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Title scientific research in British universities

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Introduction

THIS volume provides brief notes on scientific research in progress in British universities and associated institutions, in colleges of advanced technology, national colleges, regional technical colleges in England and Wales, and in equivalent colleges in Scotland and Northern Ireland during 1962-63. It describes the nature of the projects in sufficient detail to indicate the scope of the research done by the various science departments and individual teams of investigators, but does not refer to the social sciences and industrial administration except where work in these fields normally occurs within the science faculty (universities) or technology department (colleges of technology). The Warren Spring Laboratory of D.S.I.R. maintains an index of current research in the human sciences, and this material has been published by H.M. Stationery Office in the " Register of Research in the Human Sciences 1960–61 ".

The entries are arranged in alphabetical order of university, each university, college, or institution being numbered to facilitate reference according to the code listed on pages vii-xix. The numbered sections within each organization are arranged alphabetically by subject and a list of the subject headings used is given on pages xx-xiv. The work of each department or administrative group has usually been kept together but, as far as possible, has been entered under the appropriate conforming subject heading.

The numbers quoted in the name and subject indexes refer to the institution and subject concerned—in that order, e.g. 5–3, Cambridge, Anthropology.

Part I lists the universities, and the colleges of technology are listed in Part II; but the colleges that receive grants from the University Grants Committee—the Manchester College of Science and Technology and the Royal College of Science and Technology, Glasgow—are listed with the universities as in previous volumes.

The head of each department is named together with members of the permanent staff actually engaged in supervising research. Temporary staff, or staff too junior to supervise research students are not mentioned; nor are the research students themselves.

One of the criteria applied to the entries from the universities that the research must be one " on which information has been published by the staff of the department within the last four years " has not been applied to the returns from the colleges, as their volume of research is rapidly expanding and much of that now actively pursued is fairly new. As far as possible the subject headings for work within colleges are the same as those used for the universities.

Publication continues to be sponsored by the Department of Scientific and Industrial Research under an arrangment with the British Council. As in previous years the material for Part I has been collected by the British Council from the heads of departments, who alone are responsible for the entries. The material for Part II has been collected by the Headquarters Information Division of D.S.I.R., with the co-operation of the Committee of Principals of Colleges of Advanced Technology, from the heads of the colleges, who are responsible for the entries in that section.

Department of Scientific and Industrial Research,
State House, High Holborn,
*London, W.C.*1.

and

The British Council,
65, *Davies Street,*
*London, W.*1.

April, 1963

List of Universities

Code No. *Page*

1 **Aberdeen University** 1
Aberdeen, Scotland.
Telephone: Aberdeen 24367

2 **Belfast: Queen's University** 8
Belfast, Northern Ireland.
Telephone: Belfast 30111

3 **Birmingham University** 17
Birmingham 15.
Telephone: Selly Oak 1301

4 **Bristol University** 38
Bristol 8.
Telephone: Bristol 24161

5 **Cambridge University** 50
Cambridge.
Telephone: Cambridge 58933

Durham University
46, North Bailey, Durham.
Telephone: Durham 3355-6

6 Durham Colleges 68
Telephone: Durham 2233–4

7 King's College, Newcastle upon Tyne 70
Telephone: Newcastle upon Tyne 28511

8 **Edinburgh University** 88
Edinburgh, Scotland.
Telephone: Edinburgh, Newington 1011

9 **Exeter University** 105
Exeter.
Telephone: Exeter 77911

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10 Glasgow University 108
Glasgow W.2., Scotland.
Telephone: Glasgow, Western 8855

11 Glasgow: Royal College of Science and Technology . . . 123
George Street, Glasgow C.1.
Telephone: Glasgow, Bell 4400-9

12 Hull University 128
Hull.
Telephone: Hull 18960

13 Keele University 131
Keele, Staffordshire.
Telephone: Keele Park 371

14 Leeds University 133
Leeds 2.
Telephone: Leeds 31751

15 Leicester University 150
University Road, Leicester.
Telephone: Leicester 24211

16 Liverpool University 154
Brownlow Hill, Liverpool 3.
Telephone: Liverpool, Royal 6022

17 Liverpool School of Tropical Medicine 168
Pembroke Place, Liverpool 3.
Telephone: Royal 7611

London University
Senate House, London, W.C.1.
Telephone: Museum 8000

Colleges

18 Bedford College 169
Regent's Park, London, N.W.1.
Telephone: Welbeck 5743

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19 Birkbeck College 171
Malet Street, London, W.C.1.
Telephone: Langham 6622

20 Imperial College of Science and Technology 175
Prince Consort Road, London, S.W.7.
Telephone: Kensington 5111

21 King's College 194
Strand, London, W.C.2.
Telephone: Temple Bar 5454

22 Queen Elizabeth College 198
61-67 Campden Hill Road, London, W.8.
Telephone: Western 3704

23 Queen Mary College 200
Mile End Road, London, E.1.
Telephone: Advance 4811

24 Royal Holloway College 205
Englefield Green, Surrey.
Telephone: Egham 3751

25 Royal Veterinary College 206
Royal College Street, London, N.W.1.
Telephone: Euston 5321

26 School of Pharmacy 208
29-39 Brunswick Square, London, W.C.1.
Telephone: Terminus 7651

27 University College 209
Gower Street, London, W.C.1.
Telephone: Euston 7050

28 Westfield College 219
Kidderpore Avenue, London, N.W.3.
Telephone: Hampstead 7601

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29 Wye College 219
Ashford, Kent.
Telephone: Wye 401

Medical Colleges, Schools and Institutes

30 Charing Cross Hospital Medical School 221
62-65 Chandos Place, London, W.C.2.
Telephone: Temple Bar 0581-4, 5256–9

31 Guy's Hospital Medical School 224
St. Thomas's Street, London, S.E.1.
Telephone: Hop 7600

32 Institute of Basic Medical Sciences 231
Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.
Telephone: Holborn 3474

33 Institute of Cancer Research. 232
Royal Cancer Hospital, Fulham Road, London, S.W.3.
Telephone: Flaxman 8171

34 Institute of Cardiology 236
35 Wimpole Street, London, W.1.
Telephone: Welbeck 1896

35 Institute of Child Health 237
The Hospital for Sick Children, Great Ormond Street, London, W.C.1.
Telephone: Holborn 2196

36 Institute of Dental Surgery 239
Eastman Dental Hospital, Gray's Inn Road, London, W.C.2.
Telephone: Terminus 7251

37 Institute of Dermatology. 241
St. John's Hospital for Diseases of the Skin, Lisle Street, London, W.C.2.
Telephone: Gerrard 8383

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38 Institute of Diseases of the Chest 243
Brompton Hospital, London, S.W.3.
Telephone: Flaxman 3707

39 Institute of Laryngology and Otology 243
Royal National Throat, Nose and Ear Hospital, Gray's Inn Road, London, W.C.1.
Telephone: Terminus 8855

40 Institute of Neurology 245
National Hospital, Queen Square, London, W.C.1.
Telephone: Terminus 3611

41 Institute of Obstetrics and Gynaecology 249
The Chelsea Hospital for Women, Dovehouse Street, London, S.W.3.
Telephone: Flaxman 9509

42 Institute of Ophthalmology 252
Judd Street, London, W.C.1.
Telephone: Euston 9621

43 Institute of Orthopaedics 254
Royal National Orthopaedic Hospital, Great Portland Street, London, W.1.
Telephone: Euston 5070

44 Institute of Psychiatry 255
Maudsley Hospital, Denmark Hill, London, S.E.5.
Telephone: Rodney 6333

45 Institute of Urology 257
10 Henrietta Street, London, W.C.2.
Telephone: Temple Bar 5361

46 King's College Hospital Medical School 259
Denmark Hill, London, S.E.5.
Telephone: Brixton 8661

47 Lister Institute of Preventive Medicine 262
Chelsea Bridge Road, London, S.W.1.
Telephone: Sloane 2181

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48 London Hospital Medical College 265
Turner Street, London, E.1.
Telephone: Bishopsgate 0644-8

49 London School of Hygiene and Tropical Medicine . . . 270
Keppel Street, London, W.C.1.
Telephone: Museum 3041; Langham 7621

50 Middlesex Hospital Medical School 273
Mortimer Street, London, W.1.
Telephone: Museum 8333

51 Postgraduate Medical School of London 277
Ducane Road, London, W.12.
Telephone: Shepherd's Bush 2030

52 Royal Dental Hospital of London School of Dental Surgery 280
32 Leicester Square, London, W.C.2.
Telephone: Whitehall 6427

53 Royal Free Hospital School of Medicine 282
Hunter Street, Brunswick Square, London, W.C.1.
Telephone: Terminus 5385

54 St. Bartholomew's Hospital Medical College 287
West Smithfield, London, E.C.1.
Telephone: Monarch 7404

55 St. George's Hospital Medical School 296
Hyde Park Corner, London, S.W.1.
Telephone: Belgravia 1716

56 St. Mary's Hospital Medical School 299
Norfolk Place, London, W.2.
Telephone: Paddington 3612

57 St. Thomas's Hospital Medical School 302
Albert Embankment, London, S.E.1.
Telephone: Waterloo 5656, exts. 23 and 356

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58 University College Hospital Medical School 304
University Street, London, W.C.1.
Telephone: Euston 5861.

59 Westminster Medical School. 306
Horseferry Road, London, S.W.1.
Telephone: Victoria 6041-2

60 **Manchester University** 309
Oxford Road, Manchester 13.
Telephone: Manchester, Ardwick 3333

61 **Manchester College of Science and Technology** 325
Sackville Street, Manchester, 1.
Telephone: Manchester, Central 3266

62 **Nottingham University** 335
University Park, Nottingham.
Telephone: Nottingham 56101

63 **Oxford University** 343
Oxford.
Telephone: Oxford 48491

64 **Reading University** 359
Reading, Berkshire.
Telephone: Reading 81771

65 National Institute for Research in Dairying 364
Shinfield, Reading.
Telephone: Reading 83103.

St. Andrews University
St. Andrews, Scotland.
Telephone: St. Andrews 1211

66 St. Salvator's College, St. Andrews 367
Telephone: St. Andrews 1211

67 Queen's College, Dundee. 369
Telephone: Dundee 22631

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68 Sheffield University 374
Sheffield 10.
Telephone: Sheffield 27451

69 Southampton University 388
Highfield, Southampton.
Telephone: Southampton 56331

70 Sussex University 393
Stanmer, Brighton.
Telephone: Brighton 61673

University of Wales
Cathays Park,
Cardiff, Wales.
Telephone: Cardiff 22656-7

71 University College of Wales, Aberystwyth 394
Telephone: Aberystwyth 346-8

72 University College of Wales, Aberystwyth: Welsh Plant Breeding Station 398
Plas Gogerddan, Bow Street,
Aberystwyth.
Telephone: Bow Street 255-7.

73 University College of North Wales, Bangor 400
Telephone: Bangor 2501

74 University College of South Wales and Monmouthshire, Cardiff 403
Cathays Park, Cardiff.
Telephone: Cardiff 20781

75 University College of Swansea 407
Singleton Park, Swansea.
Telephone: Swansea 56172

76 The Welsh National School of Medicine, Cardiff 412
34 Newport Road, Cardiff.
Telephone: Cardiff 28434

List of Colleges of Technology

Code No.		*Page*
77	**Battersea College of Technology** Battersea Park Road, S.W.11. *Telephone:* Macaulay 9191	416
78	**Birmingham College of Advanced Technology** Gosta Green, Birmingham, 4. *Telephone:* Aston Cross 3611	421
79	**Borough Polytechnic** Borough Road, S.E.1. *Telephone:* Waterloo 7654	423
80	**Bradford Institute of Technology** Great Horton Road, Bradford, 7. *Telephone:* Bradford 28837	425
81	**Brighton College of Technology** Richmond Terrace, Brighton, 7. *Telephone:* Brighton 66544–5	432
82	**Bristol College of Science and Technology** Ashley Down, Bristol, 7. *Telephone:* Bristol 41241	433
83	**Brixton School of Building** Ferndale Road, S.W.4. *Telephone:* Brixton 0944	436
84	**Brunel College** Woodlands Avenue, Acton, W.3. *Telephone:* Acorn 6661	436
85	**Chelsea College of Science and Technology** Manresa Road, S.W.3. *Telephone:* Flaxman 5747	438
86	**The College of Aeronautics, Cranfield** Cranfield, Bletchley, Bucks. *Telephone:* Cranfield 321	442

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87 The College of Aeronautics, Cranfield—Advanced School of Automobile Engineering 445
Cranfield.
Telephone: Cranfield 321

88 College of Technology, Belfast 445
Belfast, Northern Ireland
Telephone: Belfast 27244

89 Dundee Institute of Art and Technology 446
40, Bell Street, Dundee, Angus.
Telephone: Dundee 27225–6–7

90 Glamorgan College of Technology 446
Llantwit Road, Treforest.
Telephone: Pontypridd 3050, 3059

Glasgow: Royal College of Science and Technology
see under: Universities.

91 Hatfield College of Technology 446
Hatfield, Herts.
Telephone: Hatfield 4421

92 Heriot-Watt College, Edinburgh 447
Chambers Street, Edinburgh, 1.
Telephone: Caledonian 7121

93 Huddersfield College of Technology 449
Queen Street South, Huddersfield, Yorks.
Telephone: Huddersfield 7701–10

94 Kingston Technical College 450
Penrhyn Road, Kingston-upon-Thames, Surrey.
Telephone: Kingston 1127

95 Lanchester College of Technology 451
Priory Street, Coventry.
Telephone: Coventry 23522

96 Leeds College of Technology 453
Calverley Street, Leeds, 1.
Telephone: Leeds 3–6191

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97 Leicester College of Technology and Commerce . . . 453
The Newarke, Leicester.
Telephone: Leicester 23171

98 Liverpool College of Technology 455
Byrom Street, Liverpool.
Telephone: North 0558

99 Loughborough College of Technology 456
Loughborough, Leicestershire.
Telephone: Loughborough 4428

Manchester College of Science and Technology
see under: Universities.

100 National College for Heating, Ventilating, Refrigeration and Fan Engineering 460
Borough Polytechnic, Borough Road, S.E.1.
Telephone: Waterloo 7654

101 National College of Food Technology 460
St George's Avenue, Weybridge, Surrey
Telephone: Weybridge 3991

102 National College of Rubber Technology 461
Northern Polytechnic, Holloway Road, N.7.
Telephone: North 4231

103 National Foundry College 461
Stafford Street, Wolverhampton, Staffordshire.
Telephone: Wolverhampton 23955

104 National Leathersellers College 461
Tower Bridge Road, Bermondsey, S.E.1.
Telephone: Hop 2544

105 Northampton College of Advanced Technology 461
St. John Street, E.C.1.
Telephone: Clerkenwell 7521–5

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106 Northern Polytechnic 464
Holloway, N.7.
Telephone: North 1686

107 North Staffordshire College of Technology 465
College Road, Stoke-on-Trent.
Telephone: Stoke-on-Trent 48655

108 Nottingham and District Technical College 466
Burton Street, Nottingham.
Telephone: Nottingham 48248

109 Paisley Technical College 469
28–40, George Street, Paisley, Renfrewshire.
Telephone: Paisley 7121

110 Plymouth College of Technology 469
Tavistock Road, Plymouth.
Telephone: Plymouth 68000

111 The Polytechnic, London 470
Regent Street, W.1.
Telephone: Langham 2020

112 Portsmouth College of Technology 471
9, Burnaby Road, Portsmouth.
Telephone: Portsmouth 26923

113 Robert Gordon's Technical College. 472
Aberdeen.
Telephone: Aberdeen 23993

114 Rugby College of Engineering Technology 474
Eastlands, Rugby, Warwickshire.
Telephone: Rugby 4601–2

115 Rutherford College of Technology 475
Northumberland Road, Newcastle-upon-Tyne, 1.
Telephone: Newcastle 22681

116 Salford Royal College of Advanced Technology . . . 476
Salford, Lancs.
Telephone: Pendleton 5343

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117 Scottish Woollen Technical College 480
Galashiels, Selkirkshire.
Telephone: Galashiels 2327

118 Sir John Cass College 480
Jewry Street, E.C.3.
Telephone: Royal 8321

119 South-East Essex Technical College and School of Art . . 482
Longbridge Road, Dagenham, Essex.
Telephone: Goodmayes 3960

120 South-West Essex Technical College and School of Art . . 483
Forest Row, Walthamstow, E.17.
Telephone: Larkswood 2272

121 Sunderland Technical College 484
Green Terrace, Sunderland.
Telephone: Sunderland 4447

122 Welsh College of Advanced Technology 486
Cathays Park, Cardiff.
Telephone: Cardiff 37374–7

123 West Ham College of Technology 487
Romford Road, London, E.15.
Telephone: Maryland 4545

124 Woolwich Polytechnic 488
Thomas Street, Woolwich, S.E.18.
Telephone: Woolwich 2856

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[The subject headings used are those requested by the various institutions and are not mutually exclusive. The numbers refer to institutions only and not to departments.]

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Part I: Universities

1 Aberdeen University

1. Agriculture

Professor J. R. Raeburn	Economics of tropical agriculture
with D. G. Dempster	Production functions in Scottish agriculture and related economic problems
	Economics of pig production and marketing
	Agricultural price analysis
A. H. H. Fraser, M.D., Ph.D.	Sheep husbandry problems
R. Blair, Ph.D.	Determinants of muscle development in pigs
J. H. Smith	Economics of cattle marketing
J. B. Dent	Production functions in pig production and related economic problems

2. Anatomy

Professor R. D. Lockhart, M.D., F.R.S.E.	Action of muscles
	Form and function of the foot
	Anatomy of the larynx
	Anthropology of N.E. Scotland
G. F. Hamilton	Primate cerebellum
	Ultrastructure of caudate nucleus
J. McKenzie, M.D.	Congenital abnormalities: human and comparative
	Congenital deaf–mutism
	Histology and histochemistry of the hairy and non-hairy skin
	Histological, biochemical and ultrastructural changes in explanted chick embryos after the application of metabolic inhibitors
	Effect of cortisone on developing tissues
	Effect of convulsant and relaxant drugs on Nissl substance
	Adult/embryonic tissue reactions in the explanted chick embryo
A. D. Dickson, M.D.	Implantation and placentation
A. G. D. Whyte, C.B.E.	Wound healing

3. Biochemistry

Professor W.O. Kermack, F.R.S.	Complexes of metals with polypeptides
	Constituents and metabolism of invertebrate tissue
J. E. Fothergill, Ph.D.	Studies with antibodies and other proteins labelled with fluorescent tracers
	Chemistry of antigen-antibody interactions
J.W. Porteous, Ph.D.	Studies on invertase: purification and kinetics
	Culture and metabolism of *Actinomyces israelii*
	Intracellular distribution of enzymes in intestinal mucosal cells
P. T. Grant, Ph.D.	The intermediary metabolism of certain parasitic protozoa of mammals
J. L. Simkin, Ph.D.	Biosynthesis of proteins in mammalian tissues, with special reference to serum glycoproteins
D. C. Burke, Ph.D.	Studies on the biochemistry of viruses
	The production and mode of action of interferon
L. Stevens, D.Phil.	Enzyme changes associated with tumour growth

3. Biochemistry (*continued*)

Agricultural:

H. A. Robertson, Ph.D. and colleagues	Endocrinology in relation to reproductive processes Purification and biological assay of pituitary hormones Immunological characterization of pituitary hormones

4. Botany

Professor P. E. Weatherley	The uptake and redistribution of ions by roots Sieve tube translocation Soil-plant-atmosphere water relations
C.H. Gimingham, Ph.D.	Growth form of mosses in relation to habitat factors and other aspects of the ecology of mosses Ecology of heathland with special reference to *Calluna*
P.J. Faulks	Economic botany; biometry
J. Stirling, D.Sc.	Respiration of roots
D. Burns, Ph.D.	Cytoplasmic particles in root cells
F. Cusick, Ph.D.	Morphogenesis in flowers and developmental anatomy of woody stems
G. Hadley, Ph.D.	Physiology of fungi
N.M. Pritchard, D. Phil.	Taxonomic and biometric studies
A.H. Sommerville (Mrs.)	Flora of Kincardineshire

5. Chemistry

Inorganic and Physical:

Professor G.M. Burnett, Ph.D., D.Sc.	Kinetics of polymerization and oxidation Solution properties of high polymers Inorganic polymers Kinetics of crystallization of polymers
P. Meares, Ph.D., D.Sc.,	Diffusion of ions through polyelectrolyte membranes Diffusion of gases through polymers in the transition region
H.F.W. Taylor, Ph.D., D.Sc.	Chemistry and crystallography of calcium silicates Studies in the chemistry of cement
D.C. McKean, D.Phil.	Infra-red spectroscopy of silicon and boron compounds
R.A. Chalmers, Ph.D.	Analytical chemistry
W.A.J. Bryce, Ph.D.	Polymer solutions and molecular weight measurements
W. Moser	Chemistry of tin and its compounds
J. H. Binks, Ph.D.	Electronic structure of " sandwich " compounds and their reaction with free radicals Chemistry of metal carbonyls
L. Batt, Ph.D.	Kinetics of gas phase reactions

Organic:

R. H. Thomson, D.Sc., Ph.D.	Chemistry of natural colouring matters. Free radical reactions in solution
O. C. Musgrave, Ph.D.	Organo-boron chemistry : aromatic chemistry
D. R. Hogg, Ph.D.	Chemistry of sulphenyl halides, electrophilic additions to olefins, and related kinetic studies
K.C.B. Wilkie, Ph.D.	Structural studies on plant polysaccharides particularly those from mosses and ferns. Fractionation of polysaccharides

6. Engineering

Professor J. Allen, D.Sc. G.A. Taylor, Ph.D. G.D. Mathew, Ph.D.	Hydraulics: studies of open channel flow and of wave motion; scale models of rivers, harbours, spillways and various features of hydro-electric projects
J.C. Grassie, D.Sc. R.G. Smith, Ph.D.	Analytical and experimental studies of reinforced and prestressed concrete and of other structural members

6. Engineering (*continued*)

H. Hampson W.M. Ogston J. S. Turton	Heat transfer; condensation of vapours on tubes with extended surfaces; refrigeration
E. Wilkinson, Ph.D. A.M. Hardie, Ph.D. J.C. Earls	Discharge over dielectric surfaces; instruments for measurement of symmetrical component quantities; servomechanisms ; non-linear dynamical systems ; electronic analogue computer techniques

7. Forestry

Professor H.M. Steven, C.B.E., Ph.D.	Silvicultural and ecological study of native pinewoods of Scotland
W.M. McNeill, M.B.E.	Natural regeneration studies
P.W. Davis	Costing investigations in private forestry
J. S. Murray	Forest pathology
M. Crooke, Ph.D.	Forest entomology

8. Geography

Profesor A.C. O'Dell	Scotland; Scandinavia; geography of transport
K. Walton, Ph.D.	Scotland; coastline geomorphology
R.E.H. Mellor	Europe and northern Asia; demography
J. R. Coull	Northern Europe; Scotland
P. Hamilton	Tropical agriculture; Africa; rural settlement
A. Small	Scotland ; historical geography ; prehistoric settlement

9. Geology and Mineralogy

Professor T.C. Phemister D.Sc., Ph.D., D. de l'U.	Application of experimental studies to the conditions determining physical and chemical equilibrium in
W.E. Fraser, Ph.D.	crystalline rocks with special reference to the Scottish Highlands and Canada
M. Munro, Ph.D.	Petrology of the basic complex at Huntly Petrology of the Younger Granites of N.E. Scotland
G. Downie	Mineralogy of the low-grade Dalradian rocks near the Highland Boundary Fault
A.K. Pringle	Geophysical interpretation of sub-surface structures
F.E. Tocher, Ph.D.	Petrology of the Ballater-Strathdon area Crystal optics
W. Welsh	Petrology and sedimentation of the Torridonian rocks of Rhum
E.A. Tait	Sedimentation conditions of Old Red Sandstone of N.E. Scotland

10. History and Philosophy of Science

W.P.D. Wightman, Ph.D.	Science in the Renaissance The library of Dr. Duncan Liddel (*c.* 1580-1612)

11. Mathematics

Professor E.M. Wright, D.Phil.	Theory of numbers; partitions Difference-differential equations Asymptotic expansions
H.S.A. Potter, D.Phil.	Abstract algebra
E.M. Patterson, Ph.D.	Algebra
F.W. Ponting, Ph.D.	Algebra of matrices
A.J. White, Ph.D.	Multiple Fourier series
C.St.J.A. Nash-Williams, Ph.D.	Theory of graphs
M.M. Robertson. Ph.D.	Partition theory

12. Medicine

Professor H.W. Fullerton, M.D., and staff	Lipaemia and thrombosis Fibrinolysis Treatment of coronary thrombosis
K.N.V. Palmer, M.D.	Viscosity of bronchial secretion
M. Macleod, M.D.	Renal function Hepatic and renal biopsy

13. Microbiology

Bacteriology:

Professor A. Macdonald, M D.	Virus infection of the skin Fluorescence microscopy
M.G.McEntegart, M.D.	Oncogenic viruses
R. Postlethwaite, M.D.	Epidemiology of *Erysipelothrix rhusiopathiae* infection
H.G. Smylie, M.D.	Bacilluria in women
G.C. Turner (Miss) T.M. Bell	Adenovirus infections

14. Obstetrics and Gynaecology

Professor Sir Dugald Baird, K.B., M.D., LL.D., D.Sc.	Epidemiology in obstetrics Causes and prevention of stillbirths and neonatal deaths
A.C. Turnbull	Uterine contractility Structure and physiology of cervix Anticoagulant prophylaxis in gynaecology
A.M. Thomson	Nutrition in pregnancy
K.J. Dennis	Water and electrolyte shifts in labour Amniotic fluid volume and composition
J.A. Shanks	Chromosome analysis in spontaneous abortion Hormone effects on microcirculation
*F.E. Hytten, Ph.D.	Physiology of pregnancy and lactation
*R. Illsley, Ph.D.	Sociology in obstetrics
*W.Z. Billewicz	Statistical aspects of obstetric medicine
*P.S. Brown *A. Klopper, Ph.D.	Endocrinology in obstetrics and gynaecology
*D.B. Paintin	Anaemia in pregnancy
*A.B.M. Anderson (Miss)	Uterine contractility in pregnancy and labour

15. Paediatrics and Child Health

Professor J. Craig	Incidence of disease in the N.E. region of Scotland
N.S. Clark, M.D.	Bronchiectasis
W.H. Galloway	Late results of meningitis
H. Thom (Mrs.), Ph.D.	Paediatric biochemistry
E. McKay	Dysmaturity

16. Pathology

Professor A.R. Currie	Pituitary cell structure and function; endocrine pathology
A.L. Stalker, M.D.	Microcirculatory studies on the effects of macromolecular substances on erythrocytes Tissue fibrinolysin in renal failure
A.W. Branwood, M.D.	Tissue culture studies of arterial intima Effects of various lipids and hormones on arterial intima
A.J. Carr	Enzymological studies of experimental tumours Effects of enzyme inhibitors on malignant tumours
P.V. Best	Vascular lesions in the brain stem
G.B. Scott	Jejunum in malabsorption states

*M.R.C. Obstetric Medicine Research Unit

17. Pharmacology and Therapeutics

Professor A.G. Macgregor, M.D.	Assessment of therapeutic procedures Factors that modify response to radiation
J. Crooks, M.D.	Radiotherapy and radiobiology of the thyroid gland Influence of stress and drugs on endocrine control systems Statistical techniques in the diagnosis and treatment of disease Therapeutics of malabsorption
M.B. Roberts, D.Phil.	New methods, and their clinical application, for the estimation of catecholamines and their metabolites
M.J. Williams	Influence of endocrine glands on the gastrointestinal tract Diagnostic methods in the study of the malabsorption syndrome
T.M. Forrester	Studies on electrolyte changes in hypertension

18. Physics*

Professor R.V. Jones, C.B., C.B.E., D.Phil.	Optics Infra-red spectroscopy. Design. Crystal growth
D.M. Finlayson, Ph.D.	Low temperature semiconductors
H.D. Griffith	Medical physics
D.A. Jones, Ph.D.	Crystal growth
R.W.H. Stevenson, Ph.D.	Optical properties of crystals
C.W. McCombie, Ph.D.	Thermal fluctuations Theory of solids
J.C.S. Richards, Ph.D.	Electronics Nuclear magnetic resonance
T. Smith, Ph.D.	Magnetism Lattice dynamics
E.W. Elcock, Ph.D.	Statistical mechanics Information theory Stochastic processes
C. Strachan, Ph.D.	Quantum field theory
A.E.M. Geddes, O.B.E., D.Sc.	Seismology

19. Physiology

Professor J.L. Malcolm	Conditioned reflexes and the electrical activity of the central nervous system in relationship to behaviour Pharmacology of the central nervous system Physiological aspects of schizophrenia
H.W. Kosterlitz, M.D., D.Sc.	Action of morphine on autonomically innervated effectors Analysis of the peristaltic reflex in the isolated ileum
B.F. Matthews	Renal function in the pregnant rat
J.E. Gelman (Mrs.), M.D.	Electron microscope appearances of superior cervical ganglion in the rat
M.W. Goldsmith	Bone metabolism and parathyroid activity in rodents
G.R. Hervey, Ph.D.	Regulation of energy balance

20. Psychiatry

Professor W.M. Millar, M.D.	
†G. Innes, M.D. †G. Sharp	Epidemiological studies of psychiatric breakdown in N.E. Scotland

*In Scotland the term "Natural Philosophy" is used
†M.R.C. Grant

20. Psychiatry (*continued*)

A.H.C. Sinclair-Gieben, M.D.	Psychological studies in peptic ulcers Studies in hypnosis Clinical study of early schizophrenia
*J.A. Baldwin	Study of relationships between the mental health services and psychiatric morbidity in N.E. Scotland
J.J. Kear-Colwell	Study of factors determining patient allocation to different types of psychiatric service; the effect of this allocation on the forms of treatment given and the effectiveness of treatment

21. Psychology

Professor R. Knight	Applied (including educational and occupational) psychology
A.E. Bursill	Psychoneurology of attentive processes in normal, stressful and pathological conditions
E.D. Fraser (Miss), Ph.D.	Model psychoses Personality factors in perception Child development and educational psychology
R.L. Reid	Perception Animal and human learning Automatic teaching
J.W. Shepherd	Perception
J.R. Symons, Ph.D.	Sensory interaction

22. Public Health and Social Medicine

Professor E.M. Backett I.M. Richardson, M.D. Ph.D. R.D. Weir C.J.H. Mann S.J. Kilpatrick	A medical and sociological sample survey of old people in N.E. Scotland ; epidemiology of accidents ; various studies in the epidemiology of chronic disease including peptic ulcer and cancer ; studies of medical care, particularly in general practice

23. Soil Science

J. Tinsley, Ph.D.	Studies of soil structure
J.R.H. Coutts, D.Sc.	Studies of moisture and temperature variations in soils
E.A. FitzPatrick, Ph.D.	The nature and properties of indurated soil horizons
J.W. Parsons, Ph.D.	The effect of periglacial climate on soil formation Chemical composition of soil organic matter Biochemical aspects of the transformation of organic substances in soils Pedological factors affecting land utilization

24. Statistics

†D.J. Finney, Sc.D., F.R.S.	Experimental planning and design Theory of selection Maximum likelihood problems Biological assay Statistics in medical research
W. Brass	Medical statistics Models of birth distributions for human populations Demographic statistics Fertility and mortality of human populations

*Grant from Nuffield Provincial Hospitals Trust

†A.R.C. Unit of Statistics: Director, Dr. D.J. Finney, F.R.S.

24. Statistics (*continued*)

R.M. Cormack, Ph.D.	Equilibria of genetic systems Biometric analysis Mathematical statistics
P.R. Fisk	Economic and econometric statistics Graduation of income distributions Truncated and grouped distributions Estimation of parameters of demand curves
M.C. Pike	Mathematical statistics Queueing problems in hospital design
*A.A. Rutherford	Agricultural experimentation and survey Statistical problems of milk Fertilizer use and requirements
*M.R. Sampford, D.Phil.	Design and analysis of experiments Grassland experimentation Animal feeding trials Truncated distributions Theory of sampling
S.J. Kilpatrick, Ph.D.	Statistics of social medicine and public health Statistical epidemiology Human genetics Design of clinical experimentation
T. Khosla	Statistical aspects of obstetric medicine Sampling
*G.J. Jolly	Agricultural and horticultural experimentation
*R.L. Constable	Agricultural biometry
R.L.W. Alpine	Economic and econometric statistics
†R.C. Elston, Ph.D.	Biometric medicine Statistical genetics
†N.E. Day	Biometric medicine

25. Surgery

Professor G. Smith, M.B.E.	Hyperbaric oxygenation: effect on isolated tissues and whole organism Ischaemic neuropathies
H.A.F. Dudley	Changes in energy utilization and electrolyte balance in trauma Intestinal motility after operation Dynamics and design of the artificial kidney
C.G. Clark	Endocrine function after operation Chemotherapy of cancer Post-gastrectomy states with respect to calcium metabolism, steatorrhoea and mental disturbances
N.A. Matheson	Water and electrolyte balance after operation
J.P. Masterton	Metabolic changes following operation

26. Zoology

Natural History:

Professor V.C. Wynne-Edwards	Vertebrate ecology
G.M. Dunnet, Ph.D. D. Jenkins, D.Phil. A. Watson, Ph.D. G.R. Miller, Ph.D.	Ecology Grouse and moorland ecology
R.M. Neill, D.Sc.	Zoology of freshwater fishes History of zoology
J.R.T. Short, D.Phil., D.Sc.	Insect morphology and taxonomy of larval Hymenoptera

*A.R.C. Unit of Statistics: Director, Dr. D.J. Finney, F.R.S.

†Supported by grant from Scottish Hospitals Endowment Research Trust

26. Zoology (*continued*)

Natural History (*continued*)

S. Symmons (Miss), Ph.D.	Insect morphology
C.M.M. Begg, Ph.D.	Relation of genes to differentiation and individuation in *Drosophila:* tissue culture
P.A. Orkin, Ph.D.	Physiology of fishes
F.G.T. Holliday	
L.L. de Kock (Mrs.), Ph.D.	Vertebrate chemoreceptive tissue Physiology of ageing
D.T. Gauld, Ph.D.	Swimming and feeding in Crustacea

2 Belfast, Queen's University

1. Agriculture

Agricultural Botany:

Professor P. A. Linehan, D.Sc.	Biology of plants of economic importance in improvement of grassland
J. Lowe, Ph.D.	Methods of measuring output of plants under grazing conditions
R. H. Stewart	
P. Hayes	Yield measurement of grassland under controlled conditions of fertility and management Comparison of white clover with synthetic fertilizers as sources of plant nutrient nitrogen Maintenance of varietal purity in pedigree herbage seed production Enquiries into seed testing methods

Agricultural Chemistry:

Professor J. Houston, D.Sc.	Pedological studies and assessment of soil fertility levels in N. Ireland
K.L. Robinson	Fertilizer requirements of farm crops and forest soils
S. McConaghy J.S.V. McAllister, D.F.C., D.F.M.	Investigation of factors affecting the utilization of the major constituents in the diets of pigs and poultry with special reference to vitamins and hormones
J.W. Jordan W.O. Brown, Ph.D. A.M. Raven, Ph.D. J.W.B. Stewart	Study of variations in composition of cow's milk
J.M. Oades, Ph.D. D.A. Dickson	Herbage conservation and nutritive value of silage for milk production

Agricultural Economics and Statistics:

H.J. Shemilt T.A. Larmour	Studies of the economic structure of N. Ireland agriculture and farm management research

Agricultural Microbiology:

P. Clerkin	Microbiology of milk and milk products
J.G. Murray, Ph.D. D.J. Stewart	Study of the factors affecting the manufacture of cultured milk

1. **Agriculture** *(continued)*

Agricultural Microbiology (continued)

J.T. Patterson	Improvement in the techniques of washing and sterilizing farm dairy equipment
	The incidence of pathogenic serotype *Escherichia coli* in bottled pasteurized milk
	Subclinical staphylococcal mastitis and its affect on the official tests for graded milk
	Fundamental studies on the penetration and infection of the avian egg by *Pseudomonas*
	Biochemical studies in relation to the taxonomy of Enterobacteriaceae and of Micrococcaceae isolated from pork and pork products
	Investigations on the incidence of *Salmonella* and entero-pathogenic strains of *Escherichia coli* in broiler chicks and their importance in relation to factory hygiene
	Studies on the isolation of *Staphylococcus aureus* from meat products

Agricultural Zoology:

R. Chamberlain R.J. Willis R.D. Winslow, Ph.D. A.R. Edwards	Field and laboratory studies on the biology and economic importance of crop pests Evaluation of the relative effectiveness of newly developed insecticides under N. Ireland conditions Investigations on plant parasitic nematodes with special reference to potato root eelworm

Comparative Pathology of Animals:

Professor H.G. Lamont, O.B.E., D.Sc.	Skin reactions Control of *Corynebacterium pyogenes* mastitis
W.R. Kerr, Ph.D.	*Trichomonas suis* in pigs
J.K.L. Pearson, Ph.D.	Control of bovine mastitis ; Johne's Disease
W.A.M. Gordon, Ph.D.	Fowl typhoid investigations
C. Dow, Ph.D.	Neuropathology ; enteric conditions in pigs
J.R. Todd, Ph.D.	Hypomagnesaemia tetany and copper poisoning
J.B. McFerran, Ph.D.	Aujesky's disease ; enteroviruses
J.E.F. Rankin	Diseases of breeding
J.G. Ross	Helminthiasis in domestic and laboratory animals
G.H.K. Lawson	Enteric conditions in pigs

Crop and Animal Husbandry:

Professor J. Morrison R.W. Hale T.J. Forbes, Ph.D. D.W. Holme, Ph.D.	Pig breeding: the practical use of performance testing for breeding an elite closed herd ; breeding by sib tests for high and low carcase density, and on *ad lib.* and restricted feeding, within four closed herds
	Poultry breeding : genetic interactions in laying stock the practical use of reciprocal recurrent selection
	Studies concerning nutrition and management of pigs and poultry for commercial production
	Studies of practical problems in the conservation of grassland herbage, and in drying and storage of grain
	A study of practical aspects of high moisture grain storage
	Value of silage for winter feeding of cattle
	A comparison of methods of intensive beef production
	Intensive grazing of sheep
	Studies in the winter management and nutrition of in-lamb ewes and hoggets

1. Agriculture (*continued*)

Mycology and Plant Pathology:

Professor A.E. Muskett, O.B.E., D.Sc. J.C. Taylor E.L. Calvert C.W.R. McCreary J.P. Malone, Ph.D. C. Logan T.R. Swinburne, Ph.D.	Investigations of seed-borne fungi which behave as crop parasites; control of crop diseases caused by seed-borne parasites; diseases of potato (blight, dry rot, virus diseases), flax (seedling blight, stem-break and browning, rust, wilt), fruit (apple scab, strawberry root rots and virus diseases), vegetables (club root of Brassicae), grasses (blind seed disease of ryegrass), rose diseases, dahlia diseases, diseases of glasshouse crops (tomato leaf mould), the fungus flora of N. Ireland

Plant Genetics and Plant Breeding:

E.V.B. Wilson (Head of Department)	Breeding studies of oats, grasses, and potatoes Methods of evaluating single plants and strains in herbage grasses
D.J. Hodges	
C.E. Wright, Ph.D. K.G. Proudfoot	Field and laboratory studies of methods of infection with disease organisms in *Lolium perenne*

2. Anaesthetics

J.W. Dundee, M.D., Ph.D.	Investigation of new intravenous anaesthetics and factors influencing their action
with W.J. Love	Studies of pre-operative drugs
J. Moore	Evaluation of phenothiazines and their anti-emetic use on premedication
G.W. Black, M.D.	Evaluation of methoxyflurane
L. McArdle, M.D.	Effects of inhalation anaesthetics on peripheral blood vessels
D.W. Barron, M.D.	Induction characteristics of barbiturates
R.C. Gray, M.D.	Management of long-term cases of respiratory failure

3. Anatomy

Professor J.J. Pritchard, D.M.	Bone and tendon growth and repair The foetal membranes
W.R.M. Morton, M.D.	Mammalian embryology, chromosome analysis
J.H. Scott, M.D., D.Sc.	Studies in facial growth and tooth eruption Classification of cranial and facial form Developmental horizons in foetal jaws Studies in cleft palate
T.J. Harrison, M.D., Ph.D.	Growth of pelvis and vertebral column
J.B. Bridges, M.D.	Heterotopic bone formation Radiation biology
J.W. Clarke	Transplantation of foetal tissues

4. Biochemistry

Professor D.C. Harrison, D.Sc., Ph.D.	Enzymes and blood pigments
F.H. Malpress, Ph.D.	Intermediary metabolism in the mammary gland
I. Leslie, Ph.D.	Nucleoprotein synthesis and the changes in enzyme activity in cells growing under tissue culture conditions
D.T. Elmore, Ph.D.	Kinetic studies with proteolytic enzymes Synthesis of peptides Studies on antithyroid drugs

5. Botany

Professor D.J. Carr, Ph.D.	Experimental morphology and anatomy
	Water relations, photoperiodism, carbon nutrition, hormones and transport of assimilates in angiosperms
	Australian bryophytes and taxonomy of *Eucalyptus*
S.G.M. Carr (Mrs.)	Ecology, especially in relation to grazing on alpine catchments
	Morphology and taxonomy of *Eucalyptus* and other Australian genera
R.E. Parker	Afforestation problems in N. Ireland
	Soil organic matter
A.G. Smith, Ph.D.	Ecological and palynological studies of N. Irish bogs and archaeological sites
J.S. Pate, Ph.D.	Physiology of the symbiosis between host and root-nodule bacteria
B.E.S. Gunning, Ph.D.	Plant growth substances and morphogenesis
M.G. Hart, Ph.D.	Soil microbiology
H.M. Lee (Mrs.)	Mycology
	Morphology and anatomy of root systems of Proteaceae
B.T.O. Lee	Genetics of *Neurospora*
J.C. Whish (Miss)	Effects of magnetic fields on plants and biochemical systems

6. Chemistry

Inorganic and Physical:

Professor C. Kemball, Sc.D.	Adsorption and catalysis
	Mass spectrometric studies of catalytic reactions
	Gas and vapour chromatography
Professor C.L. Wilson, D.Sc., Ph.D.	Structure and analytical behaviour of organo-metallic compounds
	Micro- and ultramicro-chemistry
	The inorganic and analytical chemistry of the less familiar elements
R.C. Pink, D.Sc.	Electron spin resonance and free radical studies
H.G. Heal, Ph.D.	Boron chemistry
F.A. Lewis, Ph.D.	Solid solution chemistry
H. Mackle, D.Phil.	Evaluations of bond strengths
R.J. Magee, Ph.D.	Studies in radiation chemistry and ion exchange
	Polarography
	Tesla-luminescence spectra
W.D. McGrath, Ph.D.	Flash photolysis and kinetic spectroscopy
M.W. Roberts, Ph.D.	Adsorption and surface chemistry
I. Woodward (Miss)	X-ray crystallography
B.D. Flockhart, Ph.D.	Colloidal electrolytes
A.K. Galwey, Ph.D.	Thermal decomposition of solids
S.M. Nelson, D.Phil.	Studies in metal complex chemistry

Organic:

Professor H.B. Henbest, D.Sc.	The general chemistry of alicyclic and reduced heterocyclic molecules
R.G.R. Bacon, Ph.D.	Chemistry of organic sulphur compounds, including pseudohalogens
	Organic reactions and their mechanisms, particularly oxidation and reduction processes
M.F. Grundon, Ph.D.	Studies in heterocyclic chemistry
	Structure, synthesis and biosynthesis of alkaloids
C.J.M. Stirling, Ph.D.	Reaction mechanisms
	Chemistry of organic sulphur compounds
B.J. Auret (Mrs.), Ph.D.	Biosynthesis of fungal metabolites
W.R. Jackson, Ph.D.	Addition reactions
J. Grimshaw, Ph.D.	Heterocyclic chemistry and electrolytic reduction processes

7. Dental Studies

Professor P.J. Stoy	Variations in the dentitions of monozygotic twins
P. Saunsbury	Assessment of radio-opacity of denture resins
I.A. Findlay	Electromyographic studies of the orofacial musculature
	Clinical trial of lyophilized chymotrypsin
C.P. Adams	Studies on the growth and development of the jaws and dentition of children from 5 years of age
	Design and construction of removable orthodontic appliances
J.D. Eccles	Changes in the periodontal membrane with eruption of the rat incisor
W.A.B. Brown	A cephalometric analysis of parents and their children
R.J. Smith	Studies in clean working and instrument sterilization
J. McKenzie (Mrs.)	Craniofacial development of cats studied by means of amalgam implants
W.H. Douglas	Setting mechanism of zinc oxide-eugenol mixtures

8. Engineering

Aeronautical:

Professor A.V. Stephens	Simplification of manual control
	Flow past resilient surfaces
	High-lift devices
L. Squire	Boundary layer fluid injection
	Flow over bluff bases at supersonic speeds
J.L. Horne	Properties of turbulent boundary layer

Civil:

Professor A.H. Naylor	Stability of filled embankments
	Energy losses at bends in channels
W.G.Gooden, Ph.D.	Buckling of long beams in bending and torsion
	Structural damping of prestressed concrete beams
E.H. Sidwell	Prestressing of materials
	Tensile strength of concrete
D. Bond, Ph.D.	Timber and metal compound sections
J.G. Stuart	Bearing capacity of pile groups
	Settlement studies of foundations in sand
R.H.J. Sellin, Ph.D.	Tidal beach profiles
	Flood plain flow model studies

Light Electrical:

Professor T.P. Allen	Microwave devices containing ferrites and dielectrics
J.M.W. McBride	Ferrimagnetic resonance in garnets
	Transistor applications in radioastronomy
W.D. Ryan, Ph.D.	Carrier storage devices
A.M. Rosie, Ph.D.	Storage of analogue information in magnetostrictive delay lines

Mechanical:

Professor B. Crossland, D.Sc.	Strength of materials: properties of materials under high ambient pressure, static bursting strength of thick walled cylinders at elevated temperatures, short-term fatigue of thick-walled cylinders subjected to repeated internal pressure, creep strength of thick-walled cylinders
F.J. Wallace, Ph.D	Pressure wave propagation in turbo-charging systems
	Compound engine design and performance
T.J. Black, Ph.D.	Boundary layer theory and experimental work on the growth of boundary layers
D. McCloy	Dynamic response of piston and poppet valves in automatic control systems

9. Geography

Professor E.E. Evans, D.Sc.	Folk studies Rural settlement Prehistoric archaeology
N.C. Mitchel	Urban morphology: W. Africa Medical and political geography
V.C.R. Ford	East African economic and political geography Transport
R. Glasscock	English mediaeval rural settlement
N. Stephens	Coastal evolution and denudation chronology Periglacial and glacial phenomena Climatology and drainage: N. Ireland
L.J. Symons, Ph.D.	Land use and land potential Climatology of upland areas
R.H. Buchanan, Ph.D.	Folk studies
J.C. Cruickshank	Social geography Rural settlement Soil survey in Northern Ireland Periglacial geomorphology, Arctic lands
R. Common, Ph.D.	Urban settlement: natural resources

10. Geology

Professor A. Williams	Lower Palaeozoic stratigraphy in Britain and Eire including the Yspytty-Ifan Bala district, Anglesey, Loch Mask, County Down and Balbriggan regions S. Upland fault complex Brachiopoda
J. Preston, Ph.D.	Petrological and geochemical study of the basalt lavas of the Antrim Plateau and their associated vents and feeders
W. Schwarzacher, Ph.D.	Sedimentary petrology and Irish Carboniferous
R.E.H. Reid	Cretaceous and Carboniferous sponges Cretaceous rocks of Ulster (stratigraphy) Recent Hexactinellida from the Ross Sea
R. Tavener-Smith	Visean Bryozoa of N.W.Ireland
K.A. Jones, Ph.D.	Geochemistry of metamorphic rocks Structural petrology
A.D. Wright	Ashgillian stratigraphy and faunas in Kildare, Portrane, Wales and Lake District Brachiopoda
T.B. Anderson, Ph.D.	Stratigraphy, sedimentology and structure of the Lower Palaeozoic rocks of N.E. Ireland History of Caledonian deformation in Ireland

11. Mathematics

Applied Mathematics and Geophysics:

Professor D.R. Bates, D.Sc., F.R.S. Professor A. Dalgarno, Ph.D. M. Cohen, Ph.D. B.L. D. Moiseiwitsch, Ph.D. R. McCarroll, Ph.D. A.L. Stewart, Ph.D. U. Opik, Ph.D. F.J. Smith, Ph.D.	The use of quantum mechanics in the determination of the properties of atoms and molecules and in the determination of reaction rates. Quantum chemistry. The earth's upper atmosphere
J.H. Jarrett, Ph.D.	Observational work on airglow and aurorae Exploration of upper atmosphere using rocket-borne instruments

11. Mathematics (*continued*)

Engineering Mathematics:

A.P. Roberts, Ph.D.	Optimization of control systems
A.M. Mercer, Ph.D.	Hydrodynamic stability Heat transfer in laminar motion through ducts
N.T. Dunwoody, Ph.D.	Thermal instability in fluids Viscous fluid motion

Pure Mathematics:

Professor S. Verblunsky, Ph.D.	Analysis
R. Cooper, Ph.D.	
R. Henstock, Ph.D.	Real variable
D.C.J. Burgess, Ph.D.	Algebra
R. McFadden, Ph.D.	

12. Medicine

Professor G.M. Bull, M.D., and others	Control of body water
R.A. Womersley, M.D.	Magnesium metabolism
M.G. McGeown (Miss), M.D., Ph.D., and others	Studies on renal calculi and aspects of calcium metabolism

Clinical:

Professor O.L. Wade M.D.	Studies of pulmonary function and chronic pulmonary disease in man
P.C. Elmes, M.D.	Physical properties of sputum Experimental bronchitis in rats

13. Microbiology

Bacteriology:

E.O. Bartley (Miss) M.D.	Hospital cross-infection
M. Haire (Mrs.)	Investigation of coagulase-reacting factor of human serum

Mycology:

D.W.R. Mackenzie, Ph.D.	Epidemiology and immunology of pathogenic fungi Yeast taxonomy

Virology:

Professor G.W.A. Dick, M.D., D.Sc.	Poliovirus vaccines Multiple sclerosis
D.S. Dane	Poliovirus vaccines
E.M. Briggs (Miss)	Human enteric viruses
J.H. Connolly, M.D.	Ribonuclease. γ-globulin
J.R.L. Forsyth	Pathogenesis of provocation poliomyelitis Virus diagnostic work
J.K. Clarke	Immunological studies on disseminated sclerosis
T.A. McNeill	Inactivated vaccinia virus vaccines

14. Obstetrics and Gynaecology

Professor C.H.G. Macafee, C.B.E., D.Sc. with Professor J.H. Biggart, C.B.E., D.Sc., M.D.	Ovarian tumours in childhood and adolescence
with J.M.G. Harley, M.D.	Investigation into accidental haemorrhage
H.L. Hardy Greer with T.J.M. Myles	Investigation into endometriosis
K. Greig	Morphological changes in the cervical epithelium during pregnancy
C.A.J. Macafee	Investigation of placental insufficiency

15. Paediatrics and Child Health

Professor F.M.B. Allen, M.D.	
I.J. Carré, M.D.	Gastro-oesophageal abnormalities in children Neonatal jaundice Anaemia in the newborn
M. McVicker (Miss) with I. Rastogi (Mrs.)	Analysis of type of patients cared for during a 7-year period in a maternity hospital neonatal unit of 44 cots

16. Pathology

Professor J.H. Biggart, C.B.E., D.Sc., M.D.	Studies in neuropathology The pathology of old age
F. McKeown (Miss), M.D.	
J.B. Gibson, M.D.	Studies on liver pathology
J. Willis	Experimental thyroid carcinoma
I. Allen (Miss)	A study of fever
F. McAleenan	Experimental goitre
M. McLain	Chronic pyelonephritis
N. Nevin	Pathology of head injury
A. Macafee	Blood types and disease

17. Physics

Professor K.G. Emeleus, Ph.D., Sc.D., D.Sc.	Spectroscopic and electronic research on gaseous conductors, cosmic radiation and low-energy nuclear physics
R.H. Sloane, D.Sc.	
C.S. Watt, Ph.D.	
L.W. Kerr, Ph.D.	
G.S. Higginson, Ph.D.	
A.R. Johnston, Ph.D.	

18. Physiology

Professor A.D.M. Greenfield, D.Sc.	Circulation in man Placental circulation
D.H. Strangeways (Miss), Ph.D.	Histological study of the effects of anoxia on the brain
I.C. Roddie, M.D.	Vascular physiology
E.W. Clarke	Microcalorimetry, and physiology of small blood vessels
A.H.G. Love	Circulation in relation to the alimentary canal
W.E. Glover, M.D.	Circulation in man

19. Psychiatry

Professor J.G. Gibson, M.D.	
J.G. White	A study of the effects of age on learning and memory in people of over 60 suffering from no known cerebral lesions Temporal integration and the concept of self in psychiatric patients, normal adults and children Selection of student nurses: a 3-year follow-up study
S.J. Knox	Psychiatric aspects of mitral valvotomy

20. Psychology

Professor G. Seth, Ph.D.	Educational and clinical psychology Learning: reminiscence
P. McEwen, Ph.D.	Language in relation to psychiatric and neuropathological conditions
J.R. Beloff, Ph.D.	Personality: social conformity; introversion-extraversion

20. Psychology (*continued*)

R.S. Rodger, Ph.D.	Perception: figural after-effects
R.G.A. Stretch, Ph.D.	Intellectual subnormality
M.F. McHugh	Child development, especially the development of language
	Animal behaviour: emotionality; reaction to stress
M.F. Moore	Individual differences

21. Public Health and Social Medicine

J. Pemberton, M.D.	Air pollution in relation to respiratory disease
G.C.R. Carey, M.D.	Respiratory disease in flax and hemp workers in N. Ireland
E.A. Cheeseman, Ph.D.	Design and analysis of experiments and application of
J.D. Merrett	statistical methods in all fields of medical research
P. Froggatt, M.D.	Short-term absenteeism in industry
	Genetic aspects of certain metabolic disorders

22. Surgery

Professor H.W. Rodgers, O.B.E.	Liver disease with particular reference to portal hypertension
	Diffuse lesions of the mouth and tongue
Professor R.B. Welbourn, M.D.	Results and metabolic effects of gastric operations
	Adrenocortical disorder
I.D.A. Johnston	Metabolic aspects of surgery
K. Kyle	Influence of pancreas on gastric secretion
G.P. Burns	Gastric secretion in relation to surgery of duodenal ulcer
J.A. Dickson	Metabolism of breast cancer in organ culture
M. Anderson (Miss)	Study of the interpretation by patients of the instructions and advice given them by the medical staff
C.W. Johnston	Chemotherapy of cancer
T.G. Parks	
D.M. Hancock	Auto-immune disease and tissue transplantation

23. Technology

Chemical:

D. Hamer, Ph.D.	Nucleoprotein structure
E. Tyrrall	Cyclic polymers of formaldehyde
H.S. Blair	Interactions of amino-acids and ketones
	Synthesis and properties of acetylenic and sterically hindered carboxylic acids
	Course of Perkin coumarin reaction
	Kinetics of polymerization of substituted olefins
	Entropy of vaporization
	Bonding of resins and cellulose
	Chemistry of peat wax

Textile industries:

H.J. Dorman with J. Calvert	The frictional properties of textile materials
F.W. Cox	The drying of wet spun flax yarns

24. Zoology

Professor R.A.R. Gresson, Ph.D., D.Sc.	Electron microscopy, chiefly cytology of helminths
G. Williams	Marine ecology
R.V. Gotto	Commensal and parasitic copepods of invertebrates
E.M. Pantelouris, Ph.D.	Role of plasma proteins in the growth of tumours
	Studies on the nutrition of the mammalian foetus
	Physiology of liver fluke
L.T. Threadgold, Ph.D.	Electron microscopy of helminths and photoperiodicity in birds
A. Scott, Ph.D.	Excretion and nutrition in Crustacea and echinoderms
A.E. Henderson	Respiratory schesis and ecology of freshwater pulmonate gastropods

3 Birmingham University

1. Anaesthetics

B.L.S. Murtagh	Anaesthesia for open-heart surgery
M. Green (Miss)	Use of halothane with nitrous oxide and oxygen in cystoscopy for outpatients
J.W. Woodward	Development of safe general anaesthesia for electrical pallidectomy (by stereoscopic techniques)
	Investigation into use of hypnosis in anaesthesia
J.McN. Inglis	Use of halothane/ether mixture with nitrous oxide and oxygen for general surgical procedures
	Role of halothane with nitrous oxide for outpatient dental anaesthesia
	Tests of explosibility of halothane/ether mixtures with nitrous oxide and oxygen
B.H. Smith	Evaluation of controlled respiration with negative phase in neurosurgery

2. Anatomy

Professor Sir Solly Zuckerman, C.B., F.R.S. with E.H. Ashton, Ph.D., D.Sc.	The morphology and relationships of the Primates
P. Eckstein, M.D., D.Sc.	Reproductive physiology of Primates and other mammals
R.L. Holmes, Ph.D.	The enviromental control of reproduction
W.P. Dallas Ross	Functional anatomy of the hand
A.M. Mandl (Miss), Ph.D., D.Sc.	Reproductive physiology in the female; gametogenesis
	Radiosensitivity of germ cells
S.H. Green	Quantitative aspects of gametogenesis
A.W. Rogers	Techniques of autoradiography
L.L. Franchi, Ph.D.	Ultrastructure and histochemistry of normal and atretic oocytes
	Isotopic study of oogenesis
A. Glass	Electroencephalography and neural function
Professor P.L. Krohn	The process of ageing especially in relation to the endocrine organs and the female reproductive tract
	The immunology of tissue transplantation
D. Darlington	Morphological factors in growth of the mammalian skull and biometrics
Professor J.T. Eayrs, Ph.D., D.Sc.	The interrelation of hormonal and neural factors in reproduction and in morphological and behavioural maturation
Sir Francis Knowles, Bart., D.Phil., D.Sc.	Neurosecretion in invertebrates and vertebrates
F.P. Lisowski	Physical anthropology and biometrics
G.H. Thomas, Ph.D.	Steroid metabolism
R.L. Holmes, Ph.D.	Cytology and fine structure of the anterior pituitary gland
	Neurosecretion
H.M. Beaumont (Miss), Ph.D.	Radiosensitivity of germ cells
C.E. Oxnard, Ph.D.	Functional interrelation of muscles and bones in Primates
E.C. Jones (Mrs.), Ph.D.	Process of ageing especially in relation to endocrine organs and the female reproductive tract
R.L. Cochrane, Ph.D.	Reproductive physiology of Primates and other mammals

3. Bacteriology

Professor J.F.D. Shrewsbury, M.D.	A study of the flora of human biliary and renal calculi A historical survey of certain microbial diseases of man in their epidemic manifestations, with special reference to their behaviour in England
N. Laughton (Miss) M.D.	An investigation into the presence of latent virus infections of the human vagina and cervix, and a study of *Corynebacterium cervicis* and its L-form.
K.A. Bisset, D.Sc.	The systematics of nitrogen-fixing bacteria. Actinomycetes and spiral bacteria. The microbial flora of the mouth
N.J. Cartwright, Ph.D.	Studies of metabolic pathways involved in the breakdown of aromatic nitro-compounds by bacteria, partly in relation to the survival in the soil of substances of this nature which are used in agriculture
M.B. Conran	Electrical activity of cells in tissue culture from central nervous origin
F.W. Moore	The utilization of organic compounds by soil bacteria The nitrogen metabolism of anaerobic bacteria
P.E. Pease (Miss), Ph.D.	Electron microscopy of L-forms, P.P.L.O., and gonidial forms in various bacteria
M.H. Jeynes, Ph.D.	Studies of the properties and structures of bacterial subcellular forms, including the behaviour of these organisms in tissue culture, together with an investigation of *Eperythrozoon coccoides* in mice
G.H.G. Davis, Ph.D.	A study of the natural relationships of the oral filamentous bacteria

4. Biochemistry

Professor S.V. Perry, Ph.D.	General biochemistry of muscle. Sub-unit structure of myosin and other myofibrillar proteins Nitrogen metabolism of the adenine nucleotides of muscle Foetal development of muscle proteins Nature, function and biosynthesis of proteins of brain
F.W. Norris, D.Sc.	Microbiological assay of vitamins and amino-acids in general Studies on vitamin B in the germination of cereals, in the processes of malting and brewing and in yeast
S.W. Challinor, D.Sc.	The effects of nutritional deficiences (in particular growth factor deficiencies) upon the metabolism of micro-organisms
J.S. Hough, Ph.D.	Microbiology of continuous fermentation; assessment of the age of yeast population
R.G.O. Kekwick, Ph.D.	Isolation and characterization of enzymes concerned in rubber biosynthesis from the latex of *Hevea brasiliensis*
D. Kulka (Miss), Ph.D.	Studies on a trisaccharide derived by enzymic degradation from amylopectin β limit dextrin The mechanism of the antibacterial activities of humulone
F.W.J. Teale, Ph.D.	Spectrometric study of protein structure
D.G. Walker, Ph.D.	Biochemistry of the placenta, including transfer of metabolites Carbohydrate metabolism of foetal and newborn animals
H.G. Klemperer, Ph.D.	Nucleic acid metabolism
A.P. Brown, Ph.D.	Changes in seed proteins in dormancy and germination Cohesion of plant cells in developing tissues

4. Biochemistry (*continued*)

Medical:

Professor A.C. Frazer, C.B.E., M.D., D.Sc., Ph.D.	Lipid absorption and metabolism Small intestinal physiology Composition of food and its effects on the body
with M. Sharratt Ph.D.	Effects of food additives and food processing
O.C. Forbes, Ph.D.	Functional, structural and ultrastructural changes in the tissues resulting from long-term toxicity, or from deficiency states
	Fat absorption mechanism
Professor A.C. Frazer C.B.E., M.D., D.Sc., Ph.D.	Malabsorption syndromes Gluten-induced enteropathy
with D.B. Morgan	Tropical sprue Disorders of calcium and phosphorus metabolism
M. Hayward (Mrs.)	Folic acid metabolism
F. Hunter (Miss)	Intestinal flora
P.J. O'Brien	Biological effects of oxidized fats
I.P. Freeman	
R. Schneider, M.D.	Studies on motility and secretion of the gastrointestinal tract
with H.S.A. Sherratt, Ph.D.	Pharmacological studies on natural products of tropical origin
M.R.A. Chance, D.Sc., Ph.D.	Behaviour structure and environmental factors in biological responses
J.B. Finean, D.Sc., Ph.D.	Structural and ultrastructural studies of lipid and lipoprotein systems, especially of nerve myelin Electron microscope studies of the small intestine
H.G. Sammons, Ph.D.	The nature and origin of faecal fat Methodological development in clinical biochemistry, with particular reference to the study of metabolic disease
W.F.R. Pover, Ph.D.	Radiobiology: some aspects of the relation between radiation and intestinal function Development of isotopic methods in clinical biochemistry Development of liquid scintillation counters for biological research Lipid micelles and their relation to intestinal absorption
K. Burdett	Absorption of lipids and lipid-like substances, using radioactive isotope labelled test materials
J.N. Hawthorne, Ph.D. with P. Kemp, Ph.D.	Structure and metabolism of phosphatides
G. Hübscher, M.D., Ph.D.	Intracellular enzymes concerned in lipid metabolism Biosynthesis of glycerides and phosphatides
R.R. Dils, Ph.D.	Intracellular enzymes of lipid metabolism; lipid biosynthesis in the mammary gland

5. Botany

Professor J. Heslop-Harrison, Ph.D., D.Sc.	Development physiology and cytogenetics of angiosperms; ultrastructural aspects of cell differentiation
Professor J.G. Hawkes, Ph.D., Sc.D.	Experimental taxonomy of wild potato species; serology in relation to taxonomy Revision of the flora of Warwickshire
G.M. Butler (Miss), Ph.D.	Mycology; interrelationship of hyphae in fungal strands
M.E. Davies, Ph.D.	Amino-acid metabolism in plants ; biochemical aspects of morphogenesis
S.W. Greene	Taxonomy, biology and ecology of bryophytes; revision of the Antarctic bryophyte flora
C.E Harrold, Ph.D.	Physiology of fungi with special reference to sporulation

5. Botany (*continued*)

Y. Heslop-Harrison (Mrs), Ph.D.	Genecology of Nymphaeaceae, *Rubus* and *Pinguicula*
D.B. Idle, Ph.D.	Periodic phenomena in extension growth; ice formation in plant tissues
N. Montgomery (Mrs), Ph.D.	Plant pathology; fungal attack on seedlings
L.W. Poel, Ph.D.	Carbon dioxide fixation by roots in relation to ion uptake Soil aeration
D.A. Wilkins, Ph.D.	Genetics and physiology of lead tolerance in *Festuca*

6. Chemistry

Analytical:

Professor M. Stacey, Ph.D., D.Sc., F.R.S.	
Professor R. Belcher, Ph.D., D.Sc.	Micro-organic and inorganic analysis
W.I. Stephen, Ph.D.	Physical methods in analytical chemistry
T.S. West, D.Sc.	Sub-microanalysis
A. MacDonald (Miss), Ph.D.	Organic reagents for metals Halogen analysis

Biological and Bacterial:

Professor M. Stacey, Ph.D., D.Sc., F.R.S.	
A.S. Jones, Ph.D., D.Sc. M.H.B. Hayes, Ph.D.	Chemistry in relation to medicine, with specific reference to cancer, tuberculosis, pneumonia, blood transfusions
R.T. Walker, Ph.D.	General chemistry and biochemistry of micro-organisms and enzymes Bacterial polysaccharides Radiochemistry Radiation chemistry Immunochemistry Nucleic acids Nucleotides and nucleosides Nucleases Soil polysaccharides

Inorganic:

R.D. Peacock, D.Sc.	Fluorine compounds
C.F. Wells, Ph.D.	Chemistry of rare metals Organo-metallics
A.J. Edwards, Ph.D.	Atomic structures

Organic:

Professor M. Stacey, Ph.D., D.Sc., F.R.S.	Fundamental chemistry of the carbohydrates, with special reference to their structure, function and synthesis
Professor J.C. Tatlow, Ph.D., D.Sc.	Transformation of sugars and starches into products of use in general synthesis
S.A. Barker, Ph.D., D.Sc.	The effects of γ radiations
A.B. Foster, Ph.D., D.Sc.	Chemistry of proteins and mucoproteins
E.J. Forbes, D.Phil.	Organic fluorine compounds
R. Stephens, Ph.D.	Sterols in relation to new products of therapeutic value
C.R. Patrick, Ph.D.	Heterocyclic compounds
J.S. Brimacombe, Ph.D.	γ radiation
G.H. Whitham, Ph.D.	Fatty acids
K. Morgan, D.Phil.	Alkaloids
J.D. Hobson, Ph.D.	Organic reactions
J. Webber, Ph.D.	Iodine compounds
N. Rogers, D.Phil.	Natural polymers
J. Burdon, Ph.D.	Plastic materials

6. Chemistry (*continued*)

Organic (*continued*)

J. Lehmann, Dr.Nat.	
P.L. Coe, Ph.D.	
R.J. Heitzman, Ph.D.	
A.E. Pedler, Ph.D.	
C.A. Barson, Ph.D.	
K. Buck, Ph.D.	

Physical:

Professor J.C. Robb, D.Sc.	Mechanism and kinetics of reactions in the gas phase and liquid phase: reactions of excited molecules, oxidation reactions, polymerization reactions, electrode reactions
P.E. Allen, Ph.D. J. Bevington, D.Sc. G.A. Gilbert, Ph.D. B.G. Gowenlock, D.Sc.	Use of physical techniques such as mass spectrometry, radioactive tracer methods, electron magnetic resonance spectroscopy
R. Lehrle, Ph.D. J.R. Majer, Ph.D.	Molecular size and structure of synthetic and natural polymers using osmometry, light scattering, electrophoresis
F.W. Peaker, Ph.D.	Biosynthesis studies
J.K. Brown, Ph.D.	Electron spin resonance Colloid chemistry
J.E.B. Randles, D.Sc. J. Sheridan, D.Sc. R.W.H. Small, Ph.D. L.F. Thomas, Ph.D. J.P. Simons, Ph.D.	Molecular structure by X-ray diffraction: infra-red, microwave and nuclear magnetic resonance spectroscopy
P. Spragg, Ph.D.	Microwave spectra

7. Dental Studies

Clinical Surgery:

Professor A.B. MacGregor, M.D.	The distribution of acid and its relation to micro-organisms in carious lesions of enamel and dentine Histological and bacteriological investigation of carious softening of dentine
D.S. Shovelton	A survey of the bacteriology of the infected root canal
F.I.H. Whitehead	Physical properties of dental porcelains
E.C. Fox, M.D.	*Lactobacillus acidophilus* preparations in the treatment of inflammatory conditions of the mouth
J.R. Grundy	Inhalation hazards to the dental surgeon arising from the use of air-turbine dental engines
J.G. Shaw	Incidence, nature and significance of extrinsic stains of the teeth
F.J. Fisher with D.A. Sidaway (Miss)	The viability of organisms sealed in dentine
T.D. Foster	Mesial migration of teeth and its association with growth of the jaws
A.L. Friend	Tissue reactions to root filling materials
C.L. Brady	Incidence of dental caries in school children in Birmingham

Pathology:

E.A. Marsland, Ph.D.	Effect of ultra-high speed cavity preparation on the human dental pulp
E.A. Marsland, Ph.D., with D. A. Sidaway (Miss)	Factors concerned in the production of experimental caries in an " artificial mouth"
R.M. Browne, Ph.D.	Fluid environment of the gingival tissues and particularly the gingival crevice

7. Dental Studies (*continued*)

Pathology (*continued*)

S.L. Rowles, D.Phil.	Biochemistry of saliva and dental calculus in man
	Natural and synthetic calcium phosphates
M.E. Corbett (Miss)	Tissue changes during tooth eruption
N.G. Gough	Innervation of the mandible and associated structures
W.A. Miller	Histochemistry of caries of dentine

Prosthetics:

Professor J. Osborne, Ph.D.	Clinical assessment of full and partial dentures
T.C. Graty	
H.R.Tomlin	Assessment of different melting methods on the structure of chromium cobalt alloys
	Dimensional changes in acrylic resin denture bases
	Factors influencing fracture of chromium cobalt alloys
	The effects of remelting chromium cobalt alloys

8. Endocrinology

Clinical:

A.C. Crooke, M.D. (Director of Department)	The development of new assay techniques especially for the gonadotrophic substances
W.R. Butt, Ph.D.	Their application to patients in various physiological and pathological states and their use in biochemical investigations of the gonadotrophins
F.J. Cunningham	The study of physicochemical and immunological properties of pituitary and urinary gonadotrophins
	Clinical trials of gonadotrophins
	The development of new techniques for the measurement of steroid hormones and their clinical application

9. Engineering

Chemical:

Professor J.T. Davies, D.Sc.	Damping of waves and ripples
	Coagulation of particles in oils
	Mathematics of eddies at interfaces
Professor S.R.M. Ellis, Ph.D.	Vapour liquid equilibrium
	Distillation ; extraction
	Separation processes
C.W. Nutt, Ph.D.	Froth flotation
	Reaction of hydrocarbons with atomic oxygen
	Spectroscopic and thermodynamic properties of solutes
R. Long, Ph.D.	Vapour phase oxidation of hydrocarbons
	" Hydrocracking" of hydrocarbons in gas production
	Kinetics of thermal dealkylation of alkyl phenols
	Carbon formation in flames
	Inhibition of 3–4-benzpyrene formation in hydrocarbon combustion
W.M. Crooks, Ph.D.	Catalytic kinetics of isopropanol dehydrogenation on zinc oxide
	Catalytic kinetics of s–butanol dehydrogenation on zinc oxide
	Catalytic cracking of hydrocarbons
	Semiconductivity and zinc oxide catalysis
H. Gilmour	Combined miscible flooding
	Immiscible two-phase flow in vertical columns
	Immiscible two– and three–phase flow in porous media
	Two–phase flow through orfices
N. Blakebrough, Ph.D.	Scale-up of electrophoresis
	Agitation and aeration in submerged fermentation
	Biological oxidation of phenol
	Measurement of heats of fermentation

9. Engineering (*continued*)

Chemical (*continued*)

P.E. Barker, Ph.D.	Continuous chromatography columns Plate efficiency, foam formation and holdup studies for sieve and bubble cap trays Liquid mixing on bubble trays Transient state studies in distillation columns Determination of thermodynamic data by gas-liquid chromatography
T.R. Bott	Heat transfer across a scraped surface Liquid thermal diffusion Continuous reaction of viscous liquids Solubility of chlorine Corrosion of plastic materials
J.S.M. Botterill, Ph.D.	Mechanism of heat transfer in fluidized beds Dynamics of gaseous fluidized systems Particle collection on fibre filters
S.H. Bransom, Ph.D.	Continuous crystallization Dynamics of fluidization Catalytic oxidation of hydrocarbons Flame spectra
M.H. Cardew, Ph.D.	Freezedrying Liquid diffusivities
J.W. Carter	Transport of vapours in adsorbents Adsorption in fixed beds Permeation through polymer films
W. H. Husband Ph.D. G.V. Jeffreys	Adsorption equilibria ; entrainment in evaporators Batch-operated solvent extraction Mass transfer and chemical reaction Hydrolysis studies Hydrazine synthesis Coalescence of droplets
V.G. Jenson M.B. King, Ph.D.	Diffusion from horizontal surfaces P.V.T. and phase relationships of condensed gases Thermodynamic properties of liquid mixtures Phase equilibria of aqueous systems at elevated and subatmospheric pressures
L.G. Miskin	Vacuum and molecular distillation Spinning band, brush columns
F.M. Mohtadi, Ph.D.	Diffusion from drops with reference to vortices present both inside the drop and in the wake Atomization of liquids and spray drying
D.R. Oliver, Ph.D.	Heat transfer to non-Newtonian fluids Sedimentation and properties of solid-fluid systems Scraped surface heat transfer Heat transfer to tube banks
G.S. Pittaway C.R. Porter, Ph.D. K.E. Porter	Combustion mechanism of fuels in diesel engines Synthesis and properties of cyclopentane derivatives Studies in froth structure Liquid flow in random packed columns Knitted wire high efficiency distillation packing Simultaneous heat and mass transfer
R.B. Shearn, Ph.D.	Ammonia solvent extraction system Mixer settler liquid-liquid extraction apparatus
C.G. Wall, Ph.D.	Transient effects in fluid flow in porous media

9. Engineering (*continued*)

Civil:

Professor S.C. Redshaw	Structural: experimental investigation of the strength of ship brackets and web corners
	Electrical analogies:
	Solution of problems concerning flexure and extension of plates
	Solution of temperature and thermal stress equations
	Analysis of stresses in arch dams
	Analysis of stresses in shell roofs
	Solution of certain problems in fluid motion concerning aircraft wings
K.R. Rushton, Ph.D.	Electrical analogies:
	Solution of problems concerning flexure and extension of plates
	Solution of temperature and thermal stress equations
	Analysis of stresses in arch dams
	Investigation of elastic-plastic torsion of shafts
	Stress concentrations in shouldered shafts
	Representation of water supply networks
Professor J. Kolbuszewski	Fundamental properties of sands
	Soil surface phenomena in relation to water and stabilization processes
	Micromeritics
	Deposition of sands
	Influence of the shape of particles on the mechanical properties of soils
	Wind deposited sands
	Groups of piles in sands
with T.K. Chaplin, Ph.D.	Compressibility of cohesionless soils
G. Lees	Shape of particles in road materials
	Frost action in soils and thermo-osmosis
	Mineral composition and stabilization of Keuper Marl
G.F. Buck	Stresses and strains in granula sub-bases and "cell action" phenomena
T.K. Chaplin, Ph.D., C.S. Dunn, G. Lees, N. Birch and outside engineering bodies	Engineering properties of Keuper Marl
T.K. Chaplin, Ph.D.	Engineering properties of compacted Keuper Marl
C.S. Dunn	Time-dependent changes in structure and pore pressures in compacted clays
T.K. Chaplin, Ph.D.	Consolidation of clays with reference to sample size
F.D. Hobbs, B.D. Richardson	Route locations, traffic engineering, road construction and surface water drainage
R.M. Newland	Traffic behaviour on motorways with particular reference to junction design
	The effect of the opening of the M.5 motorway on the traffic flow pattern in Worcestershire
	Analysis of vehicle dimensions and performance which affects highway design
A.J.Miller, Ph.D.	Computer control of traffic networks
	Delays and bunching of traffic
with L. Ginsburg, F.D. Hobbs, B.D. Richardson, A.J.Miller, Ph.D., C.K. Atkins	Research into the use of the motorcar

9. Engineering (*continued*)

Civil (*continued*)

I.T.S. Essery	A model study of circulation and stratification in reservoirs
with P.J. Reilly	Problems concerned with air entrainment in siphons
I.E. Thomas, Ph.D.	Investigation of the effect of boundary roughness in open channel flow patterns and on the dispersion coefficients associated with salt-dilution method of river gauging
	Direct study of compound weirs, sharp edged and triangular section
	Investigation of flow over the simple triangular section weir by electrolytic tank
J.W. Fortey	Experimental determination of shear centre and torsional stiffness of unsymmetrical sections
	Stiffness and strength characteristics of welded brackets
	Comparison of theoretical and experimental stresses in structures
	Electrical and mechanical analogies for the collapse mechanisms of structures
	Theoretical and experimental investigation of critical load of rigid and pin jointed frames
M.J. Hamlin	Rainfall—run-off relationship Bournbrook Valley Catchment
	Studies on the drainage and evaporative phases of sludge drying
	Self cleansing velocities in sewers and inverted siphons
P. Swannell	Stress analysis in mild steel frames

Electrical:

Professor D.G. Tucker, D.Sc.	Electronic scanning in radar and sonar
	Very wide band acoustic arrays
with V.G. Welsby, Ph.D.	Multiplicative arrays and directivity problems generally
L. Kay, Ph.D.	Underwater acoustic reverberation, fluctuations in transmission and echoing properties, propagation generally
B.K. Gazey, Ph.D.	
	Oceanographic and fisheries applications of sonar
D.P. Howson	Circuits with time-varying parameters (modulators, etc.)
E.D.R. Shearman	Communication systems
Professor J.T. Allanson	Synthesis of electrical networks
with D.P. Howson	Properties of neural networks
	Psychological acoustics
J.C. Cluley	Electronic digital and analogue computers, reliability and applications
D.C. Cooper, Ph.D.	Visual displays and signal integration systems
D.E.N. Davies, Ph.D.	Radar signal processing
	Air traffic control systems
J.W.R. Griffiths, Ph.D.	Visual displays and communication theory
	Noise measurement
J. G. Henderson	Automatic control
	Electrical machines, speed control of induction motors, etc.
L. Kay, Ph.D.	Ultrasonic systems for testing of materials
	Blind guidance systems
I.R. Smith, Ph.D.	Magnetic systems, transductors, torque meter using magnetostriction
G.T. Wright, D.Sc.	Solid state devices and dielectric valves
	Space-charge-limited currents in insulators

9. Engineering (*continued*)

Electrical (*continued*)

J. Hudson	Field studies with electrolytic tank
T.S.M. Maclean, Ph.D.	Helical aerials
E.D.R. Shearman	Radio propagation

Engineering Production:

Professor N.A. Dudley, Ph.D.	Work measurement: production planning and control; human factors in machine control
E.N. Corlett, Ph.D.	
R.H. Hollier	Batch production
J.R. Turcan	
J.T. Hawes	Correlation of measures of worker fatigue
R.J. Sury	Paced and unpaced work
K.I. Bartlett	Equipment supply services
B.T. Davies	Industrial skills
A.A. Knight	
M. Richer	Hand injuries
F. Benson, Ph.D.	Machine interference
K.B. Haley, Ph.D.	Linear programming
R.M. Burstall	Heuristic programming
H. Grisbrook	Precision grinding and horizontal milling

Mechanical:

Professor S.A. Tobias, D.Sc., Ph.D.	Various problems in machine tool vibration, dynamic cutting of metals, the effect of vibration on tool life, cutting with oscillating tools, dynamic stability of machine tools, prediction of dynamic characteristics of machine tool structures, torsional vibration of machine tool drives, high speed forming of metals Non-linear vibration of rotating discs, forced non-linear vibration of two-degrees of freedom systems, development of non-linear isolating suspensions
Professor F.K. Bannister, Ph.D.	Wave action in gases. Induction ramming of single cylinder four-stroke petrol engines
B.N. Cole, Ph.D.	Torsional properties of shells, strength of ribbed plates, high speed forming of materials
J.W. Railly, Ph.D.	Fluid flow in axial turbo machinery, tandem axial flow blade row, motion of spheres in viscous liquid
B. Mills, Ph.D.	Vibration of a disc induced by dry friction ; vibration of linkages ; waves in tyres
E.H. Wright, Ph.D.	Gas flow and pressure wave phenomena in a naturally aspirated two-stroke oil engine Design and development of automobile track simulator
J.C. Maltbaek	Prediction of vibration characteristics of structures
E. Amini	Photoelastic investigation of the metal cutting process, focusing of pressure waves
G.H. Trengrouse	The reduction of noise generated by pressure waves of finite amplitude
K. Foster	Development of hydraulic oscillators, transmission of power by wave motion in an oil pipeline, flow patterns in a hydraulic spool valve, dynamic stability of two-stage relief valve
F. Bakhtar, Ph.D.	Deformation properties of materials at high rate of strain; explosive forming; heat transfer in boiling liquids

9. Engineering (*continued*)

Mechanical (*continued*)

F.B. Blader	Development of non-linear vibration isolators
F.B. Scott	Investigation of the supersonic radial diffuser by use of the hydraulic analogue ; plasma jets
R.G. Boothroyd	Application of radioactive tracer techniques to various grinding problems
H. Kaliszer, D.Sc.	Grinding wheel structure and its effect on surface finish
C.J.H. Williams	Non-linear vibration of rotating discs
T. Duthie	Dynamic stability of automobile front wheel steering gear

10. Genetics

Professor K. Mather, C.B.E., D.Sc., F.R.S.	Organization, properties and analysis of polygenic systems
J.S. Gale, Ph.D.	Genetic determination of competitive ability
*J.L. Jinks, Ph.D.	Heritable variation in wild fungi; biometrical genetics
B. John, Ph.D.	Chromosome variation in wild and cultured populations
D.A. Jones	Differentiation in fungi
*R.M. Jones	Mathematical aspects of biometrical genetics
M.J. Lawrence, Ph.D.	Population and selection studies

11. Geography

Professor D.L. Linton, D.Sc.	Aspects of glacial morphology and landscape evolution in Great Britain The geomorphology of Graham Land and South Shetlands Regional contributions to world population growth
R.A. Donkin, Ph.D.	The contribution of the Cistercians to the geography of England and Wales in the 12th and 13th centuries The Spanish phase of the historical geography of California
B.L.C. Johnson, Ph.D.	Agricultural geography of E. Pakistan Regional geography of Monsoon Asia
I.E. Jones	Historical geography of upper Brittany Settlement studies in Radnorshire
W.B. Morgan, Ph.D.	Agricultural and historical geography of W. Africa Nutrition problems of W. Africa
R.P. Moss, Ph.D.	Land use and biogeography in S.W. Nigeria Application of photogrammetric techniques to soil and land use study
M.B. Stedman	The urban geography of Birmingham and the W. Midland conurbation The printed maps of Birmingham
E.T. Stringer, Ph.D.	Climatology and hydrology of the W. Midlands Atmospheric circulation patterns in relation to the weather and climate of the British Isles
H. Thorpe, Ph.D.	The growth and function of Warwick The historical geography of Warwickshire Forms and patterns of rural settlement in the British Isles
G.T. Warwick, M.B.E., Ph.D.	Geomorphology of limestone regions and caves Ice caves and cave ice Geomorphological studies in W. Midlands

*A.R.C. Unit of Biometrical Genetics

12. Geology

Professor F.W. Shotton, M.B.E., F.R.S.
R.J. Adie, Ph.D.
G.M. Bennison, Ph.D.
D.J. Blundell, Ph.D.
G.R. Coope
P.A. Garrett
D.H. Griffiths, Ph.D.
W.G. Hardie
R.F. King, Ph.D.
E.D. Lacy
F. Moseley, Ph.D.
I. Strachan, Ph.D.
A.E. Wright, Ph.D.

