TRE photo A5332, 31 mar 48, ditto*

Report, A travelling wave linear accelerator for 4 MeV electrons, AERE G/R 213, Mullett, July 48.*

TRE photo A5223 and 8049 Jun 48, drawings of accelerator*

TRE photos 8043, 8046, 8044, 22 jun 48 control equipment*

TRE photo 8045, 22 jun 48, assembled accelerator*

TRE photo 7854, 5 jul 48, ditto*

TRE photo 8082, 7 jul 48, target end of accelerator?*

TRE Open Days, programme, May 48, 2 copies.*

Nature, Apr 3, 1948, articles of interest include 30 MeV synchrotron.

2 reprints of Report, A travelling wave linear accelerator for 4 MeV electrons, AERE G/R 213, Mullett, July 48. As published in Nature Nov 27 48.*

Nature Nov 27, 1948, with above article.*

TRE drawing showing AEO/EO staff interview marks. 1947

TRE drawing showing SO/SSO reconstruction exam results. 1947

Memo Guide dimensions for two metre linear accelerator, mathematics group, TRE, dec 46, M/Memo/48/WW

AERE memo E1/M22 Linear accelerators for medical X ray therapy in the energy range 2-6 MeV, Harvie, May 49.

AERE report G/R 314, An injector gun for a travelling wave linear accelerator, Clay, March 49.*

TRE photo A5283, 5 Jul 48, section of waveguide.*

Reprint from Physical Society Reports on Progress in Physics, Vol XII, 1949, Linear Accelerators, Fry and Walkinshaw, *

Photocopy of same

Reprint from Proceedings of Physical Society, Vol LXII, 1949, A travelling wave linear accelerator with RF power feedback, and an Observation of RF Absorption by Gas in Presence of a magnetic field., Harvie and Mullett.

TRE Photo 7811, 31 May 48, Combining power experiment with waveguides*

TRE Photo 7810, 31 May 48, ditto*

TRE Photo 7639, 31 May 48, ditto with two persons not identified?*

TRE Photo 8321, 11 Jan 49, view of accelerator with feedback system*

TRE Photo 8320, 11 Jan 49, ditto*

AERE report EL/R 381 draft, Waveguide bridge circuits for the combination of unequal powers with special reference to linear accelerator feedback systems, Mullett and Loach, July 49.*

AERE report EL/R 391, Waveguide bridge circuits for the combination of unequal powers with special reference to linear accelerator feedback systems, Mullett and Loach, Nov 49.*

Another copy*

Reprint from British Journal of Radiology, Vol XXII, Aug 49, The microwave Linear Electron Accelerator, Newbery, MRC.*

AERE report EL/R385, Two metre linear accelerator, Mullett, 1949.*

TRE photo 8559 Aug 49, beam photos?*

TRE photo 8550 Aug 49, beam photos?*

TRE photo 8560 Aug 49, beam photos?*

TRE photo 8561 Aug 49, beam photos?*

“BGL Group S1 Linear accelerator” notebook, 1946-49.

Corrugated waveguide course notes, “theory”, to 1949.

AERE report EL/R402, Theory of dielectric loaded waveguides applied to linear electron accelerators, Harvey, 1949.*

AERE report G/R612, A circular wave guide magic tee and its application to a waveguide bridge for the combination of unequal powers, and a phase shifter utilising circular polarisation., Kingdon, 1950.*

TRE photo 8539, Jul 49, waveguides attenuators??*

TRE photo 8540, Jul 49, waveguide??*

TRE photo 8541a, Jul 49, circular tee??*

TRE photo 8537, Jul 49, ditto*

TRE photo 8541, Jul 49, ditto*

TRE photo 8538, Jul 49, ditto*

TRE photo 8555, Jul 49, circular waveguides*

TRE photo 8536, Jul 49, ditto*

TRE photo 8533, Jul 49, ditto*

TRE photo 8534, Jul 49, ditto*

TRE photo 7853, Aug 49, accelerator control equipment*

TRE photo A5334, May 50, ditto*

Report, Waveguides for linear accelerators with laminated dielectric loading- Part II Experimental., Mullett and Harvie, undated (post 1950?)*

TRE photo 8997, Nov 50, waveguide and loading discs*

TRE photo 7856 Jun 50, linearaccelerator*

TRE photo 8298, Jun 50, target photography??*

BTH research lab report, The electronic mechanism of the magnetron, Dunsmuir, 1951.

TRE photo 8995 Nov 50, circular waveguides*

TRE photo 8996 Nov 50, ditto*

AERE report G/R 765, Some properties of corrugated rectangular waveguides, Dain, 1951*

Hilger catalogue W of waveguide components, 1951

BGL Course notes on rectangular waveguides etc, theory, 1951

BGL course notes on Travelling wave magnetron amplifiers theory. 1951.

Course notes, waveguide course, 1951.

AERE report G/R918, Waveguide systems with negative phase velocities, mullet and Loach, 1952, draft.*

AERE report G/R918, Waveguide systems with negative phase velocities, mullet and Loach, 1952.*

Nature, Jun 14 1952, contains above article.*

Printers draft and 4 reprints of above article.