Stratigraphical:
- Ordovician and Silurian stratigraphy and structure of parts of the Lake District
- Facies changes and sedimentation of Ludlovian sediments of the Welsh Borderland and south central Wales
- Stratigraphy of the Carboniferous rocks of the area south of Galway Bay
- The stratigraphy and structure of the Permo-Carboniferous and Triassic rocks of W. Spitsbergen
- Structural(joint) studies in the Midlands and N. England
- Structural studies in S.W. England
- Sedimentological studies of the Calciferous Sandstone Series of Fife
- The Pleistocene sequence of the Avon/Tame watershed, the Tame valley, Nechells (Birmingham) and south Cheshire

Palaeontological:
- Cyrtograptidae and Retiolitidae from Britain and Central Europe
- The Silurian graptolite fauna of the Cross Fell Inlier and the Southern Uplands
- Non-marine lamellibranch faunas of the Calciferous Sandstone Series, and the Coal Measures of Staffordshire
- Corals from the Carboniferous Limestones of Ireland
- Pleistocene insects from numerous localities in England
- Macroscopic plant remains and pollen from the Pleistocene of the Midlands
- Microfaunas of the Lias (Warwickshire) and of the Tertiary (Pakistan)

Petrological:
- Theoretical studies upon alumino-silicate glasses and melts
- The effect of water on the physical properties of purified igneous glasses
- The petrology of the Glencoe fault intrusion and of nearby (Ballachulish) igneous rocks
- Structure and petrology of the Tasermuit Granite and Ketilidian rocks, S. Greenland
- Structure and petrology of the Lewisian of N.W. Scotland
- Field relations of the Water Swallows basalt (Derbyshire)
- The sedimentary petrology of the Downton Castle sandstone
- The petrology of prehistoric stone axes from the W. Midlands and the Peak District
- X-ray radiography of sediments

Geophysical:
- Flume studies on properties of redeposited silts
- Magnetic anisotropy of certain metamorphic and igneous rocks from Scotland and Ireland and on fine sediments from Sweden
- Effect of heat and pressure on the magnetic properties of rocks
- Gravity survey of Wales
- Gravity, magnetic and seismic surveys in the Antarctic, and remanent magnetism of igneous rocks therefrom

12. Geology (*continued*)

Development of small-scale seismic apparatus
British Antarctic Survey
Petrology and structure of W. and E. Antarctica
Geology of N.E. Graham Land, King George Island and Livingston Island
A magnetic survey of N.E. Graham Land
Glaciological work in various parts of Antarctica

13. Mathematics

Professor A.M. Macbeath, Ph.D.	Discrete groups ; topology of surfaces
Professor H.E. Daniels, Ph.D.	Stochastic processes Approximation techniques
B. Kuttner, Ph.D.	Summability
G.C. Shephard, Ph.D.	Convex bodies Polytopes
H.P. Rogosinski, Ph.D.	Integral equations Moment problems
D.M.G. Wishart, Ph.D.	Theory of queues and related problems
H.B. Griffiths, Ph.D.	Topology
W. Parry, Ph.D.	Measure theory
A.H.M. Hoare, D.Phil.	Finite groups

14. Medicine

Professor W.M. Arnott, T.D., M.D. J.M. Bishop, M.D.	Cardiorespiratory function in health and disease, in particular the haemodynamics of adaptation to exercise in normals and in those suffering from cardiac diseases
P.C. Harris, Ph.D., M.D.	Peripheral vascular adjustments to exercise
G. Cumming, Ph.D. R.F. Fletcher, M.D.	Changes in haemodynamics after mitral valvotomy and other operations on the heart and aorta The blood flow to exercising limbs in health and disease Lactic acid production during exercise in health and disease Effect of acetyl choline on the haemodynamics of the pulmonary circulation and on ventilation/perfusion ratios Temperatures in various parts of the body under varying circumstances in health and disease Development of electrochemical methods of measuring 0_2 and CO_2 tensions in blood Measurement of various components of respiratory work in health and disease
W.T. Cooke, M.D. J.M. French, Ph.D. M.D. C.F. Hawkins, M.D. W.C. Crane	Intestinal function in health and disease, in particular the biochemical abnormalities associated with disease of the small intestine, e.g. idiopathic steatorrhoea, regional ileitis and jejunitis
A.C. Crooke, M.D.	Development of techniques for the assay of gonadotrophic substances in urine and the application of these in various physiological and pathological states The study of physicochemical and immunological properties of urinary gonadotrophins
A.G.W. Whitfield, M.D. J.N.M. Chalmers, M.D.	The prophylaxis of recurrent myocardial infarction by anticoagulants

15. Metallurgy

Industrial:

Professor E.C. Rollason, Ph.D.	Gas absorption in arc welding
	Kinetics of reactions in arc atmospheres
D.V. Wilson, Ph.D.	Solid phase bonding of metals
V. Kondic, Ph.D.	The arc melting of metals
W.T. Roberts, Ph.D.	Pressure welding of metals
D.R. Milner	Gases in liquid metals
J.P.G. Farr, Ph.D.	The strain-ageing of mild steel
G.H.J. Bennett, Ph.D.	Influence of strain-ageing on deep drawing properties
G.W. Rowe, Ph.D.	Hot working of metals
A.T. Male	Warm working of steel
	Working of hexagonal metals
	Fatigue and fracture phenomena in low-carbon steels
	Fatigue damage in high-strength light alloys
	Fatigue of strain-ageing alloys
	Effect of "coaxing" on fatigue strength of steel
	Crystal growth in electrodeposited nickel
	Electron microscope study of electrodeposited surfaces
	Metal flow in sand mould
	Flow of metal in pressure die casting
	Friction during metal working
	Metal/non-metal bonding
	Properties of intermetallic compounds
	Vacuum steel making
	Casting properties of high temperature alloys
	The extrusion processes
	Wear of dies and machine tools
	Lubrication in cold drawing
	Preferred orientation in aluminium extrusions
	Machinability

Physical:

Professor G.V. Raynor, D.Sc., F.R.S.	Theory of alloy formation and of intermediate phases and intermetallic compounds with special reference to the electronic configurations of solute metal atoms
Professor A. D. McQuillan, Ph.D.	Study of the physical, alloying and electronic properties of the early transition metals and their compounds with non-metallic elements
S.G. Glover, Ph.D.	Influence of structural changes on the creep of ferritic steels
	Kinetics of the martensitic transformation
J.D. Eshelby, Ph.D.	Theoretical problems connected with dislocations and other lattice defects in metals and non-metals
J.N. Pratt, Ph.D.	Study of the relationship of the thermodynamic properties of alloys, to phase structure and component character, by vapour pressure, electromotive force and tin-solution calorimetry methods
D.J. Evans, Ph.D.	Effects of factors, known to be important in alloy formation, on the elastic properties of materials
R.E. Smallman, Ph.D.	Correlation of mechanical properties and defect structure in metals, intermetallic compounds and ceramics
R.W. Smith, Ph.D.	Origins and interrelations of solidification structures
	Factors affecting the stability of the body-centred cubic structure at low temperatures
	Morphology and kinetics of the white tin⇆grey tin transformation

15. Metallurgy (*continued*)

Physical (*continued*)

J.R. Wilson	Properties and structure of liquid I-IV and III-V intermetallic compounds
	Oxidation behaviour of molybdenum, tungsten, vanadium and their alloys
N.B.W. Thompson, Ph.D.	Fundamental mechanisms of high temperature phenomena such as creep, recrystallization and fatigue in metals and ceramics
D.W. Jones, Ph.D.	Study of electronic structure, superconducting properties and the reaction with hydrogen of early transition elements and alloys
P.W. Graves	Study of the the variation of non-stoichiometry of rutile with temperature and partial pressure of oxygen, and of the effects of non-stoichiometry on some of the physical properties of rutile

16. Microbiology

Professor D.G. Catcheside, D.Sc. F.R.S.	Genetics of micro-organisms, particularly *Neurospora* Genetical organization of biochemical function
E.H. Creaser, Ph.D.	Enzymes of histidine biosynthesis in *Neurospora*, with particular reference to genetic differences
J.W. Hopton, Ph.D.	Ecology of aquatic micro-organisms Adaptive enzyme systems
R.B. Drysdale	Biochemical genetics of yeasts
D.A. Smith, Ph.D.	Genetics of bacteria and viruses
Bacteriology:	*See* **Bacteriology**

17. Mining

Professor S.G. Ward, Ph.D.	Properties of suspensions Sedimentation
J.K.L. Graham	Methane emission from coals
B.B.B. Burrows	Impact breakage of rocks and mechanism of rock breakdown
W.G. Thomas, Ph.D.	
N.G.T. Ludlow	Dust precipitation
A.J.W. Rozelaar	Coal cleaning
R.B. Hoole	Close gravity fractionation of coals and coal petrography
G.J. Lawson, Ph.D.	Froth flotation of coals
J.R. Rawling, Sc.D.	Flocculation and filtration
T. Brereton	Mineral dressing Contact potentials of coals Incendivity of sparks Chemical constitution of coal and humic acids Oxidation of coal Thermal decomposition of coals

18. Neurosurgery

Professor E.B. Hughes	Stereotactic lesions in the thalamus for involuntary movements, intractable pain and epilepsy including anatomical studies of the normal disposition of the thalamic nuclei
Professor E.B. Hughes L. Kay R.F. Farr J.A. Newall, Ph.D.	Investigations into the use of ultrasound for making stereotactic lesions in the animal and human brain
Professor E.B. Hughes H.G. Clarke	Investigation into tremor in human and animals and the role of the γ-fibre system in relation to involuntary movements

18. Neurosurgery (*continued*)

Professor E.B. Hughes	Development of a low temperature probe for making deep lesions in the brain
H.G. Clarke	
E.A. Turner	The treatment of psychomotor epilepsy by bilateral temporal lobotomy
	The mechanism of feed-back systems from cortex to reticular substance in the Rhesus monkey

19. Obstetrics and Gynaecology

Professor H.C. McLaren, M.D.	The value of radioactive isotopes in the treatment of uterine bleeding
	Fascial slings for female stress incontinence
	The value of cytology in the early diagnosis of cancer
E.M. Attwood	Pregnancy cytology
Professor H.C. McLaren, M.D.	
R.L. Edwards	Diseases of the neonate
E.M. Little	Cell culture studies in relation to carcinoma in situ and related pathology
A.C. Crooke, M.D.	Researches in clinical endocrinology
A. Butt	Assessment of gonadotrophin hormones in the urine
B.M.W. Dobbie (Mrs.)	The evaluation of radium therapy in genital cancer
M. Sim, M.D.	The prognosis of psychological disorders in childbirth
C. Graham with Zoology Dept.	Epigenetics of cervical histology

20. Otolaryngology

W. Stirk Adams	Factors responsible for chronicity in middle ear disease and mastoid infection, and the aetiology of cholesteatosis of the mastoid
	Investigation by tissue culture of the biology of normal and infected middle ear and mastoid epithelium
	Investigation of conditions governing the post-operative collagen activity in the radical mastoid cavity reducing its dimensions
	Critical evaluation of the factors responsible for a high post-operative hearing level after the radical mastoid, to discover the origin of their narrow audiometric band of peak hearing in the speech frequencies—the steeple chart
A.J. Moffett, T.D.	The clinical problems of malignant disease of the accessory nasal sinuses, and of larynx and pharynx
R.S. Strang	The clinical problems of otolaryngology and the evaluation of surgical measures for the relief of deafness
	Aetiology and evaluation of methods of treatment of otitis externa
	The problems of upper respiratory tract infections and their relation to the allergic response of the nasal mucosa
N.L. Crabtree	The clinical assessment of audiological patterns in the selection of cases for the operative treatment of deafness
	The problems of aural vertigo and the otological diagnosis of lesions affecting the function of the eighth cranial nerve
	The aetiology and ascertainment of deafness in children, and the development of communication by maximal use of residual hearing
G.A. Dalton	Evaluation of clinical tests in the diagnosis and nature of different lesions responsible for facial paralysis
	Assessment of the indications for trans-sphenoidal hypophysectomy and the clinical problems of management
	Use of ultrasound for the control of labyrinthine symptoms

21. Paediatrics and Child Health

Professor D.V. Hubble, M.D.	Endocrine disease in childhood Coeliac disease
O.H. Wolff, M.D.	Serum lipoproteins Diabetes
B.D. Bower, M.D.	Convulsive disorders in infancy and childhood
P.M. Jeavons, M.D.	Electroencephalography
J.K. Lloyd (Miss), M.D.	Diabetes
C.G. Parsons, M.D.	Congenital heart disease
B.S.B. Wood, D.M.	Neonatal hyperbilirubinaemia Neurological disorders in childhood
H.M. Cohen, M.D.	Statutory and voluntary services
J.G. Mortimer, M.D.	Sensitivity to cow's milk
J.H. Edwards, M.D.	Medical genetics and chromosomal cytology
G.A. Brown, B.Sc.	Proteinuria in diabetic children
L.M.P. Asher (Mrs.), M.D.	Health services for children outside hospitals in the City of Birmingham
M.I. Griffiths	Cerebral palsy

22. Pathology

Professor J.W. Orr, M.D.	Morbid anatomy of disease processes Histogenesis of cancer Experimental carcinogenesis, with special reference to skin, breast, ovary and liver
D.B. Brewer, M.D.	Pathology of thyroid gland Vascular changes in lungs in pulmonary hypertension Polarization microscopy of reticulin and collagen Electron microscopy of liver and leucocytes
*D.L. Woodhouse, Ph.D.	Experimental carcinogenesis. Chemotherapy of cancer Relative activity of carcinogenic oils and their fractions
C.W. Taylor	Pathology of ovarian tumours Histological control of radiotherapy of cervix uteri
W.T. Smith, M.D.	Neuropathology
R. Lannigan, M.D.	Electron microscopy of renal and cardiac disease Experimental renal disease
*J.S. Howell, M.D.	Chemical carcinogenesis, with special reference to skin, breast and lymphomatous conditions
D.A. Heath, M.D., Ph.D.	Cardiorespiratory pathology
B.T. Davis	Congenital malformation of the heart valves Amyloid goitre
J.B.W. Halley	Testicular tumours and function
D.J. Parish	Problems of cardiac and mammary pathology Disorders of skin pigmentation
H.A. Ellis, Ph.D.	Effects of sulphated polysaccharides on body fluids and tissues
S.C. Dyke, D.M.	Histology of cancer
A.H. Cameron, M.D.	Paediatric pathology
*J. Marchant (Miss), Ph.D.	Experimental carcinogenesis with special reference to skin, breast and ovary Tissue grafting
*C.E. Searle, Ph.D.	Biochemistry of cancer
*A.T. Spencer	Experimental carcinogenesis with special reference to skin

*Supported by the Birmingham Committee of the British Empire Cancer Campaign

22. Pathology (*continued*)

Experimental:

Professor J.R. Squire, M.D.	Allergic diseases, biochemistry and physiology of skin Metabolic studies of renal and hepatic disease
Professor P.G.H. Gell	Experimental basis of types of hypersensitivity reaction Immunochemical analysis of serum and tissue proteins including use of fluorescent antibodies
K.W. Walton, M.D., Ph.D.	Plasma protein changes in disease, especially in fibrinogen, antihaemophilic globulin, complement, iso-agglutinins, glycoproteins and lipoproteins
J. Hardwicke, M.D.	Diagnosis, pathogenesis and control of nephrotic syndrome; renal glomerular changes in relation to proteinuria and response to steroid therapy
D.S. Rowe, M.D.	Combination of haemoglobin and haem pigments with plasma proteins. Colloid osmotic pressure and ultrafiltration studies
J.F. Soothill	Immunochemical and other studies of renal and metabolic diseases, including hypogammaglobulinaemia
D.R. Stanworth, Ph.D.	Ultracentrifugal studies on macroglobulins and other abnormal serum proteins Physicochemical studies of horse-dandruff allergen-antibody system
*J.D. Blainey, M.D.	Metabolic studies particularly in renal disease and amino-acid disorders
P.W. Dykes	Protein metabolism and distribution using I^{131}-labelled albumin and γ globulin
*A. Kelus	Investigation of genetically labelled and species-specific antigens in blood and tissues of experimental animals and man
D. Felix-Davies, M.D. K. James, Ph.D.	Serological and plasma protein changes in rheumatoid arthritis
D.R. Campbell (Mrs.)	Metabolic problems related to glaucoma and retinitis pigmentosa
S.J. Crews	Use of autologous implants in the eye with special reference to vitreous humour; aetiology of Sjogren's syndrome; treatment of glaucoma
†C.N.D. Cruickshank, M.D.	Metabolic and cytological studies of skin tissue cultures
†A.O.T. Charles, Ph.D.	Electron microscopy with special reference to skin and connective tissues
†K. R. Hay	Clinical research on selected skin diseases
†M.D. Trotter, Ph.D.	Antigenic polysaccharides of dermatophytic fungi
†H.J. Yardley, Ph.D.	Phosphate esters of carbohydrate in skin
‡J.P. Bull, M.D.	Mortality in burns, causes of accidents
‡J.W.L. Davies, Ph.D.	Transfusion of plasma and protein fractions, turn-over studies with I^{131}-labelled proteins
‡J.C. Lawrence, Ph.D.	Dextrans and poly-electrolyte derivatives
‡E.J.L. Lowbury, M.D.	Epidemiology and effects of infection of burns and wounds; operating theatre hygiene
‡C.R. Ricketts, Ph.D., D.Sc.	Skin metabolism in relation to drugs, deoxy sugars toxins and thermal damage
W. Weiner, M.D.	Blood transfusion problems Haemolytic and haemorrhagic diseases

*Supported by the Clinical Research Board.

†M.R.C. Unit for Research on the Experimental Pathology of the Skin

‡M.R.C. Industrial Injuries and Burns Research Unit

23. Physics

Professor P.B. Moon, F.R.S.	γ-ray physics
D.C. Champeney, D.Phil. N.A. Dyson, Ph.D. D.A. O'Connor	
Professor W.E. Burcham, F.R.S. D.C. Colley, Ph.D. J.D. Dowell, Ph.D. J.B.A. England, Ph.D. G.W. Greenlees, Ph.D. J. Lowe, Ph.D. B. Musgrave, Ph.D. J.S.C. McKee, Ph.D. W.B. Powell H.B. van der Raay, Ph.D. L. Riddiford, D.Sc. P.M. Rolph, Ph.D. C.P. Van Zyl, D.Phil.	Nuclear physics, including the acceleration of particles to high energies with cyclotrons and a 1000 MeV proton synchrotron; proton experiments at the Rutherford and A.E.R.E. Laboratories, Harwell ; bubble chamber work in co-operation with other universities at C.E.R.N., Geneva
Professor W.F. Vinen P.J. Black, Ph.D. J.W. Glen, Ph.D. T.R. Lomer, Ph.D. R.W. Whitworth, Ph.D.	Low temperature and solid state physics
J.H. Fremlin, D.Sc.	Dental studies using radioactive tracers
J. Walker, Ph.D. J. Young, Ph.D.	Nuclear reactor physics
K.A. Macfadyen G.A. Doran, Ph.D.	Breakdown in liquid dielectrics
K.F. Chackett, Ph.D.	Radiochemistry

Electron Physics:

Professor J. Sayers, Ph.D.	Ionization phenomena in gases with particular reference to the ionosphere and gas-filled electrical devices
with G.R. Court Ph.D.	Mass spectrograph analysis of gas discharge afterglows Electron and ionic collision cross sections
G.F. Alfrey, D.Phil.	Semiconductors of wide band gap, particularly compounds with the zinc blende crystal structure. Radiative recombination and luminescence in semiconductors The application of luminescence to the study of dislocations and other crystal defects
Professor J. Sayers, Ph.D. with P. Rothwell E.C. MacKenzie J.H. Wager	Participation in the British Space Research Programme by the design of experiments and the construction of instrumentation for rockets and satellites. The emphasis is on the study of ionic species and electron densities in the ionosphere and in interplanetary space

23. Physics (*continued*)

Mathematical:

Professor R.E. Peierls, C.B.E., D.Sc., D.Phil., F.R.S.	Theory of nuclei Theory of solids including superconductivity Statistical mechanics
with Professor S. Mandelstam, Ph.D., F.R.S. G. H. Burkhardt, Ph.D. L. Castillejo G.V. Chester, Ph.D. V.J. Emery, Ph.D. G. Field, Ph.D. J.G. Valatin, D.Ing., D.Sc. J.B. Woodward, Ph.D.	Field theory and mesons High-energy physics
K.A. Redish	Application of electronic computers

24. Physiology

Professor I.E. Bush, Ph.D.	Metabolism and actions of steroid hormones
P. Ramwell, Ph.D. A.A. Boulton, Ph.D. M.E.P. Hele (Miss), Ph.D. R.J. Pollitt, Ph.D.	Chemical pathology of mental disorders
M.E. Nutt (Miss), Ph.D.	Haematology and blood flow
J.A. Barclay	Renal function in health and disease
K. Hall (Miss), Ph.D.	Endocrine control of mammalian pelvis
I.C. Whitfield, Ph.D. P.E. Stopp (Miss), Ph.D. E.F. Evans	Neural transmission in sensory pathways
E.J. Hamley, Ph.D.	Effects of ionic imbalance on cardiac activity and cardiovascular changes in exercise
H. Asher	Physiology of vision
W.V. Thorpe, Ph.D.	Metabolism of foreign organic compounds
H.G. Bray, Ph.D. S. James (Mrs.), Ph.D. K. White, Ph.D.	Steroid metabolism
E.H.L. Harries, Ph.D.	Gastric function and duodenal ulcer
J.D. Cumming	Bone marrow and circulatory physiology
C.E. Rowe, Ph.D.	Phospholipids
G.R. Kelman	Theory of renal concentration mechanisms

NEUROCOMMUNICATIONS RESEARCH UNIT.

I.C. Whitfield, D.Sc., Ph.D. (Director) P.E. Stopp (Miss), Ph.D.	Coding of information in sensory pathways using especially methods of comparative physiology and mathematical methods Comparison of the dynamic and steady state responses of a neural system as typified by the auditory pathway

25. Psychiatry

Neuropharmacology:

P.B. Bradley, D.Sc., Ph.D. (Head of Department)	Electrophysiological studies of the action of drugs on the central nervous system; effect of drugs on the electroencephalogram in man
G.B. Ansell, Ph.D.	Effect of drugs on brain phospholipid metabolism in vivo
B.J. Key, Ph.D.	Effect of drugs on the inflow and integration of sensory information in the brain
*J.H. Wolstencroft, Ph.D.	Responses of single cerebral neurones to drugs
*A.R. King	Effect of drugs on animal behaviour

26. Social Medicine

Professor T. McKeown, Ph.D., D.Phil., M.D.	Aetiology of congenital malformations based on population studies
R.G. Record, M.D. Ph.D.	Chromosomal anomalies in congenital disease
J.A.H. Waterhouse, Ph.D.	Growth and development: the influence of inheritance and environment on pre-natal and post-natal growth
J.M. Mackintosh (Miss), C.B.E., M.D.	Evaluation of medical achievement through consideration of the death rate and population growth
K.W. Cross, Ph.D.	The design of contemporary medical services
R.F. Wrighton, Ph.D.	Aetiology of essential hypertension
I.M. Leck, Ph.D.	Studies of morbidity in the general population and in hospital patients
J.H. Edwards	

27. Surgery

Professor F.A.R. Stammers, C.B.E., T.D.	Clinical approach to post-gastrectomy syndromes
	A new approach to the surgical treatment of peptic ulcer
	Obliterative arterial disease
	Stenosing (non-traumatic) cholangitis
Professor A.L. d'Abreu, O.B.E.	Open-heart surgery
L.D. Abrams	Use of an inductive coupled pacemaker for heart block
B.N. Brooke	Surgical management of ulcerative colitis: the early recognition of impending complications
with G. Slaney	Portal bacteriology in health and disease
N. Crawford (Miss)	Reaction of patients on steroid therapy to surgical stress
P. Sampson	
N. Crawford (Miss)	Studies on 5-hydroxytryptamine
G. Slaney	Experimental production of intestinal granulomata
	Experiments on transplantation of tissues
	Arterial surgery, including that for stenosis of the carotid, renal and mesenteric arteries
F. Ashton	Experiments on new materials for arterial prostheses
	The development of an electromagnetic flowmeter
J.A. Williams	The metabolic consequences of partial gastrectomy with special reference to fat, iron, vitamin B_{12} and calcium
	Transcutaneous cholangiography: a modification in technique
J.G. Gray	Place of immune mechanisms in the pathogenesis of ulcerative colitis
J. Leigh Collis	Satisfactory technique for the surgical treatment of hiatus hernia
G.H. Baines	Use of ileal loops in diseases of the urinary system
P. Dawson-Edwards	
G.T. Watts	Wound healing and the biochemistry of ground substance
D.J. Oakland	Exfoliative cytology with special reference to colon and rectum

*M.R.C. Neuropharmacology Research Unit

28. Zoology and Comparative Physiology

Professor O.E. Lowenstein, D.Phil., Ph.D., D.Sc., F.R.S.	Comparative physiology of the central nervous system and sense organs
R.W. Murray, D.Phil.	
L.H. Finlayson, Ph.D.	Developmental physiology of insects
J. Llewellyn, Ph.D.	Helminthology
B. Manley (Miss), Ph.D.	Low-temperature adaptation in mammals
J. Cohen, Ph.D.	Development and pigmentation of hair
W.T.W. Potts, Ph.D.	Salt and water balance in invertebrates
W.B. Yapp	Bird ecology
C.R. Sladden, Ph.D.	Cell physiology

4 Bristol University

1. Agriculture

AGRICULTURAL AND HORTICULTURAL RESEARCH STATION, LONG ASHTON

Professor H.G.H. Kearns, O.B.E., Ph.D.	
C. Bould, Ph.D.	Nutrition of fruit crops: foliar analysis
R.A. Webb, D.Phil.	Trace elements in fruit crops
D.G. Hill-Cottingham, Ph.D.	Nitrogen metabolism of fruit crops
E.J. Hewitt, Ph.D.	Mineral nutrition of higher plants: enzymes of inorganic nitrogen metabolism
A.J. Abbott	Physiology and growth of plants and excised tissues
D.J.D. Nicholas, D.Sc., Ph.D.	Nitrogen and micronutrient metabolism of micro-organisms :
J.H. Anderson, Ph.D.	Nitrifying organisms
H.E. Davenport, Ph.D.	Enzymes of higher plants in relation to photosynthesis
L.C. Luckwill, Ph.D.	Pomology and fruit breeding:
D.L. Abbott	Plant physiology; growth substances
R.R. Williams	Cider and perry fruit growing ; pollination studies
D. Wilson, Ph.D.	Breeding of currants and strawberries
A.I. Campbell	Apple and pear viruses ; propagation
E.W. Hobbis, M.B.E.	Plantation management
T.E.T. Bond, D.Sc.	Plant and fungal morphology and taxonomy
J.T. Martin, D.Sc., Ph.D.	Chemistry of insecticides and fungicides:
E.J. Skerrett, Ph.D.	Analytical methods
E. Somers, Ph.D.	Mode of action of fungicides
D. Woodcock, D.Sc., Ph.D.	Organic chemistry ; fungal metabolism
M. Clarke (Mrs.)	Chemical structure and fungicidal activity
W.D.E. Thomas, Ph.D.	Physical chemistry: properties and performance of sprays
C. P. Lloyd-Jones	Use of radioactive tracers
Professor H.G.H. Kearns, O.B.E., Ph.D.	Fruit pest control:
N.G. Morgan, Ph.D.	Techniques of spray application
A. Stringer	Insect ecology, physiology and bio-assay
H.R. Mapother	Spraying of tropical crops
B.D. Smith, Ph.D.	Biology and control of insect pests
R.W. Marsh	Fruit disease control:
R.J.W. Byrde, Ph.D.	Bio-assay of fungicides
A.T.K. Corke, Ph.D.	Perennation of fruit-disease fungi

1. Agriculture (*continued*)

AGRICULTURAL AND HORTICULTURAL RESEARCH STATION, LONG ASHTON (*continued*)

A. Pollard, Ph.D.	Cider, perry and fruit juices:
G.C. Whiting, Ph.D.	Biochemistry of fermentation
F.W. Beech, Ph.D.	Microbiology of cider yeasts
L.F. Burroughs, Ph.D.	Chemistry of fermentation
M.E. Kieser (Miss)	Chemistry of fruit juices
J.G. Carr, Ph.D.	Microbiology of cider bacteria
C.F. Timberlake, Ph.D.	Metallic complexes in fruit products
A.H. Williams	Organic constituents of plants
M. Leach (Miss)	Domestic preservation of food
K.G. Stott	Culture, utilization, pests and diseases of basket and tree willows
G.M. Clarke	Statistics: design and analysis of experiments; biometry
Agricultural Economics:	
S.R. Wragg V. Baker T.E. Godsell J. Rendell	Economics of resource use in agriculture and horticulture
S.R. Wragg W.J.G. Cowie	Situation and outlook studies in U.K. food and agriculture
W.J.G. Cowie	Social and economic status of farm workers in the U.K.

2. Anaesthetics

J. Clutton-Brock (Head of Department)	Application of electroencephalography to anaesthesia The effect of anaesthesia on the signifiance of sensory stimuli
J.H. Challenger	Nerve block in the treatment of intractable pain
G.W. Burton	Investigations into acid base balance during anaesthesia and hypothermia

3. Anatomy

Professor J.M. Yoffey, M.D.	Quantitative studies of blood formation, and factors controlling it. Studies of human foetal blood formation
with W.J.C. Rich M.K. Tidman	Effects of prolonged thoracic duct fistula
B.H. Cummins R.R. Roy	Effects of hypoxia and irradiation on bone marrow
W.K. Metcalf	Studies of blood cells by special microscopic techniques
G. Hudson	Changes in marrow eosinophils and factors influencing bone marrow volume
D.G. Osmond	Radioisotopic studies of blood cell production

4. Biochemistry

Professor W. Baker, D.Sc., F.R.S. Professor E.W. Yemm, D.Phil. B.F. Folkes, Ph.D. A.P. Sims, Ph.D.	Nitrogen metabolism and respiration in plants, including kinetics of amino-acid biosynthesis, nucleic acid metabolism, and enzyme studies
C.A. Ashford, Ph.D.	The effect of ions on respiratory pigments
S.J. Bach, Ph.D.	Intermediate protein metabolism; enzyme studies
C.F. Phelps, D.Phil.	Mucopolysaccharides and extracellular space
P.C. Caldwell, D.Phil.	Ion transport and muscle contraction in muscle and nerve fibres
A. Couper, Ph.D.	Hydrogen-activating enzymes and absorption of water by proteins
L.C. Frost, Ph.D.	The genetics of biochemical mutants of *Neurospora*
L. Hough, Ph.D.	Carbohydrate biochemistry

5. Botany

Professor E.W. Yemm, D.Phil	Metabolism of amino-acids and proteins in plants
L.E. Hawker (Miss), D.Sc.	Physiology of fungi. The hypogaeous fungi
B.F. Folkes, Ph.D.	Respiration in plants and micro-organisms Plant biochemistry
J.F. Hope-Simpson, D.Phil.	Ecology of the vegetation of chalk and limestone soils
A.J. Willis, Ph.D.	Physiology of stomata Physiological ecology of sand dunes
F.E. Round, Ph.D.	Freshwater algae and limnology
L.C. Frost, Ph.D.	Cytology and genetics including genetics of micro-organisms
M.F. Madelin, Ph.D.	Physiology of fungi Entomogenous fungi
A.P. Sims, Ph.D.	Metabolism of nitrogen in plants and micro-organisms
R.M. Harley	Experimental taxonomy

6. Chemistry

Inorganic and Physical

Professor D.H. Everett, M.B.E., D.Sc.	Thermodynamics of hydrocarbon solutions and of aqueous solutions, especially of polar organic molecules Thermodynamics of acid base equilibria Sorption of gases by solids and the structure of porous solids The H_2+ palladium system Thermal degradation of polymers and structure of amorphous carbons Capillary properties of porous systems Phase changes in porous systems General study of hysteresis phenomena Fundamental studies of gas chromatography
F.H. Pollard, D.Sc. with P. Woodward, Ph.D. E.W. Abel, Ph.D. G. Nickless Ph.D.	Binary compounds of metals with carbon, boron, silicon, sulphur and phosphorus formed at high temperature Application of X-ray and other physical methods to structural and analytical problems of inorganic co-ordination compounds and inorganic polymers Organo-metallic compounds Paper, ion-exchange and gas chromatographic studies in the chemistry of sulphur, nitrogen, phosphorus and silicon
W.J. Dunning, M.B.E., Ph.D.	Mass spectrometric studies of intermediates in chemical reactions, and of bond energies Nucleation and rates of growth of crystals Studies of the solid state
E.B. Maxted, D.Sc., Ph.D.	Activation and poisoning of metallic hydrogenation catalysts
K.W. Dunning (Mrs.) Ph.D.	Heat of formation of metallic complexes Mechanism of inorganic reactions Homogeneous hydrogenation reactions
R.C. Seymour	Infra-red spectra of adsorbed molecules and surface complexes Electrons in carbon
A. Couper, Ph.D.	Hydrogen-activating enzymes Heterogeneous catalysis of hydrogen reactions Adsorption and diffusion of polymers at metal-solution interfaces

6. Chemistry (*continued*)

Inorganic and Physical (*continued*)

F.S. Stone, D.Sc.	Adsorption and catalysis on metals, oxides and sulphides Heats of chemisorption Photo-effects at surfaces Chemistry of metallic oxides, including magnetochemistry and absorption spectra Reactions in the solid state
N.S. Hush, D.Sc.	Kinetics of electrode processes Spectra of radical ions Inorganic oxidation-reduction processes
R. Parsons, D.Sc.	Electrode processes Adsorption of ions at metal-solution interfaces Electrochemistry of solutions
T.H.K. Barron, D.Phil.	Theory of thermodynamic and vibrational properties of crystals Theory of liquids and glasses
A.J.B. Cruickshank	Thermodynamics of solutions Precision calorimetry Thermodynamics of gas chromatography
A.J. Leadbetter, Ph.D.	Thermodynamic and vibrational properties of solids Point defects in solids
R.J. Munn, Ph.D.	Thermodynamics of solutions Intermolecular forces

Organic:

Professor W. Baker, D.Sc., F.R.S. J.F.W. McOmie, D.Phil., D.Sc. J.W. Barton, Ph.D.	Non-benzenoid aromatic substances, especially derivatives of cyclobutadiene; structural and synthetic studies of oxygen and nitrogen heterocyclic compounds
J.F.W. McOmie, D.Phil., D.Sc.	Pyrimidines; natural products; quinones
W.D. Ollis, Ph.D. I.O. Sutherland, Ph.D.	Structure, synthesis and biosynthesis of natural products including antibiotics, terpenoids and naturally occurring oxygen heterocyclic compounds Chemical taxonomy
L. Hough, Ph.D.	Carbohydrate chemistry and biochemistry
R. Binks, Ph.D.	Structure and synthesis of alkaloids ; studies on alkaloid biosynthesis using tracer techniques
K. Mackenzie, Ph.D.	Chemistry of cyclopentadiene and bicyclo—[2,2,1]–heptadiene derivatives

7. Dental Studies

Medicine:

Professor A.I. Darling, D.Sc.	The pathology of caries of the dental enamel The nature of structural faults of the teeth including hypoplasia, fluorosis and amelogenesis imperfecta
J.P. Fletcher	Variations in keratinization with age of the buccal mucous membrane Effect of various enzymes on oral epithelia
M.V. Stack, Ph.D.	Growth rates of deciduous teeth Biochemistry of developing enamel
D.F.G. Poole, Ph.D. N.R. Thomas	Fine structure of tooth tissues Bone and tooth growth in relation to the eruptive process

7. Dental Studies (*continued*)

Surgery:

Professor E.W. Bradford	The structure and pathology of dentine, with special reference to the development of the carious lesions
D.C. Berry, Ph.D.	Anatomy of the temporo-mandibular joint as shown by radiography
	Problems of mandibular rest position and soft tissues behaviour
	Relationship between periodontal disease and inter-occlusal clearance
A.W. Brooks	Some structural abnormalities of human dental enamel
J.S. Cooper	The dental anatomy of the genus *Lacerta*

8. Engineering

Aeronautical:

Professor A.R. Collar, D.Sc.	Electro-mechanical simulation of flutter; methods of flutter prevention by damping ; structural damping
T.V. Lawson	Experimental studies of diffusion
R. P. Boswell	Theoretical and experimental studies of helicopter rotors
J. Tinkler, Ph.D.	Thrust from annular nozzles and performances of air
J.W. Flower	intakes; flow fields due to lifting engines
D.H. Lloyd	Studies of hypersonic flow and flow at very low density
	Aerodynamic instability of stranded cables
	Drag of aircraft undercarriages due to water and slush; aquaplaning
	Theory of matrices, especially in relation to mechanical vibrations
	Studies of particle paths in relation to icing problems
	Wing-body interference effects
	High lift devices
	Studies of vertical take-off and landing

Civil:

Professor Sir Alfred Pugsley, O.B.E., F.R.S.	Structures: fundamental problems in connection with suspension bridges and space frames; impact problems concerning plates and tubes
E.F. Gibbs, Ph.D.	Flow in rivers and open channels
M.S.G. Cullimore, Ph.D.	Steelwork joints with high strength bolts ; fatigue of high tensile wire
R. Park	Ultimate strength of reinforced concrete slabs with fixed boundaries
B.S. Smith	Behaviour of wall and floor panels in framed structures
W.J. Larnach	Ultimate strength of Vierendeel girders
R.T. Severn, Ph.D.	Stiffened plates under transverse loads ; stresses in arch dams

Electrical:

Professor G.H. Rawcliffe, D.Sc.	Problems in medium and small electrical machinery and plant, and in electrical measurement. In particular, problems related to machinery for control purposes; speed-changing machinery and methods ; unbalanced machine analysis; saturable core devices, and rectifiers
W. Fong, Ph.D.	
R.F. Burbridge, Ph.D. and colleagues	
	The department specializes in theoretical and experimental investigations into many types of dynamo-electric equipment (up to 15 kilowatts rating and 2000 cycles/second), and in electrical measurements at power frequencies
H. Sutcliffe	Application of semiconductor devices

8. Engineering (*continued*)

Mechanical:

Professor J.L.M. Morrison, C.B.E., D.Sc.	Strength of materials: yielding and fracture of metals; criteria under various stress conditions; stress-strain relations in post-yield state; effects of fluid pressure;
W.H. Dearden	effects of rate of strain
J.S.C. Parry, Ph.D.	Fatigue of ferrous materials: effects of surface finish and
J.A. Bones	treatments; axial loading under reversed and repeated
D.J. Haines, Ph.D.	stresses; thick cylinders exposed to internal pressure;
C. Andrew	torsional fatigue under reversed and repeated stresses on solid and tubular specimens; effects of high static fluid pressure on the torsional and direct fatigue properties
	Experimental stress analysis: photoelastic frozen stresses in rolling bodies; plastoelastic distributions of strain in two dimensional problems
	Machine tool vibration: dynamic behaviour of structures; origin and influence of vibration during machining
G.F.C. Rogers	Heat transfer: free convection from plates in different con-
Y.R. Mayhew	figurations; deflection of hot gas jets; forced convection
M.A. Hollingsworth, Ph.D.	in tubes including effects of entrance length, high surface temperature, and secondary flow as in a coil; thermal contact resistance between different metals

Theoretical Mechanics:

Professor W.M. Shepherd, D.Sc.	Theories of elasticity and plasticity
F.A. Gydon	Theories of elasticity and plasticity
H. Nuttall, Ph.D.	Approximate solutions to some problems of Stokes' flow
L. Sowerby	Boundary layer theory
G. Poots, Ph.D.	Boundary layer theory; heat transfer

9. Geography

Professor R.F. Peel, M.B.E.	Physiography of arid lands
	Geomorphological studies in Africa and England
F. Walker	Historical geography of Britain
	Geographical applications of air photographs
F.G. Hannell, Ph.D.	Climatic fluctuations and glacier recession
	Meteorological, topo-climatological and snowfield studies in Iceland and N. Sweden
	Applied microclimatology
A.M. Graves	Studies in regional geography
A.E. Frey	Geomorphology of the Bristol area
	Industrial location, settlement and geomorphology of Exmoor
L.F. Curtis	Soil mapping from air photographs
	Soil studies on Exmoor
M.A. Morgan, Ph.D.	Urban geography, with special reference to S.W. England
	Political geography
D.I. Smith	Geomorphology of Bristol region and Mendips
	Geomorphology and geography of Arctic Canada
	Geomorphology of limestone terrains
D. Harvey, Ph.D.	Agricultural location
	Industrial location in Sweden

10. Geology

Professor W.F. Whittard, D.Sc., Ph.D., F.R.S.	Stratigraphy and structure of Shelve Inlier, Shropshire Morphology and stratigraphical importance of Ordovician trilobites from Shropshire Geology of the Western Approaches, English Channel Structure and deposition on continental slope, north Bay of Biscay
F.C. Phillips, Ph.D.	Structural petrology of Scottish Highlands; Start Point area, S. Devon; slates of N. Cornwall; Funzie Conglomerate, Fetlar, Shetland Islands Fabric of Malayan limestones
F.C. Phillips, Ph.D. R. Bradshaw	X-ray study of preferred orientation in tectonites
I.H. Ford	Radioactivity of zircons and nuclear emulsion methods Submarine geology Ore microscopy
J.W. Cowie, Ph.D.	Geology of the Pre-Cambrian and Lower Palaeozoic sedimentary rocks of Greenland and Devon Island, arctic Canada Cambrian faunas of Ellesmere Island, arctic Canada Cambro-Ordovician stratigraphy and palaeontology of N.W. Scotland British Cambrian stratigraphy and palaeontology
R.J.G. Savage, Ph.D.	Tertiary mammal faunas of N.W. Iran Tertiary mammals of Hampshire Basin Geology of the floor of the Bristol Channel Geology of Borkou-Ennedi district, Chad Republic
B.E. Leake, Ph.D.	Metamorphic and igneous petrology and a detailed study of the chemistry and mineralogy of the Connemara basement complex, County Galway, Eire Studies of the variation in composition of calciferous amphiboles with metamorphic grade
R. Bradshaw	Metamorphic and igneous geology in East Connemara, Co. Galway, Eire Structural and metamorphic studies in the Caledonides of N. Norway Petrology of the Bartica District, British Guiana
D. Hamilton	Rhaetic sediments of the south-west of England and Northern Ireland Algal limestones and carbonate deposition Shallow water sedimentation Petrology of some New Zealand greywackes
S.C. Mathews	Upper Palaeozoic geology of E. Cornwall and W. Devonshire British Upper Palaeozoic conodont faunas Lower Carboniferous ammonoids
J. W. Murray, Ph.D.	Ecology and systematics of living Foraminiferida and Thecamoebina
D. Shelley	Structural and geochemical studies in "Les Abers" region (Lannilis), Finistère, France. Study of myrmekite texture

11. Mathematics

Applied:

Professor L. Howarth, O.B.E., F.R.S. W. Chester, Ph.D. M.H. Rogers, Ph.D. J.B.L. Powell, Ph.D. D.W. Moore, Ph.D. P.G. Drazin, Ph.D. A.R. Paterson, Ph.D.	Fluid mechanics

11. Mathematics (*continued*)

Pure:

Professor H.A. Heilbronn, F.R.S.	Theory of numbers
C. Hooley, Ph.D.	
D.A. Burgess, Ph.D.	
J.C. Shepherdson	Mathematical logic
M.D. Gladstone	
R.E. Reifenberg	Analysis
J.M. Marstrand, D.Phil.	
C.R.J. Clapham, D.Phil.	Algebra

12. Medicine

Professor C.B. Perry, M.D.	Natural history and aetiology of acute rheumatism Rheumatic heart disease
A.E. Read, M.D.	Gastroenterology including liver disease Megaloblastic anaemia
D.W. Barritt, M.D.	Congenital heart disease
D.R. Coles, M.D.	Peripheral vascular disease with special reference to diabetes mellitus
A.M.G. Campbell, M.D.	Aetiology of disseminated sclerosis

13. Microbiology

Bacteriology:

Professor K.E. Cooper, Ph.D.	Studies in the activity of antibiotics and antiseptics Studies in growth of bacteria
A. Mayr-Harting (Mrs.) M.D., Ph.D.	Phages and bacteriocines
A.H. Linton, Ph.D.	
G.C. Ware, Ph.D.	
M.E. Thompson (Miss)	
E.A. van Horn (Miss)	
A.J. Hedges, Ph.D.	Penicillinases
H.R. Cayton	Acute respiratory diseases in childhood
S.K.R. Clarke (Miss), M.D.	Survey of acute respiratory virus infection
D.B. Peacock	Investigation of respiratory syncitial virus
L.W. Greenham	Survey of rabbit mucoid enteritis Investigation into virus-host cell relationship
L.W. Greenham T.J. Hill	Haemolysins of *Pasteurella haemolytica*
M.P. English (Miss)	Mycology of human and animal diseases
W.A. Gillespie, M.D.	Epidemiology of wound, urinary tract and neonatal infection
V.G. Alder, Ph.D.	Disinfection
K.B. Linton, Ph.D.	Heat resistance of bacterial spores

14. Obstetrics and Gynaecology

Professor G.G. Lennon	Aetiology and treatment of toxaemia of pregnancy Aetiology of congenital abnormalities
T.M. Abbas, M.D.	Relationship of minimal albuminuria and asymptomatic urinary infection Analgesic drugs Oxytocic drugs in post-partum haemorrhage
P.C. Sen Gupta	Study of vaginal cytology and oestriol investigations in pregnancy
A. King (Miss)	Study of vaginal cytology

15. Ophthalmology

A.G. Palin (Head of Department) with R.C. Tudway	Investigation of radioactive phosphorus in the detection of ocular malignancy
	Re-establishment of naso-lacrimal duct patency
C.I. Phillips	Closed angle glaucoma
	Retinal detachments with special reference to surgical treatment

16. Otorhinolaryngology

J.A. James, M.D.	Treatment of lymphoid hyperplasia of the nasal pharynx with radiation
K. J. Hadley	
P.N.T. Wells	Aetiological factors in nasal allergy
	The action of ultrasonic radiation on the inner ear
	Hypophysectomy for hormone-dependent neoplasms
	Action of ultrasonics on the hypophysis

17. Paediatrics and Child Health

A.V. Neale, M.D. with G. Woods (Mrs.) M.D.	Perceptional, educational and training problems in cerebral palsy
B. Corner (Miss), M.D.	Growth and development in prematurity
	Metabolic problems in prematurity
	Prophylactic exchange transfusion
J. Apley, M.D.	Newer methods of investigating alimentary function in children
	Family patterns in response to stress
	Psychosomatic syndromes in childhood
A.V. Neale, M.D. with F. Lewis Professor G.G. Lennon	Pressor amines: biochemical survey in pregnancy and the newborn
R. Harris	Respiratory function studies in infants and children
I. Westmacott (Miss)	Psychiatric social paediatric problems
V.J. Marrian (Miss)	Uses of a genetic advice service in practice
	Growth hormone
A.B. Raper, M.D. with I. Fraser, M.D.	Foetal-maternal blood transfusion
A.V. Neale, M.D. with R. Harris	Respiratory function in infants and children
G.R. Airth	Uses of radiation-limiting techniques in X-ray diagnostic studies in infants and children
B. Corner (Miss), M.D. with S. Eades S. Walker	Epidemiology of staphylococcal infection in the neonatal period and post-neonatal period

18. Pathology

Professor T.F. Hewer O.C. Lloyd, M.D. E.S. Meek, M.D.	Study of normal and tumour melanoblasts by " dopa " and fat stains, to elucidate the relationship between melanomas and other naevoid tumours
C.H.G. Price, M.D. G.M. Jeffree (Miss), Ph.D.	Malignant melanomas of the skin ; a study of the origin, development, aetiology, spread, treatment and prognosis
A.C. Hunt, M.D. J.S. Cornes, M.D.	Study of tumours of bone derived from the Bristol Bone Tumour Register
	Relationship of skeletal growth and development to bone-forming tumours, both benign and malignant
	Quantitative and histochemical study of the distribution of enzymes in skeletal tumours
	Critical review of the criteria of malignancy in tumours of cartilage
	Experimental study of the nucleic acids and nucleoproteins in malignant cells
	Effects of anoxia and asphyxia
	Study of lymphoid tumours and leukaemic lesions in the gastrointestinal tract

19. Pharmacology and Therapeutics

Professor H. Heller, M.D., Ph.D.	Neurohypophysial hormones Pharmacologically active substances in the hypothalamus
M. Ginsburg, Ph.D.	Metabolism of neurohypophysial hormones
R.J. Fitzpatrick, Ph.D.	Oxytocin Role of oxytocin in parturition
P.J. Bentley, Ph.D.	Comparative aspects of neurohypophysial and adrenocortical hormones Water and electrolyte metabolism in mammals
K. Lederis, Ph.D.	Electron microscopy of and pharmacological activities in hypothalamus

20. Physics

Professor M.H.L. Pryce, F.R.S.	Theoretical physics, mainly of the solid state and magnetism
Professor C.F. Powell, F.R.S.	Cosmic rays, mesons and nuclear physics
Professor F.C. Frank, O.B.E., F.R.S.	Crystallization and dissolution ; structure and defects of solids
N. Thompson, Ph.D.	Fatigue in metal
R.G.Chambers, Ph.D.	Low temperature physics ; electronic properties of metals and Fermi surface studies
D.F. Gibbs	Dielectric and semiconducting properties of crystals ; high pressure physics
D.H. Perkins, Ph.D.	Nuclear physics at extremely high energies
W.M. Gibson, Ph.D.	Nuclear physics with high energy accelerators
P.H. Fowler, D.Sc.	Nuclear physics at extremely high energies
C.R. Burch, C.B.E., Ph.D., F.R.S.	Mineral dressing and applied optics
H.F. Freundlich	Medical physics
H.F. Kay, Ph.D.	X-ray crystallography of polymers, Tutton salts and laser crystals
A.F. Devonshire, Ph.D.	Theory of ferroelectrics
R.P. Mercier, Ph.D.	Theoretical physics ; radiation in hot plasmas
J.G.C. Milne, Ph.D.	Cyclotron resonance in metals at low temperatures
J.F. Nye, Ph.D.	Plastic deformation of crystals: glaciology
A.J. Forty, Ph.D.	Physics of materials ; stress corrosion ; radiation damage
A.R. Lang, Ph.D.	X-ray diffraction ; crystal defects
D. Parsons, Ph.D.	Propagation of phonons in liquid helium
J.C. Gill, Ph.D.	Magnetic resonance and relaxation
D. Gugan, Ph.D.	Thermal expansion of solids at low temperatures ; susceptibility of alkali metals
D.A. Greenwood, Ph.D.	Problems in the quantum theory of solids
A. Keller, Ph.D.	Crystallization of long-chain polymers
J.G. Baker, Ph.D.	Millimetre wave spectroscopy

21. Physiology

Professor R.J. Brocklehurst, D.M.	
S.J. Bach, Ph.D.	Intermediate metabolism of nitrogenous compounds Role of arginase and histidase in tumour growth Pregnancy toxaemia in sheep
E.H. Batten, Ph.D.	Cranial nerve embryology
J.M.N. Boss, Ph.D.	Behaviour of cell surfaces Maturation of the kidney
R.St.J. Buxton, Ph.D.	Protein sensitization and electrolytes
A. Carlyle	Reproductive cycle
S.B. Carter (Miss), Ph.D.	
A.S. Cole (Miss), Ph.D.	Soluble material of the gastrointestinal tract
P.F. Millington, Ph.D.	Electron microscopy of cell membranes
C.F. Phelps, D.Phil.	Mucopolysaccharides and extracellular space

21. Physiology (*continued*)

A.F. Rogers, M.D.	Energy expenditure in the Antarctic
T.D. Williams, M.D.	Functional development of the neonatal cortex
	Physiology of the basal ganglia

22. Psychiatry

Professor D.R. Davis, M.D.	Family processes
	Somatic perameters of anxiety
	Disorders of perception in mental disorder
R.E. Hemphill, M.D.	Mental illness in child-bearing
	Anti-psychotic drugs in therapy and symptom formation
	Rehabilitation of chronic psychotics and motivation for work in schizophrenia
	Vagrancy and psychiatric disorder in casuals
R.F. Barbour	Maturation of central nervous system in mentally ill children
W.A. Heaton-Ward	Drug control of epilepsy and psychosis in the sub-normal
	Metabolic disorder in the sub-normal
L. Walker	Electroencephalograms and psychological follow-up of premature children

23. Psychology

Professor K.R.L. Hall, D.Phil.	Field and experimental comparative studies of non-human primate behaviour
F.H. George, Ph.D.	Cybernetics and its applications to learning and perception ; logic; teaching machines and teaching-machine programming
I.W. Pleydell-Pearce, Ph.D.	Conflict, fatigue and stress ; neuropsychology
K.F.H. Murrell	Occupational psychology ; equipment design ; problems of older workers
S. Griew, Ph.D.	Skilled performance ; psychological aspects of ageing
P.F. Powesland	Social psychology ; information transmission
J. Spencer	Applied experimental psychology ; information display and utilization
J.H. Crook, Ph.D.	Comparative ethology ; hormonal influences on nest-building behaviour in weaver-birds ; social determinants of reproductive behaviour in birds

24. Public Health

Professor R.C. Wofinden, M.D.	Problems of public health administration
P.W. Bothwell, M.D.	Epidemiological research
	Automotive medicine
E.H.L. Duncan (Miss)	Medical statistics
M.D. Gibson (Miss)	Investigations into causes of "athlete's foot"
H.T. Phillips, M.D.	Mental health
S. Walker (Miss), M.D.	Study of illegitimacy
J.F. Skone, M.D.	Housing, health and welfare of immigrants
	Family life in high flats
	Epidemiology
A.L. Smallwood, M.D.	Growth, family size and diet
	Specific speech disabilities
	Screening techniques in medical care

25. Radiodiagnosis

J.H. Middlemiss, M.D.	Diagnostic radiology of tropical diseases
F.G.M. Ross	The technique of cineradiography

26. Radiotherapy

R.C. Tudway B. Hale	Investigation of time variation in uptake of radioactive phosphorus in carcinoma of the breast with and without treatment of the carcinoma by radiotherapy or hormones, and assessment of hormone dependence of tumours
	Artificial control of tumour activity with antimetabolite drugs followed by continuous phosphorus uptake record, and the synchronization of treatment with peaks of activity
R.C. Tudway H.F. Freundlich	Statistic analysis of results of radiotherapeutic treatment of carcinoma of the larynx, breast and cervix, using the method of Boag

27. Surgery

Professor R. Milnes Walker J.H. Peacock C. Shaldon	Portal hypertension and the hepatic circulation
J.H. Peacock C. Tyler (Miss)	Neurotransmitter hormones in man
Professor R. Milnes Walker H.J. Espiner	Chemotherapy of cancer by regional infusion

28. Veterinary Studies

Anatomy:

Professor C.W. Ottaway, Ph.D.	Functional anatomy of locomotion in animals
R.N. Smith, Ph.D.	Functional anatomy of the intervertebral disc Development of the colon in domestic ruminants Skeletal development in the domestic animals
A.W. Marrable, Ph.D.	Early embryology of a teleost fish
R.R. Ashdown, Ph.D.	Anatomy of the reproductive tract in domestic animals

Animal Husbandry:

Professor T.K. Ewer	Evaluation of "markers" methods of measuring digestibility in pig and ruminant
M.R. McCrea	The nutritional requirements of the baby pig
M.J. Manners, Ph.D.	Bone metabolism in pigs
W.P. Jaffe, Ph.D.	Developmental genetics in the domestic chicken
P.Radford, Ph.D.	Artificial insemination of pigs; behavioural and nutritional interrelationships in fowls

Medicine:

Professor C.S.G. Grunsell	Pathology of helminth parasitism
J.R. Holmes, Ph.D.	Bone pathology. Diseases of the circulatory system in domestic animals
D.E. Kidder, Ph.D.	Digestive physiology of the baby pig
A.D. Osborne	Diseases of lymphadenitis in the pig
R.H. Penny	Erythropoietic factors in anaemic plasma
A.I. Wright	Anaemia of kale poisoning and foot lesions in pigs
M.R. Wilson	Psittacosis lymphogranuloma venereum group viruses in domestic animals

Surgery:

Professor A. Messervy	Improved surgical techniques
J.J. Yeats	Osteo-arthritic conditions in the horse
H. Pearson	Mineral levels in cattle
B.M.Q. Weaver (Miss)	Anaesthesia
J.S.E. David	Reproduction in domestic animals

29. Zoology

Professor J.E. Harris, C.B.E., Ph.D., F.R.S.	Experimental cytology; neurophysiology; animal locomotion
H.E. Hinton, Ph.D., Sc.D., F.R.S.	Insect physiology and evolution
J.A. Kitching, O.B.E., Ph.D., Sc.D., F.R.S.	Protozoan physiology; experimental cytology; marine ecology
R. Bassindale	Cirripede biology
R.B. Clark, Ph.D.	Morphology and physiology of the annelid nervous system
H.D. Crofton, Ph.D.	Helminthology; parasitic population problems
H.P. Whiting, Ph.D.	Anatomy and physiology of the nervous system
P.C. Caldwell, D.Phil.	Ion transport in muscle and nerve
F.E. Oldfield (Miss), Ph.D.	Experimental morphology of slime moulds

5 Cambridge University

1. Agriculture

Professor Sir Joseph Hutchinson, C.M.G., Sc.D., F.R.S.	Crop plant evolution
*A.J. Brookes	Experimental studies in animal husbandry
M.G. Barker	The use of cultivating equipment
B. Wilton	
R.C. Campbell, Ph.D.	Biometrical problems in animal experimentation
K.J. Carpenter, Ph.D.	Protein quality and amino-acids in processed foods
M.J. Chadwick, Ph.D.	Problems of plant growth in arid and semi-arid conditions
†E.C. Childs, Sc.D.	Soil physics, with special reference to water movement
S. Dickinson, Ph.D.	The nature of resistance to disease in plants: obligate parasitism
R.E. Evans, Ph.D.	The protein requirements of pigs as influenced by the biological value of the protein supply Factors influencing the rate of growth and nitrogen retention in bacon pigs
D.G. Gilmour, Ph.D.	Antigens of the red blood cells of poultry, and their application to problems of inbreeding Physiological analysis of the annual life-cycle in poultry
J. Hammond	Ovulation endocrinology, fertility, photoperiodicity
F. Hanley, O.B.E.	Experimental studies in crop husbandry
R.B. Heap, Ph.D.	A study of muscle development
W.J. Ridgman	
W.J.S. Kershaw	A study of natural factors which influence population fluctuations of *Myzus persicae* and *Aphis fabae* on sugar beet
A. Lazenby, Ph.D.	Studies of various weeds in relation to their control by agricultural practices
D.G. Morgan	The influence of phytohormones and plant growth regulators on crop growth and development
J.L. L'Estrange	Studies in the nutritional requirements of sheep
P.H. Lowings, Ph.D.	Root diseases of cereal crops
M. McGowan	Studies in soil structure in industrially worked land
J.B. Owen, Ph.D.	Study of variations in the food intake of cattle and sheep under normal conditions in relation to their productive performance and to other factors

*Director, University Farm

†Director, A.R.C. Unit of Soil Physics

1. Agriculture (*continued*)

R.M.S. Perrin, Ph.D.	Geochemistry and mineralogy of chalk Chalk drifts and the soil derived from them
R.W. Pomeroy, Ph.D.	Beef carcass quality
C.R. Ribbands, Sc.D.	Ecology and behaviour of sugar beet pests: honeybees
F.G. Sturrock	Economics of production of milk, pigs, cattle, sheep and cash crops
D.B. Wallace	Farm management surveys
C.S. Barnard	Measurements of farm efficiency The use of labour and mechanization Capital requirements of agriculture
H.T. Tribe, Ph.D.	Soil microbiology; problems of decomposition of organic matter and humus formation in soils Parasitism of sclerotia of *Sclerotinia trifolium* in soil
E.H. Whetham (Miss)	Research on British agricultural economics
E.G. Young, Ph.D.	The physics of water movement in unsaturated soils

2. Anatomy

Professor J.D. Boyd M.D., D.Sc.	Human embryology and placentation Development of nervous system
J.W. Millen, M.D., D.Sc.	Cerebrospinal fluid and experimental teratology
M.M. Bull, M.D.	Placentation and post-partum uterine changes
H.L.H.H. Green, M.D.	Vertebrate morphology
A.F.W. Hughes, Sc.D.	Neuro-embryology
P.A.G. Monro, M.D.	Autonomic nervous system Microcirculation in transparent chambers, etc.
C.W.M. Pratt	Development and structure of bone
C.C.D. Shute, M.D.	Vertebrate central nervous system
B. Towers	Embryology and respiratory tract
D.H.M. Woollam, M.D.	Cytogenetics and experimental teratology
G.H. Wright, M.D.	Neurology of perception and language
E.H.R. Ford, M.D.	Growth and cytogenetics
G. Horn	Experimental neurology
R.T. Sims	Vascularization of nervous system ; melanocytes
P.R. Lewis, D.Phil.	Histochemistry
M.A. Message	Development of muscle
Veterinary Anatomy:	
R.A. Green, Ph.D.	Locomotion in mammals
B.A. Cross, Ph.D.	Neuro-endocrinology
A.R. Akester	Cine-radiography: avian respiration
I.A. Silver	Polarography in tissues Neuro-endocrinology
D.H. Steven	Vascular anatomy

3. Anthropology

Social:	
Professor M. Fortes	Social anthropology, with special reference to W. Africa
E.R. Leach	Anthropology of S.E. Asia
R.F. Fortune	Anthropology of New Guinea
G.I. Jones	Colonial anthropology of British Africa
J.C. Trevor, Ph.D.	Anthropometry and the physical anthropology of race
J.R. Goody, Ph.D.	Ethnography of W. Africa
A.I. Richards (Miss), C.B.E., Ph.D.	Sociology of Central and East Africa

4. Archaeology

Professor J.G.D. Clark	World prehistory Mesolithic cultures of Europe
G.E. Daniel, Ph.D., D.Litt.	European prehistory with special reference to megalithic tombs
C. McBurney, Ph.D.	Old Stone Age with special reference to Europe and N. Africa
J.M. Coles	Early metal industries of Northern Britain
E.S. Higgs	Metrical analysis of lithic industries; animal remains as a source of information about early stock raising
B. Hope-Taylor	Archaeology of the protohistoric and historic periods in Europe, with special reference to settlements

5. Astronomy and Astrophysics*

Professor R.O. Redman, F.R.S.	Stellar spectrophotometry
E.H. Linfoot, Sc.D.	Optics : especially aspherical surfaces ; diffraction theory ; information theory
H. von Klüber, Ph.D.	Photometry of solar corona Magnetic fields on sun
A. Beer, Ph.D.	Stellar spectra
D.W. Dewhirst, Ph.D.	Applications of Schmidt telescopes Optical identifications of discrete radio sources
A.N. Argue	Stellar photometry
R.V. Willstrop, Ph.D.	Stellar spectrophotometry

6. Biochemistry

Professor F. G. Young, D.Sc., F.R.S.	Mechanism of hormone action, especially pituitary growth hormone and insulin Insulin and protein biosynthesis
P.J. Randle, Ph.D.	Mechanism of action of insulin on carbohydrate metabolism
A. Korner, Ph.D. A.J. Munro	Hormonal control of protein synthesis in cellular particles
H.B.F. Dixon, Ph.D.	Corticotropic and melanocytestimulating hormones
M. Dixon, Sc.D., F.R.S.	Enzyme biochemistry
C.J.R. Thorne, Ph.D.	Dehydrogenase isoenzymes, with particular reference to malic and lactic dehydrogenases
Professor E.F. Gale, Sc.D., F.R.S.	Chemical microbiology Mechanism of synthesis of protein and nucleic acids by bacteria
†R. Davies, Ph.D.	Enzyme formation in yeasts
D. Kerridge, Ph.D.	Synthesis of bacterial flagella
K. McQuillen, Ph.D.	Protein synthesis by bacterial ribosomes
†B.A. Newton, Ph.D.	Nucleic acid and protein synthesis in flagellates
J.B. Chappell, Ph.D.	Biochemical and osmotic properties of mitochondria
P.K. Tubbs, Ph.D.	Mitochondrial oxidative enzymes
K. Bailey, Sc.D., F.R.S.	Biochemistry of myosin ; structure of peptides liberated in the clotting of fibrinogen
A.A. Newton (Mrs.), Ph.D.	Biochemistry of growth of animal viruses
D.H. Northcote, Ph.D.	Structure of plant cell wall
L.G. Whitby, Ph.D. M.D.	Metabolism of adrenaline and noradrenaline
‡R. Hill, Sc.D., F.R.S.	Hydrogen transport in photosynthetic tissue
D.S. Bendall, Ph.D.	Biochemistry of tea fermentation
‖A. Stockell Hartree (Mrs.), Ph.D.	Purification of human pituitary hormones
Sir Rudolph Peters, M.D., F.R.S.	Biochemistry of compounds containing the carbon-fluorine group

See also* **Mathematics †M.R.C. Staff ‡A.R.C. Staff ‖Financed by M.R.C.

7. Biology and Parasitology

MOLTENO INSTITUTE

P. Tate, Sc.D.	Parasitic protozoa and parasitic insects
Professor D. Keilin, F.R.S.	Cellular biology, especially metallo-protein catalysis
*A. Bishop (Miss), Sc.D., F.R.S.	Chemotherapy of avian malaria
*E.W. Smart (Mrs.) Ph.D.	Drug resistance in protozoa Parasitic amoebae
†H. Laser, Sc.D.	Tissue metabolism and radiobiology
D.L. Lee, Ph.D.	Host-parasite relationships in helminths
‡T. Mann, C.B.E., Sc.D., F.R.S.	Biochemistry of spermatozoa and accessory glands of reproduction
‡C. Lutwak-Mann (Mrs.) Ph.D.	
R.J. Tatchell, Ph.D.	Ticks and parasitic insects

8. Botany

Professor H. Godwin, Ph.D., Sc.D., F.R.S.	Quaternary research (pollen analysis, vegetational history and geology)
R.G. West, Ph.D.	
D.M. Churchill	
J.H. Dickson	Quaternary history of the Bryophyta
E.H. Willis, Ph.D.	Radiocarbon dating
J. Barker, Ph.D., F.R.S.	Carbohydrate and respiratory metabolism in plants
G.C. Evans, Ph.D.	Quantitative analysis of plant growth
M.J.P. Canny, Ph.D.	Translocation
E.A. MacRobbie, Ph.D.	Biophysics: movement of solutes in plants cells
P.J. Grubb	Water and salt relations of bryophytes
S.D. Garrett, Sc.D.	Fungal and bacterial plant diseases
J. Rishbeth, Ph.D., Sc.D.	Fungal and bacterial plant diseases
H.J. Hudson, Ph.D.	
K.R. Sporne, Ph.D.	Phylogeny of vascular plants. Morphology of dicotyledon flowers. Palaeobotany
D.E. Coombe, Ph.D.	Plant ecology
C.D. Pigott, Ph.D.	
E.J.H. Corner, F.R.S.	General systematics of angiosperms and fungi
S.M. Walters, Ph.D.	Experimental taxonomy of European flowering plants Work on the 'Flora Europaea'
H.L.K. Whitehouse, Ph.D.	Genetics and cytology, including genetics of micro-organisms
D. Briggs	Genetics: the Bryophyta
E.A. George	Culture, taxonomy and morphology of algae, and culture of protozoa
J.S.L. Gilmour	History and philosophy of taxonomy
P.F. Yeo, Ph.D.	Plant names. Experimental taxonomy of *Euphrasia* Taxonomy of garden plants

9. Chemistry

Chemical Spectroscopy:

N. Sheppard, Ph.D.	Infra-red and nuclear magnetic resonance spectroscopy as applied to the study of molecular structure

*M.R.C. Group for Research in Chemotherapy
†M.R.C. staff ‡A.R.C. staff

9. Chemistry (*continued*)

Inorganic:

Professor H.J. Emeléus, C.B.E., F.R.S.	Chemistry of fluorine compounds, volatile hydrides and other inorganic substances. Reactions in non-aqueous solvents
A.G. Maddock, Sc.D.	Radiochemistry
A.G. Sharpe, Ph.D.	Chemistry of complex salts
R.H. Prince, Ph.D.	Kinetics of fast inorganic reactions
T.C. Waddington, Ph.D.	Physical aspects of inorganic chemistry. Lattice energies and studies of non-aqueous solvents
E.A.V. Ebsworth, Ph.D.	Chemistry of hydrides: spectroscopic studies
M.L.H. Green, Ph.D.	Organo-metallic chemistry

Organic:

Professor Lord Todd, F.R.S.	Chemistry of nucleotides and phosphorylation studies Chemistry of aphid pigments
C.B. Reese, Ph.D.	Nucleotide chemistry and photochemical reactions
D.M. Brown, Ph.D.	Studies in phospholipids, nucleotides and other organic phosphorus compounds
V.M. Clark, Ph.D.	Structure and synthesis of vitamin B_{12} and organic phosphorus compounds
B.C. Saunders, Sc.D., Ph.D.	Mechanism of peroxidase action; organic chemistry of phosphorus and fluorine
A.R. Katritzky, Ph.D.	Studies in heterocyclic chemistry, particularly the application of physical methods
P. Sykes, Ph.D.	Thiazolium compounds and the chemical mode of action of thiamine
P. Maitland, Ph.D.	Organic reactions in aqueous solution at room temperature
J. Harley-Mason, Sc.D.	Alkaloids and other natural products; intermediates in biosynthesis
F.B. Kipping, Ph.D.	Piperazine derivatives
F.G. Mann, Ph.D., F.R.S.	Chemotherapeutic investigations. Heterocyclic compounds, including organo-metallic derivatives of phosphorus and arsenic
D.W. Cameron, Ph.D.	Chemistry of aphid pigments
G.M. Blackburn, Ph.D.	Structure of xylindein

Physical:

Professor R.G.W. Norrish, Sc.D., Ph.D., D. de l'U. F.R.S.	Reaction kinetics and photochemistry including combustion and polymerization
T.M. Sugden, Ph.D.	The thermodynamics of inorganic compounds in flame gases
E.A. Moelwyn-Hughes, Sc.D., D.Phil., Ph.D., D.Sc.	Chemical statics and dynamics of solutions
J.N. Agar, Ph.D.	Electrochemistry
P.G. Ashmore, Ph.D.	Reaction kinetics
B.A. Thrush, Ph.D.	Spectroscopy of reactions
J.H. Purnell, Ph.D.	Reaction kinetics and chromatography
A.B. Callear, Ph.D.	Photochemical kinetics
D.R. Jenkins, Ph.D.	Mass spectrometric study of flames
P.J. Padley, Ph.D.	Free radicals in flames
J. Guttridge	Application of electronics to chemical problems
D. Husain, Ph.D.	Photochemistry

9. Chemistry (*continued*)

Theoretical:

Professor H.C. Longuet-Higgins, F.R.S.	The application of wave mechanics and statistical mechanics to the physical and chemical properties of molecules and molecular aggregates
S.F. Boys, Ph.D.	The development of automatic computation methods for the solution of problems in theoretical chemistry
L.E. Orgel, D.Phil.	The interpretation of the properties of inorganic molecules in terms of the electronic theory of valency
A. Carrington, Ph.D.	The study of free radicals and other paramagnetic species by electron resonance spectroscopy

10. Colloid Science

Professor F.J.W. Roughton, F.R.S.	Physical chemistry of proteins and enzymes. Kinetics and equilibria of rapid reactions in solution and in gas-liquid systems
P. Johnson, Ph.D.	The examination by physicochemical methods of macromolecules, biological and non-biological, and colloids in solution
R.H. Ottewill, Ph.D.	Physicochemical investigations of hydrophobic colloids with special reference to coagulation and investigations on properties of surface activation and their mode of interaction on solid liquid interfaces
D.A. Haydon, Ph.D.	Fundamentals of electrophoresis, particularly as applied to biological systems. Coalescence phenomena. Stability of non-aqueous media

11. Engineering

Aeronautical:

Professor W. A. Mair	Boundary layers and their control
M.R. Head, Ph.D.	High lift aircraft
E.P. Sutton	Separated flows
D.J. Maull, Ph.D.	Supersonic and transonic flow

Applied Mechanics:

Professor D.C. Johnson	Dynamics of machines including toothed gearing
H.S.L. Harris	Dynamic stresses in gear teeth
D.B. Welbourn	Dynamics of control systems
R.W. Gregory, Ph.D.	Non-linear vibration
J.M. Prentis, Ph.D.	Gyroscopic problems
F.A. Leckie, Ph.D.	Static and dynamic stresses, shells, matrix methods
R.P.N. Jones, Ph.D.	Impact stresses and vibration
P.E.W. Grensted, Ph.D.	Automatic controls
M.J. French	Balancing of rotors
K.L. Johnson, Ph.D.	Contact stresses

Applied Thermodynamics:

Professor W.R. Hawthorne, F.R.S.	Problems in applied thermodynamics Flexible ships
H.G. Rhoden	Air flow in compressor blade cascades and in rotating blade rows
P. de K. Dykes, Ph.D.	Motor industry research problems
F.D. Robinson	Internal combustion engines
H.Cohen, Ph.D.	Heat transfer in two-phase flow and heat generating fluids
J.A. Shercliff, Ph.D.	Magnetohydrodynamics
D.S. Whitehead, Ph.D.	Fluid mechanics of turbo-machines
M.G. Cooper	Boiling heat transfer; γ-ray density gauges
M.D. Wood, Ph.D.	Gas bearings
J.T.B. Oxford	Flow of air in rotating blade rows
M.D. Cowley, Ph.D.	Magnetohydrodynamics

11. Engineering (*continued*)

Chemical:

Professor P.V. Danckwerts, G.C., M.B.E.	Mixing of fluids ; gas absorption ; homogeneous catalysis; granulation
W.D. Armstrong, Ph.D.	Automatic process control
J.F. Davidson, Ph.D.	Behaviour of bubbles in liquids; fluidization
H.P. Hutchison	Distillation
C.N. Kenney, Ph.D.	Vapour phase chromatography ; reaction kinetics
G.A. Ratcliff, Ph.D.	Gas absorption; diffusion coefficients; solid-liquid separation
J.C.R. Turner, Ph.D.	Thermal diffusion in solutions; ion exchange
D.A. Blackadder, D.Phil.	Reaction kinetics ; polymer science
D. Harrison, Ph.D.	Fluidization
R.M. Nedderman, Ph.D.	Two-phase flow
J.R.A. Pearson, Ph.D.	Non-Newtonian flow dynamics ; motion of small particles in viscous fluids

Control:

J.F. Coales, O.B.E. A.T. Fuller, Ph.D. P.E.W. Grensted, Ph.D.	Development of generally applicable methods of analysis of non-linear control systems and filters with random inputs
J.K. Lubbock, Ph.D. H. Nicholson	Use of functionals and the application of methods of statistical mechanics to control system analysis and synthesis
H.H. Rosenbrock, Ph.D.	Theoretical and experimental investigation of methods of analysis and optimization of non-linear control systems
J.D. Roberts, Ph.D.	and filters Investigation of important classes of control systems such as relay (ON/OFF) and saturating systems, multi-loop systems (self-optimizing systems) The recording and analysis of random processes The analysis and optimization of control systems with randomly varying loads The use of analogue and digital computers in control system design and the preparation of universally applicable design charts in non-dimensional form Analysis and optimization of extremum controls Self-adjusting non-linear filters Optimization of multi-variable control systems

Electrical:

Professor C.W. Oatley, O.B.E.	Applications of the scanning electron microscope
G.E. Middleton	Anomalous losses in induction motors and other ferromagnetic systems
J.C.S. Shaw	Application of electronic switches to the control of a.c. machines
K.F. Sander, Ph.D.	Electron optics and potential problems
P. Hammond	Electromagnetic problems in electrical machines
A.H. Beck	The design of microwave valves Studies of thermionic emission Plasma physics Heavy current electron optics Ultra-high vacuum
C.W.B. Grigson, Ph.D.	Development of an electron diffraction system with direct recording of the diffracted beams Aspects of magnetism in thin ferromagnetic films
W.C. Nixon, Ph.D.	Electron optics, electron microscopy and microanalysis Scanning electron microscopy Plasma physics

11. Engineering (*continued*)

Electrical (*continued*)

G.R. Nicoll	Stochastic simulators
	Micro-electronics
F. Fallside, Ph.D.	Automatic control
	Non-linear systems

Hydromechanics:

A.M. Binnie, F.R.S.	Swirling flow in pipes ; turbulent dispersion in a pipe
T.B. Benjamin, Ph.D.	Experiments on cavitation bubbles; the formation of bores in channels

Industrial Management:

D.L. Marples	Problem solving in technical organizations
A.D. Cunningham	Management of engineering projects

Soil Mechanics:

K.H. Roscoe	Shear behaviour of soils, earth pressure, and stability of footings subjected to highly eccentric loads
A.N. Schofield, Ph.D.	
C.P. Wroth, Ph.D.	

Structure and Materials:

Professor Sir John Baker, O.B.E., F.R.S.	Dynamic and static properties of materials Load carrying capacity and design of framed structures
R.D. Davies, Ph.D.	Strength and rigidity of welded structural connections
E.N. Fox, Sc.D.	Creep of concrete
A.M.P. Brookes	Behaviour of thin-walled sections
K.J. Pascoe	Stress analysis
T.M. Charlton	Shell theory : elastic, plastic and creep
R.K. Livesley, Ph.D.	Dynamic loading of structures
J.L. Reddaway	Column instability
D.B.C. Taylor, Ph.D.	Plastic theory of steel structures and composite steel-concrete structures
H.S.L. Harris	
W.D. Biggs, Ph.D.	Automatic computation of structures
J. Heyman, Ph.D.	Lateral buckling of beams
E.K. Frankl	Stress concentrations in steady creep
R.P. Johnson	Limit analysis of plates and slabs
F.A. Leckie, Ph.D.	Yielding and failure of concrete under compound stress
C.R. Calladine	
J.B. Dwight	
R.P.N. Jones, Ph.D.	
D.J. Payne	
B.D. Threlfall	
A.N. Schofield, Ph.D.	

12. Genetics

Professor J.M. Thoday	Developmental genetics of *Antirrhinum*, *Drosophila* and the mouse
T. Alderson, Ph.D.	Genetics and endocrinology
W.F. Bodmer, Ph.D.	Genetics and leprosy
J.B. Gibson, Ph.D.	Genetics and population genetics of heteromorphic plants
S.A. Henderson, Ph.D.	Linkage and affinity in the mouse
A.R.G. Owen, Ph.D.	Mathematical and statistical genetics
J.A. Pateman, Ph.D.	Mutagenesis in phage
S.G. Spickett	Quantitative and biochemical genetics in *Neurospora* and *Aspergillus*
M.E. Wallace (Mrs.), Ph.D.	Quantitative genetics and experimental population genetics, and chemical mutagenesis with *Drosophila*
	Distribution of chiasmata

13. Geodesy and Geophysics

Sir Edward Bullard, Sc.D., F.R.S. (Head of Department)	Earth's magnetism and geothermal work Ages of rocks
B.C. Browne	Gravimetry
M.N. Hill, Ph.D., F.R.S.	Geophysics of the ocean floor
J.E. Jackson	Pendulum measurements
J.C. Belshé, Ph.D.	Palaeomagnetism
D.H. Mathews, Ph.D.	Petrology of oceanic rocks Geophysics of the ocean floor
J.A. Miller, Ph.D.	Ages of rocks

14. Geography

Professor J.A. Steers	Coastal research
W.W. Williams	Beach problems: cliff erosion
J.B. Mitchell (Miss)	Historical geography of E. Anglia
A.A.L. Caesar	Economic geography
B.H. Farmer	Regional and agrarian studies in S. Asia
H.G. Steers (Mrs.)	Revision of the regional geography of western, central and northern Europe in view of the growth of the European community
B.W. Sparks	Geomorphology of parts of E. Anglia: interpretation of non-marine Mollusca of Quaternary deposits
A.T. Grove	Land use and geomorphology in Africa, especially in the Sudan zone of N.E. Nigeria. Dunes
C.T. Smith	Historical geography of E. Anglia S. American studies with special reference to Peru
J.E. Jackson	Atmospheric refraction of terrestrial rays
C. Board	Land use in S. Africa Agricultural geography in E. England
E.A. Wrigley	Development since c.1800 of ideas about the way in which society is influenced by the physical environment
P. Haggett	Luso-Brazilian studies
R.J. Chorley	Fluvial geomorphology
D.R. Stoddart	Physiography of coral reefs and islands
J.M. Grove (Mrs.), Ph.D.	Glaciology

15. Geology

Professor O.M.B. Bulman, Ph.D., Sc.D., F.R.S.	Morphological palaeontology (particularly graptolites and trilobites) Stratigraphy and palaeontology of Lower Palaeozoic rocks
M. Black	Sedimentary petrology, especially studies of limestones
W.W. Black, Ph.D.	Stratigraphy and petrology of Carboniferous limestones Differential thermal analysis of limestone and clay minerals
A.G. Brighton	Echinoderma
C.L. Forbes, Ph.D.	Palaeozoic corals and fusulinid Foraminifera
P.F. Friend	Geological studies in Spitsbergen Devonian stratigraphy
W.B. Harland	Structural geology Geological and palaeomagnetic studies in Spitsbergen and Greenland
R.W. Hey, Ph.D.	Geological studies in the Mediterranean Pleistocene stratigraphy
J.D. Hudson, Ph.D.	Sedimentary petrology Jurassic rocks of Scotland

15. Geology (*continued*)

N.F. Hughes	Mesozoic stratigraphical palaeontology Palaeobotany (including palynology) Palaeoclimatology
G. Larwood, Ph.D.	Cretaceous Polyzoa Lower Cretaceous of Norfolk
M.J.S. Rudwick, Ph.D.	Functional morphology, especially of brachiopods

16. Human Ecology

Professor A.L. Banks, M.D.	Social aspects of disease and its prevention Geography of disease
R.G. Carpenter	Organization of medical care
A. Petrie (Mrs.)	Research in general medical practice
E.R. Dalton (Miss)	Statistical problems related to medicine Analysis of university health records
L.H.H. May	The University Health Service

17. Mathematics

Applied Mathematics and Theoretical Physics:

G.K. Batchelor, Ph.D., F.R.S. (Head of Department)	Mechanics of fluids
F.P. Bretherton, Ph.D.	
Professor P.A.M. Dirac, F.R.S.	Quantum mechanics
J.P. Dougherty, Ph.D.	Plasma physics
R.J. Eden, Ph.D.	Nuclear and high energy physics
F.G. Friedlander, Ph.D.	Partial differential equations of physics
J. Goldstone, Ph.D.	Nuclear physics
Professor F. Hoyle, F.R.S.	Astrophysics and cosmology
E.R. Lapwood, Ph.D.	Elasticity and seismology
D. Lynden-Bell, Ph.D.	Astronomy
R.A. Lyttleton, Ph.D., F.R.S.	
L. Mestel, Ph.D.	Astrophysics
H.K. Moffat, Ph.D.	Mechanics of fluids
O.M. Phillips, Ph. D.	Dynamical oceanography
J.C. Polkinghorne, Ph.D.	Nuclear and high energy physics
F.C. Powell, Ph.D.	Statistical mechanics
I. Proudman, Ph.D.	Mechanics of fluids
D.W. Sciama, Ph.D.	Relativity and cosmology
R.J. Tayler, Ph.D.	Plasma dynamics and astrophysics
J.C. Taylor, Ph.D.	Nuclear and high energy physics
D.J. Thouless, Ph.D.	Quantum theory of many particles

MATHEMATICAL LABORATORY

M.V. Wilkes, Ph.D., F.R.S.	Design and operation of automatic computing machines.
J.C.P. Miller, Sc.D. H.P.F. Swinnerton-Dyer	Numerical analysis
D.J. Wheeler, Ph.D.	Logical design of digital computers
N.E. Wiseman	Ultra-high speed computing circuits (e.g. tunnel diode circuits)
D.W. Barron, Ph.D.	Programming languages and computer software

17. Mathematics (*continued*)

Pure Mathematics:

Professor P. Hall, F.R.S.	Algebra
D.R. Taunt, Ph.D.	
Professor Sir William Hodge, F.R.S.	Algebraic and differential geometry
D.W. Babbage, Ph.D.	
J.A. Todd, Ph.D., F.R.S.	
A.J. Ward, Ph.D.	Topology
E.C. Zeeman, Ph.D.	
C.T.C. Wall, Ph.D.	
D.B.A Epstein, Ph.D.	
J.C. Burkill, Sc.D., F.R.S.	Theory of functions, particularly of a real variable
M.L. Cartwright (Miss), Sc.D., F.R.S.	Complex variable and non-linear differential equations
F. Smithies, Ph.D.	Functional analysis
M.E. Grimshaw (Miss), Ph.D.	
J.H. Williamson, Ph.D.	
J.R. Ringrose, Ph.D.	
Professor H. Davenport, F.R.S.	Theory of numbers
A.E. Ingham, F.R.S.	
J.W.S. Cassels, Ph.D.	
S.W.P. Steen	Mathematical logic

STATISTICAL LABORATORY

Professor D.G. Kendall	Probability and statistics
A.M. Walker	
V.R. Cane (Miss)	
J.F.C. Kingman	

18. Medicine

F.G.J. Hayhoe, M.D.	Cytology and cytochemistry of blood and bone marrow
D'A. Kok, M.D.	Functions of the spleen in health and in blood disorders
F. Wild, Ph.D.	Chemotherapy of leukaemias and allied diseases Tissue culture techniques in haematology Studies of haemorrhagic states and the coagulation mechanism Chemical investigation of factors active in thromboplastin generation Preparation and investigation of compounds of chemotherapeutic value in the treatment of cancer

Experimental:

Professor R.A. McCance, C.B.E. F.R.S.	Growth, undernutrition and various aspects of the physiology of infancy.
*E.M. Widdowson (Miss), D.Sc.	The effect of accelerated and retarded development on chemical structure and ageing Food, growth and homoeostasis in the newborn period
*G.C. Kennedy, Ph.D.	Hypothalamic regulation of water and energy expenditure and hormone production
J.M. Walshe	Copper metabolism in man
*M. Stanier (Miss), D.Phil.	Function of the foetal kidney and membranes

*M.R.C.Staff

18. Medicine (*continued*)

Experimental (*continued*)

*J.W.T. Dickerson, Ph.D.	Effect of development, undernutrition, and rehabilitation on the composition of the body, its tissues and its cells
L. Lawn, M.D.	Artificial placentas
*M.J. Purves, M.D.	Mechanisms of respiration in the newborn animal
*D.A.T. Southgate	Absorption and excretion of dietary constituents
†D.M. Nutbourne (Miss)	Transport of ions across foetal membranes

19. Metallurgy

Professor A.H. Cottrell, F.R.S.	Theory of dislocations, lattice defects and cracks in solids Mechanisms of brittle, ductile, creep, and fatigue, fractures. Effects of irradiation on solids. The bombardment of metal surfaces with atomic particles. Development of materials with improved resistance to heat, stress, and nuclear radiation
T.P. Hoar, Sc.D.	Stress corrosion cracking of austenitic steels, iron-nickel alloys and brass; the effects of cold work and radiation damage on electrode mechanisms in systems based on iron and nickel; anodic polishing of metals, anodic oxidation, corrosion of lead
G.C. Smith	Crack initiation and propagation in fatigue, the fracture of ductile metals in tension and torsion, creep failures in magnesium and its alloys, influence of hydrogen upon the fracture of metals, the hardening of metals by internal oxidation, interfacial energies in metals
A. Kelly, Ph.D.	The plastic deformation and fracture of aluminium alloys, brittle fracture in ionic solids, climb of dislocations in ionic crystals, deformation of graphite, radiation damage in graphite
J.A. Charles	Analysis and distribution of inclusions in steel; production and properties of " banded " structures in alloys ; oxidation studies on molten metals
J.P. Chilton, Ph.D.	Mechanisms of solidification of eutectics : production of ultra-fine wire filaments ; production and properties of " glassy " metals; morphology of oxide growths on metals
J.E.O. Mayne, Ph.D.	Mechanism of corrosion inhibition by paint films, inhibitive effect of the degradation products of drying oils, inhibition of the corrosion of iron and steel
R.B. Nicholson, Ph.D.	Effects of quenching defects and trace element additions on precipitation in alloys, the interrelation of precipitate distribution and stress corrosion behaviour of aluminium alloys, precipitation in Nimonic alloys, the structure of hard magnetic alloys
D. Dew-Hughes, D.Eng.	Effects of metallurgical variables on the electrical properties of solids ; metallurgy of superconducting and semiconducting materials
D.G. Brandon, Ph.D.	Study of lattice defects by field-ion microscopy ; structure of grain bounderies ; structure of solid solutions ; nature of radiation damage

*M.R.C. staff

†M.R.C. Clinical Research Fellow

20. Mineralogy

Professor W.A. Deer, F.R.S.	Igneous petrology
S.R. Nockolds, F.R.S.	Geochemistry Trace element distribution in igneous rock series
R.C. Evans, Ph.D.	Crystal chemistry
N.F.M. Henry, Ph.D.	Ore microscopy
S.O. Agrell, Ph.D.	General petrology
P. Gay, Ph.D.	X-ray crystallography, investigation of feldspars, pyroxene series
J.D.C. McConnell, Ph.D.	Experimental mineralogy
C.H. Kelsey (Miss), Ph.D.	X-ray crystallography
I.D. Muir, Ph.D.	Igneous petrology
M.G. Bown, Ph.D.	X-ray crystallography
G.A. Chinner, Ph.D.	Metamorphic petrology
D. McKie, Ph.D.	Physicochemical mineralogy
S.G. Fleet, Ph.D.	Structural mineralogy
J.V.P. Long, Ph.D.	X-ray microanalysis
J.H. Scoon	Mineral and rock analysis
J.R. Cann	Igneous petrology

21. Pathology

Professor R.I.N. Greaves, M.D.	Freeze drying of bacterial cultures and proteins Preservation of living cells at low temperatures
K.C. Dixon, M.D., Ph.D.	Cytochemistry of cellular injury
G.R.E. Naylor, M.D.	Serum precipitation reaction
B.M. Herbertson, M.D.	Experimental morbid histology Studies on hypersensitiveness and cardiovascular and renal disease
G.F. Roberts, M.D.	Haemolytic disease of the newborn
J.G. Cruickshank	Study and growth of myxoviruses
T.D. Kellaway	Preservation of cells at low temperatures Study of factors in arterial injury
R.R.A. Coombs, Ph.D.	Studies on immunity
G.A. Gresham, M.D.	Histopathological, histochemical and chemical studies of naturally occurring and experimentally induced atherosclerosis Virulence of fungi
M.H. Gleeson-White	Staphylococcal infections
D.G. Chalmers	Investigation of leucocyte antibodies Haematological radioisotopes technique Haemolytic disease of the newborn
C.S. Treip, M.D.	Tissue culture of gliomata
J. Rack	Cytology of tumour cells Changes in the hearts of patients who have died from pulmonary embolism
R.W. Ainsworth	Investigation into sudden death in infancy
W.O. Mavor	Anaemia of the elderly Growth rate of rats
R.M. Fry	Investigation of the factors involved in the survival of bacteria after freeze drying Bactericidal action of gaseous formaldehyde with special reference to its penetration through textiles
J.M. Boissard (Miss)	The epidemiology of streptococcal infections
J. Nagington, M.D.	Electron microscopy of virus structure, especially poliovirus and the pox viruses
Sir Alan Drury, C.B.E., M.D., F.R.S.	Observations upon foetal and adult haemoglobin in the lamb red blood cell
Professor J.R. Marrack, D.S.O., M.C., M.D.	Chemical aspects of serology

22. Pharmacology

Professor A.S.V. Burgen, M.D.	Release of catecholamines from the adrenal medulla Chemical transmitters at central synapses Control of small blood vessel permeability
F. Howarth, M.D. C.V. Greenway, Ph.D.	Effects of drugs on the circulation, including central circulation
H.F. Grundy	Circulation of cerebro-spinal fluid Pharmacological actions of plants used in folk medicine

23. Physics

Professor Sir Nevill Mott, F.R.S.	Physics of the solid state
Professor A.B. Pippard, F.R.S. D. Shoenberg, Ph.D., F.R.S. J. Ashmead, Ph.D. T.E. Faber, Ph.D. C.J. Adkins, Ph.D. E.R. Dobbs, Ph.D.	Low temperature physics ; electrical, magnetic and thermal properties of metals including superconductivity; properties of liquid metals ; theory of metals
J.M. Ziman, Ph.D. V. Heine, Ph.D.	Theory of the electronic properties of metals ; interpretation of the observed electrical and magnetic properties of metals
Professor O.R. Frisch, O.B.E., F.R.S. D.V. Bugg, Ph.D. K.F. Riley, Ph.D.	Nuclear physics ; analysis of bubble chamber measurements
E.S. Shire	Energy levels in light nuclei
G.L. Squires, Ph.D.	Lattice vibrations in ionic crystals using neutron diffraction techniques (A.E.R.E. equipment)
J.M.C. Scott	Theory of nuclear properties
Professor M. Ryle, F.R.S. F.G. Smith, Ph.D. A. Hewish, Ph.D. J.E. Baldwin, Ph.D. P.A.G. Scheuer, Ph.D. J.R. Shakeshaft, Ph.D. B. Elsmore D.M.A. Wilson, Ph.D.	Radioastronomy : radio frequency radiations from the sun and galaxy
P.C. Clemmow, Ph.D. K.G. Budden, Ph.D.	Theoretical electrodynamics and radio
T.W. Wormell, Ph.D. C.D. Walshaw, Ph.D.	Meteorological physics; physics of the upper atmosphere; atmospheric electricity
W.H. Taylor, Ph.D., D.Sc. W. Cochrane, Ph.D., F.R.S. H.D. Megaw (Miss), Ph.D.	Development of methods of analysis of crystal structure, applications to complex metallic phases, minerals and ferroelectric materials ; lattice dynamics
P.B. Hirsch, Ph.D. M.J. Whelan, Ph.D. A. Howie, Ph.D.	Metal physics : crystal imperfections such as dislocations and stacking faults
V.E. Cosslett, Ph.D. K.C.A. Smith, Ph.D. R.P. Ferrier, Ph.D.	Electron microscopy ; optics of electron lenses ; X-ray microanalysis ; biophysical studies of the effects of electron microscope procedures on micro-organisms
F.P. Bowden, C.B.E., Sc.D., F.R.S. D. Tabor, Sc.D. A.D. Yoffe, Sc.D.	Physics and chemistry of solids, surface physics, friction ; strength properties of solids at very high temperatures and pressures : decomposition in the solid state
Sir Geoffrey Taylor, F.R.S. A.A. Townsend, Ph.D., F.R.S.	Laminar and turbulent motion of fluids
Theoretical Physics:	*See* **Mathematics,** *Applied Mathematics and Theoretical Physics*

24. Physiology

Professor Sir Bryan Matthews, C.B.E., F.R.S.	Neurophysiology: sense organs; electrical aspects of reflex activity
Lord Adrian, O.M., F.R.S.	Neurophysiology: central nervous system
G.S. Adair, F.R.S.	Proteins: studies of physicochemical properties
W.A.H. Rushton, Sc.D., F.R.S.	Neurophysiology: peripheral nerve and retinal physiology
H.E. Tunnicliffe	Transport of hormones
E.N. Willmer, Sc.D.	Histology: physiology of vision; tissue culture
Professor A.L. Hodgkin, F.R.S.	Physicochemical studies of single cells with particular reference to nerve and muscle
Professor A.S. Parkes, C.B.E., F.R.S.	Physiology of reproduction
C.R. Austin, D.Sc.	Biology of fertilization
R.H. Adrian	Physiology of membranes
I.M. Glynn, Ph.D.	Ionic transport
R.S. Comline ,Ph.D.	Physiology of the ruminant and young animal
D.A. Titchen, Ph.D.	Reflex control of the gastrointestinal tract
W.E. Balfour, Ph.D.	Transport of hormones
M. Silver (Mrs.). Ph.D.	
F.W. Campbell, Ph.D.	Physiology of vision
P.A. Merton	Physiology of the nervous control of muscle in man and animals
H.B. Barlow, M.D.	Retinal physiology
G.S. Brindley, M.D.	Vision and central nervous system
T. Vickers, Ph.D.	Histology. Electron microscopy
J.T. Fitzsimons	Water balance and water intake
M.B. Aydelotte (Mrs.)	Cellular physiology
P. Donaldson	Electronic technique and models of neural activity
J.G. Robson	Control of muscles
E.A. Bower	Visceral nerves

25. Psychology

Professor O.L. Zangwill	Psychological changes associated with cerebral lesions; cutaneous sensibility; higher mental processes
W.E. Hick, M.D.	Information theory in relation to experimental psychology; effects of drugs on human behavour
A.T. Welford	Studies in human skill with special reference to "automation" and to ageing
G.C. Grindley	Problems of human learning; nature of binocular vision
R.L. Gregory	Psychology of special senses Design of equipment for biological research
A. Heim (Miss), Ph.D.	Assessment of human abilities
M. Vince (Miss)	Developmental aspects of bird behaviour
A.J. Watson	Discrimination, learning and exploration in animals
L. Weiskrantz, Ph.D.	Effects of cerebral ablations and certain drugs on primate behaviour
A. Cowey, Ph.D.	Behavioural and neurophysiological studies of the primate visual system
*D.E. Broadbent	Perception and communication Applied experimental psychology

*M.R C. Applied Psychology Unit

26. Radiotherapy

Professor J.S. Mitchell, C.B.E., M.D., F.R.S.	Laboratory studies and clinical trials of radioactive drugs, especially tritiated tetra-sodium 2-methyl-1:4-naphthaquinol diphosphate of very high specific activity and the use of intra-arterial administration
C.L. Smith, M.B.E., Ph.D.	
D.H. Marrian, Ph.D.	Clinical trials and laboratory studies of chemical radiosensitizers and of oxygen in conjunction with X-ray therapy
D.M. Brinkley (Mrs.)	
S.W.H.W. Falloon	
I. Simon-Reuss (Mrs.)	Design and conduct of clinical trials
B.E. Holmes (Mrs.), Ph.D.	Studies of cellular metabolic disturbances, especially those involving the synthesis of the nucleic acids produced by therapeutic doses of ionizing radiations and various chemical agents
E.M. Kingsley-Pillers (Miss), M.D.	
D.B. Cater, M.D.	Tissue culture techniques
J. Seed, Ph.D.	Metabolism of compounds of therapeutic interest labelled with carbon 14 and tritium
G.V.F. Seaman, Ph.D.	
	Techniques of ultra-violet photomicrography with quantitative photometry
	The techniques of autoradiography and ultra-thin sectioning
	Irradiation of parts of living cells in tissue culture by a microbeam of α-particles and of X-rays
	Electrode potential studies of the influence of radiations, oxygen and various chemical agents on tumours and normal tissues
	Measurement of oxygen tension in tumours and normal tissues before and after radiotherapy
	Experiments on the mechanism of radiation carcinogenesis
	Radiochemical studies of compounds of biological interest
	Irradiation of enzymes in solution
	Applications of radioactive isotopes in radiotherapy with special reference to the development of isotopic X-ray sources in therapy units with intermediate source skin distance
	The application to radiotherapy of 15 MeVp X-rays produced by the linear accelerator and related biological and physical experiments
	Development of methods including examination of the sternal bone marrow for the early detection of tumour metastases
	Studies of the surface properties of erythrocytes and tumour cells using the method of micro-electrophoresis

27. Veterinary Studies

Anatomy:	*See* **Anatomy,** *Veterinary Anatomy*
Animal Pathology:	
Professor W.I.B. Beveridge	Virus diseases
A.O. Betts, Ph.D.	The study of virus diseases using tissue culture methods and pathogen-free animals
H.P. Chu, Ph.D.	Respiratory diseases of poultry
A.R. Jennings	Diseases of the pig and diseases of wild birds
P. Whittlestone, Ph.D.	Aetiology of enzootic (virus) pneumonia in pigs, and pleuropneumonia-like organisms isolated from the respiratory tract of pigs

27. Veterinary Studies (*continued*)

Animal Pathology (*continued*)

S.D. Elliott, M.D.	Streptococcal infections
M.A. Soltys, Ph.D.	Bacterial diseases of domestic animals Immunity in trypanosomiasis
E.J.L. Soulsby, Ph.D. M.E. Rose (Mrs.), Ph.D.	Parasitological diseases of domestic animals, especially immunity to animal parasites
A.A. Wilson	Magnesium and calcium metabolism and renal function in animals and their relation to metabolic disorders

Clinical:

Professor L.P. Pugh	
T.R.R. Mann, Sc.D., M.D., F.R.S.	Physiology and biochemistry of reproduction
P.S. Bridge	Study of the vitamin A deficient calf
with J.T. Abrams, Ph.D.	Growth of rats on isocaloric diets
F.R. Spratling	Infections of the urinary tract of the pig
A.C. Palmer, Ph.D.	
D.W.B. Sainsbury, Ph.D.	Environmental studies in relation to animal health, with particular reference to pigs and poultry
J. Hickman	Vascular pattern in bone and joint diseases
R.G. Walker	The use of heterografts in blood vessel surgery and the use of angiography as a diagnostic technique
L.W. Hall, Ph.D.	The effects of anaesthetic agents on the cardiovascular system Metabolic response to anaesthesia and surgery
M.C.G. Littlewort	Cardiovascular system
R.F.W. Goodwin, Ph.D.	Diseases of the pig Blood groups of the pig Physiology of the newborn Respiratory diseases of pigs
F.R. Spratling	Infections of the urinary tract of the pig
S.W. Douglas	Radiography Clinical investigation into protrusion of the intervertebral disc
E.T. Rees Evans	Animal haematology Endocarditis in cattle Toxicology Kale anaemia
J. Keilin (Miss), Ph.D.	Chemistry of haemoglobin and haematin compounds Copper metabolism in farm animals
L.N. Owen	Cancer diagnosis and therapy
A.C. Palmer, Ph.D.	Study of clinical manifestations and pathology of nervous diseases of animals
R.V. Short, Ph.D.	Chemical determination of sex hormones in the peripheral blood of man and animals

28. Zoology

Professor C.F.A. Pantin, Sc.D., F.R.S.	Nervous system of coelenterates; systematics of Platyhelminthes and nemertines
Professor Sir James Gray, C.B.E., M.C., F.R.S.	Mechanics of animal locomotion; movements of flagella and spermatozoa
R.H.J. Brown, Ph.D.	Animal locomotion; flash photography and cinematography
F.S.J. Hollick, Ph.D.	Insect flight: microtechniques of aerodynamics
G.M. Hughes, Ph.D.	Gill ventilation in fishes; arthropod neurophysiology

28. Zoology (*continued*)

H.W. Lissmann, Ph.D. F.R.S.	Animal locomotion; electric organs of fish
L.E.R. Picken, Sc.D., Ph.D.	Morphogenesis in colonial flagellates
Lord Rothschild, Sc.D., Ph.D., F.R.S.	Spermatozoa
J.A. Ramsay, M.B.E., Ph.D., F.R.S.	Malpighian tubules; microtechniques of analysis
G. Salt, Sc.D., F.R.S.	Ecology; insect parasitism
D.A. Parry, Ph.D.	Functional morphology and responses of spiders
S. Smith, Ph.D.	Physiology of development: echinoderms, teleosts and amphibia
M.J. Wells	Cephalopods
E.A. Robson (Miss), Ph.D.	Neuromuscular and sensory physiology of sea-anemones
A.V. Grimstone, Ph.D.	Fine structure in flagellates; electron microscopy

Animal Behaviour:

W.H. Thorpe, Ph.D., Sc.D., F.R.S.	Animal behaviour, special reference to birds
R.A. Hinde, D.Phil.	Reproductive behaviour of passerines Behaviour of primates

Entomology:

*Professor V.B. Wigglesworth, C.B.E. F.R.S.	Insect hormones and insect histology
M.G.M. Pryor, Ph.D.	Insect cuticle
J.W.L. Beament, Ph.D.	Wax secretion and water transport; microtechniques of surface chemistry
*W.A.L. David, Ph.D.	Action of systemic insecticides; biology of *Pieris* under laboratory conditions
*J.S. Kennedy, Ph.D.	Behaviour of aphids
*A.D. Lees, Ph.D.	Control of polymorphism in aphids
*J.E. Treherne, Ph.D.	Insect neurochemistry; the absorption and metabolism of nutrient substances in insects
J.E. Harker (Miss), Ph.D.	Diurnal rhythms: insect tumours

THE MUSEUM

F.R. Parrington, Sc.D. (Director)	Vertebrate palaeontology, special reference to reptiles
A.M. Bidder (Miss), Ph.D.	Digestion in cephalopods; shell growth in pearly nautilus
H.B. Cott, Sc.D.	Animal colouration and palatability Biology of big game
C.B. Goodhart, Ph.D.	Evolutionary studies on snails;
K.A. Joysey, Ph.D.	Numerical analysis of rates of evolution and extinction; systematics and ecology of mammals
J. Smart, Ph.D., D.Sc.	Systematics of Diptera; wing venation
C.E. Tottenham	Staphylinidae of Chile

*A.R.C. Unit of Insect Physiology: Director, Professor V.B. Wigglesworth, C.B.E., F.R.S.

6 Durham University, Durham Colleges

1. Botany

Professor D.H. Valentine	Experimental taxonomy of flowering plants Genetics of seed incompatibility in *Primula*
J.L. Crosby, Ph.D.	Population genetics of outbreeding systems, especially *Primula*. Genetics of seed germination Application of electronic computation to theoretical studies of evolution
G.H. Banbury	Growth regulation and tropisms in fungi, with special reference to the Mucorales Bioelectric potentials, polarity and growth regulation
P. Watson (Miss), Ph.D.	Specialized parasites of larger fungi, especially *Calcarisporium* and *Spinellus*
D. Bellamy	Ecological physiology of mire and salt marsh plants

2. Chemistry

Professor G.E. Coates, D.Sc. F. Glockling, Ph.D. K. Wade, Ph.D.	Organo-metallic and co-ordination compounds
Professor W.K.R. Musgrave, D.Sc. R.D. Chambers, Ph.D. G.M. Brooke, Ph.D.	Halogen fluorides and organic compounds containing fluorine
G. Kohnstam, Ph.D.	Kinetics of reactions in solution
C.W. Gibby, Ph.D.	Adsorption at fluid interfaces Activity measurements in phenol solution
H.M.M. Shearer, Ph.D.	Structure analysis by X-ray diffraction

Radiochemistry:

LONDONDERRY LABORATORY

G.R. Martin M. Weston, Ph.D.	Tracer studies of reaction mechanisms (especially photochemical and free radical reactions), and of analytical procedures
S.J. Lyle, Ph.D.	Properties of isotopic substances Tracer studies of diffusion Neutrometry Chemical effects of nuclear recoil Radiochemical and micro-gas-analytical investigation of nuclear reactions

3. Geography

Professor W. B. Fisher, D. de l'U.	Atmospheric deposition Local climate Social geography of the Mediterranean and S. Asia
H. Bowen-Jones	Peasant agriculture in Asia Minor
J.C. Dewdney	Economic geography of Co. Durham Social geography of S.W. Asia
J.I. Clarke, Ph.D.	Human geography of N. Africa and S.W. Asia Population studies
S.G. Willimott, Ph.D.	Soil character in N. England and the Mediterranean
E. Sunderland, Ph.D.	Distribution of human blood serum patterns in N. England Anthropology of Iran
V.B. Proudfoot, Ph.D.	Palaeoclimates, geomorphology and historical geomorphology
I.G. Simmons, Ph.D.	Pollen analysis
J.E. Travers	Social anthropology of Iran
R.A. Smith	Geomorphology of the Lake District and of S.W. England

4. Geology

Professor K.C. Dunham, D.Sc., F.R.S.	Stratigraphy, structure and mineralization of the Pennines
	Petrology of ultrabasics with special reference to Oman and N. Borneo
	Petrology of N. Skye
	Petrography and geochemistry of the Magnesian Limestone and Marl Slate of N.E. England
	Genesis of certain ore deposits in Australia
W. Hopkins, D.Sc.	Stratigraphy, palaeontology and palaeoecology of the Coal Measures
	The preglacial channel of the Wear
T. Whitworth, D.Phil.	Palaeontology of Miocene and Pleistocene deposits of N. Kenya
R. Phillips	Opaque minerals of basic and intermediate igneous rocks
	Reflectivity of opaque minerals
	Chrome and manganese ores
M.R. House, Ph.D.	Devonian faunas of England, N. America and the Continent
	Stratigraphy and palaeontology of Malta
M.H.P. Bott, Ph.D.	Gravity and magnetic surveys in England, the North Sea and the Irish Sea. Seismology
	Structure of Lower Palaeozoic rocks, Furness and S. Wales
C.H. Emeleus, Ph.D.	Petrology and structure of ringdyke complexes of Slieve Gullion and the Mourne Mountains
	Petrology and structure of some of the "younger intrusions" of S.W. Greenland
	Petrology of lavas, N. Kenya
G.A.L. Johnson, Ph.D.	Stratigraphy, palaeontology and weathering of sediments of Yoredale facies
D.M. Hirst, Ph.D.	X-ray techniques of silicate analysis
	Geochemistry of sediments, ancient and modern
R. Girdler, Ph.D.	Magnetic properties of rocks
	Geophysics of the Red Sea Rift
H. Johnson (Mrs.), Ph.D.	Palaeontology of algae

5. Mathematics

Professor G.E.H. Reuter	Stochastic processes
A.O.L. Atkin, Ph.D.	Number theory
J.V. Armitage, Ph.D.	
R.A. Smith, Ph.D.	Analysis
D.J. Shoesmith, Ph.D.	Mathematical logic
Professor K. Stewartson	Fluid dynamics
D.H. Wilson	
N. Riley, Ph.D.	
E.F. Baxter	Seismology
J. Hawgood, Ph.D.	Wave mechanics

6. Physics

Professor G.D. Rochester, Ph.D., F.R.S.	Cosmic ray research, using photographic emulsions, magnet spectrographs, and extensive air shower arrays
F. Ashton, Ph.D.	
A. Apostolakis, Ph.D.	
J.V. Major, Ph.D.	
M.G. Thompson, Ph.D.	
A.W. Wolfendale, Ph.D.	
J.A. Chalmers, Ph.D.	Atmospheric electricity
W.C.A. Hutchinson Ph.D.	
W.A. Prowse, Ph.D.	Gas breakdown at ultra-high frequencies
W.D. Corner, Ph.D.	Magnetostriction of ferromagnetic materials; behaviour
K.N.R. Taylor, Ph.D.	of ferromagnetic domains under stress

6. Physics (*continued*)

Applied:

Professor D.A. Wright, D.Sc.	Energy conversion using thermoelectricity and thermionic diodes. Applications of thermomagnetic effects
J. Woods, Ph.D.	Photoconductivity in cadmium sulphide and cadmium selenide
M.J. Morant, Ph.D.	Dielectric breakdown in very pure liquids
J.S. Thorp, Ph.D.	Paramagnetic properties of maser materials

7. Psychology

Professor F.V. Smith, Ph.D.	Systems of psychology Kinaesthetic aspects of perception Aspects of imprinting
D. Graham	Test construction, social factors in test results Work with brain-damaged children
C. Baker	Decision making Communication of information Accident proneness
D.P. Hendry, Ph.D.	Incentives Learning theory Physiology of motivation. Psychopharmacology
L.S. Hendry (Mrs.), Ph.D.	Attitude changes Concept formation in children Moral development
I.P. Howard	Colour vision Binocular vision Satiation effects in vision
S.G. Ramsay	Social and motivational factors in work Student selection and guidance
R. Thomson	Thinking Philosophical psychology

8. Zoology

Professor D. Barker, D.Phil.	Neuroanatomical studies of vertebrate muscle receptors
L. Davies, Ph.D.	Biological studies on Simuliidae
J. Phillipson, Ph.D.	General biology of Phalangida Population energetics
K.R. Ashby, Ph.D.	Sexual differentation in teleosts Ecology of small woodland mammals
D.W. Wood, Ph.D.	Neurophysiology of insects
J.C. Coulson, Ph.D.	Colonial breeding in vertebrates

7 Durham University
King's College, Newcastle upon Tyne

1. Agriculture

COCKLE PARK EXPERIMENTAL STATION

Professor M.M. Cooper, F.R.S.E.	Cultural and manurial experiments with farm crops Progeny testing of Clun sheep
A. Main	Selection in poultry
D.S. MacLusky, Ph.D.	Dairy cow nutrition studies
W. Smith	Farrowing accommodation studies
M. Bichard	Nutrition of heavy pigs
W.J.M. Black, Ph.D.	Silage feeding of sheep Hypomagnesaemia studies Housing of breeding ewes

1. Agriculture (*continued*)

Agricultural Economics:

E.M. Carpenter	Farm management studies; business analysis; budgeting
R.F. Lord	methods and advisory aids
S. Robson	Economics of hill sheep farming
K. Dent (Miss)	Labour productivity studies; work study techniques;
T. Winter	building and farm lay-outs
G.H. Brayshaw	Economics of beef, mutton, dairy, poultry and pig pro-
W.G.R. Weeks	duction
A.W. Tansey	Variance analysis of fluctuations in farm profits
J.G. Blake	Agricultural marketing
	Decision making
	International trade in farm products

Agricultural Engineering:

H. Fail	Rotary cultivation: eradication of rhizomatous weeds
A.R. Reece	(*Agropyron, Agrostis* and *Pteridium* spp.)
D.J. Greig	Land reclamation
P. Cowell	Soil tillage
B.M.D. Wills	Herbicidal spraying in the eradication of bracken (*Pteridium aquilinum*)
	Over-sowing of grassland
	Tractor and implement dynamics: impact loading; lateral motion of mounted implements; automatic control of mounted implements; tractor-soil relationship
	In-barn drying of hay

Agricultural Entomology:

G. Heslop-Harrison, Ph.D., D.Sc.	Disease transmission, world distribution, evolution, phylogeny and fossil history of the jumping plant lice
A. Ibbotson, Ph.D.	(Homoptera: family Psyllidae). The ancestry and evolution of the Insecta, with special reference to their fossil record
	The ecology and bionomics of grassland insects with special reference to the frit fly and its relatives
*A. Milne, Ph.D., D.Sc.	Biology and ecology (particularly population problems)
*R. Laughlin	of selected agricultural pests, e.g. sheep tick (*Ixodes*
*A. South, Ph.D.	*ricinus* L.), garden chafer (*Phyllopertha horticola* L.), leatherjackets (*Tipula oleracea* group), swede midge (*Contarinia nasturtii* Kieffer) and slugs (*Agriolimax reticulatus, Arion circumscriptus* and *A. intermedius*). Physiology (relevant to biology and ecology) of selected agricultural pests, e.g. garden chafer (*Phyllopertha horticola* L.), leatherjackets (*Tipula oleracea* group)

Plant Science:

Professor W. Williams, D.Sc.	Quantitative inheritance and cytotaxonomy of crop plants
	Genetical studies on morphogenesis
H.H. Clark (Mrs.)	Host-parasite relationships
J.H.W. Holden	History of cultivated cereals
F. Blackburn	

Soil Science:

Professor P.W. Arnold, Ph.D.	Restoration problems on open-cast coal sites, with special reference to soil structure and soil moisture
G.P. Askew	Lime fertilizer responses on hill swards
F. Hunter	Soil-water relationships on moorland peats
J. Pringle (Miss), Ph.D.	Cation-anion relationships in the plant
E.A. Kirkby	Soil micromorphology
	Pedogenesis of upland and limestone soils
	Soil and landscape development in alluvial areas
	Soil formation and shifting cultivation in North Borneo

*A.R.C. Unit of Insect Physiology

2. Anaesthetics

Professor E.A. Pask, O.B.E., M.D.	Magnitude of dead air during artificial respiration
	Indirect blood pressure measurement
E.A. Cooper, M.D., Ph.D.	

3. Anatomy

Professor R.J. Scothorne, M.D.	Cytology of salt secreting gland of birds
	Histological aspects of homotransplantation
C.H. Tonge, T.D. D.D.Sc.	Development and structure of oral cavity, including teeth
T.E. Barlow, M.D.	Vascular supply in muscle and bone
J.E. Gray	Human chromosomes, sex chromatin
R.S. Snell, Ph.D., M.D.	Distribution of cholinesterase in the central nervous system
	The influence of sex hormones on the activity of melanocytes and melanin in skin

4. Anthropology

H.H. Meinhard, D.Phil. (Head of Department)	Social and political systems of E. Africa
V.G. Sheddick, Ph.D.	The study of groups and groupings: its theoretical and methodological organization
H.A. Powell, Ph.D.	Social structure of Trobriand Islands
	Theory of kinship, with special reference to social structure in small scale societies

5. Biochemistry

Agricultural:

D.G. Armstrong, Ph.D. A. Thompson R.C. Seeley	Assessment of the Ekman and other procedures for the determination of the digestibility of dietary protein in the fowl
	Nitrogen requirement of poultry in terms of total protein and selected individual amino-acids
	Validity of certain radioisotopic procedures for the determination of endogenous mineral excretion in animals
	Influence of certain macro plant nutrients upon the uptake of some micronutrients

6. Botany

Professor J.H. Burnett, D.Phil.	Physiology and genetics of fungi
S.L. Ranson, Ph.D.	Metabolic and enzymic studies
W.A. Clark, Ph.D.	Plant ecology
P.G. Fothergill, Ph.D.	Nutrition of fungi
	Philosophy of science; theoretical biology ; history of evolution
J.A. Richardson, Ph.D.	Physiological ecology
B.L. Moss (Miss), Ph.D.	Regeneration of brown seaweeds
T.G. Walker, Ph.D.	Cytotaxonomy of *Pteris*
R.B. Cain, Ph.D.	Enzymology of aromatic compound degradation in bacteria and moulds
D.R. Thomas, Ph.D.	Plant tissue and organ culture

7. Chemistry

Clinical:

Professor A.L. Latner, M.D., D.Sc.	Castle's intrinsic factor and vitamin B_{12}
	Clinical applications of the various types of zone electrophoresis
	Diagnosis and treatment of severe hepatic disorders
	Isoenzyme studies
J.C.B. Fenton	Origin of ammonia in blood under normal and diseased conditions
F.K. Herbert	Studies of porphyrin excretion
R.J. Pennington, Ph.D.	Biochemical studies related to muscular dystrophy

Inorganic:

Professor N.N. Greenwood, Sc.D.	Reactions of iodine pentafluoride and other fluorides
	Hydrides of boron and gallium
E.E. Aynsley, D.Sc.	Thermochemistry and structure of molecular addition compounds
A.B. Trenwith, Ph.D.	
A.B. Littlewood	Chemistry of metal carbides and borides
J.C. Lockhart (Miss), Ph.D.	Spectroscopic studies of inorganic compounds
P.G. Perkins, Ph.D.	Mechanisms of inorganic reactions and gas phase pyrolyses
	Gas chromatography

Organic:

Professor J. Baddiley, D.Sc., Ph.D., F.R.S.	The structure of bacterial cell walls and membranes
	Enzymic processes in bacterial wall formation
R. Raper, Ph.D.	The structure and function of nucleotide co-enzymes from micro-organisms. Synthesis of carbohydrates
G.A. Swan, D.Sc., Ph.D.	
F.J. McQuillin, D.Phil.	Phosphorylation techniques
J.G. Buchanan, Ph.D.	Interconversions and steric effects in carbohydrates
N.A. Hughes, Ph.D.	The isolation, structure, and synthesis of alkaloids and terpenes
A.R. Archibald, Ph.D.	
N.L. Blumson, Ph.D.	Stereochemistry of terpene substances
M.V. Kelesnen, D.Phil.	Mechanism of reactions
	The use of isotopes in determining the mechanism of organic reactions
	The influence of γ-radiation on organic reactions
	The biogenesis of alkaloids

Physical:

Professor W.F.K. Wynne-Jones, D.Sc.	The mechanism of chemical reactions
	Mechanism of ionization in solution and catalytic activity of acids and bases
H.R. Thirsk, Ph.D.	
T. Dickinson, Ph.D.	Kinetics of enzymic reactions
A. Bewick, Ph.D.	
W.H. Beck	Use of isotopes in studying chemical reactions
M. Fleischmann, Ph.D.	Thermodynamics of solutions
K.B. Oldham, Ph.D.	Electrode processes; mechanism of electrode reactions and over-voltage; electrochemistry of solutions in hydrogen peroxide
A.K. Covington, Ph.D.	
	Spectroscopic studies of molecular interaction
P. Jones, Ph.D.	X-ray and electron optical studies of thin films

NORTHERN COKE RESEARCH LABORATORY

Professor W.F.K. Wynne-Jones, D.Sc.	Molecular mechanism of carbonization
	X-ray study of carbonization of single crystals
H.P. Stadler, Ph.D.	Crystallographic character of various forms of carbon
H. Marsh, Ph.D.	Reactions and surface properties of carbon
H. Harker, Ph.D.	Magnetic susceptibility and electron resonance studies of carbon

7. Chemistry (*continued*)	
Radiation:	
Professor J.J. Weiss, D.Eng., Ph.D.	Electron transfer reactions in solution Chemical action of ionizing radiations
G. Scholes, Ph.D.	Photochemistry
G.R.A. Johnson, Ph.D.	Radiation chemistry of gaseous systems Radiation chemistry of solids Radiation chemistry of nucleic acids and related compounds
8. Dental Studies	
Professor G.E.M. Hallett	Human in vivo caries studies Fluorine content of water in relation to early loss of teeth and malocclusion
Professor R.W. Lovel	Effect of vacuum firing porcelain on the permanence of ceramic restorations The bonding of fused porcelain to gold and other alloys
Professor A.O. Mack	Investigation of sub-periosteal implants Tissue tolerance with acrylic dentures Investigation of gingival epithelium using physiological fluorescence methods
Professor G.L. Howe	Oral surgery related to prosthetics and orthodontics Sterilization methods in the dental surgery
D.N. Allan	Influence of cavity form on the dimension of filling materials
H.E. Simpson	Lesions of the oral mucosa Diseases of the periodontal membrane
J.H. Farrell	Colour vision and shade of matching in dentistry
R.A. Howell	Materials for cavity linings Gold porcelain crowns: design and construction ; use of gold porcelain materials in dental bridgework
D.R. McMillan	Denture sore mouth; aetiology and treatment The cytology of the oral mucous membrane
J.B. Masterton	Investigation of the physio-pathological phenomona which influence the healing of wounds of the dental pulp Behaviour of macrophages in healing wounds of the dental pulp Heterotopic calcification
with Professor A.L. Latner, M.D., D.Sc.	A comparison of liver, bone and dental pulp alkaline phosphatase by means of electrophoresis
Professor I. Rannie	Structure and function of oxytalan fibres Abnormalities of oral tissue metabolism Mechanical factors in atherosclerosis Rheumatic disease of the heart
D.T. Bennett	Clinical evaluation of 100 consecutive cases of Class III malocclusion
D. Jackson	White lesions of the oral mucosa Fibres in the periodontal membrane
M. Cook	Investigation into the solubility and shrinkage of silicate cements
W. Murphy	Use of polyvinyl alcohol in denture construction Study of the rest position following extraction of teeth Study of the errors resulting from the mounting of models on a dentatus articulator
J.G. Walton	Clinical survey of root canal therapy treatments
J. Weyman (Miss)	Assessment of caries problem in children with heart defects Method of treatment of septic root canals with open apices

8. Dental Studies (*continued*)

J. Weyman (Miss)	Study of the effect on the teeth of tetracycline administration
J.R. Porteous	Incidence standards and assessment of periodontal disease for a survey of dental disease in juvenile diabetics
	Treatment of traumatized permanent anterior teeth with open apices
	Study of the effect on the teeth of tetracycline administration
W.H. Littlefield	The effectiveness of a consultant orthodontic service
G.H. Steel	Investigations into criteria of dental maturation

9. Dermatology

Professor J.T. Ingram, M.D.	Skin blood flow in peripheral vascular disease
	Allergic hypersensitivity in relation to skin disorder
G. Holti, M.D.	Enzymal activity in skin
	Serum protein changes in skin disorders
	Medical mycology : *Candida albicans*
	Light sensitivity : porphyrinaemia

10. Engineering

Chemical:

Professor J.M. Coulson, Ph.D.	Heat transfer to boiling liquids
	High intensity heat transfer
	Some problems in studying continuous mixing
	Development of thin film evaporators
	Heat transfer to non-Newtonian fluids
J.D. Thornton, Ph.D.	Study of the heat transfer characteristics of two-phase gas-liquid systems
	Heat transfer studies in non-Newtonian systems
	Droplet size studies in liquid-liquid extraction columns in the presence of mass transfer
	Hydrodynamic and mass transfer studies of two-phase liquid-liquid systems in agitated vessels
	Film coefficients and residence time distribution studies in liquid-liquid systems
	Liquid extraction in tubular reactor
F. Goodridge, Ph.D.	Mechanism of gas absorption processes
	Measurement of liquid film transfer coefficients
	Hydrodynamics of laminar liquid films
	Mass transfer through monomolecular films
	Scale up chemical reactors
I. Fells, Ph.D.	Kinetic diffusion processes in flames
	High and low frequency instability in flames
	Combustion driven magnetohydrodynamic generators
	Fuel cells

Civil:

Professor W. Fisher Cassie, Ph.D.	
P.C.G. Isaac	Ecology of bacteria beds
	Biological treatment of organic wastes
	Production of hydrocarbons from sewage sludge
	Radioactive tracer techniques in public health engineering
	Environmental levels of radioactivity
J.R. Simpson	The treatability of organic wastes, using large-volume respirometer apparatus

10. Engineering (*continued*)

Civil (*continued*)

D.W. Cooper	Low voltage heating of glue lines in timber joints
	Strength of plywood decks
	Test on different joints for timber laminations
	Performance characteristics for joints made with timber connectors
	Deflection characteristics of continuous beams of reinforced concrete
	Prestressed concrete sections under large displacements
	Tubular steel space frame
	Design of joints made with friction grip bolts
T.E.H. Williams, Ph.D.	Traffic generated by housing estates, commerce and industry
J.D. Geddes, Ph.D.	Soil mechanics aspects of mining subsidence
	Properties of grout for use in prestressed concrete
J. Wright	Distribution methods of analysis of structures
	Use of the electronic digital computer in structural engineering
	An automatic elastic design for plane frames
V.K. Collinge	Hydrology of upland catchments
T. Constantine, Ph.D.	Application of electronic digital computers to urban and rural traffic problems
	Hydrodynamics of swimming

Electrical:

Professor R. L. Russell	Development and application of symmetrical component measurement techniques and the asynchronous performance of special salient pole devices
F.J.U. Ritson	Automatic control systems and analogue computers
C.A. Walley, Ph.D.	Vacuum breakdown. High power radio frequency sources
J.E. Brown, Ph.D.	Problems of electrical machinery with particular reference to asymmetrical operation of asynchronous machines and the development of generalized machine theory
J.T. Kennair	Automatic plotting of electron trajectories
A.G.J. Holt, Ph.D.	Investigation of circuit noise in resistors and semiconductor devices, and problems of passive and active filter networks
J.L. Dineley	Simulation of the transient performance of power systems

Mechanical and Marine:

Professor A.F. Burstall and others	Factors affecting performance of diesel engines
	Experiments on the reciprocating hot air engine
	Experimental investigation of the performance of regenerators
Professor L. Maunder and others	Dynamics of gyroscopes
	Whirling of flexible shafts
	Vibration of coupled systems
	Vibration of machine tools
F.J. Bayley, Ph.D. and others	General studies of pulsating flow
	Natural convection in liquid metals
	Fluid friction and leakage between rotating discs
	Fluid flow and heat transfer in compact heat exchanger
B.S. Owen	Photoelastic investigation of stresses in thick plates and flanges
	Stresses at mitre joints in thin-walled ducting
	Yielding in heads of pressure vessels
A.J. Bartley	Performance characteristics of universal joints

10. Engineering (*continued*)

Mechanical and Marine (*continued*)

G. Walker, Ph.D.	Stirling cycle machines
	Combustion in gasoline engines
	Optimization of compound refrigeration cycles
J. Linge	Stresses in reinforced apertures in pressure vessels
A.W. Jones	Dynamics of free piston machinery
B. Porter	Torsional vibration of non-linear transmissions

Mining:

Professor E.L.J. Potts	Mechanical properties of coal and allied rocks
J.D. Jenkins G.M. Pearson N. Tomlin	Investigations into the design of pressure measuring instruments for hard rocks and their application to deep mining
H.Y. Robinson W.B. Bell	Studies on the pressure distribution around mining excavations
J.F. Abel D.B. Edwards	Study of the effect of bolting reinforcements on the stress distribution around mining excavations
M.G. Salamon	Study of the face conditions for coal-getting with particular reference to ploughs
	Subsidence and the measurement of strain in undermined strata
	Application of ultrasonics to the measurement of stress in rocks *in situ*
	Study of the factors affecting the filtration of shale tailings
	Study of the movement of fine particles in water currents using a radioactive tracer technique
	Illumination surveying underground and a study of the design of mine lighting installations

Naval Architecture:

Professor L.C. Burrill	Propeller cavitation :
A. Emerson W. Robson	Systematic series tests with model propellers in cavitation tunnel
R.L. Townsin	Vibration :
F. Leathard P. Mars	Effect of entrained water on vibration frequencies of long ellipsoids and ship-shaped bodies
	Ship resistance :
	Application of wave-resistance calculations to ship-hull design
	Ship-model towing tests
W. Muckle	Theoretical and experimental investigations on grillages and superstructures
M. Chilton	Application of plastic design methods to ships' structures
B.S. Bowden	Theoretical and experimental investigation of ducted propellers
D.R. Patterson	Application of an electrical analogy task to flow problems relating to ships

11. Geography

Professor G.H.J. Daysh	Economic geography of N. England
	The geography of ports
	The geography of Egypt
W.W. Anson with J.I. Sharp	Denudation chronology of N. England Rainfall and run off in the Tyne Basin
J.W. House	Geography of rural problems
	Population movements and industrial geography in N. E. England
	Political boundary problems

11. Geography (*continued*)

M.R.G. Conzen	Urban morphology of towns in Britain and Western Europe
J.I. Sharp with W.W. Anson	Hydrology of certain drainage basins of N.E. England Sub-drift topography of parts of E. Northumberland
B. Fullerton	Distribution of characteristic patterns of occupation
H. Lister, Ph.D.	Morphology, climate and regimen in the Arctic and in Antarctica

12. Geology

Professor T.S. Westoll, F.R.S.	Old Red Sandstone stratigraphy and sedimentary problems in Scotland Old Red Sandstone fishes Studies in growth and form in fossils Carboniferous stratigraphy and biostratigraphy in Northumberland and adjoining areas Evidence bearing on continental drift, N.Atlantic area
Professor J.E. Hemingway Ph.D.	Provenance and sedimentation of the Torridonian Series of N.W. Scotland Sedimentational problems in the Middle Jurassic of Yorkshire
Emeritus-Professor S.I. Tomkeieff, D.Sc.	Petrology of Tertiary igneous rocks of W. Scotland and N. E. Ireland Petrology of Carboniferous igneous rocks of the Scottish borders Application of the Periodic Table of the elements to geochemistry Aspects of history of geology Compilation of a dictionary of petrology
J. Shirley, D.Sc.	Carboniferous Limestone of Derbyshire Silurian and Lower Devonian stratigraphy and faunas, Devon and N. Spain Trilobites (*Calymene* and *Pharostoma*)
D.A. Robson, Ph.D.	The Fell Sandstone Group in Northumberland Lower Old Red Sandstone lavas and intrusions around Cheviot and in Scotland and their identification by means of the proton magnetometer Structural geology in the Cheviot Hills The structure of the African Rift Valley in the Gulf of Suez region of Egypt
B.A.O. Randall, Ph.D.	The Great Whin Sill and its associated rocks Geology of Lyngen peninsula, N. Norway
M.H. Battey, Ph.D.	Stratiform pyroxene granulites of Jotunkindred, Jotunheim, Norway Geochemistry of Carboniferous sediments of Northumberland, with special reference to heavy element concentrations Spillites and keratophyres Meteorites
A.D. Walker, Ph.D.	Permian and Triassic reptiles of the Elgin area Old Red Sandstone of the Black Isle and Strathpeffer regions
W.R. Dearman, Ph.D.	Structural geology and pneumatolytic mineralization of northern border of Dartmoor and associated areas to S.W. The geology of the Altarnun district, Bodmin Moor Structures of the Lower Palaeozoic rocks from Siccar Point to Burnmouth, Berwickshire

12. Geology (*continued*)

D.G. Murchison, Ph.D.	Optical properties of uranium oxides
with J.M. Jones, Ph.D.	Correlation of physical properties, chemical composition and petrographic components of coal
A. Davis	Coal in relation to Carboniferous sedimentation
M.A. Lappin	Eclogites, etc. of Nordfjord, and anorthosites and associated rocks of Nordfjord, Sognefjord and the Bergen Arcs, Norway
	Petrofabric studies in Norwegian dunites
N. Farmer	Stratigraphy of the Limestone group of the Carboniferous of Northumberland

13. Mathematics

Applied:

Professor A.E. Green, Sc.D., F.R.S.	Non-linear continuum mechanics
	Elasticity
N. Fox, Ph.D.	Elasticity
C. Gilbert, Ph.D.	Theory of relativity

Computation:

E.S. Page, Ph.D.	Numerical analysis
H.I. Scoins, D.Phil.	Operational research
J. Eve, Ph.D.	Commercial application of automatic computers
M.J. Elphick	
J.S. Clowes	
K. Wright	

Pure:

Professor F.F. Bonsall, D.Sc.	Functional analysis
R.W. Carter, Ph.D.	Group theory
N. Du Plessis, Ph.D.	Theory of functions
A.W. Goldie	Theory of rings
R. Harrop, Ph.D.	Mathematical logic
H. Reiter, Ph.D.	Harmonic analysis

Statistics:

Professor R.L. Plackett	Mathematical statistics
D.A. Evans, Ph.D.	

14. Medicine

Professor G.A. Smart, M.D.	Estimation of circulating antibodies to thyroid protein in Hashimoto's disease, primary myxoedema and other thyroid disorders by means of tannic acid haemagglutination technique
D.N.S. Kerr	Follow-up of gastrectomy and gastroenterostomy with vagotomy for duodenal ulcer
Professor G.A. Smart, M.D.	Use of radioactive tri-iodothyronine uptake by resin in quantitative assessment of thyroid function and in detecting abnormalities of thyroid hormone transport
S.G. Owen, M.D.	
F. Clark	
Professor G.A. Smart, M.D.	Clinical survey of thyroid auto-immunity with special reference to possible genetic basis ; experimental induction of auto-immune thyroiditis in rabbits to study maternal transmission of auto-antibodies ; survey of incidence of thyroid auto-immunity in a general practice
S.G. Owen, M.D.	
R. Hall	
F. Clark	

14. Medicine (*continued*)

Professor G.A. Smart, M.D. A.M. Robson	Investigation into the effect of thyroid status on the duration of tendon jerks
Professor G.A. Smart, M.D. T.H. Boon, M.D. S.G. Owen, M.D. D.W. Ashby, M.D.	Clinical trials of agents intended to promote healing of peptic ulcer
Professor G.A. Smart, M.D. Professor M. Roth, M.D. J. Vallance-Owen, M.D. D.N.S. Kerr A.M. Robson S. Gonticas	Investigation into the differentation of the symptomatology of thyrotoxicosis and anxiety states
Professor G.A. Smart, M.D. G. Holti, M.D. S.G. Owen, M.D. S. Gonticas	Investigation into the effect of immune reactions on the basophil
Professor G.A. Smart, M.D. M. Thompson, M.D. J.S. Percy	A study of the relationship of amino conglutinine to various rheumatic disorders
D.N.S. Kerr	Mechanics of haemodialysis
R.W. Elliott, M.D.	Application of haemodialysis to treatment of gout
A.M. Robson	Metabolism of urea in uraemic patients
R. Ashworth (Miss), Ph.D.	Metabolic studies of periodic paralysis and myasthenia gravis
R. Hall	Nucleic acid formation in human thyroid carcinoma and adenoma Effects of TSH on RNA and DNA synthesis in calf and sheep thyroid Effect of immune sera on nucleic acid synthesis in the mouse lymphoma A clinical study of the families of male patients with Hashimoto's disease
J. Vallance-Owen, M.D. J. Ensinck, M.D.	Studies on insulin antagonism in plasma with special reference to the isolation of a hormone-dependent antagonist associated with plasma albumin
J. Vallance-Owen, M.D.	Genetic studies of essential diabetes mellitus
W.L. Ashton	Studies of the complications of essential diabetes in patients in whom the carbohydrate tolerance is normal
H.A. Dewar, M.D.	Various long-acting coronary vasodilators
Professor A.L. Latner, M.D., D.Sc. H.A. Dewar, M.D.	Value of isoenzymes in diagnosis of myocardial infarction
H.A. Dewar, M.D. M.J. Smith P. Stephenson	The effect of Atromid on the level of cholesterol and of fibrinolytic activity in the blood
H.A. Dewar, M.D. R. Brown M.J. Smith	Bio-assay of erythropoeitin
R.B. Thompson, M.D. W.E. Armstrong (Mrs.)	Oral trial of cyano- and hydroxo-cobalamin in pernicious anaemia Oral trial of vitamin B_{12} coenzyme in pernicious anaemia
A.G. Ogilvie, M.D.	Prospective study of the development of chronic bronchitis in a series of early cases and of the possibility of influencing this by treatment

14. Medicine (*continued*)

A.G. Ogilvie, M.D.	Study of adrenopituitary function in chronic asthma
Professor A.L. Latner, M.D., D.Sc.	
J.R. Kilborn	
E.J. Field, M.D., Ph.D.	Immunology of multiple sclerosis and experimental
E.A. Caspary	" allergic " encephalomyelitis ; isolation of encephali-
V.R. Cunningham, Ph.D.	togenic factor; toxicity of multiple sclerosis sera for nervous tissue in culture

15. Metallurgy

Professor N.J. Petch, Ph.D., D.Met.	Dislocation theory of yield and fracture of metals and oxide ceramics
R.N. Parkins, Ph.D.	The stress-corrosion cracking of mild steels in various corrosive media
	High temperature aqueous corrosion
J.D. Gilchrist, Ph.D.	Distribution of sulphur between iron and blast furnace type slags
R.F. Tylecote, Ph.D.	Adherence of oxide films on metals
	Principles of solid phase welding
	Techniques of primitive metallurgy
D. Maxwell	High temperature embrittlement of ferrous alloys
D. Hardie, Ph.D.	Effect of hydrogen on zirconium alloys
	Adsorption of gases on oxides
	Lattice defects in quenched alloys
A.E. Wraith	Inter-phase mass transfer in refining processes

16 Microbiology

Bacteriology:

Professor C.A. Green	Staphylococcal cross-infection in hospitals in N.E. region
with H. G. Miller, M.D.	Immunological investigation of patients with acute multiple sclerosis and other demyelinating diseases
with Department of Child Health	Bacteriological and virological investigation of acute respiratory tract infection in children
with P.S. Gardner, M.D.	Immunological and viral aspects of cancer research
C.A.H. Trench	
A.H. Emslie-Smith, M.D.	Colicines
I.A. Porter, M.D.	Staphylococcal enzymes
M. Emslie-Smith (Mrs.)	Aspects of bacterial variation
A.H. Rose, Ph.D.	Metabolic function of biotin
	Biochemistry of psychrophilic micro-organisms
F.L. Constable, M.D.	Electron microscope studies in animal virus infections
D.C. Turk	Respiratory tract carriage of *Haemophilus influenzae*

17. Neurology

J.M. Walton, M.D.	Controlled trials of treatment in human and animal muscular dystrophy
G.W. Pearce, Ph.D., M.D.	An investigation of the carrier state in the Duchenne type muscular dystrophy
R.J. Pennington, Ph.D.	
K.F.A. Ross, Ph.D.	An investigation of histological changes in muscle in carriers and in pre-clinical muscular dystrophy
D.D. Barwick	
A.J. McComas	Clinical and electromyographic investigations of cases of amyotonia congenita
D. Park (Miss)	
J.M.S. Pearce	

17. Neurology *(continued)*

	Clinical, biochemical and histopathological investigations of polymyositis
	Tissue culture of normal and dystrophic muscle
	Electron microscopy of normal and dystrophic muscle from man and from the dystrophic mouse
	Studies on the distribution of acid phosphatase within normal and diseased muscle fibres
	Interference microscopy of normal and diseased muscle
	Study of lysosomes in normal and diseased muscle
	Studies of the enzyme content of normal and dystrophic muscle in man and in the dystrophic mouse
	Studies of oxidative phosphorylation in normal and diseased muscle
	Studies of the serum aldolase and serum phosphocreatine kinase in normal individuals under varying conditions and in human muscular dystrophy
	Investigations of recurrent cerebral ischaemic attacks and a controlled trial of treatment
	A follow-up survey of cervical spondylosis
	Micro-electrode studies of normal and diseased muscle in vitro and in vivo
H.G. Miller, M.D. D. Poskanzer K. Schapira, M.D.	Survey of multiple sclerosis in the counties of Northumberland and Durham and epidemiological analysis of data
H.G. Miller, M.D. D. Poskanzer C. Rolland M. Brewis (Mrs.)	Epidemiological study of neurological morbidity in the city of Carlisle
H.G. Miller, M.D. J.B. Foster D.J. Newell, Ph.D. C. Simpson	Continuation of controlled therapeutic trials of treatment in multiple sclerosis
J.B. Foster D. Irvine	Incidence of distribution of cervical spondylosis in industrial general practice in Northumberland

18. Obstetrics and Gynaecology

Professor J.K. Russell, M.D. with D.V.I. Fairweather D. Miller G.S. Anderson	Birth wastage in the city of Newcastle upon Tyne
W. Walker, M.D.	Various aspects of Rh iso-immunization
D.V.I.Fairweather	Endocrine studies in hyperemesis gravidarum
	Obstetric and sociological factors in handicapped children

19. Occupational Health

Industrial:

Professor R.C. Browne, D.M.	Experimental and social study of aetiology of miners' nystagmus
R.I. McCallum, M.D. G.L. Leathart, M.D.	Investigation of form of teaching best suited to combine the clinical, social and industrial aspects of disease
J. Steel, Ph.D. D.J. Newell, Ph.D. R.W. Ellis J. Lion (Mrs.) I. Acton	Investigation into the relationship between occupation, health and the social effects of both

19. Occupational Health (*continued*)

Industrial (*continued*)

†Investigation into problems of hospital administration
Respiratory disability and its relation to the X-ray picture in coal miners and others
*Investigation of the chemistry of diesel engine exhausts
New methods of estimating lead in urine
Psychology of coal miners' nystagmus
Clinical trial of anti-tuberculous chemotherapy in sputum-negative progressive massive fibrosis of coal miners
Lead absorption and poisoning in shipbreaking
Investigation of dermatitis and pneumoconiosis in antimony process workers
Investigation of decompression sickness in compressed air workers
†Organisation of industrial hygiene service for industry on Tyneside
Comparison of the performance of manipulative and inspection tools under tungsten and fluorescent lighting
‡Investigation into noise in power stations

20. Orthopaedics

J.K. Stanger (Head of Department)	
P.N. Robson P.J. van Miert	Co^{60} in the treatment of osteoarthritis of the hips
W.A. Crabbe	Aetiology of congenital talipes
C.D. Hierons	Management of Colles fractures
J.K. Stanger P.N. Robson	Scoliosis

21. Otorhinolaryngology

F. McGuckin (Head of Department)	Clinical study of the aetiological factors in destructive ear diseases including regeneration of mesotympanic tissue
J.I.M. Black with Department of Child Health	A clinical study of chronic suppuration of the upper respiratory tract in children
J. D. K. Dawes	Management of intracranial complications of otitis media Preservation and restoration of hearing in chronic otitis media and otosclerosis

22. Paediatrics and Child Health

Professor S.D.M. Court, M.D. F.J.W. Miller, M.D. Professor S.D.M. Court, M.D. E.G. Knox, M.D.	A study of a thousand families in Newcastle upon Tyne. This began in May 1947 and will continue until the children leave school at 15. It is concerned with illness and with educational achievement and attitudes in relation to the family
W. Walker, M.D. E.G. Knox, M.D.	The management and outcome of haemolytic disease in the N.E. region of England
S. Murray (Miss), M.D.	Studies of the determinants of haemolytic disease
G.A. Neligan, D.M.	Clinical and biochemical study of carbohydrate metabolism in the newborn infant Measurement of blood pressure in newborn infants
W. Walker, M.D.	Studies in neonatal hyperbilirubinaemia

*Under the auspices of the M.R.C.
†Under the auspices of the Nuffield Provincial Hospitals Trust
‡Under the auspices of the Central Electricity Generating Board

22. Paediatrics and Child Health (*continued*)

F.W.J. Miller, M.D.	Clinical and epidemiological studies of tuberculosis in childhood with particular reference to control and natural history of clinical tuberculosis treated with chemotherapy
M.D. Taylor (Miss), M.D.	
M.E. Morley (Miss), D.Sc.	A continuing study of disorders of communication including reading disabilities in childhood with a view to further understanding of these conditions and in relation to prognosis and management
Professor S.D.M. Court, M.D.	
Professor S.D.M. Court, M.D.	Respiratory function testing in normal children and children with chronic respiratory disease
J.D. Andrew	
E.G. Knox, M.D.	Epidemiological and genetic aspects of children's diseases, congenital malformations, leukaemia and other children's diseases