AERE report G/R974, Measurements on waveguides with slotted plate loading, Loach and Dunn, 1952.*

Report, An approximate theory for a ridge loaded slotted plate waveguide, summary, Loach, 1952, unpublished??*

AERE report G/R1064, A travelling wave magnetron amplifier operating in the cyclotron mode, Dunn, 1952.*

AERE report GP/M166, appears to be the same as the above report.*

Two photos high voltage discharge, Jacobs ladder?, not marked, probably Harwell.*

AERE photo A4453, A4457, experiment with accelerator? Spectrometer on output?*

TRE photo 9883, Mar52, Fig 9 for report.*

TRE photos 9935-9937, Apr 52, Display for Physical Soc, very interesting.*

AERE photo A485, shielding being installed??*

AERE photos A889, A890, A891, A893, A894, 2 metre accelerator and control console etc installed at Harwell?*

Batch of TRE photos 10713-10719, Sep 53, 2-3 sets, lots of Dexion, waveguides, magnetrons.*

Physical Society, 31st Exhibition of scientific instruments and apparatus, list of exhibits staged by TRE, MOS, Malvern, and those staged by the AERE electronics group at TRE, Malvern. (2 sheets)

AERE report G/M 151, Design study for a 600 MeV PLA resume of progress up to Jan 53 and future programme, Mullett, Apr 53. *

AERE report GP/R 1161, Linear Electron Accelerator with a dielectric loaded waveguide, Hadden, 1953*

AERE report GP/R 1227, A review of experiments with a linear magnetron amplifier, Dain, Craston, Holmes and Weaver, 1953.*

AERE report GP/R 1228, Developments in the Magnetron amplifier, Dain, 1953.*

Journal of British Inst of Radio Engineers, May 53, A circular waveguide magic tee and its application to high power microwave transmission, Kingdon.*

Map of Malvern on TRE paper showing TRE and The Lees.

TRE MOS plan showing the location of The Lees and the hut layout.

Cross section of 10 MeV acclerator.*

A copy of a letter to Metropolitan-Vickers regarding a new magnetron dated 30 apr 53.

Data sheet for VX4061 magnetron, marked MOS TRE.

Metropolitan-Vickers Leaflet on S Band test equipment. 1952?

Items of atomic related humour, been pinned to the wall, from Punch, magazines etc.

TRE journal,

Reprint on Lens Aerials, Lawson

Reprint on Elementary introduction to operator methods in circuit analysis, Thomason.

Issues, Oct 44

Jan(H2S),Apr, Jul, Oct 45

Jan(waveguides), Apr, Jul, Oct 46

Jan,Jul,Oct(0.5MeV accelerator),47

Jan,Jul,Oct 48

Jan 49
Apr50
Jan 51

TRE Echo

Issues Apr-Jun(open days),Aug 48.
Feb, Sep, Dec(xmas) 49
Jun,Aug 50
Mar (last) 51

TRE telephone directories

Jan 45
Feb 48
Jan 52

Photocopy of a TRE staff group, happy mood.

Paper An approximate theory for ridge loaded slotted plate waveguide- summary, BGL,
Dec 52*

Journal of the British Inst of Radio Eng, May 1953, vol 13, no 5, with item on circular
waveguide magic Tee, Ben Kingdom.*

Late additions

More photos
1455 scene 85 contracted, well known face at 2 metre waveguide

TRE 7811 5 jul 48 many waveguides

Ditto 7810

W Edwards & Co, pumps etc for high vacuum, wartime

Wireless Engineer, Index, 1949

Electronic Engineering, vol 20 no 245, jul 48, item re TRE.*

Ditto, 1946

Record of radio amateurs atTRE, since jul 44. Jun 45

Letters from Warwick sep-dec 39

Advice and instructions on composition of technical reports, MAP, 1945

Journal of IEE sep 1945, principle of radiolocation. Appleton

Ditto nov 44,

Electronic engineering may 42,

Electronic Application Bulletin for the electronic equipments set making industries, Phillips. Oct 52 Magnetrons

END OF ITEMS for 1946 to 1953.

PLA 53-60s

Album of prints, building of PLA and or Minnesota machine

Reprint from Journal of Scientific Instruments, Vol 31, March 54, Crowley-Milling, Met Vik, A computer for solving some problems in connexion with travelling wave particle accelerators.*

AERE photo A2387, PLA construction

AERE photo A2386, BGL PLA construction

PLA, Tuners for 1.5 metre Alvarez Tanks, BG Loach, Nov 54*

AERE drawing D80591, Data sheet for tank 3, PLA, 1954

AERE drawing D80590, ditto tank 2

PLAC9, Manufacturing, measurement and operating temperatures and frequencies for the PLA, BG Loach, Jan 1955.*

Photos and detail drawings of another machine, Bevatron?

Poem by Prof Peierls, play on Linac meetings and jargon.

Drawing, PLA, Power division and phasing for RF drive to GGT power amplifiers feeding tanks 1,2 and 3, BG Loach, March 1955.*

PLAC10, PLA tanks 2 and 3, design notes and data, Wilkins, March 1955.*

AERE GP/R 1578, Matrix treatment of four arm bridges, Mullett, 1955*

PLAs for nuclear research and the AERE 600 MeV project, Pickavance, 1955

AERE N/M 11D, Nuclear physics training manual, Robin, 1956

AERE EL/R 229, Vacuum equipment for the 4MeV Linear electron accelerator, BG Loach, 1956*

IEE, Theoretical and experimental investigation of Anisotropic-dielectric-loaded Linear electron accelerators, Harvie, Mullett, Walkinshaw, Bell and Loach, July 1956, reprint, x4*

Correspondence between BG Loach and RCA in America concerning supply of valves for accelerator, July 1956.*

Batch of AERE photos concerning erection of PLA buildings and PLA, A3132 to A6582, covering Jan 55 to May 58. Also Ministry of works photos x3, Jan to May 54.

Batch of photos concerning design of PLA, RF etc, and further building work and PLA.

Manuscript, Proposed extension to the 50 MeV PLA, BG Loach, June 57*

Patents file- US Patent 2840788, Dec11 1952, Loaded Waveguides, Mullett, Loach & Adams. UK Patent 755843, Aug 29 1956, Improvements in or relating to Loaded waveguides, BG Loach & GL Adams. 19610/53.*

The PLA. Summary document, Stafford, 1958

HAG/PLA/1, 50 MeV PLA Outline description of machine and general data, BG Loach, 1958*

List of dates relating to PLA, first beam 10/11/58 to beam achieved by 17/12/58*

PLA Summary of expected output beam characteristics, BG Loach, 1959*

Photo radiograph of PLA beam 28/2/59.

HAG/PLA/3, Measurements carried out on the PLA in the period from 1st January to 10th October and an account of present and future plans to improve the reliability of the machine, BG Loach, 1959*

The Times, Science Review, Autumn 1959,, front page on PLA. 3 copies*

2 photos of BGL working at the PLA*

Evered, Waveguides and couplers, catalogue, undated

Mullard Microwave valves, news sheet.1960

English Electric High voltage excitrons.undated

AERE photo HL2916, experimental area of PLA.

AERE photo HL2987, BGL power division equipment?

Batch of photos from AEI relating to parts for PLA?

Notes by BGL on beam output early 1960.

PLA Operators Manual, January 1960, Copy No 1

List of Accelerator Division Personnel, march 1960

Report on the operation of the PLA on the evening of Friday April 1st 1960, and other events relevant to the explosion in sub station 10.

Notice detailing the first experiment carried out with the PLA, 26th April, 1960

PLA safety procedure

Induced radioactivity in beam pipes and collimators, Thomas, May 1960

Guide to maximum permissible radiation exposures.

Radiation protection for work with the PLA, document in progress.

Radiological protection, Burrells

Notes on radiological hazard of targets, Griffiths

The production of toxic and undesirable substances due to neutron and proton irradiation.

RHEL nominal role, August 1960

Note from BGL to Mullett detailing only press release on PLA, Sep 1960.*

PLA, manuscript in progress.*

NIRNS, NIRL/R/7, Feasibility of a superconducting proton linear accelerator, Banford & Stafford, 1961.*

NIRNS, NIRL/R/9, An accurate determination of the PLA beam energy by a time of flight method, Batty & Warner, 1961*

Masters for artists depiction of PLA

Proof copy for first edition PLA handbook, BGL, July 1961

Nominal Role, Rutherford Lab staff, 1962, by Alphabetical and by groups.

NIRNS RHEL visitors pamphlet, PLA and Nimrod in progress

PLA Running times, 1962

Spinks, WS, Vacuum Techniques, PLA Group, 1963*

Quantity of RHEL PLA brochures.

AERE Engineering review, extracts on PLA, Harwell and Wantage, 1963

NIRNS, RP/PR1, Radiation Protection Group Progress report, protection on the 50 MeV PLA, 1962-63.

Orbit, reprint, History of the PLA, Stafford, Loach etc, April 1963.*

Image reprint, NIRNS*

RFSystems for a Linac cavity with heavy beam loading, PLA Acc/Phs/13, Batchelor etc, 1963

Manuscript for Orbit article., BGL*

Applied Physics Committee Meeting No 1, minutes, 31st May 1963, BGL, with letter requesting BGL as secretary.

Plans for lectures on PLA to be given to students, July 1963, BGL*

Revised "History of the PLA", for Technical leaflet*

History of the PLA, technical leaflet.*

Orbit October 1964, news from the PLA

Quantity of RHEL PLA leaflets*

AERE photo HL5413 October 61, Grounded grid Triode trolley?

RHEL notice 224, Closure of the PLA, June 1967

RL Bulletin Oct 1969, Closure ceremony on the PLA.

RL Bulletin Jan 1979, PLAtime at Blewbury, celebration of PLA

Quantity of NIRNS PLA Handbooks and Visitors handbooks.

PLA Progress report for each of years 1961 to 1966.