23. Pathology

Professor A.G. Hepplestone, M.D.	Pulmonary deposition and disposal of particulate matter, using a double-dusting technique
	Electron microscopy of the lung in pathological states
R.O.K. Schade, M.D.	Early carcinomatous lesions of the stomach
	Histochemical study of gastric mucosa in health and disease
	Relationship of chronic gastritis to peptic ulceration and carcinoma
A.J. Watson, M.D.	Paneth cell function and the effects of intestinal transplantation
	Fat embolism
E.J. Field, M.D.	Experimental allergic encephalomyelitis
J. Hart-Mercer	Congenital hepatic fibrosis
P.J. Dawson, M.D.	Cell-virus relationship in a murine leukaemia
	Histopathology of lymph nodes
T.F. McElligott, M.D.	Chondrocyte activity in relation to the pathogenesis of osteoarthritis
C.H. Corby	Myocarditis in relation to sudden death
	Estimation of time since death
T.J. Muckle	Immunology of amyloidosis

24. Pharmacology and Therapeutics

Professor A.A. Harper, M.D., F.R.S.E.	
N.A. Wynne	Actions of digitalis
	Chelating agents
	Excretion of sympathins in hypertension
	Anti-arrhythmic drugs

25. Physics

Professor S.K. Runcorn	Geophysics
K.M. Creer, Ph.D.	Palaeomagnetism. Magnetic properties of very fine grained materials
F.J. Lowes, Ph.D.	Origin of geomagnetic field and its secular change
	Plasma physics and experimental hydrodynamics

25. Physics (*continued*)

J.H. Parry, Ph.D.	Magnetic properties of minerals
A.E.M. Nairn, Ph.D.	Palaeomagnetism and palaeoclimates
D.W. Collinson	Palaeomagnetic measurements
D.C. Tozer, Ph.D.	Electrical and thermal properties of the earth's interior
Professor W.R. Hindmarsh	High resolution optical spectroscopy; plasma physics
T.A. Littlefield, Ph.D.	Interferometry, hyperfine structures and accurate wavelengths
K. Dolder, Ph.D.	Ionization and excitation of cross-sections
W.H. King, Ph.D.	Isotope shifts in atomic spectra
A.E. Brown, Ph.D.	Sound, especially propagation of ultrasonics in fluids
O. Darbyshire	Optical and mechanical properties of thin films
R. Roscoe, Ph.D.	Elasticity, viscosity and plasticity
E.E. Schneider, Dr. phil. nat.	Electron spin and nuclear resonance in ionic solids and semiconductors. Optical and electrical properties of ionic solids
N. Thorley, Ph.D.	Precision mass spectroscopy applied to palaeo-temperatures. Structures of minerals by X-rays
L. Molyneux, Ph.D.	Research into the measurement of physical phenomena by electronic means
R.M. Hill	Plasma physics
Theoretical:	
Professor G.S. Rushbrooke	Theory of phase changes. Many-electron problems of quantum mechanics
G.N. Fowler, Ph.D.	Elementary particle physics and many-body problem
I.D.C. Gurney, Ph.D.	Statistical mechanics and solid state theory
P.J. Wood, Ph.D.	Many-body problem Hydrodynamics and hydromagnetics
P. Gray, Ph.D.	Statistical mechanics of transport processes in liquids. Irreversibility

26. Physiology

Professor A.A. Harper, M.D., F.R.S.E. T. Scratcherd H.J. Lake, Ph.D. E.L. Blair J.D. Reed, Ph.D.	Physiology of digestion: Gastric, pancreatic and biliary secretion
B. Schofield, M.D.	Control of gastric secretion
W.T. Catton	Physiology of locust eye Study of sensory endings
W. Taylor, Ph.D.	Steroid metabolism
M.G. Forster (Miss), Ph.D.	
G.N. Jenkins, Ph.D.	Anti-caries action of fluorine Refinement of foods on caries Composition of dental plaque
R. Keeler, Ph.D.	Aldosterone regulation
D.E. Wright, Ph.D.	Cytology of human saliva

27. Psychiatry

Professor M. Roth, M.D. with D.W. Kay, M.D. J.P. Child, M.D. G. Fitzpatrick D. Irwin P.J.G. Quinn J. Roy	Investigations into social background and social class distribution of patients admitted to mental hospitals in Northumberland and Durham. Investigations of variation in results of treatment in relation to social variables

27. Psychiatry (*continued*)

Professor M. Roth, M.D. with M. Harper C. Nelson (Miss)	Studies of clinical picture course, physiological and biochemical correlates of the phobic anxiety-depersonalization syndrome Clinical features, course and classification of depressive and anxiety states Comparative studies of anxiety neurosis and hyperthyroidism
Professor M. Roth, M.D. with B. Tomlinson G. Blessed	Neuropathology of mental disorders in old age
Professor M. Roth, M.D. with D.W. Kay, M.D. G. Blessed P. Beamish (Mrs.) R.F. Garside	Psychological, social, genetic and organic factors of schizophrenics and their siblings
M. Carney with D.W. Kay, M.D. C.F. Lascelles P.J.G. Quinn J. Roy D. Irwin	Clinical trials of anti-depressive drugs
D.W. Kay with P. Beamish (Mrs.)	Social and medical survey of a random sample of old people in the community Investigations of social and medical background of old people admitted to different types of institution
R.F. Garside	Influence of mental disease on premorbid intelligence (as ascertained at the age of 11) of patients admitted to mental hospitals in Northumberland and Durham
J.W. Osselton with M. Carney	Stabilization of low frequency wave analyzer Investigation into the effects of electroconvulsive therapy on the electroencephalogram
J.N. Walton, M.D. D.D. Barwick	Electroencephalogram changes in muscular dystrophy
L. Molyneux, M.D. M. Irvine (Miss)	Development of completely transistorized electroencephalogram amplifiers Investigation of the electroencephalogram effects of certain tranquillizing and anti-depressive drugs
J.W. Ridge, Ph.D.	Endocrine and biochemical effects of certain drugs used in the treatment of psychiatric disorder
J.G. Andrews with M. Harris (Mrs.) R.F. Garside	Incidence, social background and psychological performance of ten-year old children suffering from stammering in Newcastle upon Tyne

28. Radiotherapy

C.J.L. Thurgar (Head of Department) with Department of Pathology	Experiments on the leukaemogenic action of ionizing radiation on mice
W.M. Ross, M.D. S.B. Wigoder (Miss), M.D., Ph.D. with Department of Surgery	The evaluation of megavoltage radiation in comparison with that from cobalt 60 and caesium 137 in clinical practice The use of triethylene thiophosphoramide and testosterone in advanced breast cancer
P.J. van Miert with D.N. Walder P.N. Robson	Investigation of the effects of ionizing radiation on lymphatic vessels The treatment of osteoarthritis of the hip by cobalt 60 implantation

28. Radiotherapy *(continued)*

P.J. van Miert	The use of 30 kV X-rays in the treatment of diseases of the conjunctiva and cornea
W.M. Ross, M.D.	Ablation of the pituitary gland by interstitial irradiation in advanced malignant disease and in certain endocrine disorders
	Steroid administration in the prophylaxis of post-radiation pulmonary fibrosis

29. Statistics

Mathematical:	See **Mathematics**, *Statistics*

30. Surgery

Professor A.G.R. Lowdon, O.B.E.	Social and economic results after operations for peptic ulcer
D.N. Walder, M.D.	Study of reactive hyperaemia in skin associated with injury
F.C. Walker	Nature, site and chemistry of concussion
J.E.S. Scott, M.D.	A study of recurrences following operation for nodular goitre
F. Braithwaite, O.B.E.	
P.H. Dickinson	Stereotactic investigations of the basal ganglia
G.H. Dunstone	Methods of cerebral hypothermia
J. Hankinson	Urinary tract substitution
E. Little (Miss)	Extra-corporeal circulation, hypothermia and cardiac arrest, with special reference to clinical application
G.A. Mason	
I.F. McNeill	Structural and dynamic effects of prolonged vesico-ureteric reflux
G.F. Rowbotham	
J. Swinney, M.C., M.D.	Studies in tissue and organ transplantation
I.F. McNeill	Elaboration of a method for excretion pancreatography
R. Pringle	A study of the distribution of fluorochromes in cerebral anoxia
	Investigation of the functional integrity of the myenteric plexus in ulcerative colitis
	Liver damage in ulcerative colitis
	Study of brain circulation
	Experimental and clinical assessment of blood flow in muscles
	Clinical study of results of arterial grafting and the effects of long-term anticoagulants
	Studies in the use of fibrinolysin
	Study of lymphatics
	Chemotherapeutic treatment of breast cancer
	Problem of exposure to high atmospheric pressure
	Epidemiology of staphylococcal infection in surgical wards
	Electrolyte and acid base changes in the blood of ischaemic limbs and the effects of these changes on the myocardium when circulation is returned to the ischaemic part, in man and dogs
	Significance of ABO groups and secretor status in chronic duodenal ulcer
	Long-term effects of bilateral vagotomy and gastrojejunostomy

31. Venereology

W.V. Macfarlane, M.D. (Head of Department)	Behaviour of the blood sedimentation rate in syphilitic aortitis
	The comparison of some aspects of the medico-social pattern in promiscuous women found to be suffering from gonorrhoea in the immediate post-war year, present day and intervening years

31. Venereology (*continued*)

with W.G.A. Swan, M.D.	Cardiovascular syphilis: clinical assessment following penicillin-heavy metal therapy
B.E. Tomlinson, M.D.	Cardiovascular syphilis: pathological evaluation following pencillin-heavy metal therapy

32. Zoology

Professor A.D. Hobson	Parasitology, especially physiology of nematode worms parasitic in animals. Free-living nematodes. Marine ecology
E.T. Burtt, Ph.D.	Physiology of nervous system and sense organs in insects
C. Ellenby, D.Sc., Ph.D.	Physiology and sex determination of the potato root eel-worm and related parasitic nematodes
A.L. Panchen, Ph.D.	Fossil amphibia
U.A. Philip (Miss), Dr.Phil.	Genetics of *Coelopa frigida*
G.N. Philipson, Ph.D.	Ecology of aquatic insect larvae
J. Shaw	Experimental cytology. Ionic and osmoregulation Cytochemistry
Lord Richard Percy	Comparative anatomy of vertebrates

DOVE MARINE LABORATORY

H.O. Bull, D.Sc., Ph.D.	Fish and crustacean behaviour in relation to marine environment
J.A. Allen, Ph.D.	Molluscan biology and population studies of Crustacea
J.B. Buchanan, Ph.D.	Benthic marine ecology
F. Evans, Ph.D.	Local sea currents in relation to bottom fauna

8 Edinburgh University

1. Agriculture

Professor S.J. Watson, C.B.E., D.Sc., F.R.S.E. with M.J. Nash, Ph.D.	The conservation of grass and other forage crops
M.A. Knox	Land, labour and capital applied to agriculture Business management of the farm
S.F. Hayes	Horticultural crops Physical structure of soils in relation to crop growth
J.M.M. Cunningham	Feeding of grass and grass products to sheep The housing of pigs and sheep Synthetic diets in the artificial rearing of lambs
J.C. Holmes, Ph.D.	Nitrogen manuring of grassland for beef production Several aspects of crop production
K.V. Runcie	Zero grazing of dairy animals Systems of housing for dairy cattle Rearing of young dairy stock Production and utilization of grass for dairy cows
J.M. Manson	The genetics of egg weight gain in the domestic fowl
J. Harkins	A study of calf rearing for beef production
R.F. Thow	Soil: physical conditions in relation to emergence

1. Agriculture (*continued*)

Agricultural Botany:

R.G. Heddle	Utilization of herbage species
J.B.D. Herriott, Ph.D.	Response of pasture to fertilizer and animal treatments Nitrogenous manuring of grassland
P.C. Harper, Ph.D.	Growth studies on potatoes in relation to fertilizer practice
D.S.C. Erskine	Studies on weeds and weed control
A.E.W. Boyd, Ph.D.	Diseases of potato tubers and sugar beet seedlings
J.H. Lennard, Ph.D.	Skin spot disease of potatoes Potato physiology and storage
W.A. Hughes	Club root disease of Brassicae

Agricultural Chemistry:

A.M. Smith, O.B.E., Ph.D., D.Sc.	Soil analysis, responses to fertilizers, radioactive phosphorus; plant nutrition and deficiency diseases ; spectrochemical analyses of soils and plants
K. Simpson	
D. Purves, Ph.D.	Digestibility of foodstuffs ; radioactive carbon ; hypomagnesaemia; chemical changes in ensilage; nutrition of grazing animals
P. McDonald, Ph.D.	
R.A. Edwards	
H. Tod, Ph.D.	Factors involved in variations in chemical composition of milk
P. Crooks	
J.F.D. Greenhalgh, Ph.D.	

Agricultural Microbiology:

T. Gibson, D.Sc.	Bacteriology of silage, milk, eggs, the root nodules of clover, the rhizosphere of crops, the alimentary tract of the fowl and plant diseases

Agricultural Zoology:

J.W. McHardy	Agricultural pests
W.J. Guild, Ph.D.	Lumbricidae as affecting soil fertility

2. Anatomy

Professor G.J. Romanes, Ph.D.	Motor localization in spinal cord
A.R. Muir, M.D.	Electron microscopy of developing tissues
J. King, M.D.	The development of motor nerve fibres and motor nerve endings
A. Peters	The development of myelin; central and peripheral The development of bone structure during foetal life

3. Astronomy

Professor H.A. Brück	Stellar spectroscopy. Galactic structure
M.J. Smyth, Ph.D.	Photographic and photoelectric stellar photometry

4. Biochemistry

Professor R.B. Fisher D.Phil. and others	Mechanism of penetration of sugars into surviving cells and the action on it of insulin Problems of cardiac energy metabolism Mechanism of absorption of organic solutes from the small intestine of mammals
E. Stedman, F.R.S. and others	Problems of the cell nucleus
J.H. Ottaway, Ph.D. and others	Effects of hormones on carbohydrate metabolism Glutamate metabolism

4. Biochemistry (*continued*)

W.N.M. Ramsay, Ph.D. and others	Iron metabolism
G.S. Boyd, Ph.D. and others	Cholesterol metabolism and arteriosclerosis
P.C. Jocelyn, D.Phil.	Metabolism of SH groups
H.J. Cruft, Ph.D. and others	The nature of histones
J.W. Minnis, Ph.D.	Organic microanalytical techniques
A.P. Ryle, Ph.D.	Proteolytic enzymes related to pepsin
L.G. Plaskett, Ph.D.	Thyroid hormone biosynthesis

5. Biophysics

J. Dainty, D.Sc.	Permeability of plant cell membranes to ions and water Uptake of salts by plant tissues
E.J. Williams, Ph.D.	Ionic relations of single plant cells
R.J. Johnston, Ph.D. J. Hogg.	Electrophysiology of single plant cells
P.C. Croghan, Ph.D.	Osmotic relations in animals
R. Scott, Ph.D.	Uptake of fission products by seaweeds Photosynthesis in seaweeds
B.R. Malcolm, Ph.D.	Structure of plant cells Protoplasmic streaming Structure of proteins

6. Botany

Professor R. Brown, D.Sc., F.R.S.	Cell division and cell growth
A. Nelson, Ph.D., D.Sc.	Germination
W. Blyth, Ph.D.	Fungal infections of the animal body
P.H. Davis, Ph.D.	The flora of Turkey
J.G. Dodds, Ph.D.	The influence of salinity on vegetation
A.J. Brook, Ph.D.	The biology of desmids
J.K. Heyes, Ph.D.	The biochemistry of nucleic acids
M.M. Yeoman, Ph.D.	Plant tissue culture
J.E. Dale, Ph.D.	Growth of whole plants
A.J. Tullet	Electron microscopy of plant cells

7. Chemistry

Clinical:

J.A. Owen, M.D., Ph.D.	Chemistry and metabolism of plasma proteins Disorders of liver functions Statistical assessment of laboratory procedures in the investigation and care of patients.
S.L. Tompsett, D.Sc., Ph.D.	Ion exchange resins in the study of normal and abnormal metabolites, drugs and their metabolites, and trace elements
R. Kapeller-Adler (Mrs.), D.Sc., Ph.D.	Histamines and related enzymes
L.C.G. Thomson (Miss), Ph.D.	Purification and characterization of gastrin
F.J. Scandrett, Ph.D.	Aetiology of toxaemia of pregnancy Fundamental aspects of lipid and mucoprotein metabolism in toxaemia of pregnancy

Inorganic and Physical:

Professor T.L. Cottrell, D.Sc.	Molecular energy transfer in gases

7. Chemistry (*continued*)

Inorganic and Physical (*continued*)

M. Ritchie, D.Sc.	Solid state photochemical reactions
T.R. Bolam, D.Sc.	Surface and colloid chemistry; chemisorption of oxygen on charcoal; colloidal electrolytes
C.A. Beevers, D.Sc.	The structure of crystals by X-ray diffraction and the improvement of methods employed
D. Taylor, D.Sc.	Thermal decomposition of solids; studies on the electronic factor in heterogeneous catalysis
C.T. Greenwood, D.Sc.	Studies on the physical properties of solutions of natural high polymers
J.H. Knox, Ph.D.	Kinetics of gas phase free radical reactions; hydrocarbon oxidation; gas chromatography
D.M.W. Anderson, Ph.D.	Infra-red spectroscopy: development of analytical methods
W.P. Doyle, Ph.D.	Optical absorption in inorganic solids
M.M. Harding (Mrs.), D.Phil.	X-ray analysis of crystal structures
A.W. Read	Electron-molecule interactions

Organic:

Professor E.L. Hirst, C.B.E., LL.D., F.R.S. G.O. Aspinall, D.Sc. E.E. Percival (Mrs.), D.Sc. C.T. Greenwood, D.Sc. D.J. Manners, D.Sc. D.M.W. Anderson, Ph.D. J.C.P. Schwarz, Ph.D. D.A. Rees, Ph.D.	Chemistry of the carbohydrates including studies of reaction mechanisms; sulphur- and mercury-containing sugars; chemistry of the polysaccharides including structural determinations; studies of the size and shape of macromolecules; enzymic sythnesis and degradation of carbohydrates; chemistry of the carbohydrate components of land plants and marine algae including investigations into the related enzyme systems.
N. Campbell, D.Sc. H. Heller	Chemistry of aromatic polycyclic compounds and heterocyclic compounds
D. Leaver, Ph.D.	Chemistry of heterocyclic compounds; radiation chemistry of non-aqueous solutions
R. Wall, Ph.D.	The nitrogen containing components of marine algae; methods of separation of macromolecular substances
P.J. Sykes, Ph.D.	Studies in steroid chemistry
M.H. Palmer, Ph.D.	Mechanism and stereochemistry of cyclization reactions
*H.T. Macpherson, Ph.D.	The chemistry of fodder conservation with special reference to ensilage
†I.D.E. Storey, Ph.D.	Biochemistry of nucleotides and uronic acids

8. Dental Studies

Professor J. Boyes	Early dental cyst formation
G.B. Hopkin, Ph.D.	The cranial base
D.A. Dixon	A study of cleft palate with special reference to the teeth Oral pressures Submerging deciduous molars
D.M. Watt, Ph.D.	Investigation of the oral tissues under load Gnathosonics : a study of the application of signals of sonic and ultrasonic frequencies to occlusal and periodontal diagnosis
M. Geddes	A long-term review of partial dentures and their effect on oral tissues
A.R. MacGregor	Form and size of dentulous and edentulous jaws as related to impression tray design

*A.R.C. Staff
†M.R.C. Staff

8. Dental Studies (*continued*)

J.N. Mansbridge, Ph.D.	Epidemiology of dental caries Methods for the prevention and control of dental caries
C.P. Wallis	Inhibition of esterase by fluoride Caries susceptibility of upper lateral incisors.
A.R. Bradshaw	Studies of the dental tissues using the electron microscope
G.S. Beagrie	Life cycle of cells in the gingival epithelium as revealed by autoradiography with thymidine H3
J.H.P. Main	Mechanism of the eruption of teeth

9. Dermatology

Professor G.H. Percival, M.D.	Cutaneous reticulo-endotheliosis Virus infection in relation to the common wart Comparative effects of cortisone and ACTH therapy in skin disease Investigation into bacterial infection in a skin department and in patients suffering from skin disease

10. Engineering

Chemical:

Professor P.H. Calderbank, D.Sc.	Reaction kinetics Mass transfer in fluid dispersions
D.M. Wilson, Ph.D.	Studies of surfaces during mass transfer Diffusion measurements
N. Macleod, Ph.D.	Distillation Mass transfer
R. Jackson	Two phase flow Process optimization
G. Beveridge, Ph.D.	Solid-fluid interaction

Civil and Mechanical:

Professor R.N. Arnold J.D. Robson, Ph.D. A.D.S. Barr, Ph.D.	Dynamics: vibration of plates; surging of valve springs; gyroscopic instruments; non-linear vibration; shaft whirling; vibration of beams; vibration of turbine blades
T.D. Patten, Ph.D.	Boiling heat transfer Compact heat exchanger surfaces
G.O. Goudie	Combustion research in reciprocating engines
W.B. Hunter	Hydrodynamic lubrication in parallel films
S.R. Davies, Ph.D.	Hyperbolic paraboloid shells
I.F. Christie	Consolidation of soils; analogue computation
T.C. Hsu, Ph.D.	Mode of plastic deformation in formation processes
S. Soundranayagam, Ph.D.	Fluid flow in turbo-machines

Electrical:

Professor W.E.J. Farvis	Glow and arc discharges
B. Meltzer, Ph.D.	Electron dynamics Space-charge limited currents in insulator diodes
H.M. Melvin, Ph.D.	Linear networks, and linear analysis and synthesis
G.T. Roberts, Ph.D.	Multi-loop systems
L.M. Muggleton, Ph.D.	Ionospheric problems in communication engineering
J.V. Oldfield, Ph.D.	Power system networks
O.L.R. Jacobs, Ph.D.	Adaptive control systems

11. Forensic Medicine

F.S. Fiddes, O.B.E., M.D.	Investigation of certain post-mortem changes
H.V. Street, Ph.D.	Investigation of all aspects of analytical toxicology

12. Forestry

W.A. Fairbairn, D.Sc.	Studies concerned with certain aspects of forest ecology including light measurement and climatic zonations
C.J. Taylor, M.B.E., Ph.D.	Problems in the management and treatment of irregular forests
W.E.S. Mutch, Ph.D.	Accounting studies with special reference to the economic effects of varying exploitable size
J.M. Caborn, Ph.D.	Effect of shelterbelts on the micro-climate; structure, establishment and tending of shelterbelts
D.R. Gifford, Ph.D.	Biological studies in forest litter
J.E. Cousens	Botanical studies relative to the distribution of oak woodland in Scotland
D.C. Malcolm	Distribution of oak woodland in Scotland

13. Genetics

Animal:

Professor C.H. Waddington, C.B.E. Sc.D., F.R.S.	Evolutionary importance of environmentally produced modifications
	Electron microscopy of developing tissues
B. Woolf, Ph.D.	Human genetics; statistics
Professor G.H. Beale, M.B.E., Ph.D., F.R.S.	Inheritance of antigens in *Paramecium*
C. Auerbach (Miss), D.Sc., F.R.S.	Chemical mutagenesis
R.M. Clayton (Mrs.)	Immunological studies in embryogenesis
G.G. Selman, Ph.D.	Biophysics of development; cytology
H. Kacser, Ph.D.	Theoretical biology
J.O. Bishop, Ph.D.	Genetic control of protein synthesis
R.A. Beatty, Ph.D.	Genetics of gametes; experiments on mammalian ova
*D.S. Falconer, Ph.D.	Selection in mice
*E.C.R. Reeve, D.Phil.	Quantitative inheritance in *Drosophila* and bacteria
*F.W. Robertson, D.Sc.	Physiological genetics of size in *Drosophila*
*A. Robertson, D.Sc.	Dairy cattle breeding; evolutionary and selection genetics in *Drosophila*
*I.L. Mason	Dual purpose cattle and sheep breeding
G.A. Clayton, Ph.D.	Turkey breeding
†B. Slizynski, Ph.D.	Cytology of mouse and *Drosophila*
*A. McLaren (Miss), D.Phil.	Parent-offspring interactions
*J.L. Sirlin, Dr.Nat.Sc.	Autoradiographic studies on nucleo-cytoplasmic relations

14. Geography

Professor J.W. Watson, Ph.D.	Regional geography of N. America
N.R. Elliott, Ph.D.	Development of industrial seaports
	Interpretation of aerial photographs
	Political world maps
P.A. Furley	Soil evolution and classification
	Origin and development of slope surfaces
A. Geddes, Ph.D.	Regional, physical and cultural geography of India and Pakistan
	Population change in Britain, Norway and N. America
	Settlement and community in the north and west of Britain
R. Jones, Ph.D.	Geographic appraisal of retail facilities in Edinburgh
	Social areas in Edinburgh

*A.R.C. Staff
†M.R.C. Staff

14. Geography *(continued)*

J.J. Klawe	Problems of photo-reproduction in atlas cartography
	Colour layering in atlases
	Indexing of an atlas
	Relief representation for young children
D.R. Macgregor	Land use in central Scotland
	Development of Scottish burghs
D.N. McMaster, Ph.D.	Agricultural geography of tropical Africa
	Population mapping in East Africa
A. MacPherson	City climates; problems of applied climatology
	Regional geography of Scotland
C.J. Robertson, Ph.D.	Evolution of plantation economies
	Development of the Italian South
	Geographic patterns of economic development
	Industrial geography in Scotland
J.B. Sissons, Ph.D.	Glaciation of Scotland
	Raised beaches of S.E. Scotland
	Morphological mapping
R.P. Kirby	Pleistocene deposits in parts of Scotland and S.W. England
	Till fabric analysis
	Cartographic techniques in geomorphology
M.J. Stanley	Population and wealth in mediaeval Warwickshire

15. Geology

Professor F.H. Stewart, Ph.D.	Petrology of evaporites
	Geology of Strath, Skye
	Igneous and metamorphic petrology in N. Aberdeenshire and Banffshire
	Malayan volcanic rocks
G.Y. Craig, Ph.D.	Palaeoecology
	Southern Uplands geology
	Silurian fish faunas of Scotland
	Ecology and sedimentation in Solway estuary
P.M.D. Duff	Petrological study of parts of Centre 1, Ardnamurchan
	Ore microscopy
	Cleat in Midlothian coalfield
	Cyclic sedimentation in the E. Pennines coalfield
A. Hallam, Ph.D.	Cyclic sedimentation and palaeoecology in the Lias
	Sedimentary petrology of the Cambro-Ordovician succession in the Durness region
M.R.W. Johnson, Ph.D.	Structure and metamorphism of Moine rocks in Moidart, Sunart and Ardgour
	Structures in N.E. Scotland
	Buchan metamorphism
	Structures of Moine thrust belt at Glencoul and Durness, Sutherland
	Structure of the Bygdin area, Norway
E.L.P. Mercy, Ph.D.	Geochemical studies in Co. Donegal, Ireland, and W. Scotland
	Methods of silicate analysis: their precision and accuracy
M.J. O'Hara, Ph.D.	Metamorphism of basic and ultrabasic rocks
	Eclogites
B.G.J. Upton, D.Phil.	Petrology of alkalic and basic intrusive rocks of S. Greenland
W.J. Wadsworth, D.Phil.	Petrology of Kapalagulu complex, W. Tanganyika
	Igneous petrology in N. Aberdeenshire
	Olivine nodules in the Permo-Carboniferous igneous rocks of Scotland
E.K. Walton, Ph.D.	Southern Uplands geology
	Recent sediments in the Firth of Tay

16. Mathematics

Professor A.C. Aitken, D.Sc., F.R.S.	Linear algebra Statistical mathematics Numerical analysis
L.M. Brown, Ph.D.	Algebraic geometry
J. Cossar, Ph.D.	Function theory of real variable Fourier series and integrals Summability
W.L. Edge, Sc.D.	Algebraic geometry Theory of finite fields
I.M.H. Etherington, D.Sc.	Non-associative algebra
P. Heywood, D.Phil.	Integral transforms and Tauberian theorems
D. Monk, Ph.D.	Homogeneous spaces and geometries
J.L. Mott, Ph.D.	Markov processes

17. Medical Physics

J.R. Greening, Ph.D. (Director)	Dosimetry of ionizing radiations X-ray energy distributions Saturation characteristics of ionization chambers Radiation protection studies
C.A. Murison, Ph.D. E.M. Campbell (Miss)	Physical aspects of radiation therapy
N.M. Proctor	High energy radiation dosimetry
D.C. Simpson, Ph.D.	Instrumentation for patient monitoring Estimation of foetal heart rates
J.M.M. Neilson, Ph.D.	Applications of electronics to medical instrumentation
P. Tothill	Applications of radioactive materials to clinical problems
J.D. Simpson, Ph.D.	Liquid scintillation counting
J.D. Tucker (Miss)	Radionuclide scanning techniques Assay of radioactive gases Measurement of radioactivity in the body

18. Medicine

Professor K.W. Donald, D.S.C., M.D., D.Sc.	Arterial hypertension: haemodynamic and pharmacological studies
S.H. Taylor G.J. Mackenzie	Factors controlling myocardial efficiency and cardiac output
G.R. Sutherland	Blood flow studies by indicator dilution techniques
A. Doig	Studies of renal function and blood flow, particularly in relation to unilateral renal ischaemia Haemodynamics of cardiogenic and surgical shock.
J. Richmond	Clinical and biochemical studies of disorders of the small intestine The applications of radioactive iron, chromium and cyanocobalamin
D.C. Flenley	Controlled oxygen administration in respiratory failure
D.C.S. Hutchison	Blood gas and circulatory changes in respiratory failure Chemical control of respiration
W.I. Card, M.D.	Mechanism of insulin-induced gastric secretion in dogs and humans
W. Sircus, Ph.D., M.D.	Preparation of gastrin and its biological assay Endocrine factors controlling growth of gastric mucosa Observations on motility of the alimentary tract using a telemetering capsule
R.W.D. Turner, O.B.E. M.D.	Natural history of rheumatic heart disease Assessment of drug treatment for hypertension Renal biopsy and retinal camera studies in hypertension

18. Medicine (*continued*)

J.A. Strong, M.B.E.	Radioiodine in the study of thyroid disorders
	Hormones in breast cancer
	Studies of intersexes
	Metabolism in obesity
J.J.R. Duthie	Series of clinical and laboratory studies in relation to rheumatoid arthritis and other locomotor diseases
J.A. Simpson	Applied electrophysiology
	Neuropharmacology

19. Microbiology

Bacteriology:

Professor R. Cruickshank, M.D.	Epidemiology of infectious diseases in man and animals
R.H.A. Swain, M.D.	Virus studies: electron microscopy
J.H. Bowie	Hospital infection: sterilization
J.F. Wilkinson, Ph.D.	Chemical bacteriology
R.R. Gillies, M.D.	Epidemiology of streptococcal and *Shigella* infections

20. Mining

Professor R. McAdam	Geophysical exploration
	Mine rescue apparatus and recovery work
	Environmental conditions in mines
	Mining explosives
	Investigation of coal spores

21. Neurology

Surgical:

F.J. Gillingham, M.B.E. (Acting Head of Department) and staff	Continued observations on the cerebro-spinal fluid circulation and its pathology, with special reference to arterial propulsion of the fluid
	The role of arterial distortion and arterial spasm in the production of cerebral lesions in brain tumour, in spontaneous intracranial haemorrhage from aneurysms, and in head injuries
F.J. Gillingham, M.B.E. A.A. Donaldson W.S. Watson, M.D. J. Naughton	An investigation of the physiological and pathological mechanism of Parkinsonism and of surgical lesions of the globus pallidus and thalamus by stereotactic methods, using physiological stimulation and 20 micron electrode recording
F.J. Gillingham, M.B.E. P. Harris and staff	Trial and assessment of various methods of internal drainage in the management of infantile hydrocephalus
W.S. Watson	Investigation into mechanisms underlying disturbances of consciousness and memory
J. Naughton	Psychological aspects of chronic Parkinsonism
J. Naughton K. Hermann (Miss), M.D.	Dysphasias and kindred derangements of intellectual functions
E.G. Walsh, M.D. with J. Laidlaw and staff	Electroencephalography in elucidation of cerebral function and dysfunction
with A. Brown	Electroencephalogram alterations during anaesthesia and their interpretation
J. McLelland	Neuro-radiotherapy techniques and follow-up
A. Brown and staff	Investigation into treatment of severe intractable pain, the peripheral pain pathways and chemical means of selectively interrupting these pathways
	Investigations concerning management of severe dynamic head injuries: blood oxygenation, temperature control, electrolyte balance, etc.

21. Neurology (*continued*)

Surgical (*continued*)

A.F.J. Maloney	Study of chromosome patterns of intracranial tumours by methods of tissue culture
P. Harris	Effects of radiation
	Use of methyl methacrylate in neurosurgery
P. Harris J. Laidlaw	Development of techniques for deep electrographic recording in man

22. Obstetrics and Gynaecology

Professor R.J. Kellar, M.B.E.	The haemodynamics of pregnancy
	Fluid and electrolyte balance in pregnancy
G.D. Matthew	Placental function in relation to metabolism, enzyme function and blood supply
R.G.S. Leask	
P.R. Myerscough	The excretion of gonadotrophins, oestrogens and progesterone in various obstetrical and gynaecological disorders
	Factors influencing the foetal heart rate

23. Orthopaedics

Professor J.I.P. James	Scoliosis and hand injuries
J. Chalmers	Factors controlling bone growth
*R. Bennet	
†J. Weaver	
G.P. Mitchell	Congenital dislocation of the hip
D.L. Savill	Prophylactic surgery in rheumatoid arthritis
‡R. Tinning	
§R.S.M. Ling	Investigation of the genetic origins of orthopaedic disease
§C. Stark	
W. McQuillan	Investigation of shock

24. Paediatrics and Child Health

Professor R.W.B. Ellis, O.B.E., M.D. and others	Studies of growth and development
C.M. Drillien, M.D.	Prematurity
J.W. Farquhar, M.D.	Offspring of diabetic mothers
	Neonatal hypoglycaemia
	Idiopathic respiratory distress syndrome of the newborn
J.O. Forfar, M.D.	Staphylococcal infection
	Vitamin D metabolism
	Neonatal hyperbilirubinaemia
T.T.S. Ingram, M.D.	Speech development and disorders of speech in childhood
	Cerebral palsy, degenerative brain disease in childhood
T.E. Isles, Ph.D.	Neonatal aminoaciduria
	Glucose tolerance in premature infants
J. Thomson, M.D.	Growth of infants

25. Pathology

Professor G.L. Montgomery, C.B.E., M.D., Ph.D.	Studies in pathology of arterial disease and of the myocardium

*Supported by the Poliomyelitis Research Fund
†Supported by the National Foundation, U.S.A.
‡Supported by the Empire Rheumatism Research Council
§Supported by grants from Scottish Hospital Endowments Research Trust

25. Pathology (*continued*)

A.D. Bain, M.D.	Congenital anomalies
J.D. Black	Tumour growth in experimental conditions
D.L. Gardner, M.D., Ph.D.	Experimental hypertension
A.F.J. Maloney	Parkinsonism
J.D. McGregor	Tumour pathology
R.F. Ogilvie, M.D., D.Sc.	Otosclerosis
M.K. Robson (Mrs.)	Electron microscopy of the kidney in nephrotic syndrome
A.A. Shivas, M.D.	Physical factors in experimental tumours
A.E. Stuart, Ph.D.	Immunopathology
A. Wynn Williams, M.D., Ph.D.	Intestinal malabsorption

26. Pharmacology

	The department is largely concerned with the use of pharmacological methods to assay active substances in tissues, with the study of the mode of action of synthetic drugs affecting junctional transmission, and with the mechanisms of antigen-antibody reactions
Professor W.L.M. Perry, O.B.E., M.D., D.Sc.	Junctional transmission and the mechanisms of antigen-antibody reactions
H.M. Adam	Histamine
T.B.B. Crawford, Ph.D.	Sympathomimetic amines
W.E. Brocklehurst, Ph.D.	The mechanisms of antigen-antibody reactions
D. Colquhoun	
G.E. Mawer	
B.L. Ginsborg, Ph.D.	Junctional transmission
R.P. Stephenson	Mode of action of drugs
R.B. Barlow, D.Phil.	Synthesis of drugs

27. Physics

Professor N. Feather, F.R.S.	Morphology and spectra of aurora and studies of noctilucent cloud
J. Paton	
M.A.S. Ross (Miss), Ph.D.	Radioactive disintegration modes studied by counter and coincidence-counter techniques
	Studies of fluorescent X-rays and γ-rays, using a curved crystal spectroscope
	Studies of boundary layers using a low-velocity air tunnel
P.S. Farago, D.Phil.	Studies in spin-dependent collision processes ; electron g-factor ; electron and positron scattering
G.R. Evans, Ph.D.	High-energy particle studies using cloud chamber and other methods
H.C. Sutton, Ph.D.	Radiation chemistry
A.F. Brown, Ph.D.	Studies of lattice defects in solids by diffusion and by electrical methods
J. Kyles	β– and γ-ray spectrometry ; parity non-conservation
R.M. Sillitto	Fast neutron studies (energy range 1–10 MeV)
	Counter studies in the coherence of light
D.H. McIntosh, D.Sc.	Dynamical meteorology
P.J. Kennedy, Ph.D.	Energy losses of electrons in solids
	Radiation damage under charged particle bombardment
J. Byrne, Ph.D.	Circular polarization of γ-rays

27. Physics (*continued*)

Mathematical:

Professor N. Kemmer, Dr.Phil., F.R.S. with D.J.Candlin,Ph.D. P.W. Higgs, Ph.D. E.J. Squires, Ph.D.	Quantum theory of fields Theory of elementary particles
T. Sprinks	Fluid dynamics

28. Physiology

Professor D. Whitteridge, D.M., F.R.S.	Visual mechanisms in the central nervous system
L.M. Pickford (Miss), D.Sc. S.M. Lloyd (Miss)	Endocrines and the vascular system
E.G. Walsh, M.D.	Vestibular apparatus; vibration
A.D. Dewar, Ph.D.	Physiology of pregnancy in the mouse
R.M. Gaze, D.Phil.	Regeneration of the optic nerve
G.H. Begbie, Ph.D.	Eye movements
R. Passmore, D.M.	Variations in individual energy expenditure in relation to caloric requirements and the problem of obesity
G.H. Haggis, Ph.D.	The study of viruses and sub-cellular structures in the electron microscope
M. Jacobson, Ph.D.	Central nervous mechanisms of vision
D.E.M. Taylor	Vascular reflexes from the viscera; cardiovascular clinical physiology

29. Psychiatry

Professor G.M. Carstairs, M.D.	Prevalence of convulsive disorders Observer variation in psychiatric diagnosis
with C.A. Renton (Miss)	Follow-up study of the post-hospital administration of neuroleptic drugs to schizophrenic patients
H.J. Walton,M.D.	Evaluation of changes in psychiatric teaching
C.B. Kidd, M.D.	Study of social and epidemiological factors affecting the mental health of university students
R.S. Knox, M.D.	Problem of psychopaths in the hospital service The natural course of the neurosis : a 3–5 year follow-up
E.L. Cay (Miss)	Study of psychological factors influencing the outcome of peptic ulcer
M.G. Jayasundera	Measurement of psychiatric disturbance in general medical patients
F.J. Fish	Syndromes of thought disorders and perceptual change in schizophrenia Perceptual change in schizophrenia and depression and their response to drugs Psychological and physiological determinants of the schizophrenias
J.R. Smythies, M.D., with E.A. Sykes (Miss)	Structure-activity studies of hallucinogenic drugs
W.I.N. Kessel	Edinburgh's attempted suicides
with J.W. McCulloch	Some cultural differences in the incidence of stammering
M. Whiteley (Miss)	in school children A longitudinal study of neurosis in general practice
I. Oswald, M.D.	Experimental induction of hallucinatory voices Controlled study of insomnia in depressive illness, including electroencephalography and motility Electrophysiological studies of brain activity, eye movements, muscle tones and other bodily functions during dreaming in normal persons and in the blind Psychological effects of sleep deprivation and its effects on physiological concommitants of dreaming

29. Psychiatry *(continued)*

I. Oswald with R.J. Berger	Psychophysiology of sleep Epidemiological study of the likely relationship between deliberative occupational stress and psychoneurotic disorders
C.B. Kidd, M.D. with G.W. Lynch	
R.S. Knox, M.D	Incidence of abnormal and psychopathic personality in mental hospital practice Prevalence of juvenile "hyperkinetic syndrome"
G.W. Lynch	A social classification of the City of Edinburgh based on the ecological distribution of densities of persons to rooms
J. Drewery	Development of objective measures of medical undergraduate education
W.E.S. Kiernan with F.M. McPherson	Methodological and psychological aspects of clinical trials

30. Psychology

Professor J. Drever	Psychological theory. Perception
M. Collins (Miss), Ph.D.	Child psychology and individual testing
D. MacMahon	Vocational guidance and selection
B. Semeonoff, Ph.D.	Projective techniques and the diagnostic use of performance tests, particularly in relation to academic success
R. Lakowski	The relation between colour vision and age

31. Public Health and Social Medicine

Professor J.H.F. Brotherston, M.D., F.R.S.E.	Evaluation of experimental student nurse training course in Glasgow Royal Infirmary
with F.M. Martin, Ph.D.	Studies in the sociology of medical education
R. Scott, M.D. M.M. Gilmore (Mrs.)	Edinburgh out-patient inquiry
J.A.D. Anderson	Social and economic effects of rheumatism in coal miners and dockyard workers
W.A. Barr	Comparative reproductive endocrinology Electrophoretic separation and bio-assay of pituitary gonadotrophin
D. Cameron with G.D. Forwell Ph.D.	Expectation of life and causes of death in diabetic patients Epidemiology of epilepsy and diabetes
J. Baird	Study of diabetes and obesity
B.M. Hobson, Ph.D.	Immunological and biological investigation of human chorionic gondatrophin Reproductive endocrinology of *Xenopus laevis*
J.N. Mansbridge, Ph.D.	Epidemiology of dental caries
F.M. Martin, Ph.D.	Factors affecting the social rehabilitation of discharged mental hospital patients Current problems and trends in the development of community mental health services (for Political and Economic Planning)
A.R. Mills	Effects of urbanization on health of peoples in developing countries (Sierra Leone)
S.A. Sklaroff	Introduction and spread of staphylococcal infections in households Respiratory infections in overseas students Family follow-up studies of chronic diseases in general practice Chronic bronchitis and smoke pollution in Edinburgh

31. Public Health and Social Medicine *(continued)*

A. Smith	Epidemiological applications of systematically collected national morbidity and mortality data
M.S. Wright (Miss), Ph.D.	Inquiry into characteristics of successful and unsuccessful student nurses in Scotland (excluding mental hospitals)
with Professor J.H.F. Brotherston, M.D., F.R.S.E.	Evaluation of experimental student nurse training course in Glasgow Royal Infirmary

32. Radiotherapy

Professor R. McWhirter	The value of radiotherapy in the treatment of secondarily involved lymph nodes in the axilla, supraclavicular region and internal mammary region in patients suffering from breast carcinoma
K.A. Mackenzie M. Douglas (Miss), M.D. J.G. Pearson J. Newall J. McLelland	The value of supervoltage radiotherapy in the treatment of brain tumours, carcinoma of the mouth and pharynx, carcinoma of the bronchus and oesophagus, carcinoma of the bladder, carcinoma of the cervix uteri and in osteogenic sarcoma
M. Douglas (Miss), M.D.	The value of hormone therapy in the treatment of carcinoma of the breast

33. Rheumatism Research

J.J.R. Duthie	Immunological aspects of diseases of connective tissue
W.R.M. Alexander	Metabolism of amino-acids in rheumatoid arthritis
I.M. Bett (Miss)	Transport of iron in rheumatoid arthritis

34. Surgery

Clinical:

Professor J. Bruce, C.B.E., T.D.	Hormonal aspect of breast cancer Gastric secretion in relation to peptic ulcer Pathology of benign lesions of the small and large intestine
J.A. Ross	Cine-radiographic studies of the renal pelvis and ureter Use of antispasmodic agents in retrograde pyelography
T.J. McNair	Investigation of piperazine compounds as anti-tumour agents Induction of resistance to transplantable tumours
A.N. Smith	Measurement of intestinal motility and pressure Studies in ulcerative colitis: (i) electrolyte disturbances; (ii) immunity reactions Ascites : drainage by Holter valve Ultrasound : production of experimental ulcer Repair of recurrent herniae
J.W.W. Thomson	Bladder position after major pelvic surgery Histological changes after vagotomy 5-Hydroxytryptamine and tumour growth
J.W.W. Thomson A.V. Foote P. Edmond	Local perfusion and chemotherapy in malignant disease: (i) chemotherapy of malignant disease; (ii) malignant cachexia and its relation to protein metabolism Heterotransplantation of tumours Measurement of Thiotepa in body fluids Production of tumour immunity by means of denatured autologous tumour protein
R.M. Preshaw	Hypoglycaemia : gastric secretion and steatorrhoea Ultrasound : its effect on the stomach Effect of parenteral gastric juice and saliva on gastric secretion and histology

34. Surgery (*continued*)

Clinical (*continued*)

J.R. Cameron	Clinical studies on carcinoma of thyroid
A.I.S. Macpherson	Arterial replacement
	Clinical research on portal hypertension and diseases of the spleen
	Measurement of hepatic blood flow using radioisotopes
C.W.A. Falconer	Measurement of biliary pressures after sphincterotomy
	Selective vagotomy and pancreatic function
	Effect of ligation of incompetent veins in the gravitational syndrome
A. Logan	Deep hypothermia in open-heart surgery
	Anatomy of the upper bronchi
	Survey of mediastinal tumours
	Follow-up of 700 cases of cancer of the oesophagus
	Radiographic features of cardiospasm
A.B. Wallace	Nutritional problems in surgical patients
A.B. Sutherland (Miss)	
H.W. Griffiths and others	Cardiopulmonary function in severe chest injury and after operation
D. Band, F.R.S.E.	Clinical study of bladder cancer
	Anterior pituitary inhibitors in carcinoma of prostate
	Testicular tumours with reference to hormonal and chromosomal abnormalities

WILKIE LABORATORY FOR SURGICAL RESEARCH

Professor M.F.A. Woodruffe, D.Sc., M.D.	Transplantation of tissues and organs; problems relating to immunological tolerance and storage of tissues and organs
D. Michie, D.Phil.	
J.G. Howard, Ph.D., M.D.	
B. Nolan	
N.F. Anderson	
D. Wade	Cardiopulmonary by-pass research
	Hypothermia

35. Therapeutics

Professor R.H. Girdwood, M.D., Ph.D.	Studies of nutritional and metabolic disorders concerning vitamins, amino-acids and haematinics
	Clinical and biochemical studies of disorders of the small intestine
	Application of radioactive iron, vitamin B_{12} and folic acid
	Folic acid and FIGLU studies
	Studies in haemophilia
I.W. Delamore, Ph.D.	Studies on the aetiology and incidence of chronic gastritis
	Effect of anticonvulsants on folic acid metabolism and nucleic acid synthesis
W.J. Irvine	Studies in thyroid disease
J.S. Robson, M.D.	Studies of the nature of the metabolic response to injury
A.T. Lambie (Miss)	Electron microscope studies of the protein-losing kidney
	Clinical evaluation of the methods used in the treatment of acute renal failure
	Endocrine factors influencing the renal excretion of water
L.J.P. Duncan	A long-term clinical study in diabetes mellitus
E.A. Harris	Studies on the toxicity of digitalis
	Studies on problems of respiratory control in changing states of acid base balance
D.A. Seaton	Blood volume studies

36. Tuberculosis and Chest Diseases

Professor J.W. Crofton, M.D.	Clinical and bacteriological aspects of the chemotherapy of tuberculosis ; physiology of the bronchus with special reference to the study of endobronchial mural pressures

37. Veterinary Studies

ROYAL (DICK) SCHOOL OF VETERINARY STUDIES

Veterinary Anatomy:

T. Grahame, T.D., F.R.S.E.	The evolution of the ox and sheep in Britain The arterial circulation of the mammalian kidney
J.A. Taylor	Regional and applied anatomy of the domestic animals
J.G. Speed	The evolution of the horse in Britain
P.G.D. Morris	Development of the freeze substitution technique with a view to subsequent histochemical work A study of the oviduct of the hen using freeze dry and freeze substitution techniques
W.M. Stokoe, Ph.D.	Preparation of a handbook on comparative veterinary anatomy
P.H. Hutton	A comparative study of the regional distribution of blood vessels in domesticated animals

Veterinary Hygiene and Preventive Medicine:

Professor A. Robertson, Ph.D., F.R.S.E.	Metabolic diseases of ruminants
G.S. Ferguson	Bovine brucellosis and mastitis
H. Paver, Ph.D.	Digestion in herbivores
I.S. Robertson, Ph.D.	Factors affecting hatchability in poultry
E.W. Moodie, Ph.D.	Mineral metabolism in ruminants
T.G. Marr	Staphylococcal infections in cattle
P. Barden	Copper metabolism in ruminants
A.I.T. Walker	Mineral metabolism in sheep
C. Thin	Intermediary metabolism in ruminants

Veterinary Medicine:

Professor G.F. Boddie, F.R.S.E.	Fluorosis in ruminants, with particular reference to fluorine alleviators Cardiovascular diseases Diagnostic methods in veterinary medicine
E.A. McPherson	Dermatophytes of domesticated animals
H.S. McTaggart	Metabolism of ruminants in relation to disease

Veterinary Microbiology (Bacteriology):

J.E. Phillips	Actinobacillosis: immunology
G. Fraser, Ph.D.	Tissue cultures: bacterial haemolysins
M.E. Davies (Miss), Ph.D.	Leptospirosis: cellulolytic activity in the herbivore

Veterinary Pathology:

I.S. Beattie	Pneumonia in pigs
K.W. Head	Neoplasia in domesticated animals
J.B.M. Gellatly	The causes of mortality in young piglets
J.C. Whitney	Cardiovascular disease in the dog

Veterinary Pharmacology:

F. Alexander, D.Sc., Ph.D.	Pharmacological and physiological studies on the digestive tracts of horses and other herbivores The pharmacology of anthelmintics

37 Veterinary Studies (*continued*)

Veterinary Physiology:

F.J. Elliott, Ph.D. F.R.S.E.	Cardiovascular investigations on domestic animals
H. Lundy	Studies on stretch receptors
B.F. Leek	Studies on vagal activity associated with reticulo-ruminal movements in sheep

Veterinary Surgery:

Professor J.S.A. Spreull, Ph.D.	Electrolyte changes in blood as a result of trauma and anaesthesia Blood transfusion in animals

38. Zoology

Professor M.M. Swann, Ph.D., F.R.S.	Cell physiology, particularly problems of fertilization, cell division and growth
K.M.G. Adam (Mrs.)	Nutrition and effect of temperature on growth of free-living amoebae
D.C. Barker, Ph.D.	Ultrastructure of cells with particular reference to microsomal particles in unusual forms
D.E. Bradley	Techniques in electron microscopy. Structure of bacteriophages
J.A. Campbell, Ph.D.	Population dynamics of a sheep trichostrongylid parasite and quantitative assessments of the pathogenic effect
B.C. Clarke, D.Phil.	Population genetics. Nucleocytoplasmic relations in *Acetabularia*
A.R.I. Cruickshank	African Triassic dicynodonts. Scottish Mesozoic mammals
A.W.E. Ewing	Psychogenetics of *Drosophila melanogaster*
G.F. Friend	Subspeciation in British chars and their parasites
L.J. Hale, Ph.D.	The activities of cells during morphogenesis, with particular reference to the hydroids
R.A. Kille, Ph.D.	Fertilization
R. Logan, Ph.D.	Cell growth and metabolism in synchronized tissue cultures
N. Maclean	RNA synthesis and function: isolation of cell nuclei
A.H. Maddy, Ph.D.	Biochemical cytology of micro-organisms and tissue cells The labelling of the proteins of cell membranes
A.W.G. Manning, D.Phil.	Genetics of behaviour in *Drosophila* and cockroaches
P.D. Mitchell, Ph.D.	Biochemical cytology of micro-organisms and tissue cells Control of cell behaviour by spatial organization of enzymes
J.M. Mitchison, Ph.D.	Cell growth: autoradiography and interference microscopy
J.M. Moyle (Miss), Ph.D.	Biochemical cytology of micro-organisms and tissue cells Control of cell behaviour by spatial organization of enzymes
C. Rayski, Ph.D.	Helminths and protozoa in domestic animals; special interest in Acanthocephala
R.A. Reid	Growth and metabolism of mammalian cells in tissue culture
D.S. Saunders, Ph.D.	Ovulation cycles in blowflies and tsetse flies Diapause induction in parasitic Hymenoptera
R. Sinclair, Ph.D.	Metabolism and behaviour of cells in culture
P.H. Tuft, Ph.D.	Movement and distribution of water in embryos and formation of embryonic cavities
P.M.B. Walker, Ph.D.	Molecular nature of DNA and RNA *in situ* Cytochemistry of nucleic acids
T. Warwick	Hydrobiid snails, freshwater leeches, spawning habits of frogs and toads
M.H. Williamson, D.Phil.	Population ecology and genetics Continuous cultures
P.A.G. Wilson, Ph.D.	Larval nutrition of trichostrongyle nematodes: physiological adaptation in free-living stages of parasites

9 Exeter University

1. Agriculture

Agricultural Economics:

S.T. Morris	Farm management and organization: a continuing study of farm organization in eight "type of farming" areas
V.H. Beynon	
H.W.B. Luxton	Studies in farm planning: a detailed investigation into farm organization and planning on certain selected successful farms in Devon and Dorset
G.D.D. Davies	
J.A. Langley	
E.T. Davies	A continuing economic survey of a group of horticultural holdings
H.M. Cole (Miss)	
R.C. Rickard	Economics of livestock production and marketing
W.J. Dunford	Economics of farm mechanization
	Study of farm finance and capital investment
	An economic and social study of a poor land problem area in N. Devon
	Evaluation of various farm management advisory techniques
	Investigation into economics of milk production in the south west with special reference to the use of grass and grassland products
	The production and utilization of grass and grass products in the economy of south west farming
	Scale in farming with particular reference to the problems of small farms
	Labour efficiency with special reference to livestock farming
	Farmers' attitudes to finance and risk bearing

2. Astronomy and Geophysics

NORMAN LOCKYER OBSERVATORY

Professor G.K.T. Conn, Ph.D. (Director)	Studies of night airglow
K. Weekes, Ph.D.	Effects of the upper atmosphere on the radio emissions from artificial satellites; rapid fluctuations of the geomagnetic field
A.W. Nichol Ph.D.	

3. Botany

Professor J. Caldwell, D.Sc., Ph.D.	Virus diseases in plants; associated nuclear aberrations; the nature of the virus; movement and general physiology
J. Wilkinson, Ph.D.	
S.M. Robb (Miss)	
M.C.F. Proctor, Ph.D.	Taxonomy and ecology of flowering plants and bryophytes
S.A.J. Tarr, Ph.D.	Microfungi
	Plant pathology
R.B. Ivimey-Cook, Ph.D.	Ecology of heaths and heath species
G.G. Pritchard, Ph.D.	Plant biochemistry

4. Cancer Research

Sir James Cook, D.Sc., Sc.D., Ph.D., F.R.S. (Honorary Director of Department)	Isolation and identification of cancer-producing constituents of mineral lubricating oils
W. Carruthers, Ph.D.	The chemistry of tobacco smoke in relation to cancer of the lung
R.A.W. Johnstone, Ph.D.	

5. Chemistry

Professor H.N. Rydon, D.Sc., Ph.D., D.Phil.	Chemistry of polypeptides: synthesis and oxidation of cysteine peptides; synthesis and study of large peptides containing acidic and basic side chains; studies on protecting groups used in peptide synthesis; isolation of biologically active peptides by degradation of biologically active proteins
S.J. Gregg, D.Sc., Ph.D.	Surface chemistry: properties of absorbed films on solids Surface properties of graphite High temperature oxidation of metals Physical chemistry of highly dispersed solids
K. Schofield, D.Sc., Ph.D.	Chemistry of natural pigments Chemistry of tropolones Stereochemistry of quinolizidines Reactivity of nitrogen hetero-aromatic systems
L.H. Long, Ph.D.	Chemistry of volatile boron compounds Metal alkyls: thermochemistry and kinetics of thermal decomposition
S.F. Mason, D.Phil.	Molecular spectra of polyatomic systems Ionic equilibria and reactivity of aromatic systems Optical rotatory power of metal complexes and disymmetric organic molecules
E. Bishop	Analytical chemistry: titrimetric reactions and equilibria; current-potential relationships and electrode behaviour in electro-analytical systems
R.B. Moodie, Ph.D.	Stability in solution of boron trifluoride complexes with organic ligands
G. Read, Ph.D.	Chemistry of quinonoid pigments; synthetic studies in the tetracycline field
J.S. Whitehurst, Ph.D.	Alicyclic chemistry; a new approach to steroid synthesis
R.J. Williams, Ph.D.	Photochemistry of ferric complexes and hypochlorite ions
G.C. Barrett, Ph.D., D.Phil.	Studies on enzyme models

6. Economics — *See* **Agriculture,** *Agricultural Economics*

7. Geography

Professor A. Davies	The discovery of America Portuguese African exploration Historical cartography of the 15th and 16th centuries
A.H. Shorter, Ph.D.	Historical geography of the paper-making industry in the British Isles Field patterns in England Historical geography of S.W. England Mechanization of agriculture in England
W. Ravenhill, Ph.D.	Domesday geography of Cornwall
K. Gregory, Ph.D.	Geomorphology of N. Yorkshire moors Quantitative geomorphology
E.M. Johns	Experiments in descriptive geography Landscape and painting; applied geography
T. Revesz, Ph.D.	Phenology of S.W. England

8. Geology

Professor S. Simpson	Stratigraphy and structure of selected areas in Devon Cornwall and W. Somerset. Trace fossils
K. Coe, Ph.D.	The structure and petrology of the south part of the Leinster granite and its aureole Structure and petrology of Upper Palaeozoic sediments and intruded rocks in W. Cork, Ireland Studies of Pre-Cambrian rocks in S.W. Greenland

8. Geology (*continued*)

M. Stone	Methods of mineral and rock analysis Geochemistry and petrology of the Godolphin and Carnmenellis granites and associated rocks, W. Cornwall Tectonic style in W. Cornwall
E.B. Selwood, Ph.D.	Stratigraphy of Upper Palaeozoic in W. Cork, Ireland Fauna, particularly trilobites, of Lummaton Quarry, Torquay

9. Mathematics

Applied:

Professor A.T. Price, D.Sc.	Mathematical investigations in theoretical geophysics, especially geomagnetism
J. Williams, Ph.D.	Hydrodynamics
D.J. Stone	Mathematical statistics; numerical analysis of geophysical data
G.A. Duller	Hydrodynamics
G. Klein, Ph.D.	Statistical mechanics; flame theory
B. Tupper, Ph.D.	Relativistic field theories
G.P. Beaumont	Mathematical statistics

Pure:

Professor D. Rees, Sc.D.	Commutative algebra
J. Copping, Ph.D.	Series and methods of summation
D. Hammond Smith, Ph.D.	Analytic topology
I.G. Macdonald	Algebraic geometry
H.P. Mulholland, Ph.D.	Theory of functions of a real variable

10. Physics

Professor G.K.T. Conn, Ph.D.	Measurement of optical constants of metals and semiconductors in the infra-red region. Lattice dynamics
K.E. Grew, Ph.D., D.Sc.	Thermal diffusion of gases
K. Weekes, Ph.D.	Geophysics, with particular reference to the study of the upper atmosphere
A.W. Nichol, Ph.D.	Application of electronic computers in geophysical research
G.F. Lothian	Scattering of optical radiations by small particles Raman spectroscopy Examination of phototropic materials
J.R. Drabble, Ph.D.	Physical properties of mixed valence semiconductors Measurement of third order elastic constants of solids
J.E. Cousins, Ph.D.	Electron spin resonance in metals and alloys
F.C. Flack, Ph.D.	Spectroscopy and angular correlation of β- and γ-rays ; Mossbauer effect
R.E. Meads, Ph.D.	Solid state physics ; Mossbauer effect
N.A. Portman	Behaviour of solids at microwave frequencies
W.G.V. Rosser, Ph.D.	Spectroscopy of β- and γ-rays
R. Jakeways, Ph.D.	

11. Psychology

R. Lynn, Ph.D.	Personality and behaviour theory
A.C. Staniland	Decision processes in perception

12. Zoology

Professor L.A. Harvey	Field studies of populations of Orthoptera Terrestial and marine ecological survey of the fauna of Lundy and Isles of Scilly Comparative study of the faunas associated with littoral algae
R.S.J. Hawes, Ph.D.	Parasitic protozoology
I.J. Linn	Small mammal populations Vertebrate chromatophore responses
C.C. Harvey (Mrs.)	Problems of human fertility
M.A. Sleigh, Ph.D.	Structure and behaviour of cilia
R.J. Wootton, Ph.D.	Palaeontology of Hemiptera

10 Glasgow University

1. Agriculture

Agricultural Botany:	*See* **Botany**
Agricultural Chemistry:	
W.R. Rees, Ph.D.	Plant biochemistry
Agricultural Zoology:	*See* **Zoology**

2. Anatomy

Professor G.M. Wyburn, D.Sc.	Electron microscopic studies of the oviduct and fowl tissues
P. Bacsich, D.Sc.	Micro-incineration studies of cells and tissues under normal and experimental conditions
A. Young	Bovine placenta and umbilical cord
J.G. Warbrick, M.D., Ph.D.	Research on congenital deformities
A.D. Hally, M.D.	The fine structure of gastric mucosa
A.F. Hayward	Electron microscopic studies on the alimentary tract and pinocytosis
J.A. Clarke	Micro-angiology

3. Astronomy

Professor P.A. Sweet, Ph.D.	Stellar structure Cosmical electrodynamics
M.W. Ovenden, Ph.D.	Celestial mechanics Binary stars History of astronomy
A.E. Roy, Ph.D.	Celestial mechanics Methods of information storage

4. Bacteriology

Professor J.W. Howie, M.D.	Bacterial infections in hospital Properties of bacterial spores relevant to their resistance to heat
I.R.W. Lominski, M.D.	The enzymes and toxins of *Staphylococcus aureus* Immunity to staphylococci
J.G.P. Hutchison, M.D.	Maternity hospital infections
G.R. Thompson	Problems of sterilization of surgical and medical equipment and materials
R.B. Morrison, Ph.D.	The life and death of the bacterial cell
J.R. Norris, Ph.D.	Bacillaceae pathogenic to insects
J.C. Gentles, Ph.D.	Fungi of medical importance

5. Biochemistry

Professor J.N. Davidson, M.D., D.Sc., F.R.S. R.M.S. Smellie, Ph.D. R.Y. Thomson, Ph.D. H.M. Keir, Ph.D. R. Burdon, Ph.D.	Nucleic acid metabolism and cytochemistry
H.N. Munro, D.Sc. A. Fleck	Protein metabolism and nutrition
G. Leaf, Ph.D. I.C. Gardiner, Ph.D.	Plant biochemistry
W.C. Hutchison, Ph.D.	Biochemistry of the adrenal gland
E.A. Dawes, Ph.D. D.W. Ribbons, Ph.D.	Microbiological biochemistry

5. Biochemistry (*continued*)

G. Crosbie, Ph.D. J.D. Pitts	Biosynthesis of pyrimidines
J. Paul, Ph.D. P. Fottrell, Ph.D.	Biochemical aspects of tissue culture
Clinical:	
E.B. Hendry, Ph.D.	Applications of clinical biochemistry Osmotic properties of body fluids
C. Watts	Tests of hepatic function; differential diagnosis of jaundice
J. Stewart (Miss)	Nucleic acid synthesis
D.M. Goldberg	Nucleic acid enzymes in body fluids

6. Botany

Professor P.W. Brian, Sc.D., F.R.S.	Plant growth regulation and physiology of fungi
G. Bond, Ph.D., D.Sc.	Symbiotic nitrogen fixation
S. Williams, Ph.D., D.Sc., F.R.S.E.	Pteridophyta; experimental morphology
S.A. Hutchinson, Ph.D.	Biological effects and chemistry of mould metabolites
E. Conway (Mrs.), Ph.D.	Marine ecology: autecological and life-history studies of northern species of the *Rhodophyta*
A.C. Crundwell	Ecology and taxonomy of British bryophytes
B.W. Ribbons	Studies on the British flora
G.D. Scott, Ph.D.	Lichen symbiosis
D.W. Brett	Palaeobotany: Triassic flora of Argentina; Tertiary angiosperms
M.W. Dick, Ph.D.	Mycology (Saprolegniaceae)
Agricultural:	
A.M.M. Berrie, Ph.D.	Physiology of tomato Physiology of seeds and seed germination
C.G. Elliott, Ph.D.	Genetics of plant pathogens, especially *Phytophthora*

7. Chemistry

Inorganic:	
D.S. Payne, Ph.D.	Study of the mixed halides of phosphorus and of complex halides involving phosphorus Investigation of tervalent phosphorus-nitrogen compounds
G.S. Harris, Ph.D.	Study of organo-derivatives of the halides of phosphorus, arsenic, antimony and bismuth
Organic:	
Professor R.A. Raphael, D.Sc., F.R.S.	Acetylene and natural product chemistry
J.D. Loudon, D.Sc.	Reactions involving sulphur extrusion
G.L. Buchanan, Ph.D.	Synthesis of natural products
K.H. Overton, Ph.D.	Structural investigations of natural products
N.J. McCorkindale, Ph.D.	Mould metabolite and heterocyclic chemistry
G. Eglinton, Ph.D.	Acetylene chemistry and infra-red studies
A.G. Cairns-Smith, Ph.D.	Protein studies
E. Clar, Dr. Ing.	Spectroscopy and fine structure of polycyclic aromatic hydrocarbons
J.C.D. Brand, D.Sc.	Properties and reactions of solutions in sulphuric acid: kinetics of aromatic sulphonation; molecular spectra; free radical reactions
R.I. Reed, Ph.D.	Mass spectrometry of organic compounds
W. Parker, Ph.D.	Bridged ring structures
R. Murray, Ph.D. R. McCrindle, Ph.D.	Natural product studies

7. Chemistry (*continued*)

Physical:

Professor J. M. Robertson, D.Sc., F.R.S.	X-ray diffraction methods applied to problems of crystal and molecular structure
J. C. Speakman, D.Sc.	
G.A. Sim, Ph.D.	
I.M. Dawson, D.Sc.	Electron microscopy and electron diffraction applied to molecular and biological structures: studies of the mechanism of crystal growth
S.T.R.S. Mitchell, D.Sc.	Photolysis of chloronitroso compounds: studies in circular dichroism
N. Grassie, D.Sc.	Kinetics of polymer degradation
I.C. McNeill, Ph.D.	Tracer studies on high polymers
J. Bell, D.Sc.	Mass spectrometry
R.I. Reed, Ph.D.	
S.J. Thomson, Ph.D.	Radioactive tracer studies of surfaces and solids
I.M. Hoodless, Ph.D.	
K.C. Campbell, Ph.D.	
G.H. Nancollas, Ph.D.	Electrochemistry, including the use of potentiometric,
H.S. Dunsmore (Miss)	conductivity, solubility and polarographic methods
G. Eglinton, Ph.D.	Infra-red spectroscopy
A.L. Porte, Ph.D.	Nuclear magnetic resonance studies
A.G. Cairns-Smith, Ph.D.	Proton transfer reactions

Theoretical:

Professor D.W.J. Cruickshank, Sc.D.	X-ray crystallography: molecular structures
T.H. Goodwin, D.Sc.	Theory of bonding in aromatics
A.H. Neilson, Ph.D.	Molecular structure calculations

8. Dental Studies

Professor J. Aitchison	Study of sex differences in human teeth and jaws
	Contrast in teeth and jaws of apes
with D.A. Lunt (Miss)	Age assessment from cranial sutures
H. Clark, Ph.D.	Study of "left-handedness" from skulls
Professor J. Aitchison A. Carmichael	Association of pathological conditions of gums with blood groups
J. Campbell, Ph.D.	Trigeminal neuralgia and temporo-mandibular joint syndromes
C.K. McNeil, Ph.D.	Non-surgical closure of cleft palates
J. Ireland	Pathology of dental pulps
G.D.C. Kennedy	Pathology of fluorosis in rodent teeth. Pathology of
J.S. Kennedy	osteolathyrism in rodents
	Experimental caries in rodents
J. Ireland G. Nixon, Ph.D. R.G. Hemingway, Ph.D.	Study of sheeps' teeth after known fluoride intake
G.S. Nixon, Ph.D.	Measurement of mercury in dental tissues from dental amalgam
G.S. Nixon, Ph.D. L.G. Bruce	Bacteriology of dental instruments
G.S. Nixon, Ph.D. Hamilton Smith, Ph.D.	Activation analysis for trace elements in teeth
G.S. Nixon, Ph.D. J.M.A. Lenihan, Ph.D.	Audiometric survey on dental high-speed drills
G.D.C. Kennedy J.S. Kennedy	Study of the mechanism of calcification of the dental tissues
H. Clark, Ph.D.	Radiation hazards in dental radiography
H.W. Noble, Ph.D.	Innervation of dental tissues

8. Dental Studies (*continued*)

A. Carmichael	Apical therapy in developing teeth
with H. Noble, Ph.D.	Electron microscopy of dental and periodontal tissues
H.W. Noble, Ph.D.	Microradiography of dental tissues
H.W.Noble, Ph.D.	Comparison of factors removed during decalcification
J.S. Clyde	
D.M. Rankine	
D.A. Lunt (Miss)	Study of Aztec skulls and dentition

9. Dermatology

J.A. Milne	Histochemistry of normal and diseased skin; tissue culture of normal and diseased skin; auto-immunity in skin disease

10. Engineering

Aeronautics and Fluid Mechanics:

Professor T.R.F. Nonweiler, Ph.D.	Aerodynamic effects on earth satellites
	Aerodynamics of re-entry to the atmosphere
	Man-powered flight
	Stability and control of submarines
	Effect of flexible surfaces on the boundary layer
	Behaviour of highly cambered low-drag wing sections
	Heating of gases by dark electrical discharge
A.S. Thom, Ph.D.	Thermodynamic and thermometric methods of measuring the efficiency of hydraulic machines
	Cavitation in centrifugal pumps
	Re-absorption of cavitation nuclei
	Stability of annular flow between accelerated cylinders
	Design of recirculating water tunnels for low cavitation numbers
	Scale effect of vortices with air entrainment
	Flow in centrifugal pumps working at low capacities
A.W. Babister, Ph.D.	Theory of stability and non-linear control
T.H. Cain	Fatigue of aircraft structures at high stress levels
P.H. Tanner	Influence of entrained water on vibration of ships
H.Y. Wong	Thermal conductance of joints
F.H. Kelling	Design of two-dimensional contracting channels for wind tunnels

Civil:

Professor W.T. Marshall	Concrete mix design incorporating fly-ash
	Plastic design of eccentrically loaded stanchions
H.B. Sutherland	Flow properties in cohesive soils
J.A. Lindsay	Measurement of stresses in tunnel linings
	Strength characteristics of rocks
	Failure patterns in cohesionless soils
	Shear strength and other characteristics of pulverized fuel ash
P.D. Arthur	Shear failure in prestressed concrete I beams
H.M. Nelson	The strength of aluminium alloy angle struts
	Fatigue strength of aluminium alloy
	Structural sections
	Composite action of steel box girders with reinforced concrete slab

10. Engineering (*continued*)

Electrical:

Professor J. Lamb	Viscoelastic relaxation in liquids
A.J. Barlow, Ph.D.	Shear wave measurements in liquids at pressures up to 200 000 p.s.i.
J.H. Collins	
T.R. Foord, Ph.D.	High rate of shear rotating cylinder viscometer
O.K. Gashus, Ph.D.	Shear properties of polymer solutions
T. Hammons, Ph.D.	Propagation of shear and compressional waves at microwave frequencies
R.C. Langlands	
R.B. Wilson	Measurement of temperature using inductive ratio bridge networks
	Very precise decade inductive-divider networks
	Slow wave modes in ferrite-loaded waveguides
	Construction of backward-wave oscillators using ferrite slow-wave structure
	Magnetic field configurations in loaded waveguides with cylindrical boundaries
	Generation and amplification of shear and compressional waves in piezoelectric semiconductors
	Microwave delay lines
	Yttrium iron garnet transducers for piezoelectric amplifiers
	Forced excitation of synchronous machines
	Optimization of turbo-generator performance by combination of governor and voltage regulator action
	Transform methods in electrical machines and power systems studies
	High frequency phenomena in synchronous machines
	Effects of lack of cylindrical symmetry in induction motors

Mechanical:

Professor J. Small, D.Sc.	
E.A. Bruges, Ph.D.	The construction of an experimental supercritical steam generator, and associated development research
N.R.L. Maccallum, Ph.D.	Thermodynamic properties of high pressure steam
R. Donaldson	Measurements on viscosity and thermal conductivity of steam
W.W. Mackie	
W.L. Taylor	The measurement of oxygen and the behaviour of hydrazine in boiler feedwater
S.K. Nisbet	
B.M. Burnside	Stress corrosion phenomena
	Behaviour of materials in high temperature steam
	Combustion time experiments
	Flame spreading in high speed gas streams
	Flame structure
	Second law analyses
	Furnace design
W. Carson	Survey of engineering services and equipment in hospitals and a critical study of the bases for their design
W.Y.L. Ma	
H. Howard	
T.W. Maver	
L.D. Nemesvary	
G. Bratton	

Mechanics and Mechanism:

Professor G.D.S. MacLellan, Ph.D.	Automatic control
	Non-linear and time-dependent effects in feedback systems
J. Orr, Ph.D.	Fluid flow through control valves
D. Morrison, Ph.D.	Metal working
W. Ross	Electrochemical forming

10. Engineering (*continued*)

Mechanics and Mechanism (*continued*)

A.C. Mackenzie	Lubrication and oil film whirl
P. Hancock, Ph.D.	Vibration
P. Agnew	Design processes
R.D. Begg	Creep in thin-walled shells
	Crack initiation in ductile metals
	Effect of atmosphere on mechanical properties of metals

Mining:

Professor G. Hibberd	Resistance to air flow in mine shafts and roadways
A.W.K. Stewart	Dust suppression
B.J. Greenland	Subsidence: transference of ground stress to surface structures
I.O. Jones	Migration and layering of mine gases

Naval Architecture:

Professor J.F.C. Conn	Ship bending moments ; ship motions
M. Livingstone	Pressure effects in waves
N.S. Miller	Mathematical fairing of ship lines ; virtual mass of entrained water in ship vibration ; damping
R.M. Cameron	Masts and rigging

11. Forensic Medicine

E. Rentoul, M.B.E. J.A. Imrie, M.D. Hamilton Smith, Ph.D.	Research in the application of scientific methods to criminal investigation

12. Genetics

Professor G. Pontecorvo, Ph.D., F.R.S.	Genetics of micro-organisms: human genetics in cell cultures
J.H. Renwick, Ph.D.	Human linkage
G.L. Le Bouvier, Ph.D.	Immunology and virology of human cell cultures
B.L. Cohen, Ph.D.	Genetics of mouse serum proteins
D.A. Hopwood, Ph.D.	Genetics of *Streptomyces*
M.A. Ferguson-Smith	Human cytology

13. Geography

Professor R. Miller, Ph.D.	Africa, especially Nigeria
	Scotland
H. Fairhurst, Ph.D.	Early settlement of Clyde basin
H.A. Moisley	Glasgow and region
	Crofting survey
C.A. Halstead	Scotland: geomorphology, hydrography
J.B. Caird, D.U.	Evolution of the cultural landscape of Scotland; crofting survey
J. Tivy (Miss), Ph.D.	Scotland: biogeography
D. Diamond	Glasgow: urban geography
G. Petrie	Photogrammetry
J.S. Keates	Cartography

14. Geology

Professor T. N. George, D.Sc., Ph.D., D.-ès-Sc.	Carboniferous stratigraphy
	Carboniferous invertebrate fossils
	Spiriferacean brachiopods
	Theoretical palaeontology
	British geomorphology
D.R. Bowes, Ph.D.	Metamorphics and structures in the Scottish Highlands
	Petrochemistry of metamorphic rocks
N. Holgate, Ph.D.	Petrochemistry of igneous magmas

14. Geology (*continued*)

A.C. McLean, Ph.D.	Geophysical surveys in Scotland Deep structure of Scottish coalfields
W.E. Tremlett, Ph.D.	Caledonian structures of Britain
D.S. Weedon, Ph.D.	Igneous geology of the Scottish Highlands and Norway
D.W. Powell, Ph.D.	Geophysical surveys in Scotland Palaeomagnetism
W.G. Jardine, Ph.D.	Lower Palaeozoic sedimentology Tertiary land-forms in Scotland
J.D. Lawson, Ph.D.	Silurian stratigraphy
W.D.I. Rolfe, Ph.D.	Palaeozoic arthropods
F. Whyte	Scottish Carboniferous vulcanism
J.F. Watt	Stratigraphy and sedimentology of the Old Red Sandstone
K.A.G. Shiells, Ph.D.	Productoid brachiopods
J.F. Ingham, Ph.D.	Ordovician trilobites
B.J. Bluck, Ph.D.	Upper Palaeozoic sedimentology

15. Infectious Diseases

T. Anderson	Epidemiological problems, especially those involving virus infections: chemotherapy of acute infections with particular reference to pneumonia, meningitis and dysentery

16. Mathematics

Professor R.A. Rankin, Sc.D.	Theory of numbers and automorphic functions
Professor I.N. Sneddon, D.Sc.	Boundary value problems of mathematical physics Propagation of waves in elastic and visco-elastic solids
R.A. Robb, D.Sc.	Experimental statistics
J.L. Britton, Ph.D.	Group theory
A. Geddes, Ph.D.	Ideal theory
J. Hunter, Ph.D.	Theory of numbers
S. Moran, Ph.D.	Group theory
W.D. Munn, Ph.D.	Algebra
A.P. Robertson, Ph.D.	Functional analysis
D.J. Simms, Ph.D.	Algebraic topology
D.A.R. Wallace, Ph.D.	Group representations

COMPUTING LABORATORY

D.C. Gilles, Ph.D. (Director)	Numerical analysis, particularly solution of integral equations and partial differential equations
J. Leech	Applications of computers to problems in pure mathematics

17. Medicine

ROYAL INFIRMARY

Professor E.M. McGirr, M.D.	Application of radioisotopes to various problems particularly thyroid disorders and blood diseases
A.S. Douglas, M.D. G.P. McNicol	Problems of fibrin formation and dissolution
A.C. Kennedy, M.D. G.D. Briggs	Problems of pyelonephritis, acute renal failure and nephrotic syndrome
W.C. Watson, M.D.	Alimentary metabolism of lipids
T. McEwan, M.D.	Clinical study of respiratory disease
T.D.V. Lawrie, M.D.	Experimental atherosclerosis
R. Pirrie	Lipid studies in human atherosclerosis

17. Medicine (*continued*)

ROYAL INFIRMARY (*continued*)

I.P.C. Murray	Biosynthesis of the thyroid hormones, with particular reference to thyroid protein
J.A. Thomson J.A. Boyle	Study of the mechanism and control of iodide trapping and binding by the thyroid

WESTERN INFIRMARY

Professor E.J. Wayne, M.D.	Investigation of thyroid disorders
W.D. Alexander	Studies of iodine metabolism
B.E.C. Nordin, M.D.	Calcium metabolism and diseases of bone
J. MacGregor	Radioactive calcium studies Action of parathyroid hormone
A.J.V. Cameron, M.D.	Haemodynamic and metabolic studies in myocardial infarction
A. Goldberg, M.D.	Studies of the biosynthesis of haem and the metabolism of iron Studies of myeloproliferative disease, aplastic and haemolytic anaemias, using radioactive isotopes

18. Microbiology

Bacteriology: *See* **Bacteriology**

*Virology:**

Professor M.G.P. Stoker, M.D., F.R.S.E. P. Wildy, F.R.S.E. K.B. Fraser, M.C., M.D. H. Subak-Sharpe, Ph.D. L.V. Crawford, Ph.D. I.A. Macpherson, Ph.D. D.H. Watson, Ph.D.	Physical and chemical structures of animal viruses; tumour viruses and their interactions with cells; polyoma virus; growth studies with herpes virus

19. Obstetrics and Gynaecology

Professor I. Donald, M.B.E., M.D.	Respiratory disorders in newborn Ultrasonic echo studies in abdominal tumour masses Foetal cephalometry *in utero* by ultrasonic echo sounding Chemotherapy in advanced pelvic cancer by means of arterial perfusion
A.D.T. Govan, Ph.D.	Hormonal factors in toxaemia of pregnancy
J. McBride, M.D.	Oestrogen metabolism in post-menopausal states
W. Barr	Post-operative urinary infection

20. Ophthalmology

Professor W.J.B. Riddell	Clinical research in ophthalmology and human heredity
M.W. Paterson	Clinical perimetry
R. Leishman, M.D.	Vascular diseases affecting the eye

21. Paediatrics and Child Health

Professor J.H. Hutchison, O.B.E., M.D.	Radioactive iodine in goitrous children Studies in the biochemical assessment and treatment of the pulmonary syndrome of the newborn
R.A. Shanks, M.D.	Electroencephalography in infantile febrile convulsions
J.O. Craig	Somatotyping in children
A.M. MacDonald, M.D.	Nephrocalcinosis

*Includes M.R.C. Experimental Virus Research Unit: Honorary Director, Professor M.G.P. Stoker, M.D., F.R.S.E.