User guide to PLA Beam Line Ancillaries, Swales, 1966, RHEL/M109

PLA Maintenance Handbooks, document, BGL, index, sept 1964*

BD/1A	Beam Deflectors for time of flight system part 1
BH/3	Setting up beams in the experimental areas
BM/1	Beam monitoring
BU/1	The Buncher
CN/1	The Machine Trigger system mk 1
CN/3	Tank auto tuning system
CN/4	RF field level servo system
CN/7A	Fast acting cavity RF field stabiliser part 1
CN/7B	“ “ part 2
CS/1	Water cooling system
GT/1	Grounded grid triode valve amplifier trolley
GT/4A	GGT Valve Cubicles Part1
GT/4A	GGT Valve Cubicles Part2
HP/1	Production and Modification of PLA Maintenance Handbooks
IN/1	Injector, Introduction, ION source cleaning and General Fault Finding
IN/3	Injector, ION source, focusing lenses, accelerating column etc
IN/4A	Injector, The HT Platform, cellar and control equipment, Part 1
IN/4B	Injector, The HT Platform, cellar and control equipment, Part 2
IN/4C	Injector, The HT Platform, cellar and control equipment, Part 3
LK/1,LK/2	Misc control and interlock circuits
MD/1	6Kw Modulator for pulsed stages of low power drive chain
PS/1	Polarised proton source part 1
PS/2	Polarised proton source part 2
PS/3	Polarised proton source part 3
RF/1	Radio frequency power supply system: Introduction
RF/4	Pulsed stages of low power drive chain
RF/5	Output cooling system for grounded grid triode amplifiers
RF/6	Power dividing network and GGT paralleling system
RF/7	Coaxial line components
RF/9	RF Loads, vacuum window and tank feed loop assy
TK/2	Tanks: Liner tuner systems
TK/3	Tanks:Radio frequency instrumentation system

VC/1A Vacuum Systems (part 1)
VC/1B Vacuum systems (part 2)
VC/2 Vacuum testing and measurements

Proton Linear Accelerator Handbook (small format) 1st edition, 2 copies and 1 empty binder.*

NIRNS Visitors handbook, 2 copies*

Late additions

Prints

AWRE Harwell 412 tunnel, 26.2.54 G4912/1 "no negative"

Early RL site? First buildings?? A4381 spring 56.

B5148 27.7.59 BGL at PLA

AJ2826 famous pic of BGL at PLA, used in newspapers.

Bulleting 13 oct 69, Last proton through PLA

Various drawings relating to PLA

Castell key interlock system

HL5062 PLA

RHEL 6043 colour print PLA injector end

10639 EHT system\

6042 ditto colour print of PLA used for cover??????

10631 target area colour

more leaflets on PLA

Drawing by BGL?, Power monitor amplifier, issue 1, 27.1.56

Atlas, brochure, 1967

Atlas site map and location

Harwell Bulletin supplement to 64/7 regarding urine samples, 17/feb/64

Comparative graph of various accelerators, jun 64

Notes from visit to CERN 24th September 1960

Nuclear Eng, vol1 No 1, april 56.

Envelope of photos marked Alvarez 32 MeV machine, met with an accident?

Envelope of photos of Bevatron Injector, 80 MeV, California

Letter from Oak Ridge, US, relating to thanks for PLA info, but with manual additions relating to Cuba and US stopping sending TV programmes to UK!, March 5th 1964

Postcard from Berkeley, 1953

Airmail letter from Minneapolis 1953

Technical Information leaflet by M of Aviation RRE, exhibition related, regarding transistors. 1960.

Atomic scientist journal, vol 3 no 2 Nov 53.

University of California The Hilac, 1958

Proceedings of the IEE vol 101, july 54, part 1 no 130, with item 8MeV linac for X ray therapy, Miller, CW, Hammersmith, Loach is mentioned in refs.

Proc IEE, vol 106, 1959, april, part A supp no 2,

Spinks, WS, Vacuum technology, 1962, NIRL/M/31 another copy?

Another copy of science review autumn 59

BI of radio engineers, vol 14 no 8, aug 54, Industrial radiography, miller. BGL is referenced in this

Review of scientific instruments jun 58, Minnesota accelerator

IEE reprint, Theoretical and experimental investigation of anisotropic dielectric loaded linear electron accelerators, Harvie, Mullett, Walkinshaw, Bell, Loach, july 56

Notes for visit to CERN September 1960, many ideas for control room.

Also includes visit to Brum 1GeV proton synchrotron july 61.

1956 price list for cafeteria Harwell

NIMROD 1959 to 1980

Photos

HL 64991? Nimrod control room or 61991??
HL 64985
HL 64990
HL 64983
HL 64987
HL 64982
HL 64986
HL 64985
HL 64981
HL 64984

Drawings, photographic

HLL 49475 Mk III Target Mechanism
HL 26742 Beam line output
HL 26739 Mk 1B Piccioni Target Mechanism
HL 26745 Radial and Vertical beam electrodes
HL 26744 Beam aperture defining plates
HL 26737 2 Jaw Box
HLS 26743 Beam intensity
HL 26740 Straight box No 1 Inflector
HL 26738 Pressure differential vacuum Valve
HL 26736 Beam Diagnostic equipment
HL 26741 Beam Detection Grid

Photos General Installations RF system

HL 64880
HL 17108 1964
B 4980 1964
HL 27110 1964
HL 3984 1964
HL27117
HL 2716
HL 59706
HL 59714

HL 59711
HL 59712
HL59710
HL59715
HL59713
HL59708
HL59707
HL59707
HL59704
HL59703
HL59705
HL43416 drawing RF cavity
HL43413 ditto
HL43410 ditto
HL43412 feed
HL43414 RF coupling
HL43411 oil cooling
HL43409 RF Cooling
HL43415 RF drift tube
HL48026 Rfcavity
HL48025 Drift tube
HL48021 air cooling
HL48020 RF oil cooling
HL48024 RF coupling
HL48022
HL48023
HL48026
HL48024
HL48023
HL48022
HL48021
HL48025
HL48020