21. Paediatrics and Child Health (*continued*)

F.H. Stone	Effects of hospitalization on children of varying ages. Infantile autism
G.C. Arneil, M.D., Ph.D.	Studies in nephrosis Studies in strontium 90 content of bones in infancy and its relationship to diet
H.E.C. Wilson, M.D., D.Sc.	Immuno-electrophoretic techniques
E.N. Coleman, M.D.	Electrocardiographic changes in electrolyte disturbances Dye-dilution studies in congenital heart disease
W. Hamilton	Adrenal function tests in infancy and childhood
J.C. Maclaurin	Body water measurements in infancy in health and disease

22. Pathology

ROYAL HOSPITAL FOR SICK CHILDREN

A.M. MacDonald, M.D.	Pathology of infancy and childhood Renal calcinosis Staphylococcal lesions Muscular dystrophies

ROYAL INFIRMARY

Professor T. Symington	Morphological, histochemical and enzyme studies on the adrenal gland, with particular reference to Cushing's, adreno-genital and Conn's syndromes, and carcinoma of breast
W.P. Duguid	In vitro culture of adrenal tissue Hormones and the kidney
H. Simpson	Diurnal rhythm of adrenal
D. Murray	Plasma binding of adrenal steroids
A.M. Mackay	Electron microscopy of human adrenal
B. Cruickshank, M.D.	Antigen-antibody: site of reaction by method of fluorescence Pathology of rheumatoid disease
R.S. Patrick, M.D.	Experimental aspects of liver necrosis
J.S. Kennedy	Radioactive isotopes in connective tissue pathology, experimental carcinogenesis, and pathology of thyroid gland
F. Walker	Studies on mucopolysaccharides

WESTERN INFIRMARY

Professor D.F. Cappell, C.B.E., M.D.	Researches on blood groups Pathology of vascular disease Human siderosis
H.E. Hutchison, M.D.	Pathology of iron metabolism 5-Hydroxytryptamine in pathological mechanisms Haematological disorders Drug-induced haemolytic anaemias
B. Lennox, M.D.	Skin tumours: histopathology and carcinogenesis Nuclear sexing Human chromosomal abnormalities
J.R. Anderson, M.D.	Auto-immunization Immunopathology of thyroid and "collagen diseases" Auto-immunity
A.T. Sandison, M.D.	Pathology of the breast Palaeohistology
R.B. Goudie	Tissue antigens and antibodies in human disease Auto-immunization

22. Pathology (*continued*)

WESTERN INFIRMARY (*continued*)

J.F. Boyd, M.D.	Hypofibrinogenaemia in stillbirths and neonates
	The role of a histamine-releasing agent on wound healing and in the survival of skin grafts
	The study of lingular biopsies in congenital and acquired heart disease
M.E. Catto (Miss)	Bone tumours
	Pathology of orthopaedic lesions
J.S. Beck	Mitosis
	Immunopathology
	Antigens of cell nucleus
H.M. McCallum (Miss)	Experimental lathyrism
	Formation of elastic tissue
J. Hume Adams	Hypothalamo-hypophyseal relationships
D. Charles	Gynaecological pathology
	Endometrial changes due to progestational agents

23. Pharmacology and Therapeutics

Professor S. Alstead, C.B.E., M.D.	
J.G. Macarthur	Clinical application of hypotensive drugs
W.F.M. Fulton, M.D.	Clinical and pathological inquiry into coronary artery disease
T.J. Thomson	Study of gastric function in health and disease
G. Parker Lewis	Studies in haemoglobin catabolism
D.H.A. Boyd	Carbohydrate metabolism in malignant disease
J.P. Finlayson	Pathogenesis of obesity
N. MacKay	Studies in urobilinogen metabolism
C.D. Forbes	Fibrinolysis in diabetes

Experimental:

Professor R.C. Garry	
J.J. Lewis	Studies on the mode of action of muscle relaxants and drugs which act on the central nervous system
F. Stothers (Mrs.)	Studies on the mode of action of chlorpromazine
T.C. Muir, Ph.D.	Influence of ether oxygen upon muscle relaxant activity
S.T. Reid, Ph.D.	Synthetic studies in heterocyclic chemistry
S. Livingstone, Ph.D.	Influence of drugs upon energy-yielding mechanisms in the brain
J.R.C. Baird	Influence of drugs on brain levels of catechol amines
D. Pollock	Influence of drugs on brain enzyme systems and oxidative mechanisms

24. Physics

Professor P.I. Dee, C.B.E., F.R.S. (Experimental Physics)	
Professor J.C. Gunn (Theoretical Physics)	
W. McFarlane, D.Sc. J.G. Rutherglen, Ph.D. W.R. Hogg, Ph.D. D.T. Stewart, Ph.D.	Experiments upon photomeson production and photodisintegration using 300 MeV and 30 MeV electron synchrotons
A.L. Cockroft G.M. Lewis, Ph.D. R.W.P. Drever, Ph.D.	Experiments on radioactive isotopes with proportional and fluorescent counters
W. Jack, Ph.D.	Experiments on artificial disintegration and excited states of light nuclei using 1 MeV d.c. accelerator

24. Physics (*continued*)

J.M. Reid I.S. Hughes, Ph.D. R. Jennings R.M. Turnbull, Ph.D. D. Dixon J. McNeill	Cloud and bubble chamber experiments on photodisintegration and mesons
W.T. Morton, Ph.D.	Nuclear emulsion experiments on scattering and disintegration using high energy particles
R.B. Gardiner, Ph.D.	Experiments on electron scattering
G.A.P. Wyllie, Ph.D.	Solid state physics
H. Mykura, Ph.D.	Surface self-diffusion
W.K. Burton, Ph.D. R. Giles D. Hall (Miss)	Quantum field theory
B.H. Bransden, Ph.D. D.L. Pursey, Ph.D.	Theory of nuclei and mesons
E.W. Laing, Ph.D.	Magnetohydrodynamics
K.M. Guggenheimer, Dr. Phil.	Theoretical chemical physics

25. Physiology

Professor R.C. Garry	Innervation of gut and of abdominal viscera; nutrition
H.S.D. Garven, M.D. F.W. Gairns	Staining of nerve and of nerve endings with the silver diammine ion (Bielschowsky-Gros) method. The effect of vascular lesions on peripheral nerves
W. Forbes	Histochemistry of adrenal cortex
T.D.M. Roberts, Ph.D.	Neurophysiology of postural mechanisms
A.B. McNaught (Miss), Ph.D.	Histology of absorption from the gut and of humoral transmission in the gut; premenstrual syndrome
I.A. Boyd, Ph.D. with C.L. Pathak, M.D.	Structure and function of mammalian neuromuscular spindles; action of substances at great dilution
J.F. Lamb, Ph.D. with E. Anderson (Miss)	Ion fluxes in cultured cells
J.S. Gillespie, Ph.D. with S.M. Kirpekar, Ph.D.	Chemical transmission at adrenergic nerve endings: innervation of smooth muscle
M. Holmes	Humoral factors influencing blood supply to, and activities of, visceral muscle
B.R. Mackenna, Ph.D.	Humoral transmission in the gut
J.R. Greer, Ph.D.	Control of respiration in animals and man
J.V.G.A. Durnin, D.Sc. with F. Aitken (Miss) E.C. Blake (Miss) E.A. Wilson (Miss) S.A. Yuill (Miss)	Studies of food intake and energy expenditure and studies on work capacity of man at different ages

26. Psychiatry

Professor T.F. Rodger	Survey of psychiatric illnesses in general practice Preventive psychiatry and its implications for public health
F. Stone	Infantile autism Psychopathology of the brain-damaged child
R.M. Mowbray, Ph.D.	Psychophysiological implications of arousal mechanisms Phenomenology of anxiety
I.M. Ingram, M.D.	The effects of drugs on arousal mechanisms Placebo responses
G.C. Timbury	Psychiatric aspects of hyperthyroidism Phenomenology of anxiety
T. Freeman	Perceptual disorders in schizophrenia

27. Psychology

Professor R.W. Pickford, Ph.D., D.Litt.	Differences in colour vision due to age, sex and race
	Tests of colour blindness and its inheritance
	Neurosis, personality, and child psychotherapy
	Psychotic art and experimental aesthetics
L.R. Bowyer	New projective play technique for studying patterns of culture through children's perception of school
	Comparison of personality adjustment of severely deaf and partially deaf children, using the Lowenfeld "World" and mosaic techniques
P.A.D. Gardner	Intelligence tests for deaf children: a comparative study
	Availability of cues in learning
G. Jahoda, Ph.D.	Occupational choice among school leavers
	Social class and social mobility
	Formation of social concepts in children
D.H. Stott, Ph.D.	Diagnosis of maladjustment and delinquency in children, and of types of family situation conducive thereto
	Causes and treatment of scholastic backwardness
	Effects of disturbed pregnancy
	Programmed reading
	Measurement of social or "real life" intelligence in mentally subnormal children
A.J. Weir, D.Phil.	Differentiation between factual judgments and evaluations as a measure of developmental level of functioning
	The problems of adaptation to retirement, especially in unskilled workers

28. Surgery

ROYAL HOSPITAL FOR SICK CHILDREN

W.M. Dennison, M.D.	The effects of surgery in the newborn
J.F.R. Bentley	Hypothermia in neonatal surgery
C.K. McNeill, Ph.D.	Infection in the newborn
W. Auld	Normal and abnormal anatomy of the ano-rectal region
G. France	Duplication of the alimentary tract
J.C. Grant	Alignment of the dental arch and related problems in cleft palate surgery
	Malignant disease in childhood
J. Munro A.G. Graham	Atresia of the vagina: anatomical, embryological and endocrinological aspects
	Adenovirus and alimentary disease: intussusception, mesenteric adenitis and appendicitis
	Anaesthetic care of the surgical neonate

ROYAL INFIRMARY

Professor W.A. Mackey with W.H. Bain A.M. Harper	Clinical research in the surgery of the cardiovascular system
	Profound body cooling using an extra-corporeal circuit
	Experimental surgery of the coronary arteries
W.H. Bain	Experimental studies in pulmonary vascular resistance
A.L. Goodall, M.D.	Experimental breast carcinoma in rats
D.W. Short	Clinical trial of therapeutic drugs in acute pancreatitis
D.W. Short A. Marshall J.L. Stoller	Experimental kidney transplantation
C. Miller	Regional perfusion with cytotoxic agents
A.M. Harper H.I. Glass	Experimental research in the cerebral blood flow in various natural and artificial conditions
M.M. Duggan (Mrs.) R.A. Bell (Miss)	Experimental research in cerebral anoxia

28. Surgery (*continued*)

ROYAL INFIRMARY (*continued*)

A.C. Forrester	Research in hypothermia using air cooling with particular reference to the accurate production of body temperature
D. Campbell	Assessment of respiratory depression of new narcotic analgesics

WESTERN INFIRMARY

Professor Sir Charles Illingworth, C.B.E., M.D. with K. Bloor, M.D. I. Jacobson I.M. Ledingham J.N. Norman	Researches on cardiovascular surgery: clinical and experimental observations on effect of oxygen at 2 atmospheres pressure on myocardial infarction during operations involving cardiac arrest and in cerebrovascular diseases; the acid base problems of cardiac arrest; experimental production of cardiac defects; development of collateral circulation
W. Burnet with C.A. Gordon (Miss)	Studies of liver and bile duct function; cholangiography; formation of gall stones; chromatography of bile Diagnostic use of the fiberscope Human gastric secretion in relation to selection of patients for surgery of duodenal ulcer Studies in early diagnosis and treatment of haematemesis Autonomic nerve supply to the biliary tract in man
T. Gibson with J.A. Hamilton	Malignant melanoma
R. Shields with A.M. Clarke E.G. Karasewich A.T. Mulholland	Intestinal absorption of water and electrolytes; the effect of intestinal obstruction, adrenal cortical steroids and salt depletion; intestinal absorption after operations on intestinal tract and after radiotherapy Water and electrolyte metabolism Absorption of alcohol after gastric surgery Effect of high pressure oxygen in hepatic artery ligation Tissue, urinary and serum enzymes in breast cancer Regeneration of the liver after alteration of hepatic blood supply
R.G. Clark with I.S.R. Russell	Protein metabolism in the surgical patient Use of chemotherapeutic agents in malignant disease

29. Veterinary Studies

Professor W.L. Weipers F.W. Jennings Professor W.I.M. McIntyre W. Mulligan, Ph.D. G.M. Urquhart, Ph.D. H. Hein (Miss)	Pathological and immunological studies on helminth and protozoal diseases, in particular vaccination by irradiated infective larvae Immunological studies on helminth infections of very young animals
I.M. Lauder	Blood volume measurements in domestic animals. Treatment of disease caused by external parasites. Epidemiology of *Filaroides osleri* infestation Diagnosis of tuberculosis in dogs and cats
T.A. Douglas, Ph.D. F.W. Jennings, Ph.D. W. Mulligan, Ph.D.	Radioisotope methods in veterinary research, with particular reference to body-fluid volume estimations
I.M. Lauder V. Hawthorn	Relation of canine and feline tuberculosis to human tuberculosis
R.N.C. Aitken E. Aughey (Mrs.)	Comparative studies of the accessory reproductive organs of the male from the point of view of histology, histochemistry and ontogeny
R.N.C. Aitken	Special histology of chick with particular reference to lung ultrastructure

29. Veterinary Studies (*continued*)

R.S. Anderson E.C. Pickering	Investigation of the mechanisms which regulate the urinary excretion of bicarbonate, sodium and potassium in the dairy cow
A.F. Munro, Ph.D. B.M. Rifkind, Ph.D. R.S.F. Campbell A.S. Kenmure	Studies of the in vitro metabolism of normal and atheromatous blood vessels from different species
A.F. Munro, Ph.D. S. Jennings A.D. Weaver, Dr. M. V.	Telemetering of physiological information from the digestive and reproductive tracts of domestic animals
A.F. Munro, Ph.D. B. Howard G. Halliday	Intestinal absorption of nutrients in chicken and mouse in relation to thyroid status
Professor W.I.M. McIntyre R.G. Dalton E.W. Fisher, Ph.D.	Factors affecting absorption of water and electrolytes
W.F.H. Jarrett, Ph.D. H. Pirie J. McLelland	Pathology of pneumonia in pigs
W.F.H. Jarrett, Ph.D. Professor W.I.M. McIntyre W.B. Martin, Ph.D. R. Dalton G. Crighton	Animal tumour virology. Bovine lymphosarcoma
W.A. Greig, Ph.D.	Vitamin D in ruminants: effects and toxicity Factors affecting rate of carbohydrate utilization Mineral supplements and mineral interrelationships in fattening pigs
E.W. Fisher, Ph.D. R.G. Dalton	Cardiac output in cows and horses
E.W. Fisher, Ph.D. H. Pirie	Cardiovascular studies in domestic animals
J. McCracken	Progesterone levels in domestic animals
P.G. Hignett L.N. Nagy	Study of diagnosis and control of bovine brucellosis
J.P. Renton (Miss)	Haematological and other studies in puerperal cows with special reference to retained placenta
L.P.V. Vaughan	Progesterone metabolism
R.G. Dalton E.W. Fisher, Ph.D. Professor W.I.M. McIntyre	Calf diarrhoea: an electrolyte study
E.M. Harper, Ph.D. Professor W.L. Weipers J. Sanford A.T.M. Hill T.A. Douglas, Ph.D.	Studies in experimental intestinal obstruction
D.D. Lawson G.S. Nixon, Ph.D. H.W. Noble, Ph.D.	Correlation of clinical, radiographic and pathological features of dental diseases in the dog
D.D. Lawson R.S. Wyburn	Veterinary radiology
D.D. Lawson I. Jacobson T.A. Douglas, Ph.D.	Studies on effects of high pressure oxygen and hypothermia on experimental cerebral vascular occlusion

29. Veterinary Studies (*continued*)

J.R. Campbell T.A. Douglas, Ph.D. A. Fabry D.D. Lawson J. Sanford	Studies on anaesthesia in animals and studies in analeptics
I.M. Lauder J.G. O'Sullivan, Ph.D.	Dermatomycosis in animals
S. Jennings	Tranquillizing of horses Anaesthesia with volatile anaesthetic agents in horses and farm animals Equine orthopaedics
P.G. Hignett	Studies in vibriosis in cattle Studies in infertility in cattle
T.A. Douglas, Ph.D. P.G. Hignett	Studies in foetal fluids
J.R. Campbell	Studies in abnormalities in the bones of the dog
S. Jennings	Comparative endocrinology of Equidae
A.D. Weaver, Dr. M. V.	Urolithiasis in the ruminant Variations in composition of synovial fluids
T.A. Douglas, Ph.D.	Veterinary aspects of clinical biochemistry
H. Boyd, V.M.D.	Embryonic death in cattle
H.J. Smith (Mrs.) F.E.F. Lindsay (Mrs.)	Vascular patterns of the coronary vessels in the heart of the domestic fowl
J. Sanford	Factors affecting the motility of the ruminant stomach Distribution of histamine in sheep and cattle. Mode of action of analeptics
F.M. Carey (Miss)	Mode of action of andromedotoxin
J. Sanford F.M. Carey (Miss)	Studies of tranquillizing and stimulant drugs in the horse
F.E.F. Lindsay (Mrs.)	Radiographic anatomy (veterinary) Studies of foetal and neonatal lungs of the domestic animals

Animal Husbandry and Veterinary Preventive Medicine:

Professor J.S.S. Inglis P.J. Pearce M. Weipers (Mrs.)	Studies on pregnancy toxaemia in sheep and ketosis in dairy cattle
Professor J.S.S. Inglis M. Weipers (Mrs.)	Study on the effect of Johne's disease vaccination on the reliability of the tuberculin test
Professor J.S.S. Inglis R.G. Hemingway, Ph.D. N.S. Ritchie	Studies on hypomagnesaemia with particular reference to sheep
Professor J.S.S. Inglis R.G. Hemingway, Ph.D.	Studies on copper metabolism in sheep
R.G. Hemingway, Ph.D. N.S. Ritchie	Effects of fertilizers on the mineral composition of crops

Pathology:

Professor J.W. Emslie J.G. O'Sullivan, Ph.D.	Dermatomycosis
R.S.F. Campbell A.F. Munro, Ph.D.	Histological, histochemical and metabolic studies on arteries of the pig
R.S.F. Campbell	Study of neuropathology of canine distemper
R.S.F. Campbell W. Penny	Study of the haematology of canine distemper
S.W. Michna, Ph.D.	Serological studies in canine distemper, contagious hepatitis and leptospirosis Natural and experimental leptospirosis in pigs Serological studies in Johne's disease
S.W. Michna, Ph.D. R. Tadayon, D.V.M.	Studies on the incidence of *Brucella* organisms in bovine milk in the west of Scotland

29. Veterinary Studies (*continued*)

Pathology (*continued*)

M. Grindlay	A study of the pleuropneumonia-like organisms of the respiratory tract of domestic animals
H.B. McCusker	Investigations into diseases of the skin in domestic animals
A.M. Dunn, Ph.D.	Epidemiology of helminth parasitism in British fauna
J.M. Hamilton	Study of the endocrine glands in spontaneous and experimental disease of animals
H.J.C. Cornwell	Studies on canine viruses by the techniques of tissue culture

30. Zoology

Professor C.M. Yonge, C.B.E., D.Sc., F.R.S.	Marine biology: functional morphology of Mollusca
G. Owen, D.Sc.	
H.D. Slack, Ph.D.	Freshwater biology
J.D. Robertson, Sc.D	Composition of body fluids and tissues of animals
H.F. Steedman, Ph.D.	Histological and technical methods
S.A. Barnett	Early environment, maternal effects, cold, social stress and heterozygosis in mammals
A.E. Miller (Miss)	Vertebrate zoology; embryology of fish
R A. Crowson	Taxonomy and biology of the Coleoptera
C.A. Hopkins, Ph.D.	The in vivo and in vitro development of cestodes and strigeid trematodes
W.R. Hunter, D.Sc.	Ecology and physiology of non-marine Mollusca
J.W.H. Lawson, Ph.D.	Insect behaviour
J.B. Cowey	Cell physiology of protozoa
A.F.G. Dixon, D.Phil.	Behaviour of aphidophagous insects and their prey
J. Bowden, Ph.D.	Taxonomy of bivalve Mollusca
K. H. Lockey, Ph.D.	Insect cuticle
Agricultural Zoology:	
A.R. Hill, Ph.D.	Biology and systematics of aphids Studies on the Anthocoridae, Hemiptera-Heteroptera
A. Fraser, Ph.D.	Neurosecretion in insects Diapause in *Lucilia caesar L.* Digestion in Calliphoridae
R.M. Dobson, Ph.D.	Systemics of Nitidulidae Biology of slugs

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Royal College of Science and Technology

1. Building Studies

Professor F. Fielden E. Morris	Studies on timber structures

2. Chemistry

Inorganic:

D.W.A. Sharp, Ph.D.	Fluorides of metals and non-metals Non-aqueous solvents Infra-red spectra of inorganic complexes Chemistry of onium salts
W.A. Alexander	Hydration of ions
D.H. Brown, Ph.D.	Tungsten complexes and spectra
R.A. Ross, Ph.D.	Surface chemistry and sintering mechanisms

Organic:

Professor P.L. Pauson	Organo-metallic compounds Non-benzenoid aromatic systems Natural products

2. Chemistry (*continued*)

Organic (*continued*)

J. McLean, Ph.D.	Structure and transformations of triterpenoids and steroids Metallic carbides as a source of organic compounds
H.C.S. Wood, Ph.D.	Chemical studies on the biosynthesis of pteridines and related topics
A.C. Syme, Ph.D.	Microanalytical methods
W. Sharp, Ph.D.	Antibiotics and chemotherapeutics
P. Bladon, Ph.D.	Chemistry of steroids and alkaloids
W. Lawrie, Ph.D.	Chemistry of triterpenes and steroids
G.R. Procter, Ph.D.	Synthesis of azatropolones; non-benzenoid aromatic systems; heterocyclic chemistry
D.C. Nonhebel, D.Phil.	Reactions of metal chelates of β-diketones Cupric halides as halogenating agents
J.A.D. Jeffreys, D.Phil.	Alkaloids and natural quinones
G,R. Knox, Ph.D.	Organo-metallic compounds Cyclo-addition reactions

Physical:

W. Good, D.Sc.	Amphipathic electrolytes Catalysis in iron solutions
A.J. Hyde, Ph.D.	Light scattering by polymer molecules Amphipathic solutions
F.L. Swinton, Ph.D.	Kinetics of crystallization of polymers Diffusion of gases
B. Shillaker, Ph.D.	Kinetics of solvolysis reactions of organic compounds
J.N. Sherwood, Ph.D.	Radioactive tracer studies of the solid state. Adsorption

3. Engineering

Electrical:

Professor F.M. Bruce	High-voltage discharge phenomena: Power system transient investigations Sparkover in uniform and non-uniform fields
J.E. Matthews	Characteristics of power-follow current arcs
A. Aked	Sparkover under controlled atmosphere conditions
D.J. Tedford, Ph.D. J. McNaull	Irradiation phenomena
J.T. Pender A. Douglas I. Kirkland	Heavy current phenomena: arc control devices
E.S. Fairley, Ph.D.	Measurements: Precision electrical measurements High voltage measurements
Z.Z. Jelonek I. Cochrane, Ph.D. E. Pirie	Electronics: Synchronization of oscillatory systems Transient response of servomechanisms Servomechanisms with backlash Sampling servomechanisms Self-adaptive systems
W.S. Wood F. Flynn	Machines: Transient torque characteristics

Mechanical, Civil and Chemical:

Professor A.S.T. Thomson Professor A.W. Scott Professor W. Frazer	Civil engineering hydraulics: Traction of stream bed materials Wave action in channels Laboratory studies of density non-homogeneity effects Hydraulic model experiments Vortex simulation in small scale models

3. Engineering (*continued*)

Mechanical, Civil and Chemical (*continued*)

Professor J.C. Orkney	Soil mechanics:
A.M. Laird	Behaviour of granular materials
H.L. McBroom	Cement and concrete:
C.M. Moir	Effect of curing conditions on concrete strength
R.M. Kenedi	Rheology of fresh concrete
W. Ferguson	The pressure of concrete on formwork
G.V. Stabler	Behaviour of reinforced beams in flexure
W.B. McHutchison	Traffic engineering:
R. Hendry	Capacity studies
D.B. Swinbanks	Intersection design
J.F.T. MacLaren	Distribution of headways
R.G. Tudhope	Water-tube boilers:
R. White	Natural circulation in water-tube boilers
J.M. Harvey	Heat transfer:
D.G. McKinlay	Refrigeration compressor cylinders
T. Allan	Hypothermia
A.R. Dykes	Extended cooling surfaces
J.T Webster	Refrigerator condenser performance
D.I.H. Barr and others	Two-phase flow
	General thermodynamics:
	Nozzle erosion
	Subsonic ram-jet
	Nuclear power engineering
	Fluids:
	Ship ventilation
	Cavitation
	Lubrication:
	Varying loads on sleeve bearings
	Bearing jacking pressures
	Gear teeth
	Materials and structures:
	Built-up engine crankshafts
	Fatigue tests on studs
	Corrosion fatigue
	Load-carrying capacity of thin-walled structures
	Stress and stability investigation of thin steel shells
	Dynamic effects in crane structures
	Load-carrying capacity of roof decking
	Biological engineering
	Concrete slab and shell structures
	Wind pressure on buildings
	Technical dynamics:
	Shaft whirling
	Vibration analysis
	Process control
	Gyroscope nutation
	Damping characteristics
	Vibration of thin plates
	Production engineering:
	Investigation of honing characteristics
	Cutting tools
	Barrelling
	Machine tools
	Chemical engineering:
	Spray drying
	Fluid energy milling
	Mixing
	Distillation
	Boiling heat transfer

3. Engineering (*continued*)

Naval Architecture:

I.C. Bridge	Design of moorings and mooring buoys

4. Food Science

Professor J. Hawthorn, Ph.D.	The oxidation of natural fats by enzymic mechanisms The auto-oxidation of wheat proteins Strontium 90 in foodstuffs
R.B. Duckworth, Ph.D.	Uptake of alkaline earth metals by plant roots Fine distribution and diffusion of absorbed substances in biological materials
M.K. Clegg(Miss), Ph.D.	Nutritional availability of essential amino-acids

5. Mathematics

Professor D.C. Pack, D.Sc.	Magneto-gas dynamics Transonic flow
R.D. Lord	Statistics
J.B. Helliwell, Ph.D.	Magneto-gas dynamics
G. Eason, Ph.D.	Elasticity
D. Naylor, Ph.D.	Mathematical analysis
D.S. Butler	Numerical analysis Fluid mechanics
C.C. Bartlett, Ph.D.	Numerical analysis
J.L. Smyrl, Ph.D.	Fluid mechanics
J.G. Fraser	Applications of electronic computers
A.J. Howie, Ph.D.	Applied statistics
D.D. McGregor	Fluid mechanics
D.G. Weir, Ph.D.	Magneto-gas dynamics
F.G. Warner	Initiation of explosions
J.S. Lowndes, Ph.D.	Mathematical analysis

6. Metallurgy

Professor E.C. Ellwood, Ph.D.	Structure of alloys
J. Taylor, Ph.D.	Thermodynamic properties of silicon and silica in slag-metal systems. Thermodynamic properties of CaS in slags
H.B. Bell, Ph.D.	Constitution of liquid slags Deoxidation of steel
J.M. McLeod, Ph.D.	Damping capacity of metals and alloys
A.H. Cooper, Ph.D.	Thermodynamics of oxide compounds
R. Kennedy, Ph.D.	Radioactive techniques applied to studies of carbon in ferrous systems. Ageing in mild steel
D.B. Downie	Thermodynamic properties of alloys
D.J. Fabian, Ph.D.	Soft X-ray spectroscopy

7. Microbiology

Applied:

Professor E.O. Morris, Ph.D.	Characteristics of *Pseudomonas spp.* Sulphur-oxidizing bacteria and their relation to acid mine waters Marine yeasts
J. Meyrath, D.Tech.Sc.	Kinetics of mould growth
J.A. Blain, Ph.D.	Lipoxidases, other fat oxidase systems and antioxidants Effect of moisture levels on enzyme activity Bacterial lipopolysaccharides

7. Microbiology (*continued*)

Applied (*continued*)

W.W. Fletcher, Ph.D.	The periostracum of *Mytilis edulis* Physiology of cestodes Host-parasite relationship in *Cuscuta* Enzyme systems in *Helianthus-Puccinia* host-parasite relationship Mode of transmission of toxoplasm infections Role of growth substances in plants

8. Pharmacy

Professor J.B. Stenlake, D.Sc.	Chemotherapeutic compounds for tuberculosis Active principles of crude drugs Neuromuscular blocking agents
W. Anderson, Ph.D.	Experimental peptic ulceration The role of sulphated polysaccharides in abnormal lipid metabolism Biochemical and pharmaceutical aspects of sulphated polysaccharides
A.M. Comrie, Ph.D.	Derivatives of thiopyridones
M. Dawson (Miss), Ph.D.	Tissue culture studies
P.H. Elworthy, Ph.D.	Physical chemistry of phosphatides Non-ionic surface active agents Physical chemistry of polysaccharides Relation of conductance and ionic shape
F. Fish, Ph.D.	Pharmacognostical and chemical studies on *Leontice leontopetalum* and some plants of the Apocynaceae Effect of gibberellic acid on the growth and alkaloidal content of *Datura stramonium* Surgical dressings
M. Martin-Smith, Ph.D.	Preparation of thionaphthen and benzofuran derivatives for studying the effect of isosteric replacement on biological activity Synthesis of rigid molecules of potential pharmacological interest Chemistry of natural products of potential pharmacological interest Plant alkane analysis
J.L. Paterson	Percutaneous absorption of medicaments Pharmacological effects of bacterial lipopolysaccharides
W.D. Williams, Ph.D.	Analytical methods Light-stability of pharmaceutical chemicals Chemical constituents of crude drugs
G.C. Wood, Ph.D.	Physical chemical studies on proteins (particularly collagen) Mucopolysaccharides of connective tissues

9. Physics

Professor J. Irving, Ph.D. J.F.I. Cole L.G. Griffiths, Ph.D. J. Little A.S.V. McKenzie	Plasma physics: theta pinch; shock tube
J.W. Sharpe	Electron microscopy
L. Jacob, D.Sc.	Gas discharges
A.S. McLaren	Photoelasticity
C. Weaver, D.Sc.	Thin film investigations Diffusion in solids
T.S. Wylie	Crystallography

10. Technology

Chemical:

Professor P.D. Ritchie	Pyrolysis of organic compounds, particularly esters, polyesters and organo-metallic compounds
T.J. Mitchell, Ph.D.	The drying of fibrous and granular materials Constitution of honey Studies on crystallization
C.H. Giles, Ph.D., D.Sc.	Mechanism of fading of dyestuffs Mode of attachment of dyestuffs to natural and synthetic substrates Staining of micro-organisms Solution-adsorption measurements Hydrogen bonding
W. Gibb, Ph.D.	Physicochemical studies on airborne dusts. Atmospheric pollution Froth flotation. Deterioration of lubricating oils Reactions in fluidized beds
R.G. Gardner, Ph.D.	Mass transfer studies in plate absorption columns Performance of plates in distillation columns Mechanical vapour-recompression evaporators
W.I. Bengough, Ph.D.	Mechanism and kinetics of vinyl polymerizations
C.G.M. Slesser, Ph.D.	Simultaneous heat and mass transfer. Chemical reactor design Studies on slurried bed reactors
B.B. MacDonald, Ph.D.	Mass transfer from porous solids
L.R. Cox	Studies on crystallization

Textile:

Professor R. Meredith, D.Sc.	Dynamic mechanical properties of fibres Relaxation of stress in yarns and monofils
N. Peacock, Ph.D.	X-ray and electron microscope studies of keratin and cellulose
H.M. Elder	Fabric evaluation

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1. Botany

Professor N.F. Robertson, Ph.D.	Fungi: morphogenetic problems Plant pathology: analysis of pathogenicity
B.T. Cromwell, Ph.D.	The nitrogen metabolism of plants, especially the biosynthesis of alkaloids
D.J. Boatman, Ph.D.	Plant ecology, especially physiological aspects
A.J. Peel, Ph.D.	Plant physiology: transport of organic solutes
J. Friend, Ph.D.	Biochemistry of carotenoids and of photosynthesis
D.H. Morgan	Genetics of fungi
P. Holliday	Fungi: tropical plant pathology and *Phytophthora*
W.J. Roff	Plant ecology: analysis of competition between *Calluna* and *Festuca ovina*

2. Chemistry

Professor N.B. Chapman	Kinetics of organic reactions in solution Synthesis and properties of pharmacologically active substances
R.R. Baldwin, Ph.D. R.W. Walker, Ph.D.	The effect of vessel surface on the kinetics of hydrogen and carbon monoxide oxidation Inhibition of the hydrogen-oxygen reaction by aldehydes, paraffins and olefins Oxidation of formaldehyde Homogeneous gas phase decomposition of hydrogen peroxide

2. Chemistry (*continued*)

C.C. Barker, Ph.D.	Absorption spectra and stereochemistry of hindered di- and tri-phenylmethane dyes
	The formation of polycyclic aromatic hydrocarbons by cyclodehydrogenation reactions
J. Biggs, Ph.D.	Synthesis and properties of pharmacologically active substances
	Synthesis of thiamine analogues
	Reaction between epoxides and long-chain unsaturated alcohols and amines
P. Bruck, Ph.D.	Solvolysis and rearrangement of derivatives of some polycyclic bridged systems
K. Clarke, Ph.D.	The mode of action of phenolic and other germicides on certain bacteria. The chemical composition of bacterial cell walls
	Synthesis and properties of pharmacologically active substances
J.E. Drake, Ph.D.	The study of the hydrides of Groups IVB and VB and of the complexes and derivatives formed from them
P.G. Francis, Ph.D.	Thermodynamic properties of mixtures
G.W. Gray, Ph.D.	The effect of substituents and in particular of steric hindrance on the mesomorphic behaviour and the conjugation of biphenyl derivatives
	The mode of action of phenolic and other germicides on certain bacteria. The chemical composition of bacterial cell walls
B.J. Hathaway, Ph.D.	Structure, infra-red, visible and ultra-violet spectra of transition metal complexes
K.A. Holbrook, Ph.D.	Gas-phase thermal decomposition and reactions of alkyl halides
J.J. Kipling, D.Phil.	Adsorption from the liquid phase on (i) carbon adsorbents; (ii) oxide adsorbents
	Carbonization and graphitization of polymeric materials
	Examination of surface area, pore structure and "molecular sieve" properties of active charcoals
P.G. Nelson	Unusual oxidation states of the transition metals
A.D. Norris, D.Phil.	Electrochemical measurements on (i) kinetics of reactions in solution; (ii) size of ions in relation to Stokes's law; (iii) equilibrium of complex ions and ion pairs in solution
G.A. Oldershaw, Ph.D.	Photochemistry and reaction kinetics
R.M. Scrowston, Ph.D.	Synthesis and properties of pharmacologically active substances
J. Shorter, D.Phil.	Kinetics and mechanism of organic reactions
K.J. Toyne, Ph.D.	Conformation and reactivity of cyclohexane and *trans*-decalin carboxylic acids and esters
D.E. Webster, Ph.D.	Reactions and infra-red spectra of organo-metallic compounds
	Nuclear magnetic resonance spectroscopy
P.B. Wells, Ph.D.	Heterogeneous catalysis: kinetics and mechanism of
J.J. Rooney, Ph.D.	catalytic hydrogenation and exchange of hydrocarbons

3. Geography

Professor H.R. Wilkinson	Cartographic techniques
	The geography of Yugoslavia
	Methodology in human geography
	Coastal geomorphology of Holderness
J.H. Appleton	The geography of communications in Britain
A. Harris, Ph.D. with J.H. Appleton	Goole: an urban study
	Aspects of historical geography of the British Isles
	Urban geography of Hull

3. Geography (*continued*)

D.P. Brachi	Coastal geomorphology of Holderness, particularly wind and wave action
	Precipitation and hydrological investigations in E. Yorkshire
	Newfoundland weather: early 17th Century
D.G. Symes	The economic and social geography of peasant societies in W. Europe with particular reference to W. Norway and N.W. Ireland
L.R. Latham (Miss)	Mining landscapes
R.C. Ward, Ph.D.	Hydrological investigations in Berkshire and in Yorkshire, with particular reference to rainfall and ground water
C.R.R. Layzell (Miss)	Geomorphology of part of N. Nottinghamshire
	Comparative study of the coastal geomorphology of Holderness and Filey Bay
G. de Boer,	Geomorphology of the Yorkshire Wolds
	Coastal geomorphology of Holderness
	Evolution and history of Spurn Head

4. Geology

Professor D.T. Donovan, D.Sc.	Geology of the continental shelf including Bristol Channel and eastern English Channel
	Lias ammonites
	English and foreign Jurassic
	Pleistocene of Bristol district
	Submerged erosion features around S.W. England
L.F. Penny	Pleistocene deposits of E. Yorkshire
	Pleistocene correlation, W. Europe generally
J.W. Neale, Ph.D.	Micropalaeontology of:
	Speeton clay
	Eocene at Barton, Hants.
	Pleistocene clays at Dimlington
	Tertiary Ostracoda of the Hampshire Basin
	Callovo-Oxfordian microfaunas of England
	Silurian stratigraphy of the Howgill, Middleton and Barham Fells
M.A.J. Piasecki	Studies in the geology of the Findhorn granodiorite pluton, Inverness-shire
	Petrological and structural studies in the Lewisian of Coll, Argyllshire
N.S. Angus, Ph.D.	Petrology and geochemistry of:
	Tyrone Igneous Series, Northern Ireland
	Currywongaun-Doughruagh ultrabasic intrusions, and parts of the Galway granite, Co. Galway, Eire

5. Mathematics

Professor N.B. Slater, Ph.D., D.Sc., F.R.S.E.	Chemical kinetics; molecular vibrations; Eddingtonian physics
Professor W.H. Cockcroft, D.Phil.	Algebraic topology
N. Anderson, Ph.D.	Relativity and gravitation
G. de Barra, Ph.D.	Probability theory
I.T. Cook, Ph.D.	Theory of elasticity; computer techniques
M.A. Grubb (Miss)	Quantum mechanics
V.W.D. Hale, Ph.D.	Quasi-group theory
J.C. Kelly, Ph.D.	General topology
H.W. Parsons, Ph.D.	Theory of elasticity
G.T. Roberts, Ph.D.	Functional analysis
S. Sankaran	
R. Shaw, Ph.D.	Quantum field theory
J.E. Wallington, Ph.D.	Algebraic geometry
W.A.O'N. Waugh, D.Phil.	Stochastic processes; mathematical models in biology

6. Physics

Professor G.F.J. Garlick	Luminescence and related phenomena in solids
A. Cunliffe, Ph.D.	Microwave techniques, microwave electron resonance in solids
M.N. Jones	
C.E. Reed	Surface studies of phosphor semiconductors
J. Goodyear, Ph.D.	X-ray crystallography of clay minerals and of single crystal phosphors
W.J. Duffin, Ph.D.	
F.J. Bryant, Ph.D.	Radiation damage in semiconductors
D.W.G. Ballentyne, Ph.D.	Single crystal growth of phosphors and photoconductors, electroluminescence
I.S. Robertson, Ph.D.	Recombination emission of solids in medium infra-red region
M. Springford	Infra-red luminescence and photoconductivity in phosphors
B. Ray	Crystal structure of II-VI and III-VI compounds
Applied:	
Professor J. Ring, Ph.D.	Development of new optical and spectrometric techniques, and their application to problems in astronomy, chemistry and physics
	Vacuum deposition of thin films; optical properties of thin films in the infra-red and ultra-violet

7. Zoology

Professor P.G. 'Espinasse	Regeneration of the lens of the eye
with *D. Stenhouse Stewart	
E.R. Trueman	Studies in the lamellibranch shell
N.W. Nowell, Ph.D.	The control of pituitary hormone secretion in mammals
with *D.C. White	Cardiac function in hypothermia
J.H. Sudd, Ph.D.	Communication in ants
I.C. Williams, Ph.D.	Helminth parasites of wild birds
M.J. Manning (Miss), Ph.D.	Relationship between thymus and lymphoid tissues of vertebrates
J. Lance (Miss), Ph.D.	Estuarine studies

*Honorary Research Associate

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1. Biology

Professor A.R. Gemmell	General biology of the Bryophyta especially water relations
	Microbiological effects of chemical soil sterilization
R.G. Evans, Ph.D.	Intertidal ecology
	Water relations of *Patella* spp.
R.M. Badcock (Miss)	Ecology and taxonomy of the Hydropsychidae
K.M. Goodway, Ph.D.	Ecology of bogs
	Experimental taxonomy of *Galium* and *Quercus*
M. Campion (Miss), Ph.D.	Physiology of reproduction in *Hydra*
E.P. Perrott (Mrs.), Ph.D.	Aquatic Phycomycetes

2. Chemistry

Professor H.D. Springall, D.Phil.	Molecular structure and energetics (calorimetry; dielectrics; electron diffraction)
	Protein structure
P.H. Plesch, Ph.D.	Cationic polymerization
	Chemistry of catalytic metal halides
	Fractionation of polymers
I.T. Millar, Ph.D.	Aromatic and heterocyclic chemistry
S.C. Nyburg, Ph.D.	X-ray crystal structure analysis and thermodynamics
G. Jones, Ph.D.	Natural products: quinolizines
C.T. Mortimer, Ph.D.	Thermochemical studies on organo-metallic and organo-metalloid compounds
R. McWeeny, D.Phil	Quantum mechanics of atoms, molecules and crystals
P. Borrell, Ph.D.	Photochemistry
D. Cohen, Ph.D.	Phosphorylation reactions in the nucleic acid and nucleotide co-enzyme fields

3. Communication

Professor D.M. MacKay, Ph.D.	Informational organization of the visual and tactual systems
	Electronic analysis of electrophysiological responses
	Effects of brain lesions on visual perception
	Mechanism of electrolytic growth processes
J.P. Wilson, Ph.D.	Artificial pattern recognition

4. Geography

Professor S.H. Beaver	Rainfall in N. England
	Reclamation of industrial wasteland
M.M. Cole (Miss), Ph.D.	Land utilization studies in the S. Pennines
	Opportunities for further development of southern hemisphere savanna lands
W.M. Williams	Social geography of rural areas
A.D. Walton	Geomorphology of N.E. Staffordshire
	Interpretation of aerial photographs
J. Naylon, Ph.D.	Land reform and development in Spain
B.J. Turton, Ph.D.	British railway geography

5. Geology

Professor F.W. Cope, D Sc.	Stratigraphy, structure, and palaeontology of the Carboniferous rocks of the area between Macclesfield, Buxton, Great Longstone (Derbyshire) and Leek
	Fauna of the Carboniferous Limestone at Newbold Astbury, Cheshire
	Bedding-plane phenomena in Mesozoic limestones, Gulf of Salerno, Italy
T.G. Miller, T.D.	Palaeozoic fenestrate Bryozoa
	Time concept in stratigraphy
C.S. Exley, D.Phil.	Petrology and geochemistry of the Bodmin Moor and Land's End Granites and their relationships with the other granites of S.W. England
	Distribution of certain elements in minerals of Cornish igneous rocks
	Petrochemical investigations using rapid wet and spectrographic techniques
T.P. Burnaby, Ph.D.	Multivariate distance functions: palaeontological applications with special reference to Coal Measure lamellibranchs

5. Geology (*continued*)

R.G. Park	Structural, petrological and geochemical investigations in the Lewisian rocks of Gairloch, Wester Ross and Sutherland
	Petrochemical investigations using rapid wet and spectrographic techniques
R.A. Roach, Ph.D.	Charnockites in N.W. Quebec, Canada
	Cross folding within the Grenville province at the southern end of the Labrador Trough, N.W. Quebec, Canada
	Structure and petrology of the metamorphic rocks and minor intrusions of Guernsey, Channel Isles
	Petrology of the St. David's Head Gabbro

6. Mathematics

Professor D.S. Jones, M.B.E., D.Sc.	Electromagnetic theory
R.C. Smith, Ph.D.	Hydrodynamics
P. Smith, Ph.D.	
H. Liebeck, Ph.D.	Group theory
D.W. Jordan	Elasticity
B. Srinivasan (Mrs.), Ph.D.	Group theory

7. Physics

Professor D.J.E. Ingram, D.Sc.	Magnetic resonance of the solid state including ultra-violet irradiation and free radical studies
D.E. Davies, Ph.D.	Surface effects in low pressure d.c. discharges in gases and in plasmas
D.G. Holloway, Ph.D.	Brittle fracture of glass
N.A. Surplice, Ph.D.	Thermoelectric and other properties of alkaline-earth oxides
D.M. Schlapp, Ph.D.	Properties of glass at high strain
D.C. Lainé, Ph.D.	Electron resonance; maser studies in the far infra-red
J.N. Hodgson, Ph.D.	Optical properties of metals
G. Lancaster, Ph.D.	Electron spin resonance in semiconductors
G.A. Dawson	Current growth and electrical breakdown in low pressure gases in the nano-second region
E.B. Pattinson, Ph.D.	Secondary electron emission

8. Psychology

Professor I.M.L. Hunter, D.Phil.	Acquisition of intellectual skills; memory; problem-solving
P. Halmos, Ph.D.	Ideological commitments in counselling professions
A.H. Iliffe	Predictive value of psychological tests for undergraduate performance
G.M. Stephenson	Psychopathic syndrome; processes of socialization

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1. Agriculture

Professor T.L. Bywater	
T.G. Boaz, M.B.E.	Sheep: winter feeding of sheep on silage; intensive grass-land fat lamb production; a study of carcase weight and quality of fat lambs
R. Holliday	
J. Dalley	

1. Agriculture (*continued*)

D.R. Hodgson, Ph.D. J.R. Proud D.C. Dalton, Ph.D.	Pigs: nutrition of the pregnant sow; significance of growth rate and body composition of the young bacon pig; a study of the life of the newborn pig in relation to nutrient intake, body composition and environmental temperature; estimates of lean mass in the live pig by γ-ray analysis (K.40)
	The effect of plant population on yield and quality of crops
	Organic manures and fertilizers: interactions involved, nature of response curves, fertilizer placement
	Investigations into some soil profile effects upon crop production
	Investigations into some of the factors affecting yield in the grass crop
	Mice: study of response to selection at two levels of feeding

Agricultural Botany:

Professor J.H. Western, Ph.D.	Diseases of herbage plants especially the rot diseases caused by *Sclerotinia trifoliorum*
A.P. Jones	*Streptomyces scabies* on root crops. Root-inhibiting Chytridiaceae
D.J. Harberd	Genecology: intraspecific genetical variation in relation to ecology; natural clones
M.J. Wren (Miss), Ph.D.	Root growth with special reference to hormones

Agricultural Chemistry:

J.S. Willcox	Animal nutrition: crude fibre utilization by poultry
W.N. Townsend	Soil chemistry: studies on the iron compounds in soils and of the nutrient status of soils
D.A. Swann	Animal nutrition: studies on ruminant protein digestion

Agricultural Economics:

W.H. Long A.G. Jeffrey	The economic organization and relative profitableness of farming systems in Yorkshire
J.B. Butler	Capital and labour in farming
G.B. Clarke	The economics of dairy farming
C.J. Black I.G. Simpson	The development of Yorkshire farming since the 17th century
A.J. Wynne M.C. Mathieson (Miss)	A statistical study of the determinants of management earnings in farming
A.A. Marsh	Mechanization and machinery depreciation
A. Hales	Programme planning applied to agriculture
	Variations in farm income
	Profitability of improved grassland production and utilization
	The problem of the small farm
	Linear programming applied to agriculture and horticulture
	Implications of different slaughter weights of pigs on cost
	Capital improvements and farm income
	Effect of climate and altitude on dairy farming systems
	Why some producers give up milk production and others continue

1. Agriculture (*continued*)

Agricultural Microbiology:

J. Wolf	Germination, sporulation and metabolic requirements of aerobic bacilli
A.N. Barker, Ph.D.	Physiology, distribution and classification of thermophilic bacteria
	Antigenic structure of aerobic and anaerobic spore-forming bacteria

Agricultural Zoology:

N.H.E. Gibson, Ph. D.	The effect of environmental and biological factors on the incidence of bacterial disease in insects
	Ecology of soil arthropods
B. Whittington, Ph.D.	Sense organs and ingestive mechanisms of arthropods
	Structure and life-cycles of parasitic nematodes
	Defence mechanisms of insects against disease

2. Anaesthetics

R.P. Harbord, M.D.	Measurements of intrapulmonary mixing, alveolar dead space and the mechanical properties of the lungs during anaesthesia
D.S. Young	Investigation of methohexital sodium in dental anaesthesia
J.J.L. Ablett	Scope of therapeutic blocks with local anaesthetics
	Problems in the treatment of tetanus and acute respiratory insufficiency

3. Anatomy

Professor A. Durward	Growth studies
G.I. Boyd, M.D.	Anthropometry
W.K.J. Walls	Surgical anatomy
J.A. Sharp, Ph.D.	Cerebral morphology and embryology
	Tissue culture
R.G. Burwell, M.D.	Fate and effects of grafted tissue
B. Ballantyne	Tissue specific enzymes
	Neuromuscular aspects of oesophagus

4. Biochemistry

Professor F.C. Happold, Ph.D., D.Sc. (Head of Department)	Enzymological and immunological studies in bacterial metabolism
	*The biological treatment of industrial effluents
Professor S. Dagley, D.Sc.	†Physical chemical aspects of biochemistry with special reference to the analysis of cell-free extracts of bacteria by means of the ultracentrifuge
	Bacterial metabolism
B.A. Kilby, Ph.D.	Insect biochemistry, with particular reference to the biochemistry of trehalose in locusts and the role of the locust fat body in intermediary metabolism
F.W. Chattaway, Ph.D.	††‡Metabolic studies with pathogenic fungi and biochemical aspects of the host-parasite relationship in infections caused by dermatophytes
R.P. Hullin, Ph.D.	§Metabolic variations in psychiatric disorders
	The metabolism of acetoin and butane-2:3-diol
A.J. Kenny, Ph.D.	Biochemical aspects of glucagon
	Exopeptidases in mammalian liver

*Gas Council grant
†M.R.C. grant
‡Grant from Squibb & Sons Ltd., Liverpool
§Grant from Smith, Kline & French Foundation

4. Biochemistry *(continued)*

T.J. Bowen	Application of physical techniques to biochemical problems
D.G. Wild, D. Phil.	Ribonucleoprotein particles in micro-organisms Fatty acid metabolism in bacteria
T.A. Scott, Ph.D.	Plant metabolism
J.E.M. Midgley, D.Phil.	Control of nucleic acid synthesis in bacteria Physical properties of bacterial nucleic acids

5. Biophysics

Professor R.D. Preston, Ph.D., D.Sc., F.R.S. E. Frei, (Miss) Dr.Sc.Nat., D.B. Sellen, Ph.D. B.J. Nelmes (Mrs.)	X-ray and optical analysis of cell wall structures, including wood, textile fibres, algae; relation of structure to growth; electron microscopy of plant cell walls; relation of wall structure to elastic properties; wood degradation; permeability of wood
K.M. Rudall, Ph.D., D.Sc. J. MacArthur, Ph.D. F.G.E. Pautard, Ph.D. W.E. Seeds, Ph.D. E. Beighton, Ph.D. K.D. Parker, Ph.D. A. Millard G.N. Graham, Ph.D.	Studies by X-ray diffraction, electron microscopy, infrared spectroscopy, and supporting physicochemical and chemical analytical techniques, of the structure of biological tissues and macromolecules

6. Botany

Professor I. Manton (Miss), D.Sc., F.R.S.	Cytology of ferns Electron microscopy of plant cells
E. Harrison (Mrs.) Ph.D.	Metabolic relationships in cell growth concerning particularly the development of enzyme complements Cytochemical investigation of cell components
W.A. Sledge, Ph.D.	Pteridophytes of Ceylon
A. Wesley	Fossil flora of the Grey Limestones of Veneto, Italy
J.D. Lovis, Ph.D.	Cytotaxonomy and phytogeography of the *Asplenium trichomanes* complex and related ferns Cytological studies on *Arum*, *Puccinellia* and *Cirsium*
D.D. Bartley, Ph.D.	Pollen analysis
G.F. Leedale, Ph.D.	Cytology and electron microscopy of the Euglenophyta Radiobiology of flagellates and algae Cytology of *Chrysochromulina* spp.
D.H. Jennings, D.Phil.	Ion uptake and active transport mechanisms Physiology of marine fungi Cytochemistry

7. Chemistry

Colour Chemistry and Dyeing:

Professor I.D. Rattee	Fundamental properties conditioning the stability of the bonds formed between fibres and reactive dyes and their relation to the reactivity of the dyes
A.T. Peters, Ph.D., D.Sc.	Chemistry of acenaphthene Cellulose acetate and nylon dyes from 2-alkylanthraquinones and anthraquinone-2-carboxamides
F K. Sutcliffe, Ph.D.	Chemistry of polycyclic ketones Chemistry of dioxazine dyes
C.L. Bird	Mechanism of dyeing
C.B. Stevens, Ph.D.	Dyeing properties of fibres Influence of solvents on dyeing from aqueous media Effect of processing on fibre properties (wool)

7. Chemistry (*continued*)

Colour Chemistry and Dyeing (*continued*)

F. Jones, Ph.D.	Mechanism of vapour phase dyeing Vapour pressures of dyes Dyes containing silicon
D. Patterson, Ph.D.	Photoconductivity of pigments Diffusion of dyes in fibres Determination of particle size of pigments

Inorganic and Structural:

Professor H.M.N.H. Irving, D.Sc.	Stability of metal complexes in solution Development of organic reagents for inorganic analysis; studies of co-ordination chemistry; solvent extraction of inorganic complexes Radiochemistry
L.D. Pettit, D.Phil.	Stability of metal complexes in solution
A.G. Sykes, Ph.D.	Inorganic reaction kinetics
R.S. Bradley, Sc.D.	Kinetics of evaporation and condensation The measurement of low vapour pressures Chemistry and geochemistry at high pressures
M.R. Truter (Mrs.), Ph.D. G.E. Pringle, Ph.D.	Studies of stereochemistry, molecular structure and valency by X-ray analysis; development of computational techniques for X-ray analysis
J.H. Robertson, Ph.D.	Co-ordination compounds
J.A.S. Smith, D.Phil.	Nuclear magnetic resonance and optical spectra
D.C. Munro, D.Phil.	Chemistry at high pressures
B.L. Shaw, Ph.D.	Chemistry of the transition metals

Organic:

Professor B. Lythgoe, F.R.S. D.I. Davies, Ph.D. G.A. Morrison, Ph.D. W. Rigby, Ph.D. J.E. Saxton, D.Phil.	Chemistry of natural products
E. Rothstein, Ph.D., D.Sc.	Chemistry of organic derivatives of sulphur and mechanism of the Friedel-Crafts reaction
P.A. Briscoe, Ph.D.	Aspects of the chemistry of organic sulphur compounds
A.T. Austin, Ph.D.	Chelate interaction in organic reactions
P.R. Brook, Ph.D.	Chemistry of small-ring compounds

Physical:

Professor F.S. Dainton, Sc.D., F.R.S. E. Collinson, Ph.D. K.J. Ivin, Ph.D. D.R. Smithies, Ph.D.	Kinetics and thermodynamics of atomic, free radical and polymerization reactions in gas phase and solution, initiated by light, ionic and free radical catalysts, or nuclear radiations. Photo- and radiation-chemical reactions in rigid glasses
P. Gray, Ph.D.	Flame propagation and thermal explosions; reactivity and thermochemistry of free radicals; transport properties of gases; rotational isomerism
G.F. Smith, Ph.D.	Activities of electrolytes
J.W. Belton, Ph.D. D.Sc.	Thermodynamics of surfaces
E.F. Caldin, D.Phil.	Fast reactions and reactions at low temperatures; kinetics of proton transfer and molecular complex formation; history and philosophy of science
D. Bunn, Ph D.	Electron transfer processes in solution
A.S. Carson, Ph.D.	Thermochemical determinations of bond energies
P. Glentworth, Ph.D.	Radiochemistry: isotopic exchange
P.B. Ayscough, Ph.D.	Electron spin resonance; photochlorination; gas chromatography
M. Henchman, Ph.D.	Mass spectrometry

8. Dental Studies

Professor F.E. Hopper	Clinical and histological investigations into pathological conditions of the mouth
Professor H.S.M. Crabb Ph.D.	Mineralization of human dental enamel, abnormalities of enamel structure and their relationship to dental caries
S.M. Weidmann, Ph.D.	Mechanism of calcification Nature of organic matrix of enamel Fluoride studies in hard tissues
J.A. Weatherell, Ph.D.	Studies on the ageing of bone Accumulation of fluoride in bone
D. Jackson, D.D.S.	Epidemiological studies of dental ill-health in children and adults Dentifrice clinical trials
R.T. Heylings	Periodontal studies Aetiology and treatment of recurrent buccal ulcerations Electron microscope studies of ulcerative gingivitis
S. Haynes	Mechanics of orthodontic appliances Study of soft tissue behaviour in relation to malocclusion
A.J. MacGregor	Clinical investigation of alveolar bone healing

9. Dermatology

F.F. Hellier, O.B.E. M.D. (Head of Department)	Industrial skin diseases Treatment of psoriasis
S.T. Anning	Arterial ulceration of the legs
C.J.P. LaTouche	Studies in pathogenic fungi
N.R. Rowell	Systemic manifestations of chronic discoid lupus erythematosus Studies in systemic sclerosis Auto-immune reactions in skin diseases
M. Cramb	Investigation of *Candida* infection in diabetes
D.G. Scott	Immunohistological studies of connective tissue

10. Engineering

Chemical:

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor G.G. Haselden	Heat transfer:
K.L. Butcher	Nature of boundary sub-layers in fluid flow accompanied by heat transfer
F.H. Cass	Condensation of binary vapour mixtures
C.N. Collinge	Convection within thermal insulations
J.R. Hulett, D.Phil	Thermal regenerators
I.R.M. McDougall	
C. McGreavy	Distillation: Efficiency of distillation trays as a function of the properties of the fluids (binary and ternary) Representation of stagewise ternary distillation Simultaneous fractionation and heat transfer processes Thermodynamic properties of mixtures: Precision bomb calorimetry, organic sulphates Equilibria SO_2–water at high pressures Heat and free energy changes on mixing organic liquids (azeotrope formation) Enthalpy changes and phase equilibria in liquefied natural gas Sulphation of alpha olefins. Energetics and kinetics Chemical reactions in a fluidized bed Flow properties of granular solids Developments in the drying of paper

10. Engineering (*continued*)

Civil:

Professor R.H. Evans, C.B.E., D.Sc., Ph.D.	The ultimate strength of prestressed concrete beams in shear. Bond stress distribution in prestressed concrete. Bond stress distribution in lightweight aggregate concrete members
	Preflex prestressed concrete beams
	Bond stress in grouted prestressed concrete beams
E.W. Bennett, Ph.D.	Moment redistribution in continuous prestressed concrete beams
	Fatigue of prestressed concrete beams and their component materials
	Influence of strength of aggregate on the strength and properties of concrete
M. Holmes, Ph.D.	Plastic collapse and deflections of beam grillage
	Interaction between concrete floors and steel building frames
	Steel frames with concrete or brickwork infilling
R.D. Mackey	Angle of internal friction and particle shape
	Bearing capacity of piles in sands
	Field testing of pile types
	Pressure distribution under foundations and around tunnels
P. Sutcliffe	Relative effects of fresh inflow and tidal variations upon river surface profiles
	Suspended matter in rivers
	Engineering hydrology of river systems
A. Chronowicz	Behaviour and stability of perforated cylindrical shells
	Stress distribution in hypar shells including edge beam effects
	Stresses in twisted "calotte shells"
J.A. Fox	Pressure transients in pipes of low elastic modulus
	Secondary flow in open channels
	Impact pressures due to wave motion
A.L. Yettram	Experimental and theoretical stress analysis of cellular structures and plated grids
	Stress distribution in plates of various shapes under normal and in-plane loading
W.G. Collins	Application of aerial survey to resource development
F. Sawko	Stress analysis of complex bridge decks
C.A. O'Flaherty, Ph.D.	Evaluation of traffic capacities of British roads
	Use of bituminous materials in pavement design

Electrical:

Professor G.W. Carter P.J. Lawrenson J.M. Stephenson	Electromagnetic field problems; electromagnetic aspects of rotating machines. Transient performance of induction machines. Salient-pole machines of a new form; low inertia machines for control system use
P.H. Walker, Ph.D.	Application of electronics to instrumentation and control; precision analogue computing techniques applied to the solution of engineering problems
A. Richardson	Coil-less transformers with variable ratios
A.E. Guile, Ph.D. A.E.D. Heylen, Ph.D.	Mechanism of cold-cathode arc movement in a magnetic field. Influence of hydrocarbons on the discharge mechanism in gases

Mechanical:

Professor B.N. Cole	High strain-rate deformations
	High temperature gas jets

10. Engineering (*continued*)

Mechanical (*continued*)

A.S. Leah, Ph.D.	Combustion, flame temperatures, radiation from flames; heat transfer in high-speed i.c. engines
F.R. Mobbs	Symmetry studies in jets from non-circular nozzles; stability of flow between eccentric rotating cylinders
D. Bradley, Ph.D.	Combustion in flames; composition, temperatures and ionization in reaction
D. Dowson, Ph.D.	Thermal effects in bearings; elasto-hydrodynamic lubrication
L.H. Tanner	Heat transfer in high-speed flow using a shock tube; boundary layer development in a pipe
W.B. Palmer, Ph.D.	Mechanics of metal cutting processes
M.D. Longfield	Elasto-hydrodynamic lubrication
J.E.R. Coney	Heat transfer in a high-speed rotary heat exchanger

11. Forensic Medicine

Professor C.J. Polson D. Hainsworth D.J. Gee	Problems related to forensic medicine

12. Geography

Professor R.E. Dickinson	Problems of urban geography in W. Europe and U.S.A.
F.J. Fowler, Ph.D.	Economic geography of W. Yorkshire
G.R.J. Jones	Settlement and land tenure in England and Wales
F.A. Leeming	Geographical applications of social accounting techniques
S.R. Eyre, Ph.D.	Factors limiting settlement and land improvement in the north of England
J. Palmer	Periglacial landscapes in Britain
G.C. Dickinson	Interaction of geographical processes and distributions with town and country planning in Britain
B.J. Garner	Location economics of retail activities; applications of mathematical techniques to spatial analysis
D.A. Preston, Ph.D.	Man-land relationships in coastal Ecuador; socio-economic problems of Latin America

13. Geology

Professor W.Q. Kennedy, D.Sc., F.R.S.	Problems in connection with structure, petrology and ore deposition in African territories Structure and petrology of the Ruwenzori Range, Uganda–Congo
Professor R.M. Shackleton, Ph.D.	Structure and stratigraphy of metamorphic rocks in Ireland, Anglesey and N.W. Spain Vulcanicity and sedimentation in the Gregory Rift Valley, Kenya Structure of Ordovician rocks of Snowdonia
J. Hartley	The mineralization of N. England
D.H. Rayner (Miss), Ph.D.	The Mey beds and other strata of the Caithness Flags
J.S. Turner	Upper Palaeozoic nautiloids Carboniferous Limestone Series of N.W. England Tournaisian–Viséan boundary problems
P.G. Harris, Ph.D.	The composition of earth layers The origin and composition of magmas Geology and vulcanology of Tristan da Cunha
W.C. Gregory	Petrology of igneous and floor rocks of the Bushveld Igneous Complex and their contact relationships in part of East Transvaal

13. Geology (*continued*)

A.R.J. Gaskin	Structure and genesis of the Tonkolili iron ores, Sierra Leone
	Orientation of local stress fields in rocks during deformation
I.G. Gass, Ph.D.	Petrology of the "younger" granites and associated rocks of the N.E. Sudan
	Geology and vulcanology of Tristan da Cunha
D.S. Wood	Structural and stratigraphic problems in the Pre-Cambrian of Anglesey, and the Cambrian Slate Bed, N. Wales
	Relations of the Cambrian to the Pre-Cambrian in Wales
	Quantitative studies of rock deformation

RESEARCH INSTITUTE OF AFRICAN GEOLOGY

Professor W.Q. Kennedy, D.Sc., F.R.S.	Investigation of a wide field of problems of structural geology, petrology, mineralogy and geochemistry in the continent of Africa
O. von Knorring, Ph.D.	Mineralogy and geochemistry of thorium-bearing granites in Uganda
	Geochemistry and mineral paragenesis of African pegmatites
	Mineralogical studies in southern Africa, and the geochemistry of igneous provinces in East Africa
T.N. Clifford, Ph.D.	Structure, stratigraphy and metamorphism of the Otavi and Damara sequences of S.W. Africa, and of coeval rocks in western and central Africa
	Distribution, correlation, facies, metamorphism and regional tectonics of the late Pre-Cambrian sedimentary formations of Africa
R.L. Johnson, Ph.D.	Structure and petrology of Karroo igneous complexes in Central Africa
	Relationship between the Makaha Schist Belt, the Gairezi Series and the Zambesi Orogenic Belt in N.E. Southern Rhodesia
K.G. Cox, Ph.D.	Karroo vulcanicity and tectonics in southern Africa
J.R. Vail, Ph.D.	Karroo igneous complexes in Southern Rhodesia and Nyasaland
	The distribution and structure of the Gairezi-Frontier System in eastern Southern Rhodesia and Mozambique
G. Hornung, Ph.D.	Pegmatite investigations in Southern Rhodesia and application of X-ray analysis to rocks and minerals
D.R. Workman, Ph.D.	Stratigraphy, structure and metamorphism in the Lomagundi System of Southern Rhodesia

14. Mathematics

Professor H.S. Ruse, D.Sc.	Differential geometry
Professor T.G. Cowling, D.Phil., F.R.S.	Astrophysics; atmospheric problems
Professor J.W. Craggs, Ph.D.	
W. Barrett, D. de l'U.	Numerical analysis
J.F. Bowers, Ph.D.	Group theory
M.H. Lob, Ph.D.	Mathematical logic
B.L. Welch, Ph.D.	Mathematical statistics
G.S. James	
H.L. Price, Ph.D.	Aerodynamics
H.D. Ursell	Analysis
E.W. Wallace, Ph.D.	Linear algebras

14. Mathematics (*continued*)

ELECTRONIC COMPUTING LABORATORY

G.B. Cook, Ph.D.	Computing methods
C.M. Reeves, Ph.D.	Quantum mechanics of molecules
K. Wolfenden	Operational research
M. Wells, Ph.D.	Crystallography and computing
R. W. Hiorns	Statistics and computing
A Wren	

15. Medical Physics*

Professor F.W. Spiers, C.B.E., Ph.D., D.Sc.	Physical aspects of the use of ionizing radiations in clinical medicine
	Dosimetry of radioactive isotopes in bone
	†Measurement of ionizing radiation in the environment
G.W. Reed	Radioactive tracer studies in clinical medicine
	Studies of the mineral content of bone by in vivo methods
G.A. Hay	Application of electronic techniques to clinical medicine
	‡Detection of X-ray images and their information content
P.R.J. Burch, Ph.D.	†Measurements of small amounts of radioactivity in living subjects
	†Theoretical studies of spontaneous and radiation carcinogenesis
J.B. Dawson, Ph.D.	†Spectrographic detection of some elements in biological materials
D. Hughes, Ph.D.	†Measurement of low-level radioactivity
F. Hepburn, Ph.D.	Physics of cardiovascular measurements

16. Medicine

Professor R.E. Tunbridge, O.B.E., M.D.	Clinical and experimental problems of diabetes mellitus
with C.R. Blagg with Urological Department with Medical Physics Department	Clinical and experimental work with various forms of artificial kidney
	Studies of metabolism in renal failure
	Total body potassium in man
D.A. Hall, Ph.D.	Chemical 'enzymic and morphological studies of connective tissue, including electron microscopy of connective tissue, particularly elastic tissue with special reference to ageing and disease
D.A. Hall, Ph.D. J.E. Wilkinson Ph.D.	Pancreatic enzymes and their relationship to plasma clearing factor
J.W. Czerkawski Ph.D.	Studies on the linkage between elastin and its integral polysaccharide
J.P. Bingle	Clinical studies on diabetic neuropathy
J.P. Bingle J.W. Czerkawski, Ph.D.	Experimental studies on insulin and insulin antagonists
D. Taverner, M.B.E., M.D.	Clinical electromyography
	Studies in human pharmacology
with J.L. James D.W. Miles J.W.J. Fearne	Nerve conduction studies

*Includes M.R.C. Environmental Radiation Research Unit: Honorary Director, Professor F.W. Spiers, Deputy Director, Dr. P.R.J. Burch

†Supported by M.R.C. Grants

‡Supported by grants from Nuffield Foundation

16. Medicine (*continued*)

G.A. Rose	Problems relating to calcium metabolism
with P.B. Cook, M.D.	Studies on renal phosphate threshold
M.S. Losowsky, M.D.	Clinical and experimental studies of liver disease and lipid metabolism
J.R. Fountain, M.D.	Chemotherapeutic studies in leukaemia and polycythaemia

Clinical:

Professor S.J. Hartfall, M.D.	Basal and maximal acid secretion in the stomach in relation to oral and parenteral steroid administration
W.C. Walker	
Professor S.J. Hartfall, M.D.	Pigmentation of rheumatoid serum
	Ultracentrifuge studies on serum
K. Swinburne	Oedema and rheumatoid arthritis
V. Wright, M.D.	Quantitative and qualitative measurement of joint stiffness
	Aetiological factors in psoriatic arthritis
	Clinical studies of colitic arthritis
	Rheological studies of skin
	Intra-articular therapy in rheumatic diseases
V. Wright, M.D.	Investigation into the effect of combining nialamid with
W.C. Walker	steroid therapy in rheumatoid arthritis
R.A.H. Morison	Body constitution and arthritis
A. Woodmansey	Psychological stress and rheumatoid arthritis
	An objective method of assessing tranquillizing and stimulant drugs using the psychogalvanometer

17. Metallurgy

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor J. Nutting, Ph.D.	Phase transformations in the solid state
R. Shuttleworth, Ph.D.	Thermodynamics of solids
P.A. Feltham, Ph.D.	Dislocation theory of yielding and creep
P.R. Beeley, Ph.D.	Casting of metals
I. Codd, Ph.D.	Plastic deformation of iron
P.M. Kelly, Ph.D.	Electron microscopy of metals and alloys
R.M. Douthwaite	Plastic deformation of polycrystals
W.R. Berry, Ph.D.	Fatigue of alloys at elevated temperatures

18. Microbiology

Bacteriology:

Professor C.L. Oakley, M.D., D.Sc., F R.S.	Sites of formation of antibodies
	Bacterial toxins
	Immunological tolerance
K.I. Johnstone, Ph.D.	Micromanipulative techniques and design of apparatus
	Heat resistance of individual bacterial spores
K. Zinnemann, M.D.	Differentiation, pathogenicity, antigens and toxins of haemophili, corynebacteria and vibrios
	The infective factor in chronic bronchitis and bronchiectasis
D.E. Nicholson, Ph.D.	Enzymic activities of clostridial filtrates
	Fluorescent antibody reactions
J.W. Czekalowski, M.D.	Virus and rickettsial diseases
	Tissue cultures and their application to virology
	Physicochemical studies of leptospirae
C.J.P. La Touche	Fungus infections in man and animals
A.T. Willis, Ph.D., M.D.	Staphylococcal epidemiology
S.I. Jacobs	

19. Mining

H.J. King, Ph.D.	Strata distortions due to mining
N. Brook, Ph.D.	Design of apparatus for improving performance of pneumatic stowage plants
	Measurement of flow of suspensions through venturis
J.O. Myers, Ph.D.	Investigation of magnetic anomalies
	Gravity investigations into concealed structures in coalfields
	Gravity survey over the southern portion of the Askrigg block
	Depth estimates of resistivity measurements and investigation of superficial deposits
J. McFarlane	Stress measurements in steel props
W.L.J. Potts	Photographic analysis of air flow
A. Jowett, Ph.D.	The action of flotation reagents on coal and mineral surfaces
	Flotation as a rate process
	Adsorption of cresols by coal
	Induction time in froth flotation
	Beneficiation of fluorite ores
	Effect of reagents on comminution
	Comminution by heat treatment
C.C. Dell	Flotation cell design
	Filtration on fine porous media
	Conditioning of coal for flotation
C.C. Harris, Ph.D.	Micromeritics in coal preparation and mineral dressing; small particle statistics; sedimentation of suspensions
	Moisture retention properties of fine coal
	Fundamentals of water concentration processes
	Analysis of processes, correlation and scale-up

20. Obstetrics and Gynaecology

Professor J.S. Scott, M.D.	Placental pathology
	Rhesus sensitization
	Choriocarcinoma
	Liquor amnii: abnormalities
U.M. Lister (Miss), M.D.	Biochemical and electrolyte changes in normal and abnormal pregnancy, labour and puerperium; electron microscopic study of placenta
R.R. Macdonald	Cervical mucus; diagnosis of progesterone deficiency
D.A.S. Eddie	Oxytocin sensitivity

21. Ophthalmology

G.W. Black	Research into the treatment of simple detachment of the retina with particular reference to the effects of light coagulation

22. Paediatrics and Child Health

Professor W.S. Craig with W. Goldie	Clinical problemsi n the neonate
	Dysmaturity
G.M. Lewis	Recurrent haemorrhagic nephritis
	Acute respiratory infections in infancy
	Neonatal hypoglycaemia and related disorders

23. Pathology

Professor C.E. Lumsden, M.D. with *R. Blight *D. Robertson, Ph.D.	Myelination and demyelinating processes (experimental, cytological and biochemical aspects)

*Research Fellow in Multiple Sclerosis

23. Pathology (*continued*)

Chemical:

Professor G.H. Lathe, M.D., Ph.D.	Development of liver enzymes during the neonatal period, with particular reference to bilirubin metabolism
M.J. Levell	Parathormone and oxidative phosphorylation
W.N. Anderson, Ph.D.	Metabolism in uraemia
P.S. Lord	Effect of Synkavit and bilirubin on brain metabolism
R.B. Payne	Rheumatoid factors
K.M. Jones	Erythrocyte phospholipids
K.M. Jones	Copper excretion
E.M. Duddell	
C. Toothill, Ph.D.	Metabolism of erythrocytes
A. White (Mrs.), Ph.D.	Physicochemical methods
J. Summerscales (Miss)	Amino-acid excretion in familial mental deficiency

Experimental Pathology and Cancer Research:

Professor H.N. Green, M.D.	Mechanism of carcinogenesis
with H.M. Anthony (Mrs.)	Immunological theory of cancer
M. Parsons (Mrs.)	Tumour chemotherapy
M.R. Anderson (Miss)	Study of carcinogenic action of mineral oils
P. Reed (Mrs.)	Electron microscopy of cell surfaces
G.M. Bonser (Mrs.), M.D.	Aromatic amine cancer and endocrine aspects of cancer
L.H. Stickland, Ph.D.	Biochemical problems in cancer
J.O. Laws, Ph.D.	Regeneration and carcinogenesis in the liver Tissue culture in the study of carcinogenesis Rapid methods of testing for carcinogenic activity
D.B. Clayson, Ph.D.	Aromatic amine cancer
L.R.A. Bradshaw, Ph.D.	Endocrines and cancer

24. Pharmacology

Professor D.R. Wood	Gastric secretion Diabetogenic effects of thiazide diuretics
G.A. Mogey, M.D.	*Amanita muscaria*
D. Mackay, Ph.D.	Enzymes and reaction mechanisms
E.R. Clark, Ph.D.	Chemistry and pharmacology of steroid analogues and of adrenergic nerve-blocking drugs
R.C. Kaye, Ph.D.	Micelle formation and polarographic diffusion currents Dielectric constants of emulsions
G.A. Nelson, Ph.D.	Plant constituents

25. Physics

Professor E.C. Stoner, Sc.D., F.R.S.	Theoretical physics: magnetic, thermal and electrical properties of solids; application of electronic computer in theoretical problems and analysis of experimental results
P. Rhodes, Ph.D.	
D.E. Moody, Ph.D.	
Professor J.G. Wilson, Ph.D.	Cosmic ray physics Structure of extensive showers
E.W. Kellermann, Ph.D.	
R.M. Tennent, Ph.D.	
R.J.O. Reid, Ph.D.	
P.L. Marsden, Ph.D.	Time variation of the nucleonic component; primary electron flux
W.K. Griffiths, Ph.D.	
A.L. Hodson, Ph.D.	Unstable particles from nuclear processes
A.M. Hillas, Ph.D.	