Linac Photos Looks like general build up record esp LINAC and EHT

RL Photos

20753
20754
20756
20752
20816
20817
16566
16563

19185
18505
18913
18078
60161
19109
18286
18506
19187
19109
18298
18164
19106
19108
20761
20680
18917
18600
20676
18288
19110
18916
19107
18300
18077
18166
18076
18256
18367
18299
19190
19189
20755
20751

Envelope of prints from RF cavity drawing photos

English Electric Co Sales colour photo of model of power plant

Drawing BR.310-010 Part view from outside the magnet ring showing input feed to bias winding

Nimrod explanatory diagram photos

21326 Principle of 2 cavity RF separators
21331 Nimrod hydraulic plunging mechanism

21340	ditto in colour
HL 19635 1964	RF System
HL 19637 1964	RF Power Supply in colour
HL 19636 1964	Vacuum system in colour
HLC19639 1964	Vacuum system schematic
HL48023	Nimrod RF cavity in colour
3589	Nimrod and the experimental halls colour map
3573	Elementary Particle Physics, colour poster
3574	Above part 2 1964

Batch of A3 prints of RF cavity

HLC 19638 1964	Proton Injector
3282	Cutaway of Nimrod buildings
HLC 48026	Nimrod Rf cavity colour
HL48022	ditto
HLC48024	ditto
HL48021	ditto
HL48020	ditto
HL48025	ditto
21327	Superconducting RF Particle Separators

P Bowles, project engineer, 40 Photographs of Nimrod, in binder, mainly civil engineering record:

HL3583	cutaway of buildings
HL7001	map of buildings
HLB4951	cross section of magnet octant
A/5565	Opening up site July 1957 *****use these?
A/5939	Excavation of "Bowles Hole"
A/6067	Setting out foundations
A/6586	Steel Reinforcement for magnet foundations
A/6985	Magnet room foundations in course of construction
A/7015	Construction of magnet room with experimental hall area in foreground
A/7263	View of shielding bridge taken from experimental area
HL4918	View of shielding blocks taken from experimental area
A/7157	Construction of magnet room and magnet ring
A/7945	Construction of experimental area
A/7305	Construction of roof of magnet room
A/7673	General view of magnet room prior to machine construction
A7666	Empty machine room
A9059	Man on Magnet octant *****use this
HL3254	
HL4139	
HL4123	
HL4130	

Marston Excelsior Ltd Photos
2815-2837 Engineering appraisals ??
2839-2844 sector delivery?
3070-71

A/8178 Early stage of magnet construction
HL1950 Installation of magnet coils
HL319 section of magnet showing coil ends
HL3065 cooling circuits for magnet coils
A/10373 view of magnet octant after assembly of magnet coils
HL4124 view of magnet throat prior to installation of pole pieces
HL4130 Locating a pole piece in magnet throat
HL8657 testing bay for vacuum vessels
HL1476 Testing a vacuum chamber
HL7516 View of octant with outer chamber installed
HL7517 Outer vacuum chamber n position in magnet
HL11442 Inner vacuum vessel being installed
HL3984 RF Accelerating cavity
HL18473 straight section box being installed between magnet octants
HL18471 Installation of beam extraction box and general view of octant
HL18474 Magnet octant complete with vacuum pumps
A/7891 HT equipment for injector
A/7899 DC Gun for injector
HL5062 RF Linac and vacuum tank for injector
HL18467 Injector high energy drift space and debuncher
A/10050 Construction of main rotary plant foundation block
HL14391 Lining up rotary plant for magnet power supplies note size of bolt!
*****use this
HL8386 Converter equipment for magnet power supplies
HL3757 Ditto
HL18475 Magnets for beam transport equipment in heavy lab prior to
assembly in experimental area.

Nuclear Engineering Vol 4 No 37, April 1959 with article on Construction of Nimrod
Includes article by P Bowles, Project Engineer. And contractor List (mostly UK)*

Reprint version of above. 3 copies

SRC RL NIMROD 7 GeV Proton Synchrotron Pamphlet 100/1 1966 3 copies

Ditto 100/2/1 Rev 1968 1 copy*

Ditto Rev 1974 *

RHEL NIRNS version Ditto 4 copies*

RL SRC NIMROD 7 GeV Proton Synchrotron Leaflet 100/2 4 copies*

Ditto Issue 3 1 copy The main change is the map showing a huge extension to the experimental area of Nimrod, R55, and the new Atlas Computing Buildings*

Ditto issue 4 1 copy

Reprint from Proceedings of the International Conference on High Energy Accelerators and Instrumentation- CERN 1959. "7 GeV Proton Synchrotron (NIMROD)" TG Pickevance.

Newspaper cutting from The Telegraph, 1.6.59, Britains Biggest Proton Machine Named Nimrod.

RL Technical Leaflet, E10, List of NIMROD and PLA contractors.

Table 1(I) Nimrod Parameters

Nimrod, Philosophy on Controls BGL 14/11/60*

Nimrod, Control room layout Proposals, BGL, R12, 26/10/60 *****suggesta scan of this drawing*

RICS, Precise Surveying in Construction of Nimrod, the 7 GeV Proton Synchrotron, DW Berry, reprint from The Chartered Surveyor, April 1961

Photocopies taken from Rossiter and Brown on the main building for the 7,000,000,000 (electron volt Synchrotron) Institution of Civil Engineers Proceedings October 1961?