25. Physics (*continued*)

F.E. Hoare, Ph.D. L. Mackinnon, Ph.D. A.J. Manuel, Ph.D. D. Greig, Ph.D. A. Myers, Ph.D.	Physics of metals, and alloys at low temperatures: thermal, electrical and magnetic properties; ultrasonic absorption; transport effects
C. Curry, Ph.D.	Soft X-ray spectroscopy
E.F.W. Seymour, Ph.D.	Nuclear resonance in metals
R.F. Youell, Ph.D.	X-ray crystallography of minerals
D.H. Niblett, Ph.D.	Optical properties of metals

26. Physiology

Professor A. Hemingway J.R. Ledsome, M.D. R.J. Linden, Ph.D. C. Kidd, Ph.D.	Dynamics of heart beat, heart reflexes and vascular receptors
H.R. Noltie	Factors affecting capacity for severe muscular exercise
W.J. O'Connor, M.D.	Control of renal activity Renal excretion of sodium and chloride
P.P. Newman, M.D.	Cortical representation of autonomic afferents
D.H. Paul, Ph.D.	Ca ions and muscular contraction

27. Psychiatry

M. Hamilton	Clinical studies of depression
with Department of Biochemistry	Blood concentration of acetyl menthyl carbinol in depressive states
R.E.D. Markillie	Aspects of thought disorder in schizophrenia
A.J. Young	Personality characteristics of placebo reactors Personality factors in rheumatoid arthritis
D.G. Brown	Psychosomatic correlates in contact dermatitis: further studies
E.A.M. Wood	Steroid sparing effects of nialamid in rheumatoid arthritis
R.G. Webster	Study of psychological changes occurring in a controlled trial of treatment of depression (E.C.T., drugs and placebo)
M.B.H. Whyte (Miss)	Social factors in the adjustment of E.S.N. school leavers
J.C. Little	Clinical studies on the phobic anxiety-depersonalization state Clinical study of "physical prowess and neurosis" Study of effects of tranquillizers on chronic mental hospital in-patients
H.J.S. Guntrip	Nature and psychotherapy of the schizoid problem

28. Psychology

Professor G.P. Meredith, Ph.D.	Semantic mechanisms Mathematical logic applied to concept formation
R. Harper, Ph.D.	Sensory qualities and their objective correlates
P.P. Daws, Ph.D.	Principles and practice of sensory testing
D.H. Holding, Ph.D.	Learning processes in children Vocational guidance in comprehensive schools Motor skill training problems Training by motor guidance Psychophysics and information theory in connection with smoke pollution Effect of cues in the wording of instructions

29. Public Health and Preventive Medicine

Professor D.B. Bradshaw No information

30. Radiodiagnosis

Professor A.S. Johnstone, M.D.	Study of neuromuscular disorders of the oesophagus
P.G. Keates, M.D.	Pyeloscopy and cineradiography of the urinary tract using image amplification
	Intravenous pyelography in renal colic
A.E. Hugh	Subdural space investigation: clinical and pathological
	Flow phenomena in arteries and a model circulation
	Small bowel radiology
	Cineradiography of the soft palate
	Tomography of the accessory nasal sinuses
J.N. Glanville	Small intestinal function following gastrectomy
	Gall bladder function following gastrectomy or vagotomy
	Acute barium meals
	Double contrast stereoscopy of the urinary bladder
	Investigation of alteration in size of renal outlines during intravenous pyelography
M.D. Rawson	Accuracy of radiological diagnosis in lesions of stomach and duodenum
	Purge colon studies

31. Surgery

Professor J.C. Goligher	Investigation of secretory activity of stomach before and after operating for duodenal ulcer
H.L. Duthie	
J.D. Atwell	Controlled trial of several different operations in the treatment of duodenal ulcer
R.C. Bennett	
D. Johnstone	Study of the effect of gastrectomy and vagotomy on the absorption of fat
J. McK. Watts	
M.H. Friedman	Investigation of gastric freezing in the treatment of duodenal ulcer
M. Fields (Mrs.)	
	Study of absorption of sodium, potassium and water from isolated loops of intestine in animals and man
	Studies of ano-rectal sensation
	Investigation of functional results after internal anal sphincterotomy, haemorrhoidectomy and radical operations for anal fistulae
	Assessment of late results of operations for rectal prolapse, malignant disease of large intestine, and ulcerative colitis or Crohn's disease
	Study of healing after haemorrhoidectomy

32. Surgery, Thoracic

G.H. Wooler, M.D.	Open cardiac surgery with an extra-corporeal circulation and deep hypothermia
J.A. Aylwin	
P. Nixon	Complete replacement of mitral and aortic valves
D. Watson	Left heart catheterization and studies using the transauricular septal route
	Disposable oxygenation for use in complete by-pass
	Treatment of peptic oesophagitis
	Portal hypertension

33. Technology

Ceramics:

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor A.L. Roberts, Ph.D.	Constitution of fire-clays and siliceous refractories; studies of recrystallization and the properties of sintered oxides
T.G. Carruthers	The development of ceramic metal mixtures and the study
J.P. Roberts, Ph.D.	of bonding between metals and ceramics
W.E. Worrall, Ph.D.	The mechanical properties of refractories at high temperatures
	Electrochemical properties of clay-water suspensions
	Plastic flow of clay-water pastes
	Structural significance of cation exchange in kaolin-type clays
	The permeability of pure oxide ceramics to gas at high temperatures
	The solubility and diffusion of water in silica glass
	High-temperature reactions in magnesium oxide and calcium oxide
	Pressing of ceramic powders at elevated temperatures
	Mechanical properties of alumina single crystals and polycrystals
	Determination of the firing temperature of ancient pottery
	Properties of alumina polymers
	Drying behaviour of building clays

Food:

Professor A.G. Ward, O.B.E.	Rheology of foodstuffs
	Natural gelling agents
G. Glew	Irradiation of animal products
M. Kapel, Ph.D.	Development of organic reagents for inorganic analysis
H.E. Nursten, Ph.D.	Chemistry of plant phenolics
	Substances giving colour and flavour in foods
R. Reed, Ph.D.	Application of electron and light microscopy to food structure
G. Stainsby, Ph.D.	Spread monolayers
	Physicochemical properties of naturally occurring macromolecules in solution

Gas Engineering and General Fuel Science:

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor A.L. Roberts, Ph.D.	The properties of coal and coke
	The packing of granular solids
J.E. Garside, Ph.D.	The properties of burner flames
J.C. Macrae	Factors affecting gas cleaning
S.C. Mitchell	Transformation of hydrocarbons by thermal and catalytic
B.A. Lilley, Ph.D.	means
	Non-petroleum i.c. engine fuels
	Clarification of industrial waste waters
	Binary mixtures of multi-ring aromatic hydrocarbons
	Mechanism of combustion of particulate solids
	Catalytic transformation of hydrocarbons into fuel gases

JOINT RESEARCH COMMITTEE OF THE GAS COUNCIL AND THE UNIVERSITY

W.H. Blackburn, Ph.D.	Investigations on the disposal of liquor effluents from the
G. Dixon-Lewis, D.Phil.	gas and coking industries
J.K. Kilham, Ph.D.	Analysis of gases and liquids by chromatography, infra-
D. White, Ph.D.	red and ultra-violet spectroscopy, flame stability and
E.G. Jackson, Ph.D.	heat transfer mechanisms between flames and solids

33. Technology (*continued*)

JOINT RESEARCH COMMITTEE OF THE GAS COUNCIL AND THE UNIVERSITY (*continued*)

G.L. Isles Ph.D.	Fundamental studies of flame processes
L. Barker, Ph.D.	Combustion noise
J.R. Catchpole	Adsorption by activated clays
C.P. Ward	
Leather:	
Professor A.G. Ward, O.B.E.	Physical studies of skin and leather
F.O. Flint (Miss), Ph.D.	Histochemistry of skin Pretannage processes Fat liquoring of leather
H.E. Nursten, Ph.D.	Structure and properties of natural tannins Dyestuffs and their interaction with leather
C.H. Pearson	Application of analytical methods to leather research Chemical constitution of skin
R. Reed, Ph.D.	Structure of skin as revealed by electron microscopy Complex ion-protein interactions, with special reference to inorganic tannage
J. Scholtz	Experimental and semi-scale tannages Dyeing and finishing practice
G. Stainsby, Ph.D.	Chemical and physical properties of skin proteins
Textile:	
Professor J.B. Speakman, D.Sc. P.T. Speakman, D.Phil. A.R. Mathieson, Ph.D.	Structure and reactivity of natural and synthetic fibres; polymerization on and within fibres
Professor P. Grosberg, Ph.D. N.H. Chamberlain, Ph.D. K. Hepworth, Ph.D. D.L. Munden G.F. Raper P.A. Smith, Ph.D. D.C. Snowden P.P. Townend, Ph.D.	Engineering studies of textile machinery and methods of processing
G. Brook, Ph.D.	Mathematical analysis of the movement of fibres in drafting processes
W.J. Onions	Textile testing and quality control
L. Peters, Ph.D.	Applied thermodynamics; physical chemistry of dyeing processes
E.V. Truter, Ph.D.	Chemistry of wool wax
Professor C.S. Whewell, Ph.D. J.W. Bell, Ph.D.	The chemistry of finishing processes in the wool textile and man-made fibre industries
H.J. Woods J. Sikorski, Ph.D. D.J. Johnson	X-ray, electron microscope, ultracentrifuge, and infra-red studies of fibre structure

34. Urology

Professor L.N. Pyrah F.R. Raper	Work connected with renal calcification in particular the diagnosis of hyperparathyroidism and idiopathic hypercalciuria, and other stones associated with excess output of calcium in the urine Clinical surgical research into the incorporation of the ileum into the urinary tract for various clinical conditions; study of other types of artificial bladder is also being carried out

34. Urology (*continued*)

C.K. Anderson	Calcification in the kidneys as occurring in normal kidneys, stone-containing kidneys and kidneys associated with parenchymal calcific deposits
	Experimental renal calcification in animals, and effect of chelating agents such as Calgon in the prevention of bladder stones in the rat
	Anatomical changes in bladder neck obstruction
J.B. Dawson, Ph.D. with the Department of Medical Physics	Preparation of a new spectrophotometer for the estimation of small quantities of magnesium, calcium and other elements

UNIT FOR RESEARCH ON METABOLIC DISTURBANCES IN SURGERY

Professor L.N. Pyrah F.M. Parsons	Renal failure and haemodialysis: reduction of protein catabolism by anabolic steroids in acute renal failure; dietary factors in acute renal failure; prevention of the differential correction of the biochemical abnormalities produced by haemodialysis and its role in causing a high mortality; removal of water by haemodialysis and ultra-filtration
A. Hodgkinson, Ph.D. N.A. Edwards B.A. Heppell (Mrs.) R.G.G. Russell	Renal lithiasis: factors influencing the mineralizing propensity of urine and urinary excretion of calcium; diagnosis of primary hyperparathyroidism ; assay of parathyroid hormone in urine; metabolism of oxalic acid with particular reference to oxalate stone formation
F.W. Heaton, Ph.D. L. Martindale	Magnesium metabolism: effect of endocrine glands on magnesium metabolism; relationships between magnesium and other electrolytes; relation between extracellular, intracellular and skeletal magnesium

35. Veterinary Studies

K.G. Towers	Research in veterinary science
	Experimental production of fluorosis and field surveys
	Collaboration in animal husbandry experiments with colleagues

36. Zoology

Professor J.M. Dodd, Ph.D., F.R.S.E.	Comparative endocrinology of lower vertebrates
T. Kerr, D.Sc.	Pituitary histology in amphibians and fishes
H. Henson, D.Sc., Ph.D.	Growth and metamorphosis in insects
E. Broadhead, D.Phil.	Regulation of numbers in natural populations of animals
J. Brust (Miss), Ph.D.	Moulting in the golden hamster
I. Werth (Miss)	Gregarious behaviour
R.W. Owen, Ph.D.	The ecology and distribution of helminth parasites in birds and fishes
J.R. Lewis, Ph.D.	Ecology of rocky shores of the British Isles
J.B. Jennings, Ph.D.	Helminth physiology
A. Chadwick, Ph.D.	Comparative studies on prolactin and other hypophysial hormones

15 Leicester University

1. Biochemistry

Professor H.L. Kornberg, D.Sc., Ph.D.	Metabolism of C_1– and C_2– compounds Adaptive enzyme formation
J.G. Morris, D.Phil. K.M. Jones, D.Phil.	Control of metabolic pathways

1. Biochemistry (*continued*)

E.R. Redfearn, Ph.D.	Mechanism of electron transport and oxidative phosphorylation Role of quinones in photosynthesis

2. Botany

Professor T. G. Tutin	European flora, experimental taxonomy
G. Halliday, Ph.D.	
P.W. Ball, Ph.D.	
A.O. Chater	
A.P. Conolly (Miss)	Post-glacial history of British vegetation
D.M. Moore, Ph.D.	Experimental taxonomy of bipolar and sub-Antarctic species Cytogenetics of *Viola*
E. Wangermann (Miss), Ph.D.	Morphogenesis in *Lemna*
W. Tutin (Mrs.), Ph.D.	Lake sediments
C.E. Brown (Miss)	

3. Chemistry

Professor L. Hunter, D.Sc.	The hydrogen bond as applied to organic chemistry Mesohydric tautomerism
Professor M.C.R. Symons, D.Sc.	Structure and reactivity of unstable intermediates including free radicals, carbonium ions and halogen cations The effect of high-energy radiation on ionic crystals studied by electron spin resonance and ultra-violet spectroscopy Structure and reactivity of solutions of metals in ionizing solvents Structure and reactivity of oxyanions and oxycations
with M.J. Blandamer, Ph.D.	Ion-ion and ion-solvent interactions studies by magnetic resonance, spectrophotometry and ultra-sonic relaxations
R.W. Bott	Organic derivatives of silicon, germanium and tin Mechanisms of reactions of organic and organo-metallic compounds Substituent effects in electrophilic aromatic substitution Hydrogen-exchange reactions (detritiations) in organic compounds Organo-metallic compounds containing phosphorus
I.M.T. Davidson, Ph.D.	Kinetics of gas phase reactions, especially of organo-silicon compounds
R.D. Guthrie, Ph.D.	Synthesis and reactions of *N*-containing sugars
S.H. Harvey, Ph.D.	Structure and reactions of organic nitramines
S. Trippett, Ph.D.	Organo-phosphorus chemistry Reactions of phosphines, phosphonium salts and alkylidenephosphoranes

4. Engineering

Professor E.W. Parkes	Thermoelasticity: Continued studies of incremental collapse phenomena under thermal cycling Heat flow and thermal stresses in solids in which the specific heats at constant stress and at constant strain differ significantly
D.J. Cockrell	Boundary layer effects in diffusers: An investigation of the effects of the turbulent inlet boundary layer on the pressure recovery coefficient in a conical diffuser

4. Engineering (*continued*)

O.P.D. Cutteridge, Ph.D.	Synthesis of linear electrical networks: An investigation of Darlington's conjecture relating to 3-terminal RC networks Empirical relationships in the solar system ; orbit radii of satellites
E.N. Pickering, Ph.D.	Synthesis of RLC, N-terminal networks
R.F.D. Porter Goff	Synthesis of structures : direct design for minimum weight
R.W. Maxwell, Ph.D.	Drying processes
J.J. Thwaites	Non-linear vibrations
J.M. Nightingale, Ph.D.	Optimal control processes : Computer control of a small scale chemical plant Adaptive temperature control in production processes End-point control of vehicle trajectories Bio-engineering : an autonomic prosthesis
R.N. Swamy, Ph.D.	Physical properties of concrete : Torsional behaviour of plain, reinforced and prestressed concrete sections Combined stresses Plastic design
M.T.G. Hughes, Ph.D.	Adaptive control systems: Methods of identifying dynamic characteristics of systems operating in the presence of noise

5. Geography

Professor N. Pye	Environmental relations of soil associations Dynamic and synoptic climatology Arid regions Cartographic method and techniques The Border country
W. Kirk	Indian Ocean area Environmental archaeology of Scotland Geographical methodology
R. Millward	Historical geography of 19th century England The Mediterranean Lake District : historical geography
A.H.W. Robinson, Ph.D.	Shallow water morphology Lake District : physiography
K. Warren, Ph.D.	Economic geography of the British iron and steel industries since 1850
K.L. Wallwork	Historical and economic geography of N.E. Lancashire Industrial land use and evolution of landscape in areas of extractive industry Historical geography of 19th century England
F. Oldfield, Ph.D.	Pollen analysis and the Quaternary history of S.W. France Late and post-glacial ecological history of the S.E. Lake District
R.J. Rice	Glacial drift of the E. Midlands
J.C. Crossley	Agricultural colonization in Latin America
J.C. Goodridge	Economic geography of the copper mining industry of W. Devon and Cornwall, 1800–1890

6. Geology

Professor P.C. Sylvester-Bradley	Jurassic stratigraphy Micropalaeontology, especially of Ostracoda Stratigraphical, morphological and evolutionary palaeontology of Mesozoic oysters (Ostreidae) Jurassic ammonites (Dactylioceratidae) and Jurassic brachiopods (Zeilleriidae)

6. Geology (*continued*)

J.H.McD. Whitaker	Stratigraphy, palaeontology, geochemistry and sedimentary petrology of the Silurian and Devonian rocks of England and Norway
M.J. Le Bas, Ph.D.	Petrology and mineralogy of the basic, intermediate and acid igneous rocks of the Carlingford complex, Co. Louth, Ireland
	Distribution of trace elements in the plagioclase, pyroxene, olivine and ore of the Carlingford gabbros
	Role of aluminium in igneous clinopyroxenes
	Geochemistry of the pyroxene-hornfels at Carlingford
	Geochemistry of vanadium at high temperatures
T.D. Ford, Ph.D.	Carboniferous stratigraphy, palaeontology and micropalaeontology, especially the Lower Carboniferous of Derbyshire and Leicestershire
	Geological aspects of speleology
	Quaternary stratigraphy of Leicestershire
	Pre-Cambrian fossils
A.M. Evans, Ph.D.	Economic geology of mineral deposits; ore microscopy
	Geology of Charnwood Forest
	Metamorphic and structural geology, especially of Grenville Series in S.E. Ontario, Canada
	Geology of the Bicroft uranium mine, Ontario, Canada

7. Mathematics

Professor R.L. Goodstein, Ph.D., D.Litt.	Mathematical logic Recursive number and function theory
E.V. Whitfield	Classical mechanics
H.F. Downton	Mathematical statistics
E.J.F. Primrose, Ph.D.	Algebraic geometry
R.O. Davies, Ph.D.	Theory of measure
N.A. Bowen, Ph.D.	Integral functions
A.J. Knight, Ph.D.	Algebraic geometry
A. Weinmann, Ph.D.	Mathematical physics
A.J. Cole, Ph.D.	Computation
N.A. Rahman, Ph.D.	Mathematical statistics

8. Physics

Professor E.A. Stewardson, Ph.D. J.E. Wilson T.B. Jones, Ph.D.	X-ray spectroscopy
Professor E.A. Stewardson, Ph.D. K.A. Pounds, Ph.D. P.C. Russell, Ph.D.	Space research (solar and stellar X-ray emissions)
E. Mathieson, Ph.D. V.A. Briglmen (Miss), Ph.D.	Photo-nuclear processes
W.E. Spear, Ph.D.	Conduction processes in semiconductors and insulators
C.A. Haywood	Interaction between low-energy protons and atoms (theoretical)
K.E. Banyard, Ph.D.	Molecular orbitals (theoretical)

9. Psychology

Professor S.G.M. Lee, Ph.D.	Epidemiological research in African psychopathology Research into mechanisms of defence and readiness in perception and recall
W.S. Sluckin, Ph.D.	Research into early learning in animals

10. Zoology

Professor H.P. Moon	Ecology and systematics of *Asellus*
J. Moody (Miss)	Host-specificity in larval and adult digenes of freshwater fishes
D.M. Guthrie, Ph.D.	Studies on the anatomy and physiology of the insect nervous system
M. Sage, Ph.D.	Endocrine system and adaptation to environmental change in fish
L.M. Cook, D.Phil.	Genetics and evolution of natural populations

16 Liverpool University

1. Anaesthetics

Professor C. Gray, M.D.	Effects of CO_2 imbalance during anaesthesia and on relaxant agents
	Reactions of patients under light anaesthesia
	Initiation of respiration in patients with hypocapnoea
I.C. Geddes, M.D.	Metabolism of lignocaine $C^{14}$and carbocaine C^{14} in vivo and in vitro
	Electroencephalographic studies during anaesthesia
	Studies with tritium-labelled local anaesthetics
	Blood volume studies during anaesthesia
	Studies on plasma d-tubocurarine chloride during anaesthesia
J.R. Riding	Clinical study of intravenous induction agents
G.J. Rees and associates	Research into anaesthetic circuits for infants and children
	Abnormal responses to depolarizing relaxants
	Investigations into minor anaesthetic morbidity
J.E. Utting	The influence of changing patterns of controlled ventilation on patients with chronic bronchitis and chronic emphysema
	Problems associated with post-operative apnoea
D. Joseph	Effects of analgesic and anaesthetic agents on an autonomic visceral reflex response in cats
G.H. Bush	Some clinical effects on hyperventilation

2. Anatomy

Professor R.G. Harrison, D.M.	The vascularization of endocrine glands
	Factors influencing spermatogenesis
	Experimental morphology of the adrenal cortex
J.L. Braithwaite, M.D., Ph.D.	Splenic circulation
	The vascularization of tumours in experimental animals
E.W. Macmillan, M.B.E., M.D.	The rate of passage of radiopaque medium along the ductus epididymidis
E.J. Clegg, Ph.D.	The effects of chronic decompression on the experimental animal
	Artificial cryptorchidism
D. Bowsher, M.D.	The manner and location of formation and absorption of cerebro-spinal fluid in normal and abnormal animals; the problem of hydrocephalus
	Secondary sensory pathways within the central nervous system
G.A. Harrison, D.Phil.	Heat acclimatization and heat shock
	Inheritance of human skin colour
	Functional taxonomy

3. Biochemistry

Professor R.A. Morton, Ph.D., D.Sc., F.R.S.	Mode of action of fat-soluble vitamins, ubiquinones, etc. Lipid metabolism; nutrition Chemistry of vision Biochemical spectroscopy
J. Glover, Ph.D., D.Sc.	Tracer techniques in vitamin research, especially vitamin A Sterol metabolism Biosynthesis of sterols and ubiquinones
H.K. King, Ph.D.	Microbiological studies; lipids of metabolic significance
G.A.J. Pitt, Ph.D.	Chemistry of vision Metabolism of long-chain alcohols and unsaturated acids Vitamin A-active compounds
C. Green, Ph.D.	Structure and function of lipoproteins
F.W. Hemming, Ph.D.	Lipid metabolism; minor lipid constituents
M.M. Barnes, Ph.D.	Veterinary biochemistry; vitamin E metabolism
H.M. Hallaway (Miss), D.Phil.	Plant biochemistry : mode of action of plant hormones
J.F. Pennock, Ph.D.	Oxidative phosphorylation ; minor constituents of lipids

4. Botany

Professor N.A. Burges, Ph.D.	Soil microbiology and the decomposition of humus
D.A. Coult	Gas exchange in aquatic plants
E.M. Burrows (Mrs.), Ph.D.	Culture of algae in relation to problems of marine ecology Taxonomy of Chlorophyta
P.S. Dixon, Ph.D.	Cytotaxonomy of red algae
M. Hurst, Ph.D.	Metabolism of aromatic compounds by fungi
V.H. Heywood, Ph.D.	Taxonomy of European flora and biosystematics
P.W. Ball, Ph.D.	Flora of Europe and cytotaxonomy of *Salicornia*
D. Parkinson, Ph.D.	Ecological problems in soil mycology Biosynthesis of fungal metabolites
D. Boulter, D.Phil.	Structure and metabolism of nitrogen compounds of plants
A.R. Cook	Amino-acid metabolism
T.R.G. Gray, Ph.D.	Bacterial population of sand dunes and salt marshes
C.D.K. Cook, Ph.D.	Biosystematics of aquatic flowering plants
J. McNeill, Ph.D.	Biosystematics of flowering plants; taxonomy of Alsinoideae and Scilloideae
D.A. Thurman, Ph.D.	Electrophoretic studies on proteins of storage tissue
J.H. Walsh, D.Phil.	Metabolism of macromolecules by fungi
E.K. Winterhalder	Soil ecology

5. Building Studies

Professor A.W. Hendry	Temperature gradients in building elements due to solar radiation Thermal stresses in building elements Ultimate strength of reinforced concrete footings Structural dynamics of grid frameworks
with C.B. Wilson	Wind flow around buildings
P. Manning	Wind pressures on structures Selection of structural forms and materials for industrial buildings
P. Manning	Design of factory buildings Design of office buildings with particular reference to effect of technical and economic factors upon total internal environment
C.B. Wilson	Electrical simulation of the thermal behaviour of buildings Instrumentation of the thermal environment Comparison of environments illuminated by daylight and electricity

5. Building Studies (*continued*)

A.L. Britch with A.C. Benson	Long-term study of the degradation of building materials in a polluted industrial environment
B. Whitehead	Application of work study and related techniques to the design of buildings
J.E. Randell	Moisture transfer through building materials

6. Chemistry

Inorganic, Physical and Industrial:

Professor C.E.H. Bawn, C.B.E., F.R.S.	Kinetics of polymerization and oxidation reactions, with particular reference to the reaction of the free radicals in the gas phase and in solution
	Molecular size and structure of high polymers
	Thermodynamic and kinematic properties of high polymer solutions
Professor C.H. Bamford, Ph.D., Sc.D.	Mechanism of polymerization reactions in the liquid and solid states
	Reactivities of free radicals
	Reactions of metal carbonyls and related compounds,with particular reference to free radical formation
	Formation and properties of polypeptides
A. Hickling, Ph.D. D.Sc.	Electrochemistry: overpotential, glow discharge electrolysis
	Anodic behaviour of metals
F.D.S. Butement, Ph.D.	Radiochemistry
A.K. Holliday, Ph.D., D.Sc.	Study of inorganic hydrides
H.W. Douglas, Ph.D., D.Sc.	Colloid chemistry ; electrophoresis
T.B. Grimley, Ph.D.	Theoretical work on properties of solids and solutions
C.F.H. Tipper, Ph.D. D.Sc.	Chemical kinetics: thermal oxidation of hydrocarbons in gas phase and in solution
G. Skirrow, Ph.D.	Gas phase slow oxidation: free radical reactions in the gas phase
L.H. Sutcliffe, Ph.D.	Electron transfer reactions in solution; nuclear magnetic resonance
D. Brennan, Ph.D.	Heterogeneous catalysis; thermochemistry
D. Margerison, Ph.D.	Polymerization kinetics
A. Ledwith, Ph.D.	Ionic polymerization
A.M. North, Ph.D.	Polymerization kinetics
J.N. Bradley, Ph.D.	Shock tube studies
G. Hughes, Ph.D.	Chemical reactions induced by γ-radiation
D. Nicholls, Ph.D.	Complex chemistry of the transition metals
J. Feeney, Ph.D.	Nuclear magnetic resonance
H. Block, Ph.D.	Mechanism of polypeptide formation
	Studies in peptide synthesis
	Conformation and thermodynamics of polymers in solution

Organic:

Professor G.W. Kenner, Sc.D., Ph.D.	Biosynthetical, synthetical, structural and stereochemical studies of natural products, particularly alkaloids, peptides, porphyrins, fungal metabolites, bacterial metabolites and terpenoids
Professor, A.R. Battersby, Ph.D., D.Sc.	
R.J.S. Beer, D.Phil.	
F.M. Dean, Ph.D.	
J.S.E. Holker, Ph.D.	
A.H. Jackson, Ph.D.	
D.F. Shaw, Ph.D.	
R.C. Sheppard, Ph.D.	
J. Staunton, Ph.D.	
R.J. Abraham, Ph.D.	Nuclear magnetic resonance spectra of organic compounds

6. Chemistry (*continued*)

Organic (*continued*)

D. Bethell, Ph.D.	Mechanisms of organic reactions
M.J.T. Robinson, D.Phil.	Physical organic chemistry of alicyclic compounds

7. Dental Studies

Professor F.E. Lawton	
R.H. Birch	Bacteriological control in endodontics
W.R. Burston, Ph.D.	Pre-natal development of the mammalian skull
	Early dental orthopaedic treatment of cleft palate infants
Professor E.D. Farmer	Investigation of keratin producing and pre-malignant lesions in the mucosa
H.W. Ferguson	Effects of variations in nutrition on the histology of bones and teeth
D.H. Goose	Epidemiology and control of dental caries
R.L. Hartles, D.Sc.	Dental caries in experimental animals
	Effect of nutritional factors on the composition and metabolism of teeth and bones
T.H. Melville	Classification of oral actinomycetes by overall similarity
J.M. Mumford	Electrical stimulation of human teeth
W.R. Tyldesley, Ph.D.	Histopathology of ectopic salivary tumours

8. Engineering

Civil:

Professor J.B.B. Owen, D.Sc.	Geometric considerations in structural design
H. Waters	Transmission of vibration
	Approximations to the critical loads of structures
	Edge stresses in metal domes
J.A. Proudlove	Model and full scale measurements of wave pressures on sea walls
	Traffic flow studies
A. Bolton, Ph.D.	Critical loads and natural frequencies of structures
R.B. Whittington, Ph.D.	Variation of tidal ranges and movement of constructional
A.R. Halliwell	materials in natural and artificial waterways; flood relief works and harbour wave studies
G.J.W. King	Dynamic properties of soils
R. Ashworth	Strain measurements in reinforced concrete columns
P.A. Kirby	Relation between critical limit and failure loads of structures
D. Smith	Factors affecting Hvorslev shear parameters for clays

Electrical:

Professor J.M. Meek, D. Eng.	Electrical discharges in gases comprising:
Professor J.D. Craggs, Ph.D.	Collision processes in gases, in single collision and swarm conditions. Physical properties of arc, high pressure glow and spark discharges
H. Edels, Ph.D.	High current discharges
J.H. Leck, Ph.D.	Vacuum physics
M.R. Barrault	Metal and semiconductor surface reactions in high vacuum systems
G. Carter, Ph.D.	Avalanche breakdown in semiconductors
J. Durnford	
J.A. Harrison, Ph.D.	
K.R. Hearne, Ph.D.	
J.J. Lennon, Ph.D.	
J. Lucas, Ph.D.	
A.B. Parker, Ph.D.	
A.N. Prasad, Ph.D.	
D. Whittaker, Ph.D.	

8. Engineering (*continued*)

Electrical (*continued*)

A.S. Aldred, Ph.D.	Power system analysis. Analogue computer studies of power systems including nuclear reactors
J.W. Lynn, Ph.D.	
C.V. Jones, Ph.D.	Unified electromagnetic field and circuit theory

Fluid Mechanics:

Professor J.H. Preston	Turbulent boundary layers and turbulent skin friction Distributed roughness in relation to frictional resistances
J.F. Norbury, Ph.D.	Diffusers and associated secondary flows
J.C. Gibbings, Ph.D.	Electrostatic charges arising from fluid dynamic causes
N.G. Calvert, Ph.D.	Study of aortic flow
R. Shaw	Accuracy of static pressure measurements

Mechanical:

Professor J.H. Horlock R. Shaw S.L. Dixon M.D.C. Doyle C.P. Walker	Flows in compressors, turbines and cascades of compressor and turbine blades
K. Ball M. McChesney, Ph.D.	Magneto-gas-dynamic studies using shock tubes
H. Barrow	Turbulent heat transfer Coupling between non-uniform heat transfer and vorticity
G.B. Bishop	Neutron flux depression
W.A. Woods, Ph.D. R.D. Pearson	Transient gas flow in internal combustion exhaust systems
D.J. Ryley, Ph.D.	Coalescence and sampling of steam-borne water droplets
P.B. Mellor, Ph.D. F. Drabble	Elastic plastic deformation of thick cylinders due to pressure and radial temperature gradients
J. Halling	Extrusion studies using wax as a model material
B.G. Brothers	Friction and wear in rolling contacts

9. Genetics

Professor P.M. Sheppard, D.Phil.	Population and clinical genetics
S. Walker, Ph.D.	Chromosome cytology of plants and man
B.S. Cox, D.Phil.	Genetics of yeast and bacteria
J.J.B. Gill	Cytogenetics of plants

10. Geography

Professor R.W. Steel	Problems of land and population in tropical Africa
E. Brooks, Ph.D.	Development areas; economic geography of Poland
E.M. Driscoll	Geomorphology of the N.W. Pennines, S. Wales and Australasia
S. Gregory, Ph.D.	Climatology of the British Isles and of parts of the tropics, especially W. Africa Rainfall and water supply in the British Isles and W. Europe Statistical methods in geography Geomorphology in Wales and W. Africa
R.K. Gresswell, Ph.D.	Geomorphology of N. W. England and of the Isle of Man; fluvio-glacial deposits; coastal deposition, erosion and control
J.B. Harley, Ph.D.	Medieval historical geography of the English Midlands History of British cartography
B.M.C. Husain	Economic and social geography of the U.S.S.R.
J.M. Kenworthy (Miss)	Tropical climatology, especially of Africa Regional geography of E. Africa

10. Geography (*continued*)

R. Lawton	Historical geography of population change and movement in Britain and of the Industrial Revolution in Britain. Journeys to work in England and Wales
J.A. Patmore	Urban geography. Transport geography of the British Isles
A.W. Phillips (Miss) Ph.D.	Coastal geomorphology with special reference to E. Yorkshire and Morecambe Bay
R.M. Prothero	Medical geography and population movements in Africa: land and population in Nigeria
W. Rollinson	Historical geography of settlement with particular reference to Cumbria Historical cartography Social geography
E.S. Simpson	Economic geography of the British Isles
M.F. Tanner	Urban geography Regional planning with particular reference to overspill and the location of industry

11. Geology

Professor W.S. Pitcher, Ph.D.	Studies of the granitic and metamorphic rocks of Co. Donegal; the appinitic rocks and their associated explosion breccias in Donegal and Argyll ; the Port Askaig Boulder Bed in Ireland and Scotland
J.C. Harper, Ph.D.	Lower Palaeozoic faunas (Berwyn Hills and S.E. Ireland)
C.D.V. Wilson, Ph.D.	Geophysical exploration (Irish Sea, Banffshire) ; telluric currents and geomagnetism; palaeomagnetism of layered intrusions
D. Flinn, Ph.D.	Metamorphic and structural petrology of the eastern half of Mainland and associated islands, Shetland Theoretical studies of rock deformation
R.G.C. Bathurst	Carbonate sedimentation on the Great Bahama Bank; diagenesis in modern and ancient carbonate sediments; sedimentations and faunas of the Carboniferous Limestone (Halkyn region, Flintshire)
N. Rast, Ph.D.	Structural and metamorphic studies in the Central Highlands (Ben Vrackie to Taynuilt) Structural, stratigraphic and geochemical studies in N. Wales (Portmadoc to Conway) Problems of crystal growth and geochemistry in metamorphic rocks Acid vulcanism
M.P. Atherton, Ph.D.	Partitioning of elements between co-existing materials in metamorphic rocks
J.S. Watterson	Pre-Cambrian geology of South Greenland with specia reference to chronological classification of reactivated areas, and kinematic aspects of migmatization

12. Histology

N.M. Hancox, M.D. J. Kruszynski, M.D. E.B. Beckett (Miss),Ph.D. B. Boothroyd, Ph.D. J.J.T. Owen L.M. Kellas (Miss), Ph.D.	Electron microscope, histochemical and tissue culture studies on bone; freeze methods in cytochemistry; micro-ciné-photography. Micro-incineration and measurement of refractive index of tissue sections. Cytochemistry and electron microscopy of muscle infected with *Trichinella spiralis* and *filaria*. Electron microscopy of skin.

13. Marine Biology

MARINE BIOLOGICAL STATION, PORT ERIN, ISLE OF MAN

J.S. Colman (Director)	Chaetognatha Deep-sea plankton
N.S. Jones, Ph.D.	Bottom faunas Taxonomy of cumaceans
D.I. Williamson, Ph.D.	Zooplankton of the Irish Sea Decapod larvae Plankton methods and technique
A.B. Bowers	Biology of fish Manx herring fishery Scallop fishery
D.J. Slinn	Chemical hydrography of Irish Sea Parasites of fish Ecology of brackish water
N.S. Jones (Mrs.), Ph.D.	Culture of microscopic marine algae Ecology of sub-tidal seaweeds
G. Russell, Ph.D.	Life histories and taxonomy of algae
L.D. Gruffydd	Fisheries

14. Mathematics

Applied:

Professor L. Rosenhead, C.B.E., F.R.S.	Fluid dynamics Bibliography of mathematical tables
G.R. Baldock, Ph.D.	Molecular and crystal structure
F. Booth	Electrokinetic effects Fluid dynamics
R.H. Boyer, Ph.D.	Relativity and mathematical physics
T. Bridgeman, Ph.D.	Numerical analysis Mathematics of colorimetry
M.G.J. van der Burg, Ph.D.	General relativity
S.D. Daymond, Ph.D.	Fluid dynamics
D.G. Drake, Ph.D.	
A. Fletcher, Ph.D.	Tabulation of mathematical functions Bibliography of mathematical tables
T.A.S. Jackson, Ph.D.	Cartesian tensors Integral harmonics
A.E. Kingston, Ph.D.	Atomic physics
P.J. Message, Ph.D.	Dynamical astronomy
C.B. Rayner, Ph.D.	Differential geometry and relativity
R. Shail, Ph.D.	Mathematical physics
R.M. Terrill, Ph.D.	Fluid dynamics; numerical analysis
W.E. Williams, Ph.D.	Diffraction theory, radio propagation and magneto-hydrodynamics
J. Aitchison M.C.K. Tweedie	Mathematical statistics
A. Young, Ph.D.	Geodynamics; numerical analysis
A. Kirk	Automatic computing and logical design of electronic computers
J.M. Watt	Numerical analysis; automatic programming of computers

Pure:

Professor A.G. Walker, D.Sc., F.R.S.	Differential geometry, Lie group theory and relativity
T.J. Willmore, Ph.D.	Differential geometry in the large
T.M. Flett, Ph.D.	Theory of functions
B.J. Maitland (Miss), Ph.D.	Topology; homotopy theory

14. Mathematics (*continued*)

Pure (*continued*)

W.F. Newns, Ph.D.	Analytic topology
A.J. Ledger, Ph.D.	Differential geometry in the large
M.C.R. Butler, Ph.D.	Algebra
G. Horrocks, Ph.D.	Algebraic geometry
F. Rayner, D.Phil.	Algebra; ideal theory
S. Robertson, Ph.D.	Differential topology
R. Brown, Ph.D.	Algebraic topology
I.R. Porteous, Ph.D.	Algebraic and differential geometry
R.L.E. Schwarzenberger, Ph.D.	Differential topology and algebraic geometry
M.C. Irwin, Ph.D.	Geometrical topology
J.W. Rutter	Algebraic topology

15. Medicine

Professor Lord Cohen of Birkenhead, M.D.	Lipoidoses Collagen diseases Fundamental concepts in medicine
C.A. Clarke, M.D. R.B. McConnell, M.D.	Human genetics
D. Price Evans, M.D.	Pharmacogenetics
J.C. Woodrow, M.D. R. Finn, M.D.	Immunochemistry
G. Thompson, M.D.	Genetics of diabetes mellitus
R. Harris, M.D.	Blood groups in relation to infectious disease

16. Metallurgy

Professor W.S. Owen, Ph.D.	Isothermal transformation characteristics of iron-carbon-manganese alloys Kinetics of bainite formation in Fe-Mn-C alloys Yield phenomena in tantalum and niobium The variation of Ms with solute concentration in alloys with a restricted γ-field Kinetics of the tempering of martensite
C. Bodsworth, Ph.D.	Measurement of the activity of carbon and nitrogen in ternary alloys of iron by gas equilibria methods Kinetics of tempering iron-nitrogen alloys and chromium steels
J. Burke, Ph.D.	Kinetics of graphitization of white irons Kinetics of isothermal transformations in uranium-chromium and related alloys Lattice defects in pure iron
J. Stringer, Ph.D.	Oxidation of tantalum, vanadium, niobium, and binary and ternary alloys of titanium Galvanomagnetic effects in Group II metals
A.S. Appleton, Ph.D.	Energy relations during cold working of metals Deformation by twinning in face-centred cubic metals Metallurgical effects of explosive shock waves
D. Hull, Ph.D.	The martensite transformation Study of deformation phenomena in terms of crystal defect theory Electron microscopy of thin films of metals and alloys
G.T. Higgins, Ph.D.	Recrystallization and deformation textures in hexagonal metals Transformation kinetics in zirconium alloys
W. Jolley	Deformation and fracture of silicon

17. Microbiology

Bacteriology:

Professor A.W. Downie, M.D., D.Sc., F.R.S.	The pox group of viruses Variation in viruses
K.R. Dumbell, M.D.	Measles, varicella-zoster and rubella
K. McCarthy, M.D.	Antigenic analysis of viruses
A. Caunt (Miss)	
C.J.M. Rondle, Ph.D.	
H. Bedson	

18. Obstetrics and Gynaecology

Professor T.N.A. Jeffcoate	Stress incontinence of urine Inter-sex
H.H. Francis	*Trichomonas vaginitis* Adrenal insufficiency in pregnancy
W. Francis (Mrs.)	Bladder disturbances
B.M. Hibbard	Abruptio placentae Localization of placenta by radioactive isotopes
A.S. Woodcock	Gynaecological pathology Cytology
V.R. Tindall	Gonadotrophin assays using immunological methods

19. Oceanography

Professor K.F. Bowden, D.Sc.	Circulation in estuaries and coastal seas. Turbulence
J.P. Riley, D.Sc.	Analytical chemistry of sea water, and geochemistry of sea water and marine sediments
P. Hughes	Mixing processes in a tidal estuary Influence of wind on water movements
M.R. Howe	Water movements in the Irish Sea
R. Chester	Geochemistry of recent carbonate sediments

TIDAL INSTITUTE AND OBSERVATORY

J.R. Rossiter, D.Sc.	Tide models
G.W. Lennon N.S. Heaps M.T. Murray	Design and construction of tide gauges and tide-predicting machines Methods of analysis and prediction of tides Storm surges in British waters Tidal charts in seas and oceans Variations of mean sea level Earth tides

20. Ophthalmology

J.A. McCann	Clinical research into various aspects of treatment of amblyopia Antinuclear factors in cranial arteritis Tobacco amblyopia and vitamin B_{12} metabolism The aetiology of amaurosis fugax Retinal circulation in vascular disease of the retina Radioactive phosphorus in the diagnosis of intra-ocular tumours Occlusion of the central retinal artery and carotid stenosis Radioactive iodine studies of flow in the carotid arteries Treatment of uveitis with special reference to prostatitis Investigation of pupillary response to sympathomimetic drugs in different ethnic groups

21. Otorhinolaryngology

A. Tumarkin (Director)	Audiology: (i) correlation between hearing aid characteristics and auditory defects; (ii) correlation between decibel, phon and sone
R. Pracy	
H. Zalin	
M. Wipat	Clinical otology: (i) aetiology of exudative otitis media, pre-epidermosis and epidermosis; (ii) dynamics of Eustachian tube in tympanomanometry and pneumophonometry with particular reference to Ménière's syndrome
M. Horowitz	
	Neuro-otology: electronystagmography and electroencephalography
	Morphology : (i) significance of bone conducted hearing in low animals; (ii) audiology range of Ostariophysi

22. Paediatrics and Child Health

Professor J.D. Hay, M.D.	Congenital cardiovascular disorders
H.G. Farquhar	
E. Goldblatt	
R.S. Jones, M.D.	
F.P. Hudson	The dietary treatment of phenylketonuria
S.E. Keidan	Leukaemia in childhood
	Trial of actinomycin D in childhood cancer
J.R. Roberts, M.D.	Neurological conditions in childhood
R.W. Smithells	Registry of congenital abnormalities
	Thalidomide and other drugs in pregnancy
R.M. Todd, M.D.	Assessment of physical, mental and emotional status after
J. Neville	tuberculous meningitis
R.M. Todd, M.D.	Electrophoretic pattern of serum proteins in paediatric disorders
	Corticosteroids in the treatment of nephrotic syndrome
R.M. Todd, M.D.	Measles vaccination
K. McCarthy, M.D.	
R.M. Todd, M.D.	Digitalis in respiratory distress syndrome
R.W. Smithells	
R.S. Jones, M.D.	Investigation of asthmatic children and therapeutic measures by respiratory function tests

23. Pathology

Professor H.L. Sheehan, M.D., D.Sc.	Pathology of kidney
A.H. Cruickshank, M.D., Ph.D.	Carcinogenesis
J. Watt, M.D.	Studies on gastric secretion in the guinea-pig
J.C. Davis, M.D.	Endocrine pathology
R. Carroll, M.D.	Pathology of liver
H.D. Cheetham, M.D.	Endocrine pathology
A. Kennedy	Plasma electrolytes
A.P. Wade, Ph.D.	Endocrine chemistry

24. Pharmacology and Therapeutics

Professor A. Wilson, M.D., Ph.D.	The natural history, causation and treatment of myasthenia gravis
J.B. Roberts	Studies of the thymus gland in rats
H. Wilson, M.D., Ph.D.	Hypothermia and drug action
	A study of the hemi-choliniums
	Urinary catechol amines in normal and hypertensive subjects
C.W.M. Wilson, M.D., Ph.D.	Endocrine and neurological factors affecting gastric morphology
	The action of drugs on the central nervous system

24. Pharmacology and Therapeutics (*continued*)

P.T. Nowell, Ph.D.	The thymus gland. Metabolism of drugs
A. Knifton	The action of drugs on the pig uterus

25. Physics

Experimental:

Professor J.M. Cassels, F.R.S.	High energy physics
*Professor A.W. Merrison	
B. Collinge, Ph.D.	High energy physics using 380 MeV cyclotron
W.H.R.F. Muirhead, Ph.D.	
J.R. Wormald, Ph.D.	
S.G.F. Frank, Ph.D.	
A.N. James, Ph.D.	
G.R. Court, Ph.D.	
M.J. Moore	Plant engineering
L.L. Green, Ph.D.	Nuclear physics, using tandem Van de Graaff generator
J.C. Willmott, Ph.D.	
G. Parry, Ph.D.	
P. Dagley, D.Phil.	
P.T. Andrews, Ph.D.	
I.G. Main, Ph.D.	
W.H. Evans, Ph.D.	Liquid hydrogen bubble chambers
D.N. Edwards, Ph.D.	
P. Mason, Ph.D.	
R.A. Donald, Ph.D.	
J.R. Holt, Ph.D.	Electron synchrotron design
H.D. Parbrook, Ph.D.	Acoustics
M.G. Davies, Ph.D.	
W. Tempest, Ph.D.	
R. Holmes, Ph.D.	
D.G.E. Martin	β-ray spectroscopy

Theoretical:

Professor H. Fröhlich, D.Sc., Dr.Phil., F.R.S.	Theory of superconductivity. Field theory Theory of solids
R. Huby, Ph.D.	Nuclear physics
G.R. Allcock, Ph.D.	Quantum field theory
H.C. Newns, Ph.D.	Nuclear physics
G. Rickayzen, Ph.D.	Theory of superconductivity

26. Physiology

Professor R.A. Gregory, D.Sc., Ph.D.	Gastric secretion
T.G. Richards, M.D., Ph.D.	Circulation in special regions of the body
E.R.L. O'Maille	
A.H. Short	
I. Calma, M.D.	Neurophysiology
G. Kidd, Ph.D.	
D.V. Roberts, M.D.	
H.J. Tracy	Gastric secretion
A.G. Singleton	Ruminant physiology
K.D. Neame, Ph.D.	Amino-acid transport

*Director, National Institute for Research in Nuclear Science Electron Laboratory

27. Psychiatry

S.B. Hall, M.D. (Director)	Psychological reactions to physical illness
R.R. Hetherington, Ph.D.	
M.S. Spelman	
P. Ley	
C. Jones (Miss)	
R.R. Hetherington, Ph.D.	Alcoholism
	Assessment of handicapped children
D.H. Miller	Personality and intellectual changes following mitral valvotomy
	Psychiatric syndromes associated with cancer
E.J. Simpson (Miss)	Pre-morbid personality of patients suffering from cancer

28. Psychology

Professor L.S. Hearnshaw	Psychology of time
	History of British psychology
A. Crawford (Miss), Ph.D.	Ability and achievement in junior schools
D. Straker	Vocational guidance: industrial training
D.B. Bromley, Ph.D.	Methodological and conceptual issues in the study of personality and adjustment
G.W.H. Leytham	Perceptual thresholds. Conditions affecting animal learning

29. Public Health and Social Medicine

Professor A.B. Semple	Health aspects of ionizing radiations
	Public health administration with special reference to prevention of atmospheric pollution and the influence of housing on health
	Social aspects of disease
J.B. Meredith Davies, M.D.	Domiciliary treatment in pulmonary tuberculosis
	Domiciliary and occupational therapy services of handicapped persons
E.M. Ramsay	Investigation into the causes of home accidents
T.L. Begg	Employment of mentally subnormal in sheltered conditions
T.L. Hobday, M.D.	Investigation into the source of contamination of imported hides by anthrax bacillus
W. Drawneek	Epidemiology of cardiovascular conditions and of enteroviruses

30. Radiodiagnosis

P.H. Whitaker, M.D.	Radiological changes in pneumoconiosis associated with in tin oxide smelters
A.J. Robertson, M.D.	
J.A. Ross	Urethro-cystography in paraplegic by cine-radiography with image intensifier
R.W. Galloway, M.D.	Experiments in pancreatic visualization
	Radiological assessment in mitral stenosis
G. Scarrow, M.D.	Use of isotopes in estimating blood flow speeds in peripheral vessels during arteriography
	Chronic obliterative lung disease and cor pulmonale in hospital practice
	Vertebral blood flow in stenosing conditions

31. Surgery

Professor C.A. Wells	Post-gastrectomy syndromes
	Ileus
	Post-operative intestinal motility

31. Surgery (*continued*)

D. Annis, M.D.	Physiology of micturition
R. Brearley	Serum proteins after portal systemic shunting
	Liver blood flow
	Liver tumours
A.C. Chatterjee	Duodenal ulcer
J.K. Edmondson	Cancer chemotherapy
E.C. Edwards, M.D.	Anuria and artificial kidney
	Recovery of renal function: radioisotope studies
F.R. Edwards, M.D.	Cardiac surgery
	Myastheria gravis
	Pulmonary ischaemia
I. Forshall (Miss)	Aetiology and histology of undescended testes
	Results of treatment of hare lip and cleft palate
	Malignant disease of genital tract in female children
	Duplications of the intestine
	Neonatal morbidity and mortality
	Prognosis for children undergoing operation during the first weeks of life
	Statistical survey of first six years' admissions to neonatal surgical unit
C.R. Helsby	Experimental urolithiasis
J.H. Johnstone	Vesico-ureteric reflux
J.B. Laine	Vein grafts and lymphatic studies
P. Lynch	Sterilization ; post-operative sepsis
I.W. MacPhee, M.D.	Cell energy and cation exchanges
	Renal infarction
A.J. Marsden	Results of herniorrhaphy
	History of hernial repair
P.P. Rickham	Aetiology of congenital malformation
	Intravenous fats: metabolic studies in neonates
	Meningomyelocoeles
	Extensive small gut resections
	Congenital obstructive jaundice
J.C. Ross	Neurogenic bladder
	Renal failure in obstructive uropathy
	Micturition "uroflowmetry"
	Calcification in genito-urinary tuberculosis
L.J. Temple	Aortic valve repair and replacement
L.F. Tinckler	Intestinal motility after surgery
	Post-operative absorbtion of water from small intestine
	Fluid and electrolyte requirements of surgical patients in the tropics
	Vein grafts and lymphatic studies
R.S. Todd	Body temperature during operations

32. Venereology

E.E. Prebble, M.D.	Action of new drugs in the treatment of the various venereal and non-venereal diseases normally seen in the clinics
C.D. Alergant, M.D.	
E. Rees (Mrs.), M.D.	Investigation into sensitivity of the *Gonococcus* to penicillin

33. Veterinary Studies

Anatomy:

Professor A.S. King, Ph.D.	Avian breathing. Age changes in the intervertebral disc
T.D. Glover, Ph.D.	Transport and fate of gametes
G.K. Benson, Ph.D.	Hormonal control of lactation

33. Veterinary Studies (*continued*)

Animal Husbandry:

J.O.L. King, Ph.D.	Influence of disease on the composition of cows' milk Influence of the composition of the ration on the response of growing poultry to certain dietetic additives
R. Ewbank	Effect of different management factors on the development of young animals
D.W. Robinson, Ph.D.	Dietary variations in amino-acids and energy and the performance of growing pigs

Clinical:

Professor J.G. Wright	Surgical techniques in horses and cattle
P.A. Neal	Anaesthesia in horses and cattle
H.E. Ritchie G.B. Edwards	Treatment of granulating wounds in the horse by skin grafting. Equine electrocardiography and phonocardiography
	Infertility in bovines. Diagnosis of disease in the bovine abdomen. Study of the descent of testicles in the bovine species. Estimation of the erythrocyte sedimentation rate in cattle
	Sedation and anaesthesia in pigs
J.O. Joshua L. Arnall	Canine leptospirosis. Canine intervertebral disc protrusion. Diabetes in the cat
	Diseases of cage birds
	Canine intra-ocular and orthopaedic surgery Tissue transplantation and grafting techniques

Pathology:

Professor D.L. Hughes	
A. Buxton, Ph.D.	Immunological studies on salmonellosis and colibacillosis in animals
J.R. Thomlinson	Immunological studies on *Escherichia coli* infections in pigs
D. Allan	Immunopathological studies on enteric infections in animals
J.M. Howell	Response of central nervous system white matter to injury

Preventive Medicine:

Professor E.G. White	Urinary calculi in dogs
F.T.W. Jordan, Ph.D.	Respiratory diseases of poultry
A.G. Singleton	Physiology of ruminant digestion
G.S. Walton	Dermatology

34. Zoology

Professor R.J. Pumphrey, Sc.D., F.R.S.	Comparative physiology of special senses
C.L. Smith, Ph.D.	Physiology of amphibia
J.W. Jones, D.Sc.	Growth and reproduction of fish
	Limnology of some N. Wales lakes
	Problems of coarse fish conservation: salmon rearing in mountain tarns
H.B.N. Hynes, D.Sc.	Freshwater Amphipoda
	Water pollution
	Ecology of mountain stream
	Plecoptera
J.N. Ball, Ph.D.	Endocrinology of lower vertebrates
R.O. Brinkhurst, Ph.D.	General limnology
C.J. Duncan, Ph.D.	Molluscan physiology. Taste in birds
J.C. Chubb, Ph.D.	Parasites of freshwater fish

34. Zoology (*continued*)

E.A. Salzen, Ph.D.	Imprinting. Neurology and development of behaviour in birds
E. White, Ph.D.	Interaction of oyster-catcher and cockle populations
R.G. Pearson, Ph.D. with E. White, Ph.D.	Physiology of hibernation in Chiroptera Altitudinal and annual faunal variations

17 Liverpool University, School of Tropical Medicine

1. Entomology and Parasitology

Professor W.E. Kershaw, V.R.D., M.D., D.Sc.	Parasite-host-vector relations
W. Crewe, Ph.D.	
A. Siddiqui	
A.A. Ahmed	
J.N. Hodgson	
A.W. Penlington	
A. Husain	
W.W. Macdonald	Mosquito genetics and insecticides
W.Z. Coker	
M.J. Clarkson	Coccidiosis and blackhead in turkeys
L.S. Forbes	Hydatid infections
B.R. Cook	Cestode physiology
R. Augustin (Mrs.), D.Sc.	Immunochemistry
A.P. Ridges (Mrs.)	
R. Connolly	
G. Lloyd (Miss)	*Simulium*
T.R. Williams	
L.E. Obeng (Mrs.)	
S. Frost	
G. Hearnshaw (Mrs.), Ph.D.	Intelligence and parasitism

2. Tropical Medicine

Professor B.G. Maegraith, D.Phil.	Pathogenesis of lesions in malaria, etc. Response of the body to malaria, etc., with special regard to liver and kidneys Anatomy and physiology of liver circulation Effects of administration of pharmacological drugs on liver vessels Shock
M.G.N. Angus	Lipid metabolism in malaria
T. Chongsuphajaisiddhi	Liver circulation and shock in malaria
K. Devakul (Miss), Ph.D.	Water and electrolyte exchanges in the intestine
K.A. Fletcher	Electron microscopy of malaria parasites and liver cells Erythrocyte enzyme systems
H.M. Gilles	Hookworm and haemolytic anaemias Malarial nephrosis Humoral immunity to malaria
C.S. Leithead	Physiological adjustment and maladjustment to heat Water and electrolyte exchanges in the intestine
C.S. McKendrick, M.D.	Physiological basis of cardiac arrhythmias, infarction and shock
N. Puranavaj (Miss)	Enzyme systems of *Entamoeba histolytica*
A.J. Robertson, M.D.	Effects of inhalation of tin dust
M.J. Skirrow	Liver circulation and shock in malaria
A. Tella	Pharmacologically active substances in malaria
D.I. Thurnham	Effect of malaria on mitochondrial metabolism
A.R.D. Adams, M.D.	Chemotherapy of malaria and leprosy etc.
D.R. Seaton	Chemotherapy of helminthiasis, etc.

18 London University, Bedford College

1. Botany

Professor L.J. Audus, Ph.D.	The physiology of plant growth with particular reference to its hormone relationships
D.C. Spanner, Ph.D.	Translocation and transport processes in plants Electron microscopy
B.C. Sharman, Ph.D.	Leaf development in grasses and cereals
F. Rose, Ph.D.	British plant distribution and ecology with particular reference to Bryophyta
L.E. Bentley (Miss), Ph.D.	Acid metabolism
L.P. Turnbull	Fresh water algae, especially problems of sexuality and motility in unicellular forms
A.T. Bull, Ph.D.	Carbohydrate metabolism and biochemical aspects of differentiation in fungi
B.M. Faulkner	Cytoplasmic heredity of fungi with particular reference to differentiation

2. Chemistry

Professor P.B.D. de la Mare, Ph.D., D.Sc.	Kinetics and mechanisms of aromatic substitution, and of additions to olefinic systems. Reactions of allylic compounds and of organic sulphites
J.W. Smith, Ph.D., D.Sc.	The application of molecular polarization measurements to the study of some problems of molecular dynamics, molecule association and ion-pair formation The kinetics of reactions involving multivalent ions
D.M. Hall (Miss), Ph.D., D.Sc.	Configuration and reactivity of 2:2'-bridged biphenyls Spectroscopic studies of aromatic compounds
M.S. Lesslie (Miss), Ph.D., D.Sc.	Stereochemistry of biphenyl compounds
V.C.G. Trew (Miss), Ph.D., D.Sc.	The dependence of the magnetic susceptibilities of inorganic salts on their crystalline form The application of magnetic measurements to the study of ions in solution
M.M. Harris (Mrs.), Ph.D., D.Sc.	Factors influencing the racemization rate of certain classes of optically labile compounds Equilibria involving optically labile compounds
K.E. Howlett, Ph.D., D.Sc.	Kinetic studies of redox reactions
J.G. Tillett, Ph.D.	The kinetics and mechanism of organic reactions
M.E.Farago (Mrs.), Ph.D.	Mechanisms of reactions and structures of inorganic complexes

3. Geography

Professor G. Manley, D.Sc.	Late and post-glacial climatic fluctuations
D.K. Smee (Miss), Ph.D.	Historico-geographical aspects of British agricultural practice
A.B. Mountjoy	Economic geography and demography of Egypt, the Middle East and N. Africa
E.C. Vollans (Miss)	Historical geography: English Midlands
C. Embleton, Ph.D.	Geomorphology: N. Wales
M. Chisholm	Location of economic activity in relation to transport: rural land use and settlement

4. Geology

Professor B.C. King	Structural study of the Braemar area of Aberdeenshire Alkaline igneous rocks: E. Uganda; Loch Borolan, N.W. Highlands, Scotland

4. Geology (*continued*)

C.H. Holland	Stratigraphy and palaeontology of Silurian rocks of the Dingle Peninsula, Co. Kerry
with B.A. Sturt, Ph.D.	A re-study of the Ingletonian series
G.M. Dunlop (Miss), Ph.D.	Stratigraphy and palaeontology of the Clew Bay area, Mayo, Eire
	Carboniferous of the S.W. seaboard of Scotland
B.A. Sturt, Ph.D.	Metamorphic and igneous rocks of the islands of Söröy and Sieland, N. Norway
P.H. Banham, Ph.D.	Metamorphism and structures of basement gneisses and supracrustal metasediments of the North Jotunheim mountains, Norway
	Glacial tectonics in East Anglia
E.C. Appleyard	Petrogenesis of metasomatic nepheline-bearing gneisses at Wolfe, E. Ontario, Canada
	Geochemistry of silica-poor amphiboles from the Wolfe Nepheline Belt, Ontario

5. Mathematics

Professor H.G. Eggleston, Sc.D.	Hausdorff measure
	Convex sets
G.T. Kneebone, Ph.D.	Logic

6. Physics

Professor H.O.W. Richardson	Nuclear physics ; magnetic spectrometry
J.F. Barnes, Ph.D.	Theory of solids
N.E. Hill (Miss), Ph.D.	Dielectric properties of liquids at microwave frequencies
V.I. Little, Ph.D.	Structure of liquids; Mössbauer effect
R. Mansfield, Ph.D.	Transport phenomena in semiconductors and their magnetic properties
L. Pincherle, Dott.Fis.	Theory of metals and semiconductors
P.Rice-Evans, Ph.D.	Experimental nuclear physics
R.N. Thomas	Optical model of the nucleus

7. Physiology

Professor W.F. Widdas, D.Sc.	Red cell permeability to sugars
	Heart interstitial fluid changes
D.F. Cheesman, Ph.D.	Chemistry of muscular contraction
	Carotenoid-protein complexes
G. Darlow, Ph.D.	Histamine-releasing agents
E.L. Hilton (Mrs.)	Neuromuscular transmission
J. Prebble, Ph.D.	Carotenoids produced by bacteria
G.H. Wright	Permeability and membrane potentials

8. Psychology

Professor D.W. Harding	The study of personality in complex societies
	Psychological aspects of literature
J.W. Reeves (Miss), Ph.D.	Background to current studies of thinking
	Psychological aspects of aesthetics
M.M. Lawlor (Miss), Ph.D.	Social behaviour of animals
	Genetic factors in animal behaviour
	Comparative study of aesthetic preference
	Developmental processes in childhood
S. Chown (Mrs.), Ph.D.	The rigidities
	Psychological aspects of ageing
W.P. Brown, Ph.D.	Perceptual recognition of words
	Word association and related processes

8. Psychology (*continued*)

M.J. Pickersgill (Miss), Ph.D.	After effects of seen movement Effects of brain injury on perception Factors in the enjoyment of poetry Perceptual defence in hypertension

9. Zoology

Professor N. Millott, Ph.D., D.Sc.	Sensitivity to light and associated pigments Histochemistry of echinoderms
E.G. Healey, D.Phil., Ph.D.	Physiology of colour change and chromatophores; autonomic nervous system; central nervous regeneration
F.E. Ince (Miss)	Development of embryonal membranes
B.M. Gilchrist (Miss), Ph. D.	Biology of Anostraca; Crustacea
J. Green, Ph.D.	Biology of Crustacea and estuarine faunas
R.P. Dales, Ph.D.	Taxonomy and biology of polychaetes
A.J. Pontin, D.Phil.	Behaviour in ants
R.M. Pontin (Mrs.)	Physiology and ecology of Rotifera

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1. Botany

Professor C.T. Ingold, D.Sc.	Spore dispersal in fungi Aquatic fungi
K. Wilson, Ph.D.	Fine structure of cell walls and other aspects of plant anatomy
B.E. Plunkett, Ph.D.	Morphogenesis in hymenomycete sporophores
P.A. Dixon	Fungi (lower Ascomycetes)
P.J. Casselton, Ph.D.	Metabolism of unicellular algae
J.D. Dodge, Ph.D	Cytology of peridinians
J.K. Morton, Ph.D.	Plant taxonomy (W. African flora)

2. Chemistry

Inorganic:

R.A. Shaw, Ph.D.	Chemistry of silicon compounds Studies in the field of phosphorus-nitrogen chemistry and in particular of phosphonitrilic halides Other inorganic aromatic systems Boron-phosphorus compounds Inorganic polymers Symmetrical triazines Chemical reactions under the influence of electrical discharges Electrochemistry of inorganic and organo-metallic compounds Thermogravimetric and differential thermal analysis
B.C. Smith, Ph.D.	Organic compounds of boron Chemistry of uranium
B.W. Fitzsimmons	Esters of phosphorus-nitrogen compounds

Organic:

Professor W.G. Overend, D.Sc.	Carbohydrates Nucleic acids
G.H. Williams, Ph.D.	Free radical chemistry
N.R. Williams, Ph.D.	Carbohydrates
E.J. Hedgley, Ph.D.	Carbohydrates Heterocyclic compounds
R.J. Ferrier, Ph.D.	Carbohydrates
M.F. Bacon	Bacterial nucleic acids
P.M. Collins	Carbohydrates
S. McNally, Ph.D.	
J.P. O'Donohue	

2. Chemistry (*continued*)

Physical:

Professor D.J.G. Ives, D.Sc.	Thermodynamic galvanic cells Hydrogen overpotentials Anodic processes Corrosion Interfacial tension Properties of liquid mixtures Electrolytic conductance
R.W. Pittman, Ph.D.	Photochemical studies with selenium Studies of some fields of selenium chemistry Thermodynamic galvanic cells
D. Feakins, Ph.D.	Electrochemistry in liquid mixtures Acidity functions Transport properties of non-electrolytes Electrochemistry of inorganic and organo-metallic compounds
B. Capon, Ph.D.	Reaction mechanisms

3. Geography

Professor W.G. East	Political geography Historical geography
H.C.K. Henderson, Ph.D.	Agricultural geography of the British Isles
E.M.J. Campbell (Miss)	Domesday geography of England
J.F. Davis, Ph.D.	Industrial geography of the British Isles
P.G. Hall, Ph.D.	Industrial geography of London
B.T. Bunting	Crop geography of Denmark; pedology

4. Geology

A.T.J. Dollar, Ph.D.	Vulcanology, with special reference to Jan Mayen Thermal and hydrothermal studies of silicates and silicate systems Structural and modal studies of British igneous and metamorphic rocks British earthquakes Geomorphological studies in Sutherland, Devon and Cornwall
A.F. Seager, Ph.D.	Crystal growth and morphology Petrological studies in the Lizard area, Cornwall
A. Simpson	Structure and stratigraphy of the Manx Slate Series, Isle of Man, and associated intrusive rocks
F.J. Fitch	Petrological and structural studies in the Lleyn and Snowdonia, N. Wales Petrological and geomorphological studies in N. Jan Mayen
J.T. Temple, Ph.D.	Trilobite morphology and systematics Ashgillian stratigraphy and faunas
B. Roberts	Petrology and structure of the Llwyd Mawr plateau, Caernarvonshire

5. Mathematics

Professor A.C. Offord, Ph.D., D.Sc., F.R.S.	Theory of probability and its applications to analysis
C.H. Dowker, Ph.D.	Algebraic topology
P. Vermes, D.Sc.	Summation of series and transformation of series by infinite matrices
R.W. Tiffen, Ph.D.	Theory of elasticity and hydrodynamics
E.H. Kronheimer, Ph.D.	Quantum mechanics
M.R. Mehdi, Ph.D.	Functional analysis

5. Mathematics (*continued*)

J. Herszberg, Ph.D.	Algebraic geometry
D.E. Cohen, D.Phil.	Algebraic topology
D. Papert (Mrs.), Ph.D.	Functional analysis
C.S. Sharma, D.Phil.	Structure of the atom

6. Physics

Professor J.D. Bernal, F.R.S.	Theory of solids and liquids X-ray and neutron diffraction of liquids
Professor D. Bohm	Many body theory Plasma physics Fundamentals of quantum theory and relativity theory
Professor W.Ehrenberg, Ph.D., D.Sc.	Electrical properties of semiconductors and dielectrics including barrier layer problems
with J. Hirsch, Ph.D.	Electron bombardment conductivity Investigation of space charge in insulators
J.C.E. Jennings, Ph.D.	Optics of magnetic lenses and prisms used in electron spectroscopy Application of numerical analysis to electron optics Characteristic energy losses of electrons
with D.K. Butt, Ph.D.	Absolute determination of β-ray momenta
D.K. Butt, Ph.D.	High resolution electron spectroscopy and its application to measurements of γ-ray spectra Study of γ-γ and β-γ angular correlations Measurement of short life times of nuclear states Determination of the gyromagnetic ratios of excited states of nuclei
N.E. Cusack, Ph.D.	Electrical and thermal properties of liquid metals
P.T. Trent, Ph.D.	Investigations into properties of cosmic radiation underground
B.J. Hiley	Statistical mechanics Polymers and polyelectrolytes

Crystallography:

Professor J.D. Bernal, F.R.S.	Studies of composition and origin of meteorites
with C.H. Carlisle, D.Phil	Structure of organic crystals and crystalline enzymes
M.A. Rosemeyer, Ph.D.	Chemical investigations of enzymes
J.W. Jeffery, Ph.D.	Accurate structure determination of inorganic crystals and minerals Methods of measurement of X-ray intensity Investigation of the accuracy of X-ray intensity measurement
S. Chatterji, Ph.D.	Research in cement chemistry using physicochemical, X-ray and electron optical techniques
A.L. Mackay, Ph.D.	Solid state transformations Electron microscopy and diffraction Theory of symmetry
D.J. Sutor, Ph.D.	Crystal structures of nucleosides and nucleotides and related compounds
G.J. Bullen, Ph.D.	Crystal and molecular structures of phosphonitrilic and boron-nitrogen compounds

Numerical Automation :

A.D. Booth, Ph.D., D.Sc. (Honorary Director)	Logical principles in computation Design of electronic computers and associated magnetic systems Machine translation Theory of games Applications of electronic computers in medicine

6. Physics (*continued*)

Numerical Automation (*continued*)

M. Levison, Ph.D.	Machine translation
	Application of computational techniques to linguistic problems
	Statistical features of style in literature
F.D. Burgoyne	Development of automatic programming techniques
	Numerical methods

7. Psychology

Professor A. Summerfield	General experimental psychology
	Physiological psychology and psychopharmacology
	Methodological and statistical problems
	Developmental psychology and methods of assessment
	Learning, including early learning, perception and skill
J. Brown, Ph.D.	Perception, learning and information theory
K.J. Connolly	Behaviour genetics and the evolution of behaviour
	Physiology of learning in invertebrates
	Imprinting
B.M. Foss	Imitation; developmental psychology
H.M.B. Hurwitz	Behavioural variability
	Parameters of avoidance behaviour
	Counting behaviour in animals
	Sequential analysis of complex skills
	Sensory reinforcers
	Discrimination learning in birds, rodents and primates
	Problems in learning theory
	Operant-conditioning procedures
C.C. Kiernan	Exploratory behaviour in animals
T. Veness (Miss)	Aspirations of school leavers: a follow-up study
	Perception of scientific occupations
	Person perception
	Prejudice in children

Occupational:

Professor A. Rodger	Vocational guidance
	Management selection and succession
	Industrial rehabilitation
	Youth employment
	Job specification
P. Cavanagh	Vocational guidance of the handicapped
	Test construction
	Operator training
	Improvement of methods of work
	Apprentice selection
	Visual inspection
	Consistency of time-study men
	Variations in work output
	Incentive payment systems
G.A. Randell	Selection of computer programmers
	Training of punched card operators
	Selection of civil airline pilots
	Effects of automation on industrial and office work
D.L.A. Pym	Morale in industry
	Problems of change
	Supervisory training
	Vocational guidance

8. Statistics

Professor D.R. Cox, Ph.D.	Theoretical statistics. Design and analysis of experiments
G.B. Wetherill, Ph.D.	Stochastic processes
H.D. Miller	

9. Zoology

Professor W.S. Bullough with E.B. Laurence (Mrs.), Ph.D.	Physiology of cell division and of growth control
T.E. Hughes	Functional morphology and physiology of *Acarina*
I. Griffiths, Ph.D.	Developmental physiology in Salientia
R.F. Chapman, Ph.D.	The effects of changing environmental conditions on insect behaviour
J. Attridge	S. African Triassic tetrapods
U. Weidmann, D.Phil.	Reproductive and social behaviour of animals
J.B.J. Wells, Ph.D.	Biology of hypogean fauna
W.J. Cruickshank	Oogenesis in insects

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1. Aeronautics

Aerodynamics:

Professor P.R. Owen	Fluid mechanics
F.G. Irving	Supersonic flow, aeroplane stability and control
J.L. Stollery	Hypersonic flow
A.J. Taylor-Russell,	Heat transfer
J.K. Harvey	Hypersonic flow
N.C. Freeman	
G. Jackson	Low-speed aerodynamics
B.J. Belcher	Instrumentation

Structures:

Professor J.H. Argyris, D.Sc.	General static and dynamic analysis of complex structures by the matrix force and displacement methods
	Non-linear theory of deformable bodies
with S. Kelsey	Instability of sandwich panels with honeycomb core
S. Kelsey	Static and dynamic analysis of fuselages and wing of
H. Kamel	arbitrary planform; theory and experiment
K. Thomas, Ph.D.	Effect of coverbending
S. Kelsey	Fatigue of structures under programme and random
K. Thomas	loading
A.S.L. Chan	Plasticity in structures
P.W. Throsby	Kinetic heating effects on structures

2. Botany and Plant Technology

Professor W.O. James, Ph.D., D.Phil., F.R.S.	Plant respiration and cellular organization
K.L. Alvin, Ph.D.	Palaeobotany: the Wealden flora of Belgium
A.D. Greenwood	Cell structure and function, chloroplasts, flagella
	Electron microscopy
	Parasitic angiosperms
R.M. Leech (Miss), D.Phil.	Chloroplast structure and function
J.F. Levy	Timber technology: studies of wood rot and fungi
R.J. Threlfall, Ph.D.	Genetics of plant pathogens

2. Botany and Plant Technology (*continued*)

Biochemistry:

H.W. Buston, D.Sc.	Fungal decomposition of plant fibres Chemical stimulation of growth and sporulation of fungi Action of simple unsaturated lactones on enzyme systems in plants and micro-organisms
J. Russell, Ph.D.	Studies on α-amylases and protein structure

Ecology:

A.J. Rutter, Ph.D.	Growth and water relations of conifers, especially *Pinus sylvestris* Growth of grasses in relation to soil water Plant-soil relations of wet heaths
K.A. Kershaw, Ph.D.	Dynamics and aspects of non-randomness in homogeneous plant communities Taxonomy and ecology of lichens

Microbiology (*Bacteriology*):

S.E. Jacobs, D.Sc.	Soil microbiology: the formation, action and decomposition of antibiotics in the soil; the rhizosphere; the nitrogen nutrition of pioneer plants Antiseptics, their mode of action, and the laws governing their rate of action Bacterial plant diseases: *Corynebacterium fascians*, its metabolism and mode of action on the host Bacterial leaf nodules of sub-tropical plants
A.H. Dadd, Ph.D.	Adaptation
J.L. Gay, Ph.D.	Sporulation of fungi in relation to vapour pressure gradients; sporulation of yeasts

Plant Pathology and Mycology :

R.K.S. Wood, Ph.D.	Physiology of soft-rot diseases, *Verticillium* wilt of tomatoes, and neck-rot of onions (*Botrytis allii*) Wastage of citrus fruit (*Pencillium digitatum*) Seed-borne diseases of peas and celery and control by fumigation Control of rust diseases with fungicides Adaptation to fungicides especially the chlorinated nitrobenzenes Physiology of infection of plants by *Rhizoctonia solani* Physiology of mycorrhiza
B.E.J. Wheeler, Ph.D.	Studies on infection of tobacco by *Alternaria longipes* Physiology of sclerotia formation in *Sclerotium rolfsii* *Cryptostroma corticale* and the "sooty-bark" disease of sycamore
B.J. Deverall, Ph.D.	Mechanism of resistance of French beans to halo-blight disease incited by *Pseudomonas phaseolicola* Physiology of pathogenicity of *Botrytis* spp. on leaves of broad bean

**Plant Physiology:*

Professor H.K. Porter D.Sc., F.R.S. R.V. Martin I.F. Bird	Carbohydrate metabolism of leaf tissue using radioactive carbon
J. Edelman, Ph.D.	Metabolism of fructose polymers in higher plants
J.W. Hannay, Ph.D.	Photoinduction and dark CO_2 fixation in *Kalanchoe*
C.L. Mer, Ph.D.	Developmental physiology of etiolated oat plants
A.J. Keys, Ph.D.	Nucleotide metabolism in cereal seedlings
R. Hurd, Ph.D.	Vernalization in rye
K. Joy, Ph.D.	Physiology of sugar beet

*Includes A.R.C. Unit of Plant Physiology

2. Botany and Plant Technology (*continued*)

Taxonomy:

F.H. Whitehead, D.Phil.	Experimental taxonomy Experimental autecology Investigation of the effects of wind on plant growth and anatomy and their physiological significance
D.H. Dalby, Ph.D.	Experimental and herbarium taxonomy

3. Chemistry

Professor R.M. Barrer, D.Sc., Sc.D., F.R.S.