1st Copy of Orbit, July 1962, with good coverage of Nimrod news.

Vacnique, Vol 2 No 7 July 1962, Special Nimrod Edition, 2 copies.

Memo, Nimrod progress report, request for contributions, Issued by BGL, R35, 7/3/63

Paper 4103P 16/10/62, Proceedings IEE, vol 110, No 3, March 1963, Bowles, Hadley, Marchbanks, NIRNS, Magnet Power supply for the 7 GeV proton synchrotron Nimrod, part 1, General

Ditto, paper 4104P, Fox, part2, Rotating Machines

Ditto, paper 4105P, Rollig and Hodle, part 3, Mercury arc converters

Orbit, 14th issue, August 1963, first operation of Nimrod.

Orbit, 15th issue, September 1963, Nimrod reaches design energy.

Harwell Bulletin special notice, no 63/34 for week 2nd September 1963

First operation of Nimrod- a simple explanation, LCW Hobbis, R1, 3/9/63

Orbit, 26th issue, August 1964, First years research on Nimrod.

Orbit, Dec 1964, Oxford Visit*

NIRL/R/97 NIRNS, Nimrod commissioning leading to the first 7 GeV operation, Billinge, Boyd, Gray, Hobbis, Mullett, Wilde, RHEL 1965.*

Memo, Nimrod report part 2, new target date., LCW Hobbis, 25/3/65*

Memo, Nimrod Report, part 2, LCW Hobbis, 25/3/65*

NIRL/R/44 NIRNS, Nimrod a 7GeV proton synchrotron (part 1), edited by BG Loach and B Southworth, RHEL 1965*

Orbit Number 42, December 1965, Nimrod power failures

RL Bulletin, No 16/65, 3 May 65, further rotor failure in alternator 2

Drawings

BR100-139 Diagnostic Equipment, Nimrod, Dec65

BR100-140 Targets & Beam Outlets

BR200-003 Injector System

Orbit 36, June 1965, with item on Open day*

Orbit 33, March 1965 with item on power failure

Orbit, December 1964, with BGL article on Oxford Physics visit, *****repro this*

Orbit 44, Feb 1966, with item on boosting Nimrod

Letters, from US Atomic Energy commission, Italian Nuclear Energy, and others re receipt of Nimrod report part 1, June 1965.*

A Nimrod Celebration”, memo regarding party., 19/9/66

RHEL/R 209 Some engineering aspects of the Nimrod thin septum extraction systems and components, DR Moore, 1970

RL Bulletin 17, sep 1974,

RL Bulletin 3, Feb 1975.

RL-75-178, The RF system for the 70 MeV linac injector, CW Planner, Dec1975

RL Bulletin 3, February 1978.

RL Bulletin special issue 12th May 1978, Events to mark the closure of Nimrod.

Letter of invitation to BGL from Dr Stafford, June 1978, re commemoration event.

Memo, enclosed lapel badge for event on 27th June

Programme for commemoration event, x 2

Buffet menu for commemoration event

RL Bulletin 12, July 1978

RL Bulletin, special issue, June 78, events to mark closure of Nimrod.

RL Bulletin 10, June 1978, Goodbye Nimrod

RL Bulletin 11, July 1978, Nimrods last shift

RL Bulletin 2, Jan 1979

RL Bulletin 3, Feb 1979, dismantling

NIMROD, the 7GeV proton synchrotron, proceedings of a Nimrod commemoration evening held at the Rutherford Laboratory on 27th June 1978, J Litt, 1979*

RL Bulletin 3, Feb 1980, Long live SNS

Newspaper item cutting, "Export of bubble chamber" to CERN, 1963

Maintenance Handbooks (nimrod):

Sample PVC binder, (previously used for BMC Motor service parts list), this format was adopted.

Sample binders, signwritten for NMH , green and dark blue

Nimrod Maintenance Handbooks:

NM1/00/1 Introduction to Magnet, May 1965

NM2/00/1 Introduction to the Injection system, June 1966
 NM2/13/1 Introduction to the HT Platform, June 1968
 NM2/15/2 Light Signalling System (fibre optics for isolation)
 NM2/16/2A Extraction Pulse supply unit
 NM2/20/1 DC Gun (pre injector)
 NM2/21/1 Ion Source
 NM2/22+23/1 Ion Column (accelerating tube) and focussing electrodes
 NM2/36/1 Buncher
 NM2/36+63/1 Buncher & Debunching tuning systems
 NM2/48/2 Injector Liquid Air System Mk II
 NM2/50/1 Linac RF Power Supply System
 NM2/69/4 Beam Chopper

NM3/00/1 Introduction to the RF system
 NM3/20/1A Mk 1 Bias Supply (PartA)
 NM3/20/1B Mk 1 Bias Supply (Part B)
 NM3/20/6A Mk II Bias Supply (PartA)
 NM3/20/6B Mk II Bias Supply (Part B)
 NM3/40/13 Mk II PFG Oil Temperature control system
 NM3/47/1 Peaking Strips (magnet auxiliarySystems)
 NM3/53/2 Beam Phase Detector
 NM3/53/3A Beam steering and Beam Spill Circuitry (part1)