Agricultural:

A.H. Cornfield, Ph.D.	Metabolism of nitrogen in soils and composts Metabolism of nutrients in soils Mineralization and immobilization of sulphur Moisture effects on soil nutrient changes Phosphorus studies in calcareous soils

Inorganic:

Professor G. Wilkinson, Ph.D.	Cyclopentadiene and other organo-compounds of transitional metals High-resolution nuclear magnetic resonance studies of organo-metallic compounds and metal hydrides Transitional metal complexes Carbonyls Nitrosyls Structural studies Rhenium chemistry
L.S. Theobald	Standardization in EDTA titrations Applications to mineral analysis
A.J.E. Welch, Ph.D.	Chemistry and structure of mixed metal oxide systems Structural chemistry of inorganic solids with special magnetic and electrical properties Sintering and crystallization processes in solids
E.R. Roberts, Ph.D.	Mechanism of fixation of nitrogen by micro-organisms, investigated by means of isotope tracing techniques Mechanism of enzyme action with a view to identifying active sites using isotopic tracers
J.F. Herringshaw, Ph.D.	Analytical chemistry of transition elements Electrochemical methods of analysis
D.F. Evans, D.Phil.	Nuclear magnetic resonance Magnetic perturbation of singlet-triplet transitions by O_2 and other paramagnetic substances
A.J. Poë, Ph.D.	Kinetic and equilibrium behaviour of inorganic complexes
L. Pratt, D.Phil.	Nuclear magnetic resonance studies of complex ions, exchange equilibria, and related topics
R. Mason, Ph.D.	Crystallographic and magnetic studies of transition metal complexes and organo-metallic compounds Spectroscopic studies of biological macromolecules Theoretical studies of energy of charge transfer in biological systems X-ray analysis of the structure of liquids
D.M.L. Goodgame, D. Phil.	Transition metal chemistry Magnetochemical and spectral studies of co-ordination compounds
M. Goodgame, D. Phil.	Magnetic and spectral studies of co-ordination compounds Ligand molecules of biochemical significance
W.P. Griffith, Ph.D.	Chemistry and structure of peroxy-complexes Spectroscopic investigations on nitrogenous co-ordination complexes

3. Chemistry (*continued*)

Organic:

Professor D.H.R. Barton, D.Sc., F.R.S.	Theoretical and natural product chemistry
Professor L.N. Owen, D.Sc.	Synthesis and reactions of dithiols and hydroxythiols Derivatives of nitrogen mustards for cancer chemotherapy
J.A. Elvidge, Pn.D.	Conjugated macrocycles Aromaticity of heterocycles by nuclear magnetic resonance spectroscopy Imidines and derived heterocycles
E.S. Waight, Ph.D.	Anionotropic systems Ultra-violet and infra-red absorption spectroscopy
D.W. Turner, Ph.D.	Vacuum ultra-violet spectroscopy Radioactive tracer studies of hydrocarbon combustion Nuclear magnetic resonance spectroscopy
J.K. Sutherland, Ph.D.	Structural determination of a natural product Synthesis of peptides
G.W. Kirby, Ph.D.	Biosynthesis

Physical:

Professor R. M. Barrer, D.Sc., Sc.D., F.R.S.	Hydrothermal chemistry of mineral-type compounds Heats of ion exchange in crystals Cation interchange and solid state reactions of alumino-silicates Crystals as molecular and ion sieves and semi-permeable membranes Self-diffusion in ionic crystals Electrical properties of some alumino-silicates Molecular complexes of clays, zeolites and organic crystals; intracrystalline and multilayer sorption Properties of clathrate compounds Solubility and diffusion in high polymers Volume and surface diffusion in micropore systems and in single capillaries Mixture separation by flow through heterogeneous membranes and microporous beds
Professor F.C. Tompkins, D.Sc., F.R.S.	Gas-metal systems: work functions and surface potentials, rates of activated adsorption on films and powders, equilibrium adsorption, sintering in films Infra-red spectra of chemisorbed molecules Catalytic process on oxides and metals Physical adsorption on ionic crystals Dielectric relaxation and polarization measurements on adsorbed material Mechanism of decomposition of solids, and solid state reactions: researches include measurement of ionic conductance and photo-conductance; adsorption spectra; prolonged photolysis and effects of pre-irradiation on the decomposition
D. Rogers, Ph.D.	Crystal and molecular structure of natural products; statistical methods
M. Gordon, D.Sc., Ph.D.	Precision measurements of density and the state of polymerization of water in solvents Phase changes and transitions in bulk polymers Statistics of polymer reactions
B. Atkinson, Ph.D.	Kinetics of the thermal reactions of fluoro-olefines and cyclic fluorine compounds Photochemical oxidation reactions of quinones and dyes

3. Chemistry (*continued*)

Physical (*continued*):

P.W.M. Jacobs, Ph.D.	Optical and electrical properties of ionic crystals, especially alkali halides
	Study of thermal and photochemical decomposition of solids, especially perchlorates, nitrates, oxalates, azides
	Application of the thermodynamics of irreversible processes to ionic crystals
with J. Walkley, Ph.D.	Intermolecular forces
B.P. Levitt, Ph.D.	Chemical kinetics: shock tube studies of emission from hot gases
J.A. Barrie, Ph.D.	Transport of vapours in polymer films
	Stress-strain behaviour of elastomers
L.V.C. Rees, Ph.D.	Self-diffusion in ionic crystals
	Heats of formation and heats of ion exchange in zeolites
	Radiation damage in zeolitic crystals
	Uranium alloy: hydrogen studies
J.L. Wood, Ph.D.	Low frequency molecular vibrations: infra-red and Raman spectra
N.G. Parsonage, D.Phil.	Cryogenics: precision calorimetry
	Surface chemistry: studies at low temperature
M. Spiro, D.Phil.	Transference numbers in electrolyte solutions
	Mixture potentials and electrode processes
	Kinetics of homogeneous and heterogeneous reactions in solution
	Catalysis
J. Walkley, Ph.D.	Thermodynamics of non-electrolyte solutions
	Properties of gases in solution
	Quantum effects in gaseous and fluid states
	General equations of state of fluids
I.S. Kerr, Ph.D.	Alumino-silicate structures and crystal surfaces studied by X-rays and electron microscopy respectively
R. Ash	Theoretical studies of diffusion through polymer and metal membranes, and of heat conduction in solids
	Theoretical and experimental studies of gas transport through networks of capillaries and microporous media, and of thermo-osmosis

4. Engineering, Chemical and Technology, Chemical

Professor A.R. Ubbelohde, D.Sc., F.R.S. (Head of Department)	Role of hydrogen in metals and in hydrogen bonds in crystals
	Thermodynamic properties of crystals, including transformations
	Melting and crystal structure; ionic melts
	Mobile electrons in aromatic molecules and in graphite
	Chemical physics of graphite and its crystal compounds
	Collision processes in gases
	Detonation and combustion
E. McLaughlin, Ph.D.	Structure of the liquid state and the molecular mechanisms of transport
	Tracer studies on diffusion in liquids
	Viscosity and thermal conductivity of liquids
G.S. Parry, Ph.D.	Lattice vibrations and thermal expansion of crystals
	Transformation in crystals
	General crystallography
	Structure analysis by X-ray diffraction techniques

4. Engineering, Chemical and Technology, Chemical (*continued*)

D.A. Young, Ph.D.	Thermal and electrical properties of graphite and its crystal compounds
	Recrystallization and annealing studies on solids at high temperatures
L.R. Barrett	Sintering and diffusion in refractories
	Dissolution of refractories by slags
G. Munday, Ph.D.	Detonation in gases
	Venting and control of explosion and detonation
M.R. Hoare, Ph.D.	Theory of intermolecular energy transfer
	Physicochemical processes of relaxation in liquids and solutions
H. Wilman, D.Sc., Ph.D.	Surface chemistry and physics
H.I. Matthews, O.B.E., M.C.	Electron diffraction and electron microscopy
	Electrodeposition; anodic oxidation
A.E.B. Presland	Crystal growth in deposits; epitaxy
	Metal and other crystal physics
	Deformation of crystals
	Mechanical wear, friction and surface structure; lubrication; corrosion of metals
	Structure and other properties of fibres and plastics
	Structure of clays and layer-lattice minerals
	Molecular structure; heat motion in crystals
Emeritus-Professor D.M. Newitt, F.R.S.	Measurement of thermodynamic properties of steam
S. Angus	
Professor K.G. Denbigh, D.Sc., Ph.D.	Applied chemical kinetics and thermodynamics
	Gas-solid reactions
	Theory of continuous reaction processes
G.H. Anderson	Heat transfer to liquids boiling in a vertical tube
Professor R.W.H. Sargent, Ph.D.	Performance of plate distillation columns
	Process dynamics and control system design
	Adsorption processes
	Problems associated with low temperature processes
H. Sawistowski, Ph.D.	Interfacial phenomena in liquid-liquid extraction
	Performance of plate distillation columns
	Vaporization and distillation in differential contact equipment
	Mass transfer in stirred cells
	Effect of interfacial properties on rates of coalescence
R.F. Strickland-Constable, D.Phil.	Nucleation of crystals
	Reaction of gases with solids under electron bombardment
	Oxidation of carbon
	Saline water
P. Eisenklam, Ph.D.	Fluid mechanics of fluidized beds
	Two-phase flow through packed beds
	Flow of single particles
	Mass transfer from drops accompanied by chemical reaction
	Entrainment of gases into liquid sprays
D.W.T. Rippin, Ph.D.	Mixing in chemical reactors
	Optimization of reactor performance
A.R.H. Cornish, Ph.D.	Mass transfer from submerged bodies
A.P. Shahbenderian, Ph.D.	Fluid flow and mass transfer in an annulus
	Economic optimization of industrial processes
Professor J.S. Rowlinson, D.Phil.	Measurement of gas-liquid critical points and liquid densities
	Studies of phase separation and the thermodynamic properties of solutions of hydrocarbons in liquid methane
	Phase separation and fractionation in polymer solutions
	Gas imperfections at low temperatures
	Statistical thermodynamics of fluids

4. Engineering, Chemical and Technology, Chemical *(continued)*

K.E. Weale, Ph.D.	Chemical kinetics at high pressures
	Polymerization reactions at high pressures
	Effects of pressure on gas-liquid equilibria
K.E. Bett, Ph.D.	Design and performance of high pressure plant
	Accurate measurement of high pressures
	P-V-T properties of fluids
	Viscosity of liquids under pressure
Professor A.G. Gaydon, D.Sc., Ph.D., F.R.S.	Spectroscopy, especially of flames and gases in shock waves
	Temperature measurements in shock tubes and flames
J.H. Burgoyne, D.Sc., Ph.D.	Combustion and oxidation
	Ignition and flame propagation
	Explosion and fire prevention
C.F. Cullis, D.Sc., D.Phil.	Inhibition of oxidation processes
	Uses of radioactive tracers in combustion processes
	Pyrolysis of organic compounds
	Autoxidation in the liquid phase
	Heterogeneous catalysis of gaseous oxidation
	Radiation-induced oxidation of hydrocarbons
	Oxidation of sulphur dioxide
F.J. Weinberg, D.Sc., Ph.D.	Flame propagation and structure in laminar and turbulent gases
	Physical properties of flames; flame optics, electrical properties, quenching and inhibition criteria
	Arc-augmented flames; control of combustion processes by electric fields
M.J.G. Wilson, Ph.D.	Atmospheric pollution
	Impurities in compressed air
	Removal of sulphur from crude oil
	Combustion of pulverized fuel
	Mechanism of gaseous combustion
V.D. Long, Ph.D.	A propane fuel cell
	Heat transfer in pot furnaces
	Utilization of black band ironstone
G.R. Hall	Applications of radioisotopes in chemical engineering processes
	Effects of γ and α radiation on ion exchange resins; thermal stability of ion exchange resins
	Dissolution of nuclear fuel materials
	Extraction chemistry of actinide elements
H.D. Evans, Ph.D.	Natural radioactive content of air
F.L.D. Cloete	Dissolution of uranium reactor fuels
	Continuous solid-fuel contacting
R.P. Fraser, O.B.E., Ph.D.	Combustion of liquid fuel
	Supersonic flow through nozzles
	Atomization
N. Dombrowski, Ph.D.	Flow and disintegration of liquid sheets
	High-speed photography
	Atomization
	Gasification of liquid fuels
*E.W. Voice	Preparation and smelting of iron ores
	Theory and operation of Cowper stoves
	Calculations on all injection techniques in the blast furnace
	Studies of blast furnace productivity

*British Iron and Steel Research Association

5. Engineering, Civil

Concrete Structures and Technology:

Professor A.L.L. Baker, D.Sc.	Elastic and rupture theories for the design of hyperbolic-paraboloid shells
J.C. de C. Henderson K. Newman	Moment-rotation characteristics of reinforced concrete frame members
A. Edwards J. Munro	The shear strength of reinforced concrete and pre-stressed concrete beams
C.W. Yu J.W. Dougill	Fundamental strength and deformation characteristics of concrete
	Influence of high temperature on inter-particle stresses in concrete
	Glass fibre as reinforcement for prefabricated shell roofs
	The applications of electronic digital computers to structural analysis
	Study of the influences of the choice of parameters for the solution of statically and kinematically indeterminate structures, with special reference to the ill-conditioning of the governing equations

Engineering Hydrology:

P.O. Wolf T. O'Donnell	Surface flow: assessment of approximate methods of analysis of sheet flow and channel flow
	Run-off from rainfall: employment of harmonic analysis in the derivation of unit hydrographs. Derivation of methods of linking run-off to rainfall suitable for the employment of digital computers. Flood estimation and control
	Ground water: study of analogies. Flow to irregularly spaced drains
	Principles of design of measuring instruments

Fluid Mechanics and Hydraulic Engineering:

Professor C.M. White, D.Sc., Ph.D. M.J. Kenn P. Minton	Investigation of particular structures using models of flow-control arrangements and spillways for water-supply, hydro-power, irrigation and flood-control projects
J.D. Hardwick P.O. Wolf T. O'Donnell	Transport of sand grains by a single straight or curved stream and by a dividing river, and the influence of solids transported upon the dimensions of rivers. Sand ripples and their dependence upon the physical properties of the sand
	Secondary flows and their effects in a curved open channel
	Wave forms in open channels
	Incidence of cavitation around bluff bodies at various free-stream velocities and pressures. Effect of cavitation on concrete and other materials
	The behaviour of curved boundaries in relation to cavitation and separation
	The motion downstream of sluices and associated scour problems
	The pressure distribution and secondary flows at the junction of a vertical spillway shaft with a horizontal tunnel

Highways:

B.G. Manton	Bitumen-latex mixtures as stabilizers for fine grained soils

5. Engineering, Civil (*continued*)

Public Health:

F.E. Bruce	The design and efficiency of rectangular and circular sedimentation tanks
G.T.J. Fox	
A. L. Dowley	Properties of media for the filtration of water

Soil Mechanics:

Professor A.W. Skempton, D.Sc., F.R.S.	Fundamental research on the shear strength and deformation characteristics of sand, clays and soft rocks
	Theoretical and experimental studies on the stability of earth dams and natural slopes
A.W. Bishop, D.Sc. Ph.D.	Computation of data on settlements of foundations
R.E. Gibson, Ph.D.	Theoretical and field studies of settlements of foundations and embankments
N.N. Ambraseys, Ph.D.	Seismic stability of earth dams and other structures

Structural:

Professor S.R. Sparkes, Ph.D. (Head of Department)	Composite action of steel and reinforced concrete
	Theoretical, experimental and model studies of problems in ships' structures
J.C. Chapman, Ph.D.	Corrugated plating
E.H. Brown, Ph.D.	Buckling of perforated plates
A.C. Cassell	Flat slab construction
A.R. Gent, Ph.D.	Methods of fundamental design
Z.S. Makowski, Ph.D.	Stability of frames
	Analysis of shells by photoelasticity
	Gravity stress problems by centrifugal loading
	Full scale behaviour of structures of composite construction
	Arch dam research
	Methods of direct design for frame structures
	Inelastic buckling of columns in frame structures
	Double layer grid structures
	Stressed skin space grids
	Network-suspended systems
	Plated grids
	Use of models in structural analysis and design

6. Engineering, Electrical

Professor Sir Willis Jackson, F.R.S. (Head of Department)	Studies in binaural perception, especially of simultaneous voices and moving sound sources
Professor E.C. Cherry	Studies of pitch perception, binaurally and monaurally
	Methods of correlation function and spectra analysis in real time
	Bandwidth compression of television channels by automatic variable delays using "electric coding"
	Very high digit-rate "shift registers" for encoding purposes
J. Roberts	Non-reciprocal slow-wave structures
	Field patterns in wave guides containing resistive vanes and ferrites
	Analogue treatment of eddy current problems
	Dielectric constants of liquids by perturbation techniques
Professor D. Gabor	Flat television tube development
	Learning filters, predictors and recognizers
	Thermionic generators
	High power ion source
	Electron absorption and reflection on plasma-electrode interfaces

6. Engineering, Electrical (*continued*)

D. Jones, Ph.D.	Ultra-high vacua. Interference electron microscopy
B. Adkins, D.Sc.	Feed-back methods for improving the stability of
with B.J. Prigmore	synchronous machines
P.H. Allen, Ph.D.	Asynchronous operation of synchronous machines and
J.J. Bates, Ph.D.	conditions for resynchronization
J. Salmon	Measurement and calculation of alternator impedance allowing for eddy current effects
	A study of temperature rises in machines under conditions of varying load and speed
	A study of the permanent-magnet alternator
	Development of auxiliary equipment for "micro-machines"
M. Hancock	Commutatorless motors using controlled silicon rectifiers
J.J. Bates, Ph.D.	Development of tape-controlled traction simulator
Professor J.H. Westcott	Efficient estimation of system parameters and signal statistics from measurement of fluctuations of system variables for purposes of optimal control
	Optimal control of distributed-parameter systems
	Analysis of human operator characteristics in a tracking task and construction of a sampled data model for the human operator
with P.F. Blackman, Ph.D.	Analysis of sampling and quantizing operations in data reduction and computation, and aspects of random
H.M. Howl	sampling
J.R. Barker, Ph.D.	Study of extremum controllers
D.Q. Mayne	Mechanization of correlation analysis of random fluctuations by digital and analogue means
J.J. Florentin, Ph.D.	Adaptation of a filter to give optimum prediction of a gaussian signal with variable parameters
	Development of feasible computer methods for adaptive control using dynamic programming principles
	Methods of trajectory computation of optimal non-linear control systems
	Control of power systems
	Theoretical aspects of control of traffic
J.C. Anderson, Ph.D.	Study of electrical, mechanical and magnetic properties of thin metallic films
	Synthesis and study of new magnetic ferrites
	Study of "forbidden" magnetic effects in antiferromagnetic crystals
E.L. Heasell, Ph.D.	Measurement of short life times in semiconductors by high-frequency light modulation
	Production of shallow metal contacts on germanium and silicon
	Investigation of junctions in intermetallic semiconductors
P.M. Gundry, Ph.D.	Isotopic exchange at metal and semiconductor surfaces
R.R. Birss, Ph.D.	Magnetostriction in magnetic single crystals
	Properties of asymmetric crystal classes
A.R. Boothroyd, Ph.D.	Study of transistor properties at very high frequency and
with R.A. King,	at high current level
R. Spence, Ph.D.	High frequency transistor oscillators and frequency converters
	Active two-part theory and synthesis of wideband transistor amplifiers
	Switching properties of transistors in terms of charge control parameters
	Transistor noise studies
	Study of electronic processes in transistors in terms of their analogue representations
	Study of tunnel diode switching processes
	Possibilities of narrow band pulse code modulation

6. Engineering, Electrical (*continued*)

D.G.O. Morris, D.Sc., with B.J. Cory L.L. Freris	Analogues of electric machines and power systems Automatic operation of network analysers Applications of mathematical logic to the operation of power systems High voltage d.c. power transmission Techniques for the economic operation of power systems Experimental evaluation of the equivalent circuits of electrical machines Development of network facilities for micromachine systems
B.M. Sayers, Ph.D.	Analogue computing with digital techniques Perceptual combination of information from two sensory modes Models of neurophysiological processes Medical instrumentation

7. Engineering, Mechanical

Applied Mechanics:

Professor H. Ford, D.Sc., Ph.D.	Theoretical and experimental studies in stress analysis, plasticity, properties of materials, vibrations and lubrication
J.M. Alexander, D.Sc., Ph.D.	Plastic deformation of metals in plane strain Theory of cold rolling with strip tension
R.D. Hoyle, Ph.D.	Experimental determination of the stresses in cold rolling
P. Grootenhuis, Ph.D.	Friction in metal-working processes
C.E. Turner, Ph.D. F. Ellis, Ph.D.	Anisotropy and the Bauschinger effect in cold-worked metals
A. Shelton, Ph.D.	Thermal and rotational stresses in turbine rotors
P. Benham, Ph.D. L.E. Culver	Computation of temperature distribution in axially symmetrical objects
P.J.B. Solomon	Investigation of slip line fields for hot and cold rolling
A. Cameron, Ph.D.	Expanding of tubes in water tube boilers
R.M. Ogorkiewicz	Stresses and deflections in steam mains
R.T. Smith	Fatigue of metals at very high frequencies
S.A.V. Swanson, Ph.D.	Vibration of twisted cantilevers and turbine blades
J.G. Williams	Plastic deformation in plane strain with notched test pieces Stresses and deflections of expansion bellows and mitre bends Fatigue of springs coated with plastics and ceramics Fatigue at relatively few cycles of high stress intensity Deep drawing Cold extrusion of steel Lubrication in gearing Brittle fracture in mild steel Fracture mechanism in aluminium alloys Impact properties of plastic sheet and film Basic stress-strain properties of unreinforced plastics Symmetrically loaded plates and shells Heat balance for machining process Creep buckling of thermal reactor fuel elements Studies in the mechanism of metal cutting Oil whirl in fluid film bearings Thin film lubrication applied to oil seals, gears and ball bearings Instability in journal bearings Pitting of gear steels and bronzes Mechanism of running in of bearing metals and their seizure

7. Engineering, Mechanical (*continued*)

Applied Mechanics (*continued*)

	Study of the effect of mean stress on the internal damping capacity of materials
	Theoretical work on hydrodynamics of a viscous fluid
W.G. Wood, Ph.D.	The elastic stability of thin cylinders under internal pressure

Heat Transfer and Combustion:

Professor O.A. Saunders, D.Sc., F.R.S.	Theoretical and experimental studies of convection from rotating surfaces
	Thermal conductance of metal surfaces in contact
	Heat transfer and friction between a lubricated piston and cylinder wall
	Expansion of gas in a liquid stream
	Effect of pre-flame oxidation products on ignition delay in compression ignition engines
	Combustion in dual-fuel engines
Professor D.B. Spalding	One-dimensional unsteady compressible flow
	Film cooling by reactive and non-reactive gases
	Damping of a gas oscillation by a turbulent jet
	Experimental and theoretical studies of gaseous diffusion flames
	Theory and experiment of confined turbulent jets
	Determination of rate of entrainment by turbulent jet from surrounding stream
	Theory of burning of rocket propellants
	Experimental study of a pressure exchanger
	Boiling heat transfer
	Investigation on cooling towers
	Heat transfer in turbulent boundary layers
	Application of network computer to heat transfer and to problems involving chemical reaction
	Experimental and analytical studies of the auto-ignition of fuel-air mixtures by adiabatic compression
	Heat and mass transfer through boundary layers

Nuclear Power:

P.J. Grant, Ph.D. C.G. James, Ph.D. D.J. McConalogue R.E. Strickland	Experiments with subcritical natural uranium/graphite assemblies
	Slowing down and diffusion of neutrons in graphite and in water systems
	Measurements of neutron energy spectrum
	Neutron detection methods
	Reactor design studies
	Reactor optimization

Production Engineering and Management Studies:

S. Eilon, Ph.D. J. Woodward R.C. Brewer J.R. King R.I. Hall	*Management control techniques through industrial case studies
	Studies in inventory control in problems of replenishment of perishable and semi-perishable goods and in depletion policies of goods from stores
	Traffic control and transportation problems
	Variety of container sizes in the food industry
	Studies of tool wear and tool material for machine tools

*D.S.I.R. sponsored project

8. Geology

Professor D. Williams, D.Sc., Ph.D.	
Professor J. Sutton, Ph.D.	Metamorphism, stratigraphy and tectonics of the Moines and Moine thrust region in Wester Ross and N.W Inverness-shire
J. Watson (Miss), Ph.D.	Geology and geochemistry of Marungudzi, S. Rhodesia
Professor J. Sutton, Ph.D.	Stratigraphy and sedimentation of the Torridonian of Skye and neighbouring islands
D. J. Shearman	
Professor H.H. Read, F.R.S.	Gabbros of N.E. Scotland
	Metamorphic rocks of N.E. Scotland
	Petrology, petrochemistry, stratigraphy and structure of the Dalradian and granitic rocks of N.W. Donegal
G. Wilson, Ph.D.	Tectonics of the Moine Series in the Ross of Mull and in N. Sutherland
F.G.H. Blyth, Ph.D.	Hydrology of the Chalk in the eastern part of the Hampshire Basin
	Petrology and structure of the Cabrach igneous mass, Banffshire
J.L. Knill, Ph.D.	Sedimentary history of the Dalradian Series in S.W. Scotland and Donegal
	Rock mechanics
	Engineering geology of dams
	Hydrogeology in Cambridgeshire and the Cheshire Basin
G.P.L. Walker, Ph.D.	Tertiary volcanic geology, petrology and mineralogy of E. Iceland
J.G. Ramsay, Ph.D.	Relation between structure and metamorphism in the Swiss and French Alps
	Metamorphism, stratigraphy and tectonics of the Moines in N.W. Scotland
	Relation between gold mineralization and structures in E. Transvaal
	Study of the mechanisms of folding in rocks
J.W. Norman	Photogeology
D.J. Shearman	Limestone petrology
	Sedimentation and petrography of the Mesozoic limestones of the French Jura
G. Evans, Ph.D.	Recent sedimentation in the Wash
D.J. Shearman	Recent sediments of the Persian Gulf
W. Skiba, Ph.D.	Geology of some basic masses and high-grade metamorphic rocks in Somalia
	Geology of the basement rocks (Wainimala Series) in Fiji
J.R. Butler, Ph.D.	Geochemistry of the Younger Granites, Nigeria
	Geochemical aspects of amphibolites
	Geochemistry of layered basic intrusions in Somalia
	Zn:Cd ratios in some igneous rocks
I.S.E. Carmichael	Crystallization of feldspar in natural and synthetic silicate systems
	Geochemistry of natural acid glasses, and the mineralogy of the pyroxenes and iron-titanium oxides
	Mineralogy of the alkaline amphiboles
H.M.K. Toms	Petrology of the Lewisian in the N.W. Highlands
G. Thomas, Ph.D.,	Palaeoecology of Upper Devonian and Lower Carboniferous fossils in S. Wales
	Lower Palaeozoic rocks, Mayo, Eire
	Seep domes and related structures in the Namurian of Co. Clare

8. Geology (*continued*)

D.J. Carter	Distribution and palaeoecology of the Foraminiferida of the Coralline Crag, E. Anglia Eocene Foraminiferida of the Ebro Basin, Spain Micropalaeontological investigations of the Chalk and Gault for the proposed Channel Tunnel project
D.V. Ager, Ph.D.	Palaeoecology of Jurassic Brachiopoda in Europe and adjacent areas Morphology and classification of Mesozoic rhynchonellids The geology of the S. Juras, with special reference to sedimentation and faunas
F.J.W. Holwill	Coral fauna from the Ilfracombe Beds, N. Devon
M.P. Kerney, Ph.D.	Late glacial and post-glacial history of the Chalk landscape European Quaternary non-marine Mollusca
M.D. Muir (Mrs.)	Mesozoic spores and pollen
Geochemistry:	
Professor J.S. Webb, Ph.D. J.S. Tooms, Ph.D. I. Nichol, Ph.D. C.H. James, Ph.D. R.E. Stanton	Research in regional geochemistry and the principles and practice of geochemical prospecting, including the development of new analytical procedures
Geophysics:	
Professor J.M. Bruckshaw	Magnetic properties of rocks Elastic properties of rocks Nuclear magnetometry
R.G. Mason, Ph.D.	Geophysical investigations of crustal structure, particularly through the investigation of time variations of the magnetic field and magnetic surveys over the oceans and continental margins
D.T. Smith	Propagation of elastic waves in rocks Off-shore mineral exploration Geophysical investigation of submarine geological features Thermal flow measurements on land and sea
S.H. Hall, Ph.D.	Rocket-borne geomagnetic measurements Satellite magnetometry
Mining Geology:	
Professor D. Williams, D.Sc., Ph.D.	Pyritic deposits of Huelva, Spain; tin mineralization at Geevor and S. Crofty, Cornwall; pegmatites of N. Rhodesia; lead-zinc deposits of Zawar, India; hematite deposits of E. Canada; pyritic deposits of Ontario, Canada; structure and mineralization of the gold deposit of the Witwatersrand, South Africa
A.P. Millman, Ph.D.	Ore microscopy; indentation microhardness; reflectivity and reflection optics in monochromatic light; systems of ore mineral identification; electron probe microanalysis of ore minerals, mineral dressing and metallurgical products Geology and mineralogy of platinum, chromite and vanadiferous magnetite in the Bushveld, S. Africa
C.J. Dixon	Studies on replacement of rocks and minerals; physical and chemical conditions for the types of alteration and replacement associated with ore deposition
T.C. James	Carbonatites, kimberlites and natural gases associated with saline waters Development of mineral deposits

8. Geology (*continued*)

Oil Geology:

Professor W.D. Gill, D.Sc.	Hinge lines and associated patterns of sedimentation Slide and slump structures in the Carboniferous rocks of Ireland, Devonshire and Pembrokeshire Distribution and analysis of oil source rocks
G.D. Hobson, Ph.D.	Detailed analysis of Schlumberger logs to provide data on structure and geological history of sedimentary areas Reviewing data on composition of oil field brines in connection with theories of their origin Study of organic matter in oil source rocks Analysis of characteristics of oil fields Oil migration Gas solubilities in relation to some gas accumulations
S.E. Coomber	Clays in relation to oil production
C.A. Fothergill, Ph.D.	An investigation into the nature and origin of pressure cementation in deeply buried rocks Analyses of stratigraphical patterns in sand-shale series in E. Venezuela

9. Mathematics

Professor H. Jones, Ph.D., F.R.S. (Head of Department)	Theory of metals. Shock waves and detonation
Professor G.A. Barnard	The theory of statistical inference and the applications of mathematical statistics to technology
Professor W.K. Hayman, Sc.D., F.R.S.	Theory of functions of a complex variable
J. Adler	Flame theory
M.C. Austin	Analysis
I.N. Baker, D.Rer.Nat.	Theory of functions
M.R. Osborne, Ph.D.	Numerical analysis and computing machines
J.G. Clunie, Ph.D.	Theory of functions
Y.N. Dowker (Mrs.), Ph.D.	Abstract ergodic theory and dynamical systems
H. Fairbrother	Mathematical methods
D.J. Farlie	Applications of statistics and probability to problems arising in industry Problems of statistical inference, especially non-parametric tests
L.E. Fraenkel	Fluid dynamics
A.N. Gordon, Ph.D.	Classical applied mathematics
W.A. Hepner, Ph.D.	Quantum theory of fields and elementary particles
S. Hochberg, Ph.D.	Nuclear theory and field theory
D.M. Hum	Electron theory of metals
M.A. Jaswon, Ph.D.	Elasticity and plasticity
G.M. Jenkins, Ph.D.	Statistics and spectral analysis of time series
Professor C.W. Jones, Ph.D.	Fluid dynamics
T. Kovari, Ph.D.	Theory of functions of a complex variable
E.H. Lloyd, Ph.D.	Applications of statistical methods
A. Mautner	Vibrations
S. Michaelson	Applied analysis and computing machines
O. Penrose, Ph.D.	Statistical mechanics of fluids, magnetohydrodynamics
S. Raimes, Ph.D.	Electron theory of metals
L. Roth	Algebraic geometry, rationality and allied problems concerning algebraic manifolds
Professor R.S. Scorer, Ph.D.	Dynamics of stratified and turbulent fluids
G. Stephenson, Ph.D.	Relativity and theoretical astrophysics
A. Talbot, Ph.D.	Analysis and synthesis of electrical networks

9. Mathematics (*continued*)

A. Wagner, Ph.D.	Projective planes, finite groups, collineation groups
F.W.G. Warren, Ph.D.	Wave resistance in stratified fluids
G.J. Whitrow, D.Phil.	Relativity and cosmology
C.B. Winsten	Statistical problems concerned with the operation and economics of industry
E.P. Wohlfarth, D.Sc.	Electron theory of metals and the domain theory as applied to magnetically hard materials

10. Metallurgy

Chemical:

Professor F.D. Richardson	Thermodynamics of sulphide, halide, oxide, silicate, phosphate and metal solutions, with particular reference to metal extraction and refining
C.B. Alcock, Ph.D.	
J.W. Tomlinson, Ph.D.	Slag-gas and metal-gas reactions
	Thermodynamics of borides, silicides and uranium compounds
	Diffusion of cations in fluorite lattices
	Electrochemical measurements of oxygen potentials
	Physical chemistry of solutions of metals in molten salts
	Diffusion and conductance studies in molten salts
	Physical chemistry of UF_4 reduction
	Development of techniques for studying reactions at temperatures above 2000°C and pressures up to 300 atmospheres
	Physical chemistry of sulphating roasting
A.R. Burkin, Ph.D.	Kinetics of dissolution reactions in hydrometallurgical processes
	Chemistry of solvent extraction methods for recovery of metals from aqueous solutions
	Chemisorption of solutes at solid-liquid interfaces
D.A. Pantony, Ph.D.	Separation of cations by chromatography of their organic complexes
	Thermogravimetry in controlled gas atmospheres
	Corrosion of alloy steels in the presence of vanadium pentoxide
	Reactions of the less familiar elements in organic solvents

Physical:

Professor J.G. Ball	Metals in nuclear reactors
	Constitution of thorium alloys
	Radiation embrittlement and lattice defects in body-centred cubic metals
	Yield point phenomena and brittle fracture in molybdenum
Professor E.N. da C. Andrade, F.R.S.	Creep of metals under pure shear
A.R. Bailey, Ph.D.	Cracking phenomena in metals
	Special metallographic techniques
R.L. Bell, Ph.D.	Behaviour of dislocations in semiconductor crystals
	Formation of grain boundary cavities during creep
	Grain boundary sliding in bicrystals and polycrystals of hexagonal metals
F.A.A. Crane	Plastic deformation in mechanical working
H.W. King, Ph.D.	Precision lattice parameters of hexagonal metals and alloys
	Constitution and properties of superconducting materials
J.S. Llewelyn Leach, Ph.D.	Corrosion mechanisms of the reactive metals, Al, U, Zr, etc.
	Properties of thin oxide films on metals
	Electrical properties of liquid metals and alloys
	Calorimetry by dissolution in liquid metal

10. Metallurgy (*continued*)

Physical (*continued*)

C.W.A. Newey, Ph.D.	Plastic deformation of NaCl bicrystals Properties of dislocations in NiAl Growth of single crystals of high melting-point compounds
P.L. Pratt, Ph.D.	Crack propagation in brittle fracture Generation of point defects by plastic deformation in alkali halide crystals Internal friction in metals and non-metals Electrical properties of dislocations in alkali halide crystals Plastic deformation and creep of CaF_2 and MgO Structure and mechanical properties of self-bonded ceramics Effects of point defects on electrical properties of body-centred cubic transition metals Direct observation of lattice defects in niobium by transmission electron microscopy
D.L. Thomas, Ph.D.	Transformation phenomena and kinetics in aluminium bronzes Ordering of β-phase in aluminium bronze
D.R.F. West, Ph.D.	Structural and property changes during precipitation hardening Effects of stress and austenitizing conditions on the martensite transformation in steel Pearlite formation in aluminium bronzes

Process Engineering:

Professor F.D. Richardson	Mass transfer in slag-metal and other two phase processes Mass transfer in gas-metal reactions
A.V. Bradshaw	Flow studies in metallurgical systems
A.W.D. Hills	Heat transfer in packed and fluidized beds

11. Meteorology

F.H. Ludlam, D.Sc. J.S.A. Green, Ph.D. J.R. Probert Jones	The physics and dynamics of clouds and cloud systems

Dynamical Meteorology and Climatology:

Professor P.A. Sheppard	Atmospheric turbulence Atmospheric spectroscopy Experimental studies of convection and their application to atmospheric problems Winds from rockets
E.T. Eady, Ph.D.	Study of large-scale motions with reference to numerical weather prediction and the general circulation of the atmosphere and oceans
U.H. Czapski, Ph.D.	Experimental studies of convection in fluids

Oceanography:

J.N. Hunt, Ph.D.	Gravity waves and tides Ocean currents and their relation to the dynamics of the atmosphere

12. Mineral Technology

Professor M.G. Fleming, Ph.D.	Flotation characteristics of certain metal oxide minerals Factors influencing flotation rate Assessment of the degree of liberation of mineral grains

12. Mineral Technology (*continued*)

H.N. Blyth	Improvements to shaking tables
E. Cohen, Ph.D.	Application of thin section radiography to the study of non-ferrous ores and mill products
	Fundamental principles of gravity separation and classification in hydrocyclones and other centrifugal systems
	Surface properties of minerals in relation to high tension separation
	X-ray fluorescence analysis for control of mineral suspensions
J.A. Kitchener, D.Sc.	Mechanism of flocculation
	Forces in dispersion systems
	Surface chemistry of oxides
	Electrochemistry of ion-exchange membranes
M.P. Jones	Magnetic properties of minerals
O. Mellgren, Sc.D.	Fatty acid flotation
	Heat of adsorption of collectors on minerals
A.G. Moncrieff	Recovery of copper from dilute solutions
A.P. Prosser, Ph.D.	Kinetics of solvent extraction
	Properties of chrysocolla

13. Mining

Professor J.C. Mitcheson, C.B.E.	
J.W. Bray, Ph.D.	Model studies of underground excavations
	Strain analysis using moiré fringes
A. Grierson	Rock stresses in the vicinity of shotholes
J.S. Sheppard, O.B.E.	Correlation of mining surveys
W.A. Stepec	Improved timing systems for astronomical fixes in exploratory surveys
D. Sutton	Propagation of ultrasonics through non-homogeneous materials
T.L. Thomas, M.B.E., Ph.D.	Field astronomy; latitude, longitude and azimuth

14. Physics

Professor P.M.S. Blackett, F.R.S.	
Acoustics:	
R.W.B. Stephens, Ph.D.	Vibrational physics and ultrasonics
G.G. Parfitt, Ph.D.	
Cloud Physics:	
Professor B.J. Mason, D.Sc.	Microphysics of cloud- and rain-forming processes, including condensation, supercooling and nucleation of water, growth, structure and properties of ice crystals
G. Haigh, Ph.D.	
J.T. Bartlett, Ph.D.	The physical properties of water and ice
J. Mallett, Ph.D.	Thunderstorm electricity
Cosmic Ray Physics:	
Professor H. Elliot, Ph.D.	Cosmic ray physics
H.R. Allan, Ph.D.	Cosmic ray air showers
J.J. Quenby, Ph.D.	Cosmic ray physics
Electron Physics:	
Professor M. Blackman, Ph.D., F.R.S.	Properties of surface layers of crystals by electron diffraction methods and associated theoretical problems
O. Klemperer, Ph.D.	Solid state electron physics
	Electron optics

14. Physics (*continued*)

Electron Physics (*continued*)

B.R. Coles, D.Phil.	Electrical and magnetic properties of metals and alloys
N.D. Lisgarten, Ph.D.	Properties of surface layers of crystals by electron diffraction methods
J.G. Park, D.Phil.	Electrical and magnetic properties of metals and alloys

High Energy Nuclear Physics:

Professor C.C. Butler, Ph.D., F.R.S.	Study of elementary particles using bubble chambers
N.C. Barford	High energy physics using bubble chambers
S.J. Goldsack, Ph.D.	Study of elementary particles using bubble chambers
J.A. Newth J.P. Astbury, Ph.D. D.M. Binnie, Ph.D.	Study of electronic methods for detecting elementary particles
I. Butterworth, Ph.D.	High energy physics using bubble chambers
I.O. Skillicorn, Ph.D.	Bubble chamber track analysis

High Temperature Physics:

R. Latham, Ph.D. A. Folkierski, Ph.D.	High temperature plasma physics
M.G. Haines, Ph.D.	Theoretical studies in plasma physics
H.J. Pain	Study of shock waves
C.B. Wheeler	High temperature plasma physics

Instrument Technology:

Professor J.D. McGee, O.B.E., Ph.D.	Instrument technology Photo-electronics
W.L. Wilcock, Ph.D.	Astronomical optics Photo-electronics
D.J. Bradley, Ph.D.	Photo-electronics; photo-electric spectroscopy
M. Davison, D.Phil.	Photo-electronics
L. Mandel, Ph.D.	Quantum optics Coherence theory Photo-electronics
N.D. Twiddy, Ph.D.	Photo-electronics

Rock Magnetism:

Professor P.M.S. Blackett, F.R.S.	Rock magnetism
R.L. Wilson, Ph.D.	History of the earth's magnetic field by measuring the magnetic properties of sedimentary and igneous rocks

Spectroscopy:

R.W.B. Pearse, D.Sc.	Production and analysis of atomic and molecular spectra Applications to astrophysical problems
W.R.S. Garton, D.Sc.	Atomic and molecular spectra in the vacuum region
C. Kellner (Mrs.), Ph.D.	Molecular magnetic moments (microwave spectrometer)
Lady Anne Thorne, D.Phil.	Construction of a Jamin type of interferometer for work in the vacuum ultra-violet Work on oscillator strengths

Technical Optics:

Professor W.D. Wright, D.Sc.	Colour vision Stereoscopic vision Colorimetry and spectrophotometry Visibility in street lighting

14. Physics (*continued*)

Technical Optics (*continued*)

B.K. Johnson	Microscopy Infra-red and ultra-violet microscopy Use of new optical materials
H.H. Hopkins, D.Sc.	Lens design Optical instruments and techniques Image assessment Coherence properties of light Theory of diffraction Medical optical instruments
W.T. Welford, D.Sc.	Interferometry, thin films optics Lens theory Counting and sizing of dust particles Optics of bubble chambers
C.G. Wynne, Ph.D.	Optical design

Theoretical Physics:

Professor A. Salam, Ph.D., F.R.S.	Elementary particle theory. Field theory
Professor P.T. Matthews, Ph.D.	High energy physics
T.W.B. Kibble, Ph.D.	Field theory and theory of relativity
R.F. Streater, Ph.D.	Field theory
C. Lovelace	Elementary particle physics

15. Zoology and Applied Entomology

Professor O.W. Richards, F.R.S.	Taxonomy of Hymenoptera Population problems in insects
Professor B.G. Peters	Parasitology
H.R. Hewer, O.B.E.	Field studies of British mammals
A.B.P. Page, Ph.D.	Insecticides, especially fumigation
M.J. Way	Insect pests of crops
R.E. Blackith, Ph.D.	Biometrics
K. Boratynski, Ph.D.	Coccoidea (scale insects)
E.U. Canning (Miss), Ph.D.	Protozoology
R.G. Davies	Insect morphology
J.P. Dempster, Ph.D.	Population problems
H.E. Goto	Collembola
N.G.M. Hague, Ph.D.	Nematology
C.T. Lewis, Ph.D.	Insect physiology
J. Mahon (Miss), D. és Sc.	Platyhelminthes
D.R.P. Murray, Ph.D.	Insect physiology
T.R.E. Southwood, Ph.D.	Heteroptera
N. Waloff (Miss), Ph.D.	Insect ecology

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1. Anatomy

Professor T. Nicol, M.D., D.Sc. D.L.J. Bilbey, T.D., Ph.D. L.M. Charles J.L. Cordingley B. Vernon-Roberts J.E. Strachan (Mrs.)	The effect of hormones and other substances on the reticulo-endothelial system as a defence against infection and tumour growth
R.M.H. McMinn, M.D., Ph.D	Cytology of wound healing

2. Biochemistry

Professor H. Harris, M.D.	Human biochemical genetics Inherited variations in serum proteins and enzymes Genetically determined abnormalities of amino-acid metabolism
E.A. Bell, Ph.D.	Isolation of new amino-acids from leguminous seeds
A. Darbre, Ph.D. H.K.F. Blau, Ph.D.	Gas chromatography of amino-acids
N. Spencer, Ph.D.	Red cell enzymes
M. Whittaker, Ph.D.	Human serum cholinesterase variants

3. Biophysics*

Professor Sir John Randall, D.Sc., F.R.S. R.E. Burge, Ph.D. A. Elliott, Ph.D. W.B. Gratzer, Ph.D. N.R. Silvester, Ph.D.	A unified approach is made by the Department and the Unit towards an understanding of the development and functioning of cells and tissues. Studies of the molecular structures of the nucleic acids and the molecular basis of heredity are complemented by the analysis of the structures and modes of association of the fibrous proteins and protein complexes (muscle, cilia and flagella). The methods used in this work include X-ray diffraction, electron microscopy, ultra-violet and infra-red absorption and high-speed ciné-photography

4. Botany

J.F. Sutcliffe, D.Sc. (Acting Head of Department)	Ion absorption by plants, plant tissues and micro-organisms
R. Barton, Ph.D.	Ultrastructure and function in plant cells
C.F. Cresswell, Ph.D.	Nitrate reduction in algae and higher plants
J.E. Keys (Mrs.), Ph.D.	Induction of flowering in succulent plants
P.B. Gahan	Intracellular localization of nucleic acids
D.T. Streeter	Mineral nutrition of bryophytes
M.B. Wilkins, Ph.D.	Endogenous rhythms in growth and metabolism

5. Chemistry

Professor D.H. Hey, F.R.S.	Free radical reactions in solution Heterocyclic compounds
Professor D.W.G. Style	Thermal and photochemical reaction kinetics and molecular spectroscopy
V. Gold, D.Sc.	Reaction kinetics in solution Isotope exchange and kinetic isotope effects
A.J.B. Robertson, Ph.D.	Processes at the gas-solid interface Mass spectrometry
L. Crombie, D.Sc.	Natural fatty acids Natural *O*-heterocyclic compounds Terpenic cyclization New reactions of acetylenic substances The chemistry of rotenone
I.R. Beattie, Ph.D.	Stereochemistry of co-ordination compounds
J.I.G. Cadogan, Ph.D.	Free radical reactions Organo-phosphorus compounds
D.P.N. Satchell, Ph.D.	Acid catalysis Isotope exchange reactions
C.W. Rees, Ph.D.	Heterocyclic chemistry
R. Hulme	X-ray structure analysis of complex inorganic compounds
J.S. Coe, Ph.D.	Kinetics of inorganic reactions in solution
T.E. Peacock, Ph.D.	Theoretical studies on the structure of solids Molecular orbital calculations of electronic spectra of molecules
M.J. Perkins, Ph.D.	Free radical reactions

*Houses the M.R.C. Biophysics Research Unit: Honorary Director, Professor Sir John Randall, D.Sc., F.R.S.

6. Engineering

Chemical:

S.B. Watkins (Director of Studies)	Gas absorption in scrubber towers
D.R. Morris, Ph.D.	Mixing studies in fluidized beds High temperature studies of the ionic carbides

Civil:

Professor A.D. Ross, Ph.D.	Studies in reinforced and prestressed concrete; the creep of concrete under varying stress, and elevated temperature and thermal stresses in reinforced and prestressed concrete; moisture movement and shrinkage in concrete
Professor K.L. Nash	Shearing resistance of soil subjected to transient stresses; fundamental strength properties of a decomposed granite stabilized with cement
J.M. Zarek, Ph.D.	Biomechanics: application of metals to the human body and kinesiology; hydromechanical aspects of blood flow and prosthetic vascular grafts
W.M. Jenkins, Ph.D.	Studies in the elastic and plastic behaviour of some steel structures Applications of electronic digital computers

Electrical:

Professor J. Greig	Theoretical and experimental investigations of tooth flux pulsations and losses in alternators
Professor A.H.M. Arnold	A study of certain polyphase oscillator circuits
W. Fraser	U.H.F. transmitter circuits using solid state devices
G.H. Platt	Development of an analogue method of multiplication
E.M.S. Deeley, Ph.D.	A study of certain magnetic amplifier circuits
R.B. Burtt, Ph.D.	Theoretical and experimental investigation of eddy current losses in single layer cylindrical coils
E. M. Freeman	Study of resistance-capacitance oscillators Applications of optimizing servomechanisms to optical systems Analysis of V.H.F. current distribution and its relation to the inductance in conductors Development of a root-locus plotter for servo-analysis

Mechanical:

Professor L.J. Kastner	Production of noise by small jets of high velocity gas
T.J. Williams, Ph.D.	Critical flow nozzle as a measuring device for steady and unsteady flows Electrical flowmeter research Reciprocating engines: gas flow and performance
Professor H.E. Rose, Ph.D., D.Sc.	Studies in powder science: investigations into (i) grinding and comminution; (ii) mixing of granular materials; (iii) transport of granular materials; (iv) physical properties of granular materials
W.B. Gosney	Flow of refrigerant fluids
E.J. Powell	Ejector pump phenomena
A.A. Smith, Ph.D.	Mass transfer effects in liquid sodium
M.J. Tindal	Measurement of gas velocity within an engine cylinder

7. Geography

Professor S.W. Wooldridge, C.B.E., D.Sc., F.R.S.	Geomorphology of S.E. England and eustatic movements of sea-level The dispersal of Greater London's population

7. Geography (*continued*)

J.C. Pugh, Ph.D.	Geomorphology of tropical areas, with special reference to W. Africa
A.M. Coleman (Miss)	Land use survey of England and Wales
T.H. Elkins	Development of industrial towns; economic geography of Europe
E.M. Yates, Ph.D.	Glacial geology of Cheshire; development of settlement forms in England
J.H. Bird, Ph.D.	Major ports of Britain

8. Geology

Professor J.H. Taylor, F.R.S.	Sedimentary petrology, especially with reference to origin of phosphorites and bedded iron ores and problems of carbonate sedimentation
	Stratigraphy and structure of the west central Weald
	Origin of the lead-zinc-vanadium ores at Rhodesian Broken Hill
J.E. Prentice, Ph.D.	Carboniferous stratigraphy and structure in N. Devon
	Studies in the genus *Gigantoproductus*
	Sedimentation of the Flysch facies
	Sedimentation of the Weald Clay
R.W.D. Elwell, Ph.D.	Investigation of certain pipe structures in N. Ireland and the Channel Islands
	Petrofabric studies on the Briska Boulder Bed, Co. Mayo
	Moinian-Dalradian problems in Donegal
J.M. Hancock, Ph.D.	Cretaceous sedimentation
	Cenomanian ammonites of England and France
D.G. Jones	Carboniferous Limestone-Millstone Grit stratigraphy of S. Wales
	Namurian marine and non-marine faunas
J.B. Richardson, Ph.D.	British Devonian microfloras with special reference to stratigraphic utilization of these fossils
A. Hall	Petrology, mineralogy and geochemistry of the Donegal Granite

9. Mathematics

Professor J.G. Semple, Ph.D.	Algebraic geometry; theory of representations and enumerative geometry
Professor H. Bondi, F.R.S.	Astrophysics; cosmology
Professor A. Fröhlich, Ph.D.	Abstract algebra and algebraic number fields; mathematical logic
P.J. Higgins, Ph.D.	Abstract algebra
C.W. Kilmister, Ph.D.	Foundations of relativity
P.G. Saffman	Magnetohydrodynamics
F.A.E. Pirani, D.Sc.	Relativity; foundations of mechanics
S.R. Tims, Ph.D.	Complex variables
S. Rosenblat, Ph.D.	Mechanics of continuous media
J.E. Reeve	Algebraic geometry; combinatorial topology
J.A. Tyrrell	Algebraic geometry

10. Pharmacology

Professor G. Brownlee, Ph.D., D.Sc.	Mode of action of central nervous stimulants and depressants
G. Paterson, Ph.D.	Action of drugs on striated and unstriated muscle and their relation to changes in membrane potential
A.B. Wilson, Ph.D.	Site of action of sympathomimetic drugs on smooth muscle
A.T. Birmingham	Participation of enzyme systems in the actions of drugs on smooth muscle

11. Physics

A.R. Stokes, Ph.D. M.B. M'Ewen (Miss), Ph.D. C.D. Curling	Macromolecular structure: X-ray, electron diffraction and light scattering
Absorption Spectroscopy:	
Professor W.C. Price, F.R.S.	Infra-red, ultra-violet and electron spin resonance studies on molecules and solids
G.R. Wilkinson, Ph.D. W.F. Sherman, Ph.D.	Absorption and photoionization in the vacuum ultra-violet
Atmospherics:	
F.W. Chapman, Ph.D.	Radio physics; atmospheric electricity and terrestrial radio noise research, influence of the ionosphere on radio wave propagation at very low frequencies
Nuclear and Solid State Physics:	
Professor F.C. Champion, Ph.D.	Crystal conduction and scintillation counters; electrical and optical properties of diamonds, sulphur, and other crystals, β-ray spectrometry
P.J. Dean, Ph.D.	
E.J. Burge, Ph.D.	Nuclear emulsion techniques: scattering by counter techniques; total reaction cross-sections; polarization effects
Theoretical:	
Professor C. Domb, Ph.D.	Theory of co-operative phenomena and phase transitions Theory of liquids and solutions
M.E. Fisher, Ph.D.	Theory of the solid state: problems in statistical mechanics
A. Danielian, Ph.D.	Polymers and polyelectrolytes
M.F. Sykes, Ph.D.	

12. Physiology

J.L. D'Silva, D.Sc.	Studies on the properties of the arterial wall
A.J. Buller	Physiology of nerve and muscle, with special reference to the influence of motor innervation on the mechanical responses of striated muscle
D. Mendel	Methods for measuring intramyocardial pressure and its role in the determination of cardiac performance

13. Zoology

Professor B. Dawes, D.Sc.	Parasitology (helminthology)
D.R. Arthur, Ph.D., D.Sc.	Ticks in relation to disease
L.G.E. Bell, Ph.D.	Cytology Cytochemistry
A.E. Barnard, Ph.D.	Cytochemistry and protein chemistry
C.B. Cox, Ph.D.	Vertebrate palaeontology
F.E.G. Cox	Parasitic protozoa
S.K. Eltringham, Ph.D.	Marine biology and ecology
S.E. Hawkins (Miss), Ph.D.	Nucleo-cytoplasmic relationships in *Amoeba*
M.I.P. Macdonald-Ross	Genetics
L. Wolpert, Ph.D.	Developmental physiology and morphogenesis

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1. Biology

Professor G. Chapman	The movements and hydrostatics of invertebrate animals Mesogloea of coelenterates
P.C. Gardiner (Miss)	Morphology and biology of anobiid wood beetles

1. Biology (*continued*)

D.O. Rawson (Mrs.)	Functional anatomy of cestode genitalia
J.E. Rigby (Miss), Ph.D.	Functional anatomy of gastropods (pulmonates and opisthobranchs)
S.R. Rogers (Miss), Ph.D.	Experimental taxonomy of *Papaver rhoeas*
J.G. Vaughan, Ph.D.	Fruit and seed anatomy Immunological methods applied to *Brassica* taxonomy
B.G. Gardiner, Ph.D.	Origins and affinities of palaeoniscoid and holostean fishes
M. Black, Ph.D.	Physiology of seed germination and dormancy
A.E. Brafield, Ph.D.	Respiration of intertidal polychaetes Oxygen in marine beaches
J.B. Heale, Ph.D.	Study of the genetics of host specificity in the genus *Verticillium*
A.E.R. Taylor (Miss), Ph.D.	*In vitro* culture and metabolism of parasitic helminths

2. Chemistry

Professor H. Burton	Reactions of organic cations with reference to acylation and alkylation
M.K. Hargreaves, D.Sc.	The relation of optical rotatory power to chemical constitution
P.F.G. Praill, Ph.D.	Reactions of (i) organic perchlorates; (ii) pyrans and related compounds Kinetics of acylation
G.W.H. Cheeseman, Ph.D.	Reactions of (i) organic nitrates; (ii) quinoxalines and related compounds
F.G. Smith (Miss), Ph.D.	Kinetics of the thermal decomposition of organic compounds: determination of bond dissociation energies
R.C. Poller, Ph.D.	Organo-tin and organo-arsenic chemistry
C.W. Bird, Ph.D.	Asymmetric synthesis Transition metal carbonyls in organic synthesis
R.S. Satchell (Mrs.), Ph.D.	Mechanisms of chemical reactions
W.R. McWhinnie, Ph.D.	Aspects of titanium and zirconium chemistry; 2:2'-dipyridyl and isonitrile complexes of the transition metals

3. Mathematics

Professor W.B. Bonnor, D.Sc.	Relativity; astrophysics
R.L. Perry, Ph.D.	Analysis

4. Microbiology

S.J. Pirt, Ph.D.	Cultivation of micro-organisms in relation to growth and product formation
P.M. Scholes (Miss), Ph.D.	Microbiological assays

5. Nutrition

Professor J. Yudkin	Identification of nutritional factor concerned with reproduction Search for oral contraceptive Conditioned magnesium deficiency Enzyme induction in mammals Studies in obesity
D. Robinson, Ph.D.	Comparative study of iso-glycosidases Factors affecting membrane fragility

5. Nutrition (*continued*)

G.R. Wadsworth, M.D.	Investigation of the characteristics of human diets which cause anaemia
	Nutritional implication of infestation with round-worm
A.M. Copping (Miss), D.Sc.	Studies on mode of action of vitamin D
	Studies on growth in rats
A.M. Brown (Miss)	Studies on obesity
	Studies on body composition
T.B. Morgan, Ph.D.	Factors affecting choice of diet
	Vitamin-sparing action of sorbitol
R.H. Watson, Ph.D.	Interrelationships between nutrition and behaviour
J.C. McKenzie	Study of food habits and their modification
	Economics of malnutrition
R.G. Price, Ph.D.	Studies of glycosides in nervous tissue
	Chemical composition of glycosidases

6. Physics

T.J. Dillon (Miss) (Head of Department)	Spectrophotometry and colour
J.J. Parsons	Structure of liquids
M.T. Browne, Ph.D.	Vibration damping by viscous and visco-elastic substances
M. McInally, Ph.D.	Silent discharge in gases
M.T. Sprackling, Ph.D.	Plastic deformation of crystals
W.J. Lewis (Miss)	Solid-liquid interfaces

7. Physiology

Professor J.A.C. Knox, M.D.	Effect of vitamin deficiencies on neuromuscular transmission
B.C. Whaler, Ph.D.	Properties of the perfused rat diaphragm preparation
S.M. Morrissey (Miss) Ph.D.	Physiology of *Nepenthes*
B.L. De Boise (Miss)	Hyaluronidase and ADH

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1. Botany

Professor C.P. Whittingham, Ph.D.	Physiology and biochemical mechanisms of photosynthesis
	Physiology of higher plants
M.B.E. Godward (Miss), Ph.D.	Cytology and taxonomy of algae and angiosperms
	Radiobiology
H.V. Newby	Physiology of aquatic fungi
	Habitat relations of aquatic fungi
D.A. Walker, Ph.D.	Carbohydrate metabolism and photosynthesis
	Enzymic carboxylation
P.J. Wanstall	Ecology of *Polytrichum*
	Bryophyte flora of Scilly Isles
	Bryophyte ecology of the Azores
B.M.G. Jones	Experimental taxonomy of *Arabis*
	Classification of the Cruciferae
B. Frankland	Growth substances and seed dormancy
D.H. Bone, Ph.D.	Bacterial respiratory enzymes

2. Chemistry

Professor K.W. Sykes	Structure and reactivity of inorganic complex ions in solution
	Carbon-gas reactions
	Metal-gas reactions
	Study of chemisorption by infra-red spectroscopy

2. Chemistry (*continued*)

Professor B.C.L. Weedon	Researches on carotenoids and their natural precursors Stereochemistry and synthesis of terpenes Studies with acetylenes and polyenes Synthesis and reactions of fatty acids Organic reactions in strong alkalis Electro-organic chemistry; reactions of organic compounds at electrodes; anodic syntheses
F.G.A. Stone, Ph.D.	Inorganic chemistry with special reference to volatile hydrogen compounds, donor-acceptor bonding and organo-metallic compounds
D.M. Grove (Miss), Ph.D.	Low pressure gas flow in fine capillaries and porous media Adsorption and thermo-osmosis of gases in porous ceramics
M.F. Ansell, Ph.D.	Behaviour of olefinic acids in strong acid media Diels Alder reaction of substituted p-benzoquinones
F.A. Hart, Ph.D.	Co-ordination compounds of the lanthanides and other metals having large ions
J. Pritchard, Ph.D.	Surface potentials of chemisorbed gases on evaporated metals Catalysis of the direct formation of nickel carbonyl Infra-red studies of adsorption on semiconductors
D.S. Urch, Ph.D.	Molecular orbital calculations and chemistry of recoil atoms
E.W. Randall, Ph.D.	Nuclear magnetic single and double resonance with special reference to inorganic complexes
R. Bonnett, Ph.D.	Chemistry of the pyrrolines, pyrroles, and porphyrins and related substances Hydrolysis of hindered amides related to vitamin B_{12} Isolation and structure of natural products
A.G. Massey, Ph.D.	Preparation and spectroscopic study of inorganic compounds

3. Engineering

Aeronautical:

Professor A.D. Young	Boundary layers and heat transfer in incompressible and compressible flow Stability and control of high-speed aircraft Turbulent mixing
L.G. Whithead, Ph.D.	Hodograph methods for subsonic flow The development of the stall on a thin aerofoil Torsion of solid sections with end constraint
L.A. McQuillin	The torsion and flexure of cylinders of aerofoil cross-section
G.J. Hancock, Ph.D.	Aerodynamics of slender wings Stability and control of flexible aircraft
R.D. Milne, Ph.D.	Acro-elastic problems of high-speed aircraft
L. Bernstein, Ph.D.	Shock attenuation in shock tubes Real gas effects in shock tubes and shock tunnels

Civil:

Professor J.W.H. King	Studies in plain and reinforced concrete Studies of thin shell structures Methods of compacting concrete Standardization of an accelerated test for site concrete Plastic collapse of structures Photoelastic research
J. Allen, Ph.D.	Studies of vortex motion Effect of channel shape on critical Reynolds' number Turbulent flow in corrugated pipes

3. Engineering (*continued*)

Civil (*continued*)

E. Burley	Cable suspended roofs
A.W.T. Daniel, Ph.D.	Soil mechanics of granular materials
	Corrugations in roads
D. Gadd	Optical and mechanical properties of photoelastic materials
	Photoelastic study of the stresses caused by prestressed concrete anchorages

Electrical:

Professor M.W. Humphrey-Davies	Application of digital computers to problems in the design and control of engineering systems
A.G.J. MacFarlane	Analysis of engineering systems
H. Tropper, Ph.D.	Electric breakdown of transformer oil under direct and impulse voltages
	Role of dissolved gases in the electrical breakdown of transformer oil
	Recording of pre-breakdown current pulses in transformer oil by magnetic tape recorder
T.J. Lewis, Ph.D.	Electron energy distribution functions in gas discharges
	Electric strength and conductivity of liquefied gases
	Studies of breakdown time lags in pure liquids
	Electric strength and conductivity of hydrocarbon gases
	Theoretical calculation of the ionization coefficients of gases
	Electron and ion mobilities in liquid dielectrics
	Cathode processes in the arc discharge
	Electrical breakdown and conduction processes in compressed gases
	Electrical noise in dielectrics
B. Salvage, Ph.D.	Electrical conduction in organic polymers
	Detection and measurement of electrical discharges in gaseous cavities in solid dielectrics under direct and impulse voltages
J.S. Seeley, Ph.D.	Investigation of the transmission properties of arrangements of dielectric layers
	Microwave measurements of the properties of ferro-electric ceramic materials
M. Redwood, Ph.D.	Characteristics of piezo-electric devices
R.F. Thumwood, Ph.D.	Electron multiplication in image tubes
	Microbalance studies of photo-cathodes
A.J. Ellison	Heat flow in electrical plant
	Acoustical noise from electrical plant
	General analysis of electrical machines

Mechanical:

S.W.E. Earles, Ph.D.	Friction between unlubricated metallic surfaces at high speeds and at high temperatures
	Vibration damping by friction at contact surfaces
J.I. Soliman, Ph.D.	Vibrations in heavy machinery foundations
C.R. Webb, Ph.D.	Principles of deflecting air jets and their application to computer elements
	Compensation for interaction in multi-loop control systems, with particular application to the control of a nuclear reactor for power generation
	Study of self-optimizing control systems
	Study of sampled-data control systems

3. Engineering (*continued*)

Mechanical (*continued*)

E.J. Le Fevre	Load diffusion between structural components: photo-elastic analysis
	Measurement of steam-side heat-transfer coefficient for dropwise condensation
	Measurement of isothermal enthalpy-pressure coefficient for steam at low pressure and temperature
	Measurement of velocity in turbulent natural convection

Nuclear:

Professor W. Murgatroyd, Ph.D.	Natural convection heat transfer from fluids with internal heat sources
	Heat transfer and burnout studies on water/steam mixtures
	Motion of solid particles in turbulent gas flow
with L.G. Kemeny	Theoretical studies on the kinetics and stability of nuclear power plants
	Theoretical and experimental studies on "noise" in nuclear reactor systems
W.K. Mansfield, Ph.D.	Experimental studies of uranium and water reactor lattices using steady and pulsed neutron sources
	Saturation characteristics of fission chambers
	Development of intense pulsed neutron sources
R.F. Saxe, Ph.D.	The initiation mechanism of spark discharges
	The development of high-speed photographic recording techniques
	Experimental studies of plasmas

4. Geography

Professor A.E. Smailes	Urban geography
	Survey of urban spheres of influence in Great Britain
	Urban geography of London
	Urban geography of the Cinque Ports and of Sussex gap towns
	Urban geography of individual British towns: Croydon, King's Lynn, Lincoln, Thetford, Wolverton
E.M. Rawstron	Industrial location
	Industrial geography of Great Britain
A.F.A. Mutton (Miss), Ph.D.	Historical geography of Zürich, Geneva, Berne
C.E. Everard	Slope development
	Geomorphology of west Cornwall
	Geomorphology of Cyprus
	Marine erosion on the coasts of the English and Bristol Channels
J.A. Sheppard (Miss), Ph.D.	Settlement geography of east Yorkshire
D.R. Harris	Plant geography of the Leeward Islands
M.E. Witherick	Urban geography
M.C. Storrie (Miss), Ph.D.	Historical geography of Cornwall
	Historical geography of Scotland
	Application of statistical analysis to geography

5. Geology

Professor J.F. Kirkaldy, D.Sc.	Lower and Upper Cretaceous stratigraphy and earth movements
F.A. Middlemiss, Ph.D.	Lower Cretaceous terebratulids. Lower Greensand stratigraphy, structure and petrology. Fauna and lithology of the Chalk Rock

5. Geology (*continued*)

J.T. Greensmith, Ph.D.	Sedimentary petrology of Oil Shale Group of the Lothians and Calciferous Sandstone Series of E. Fife
	Stratigraphy and sedimentation of the Carboniferous Limestone of the Isle of Man
A.C. Bishop, Ph.D.	Petrology and structure of granites and minor intrusions of Jersey, Channel Islands
	Structural history of the Brest neighbourhood, Brittany
	Geology of the area around Haweswater, Westmorland
E.V. Tucker, Ph.D.	Palaeoecology of the *Dayia* Beds of Welsh Borderland
	Variation in *Dayia navicula*
	Structural analysis of Welsh Borderland
W.J. French, Ph.D.	Minor intrusions associated with the Ardara Pluton, County Donegal, Eire

6. Mathematics

Professor V.C.A. Ferraro	Geomagnetism and magnetohydrodynamics
Professor K.A. Hirsch	Theory of groups
I.C. Percival, Ph.D.	Atomic collisions and statistical mechanics
K.W. Gruenberg, Ph.D.	Theory of groups and homological algebra
P.M. Cohn, Ph.D.	Theory of rings
H.S. Allen, Ph.D.	Theory of infinite matrices and allied topics
B.H. Chirgwin, Ph.D.	Wave mechanics
A.M. Tropper (Mrs.), Ph.D.	Theory of infinite matrices
C. Plumpton, Ph.D.	Astrophysics and electromagnetism (cathodic protection)
J.E.C. Gliddon, Ph.D.	Diffusion in the ionosphere
A.J. Weir, Ph.D.	Algebraic geometry
S. Simons, Ph.D.	Theory of metals
A. Learner, Ph.D.	Theory of groups

7. Physics

Professor G.O. Jones	Properties of solids and liquids at liquid helium and liquid hydrogen temperatures
	Superconductivity, superconducting instruments and sub-millimetre spectroscopy, including astrophysical measurements
	High pressure physics
	Crystal dynamics
Professor R.K. Eisenschitz	Theoretical physics, with special reference to the theory of liquids
J.G. Powles, Ph.D., D.ès Sc.	Nuclear magnetic resonance absorption in solids and liquids
A. Ashmore, Ph.D.	Nuclear physics
J.W. Leech, Ph.D.	Theoretical problems in atomic physics
E.J. Irons, Ph.D.	Architectural acoustics
R. Heastie, Ph.D.	Solid-liquid phase equilibria at low temperatures
R.O. Davies, Ph.D.	Thermodynamics of relaxation phenomena
J.C. Burfoot, Ph.D.	Elements for digital electronic computers; ferro-electricity
D.H. Martin, Ph.D.	Superconductivity and spectroscopy in the sub-millimetre range
F.E. Neale, Ph.D.	Properties of the solidified inert gases
E. Sándor, Ph.D.	X-ray Crystallography
J.A. Bastin, Ph.D.	Atrophysical measurements at sub-millimetre wavelengths
W.H. Range, Ph.D.	Nuclear physics

8. Zoology

Professor J.E. Smith, F.R.S.	Nervous anatomy and behaviour of invertebrates
Professor G.E. Newell, D.Sc.	Behaviour of intertidal animals Eyes of prosobranch molluscs
J.E. Forrest, Ph.D.	Biology and functional morphology of opisthobranchiate gastropods Biological problems in connection with pollution of freshwaters and estuaries Biology and distribution of heteropod molluscs Marine zoology of the Azores
J.D. Carthy, Ph.D.	Behaviour and visual physiology of Gyrinidae Substratum selection by *Corophium volutator*
R.F.H. Freeman	Physiology of lamellibranchs Helminth parasites in invertebrate hosts
K. Simkiss, Ph.D.	Cytochemistry of calcifying mechanisms
L.J. Heald, Ph.D.	Electrophysiology of insect vision Landing behaviour of flying insects

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1. Botany

Professor F.W. Jane, D.Sc., Ph.D.	Taxonomy and ecology of freshwater algae, with special reference to phytoflagellates and protista Structure of wood in relation to taxonomy and utilization Variability of wood and abnormal structure ; reaction wood Decay in wood
M.A.P. Madge (Miss), Ph.D.	Growth and development in the Chlorophyceae Cytology
P.M. Topping (Mrs.), Ph.D.	Soil fungi Ecology of disturbed heathland
J.H. Evans, Ph.D.	Algal ecology, especially in reference to drought resistance East African algae, particularly phytoplankton of Lake Victoria
J.E. Kerr (Miss), Ph.D.	Ascomycete morphology and taxonomy
E. Lodge, Ph.D.	Experimental taxonomy and distribution of Bryophyta