NM4/00/1 Introduction to Nimrod Vacuum system
 NM4/01/1 Nimrod ring vacuum control system: Mk 1 modified

NM5/80/1 Primary ripple filter: Introduction and location of equipment
 NM5/80/2 Primary ripple filter Main amplifier equipment
 NM5/80/6A Primary ripple filter Cable schedule

NM6/01/1 Introduction to the Nimrod Timing system
 NM6/01/3 Distribution and simulation system for magnet timer and associated pulses
 NM6/31/6 Main magnet & pole face windings, temperature monitoring system

NM30/33/1 Stabilized DC Supply Units

End of Nimrod maintenance handbooks

Late additions

Letter ref office move 1967

Sites for the proposed CERN 300 GeV proton synchrotron may 67

Blue paper DES The proposed 300 GeV accelerator, 1968

Atlas, brochure 1967

Large organogram of senior staff only, not bgl, 1976.
NM6/01/1 table 1 timing sequence

1970 on Computing

Guide to Fortran IV programming, McCracken, 1965*

All reports mentioned in section

BETAMU*

DUBACC*

RPP/N23 SNS study*

EPIC drawings*

Sketch 1 1973*

Sketch 2*

Sketch 3 x2*

Sketch 4*

RL-73-068*

Misc paperwork (EPIC):

Bulletin 13 April 73

Bulletin 14 April 73

Atlas Computer Laboratory brochure, 1973, x2*

EPIC scheme 2 site layout

RL-74-054

RL-74-086 SYNCOST x2*

Bulletin 19 October 74

Various EPIC photos of posters, overlay aerial etc

Colour photos aerial shots by contractor 1974

Newspaper cutting 1974 re hover train track.

EPIC Rf structure drawings

Aerial shot overlay visual aid

16/1/75 Terminal listing re skiing equipment

More photos of EPIC posters, press material etc*

Photos of SNS posters, overlays etc*

RL-77-030/A*

Bulletin 3 Feb 1977

RL-77-033/B FOCPAD*

Harlequin December 77 BGL 30 years*

Drawing CWU/R5/3676 Extension to R5 for SNS

More SNS promotion prints

Terminal record from computer of someone using the network log as email! Someone at CERN wants his ski things taken over! 1975

End of section

ICF

Letter from DEC and quote concerning removal of PDP system to ERCC, dated 9 december 1971

Brochure, computing at the RL, 1978.*

Letter dated 11 sep 79 regarding strike absence.

Form AL54

Colour photos of Margaret Thatcher at RAL, :

85RC5084

85RC5187

85RC5090

85RC5100

PROFS/01/85 Instructions for sending mail outside PROFS, 1985

Speech notes for DEC-10 closure sep 1985, BGL*

Forum 85, Nov/Dec with item on DEC 10 closure*

Latter dated 3 dec 1985 announcing his retirement to various*

Letter from ERCC dated 9 dec 85 regarding retirement*

Invitation to Radar commemoration Jul 1985.

Envelope with retirement party documents

Bulletin 24 mar 86 re retirement*

Forum 86, March/April, DEC 10 item part 1*

Forum 86 July/August DEC 10 letter*

Edinburgh Dec 10, a biography, BGL, the whole article as submitted.*

Papers relating to consultancy Feb 86 – May 87

History of SERC ERCC Dec system 10 installation, draft

History of SERC ERCC Dec system 10 installation, final script

RL-87, History of SERC ERCC Dec system 10 installation, B G Loach, august 1987.*

Late additions

Post Nimrod 1970 - 87

RL-77-033/B, Users guide to FOCPAD, (improved FOCPAR)", BGL, March 77

Bull 10-24 jan 77, PIA celebration at Blewbury 25 years.

Documents relating to consultancy, invoices etc.

Several copies of the DEC-10 report.

Letter from ERCC wishing happy retirement. 9.dec.85

Letter 11 sep 79 informing his absence on 22 jun 79 on strike action is unauthorised with various consequences!

3 dec 85 letter declaring his retirement sent to sites. Retiring 11th.

Party on 9 dec85 at the Crispin in Harwell village. 12 – 2.

END of biography material

Additional material

AERE etc

AERE News, various, Dec 55 – 77, princess Margaret 56.
Harlequin various 1959-1967 and 75-79 , Dr Who, IBM 370,
Quest various 74-75
Science Review Autumn 1960 no 37
Newspaper cutting, Harwell makes plutonium, mar 7 48
News cutting Mar 24 61, RRE director leaving
News cutting Penley for CBE, RRE.
Memory of D day at Harwell, news cutting jun 9 61
New Scientist re Lovell Radar , copies, 1982
Red file BGL childhood and later news cuttings
2 files Personal work ACRs etc
RL, Magnetic levitation, a new principle, undated
NIRNS letter from Pickavance to staff re mayor of Abingdon appeal 1962
Handbook scientific apparatus and instruments as shown at Physical society exhibition 1952
UKAEA annual reports, 1- 8, 1954-1962
Atomic Energy, US white paper, 1945
Science Research Council booklet 1973
RL annual reports, 2-7, 1958-1964
SRC report 1965-66
AERE Library and Information Services, mar1960.
Ditto 1960
Harwell, careers in nuclear engineering, 1959
AERE The Atomic Energy Research Establishment, 1950
AERE Open days 1956
NRPB Individual monitoring of persons exposed to external sources of radiation, 1970
Fire precautions at Harwell

MRC radiobiological Unit, list of demos, 1959
Open day 29th May 1954,
A plain mans guide to Zeta, Manchester guardian booklet, the answer to all power needs.
Harwell welfare fund concert, mar 23rd 1955
Safe from Radiation, leaflet, Harwell
AERE Harwell, Research Reactors folder, set of leaflets including PLA etc
AERE harwell booklet, late 50s
Harwell education and training, folder, 1970
AERE research reactors Division, Open days, 6th 7th April 1962
Cartoon from punch, “knocking off time at Harwell”
Harwell handbook, early 60s
AERE xmas card
AERE open days 1956\
Plan of Harwell site
Atoms at work, leaflet
Glossary of atomic terms 1980
White paper Accident at Windscale No 1 Pile on 10th October 1957
UKAEA leaflet , 1963
The Future organisation of the UK AE project, 1953, white paper
The effects of the atomic bombs at Hiroshima and Nagasaki, 1946.
The hazards to man of nuclear and allied radiations, 1956
Statements relating to the atomic bomb, 1945
Atomic physics, an authoritative film, GB instructional Ltd
Atom Train, guide to travelling exhibition, 1947
Nuclear power in Britain, early 60s
Atoms at work, leaflet, exhibition at Headington, 1963
Atom, UKAEA monthly, dec 1957, Windscale etc
Atom annual report 1960
Ditto 1956
Ditto 1957
Ditto 1958
Ditto 1961
AERE xmas card
Ditto
Ditto
Ditto
UKAEA staff handbook, 1957

RAL etc

Culham Laboratory Open days may 73
IBM hollerith card punched with Davids birthdate
Large selection of Orbit, no 1 62 – no 47, 1966.
Bulletin, various, 1965 – 1979
Extract from Engineering, jan 3 1958, showing proposed Nimrod
Janet Trotman leaving, 1979

Rushcommon House booklet
Selection of RAL headed notepaper
Safety at the Rutherford Laboratory, 1972
NIRNS leaflets, Nimrod & PLA, brown version, 6 copies
How to reach RL, 2 copies
Rutherford Lab Press visit, 19th May 1966,
Ditto, 22nd April 1964, 2 copies
RL Open days 1970, 2 copies
RL Past and Present, 1978, 3 copies
RL Open day 19th May 1966, 4 copies
The RHEL, NIRNS, 1962
Welcome to RL, 1976, 3 copies
Ditto 1979, 2 copies
RL Official opening ceremony 1964, BGL notes
Nimrod families day, 10th June 1978, leaflets
The RL, brochure, 1978, 2 copies
Ditto, 1977, 3 copies
RL open day 25th April 1964, photocopy
Rutherford, central laser facility, inauguration, 17th June, 1977, RL-77-065/C
The work of the RL, 1976, brochure
Ditto, 1977, 2 copies
RHEL opening ceremony visitors kit
Ditto, set of leaflet handouts in ring binder
Envelope of tech leaflets for same
Another
File relating to above
File of early tech leaflets
Visitors and Tea tickets for open day 1966
Ring binder relating to press visit 64, press cuttings etc
Script for film?? 2nd March 64, PROD.C/680

RHEL Nominal roll, by groups, and by name, 1965
Ditto, 1969
Office layout kit
RL Senior staff organogram 1976
Various posters, large format photos etc.

Additional info

Dates in offices

59-60 412

59-60 R12
60-61 R12
61-62 R35
1964 R2 and R12
1966 R20
1965 R2
1969 R2
1973 R1, 2.59
1976 R1

Artefacts

TR3523 unit including magnetron with adjustment tool

Case of waveguides and parts for Test Set 232

Examples of Imperial to American waveguide matching transformers

Experimental all metal triode vacuum Ionisation gauge?.

Various corrugated waveguide experimental samples

Neon bulb?

Micrometer adapted for use with waveguides?

Cores from bore into chalk for Nimrod??

Sign: PLA Maintenance Handbook, Machine Copy No 1., Please return to this filing cabinet.

TRE Circular Circle Diagram Drawn by JP Turner 1943, framed up by BGL/Walker & Loach

Quantity of UNO stencils marked RHEL for drawing circuit diagrams as commissioned by BGL

More Artefacts

Picture framed photo of Lin acc 0.5Mev with explanatory drawings which are faded.

Audio tapes , reel to reel

Nimrod, ITV series?

1, 2.12.55 Cockcroft
Pickavance

2., 2.12.55 H G Bethe
J M Dickson

Discussion

RAL Lecture?, 2 reels, Conference at RAL, circa 1955? US accelerators, Bevatron etc

2 off 7 inch reels similar, later date after the above, 2/12/55

7 reels, accelerators, similar, later date, after the above

“1 large reel, Faraday Lecture 1969” “Acquisition No 73”

1NAB reel, converter needed.

1 Box slides, probably visual aids, 1963 to Epic?

Large box misc slides, SNS, colour magic lantern slides ?TRE metal parts, slides for
EPIC dreams, also rolls of FR80 output from GRARDS.

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* Means some or all of the item marked has been decanted from the main archive to the
sub store.