2. Chemistry

Professor E.J. Bourne, Ph.D., D.Sc.	Chemistry of carbohydrates Enzymic syntheses of higher saccharides Mechanisms of acylation reactions
K. Singer, Ph.D.	Statistical mechanics
T.G. Bonner, Ph.D., D.Sc.	Cyclization reactions giving heterocyclic rings Action of Lewis acids on cyclic acetals and related compounds Nitration, denitration mechanisms and acidity functions in strong acids
H. Weigel, Dr.Rer.Nat.	Chemistry and biochemistry of carbohydrates Radiation chemistry of carbohydrates
D. Peters, Ph.D.	Quantum mechanics of large organic molecules Syntheses of mesomeric hydrocarbons
J.B. Pridham, Ph.D.	Chemistry and metabolism of low molecular carbohydrates and their derivatives
A. Finch, Ph.D.	Boron and phosphorus halides Cyclic organic derivatives of boron and phosphorus

3. Mathematics

Professor W.H. McCrea, Sc.D., F.R.S.	Astrophysics Relativity

3. Mathematics (*continued*)

M. Bradburn (Miss), Ph.D.	Functions of mathematical physics
B.G. Yates (Miss), Ph.D.	Analysis
J.W. Reed	Theory of complex variable
M.R.C. McDowell, Ph.D.	Quantum theory
R.R. Laxton, Ph.D.	Algebra

4. Physics

Professor S. Tolansky, Ph.D., D.Sc., F.R.S.	Development of new multiple-beam interference and optical techniques Application of multiple-beam interference and other optical techniques to the study of thin films, crystal surfaces, metallic surfaces, diamonds and crystal oscillations Hyperfine structure investigations in line spectra with high resolution instruments Interferometric studies on organic films and crystals
O.S. Heavens, Ph.D.	Development of methods for studying the structure, density, magnetic and optical properties of thin films Study of epitaxial growth of films formed by condensation *in vacuo* Examination of the composition and magnetic behaviour of thin films of ferromagnetic alloys Development of materials for optical masers
E.H. Hutten, Ph.D.	Philosophy and history of science Non-linear theories of quantum physics

5. Zoology

Professor P.M. Butler, Ph.D.	Palaeontology and comparative anatomy of mammals Function and development of teeth
W.A. Gaunt	Embryology of mammalian dentition
J.G. Thomas (Miss), Ph.D.	Functional morphology of insects, especially locusts Ecology and behaviour of soil arthropods
A. Duncan (Miss), Ph.D.	Physiological responses of freshwater invertebrates to enviromental stress Ecology and physiology of *Potamopyrgus jenkinsi*
E.J. Binyon, Ph.D.	Electrolyte physiology of marine invertebrates Physiology of hibernation
G.I. Twigg, Ph.D.	Biology and control of rodents Hibernation in reptiles
J.C. Brown, Ph.D.	Neurology of mammals

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1. Anatomy

R.F.S. Creed	Reproduction in *Vulpes*
F.S. Drury	Radiological anatomy
K.M. Dyce, D.V.M.	Functional anatomy, gastrointestinal tract Radiological anatomy
J.H. Jackson	Mammalian embryology Plant toxicology
R.H.A. Merlen	Applied anatomy Veterinary history
R.D. Nisbet, Ph.D.	Neuromuscular activity in Mollusca
I.L. Owen, Ph.D.	Helminths of freshwater teleosts
M.G.A.D. Scott	Nutrition and reproduction in the male cat
N.P. Hodson (Mrs.)	Neuromuscular anatomy (unstriped)

2. Animal Husbandry and Hygiene

Professor J.A. Laing, Ph.D.	Animal reproduction
D.A. Green	Growth in horses
A.E. Harrop	Canine reproduction
E.C. Offord	Environmental studies on poultry
H.L. Williams	Productivity of sheep

3. Chemistry

E.G.C. Clarke, Ph.D.	Properties of phytotoxins Microchemistry of alkaloids Paper chromatography
S.A. Sowter (Miss)	Organic compounds of tin

4. Medicine

J.C. Greatorex, Ph.D.	Haematology of cattle and iron metabolism in farm animals, using radioactive isotopes
E.K. Price with J.C. Greatorex, Ph.D.	Veterinary cardiology and iron metabolism in farm animals
J.A. Rohrbach	Equine parasitology and diseases of poultry
J. Stratton	Otology of the dog and cat
L.R. Thomsett	Dermatology of the dog and cat

5. Pathology

Professor R. Lovell, D.Sc., Ph.D.	Diseases associated with Enterobacteriaceae and corynebacteria
E.C. Appleby, Ph.D.	Aspergillosis in birds
W.P. Beresford-Jones	Sheep lungworm infections
E. Cotchin, D.Sc.	Neoplasia in animals; its occurrence, histopathology and experimental production
D.G. Harvey, Ph.D.	Metabolic diseases of small animals
A.H. Hayward	Blood pictures in health and disease; studies on suppuration
P.L. Ingram	Pathology of calf diseases
J.N. Oldham, Ph.D.	Parasites of mammals and birds
J.D. O'Shea	Prostate gland of the dog
J.E. Smith, Ph.D.	Classification of *Pasteurella septica;* normal respiratory flora
J.S. Wilkinson, Ph.D.	Metabolic diseases of small animals
B.A. Hughes (Miss)	Studies on *Escherichia coli*
I.A. Cheyne	Viruses

6. Physiology

Professor E.C. Amoroso, Ph.D., F.R.S.	Physiology of reproduction; physiology of the foetus Endocrinology
F.R. Bell, Ph.D.	Rumination; taste perception in ruminants
J.M. Bedford	Physiology of egg and sperm
F. Holton, Ph.D.	Enzymology of cell respiration
P. Keen	Protein binding of the antibiotics
A.M. Lawn	Control of oesophageal motor activity; electron microscopy
R.H. Marchant, Ph.D.	Comparative studies on the metabolism of tryptophan and related substances
P.A. Mayes, Ph.D.	Metabolism of fat with special reference to ketone bodies
B. Schofield (Miss), Ph.D.	Myometrial function and its endocrine control
R. Shorthose, Ph.D.	Physiology of reproduction and growth
D.D. Tyler	Respiratory enzyme systems in cell particles

7. Surgery

Professor C. Formston	Blindness in cattle Opacities and degenerations of the crystalline lens Vascular permeability and shock
G.H. Arthur, D.V.Sc.	Ovarian dysfunction in cattle Testicular descent and cryptorchidism Diseases of the bovine abomasum Surgery of the equine abdomen
W.R. Cook	Diseases of the ear, nose and throat in all species
R.C. Frost	Feline urology The relation of oestrus and pregnancy to certain clinical diseases in the bitch Feline orthopaedics
G.C. Knight	Intra-ocular surgical techniques in the dog, particularly those related to the total extraction of the undislocated cataractous lens and anterior chamber lens prostheses Orthopaedic surgery in general, especially the internal fixation of fractures The treatment by X-radiation of accessible neoplasms in the dog and cat
W.D. Tavernor	Anaesthesia in all species
L.C. Vaughan	Orthopaedic surgery in all species Diseases of the foot in the horse

26 London University, School of Pharmacy

1. Chemistry

Pharmaceutical:

Professor W.H. Linnell, D.Sc.	Analogues of emetine Local anaesthetics
Professor W.B. Whalley, D.Sc.	Analytical and synthetical investigations of natural products and related compounds, including fungal and bacterial metabolites, terpenes and steroids ; biogenesis of natural products; conformational analysis and stereochemistry
L. Saunders, D.Sc.	Physicochemical studies of phospholipids Ion exchange processes
A.L. Glenn, Ph.D.	Basic methods of spectrophotometric analysis
R. Fleming, Ph.D.	Physicochemical studies of quaternary ammonium compounds
D.W. Mathieson, Ph.D.	Examination of some constituents of Cucurbitaceae and certain *Erythrophleum* barks Chemistry of natural products
L.K. Sharp, Ph.D.	Synthetic analogues of reserpine

2. Pharmaceutics

Engineering:

Professor E. Shotton, Ph.D.	Fundamental aspects in the mechanism of pelleting Physical properties of powders

Microbiology:

Professor A.M. Cook, Ph.D.	Bactericidal effects of Co^{60} Evaluation of bactericides The effects of bactericides on bacterial spores and on bacteriophages The evaluation of antagonists to bactericides Heat inactivation of bacterial spores

2. Pharmaceutics (*continued*)

Physical Pharmacy:

Professor E. Shotton, Ph.D.	Formulation of pharmaceutical preparations
	Surface films and the theory of emulsification as applied to mucilages
	Rheological properties of emulsions
	Factors affecting the disintegration of compressed tablets
	Factors affecting the entrainment of liquids during distillation
	The absorption of moisture by substances under different conditions of humidity

3. Pharmacognosy

Professor J.W. Fairbairn, Ph.D.	The active constituents of the vegetable purgatives containing anthracene derivatives
	Occurrence and function of the alkaloids in *Conium*, *Papaver* and *Atropa*
	Chemical changes in plants which are initiated by insect attack
	Leaf surface characters in relation to the fate of applied chemicals

4. Pharmacology

Professor G.A.H. Buttle, O.B.E.	Immunological relationships between malignant and embryonic tissue
G.B. West, D.Sc., Ph.D.	Physiological significance of histamine and 5-hydroxytryptamine
W.C. Bowman, Ph.D.	The pharmacology of drugs affecting neuromuscular transmission
M.J. Rand, Ph.D.	Neurotransmitters at autonomic nerve endings
B.A. Callingham, Ph.D.	Depletion and biosynthesis of catechol amines
R. Cass (Miss), Ph.D.	Biochemical studies on tissue amines

27 London University, University College

1. Anatomy

Professor J.Z. Young, D.Sc., F.R.S.	Nervous system
J.T. Aitken, M.D.	Histology of the spinal cord
D.H.L. Evans	Autonomic nervous system
L.H. Hamlyn	Histo-electronic investigations of the hippocampus
D.W. James	Mechanism of wound healing and skin growth
E.G. Gray, F.R.C.P., Ph.D.	Electron microscopy of the central nervous system
R. Bellairs (Mrs.) Ph.D.	Electron microscopy of embryonic tissues
B.G. Cragg, Ph.D.	Histo-electronic investigations of the brain
E.M. Deuchar (Miss), Ph.D.	Biochemical embryology
R.W. Guillery, Ph.D.	Histology of the hypothalamus
T.A. Quilliam, Ph.D.	Regeneration of peripheral nervous tissue
W.K. Taylor, Ph.D.	Electronic simulators and analogue computers
J.L. de C.Downer, Ph.D.	Training responses in higher primates

2. Astronomy

Professor C.W. Allen, D.Sc.	Solar-terrestrial relations
E.W. Foster	Measurement of absolute spectrum line intensities
R.H. Garstang, Ph.D.	Theoretical spectrum line intensities
D. McNally, Ph.D.	Inter-stellar material
T. Kiang	Statistical astronomy

3. Biochemistry

Professor E. Baldwin, Ph.D.	Nitrogen metabolism in fishes and invertebrates
E.M. Crook, Ph.D.	Mechanism of enzyme action Physical chemistry of proteins and enzymes
A.L. Greenbaum, Ph.D. D.Sc.	Biochemistry of lactation and metabolic effect of hormones
L.M. Kerly (Miss), Ph.D.	Metabolism of retina and of perfused liver
S.P. Datta	Acid dissociations and chelation of metal ions Calorimetry
P.H. Clarke (Mrs.)	Bacterial enzymes
K. Law (Miss), Ph.D	Enzymes in fungi
A.P. Mathias, Ph.D.	Mechanism of enzyme action and ribonucleoprotein particles
P.M. Meadow (Miss), Ph.D.	Bacterial cell walls
B.R. Rabin, Ph.D.	Metal complexes and mechanism of enzyme action
E.M. Shooter, Ph.D.	Molecular biochemistry of haemoglobin and of DNA
D.C. Watts, Ph.D.	Comparative biochemistry of enzymes

4. Biometry

C.A.B. Smith, Ph.D.	Mathematical methods in treatment of genetical problems

5. Biophysics

Professor B. Katz, D.Sc., M.D., F.R.S.	Nerve-muscle physiology
P. Fatt, Ph.D.	
R. Miledi, M.D.	
E.J. Harris, D.Sc.	Cell permeability
R. Niedergerke, M.D.	Contraction of heart muscle

6. Botany

Professor D. Lewis, D.Sc., F.R.S.	Genetics of fungi: mating systems in plants
L. Fowden, Ph.D.	New nitrogenous compounds and nitrogen metabolism in higher plants and micro-organisms
P.R. Bell	Developmental and phylogenetical studies of Pteridophyta Experimental morphology
W.G. Chaloner, Ph.D.	Carboniferous lycopods and their spores Plant microfossils from the British Permian, Triassic and Tertiary
I. Morris	Regulation of nitrate assimilation in algae
P.J. Newbould, Ph.D.	Ecology of beech woods
R.J. Rowbury, Ph.D.	Studies on the control of metabolism in micro-organisms
P.J. Syrett	Carbon and nitrogen metabolism of algae Photosynthesis
K. Taylor	Physiological ecology
H. Tristram	Induced enzyme formation in micro-organisms
D.J.B. White, Ph.D.	Developmental anatomy; timber
D. Wilkie, Ph.D.	Studies in ultra-violet-induced mutations in fungi
M.F. White (Mrs.), Ph.D.	Genetics and taxonomy of *Mucor* species

7. Chemistry

Professor E.D. Hughes, Ph.D., D.Sc., F.R.S.	Mechanism of organic reactions
Professor Dame Kathleen Lonsdale D.Sc., F.R.S.	X-ray crystallography, thermal vibrations of molecules in crystals

7. Chemistry (*continued*)

Professor R.S. Nyholm, D.Sc., F.R.S.	Co-ordination chemistry
Professor D.P. Craig, D.Sc.	Theoretical chemistry Ultra-violet spectroscopy of crystals
Emeritus-Professor Sir Christopher Ingold, D.Sc., F.R.S.	Mechanism of reactions
C.A. Bunton, Ph.D.	Isotopic tracer studies with mass spectrometer
A.G. Davies, Ph.D.	Organic peroxides
A. Maccoll, Ph.D.	Gas kinetics
D.J. Millen, Ph.D.	Microwave spectroscopy Raman and infra-red spectroscopy
H.G. Poole, Ph.D.	Ultra-violet band spectroscopy by interferometer
C.A. Vernon	Mechanism of enzyme reactions
Professor A. Wassermann, D.Sc.	Polyelectrolytes and polyampholytes
T.M. Dunn, Ph.D.	Vacuum ultra-violet band spectroscopy
J.H. Ridd, Ph.D.	Heterocyclic substitution; deamination
J.H. Callomon, D.Phil.	Ultra-violet band spectroscopy
H.J. Milledge (Mrs.) Ph.D.	X-ray structural investigations; determinations of absolute configuration
M.L. Tobe, Ph.D.	Reaction mechanisms in co-ordination chemistry
B.N. Figgis, Ph.D.	Nuclear magnetic resonance
P. Pauling, Ph.D.	Inorganic stereochemistry; crystallographic structure determination
R.E. Cooper, Ph.D.	Polymerization
D.V. Banthorpe, Ph.D.	Mechanism of organic reactions
M.D. Johnson, Ph.D.	Heterocyclic compounds
M.H.B. Stiddard, Ph.D.	Transition metal chemistry

8. Engineering, Chemical

Professor M.B. Donald	Flame radiation Electrostatic separation of minerals Heat transmission; boiling liquids; vibrating flow; gas-liquid phase coefficients in pipes Statistical analysis of mixing solid particles Manufacture of co-enzyme A and glutathione Conversion of hydrocarbons to fatty acids
J.W. Mullin, Ph.D.	Distribution of liquids in packed towers Crystallization Dissolution of solids; sieving and screening
J.A. Barnard, Ph.D.	Gas kinetics Vapour phase chromatography
K. Ridgway, Ph.D.	Azeotrope formation Computation of intermolecular forces
R. Chayen, Ph.D.	Protein extraction from grasses Investigation of a lipoprotein from cancerous lungs
F.C. Webb, Ph.D.	Continuous fermentation
A.R. Burgess, Ph.D.	Applications of mass spectrometry to the study of gaseous reactions

9. Engineering, Civil

Professor A.H. Chilver

Coastal Engineering:

P.H. Kemp, Ph.D.	Laboratory and field study of the effect of waves on beaches

9. Engineering, Civil (*continued*)

Concrete Technology and Structures:

R.H. Elvery	Study of the effect of curing temperatures on high-alumina cement concrete
S.P.Christodoulides, Ph.D.	Applications of ultrasonic and sonic testing methods in timber technology
K.O. Kemp, Ph.D.	Investigation of the strength of doubly curved concrete shells
	Investigation into the lateral and vertical pressure distribution in deep storage bins containing non-cohesive granular material
	Determination of the ultimate strength of reinforced concrete frames
	Limit analysis of reinforced concrete slabs

Photoelasticity:

C. Snell I.M. Allison, Ph.D.	Application of photoelastic methods of exploration to engineering problems, including the effects of openings and discontinuities on pressurized spheres and cylinders, and the distribution of stresses in structural shells
	Study of plastic deformation by optically sensitive coatings
	Stresses due to gravity and hydraulic loading on arch dams including the effects due to the nature of the bedrock

Public Health Engineering:

K.J. Ives, Ph.D.	Theory of filtration and simulation by digital computer
	Filtration of turbid water through uniform and graded sand beds
	Upflow filtration
	Surface chemistry of granular filter media
	Scour of cohesive sediments

Traffic Engineering:

R. Brain	Theoretical aspects of town traffic

10. Engineering, Electrical

Professor H.E.M. Barlow, Ph.D., F.R.S.	Measurement of power by application of the Hall effect in semiconductors
Professor F. Brailsford, Ph.D.	Problems of low-loss tubular waveguide transmission at millimetre wavelengths
J. Brown, D.Sc.	The origins of transformer noise
B.C. Brookes C.E Gimson	Use of lumped-circuit travelling wave tube analogue to investigate tapered slow wave structures
H. Marriott G.D. Sims, Ph.D.	Magneto-resistance and planar Hall effects in single crystal silicon
W.K. Taylor, Ph.D.	Tunnel diodes as mixers
H.G. Effemey M.R. Harris	Analysis of the spent beam characteristics of a two-cavity klystron
G.E. Kenshole P.A. Matthews, Ph.D.	Investigation of alternating flux conditions in a transformer core
I.M. Stephenson, Ph.D. L.M. Stephenson, Ph.D.	Synthesis of self-organizing pattern recognition and control systems

10. Engineering, Electrical (*continued*)

The properties of ferrites, photoconductor and semiconductor films at microwave frequencies
Investigation of wave propagation in plasma-filled wave guides
Investigation of the direct conversion of heat into electricity using a crossed-field thermo-electron engine
Measurement of surface currents on conducting obstacles illuminated by electromagnetic waves
Investigation of radiation from surface waves travelling over curved surfaces
Analysis of surface impedance in relation to high order surface waves
Mechanical speech synthesis
Investigation of higher order space charge modes in velocity modulated electron beams
Investigation of ionization density in moving gas streams by microwave resonance methods
Automatic analysis of servo systems by means of analogue computer techniques
Investigation of arc-mode phenomena in thermionic converters
Investigations of the properties of semiconductor diodes at microwave frequencies
Investigation of insertion losses of ferrite materials
A critical examination of semiconductor contact phenomena at high frequencies
Measurement of complex permittivities at microwave frequencies, using evanescent waves
Measurement of free space energy density using Hall effect

11. Engineering, Mechanical

Professor R.E.D. Bishop, D.Sc.	Vibration of rotating bodies Basic investigations in the theory of mechanical vibration Oscillation of railway vehicles Matrix methods in vibration analysis Basic studies of flutter phenomena
W.K. Allan	Turbulent flow Flow through cascades of aerofoils
H. Billett	Inhibition of combustion by water droplets Mechanism of flame extinction in flame traps Effect of intake additives on oil engine performance
R. Collins	Properties of fluidized particle systems The design and operation of shock tubes
R.M. Davies	Transient behaviour of non-linear hydraulic control systems Dynamic effects of stochastic system parameters
K.L. Jackson	Investigations of the vibration of flexible rotating shafts
W.J.D. Jones, Ph.D.	Effect of surface alloying on the mechanical properties of metals
T.H. Lambert, Ph.D.	Self-optimizing control systems in the presence of random noise Elasto-plastic behaviour of rectangular plates loaded through interference-fit pins
B.S. Massey, Ph.D.	Velocity and attenuation of pressure pulses in small tubes Reaction of jets and thrust on impact plates Extinction limits of combustible mixtures; the effects of diluents

11. Engineering, Mechanical (*continued*)

S.R. Montgomery, Sc.D.	Unsteady flow in pipes Blood flow in the body and in the external systems Flow visualization
A.G. Parkinson	Vibration and balancing of flexible shafts
T.H. Walker	The application of electronics to mechanical measurements

12. Genetics

Professor H. Grüneberg, Ph.D., M.D., D.Sc., F.R.S.	Mouse genetics; genetics of development
R.J. Berry, Ph.D.	Population genetics
M.S. Deol, Ph.D.	Developmental genetics (mouse)
G.M. Truslove (Miss), Ph.D.	
Human:	
Professor L.S. Penrose, F.R.S.	Mutation in man; causes of foetal malformation
J. Bell (Miss)	Pedigree studies on mongolism
M.N. Karn (Miss)	Human metrical characters
U. Mittwoch (Miss), Ph.D.	Human cytology
E.B. Robson (Miss), Ph.D.	Cystinuria; lysinuria; hypophosphatasia; serum proteins
S.B. Holt (Mrs.), Ph.D.	Genetics of dermal ridges and patterns
H. Kalmus, M.D.	Special sense genetics
S.D. Lawler (Mrs.), M.D.	Human serology with special reference to genetical linkage
J.R. Ellis, Ph.D.	Cytogene
J.D.A. Delhanty (Mrs.) Ph.D.	

13. Geography

Professor H.C. Darby, O.B.E., Litt.D.	Historical geography of England
Professor W.R. Mead, Ph.D.	Geography of Scandinavia and Finland
E.H. Brown, Ph.D.	Geomorphology of Britain
J.T. Coppock, Ph.D.	Land use in Great Britain
K.A. Sinnhuber, D.Phil.	Historical geography of central Europe
H.C. Prince	Parkland in England
R.A. French	Historical geography of the U.S.S.R.
T.J. Chandler	Climate of London
J.H. Johnson	Historical geography of Ireland in the 19th century
D. Thomas	London's Green Belt
R.G. Ward	Population and resources of Fiji
E.C.F. Bird, Ph.D.	Coastal geography and conservation
R.U. Cooke	Geomorphology of the Atacama Desert
R.L. Heathcote	Settlement in S.E. Australia
D.J. Robinson	Historical geography of colonial Latin America
J.P. Carr	Historical geography of Derbyshire
M.J. Harrison	Ridge and furrow in the Midlands

14. Geology

Professor S.E. Hollingworth	Permo-Triassic evaporites Pleistocene stratigraphy Stratigraphy of the Old Red Sandstone of S. Ireland Geomorphological and structural studies in N.Chile Carboniferous Slate and Old Red Sandstone

14. Geology (*continued*)

T. Barnard, Ph.D.	Mesozoic microfaunas: their evolution and stratigraphical significance
M.K. Wells, Ph.D.	Studies of gabbro intrusions in Sierra Leone, West Africa
	Metamorphic rocks and structures in N. Norway
	Composite intrusions in Ardnamurchan
A.J. Lloyd, Ph.D.	Foraminifera from the Kimmeridge Clay of N. France
	Stratigraphy and structure of part of the Neuchatellois Jura
	Mesozoic microfaunas from submarine samples
J.E. Robinson, Ph.D.	Scremerston Coal Group of W. Northumberland
	Ostracod faunas from the Carboniferous Limestone succession of Northumberland and their relationship to those of the N. England succession
R.W.R. Rutland, Ph.D.	Metamorphism, granite emplacement and structural geology in N. Norway
	Tectonics and vulcanism in N. Chile
	Petrological significance of feldspars
A.J. Smith, Ph.D.	Structures in the late-glacial laminated clays of Windermere, Lake District
	Gondwana sediments of the Godavari Valley of central India
E.F. Stumpfl, Dr. Rer. Nat.	Tin deposits of the Rooiberg district, South Africa
	Platinum deposits of the Eastern Bushveld, South Africa
	Opaque heavy minerals in sediments and igneous rocks
D. Skevington, Ph.D.	Morphology of graptolites from the Ordovician of Shropshire and Oeland, Sweden
	Ordovician stratigraphy and correlation

15. History and Philosophy of Science

Professor D. McKie, D.Sc., Ph.D., F.R.S.E.	History of chemistry and history of physics
A. Armitage, Ph.D.	History of astronomy
N.H. de V. Heathcote, Ph.D.	History of physics
W.A. Smeaton, Ph.D.	History of chemistry and history of physics
J.S. Wilkie, Ph.D.	History of biology
M.S. Finlay	Philosophy of science
F.W. Gibbs, D.Sc., Ph.D.	History of technology
E.A. Underwood, M.D.	History of medicine

16. Mathematics

Professor W.R. Dean	Hydrodynamics and elasticity
Professor C.A. Rogers, D.Sc., F.R.S.	Theory of numbers, packing and covering
Professor K.F. Roth, Ph.D., F.R.S.	Theory of numbers
T. Estermann, D.Sc., D.Nat.Sc.	
G.L. Watson, D.Sc.	
L. Few, Ph.D.	
L.A. Wigglesworth	Hydrodynamics and elasticity
D.H. Michael, Ph.D.	
L.M. Hocking, Ph.D.	
L.S. Bosanquet, D.Phil., D.Sc.	Theory of functions of a real variable
H. Kestelman	
P. Du Val, Ph.D.	Geometry
J.W. Archbold	
E.A. Power, Ph.D.	Mathematical physics

17. Pharmacology and Therapeutics

Professor H.O. Schild, M.D., Ph.D., D.Sc.	Anaphylaxis and autosensitization reactions Cellular mechanism of drug action
J.L. Mongar, Ph.D.	Mechanism of the anaphylactic reaction studied at cellular and subcellular level
D.R. Laurence, M.D.	Pharmacology of tetanus
R.A. Webster, Ph.D.	Central pharmacology of drugs affecting muscle tone
H. Steinberg (Miss), Ph.D.	Psychological effects of drugs affecting the nervous system
D.H. Jenkinson, Ph.D.	Mode of action of transmitter substances

18. Photogrammetry and Surveying

Professor E.H. Thompson, O.B.E.	Research into methods of aerial triangulation, both analogue and digital Application of digital computation to the adjustment of aerial triangulation The use of a recording stereo-comparator in photogrammetric work Construction of a zenith camera of a new type
E.A. Miskin, Ph.D.	Non-topographic applications of photogrammetry with particular reference to medical and engineering problems The development of photogrammetric procedures appropriate to the study of accuracy of building components and of buildings Research to develop methods and procedures for measuring current velocities in large bodies of water, such as river estuaries, by means of photogrammetry

19. Physics

Professor Sir Harrie Massey, F.R.S.	Experimental and theoretical nuclear, ionic and atmospheric physics; space research
Professor E.H.S. Burhop, Ph.D.	Physics of atomic and nuclear collisions and of Auger processes Study of strange particles using nuclear emulsions
Professor J. Hamilton, Ph.D.	Theoretical high-energy physics; quantum field theory; analysis of experiments
Professor R.L.F. Boyd, Ph.D. A.P. Willmore, Ph.D.	Experimental atmospheric, ionospheric, solar and stellar physics by use of rockets and satellites, and related laboratory studies
J.B. Hasted, D.Phil.	Experimental study of ionic collision processes in gases
H.B. Gilbody, Ph.D. C. Dodd, Ph.D. C. Henderson, Ph.D. F.R. Stannard, Ph.D.	Development of heavy liquid bubble chambers and their use in high-energy physics
R.E. Jennings, Ph.D. D.K. Aitken, Ph.D.	Experimental study of the scattering of high-energy electrons by nuclei and of Bremsstrahlung; spark chambers; transition radiation
F.F. Heymann, Ph.D. D.G. Davis, Ph.D.	Experimental study of the polarization of protons in meson-proton collisions; spark chambers
T.C. Griffith, Ph.D.	Experimental study of nucleon-nucleon collisions
M.J. Seaton, Ph.D.	Physics of atomic collisions; problems in astrophysics
S. Zienau, Ph.D.	Field theory
J.W. Fox, Ph.D.	Collision processes in atomic hydrogen
G.V. Groves, Ph.D.	Theoretical studies relating to scientific use of rockets and satellites
D.W.O. Heddle, Ph.D.	Spectroscopic studies of atomic collision phenomena Astronomical studies from rockets
H.S. Tomlinson M.J.B. Duff, Ph.D.	Design of a heavy liquid bubble chamber Development of automatic analysis methods for bubble chamber photographs and nuclear emulsions

20. Physiology

Professor A.F. Huxley, F.R.S.	Physiology of nerve and muscle
Professor J.A.B. Gray	General neurophysiology
Professor A.V. Hill, C.H., F.R.S.	Biophysics
L.E. Bayliss, Ph.D.	Rheology
H. Davson, D.Sc.	Physiology of ocular and cerebro-spinal fluid
M.G. Eggleton (Mrs.) D.Sc.	Renal physiology
R.D. Harkness M.L.R. Harkness (Mrs.)	Properties of connective tissue, particularly of reproductive tract
S.J. Hubbard, Ph.D.	Electrophysiology of muscle
O.C.J. Lippold J.E. Pascoe	Neurophysiology
M. Schachter, M.D.	Active substances in tissues
D.R. Wilkie, M.D.	Muscle energetics

21. Psychology

Professor G.C. Drew	Skills, especially effect of drugs on skilled performance Ergonomic problems
J.W. Whitfield	Experimental studies of problem solving and non-parametric statistics
G.H. Keir (Miss)	An investigation for the Home Office into the after careers of Approved School girls. An investigation into the integration of personality. An appraisal of play facilities for children. Psychological assessment of school children from Tristan da Cunha
R.J. Audley, Ph.D.	Mathematical models of human and animal choice behaviour
E.K.C. Banks (Miss), Ph.D.	Child psychology, including mental testing; tests of personality; prediction studies in delinquency
C. de Monchaux (Miss), Ph.D.	Psycho-analytic study of thought disturbances
N.F. Dixon, M.B.E., Ph.D.	Recognition processes and the reticular activating system in depression
R.T. Green, Ph.D.	Learning, remembering and attention. Electric shock thresholds. Test theory and construction
A.R. Jonckheere, Ph.D.	Devising distribution-free tests for the analysis of psychological data. Perception. Problem solving. Mathematical analysis of learning phenomena
R.P. Kelvin, Ph.D.	Social psychology of class structure. Psychological factors in economic behaviour Investigation of student failure
D. Legge	Organization and disruption of motor skills, including modifications caused by drugs
J.L. de C. Downer, Ph.D.	Functions of the cerebral cortex
A.J. Marshall, Ph.D.	Perception of black and white patterns under different conditions of viewing
Professor A. Summerfield	Problems of learning and perception. Psychopharmacology
L.J. Buck	Human factors in railway accidents
N. Harris (Mrs.) M. Khairy (Miss), Ph.D.	Behavioural effects of drugs and brain lesions
H.A. Long (Miss)	The effect of drugs on skills, with special reference to driving
R. Maliphant	An investigation into rescidivism in young offenders

21. Psychology *(continued)*

D. Monnington (Miss)	Communication of production information and relation of this to success in identifying and solving production problems liable to result in delivery delay
N. Mrosovsky	Behavioural effects of lowered body temperature
I.S. Russell, Ph.D.	Functions of the cerebral cortex and its control of behaviour
R. Sergean	Individual patterns in absence from work Recruitment, training and education in the clothing industry
R.D. Shepherd	Field studies of the effects of heat stress and personality factors on performance
S.B.N. Shimmin (Miss)	Extra-mural factors influencing industrial motivation Methods of teaching visual inspection tasks
J. Walker	The perception of directional information Human problems of shift work
P.C. Wason, Ph.D.	Reasoning. Negative information
A. Zajaczkowska (Mrs.), Ph.D.	Proprioceptive facilitation in muscular skill and in visual judgements of distance and size

22. Statistics

Professor M.S. Bartlett, F.R.S. F.N. David (Miss), D.Sc. N.L. Johnson, Ph.D. N.W. Please D.E. Barton, Ph.D. T. Lewis	Statistical theory and methodology, especially the development of new methods and techniques for analysing statistical data (including non-parametric methods) Probability theory, especially the theory of stochastic processes; applications in biology, engineering, industry, medicine and physics Combinatory analysis especially in relation to non-parametric statistical problems Mathematical work leading to computation of new tables of statistical functions

23. Zoology

Professor M. Abercrombie, F.R.S.	Locomotory behaviour of cells
Professor D.M.S. Watson, F.R.S.	Palaeontology of amphibia, reptiles and mammals
Professor G.P. Wells, F.R.S.	Zoogeography, anatomy and physiology of Polychaeta
R.B. Freeman, M.B.E.	General systematics
K.A. Kermack. Ph.D.	Mesozoic mammals and their immediate precursors
M. Whitear (Miss), Ph.D.	Proprioceptors in Crustacea
A. Comfort, D.Sc.	Comparative biology of ageing in vertebrates Factors modifying vertebrate life-span
B.B. Boycott	Nervous system of cephalopods and lower vertebrates
P.L. Robinson (Miss), Ph.D.	Fauna of Triassic lepidosaurs and other reptiles Late Palaeozoic and Mesozoic Indian vertebrates
J. Maynard Smith	Genetics of patterns in *Drosophila* Ageing in *Drosophila*
A.D. Blest, D.Phil.	Behaviour and physiology of Lepidoptera
K. Vickerman, Ph.D.	Electron microscopy of Protozoa
F.B. O'Connor, Ph.D.	Ecology and respiratory activity of the soil fauna
J. Dee (Miss), Ph.D.	Genetics of a myxomycete
R.C. Fisher, Ph.D.	Physiology of insect parasitism
A.S.G. Curtis, Ph.D.	Cytoplasmic grafting Physical and biological properties of the cell surface

28 London University, Westfield College

1. Botany

Professor G.E. Fogg, Ph.D.	Physiology and biochemistry of algae Limnology
G.J. Cunnell, Ph.D.	Taxonomy of Sphaeropsidales Morphology of the inflorescence in *Ranunculus*
R.S. Clymo, Ph.D.	Ecology of plants of chemically extreme habits, particularly *Carex flava* (s.l.) and *Sphagnum* spp.

2. Chemistry

Professor W. Klyne, D.Sc.	Stereochemistry of natural products Optical rotatory dispersion
T.R. Emerson, Ph.D.	
P.M. Scopes (Mrs.), D.Phil.	Chemistry of steroids and D-homosteroids (including M.R.C. Steroid Reference Collection)
B.J. Aylett, Ph.D.	Synthesis of silicon hydride derivatives Inorganic polymers
A. Walton (Miss), Ph.D.	Sorption properties of silicates
J.J. Throssell	Gas phase kinetics
J.M. Hay	Gaseous oxidations

3. Mathematics

Professor E.H. Sondheimer, Ph.D.	Electron theory of metals
G.K. Stanley (Miss)	Theory of numbers
S.J. Taylor, Ph.D.	Theory of measure
B. Fishel	Differential equations; abstract analysis
J.E. Hebborn, Ph.D.	Electron theory of metals

4. Physics

Professor E.H. Bellamy	Elementary particle physics
P.V. March, Ph.D.	
V.A. Bull	
P.A. Rowlatt (Mrs.)	Theoretical elementary particle physics
B. Donovan, Ph.D.	Theoretical solid state physics Electrical, optical and magnetic properties of metals and semiconductors
R.J. Griffiths, Ph.D.	Nuclear physics
C.A. Cooke, Ph.D.	
J. Webster (Miss)	Theoretical solid state physics

5. Zoology

Professor J.E. Webb, D.Sc., Ph.D.	The faunal changes in tropical marginal lagoons Taxonomic and population studies in Cephalochordata and the distribution of lancelets by ocean currents The physical properties of sediments affecting the distribution of burrowing animals
E.E. Sandison (Miss), Ph.D.	Taxonomic and population studies of barnacles
J. Griffith, Ph.D.	Triassic and Jurassic fish

29 London University, Wye College

1. Agriculture

Professor W. Holmes, Ph.D.	Nutrition of dairy cows
with J.G.W. Jones, Ph.D.	Measurement of feed intake on grazing Plant physiology and grass production
J.E. Duckworth, Ph.D.	Pig breeding and selection

1. Agriculture (*continued*)

Agricultural Zoology:

C.A. Finn	Studies on implantation of ova in rodents Factors influencing litter size in mice

Poultry Research:

A.H. Sykes, Ph.D.	Avian physiology
P. Hunton	Inheritance of hatchability

2. Botany

I.W. Selman, D.Sc.	Physiological analysis of effects of virus and fungus infection of tomato
G.F. Pegg, Ph.D.	Analysis of the influence of *Verticillium* on the tomato plant
T.A. Hill	Native gibberellins of the tomato
R. Hull	Virus diseases of sweet pea
G.J. Dowrick, Ph.D.	Apomixis and angiosperm cytogenetics
M.D. Hooper, Ph.D.	Taxonomic studies in the Gramineae

Plant Physiology:

A.R.C. UNIT OF PLANT MORPHOGENESIS AND NUTRITION

F.J. Richards, D.Sc., F.R.S.	Metabolic effects of potassium deficiency; putrescine production Morphogenetic effects of rubidium Analytical studies in phyllotaxis
W.W. Schwabe, D.Sc.	Day-length, temperature and plant hormones in relation to flowering behaviour and growth

3. Chemistry*

Professor R.L. Wain, Ph.D., D.Sc., F.R.S. M.S. Smith (Miss), Ph.D. A.E. Flood, Ph.D. S.T.C. Wright, Ph.D. C.H. Fawcett, Ph.D. D.M. Spencer, Ph.D. K. Rothwell, Ph.D. F. Taylor J.L. Garraway P.P. Rutherford, Ph.D. R.K. Atkin G.A. Carter	Plant growth substances: chemical structure in relation to physiological activity; movement of growth substances and their stability within plant tissues; mode of action Fungicidal and systematic fungicidal activity
J.M.A. Ingram (Miss)	Soil structure in relation to grassland management
J.L.M. Lambert M.A. Jones	Soil mineralogy and geochemistry
D.C. Whitehead, Ph.D.	Growth-promoting substances in natural soils
N.K. Jenkins, Ph.D.	Animal nutrition studies

4. Economics

G.P. Wibberley, Ph.D.	Agricultural and land economics
R. Best	Studies of land use and requirements
R.R.W. Folley	Economics of horticultural production and marketing
I.G. Reid, Ph.D.	Farm organization and management
J.D. Sykes	Agricultural production economics and resource use
G. Allanson	Economic organization of milk production
E.S. Clayton, Ph.D.	Agrarian development in E. Africa
W. MacKenzie, Ph.D.	Agricultural policy and marketing

*Houses the A.R.C. Unit for Research on Plant Growth Substances and Systemic Fungicides: Honorary Director, Professor R.L. Wain, PhD., D.Sc., F.R.S.

5. Hop Research

R.A. Neve, Ph.D.	The breeding of new varieties of hops (with special emphasis on disease resistance) by methods which include the use of induced polyploidy and of controlled crosses. Studies on sex determination in hops
	The selection and development of clonal stocks of established commercial varieties of hops
F.C. Thompson	Cultural and manurial trials with hops
R.F. Farrar	The use of leaf and soil analysis to study the uptake of nutrients by the hop plant and for the diagnosis of mineral deficiencies
J.B. Roberts	The organic constituents of the hop plant with special reference to the formation of resins and hop oils
J.R. Coley-Smith, Ph.D.	Biology and control of downy mildew (*Pseudoperonospora humuli*), powdery mildew (*Sphaerotheca humuli*) and canker (*Gibberella pulicaris, Fusarium sambucinum*) of the hop
M.W. Shea	Studies on mechanical hop picking

6. Horticulture

Professor H.W. Miles	Horticultural entomology: insect ecology
E.H. Wilkinson, Ph.D.	Pomology and orchard management: fruit pathology
A.A. Jackson	Vegetable crop production and improvement
J.T. Sykes	Aspects of plant propagation with special reference to the use of misting techniques
M.Miles (Mrs.)	Entomology: anthomyid flies of economic importance

30 London University, Charing Cross Hospital Medical School

1. Anatomy

Professor W.J. Hamilton, D.Sc., M.D.	Development and growth of the human placenta Early development of the human embryo
T.W. Glenister, Ph.D.	Activation of spermatozoa with gonadotrophins Study of endometrium, blastocysts and trophoblasts *in vitro* Study of endometrium, blastocysts and trophoblasts in organ culture Development of the urogenital system in man
K.M. Backhouse	The gubernaculum testis and related structures Functional anatomy of the hand Specialization in marine mammals Activity of foetal and post-natal testis in mammals
J.R W. Ross (Miss)	The development of the female genital tract in sheep

2. Biochemistry

Professor J. Patterson, Ph.D.	Studies of urinary steroids with special reference to patterns of steroid excretion in cases of adrenal hyperplasia
with J. Swale	Colorimetric assays on conjugated urinary corticoids

3. Clinical Research

W.E.D. Evans, M.D.	Changes in tissues observed in materials from exhumations
N.C. Lake, D.Sc.	Hypothermia in small mammals
A.R. Makey J. Angus Smith	Oxygenation of blood in cardiopulmonary by-pass, utilizing the paramagnetic properties of oxygen Suprarenal insufficiency in systemic disease An assessment of the effect of insulin

3. Clinical Research *(continued)*

N. Ramsey	A comparison between plethysmography and a method of measuring blood flow in the calf muscle of humans, using radioactive sodium
	Observations on a transfer of iron from mother to foetus at various stages of pregnancy, using iron-complex dextrin labelled with Fe^{59}
Professor N.F. Morris, M.D.	Changes in the metabolism of the placenta in normal and abnormal pregnancy
M.K. Jeacock (Miss)	
J.C. Sloper, M.D.	The effect of ionizing radiation on the hypothalamus and pituitary of rats
H.I. Winner, M.D.	The defence mechanisms of human beings against infection by fungi, with particular reference to the effect of such agencies as antibiotics and hormone therapy
M.A. Peyman, D.M.	Role of heparin and diet in cardiovascular disease
Professor H.E. de Wardener, M.B.E., M.D.	Role of potassium in malignant disease Studies of renal function in nephrotoxic syndromes
M. Wilkinson, M.D.	Electrophoretic studies of joint fluid in arthritic conditions
M. Zoob, M.D.	Blood viscosity in coronary artery diseases
K.S. Smith, M.D.	Studies of arterial elasticity in hypertension
I.C. Cree	The effect of pH, osmolarity and pCO_2 on the function of leucocytes
Professor A.J. Harding Rains	Nature and formation of gall-stones
E.R.J. Emery, M.D.	Investigation into the effect of sub-lethal and lethal embolism under varying conditions
S. Shaw, M.D.	Investigation of the thromboplastic function of platelets
L. Kessel, M.B.E., M.C.	Function of spastic joints following tendon transplantation
K.D. Bagshawe	Antibody formation after tissue implantation
G.D. Pegrum, M.D.	Investigation into the chromosomal abnormalities occurring in diseases of the blood
R. Hurley, M.D.	A study of heating and irradiation
C.A. Joslin, M.D.	

FULHAM HOSPITAL

L. Kessel, M.B.E., M.C. A. Katz	Investigation, surgical and social, to determine the prognosis of fractures of the neck of the femur in the elderly
L. Kessel, M.B.E., M.C. G. Fulford	The indications for surgery, and the method of recording gait and movement in cases of adult cerebral palsy
L. Kessel, M.B.E., M.C. M. Rang	Investigation of metabolism of chondroitin sulphate in articular cartilage with S^{35}

WEST LONDON HOSPITAL

W.S.C. Copeman, O.B.E., M.D.	Assessment of pituitary reserve and function in rheumatoid arthritis
	Safer methods of using corticosteroids in severe rheumatic arthritis, and the improvement of the methods of clinical measurement in this disease

4. Haematology

S. Shaw, M.D.	The thromboplastic function of platelets in thrombocythaemia and in high concentrations of normal platelets
	The survival time of transfused platelets

5. Medicine

Professor H.E. de Wardener, M.B.E., M.D.	Renal function and disease
K.D. Bagshawe	Use of cytotoxic drugs Adrenal function in malignancy
A. Guz	Cardiopulmonary function and disease

6. Microbiology

Bacteriology:

H.I. Winner, M.D. (Head of Department) R. Hurley	Experimental and clinical studies of the pathology of diseases due to the yeast-like fungi, with particular reference to factors affecting immunity Experimental studies on auto-immunization Antibacterial effects of rubber and plastics

7. Obstetrics and Gynaecology

Professor N.F. Morris, M.D.	Investigation of various chemical and enzymic constituents of the human placenta at different stages of normal and abnormal pregnancy Investigation of the intermediary metabolism of the human placenta *in vitro* from normal and abnormal pregnancy with special reference to the utilization of glucose Investigation of carbohydrate metabolism in pregnancy and the puerperium Study of changes in the peripheral circulation during pregnancy and the puerperium Assessment of women's reactions to labour in relation to new pain relieving methods

8. Pathology

Professor W. St. C. Symmers, M.D.	Deep-seated fungal infections in man Clinico-pathological problems concerning the lymphoreticular system Clinico-pathological problems concerning the so-called collagen diseases, particularly thrombotic purpura
J.C. Sloper, M.D.	Mode of elaboration of posterior pituitary principle by hypothalamic neurones in the normal vertebrate Study of the hypothalamo-hypophyseal neurosecretory system in the human after surgical injury and in disease, and in other vertebrates following intense irradiation and other forms of injury Distribution of various isotopes in the vertebrate brain and pituitary, both in the normal and in the stressed animal Factors promoting the regeneration of injured skeletal muscle
W.E.D. Evans, M.D.	Post-mortem changes in human tissues Morphological and other characteristics of human and animal hair
J.G. Jackson	Connective tissue changes in the heart in Africans, with particular reference to rheumatic carditis and endomyocardial fibrosis
B. Fox	Investigations into the causes of acute degenerative changes in adrenal glands

Chemical:

Professor J. Patterson, Ph.D.	Methods of determining total 17-hydroxycorticosteroids in urine
with J.D. Few	Fractionation of urinary total 17-hydroxycorticosteroids into 11-deoxy and 11-oxy components after preliminary conversion to 17-ketosteroids

9. Pharmacology

J.B.E. Baker	Elective cardiac arrest Action of drugs upon the myocardium under conditions of anoxia and asphyxia

10. Physiology

Professor W. Burns, D.Sc.	Effect of acoustic stimulation on cochlear function
J. Lee, M.D.	The role of antidiuretic hormone as a factor in the production of oedema of man
J.J. Jones, Ph.D.	Adrenaline and salt retention Sodium and the staircase phenomenon
A.F. Lewis, Ph.D.	The mechanism of broncho-constriction and associated lung changes

11. Surgery

Professor A.J. Harding Rains	Development of blood vessels Aspects of gall-stone formation Bone marrow grafting Recovery patterns in jaundice

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1. Anaesthetics

P.J. Helliwell (Director) with B.R.P. Murray P.B. Whitty	Influence of light source and colour environment on clinical assessment of patients
T.H.S. Burns J.M. Hall	Development of new, non-explosive inhalational anaesthetic drugs
C. Bishop	Evaluation of various methods of electronic pulse detection and indirect blood pressure measurement
M.W. Potts	Investigation into angiocardiography with reference to possible respiratory effects of contrast medium
with B.R.P. Murray	Investigation into the relationship of pre-operative respiratory function to post-operative pulmonary insufficiency following total cardiopulmonary by-pass
S.R. Williams C. Bishop	Investigation into closed circuit mechanical ventilation and bacteridical activity of soda lime in such a circuit
W.A. Roper	Filtration of air, using an absolute filter, in prolonged mechanical breathing
D.S. Robertson S.R. Williams	Problems related to tracheostomy in cardiac surgery
S.R. Williams D.S. Robertson B.R.P. Murray J. Helliwell	Changes in blood chemistry during cardiopulmonary by-pass

2. Anatomy

R. Warwick, Ph.D., M.D.	Anthropometric report on the contents of a Roman-British cemetery at York
	Study of proprioceptor pathway of extrinsic ocular muscles
with P.L. Williams	An experimental study of the rubrospinal tract and red nucleus
J. Pond	Production of ultrasonic lesions in the brain Ultrasonic effects on peripheral nerves

2. Anatomy *(continued)*

J. Joseph, M.D., D.Sc.	The electromyography of positions of rest
	The electromyography of walking using a radio transmitter
	Cine-radiography by the image intensifier and projection analysis of movements of joints
with D.N. Landon	Electron microscopy of the growing edge of healing skin
with F.J. Townsend (Miss)	Autotransplants of bladder to alimentary tract
G.A. Thomas, Ph.D.	Electron microscopy of Wallerian degeneration
P.L. Williams	An experimental study of nerve structure
	Electron microscopy of the environment of the developing neurite
	Electron microscopy of fractionated homogenates of mammalian brain
	Growth patterns of mammalian nerves
E. Lowell Rees	Stereotactic problem of the human thalamus
M. Brookes, D.M.	Experimental studies on the influence of hormones on the vascularization of bones
	Experimental studies on the influence of the nervous system on bone growth and vascularization
	Morphological studies on the vascular patterns in bones
	Experimental studies on the blood supply of growth cartilages
D.N. Landon	Electron microscopy of sensory nerves in the rat in diabetes
	Electron microscopy of process of chromatolysis in the dorsal root ganglia of the chicken

3. Biochemistry

Professor G.A.D. Haslewood, D.Sc., Ph.D.	Comparative studies of bile salts, with particular reference to their possible importance in a study of evolution and of species characterization
W.L.G. Gent, Ph.D.	Physical properties of proteins of central nervous system
A.N. Davison, Ph.D.	Metabolism of lipids and proteins in the nervous system
	Analysis and separation of lipids of normal and pathological human brains
B.W.L. Brooksbank, Ph.D.	Biochemical and physiological studies on C_{19}-steroids
	Analysis of Δ^{16}-androsten-3α-ol and related substances in human body fluids

4. Biology

Professor G.E.H. Foxon	Experimental study of blood circulation of vertebrates
	Reticulo-endothelial system in lower vertebrates
E.W. Baxter, Ph.D.	Biology of lampreys
B.J. Rickard	Fate of foreign colloids in invertebrates
L.H. Bannister	Comparative anatomy of fish brain
I.R. Bishop	Systematics and biology of small mammals

5. Chemistry

F.H. Brain, Ph.D.	Some aspects of the chemistry of gold

6. Dental Studies

Professor M.A. Rushton, C.B.E., M.D.	Reactions of oral tissues in relation to diseases and irradiation
R.A. Cawson	

6. Dental Studies *(continued)*

Orthodontics:

R.E. Rix	The effects of oro-muscular behaviour on the dento-alveolar structures
with W.J. Tulley, Ph.D.	Cephalometric studies of the developing masticatory apparatus using the Broadbent-Bolton roentgenographic cephalometer
W.J. Tulley, Ph.D.	Cineradiographic and electromyographic studies of tongue and lip behaviour

Preventive Dentistry:

R.D. Emslie (Director)	Clinical trial of a toothpaste containing stannous flouride
M.N. Naylos	Laboratory studies on the uptake of fluoride by the teeth
	Clinical and laboratory studies on periodontal disease

Prosthetics:

D.J. Neill, D.F.C.	Properties of dental materials
	Tissue reactions to prosthetic appliances
	Study of nature and frequency of contacts occurring between the opposing surfaces of artificial dentures
R.I Nairn	Study of facial, jaw and tooth dimensions
	Changes in mandibular posture following removal of all natural teeth

7. Endocrinology

P.M.F. Bishop, D.M. (Head of Department)	Problems related to general endocrinology from a clinical point of view
A.O. Lurie	

8. Forensic Medicine

K. Simpson, M.D. (Head of Department)	Functional assessment of coronary deficiencies
	Incidence of focal myocarditis
R. Goulding, M.D.	Survey of poisoning for the National Poisons Information Centre
A. Grant, M.D.	Heredity in blood group systems: haptoglobins
A.K. Mant, M.D.	Sperm survival
R. Furbank	Assessment of laboratory identification of synthetic hypnotics and tranquillizers

9. Medicine

K.S. MacLean, M.D., (Director) with Department of Surgery	Hypophysectomy and adrenalectomy in the treatment of breast cancer
with R. Brain R.D. Hill	A combination of cytotoxic drugs and surgery in the treatment of carcinoma of the lung

Experimental:

Professor W.J.H. Butterfield, O.B.E., M.D.	Aetiology and treatment of diabetes mellitus; factors affecting the uptake of glucose by peripheral tissues
	Studies of peripheral circulation by flow calorimetry and plethysmography
with M.J. Whichelow, (Miss)	Peripheral glucose uptake during glucose loads, and effect of insulin
	Metabolic effects of phenethyldiguanide
C.J. Garratt	Methods for studying insulin fixation in tissues in man
R. Blainey	Operational research into the relationship between hospital out-patients, general practitioners and local population

9. Medicine (*continued*)

Experimental (*continued*)

J.R. Trounce, M.D.	Study of disorders of unstriped muscle including achalasia of the cardia and Hirschsprung's disease Glycoproteins in diabetic and other vascular disease Uptake of Ca by cell membranes
R.F. Mahler	Studies on the quantitative aspects of tissue metabolism Enzyme patterns in various myopathies
with W.L. Stafford (Miss), Ph.D.	Metabolism of acetoacetate and β-hydroxybutyrate
H. Keen, M.D.	Studies of islet cells of rat; and follow-up of diabetics detected in Bedford Survey, 1962
with C. Chlouverakis	Studies of metabolism of retina
R.J. Jarratt	Study of effect of sulphonylureas on leucine metabolism
D.R. Boyns	Studies of basement membrane
T. Hanley, M.D.	Utilization of fatty acids by muscle: effects of hormones and exercise
B.L. Mallett	Studies of cerebral circulation using isotopes
A.L.J. Buckle, Ph.D.	Amino-acid patterns in blood plasma
*R.T. Grant, O.B.E., M.D., F.R.S.	Guinea-pig anti-insulin serum and experimental diabetes Cholinesterase activity of vasomotor nerves and the sensitivity of denervated vessels
*N. Veall	The use of Ca^{47} for metabolic studies in normal subjects and in patients with osteoporosis The mechanism of uptake of Cr^{51} O_4^{--} and binding of Cr^{51} by red blood cells Development of techniques and equipment for various routine clinical applications of radioactive isotopes
V. Parsons, D.M.	Uses of Ca^{47} for clinical tests of Ca metabolism and parathyroid function
M. Abrams	Metabolic and hormonal aspects of reactive hyperaemia

10. Microbiology

Bacteriology:

Professor R. Knox, M.D.	The mode of action of antituberculous drugs, especially isoniazid The mode of action of new penicillins Studies on the breakdown of isoniazid New techniques in sterilization of syringes, dressings, etc.
R.H. Gorrill, M.D.	Localization of bacteria in the kidneys of experimental animals Studies on the establishment of lysogeny in *Salmonella typhimurium*
J.T. Smith, Ph.D.	Mode of action of new penicillins in relation to various penicillinases
D.M. MacLaren	Laboratory control of chemotherapy

11. Obstetrics and Gynaecology

T.L.T. Lewis (Director)

C.M. Flood, M.D.	Investigation into the treatment of ovarian carcinoma especially in young women with special reference to subsequent pregnancies
G.L.S. Rankin	Absorption of the newer penicillin in labour and placental transfer

*M.R.C. staff

12. Paediatrics and Child Health

Professor P.E. Polani, M.D.	" Nuclear sexing " and chromosome studies in relation to errors of sex development
	Colour blindness studies
	Dermatoglyphics in congenital malformations
	Investigation into the meaning of disturbed sex ratio in anencephaly
M.L.J. Abercrombie (Mrs.)	Oculo-motor disturbances in relation to perceptual disorders of brain-damaged children
P.F. Benson	Investigation of congenital dysphagia due to neuro-muscular incoordination
	Investigation of renal function of a family with hypoparathyroidism presenting with neonatal sodium retention
	Investigation of lymphoedema in gonadal dysgenesis
J.L. Hamerton	Cytogenetics of mongolism
	Studies on meiosis in man including experimental studies
	Autoradiography of human chromosomes *in vitro*
	Tissue culture studies in relation to human genetics
	Investigations into the nature of the sex chromatin
	Chromosome anomalies in spontaneous abortions and stillborn and malformed newborn babies
M.C. Joseph, M.D.	Chromosomes in congenital heart disease
	Aetiological factors in congenital heart disease
	The facies in disease
	Palm prints in congenital heart disease
	The metacarpal index in infancy
P. Hume Kendall, M.D.	Investigation into objective methods of quantitative assessment of the motor disability in cerebral palsy
	Evaluation of various forms of therapy for the motor disability in cerebral palsy
M.H. Lessof, M.D.	Growth hormone assays in normal childhood and in disturbances of growth
	Immunological studies in anaemias, diseases of the thyroid and neurological disorders
	Experimental auto-immune disease of the guinea-pig testis
R.C. Mac Keith, M.D.	Breast feeding
	Nature and treatment of cerebral palsy
	Neurological examination of the newborn
	Techniques of teaching
	Television in medicine
A.D. McDonald (Mrs.), M.D.	Survey of neurological disorders, blindness and deafness in children weighing not more than 4lb. at birth and a study of their intelligence
	Anencephaly
	Mongolism in twins
	Twinning and congenital heart disease
	Epidemiological studies in congenital clubfoot
	Survey of birth histories of children with cerebral palsy
R. Spector, M.D.	Effects of anoxia on the central nervous system of immature animals
	Development of enzyme systems during the perinatal period
	Electron microscopy studies of neurone and glial cells after experimental anoxia
	Specific enzyme susceptibility to anoxia
	The action of physiological substances and their antagonists on the foetus
	Activity of drugs on growth and developments of embryo and foetus

13. Pathology

Professor G. Payling	Studies on experimental demyelination
Wright, D.M. with E.M.I. Berkinshaw-Smith (Mrs.)	Studies on virus invasion of the central nervous system
S.J. De Navasquez, M.D.	Experimental infections of the kidney
J.R. Batchelor with *S.M. Saleh (Miss) M.A. Tuffrey (Mrs.)	Serological studies on neoplasms and normal tissue grafts
G.A.K. Missen	Studies on arteritis in man
C.W.M. Adams, M.D.	Histochemical studies on myelin and multiple sclerosis
with M.Z.M. Ibrahim	Studies on human and experimental atherosclerosis
S. Leibowitz	Cytotoxic drugs and experimental allergic encephalomyelitis
with N.A. Gregson	Production of experimental allergic encephalomyelitis by subcellular fractions of brain
J.B. Cavanagh	Culture studies of nervous tissue in relation to myelination
	Studies on toxicology of organic phosphorus compounds
with †L. Illis	Nephropathies due to immune processes
J.M. Jacobs (Mrs.)	Developmental aspects of peripheral myelination

Chemical:

Professor R.H.S. Thompson, D.M.	Studies on lysophosphatides and their metabolism, with special reference to the pathogenesis of multiple
G.R. Webster, D.M.	sclerosis and other demyelinating diseases
	Studies on the phospholipases
	Studies on acetal phospholipids
†P. McArdle, M.D.	Metabolic studies of diseases of muscle
	A study of the levels of different phospholipids in the cerebro-spinal fluids in health and disease
R.W.R. Baker, Ph.D.	Application of gas chromatography in the analysis of plasma and cerebro-spinal fluid constituents
P.H. Wright, M.D.	Studies on insulin antibodies in connection with the production of diabetes mellitus in experimental animals
	Early metabolic changes induced by insulin deficiency
L. Rathbone, Ph.D.	Fractionation and purification of phospholipids of the nervous system

Clinical:

W.H.H. Merivale	Studies on the development of staphylococcal infection in human skin grafts
	Metabolic studies of patients with manic-depressive psychosis

14. Pharmacology and Therapeutics

Professor J.M. Robson, M.D., D.Sc., F.R.S.E.	Pharmacological actions of sex hormones
	Effects of drugs on pregnancy and on sexual development
	Chemotherapy of tuberculosis and leprosy
J.A. Nissim, M.D.	Intestinal absorption
	Endocrinology of reproduction
	Metabolism of iron
F.M. Sullivan	Chemotherapy of tuberculosis and leprosy
	Effect of drugs on pregnancy

*British Empire Cancer Campaign
†M.R.C. Staff

15. Physics

Professor C.B. Allsopp D.Sc., Ph.D.	Measurement of gonad doses received by patients during diagnostic X-ray examinations
S.J. Wyard Ph.D.	Electron spin resonance spectroscopy of free radicals produced in radiation chemical and biochemical processes
C.K. Battye E.H. Grant, Ph.D. M. Hill (Miss) K.W. Taylor, Ph.D.	Electron spin resonance spectroscopy of free radicals produced in materials of biological interest by means of ionizing and ultra-violet radiations
M.W. Aaron (Miss) P.G. Lale, Ph.D.	Study of carcinogenic substances by electron spin resonance spectroscopy
J. Nosworthy (Miss), Ph.D.	Construction and development of electron spin resonance spectroscopes operating at 300, 9000, and 37000 Mc/s and designed for medical and biological research
	The radiation chemistry of substances of biological interest
	Effects of chronic irradiation at low dose levels on bone growth
	Measurements concerned with energy absorption in radiotherapy
	Dosimetry of cobalt 60 radiation
	Physiology and technology of cardiac pacemaking
	Development of electronic apparatus for use in clinical diagnosis and research
	Use of ultrasonics in clinical diagnosis
	Use of scattered megavoltage X-rays for diagnosis
	Thermo-electric methods for producing low temperatures
	Active transport through membranes
	Dielectric properties of amino-acids and related compounds

16. Physiology

Professor J.N. Hunt, M.D., Ph.D., D.Sc.	Patterns of gastric function in health and disease
	Alimentary osmoreceptors and chemoreceptors
D.J. Anderson, Ph.D.	Inter-dental forces in mastication
	Tooth movements
	Mechanism of sensory receptors in human dentine
A.J. Bron	Electro-oculography
I. Macdonald, M.D.	Effects of carbohydrates in the diet on metabolism
	Effects of diet upon growth and development of the eyes
G.M. Preston	Electrophysiology of peripheral nerves in health and disease

17. Surgery

Professor H.J.B. Atkins D.M.	Clinical research into all aspects of diseases of the breast
J.L. Hayward	The use of thick celloidin section technique to scan tissues for carcinoma and other epithelial structures
	Clinical and histological research into cancer of the breast
	Research into the urinary steroids in adrenalectomized and hypophysectomized patients
B.W. Wolff (Miss)	Histological and experimental research into cancer of the breast
F.G. Ellis	Clinical research into problems of oesophageal motility
	Labelled isotope studies in steroid uptake by the breast

18. Surgery, Thoracic

Sir Russell Brock	Research on all surgical aspects of cardiac disease
D.N. Ross	Research into homograft problems and whole body perfusion
P.J. Molloy	Research into problems of total body perfusion The fate of free pericardial intracardiac grafts
A.H.B. de Bono	Research into all aspects of perfusion and experimental homografts
S.W. Parkinson	Research into auto- and homo-grafting in cardiac surgery Research into mechanical internal cardiac massage

32 London University Institute of Basic Medical Sciences

1. Anatomy

Professor G. Causey A. Barton	Electron microscopy and quantitative cytology
Professor R.J. Last F. Stansfield	Human anatomy and morphology
R. Livingston	Human and comparative anatomy
D. Tompsett .Ph.D.	Anatomical techniques

2. Pathology

Professor G.J. Cunningham, M.B.E., M.D. J.B. Walter, M.D.	Wound healing
Professor G.J. Cunningham, M.B.E., M.D. J. Chayen, D.Sc., Ph.D.	Histochemical methods applied to histopathology Histochemistry of lung cancer
Professor G.J. Cunningham, M.B.E., M.D. J. Chayen, D.Sc., Ph.D. L. Bitensky, Ph.D.	Histochemical aids to routine histological diagnosis of liver lesions Experimental liver carcinogenesis
Professor G.J. Cunningham, M.B.E., M.D. P.B. Gahan	X-ray microscopy
J. Chayen, D.Sc., Ph.D. G.R.N. Jones	Enzyme histochemistry and biochemistry
J. Chayen, D.Sc., Ph.D. J.V. Diengdoh	Histochemistry of malignant tumours of the skin
J. Chayen, D.Sc., Ph.D. P.B. Gahan L. Bitensky, Ph.D.	Histochemistry and biochemistry of phospholipids
J.B. Walter, M.D.	Transparent ear-chamber technique Experimental anaphylaxis
A.J.M. Reese, T.D., M.D.	Fate of suture material in wounds Experimental liver damage by anaesthetic agents
M.S. Israel	Tissue and organ culture Normal viral flora of tonsils and adenoids
L.W. Proger	Museum mounting methods

3. Pharmacology and Therapeutics

Professor G.V.R. Born, D.Phil.	Biochemical nature of drug receptor; biochemical changes in plasma and platelets during clotting
J.R. Vane, D.Phil.	Mode of action of sympathomimetic amines

3. Pharmacology and Therapeutics (*continued*)

J.W. Thompson, Ph.D.	Nerve regeneration and physiology and pharmacology of smooth muscle
J.E. Gardiner, Ph.D.	Enzymic processes in cholinergic transmission

4. Physiology

Professor D. Slome, Ph.D.	Wound healing
B.D. Wyke	Electrophysiology of the cerebral cortex
C. Long, D.Phil., F.R.S.E.	Biochemistry of lipids
G.H. Sloane-Stanley, D.Phil.	
G.C.R. Morris	Electrolyte and salivary secretion
N. Ambache	Physiologically active lipid anions

33 London University, Institute of Cancer Research

1. Cancer Research

CHESTER BEATTY RESEARCH INSTITUTE

Professor A. Haddow, M.D., D.Sc., Ph.D., F.R.S.	Mechanism of carcinogenesis Nutritional protection against carcinogenesis Experimental chemotherapy
Professor F. Bergel, D.Phil.Nat., D.Sc., F.R.S.	Synthesis and study of chemotherapeutic agents: Phenylalanine and serine peptides Modified proteins, polypeptides and antibiotics
G.M. Timmis, D.Sc.	Polyol dimesylates
W.C.J. Ross, D.Sc., Ph.D.	Amino-acid antagonists Hydantoins related to amino-acid mustards
J.A. Stock, Ph.D.	Sulphydryl group reactors
W. Davis, Ph.D.	Potential antipurines and antifolics
J.J. Roberts, Ph.D.	Potential inhibitors of diphosphopyridine nucleotide synthesis
G.P. Warwick, Ph.D.	
C.L. Leese, Ph.D.	Toxicology and haematology of agents
J.H. Lister, Ph.D.	Actions of the alkylating agents:
R. Wade, Ph.D.	Chemical reactivity of alkylating agents
J.L. Everett T.A. Connors, Ph.D. K.R. Harrap, Ph.D. A.B. Mauger, Ph.D.	Action of nitrogen mustards and other alkylating agents on nucleoprotein and proteins
L.A. Elson, D.Sc., Ph.D. P.D. Lawley, Ph.D.	Further studies of the action of alkylating agents on purines, nucleic acids and nucleotides *in vitro* and *in vivo*
A. Loveless, Ph.D.	Action of alkylating agents on bacteriophage systems
P. Brookes, Ph.D.	Comparison of the physiological response to radiation and to radiomimetic agents
Professor J.A.V. Butler, D.Sc., F.R.S.	Deoxyribonucleic acids and deoxyribonucleoproteins:
P. Alexander, D.Sc., Ph.D.	Characterization of deoxyribonucleic acids
J.T. Lett, Ph.D.	Cross-linking of deoxyribonucleic acids in nucleoproteins by alkylating agents
K.V. Shooter, Ph.D. A.R. Crathorn, Ph.D.	Action of deoxyribonuclease and proteolytic enzymes on deoxyribonucleoproteins
A.B. Robins, Ph.D.	Amino-acids, histones and proteins:
D.J.R. Laurence, Ph.D.	Avidity of tumours for amino-acids
D.M. Phillips, Ph.D.	Histones of calf thymus and other tissues
P. Cohn, Ph.D.	Protein synthesis in rat liver: role of the microsomes
K.S. Kirby, D.Sc., Ph.D.	DNpolymerases and binding of protein to DNA
E. Reid, D.Sc., Ph.D.	Ribonucleic acids: Fractionation of ribonucleic acids

1. Cancer Research (*continued*)

CHESTER BEATTY RESEARCH INSTITUTE (*continued*)

	Metabolism of ribonucleic acid and ribonucleotides in normal liver
	Metabolism of ribonucleic acid and ribonucleotides in liver tumours
	Cytoplasmic ribonucleases
Professor A. Haddow, M.D., D.Sc., Ph.D., F.R.S.	Enzymes and trace elements: Xanthine oxidase, guanase, etc.
	Pyridoxal phosphate-vanadium (pyrvanal) and cysteine metabolism
Professor F. Bergel, D.Phil. Nat., D.Sc., F.R.S.	Succinic dehydrogenase activity in precancerous livers and hepatoma
R.C. Bray, Ph.D.	Substrate-induced enzyme adaptation in the developing chick embryo
L.A. Elson, D.Sc., Ph.D.	
J.B. Solomon, Ph.D.	Trace elements
J.L. Everett	Radiation effects:
E.M.F. Roe (Miss) Ph.D.	Effect of ultra-violet light on deoxyribonucleic acids
	Cross-linking of deoxyribonucleic acids in nucleoproteins by ionizing radiations
P. Alexander, D.Sc., Ph.D.	Irradiation of deoxyribonucleic acids *in vivo*
D. Rosen, Ph.D.	Irradiation of proteins and other substances with X- and α-rays
J.T. Lett, Ph.D.	
L.D.G. Hamilton, Ph.D.	Direct and indirect action of radiation on chymotrypsin
	Shortening of life-span by irradiation and by radiomimetic chemicals
	Physicochemical studies:
	The photochemistry of nucleic acid constituents and of other polyelectrolytes
	Physicochemical and biophysical studies of styrylquinoline derivatives
Professor A. Haddow, M.D., D.Sc., Ph.D. F.R.S.	Carcinogenesis: Carcinogenic action of iron-dextran in the mouse and rat
Professor E. Boyland, D.Sc., Ph.D.	Carcinogenesis by cholesterol
	Carcinogenic action of aromatic amines
F.J.C. Roe, D.M.	Action of the carcinogenic hydrocarbons in relation to the nucleic acids
I. Hieger, D.Sc., Ph.D.	
	Influence of cholesterol on hydrocarbon carcinogenesis
	Studies of the susceptibility of newborn animals to carcinogenic stimuli
	Sarcomas induced by a carcinogen of steroid type
K.S. Kirby, D.Sc., Ph.D.	Endocrine carcinogenesis:
J.M. Booth (Miss), Ph.D.	Carcinogenicity of vegetable tannins
	Induction of tumours following subcutaneous implantation of plastic films
Professor R.D. Passey, M.C., M.D.	The solubilization of benzopyrene by caffeine
C.E. Dukes, O.B.E. M.D.	Ferrocene
	Cigarette smoke and cancer of the lung
	Problems of air pollution
Professor P.C. Koller, D.Sc., Ph.D.	Leukaemogenesis:
	Influence of thymectomy on leukaemogenesis by Ak leukaemic cell-free extracts
J.F.A.P. Miller, Ph.D.	Leukaemogenesis in Ak-tolerant C3H mice
P.C.T. Jones, Ph.D.	Other oncogenic viruses
Professor E. Boyland, D.Sc., Ph.D.	Metabolic studies:
	The metabolism of myleran in the rat
P. Sims, Ph.D.	The metabolism of alkyl alkanesulphonates and related compounds
D. Manson, Ph.D.	

1. Cancer Research (*continued*)

CHESTER BEATTY RESEARCH INSTITUTE (*continued*)

J.M. Booth (Miss) Ph.D.	Biochemical studies with growth-inhibiting alkylating agents
B. Green, Ph.D.	The metabolism of naphthalene
R. Nery, Ph.D.	The metabolism of 2-naphthylamine
L.A. Elson, D.Sc., Ph.D.	Enzymic hydroxylation
J.J. Roberts, Ph.D.	The estimation of free and conjugated 3-hydroxyanthranilic acid using spectrofluorimetry
G.P. Warwick, Ph.D.	The metabolism of 4-amino-2[1]: 3-dimethyldiphenyl in relation to the induction of intestinal cancer
	Mechanism of action of urethane
	Mechanisms of action of the azo-carcinogens
	The hydrolysis of metabolites of 2-naphthylamine by enzymes of human urine
Professor P.C. Koller, D.Sc., Ph.D.	Cytology:
	Chromosomes of solid and ascitic tumours
S.H. Revell, Ph.D.	Cytological action of ionizing radiations
A.J.S. Davies, Ph.D.	Cytology and protein synthesis
	The nucleus and dividing cells
O.G. Fahmy, Ph.D.	Mutagenicity:
M.J. Fahmy (Mrs.), Ph.D.	The mutagenicity of mesyloxy esters with special reference to mannitol-myleran
	Analysis of the "visible" loci on the X-chromosome
	Centres of alkylation in relation to mutagenicity
J.F.A.P. Miller, Ph.D.	Immunology:
	Radiation-induced immunological neutrality
	Experimental alteration of immunological reactions in mice
Professor A. Haddow, M.D., D.Sc., Ph.D., F.R.S.	
D.A. Darcy, D.Phil.	Other aspects of tumour growth:
	Serum mucoprotein associated with tissue growth
	Tumour-stimulating effects of thiols and quinones
L. Foulds, M.D.	Tumour progression
E.J. Ambrose, D.Sc.	The cell surface:
G.C. Easty, Ph.D.	Nature of the tumour cell surface
D.M. Easty (Mrs.), Ph.D.	Surface-active agents
J.A.H. Wylie, M.D., D. Phil.	Applications of tissue culture to cancer research
	Biochemical characterization of human tumours
Professor F. Bergel, D.Phil.Nat., D.Sc., F.R.S.	
E.J. Ambrose, D.Sc.	
D.M. Easty (Mrs.) Ph.D.	
M.M. Yarnell (Miss)	
E.M.F. Roe (Miss), Ph.D.	Microscopy:
	Interference microscopy of normal and tumour cells
R.L. Jones, Ph.D.	Differential fluorescent staining of deoxyribonucleic acids/ribonucleic acids by acridine orange
A. Knowles, Ph.D.	
E.H. Mercer, D.Sc., Ph.D.	Microscopic investigations of the cytoplasm in ascites tumour cells
M.S.C. Birbeck	Cell membranes and intercellular contact
R.J. Goldacre, Ph.D.	Electron microscopy of macromolecules
D.A.G. Galton	Clinical and chemotherapeutic studies:
E. Wiltshaw (Miss)	Clinical trials of di-2-chloroethylamine (nor-HN2)
D.E. Speed (Miss)	Amino-chlorambucil
L.A. Elson, D.Sc. Ph.D.	Melphalan
	The use of busulphan (myleran) in polycythaemia vera

1. Cancer Research (*continued*)

CHESTER BEATTY RESEARCH INSTITUTE (*continued*)

Professor F. Bergel, D.Phil.Nat., D.Sc., F.R.S.	The action of chlorambucil and busulphan on the haemopoietic organs of the rat
	The treatment of cancer of the bladder with glucosaccharo-1:4-lactone
Professor E. Boyland, D.Sc., Ph.D.	The use of drugs in local regional perfusion
K. Williams, Ph.D.	
W. Davis, Ph.D.	
R.A.M. Case, M.D., Ph.D.	Statistics and demography: Cancer statistics and demography
J.L. Harley (Miss)	Occupational and social history in cancer of the bladder
J.M. Davies (Miss)	
R.J. Goldacre, Ph.D.	Differentiation theory: An electronic model for morphogenesis

2. Clinical Research

P.E. Thompson Hancock	
S.D. Lawler (Mrs.), M.D.	Red and white cell antigens and serum groups
H.S. Shatwell (Miss)	Chromosome studies in leukaemia
R.A.M. Case	Occupational and social history of cancer patients
J.M. Davies (Miss)	
A.R. Buck (Miss)	
C.I. Cooling	Regional chemotherapy in the treatment of malignant disease
O.F. Garai	
M.D.M. Staunton	
N.F.C. Gowing	Pathological studies on the multicentric origin of urinary tract tumours with special reference to the male urethra
I.M.E. Hamlin (Miss)	Studies on the occurrence of fungal infections in malignant lymphomas
H.E.M. Kay, M.D.	Use of homologous and autologous haemopoietic cells for transplantation
C.B. Cameron, M.D.	
J.H.L. Playfair	Properties of foetal haemopoietic cells
P.K. Hopper	Preservation of cells at low temperatures
E. Peppercorn (Mrs.)	Metabolic effects and treatment of whole-body irradiation and massive chemotherapy
R. Millard (Mrs.)	Separation and purification of β-glucuronidases and sulphatases
	Metabolism of steroid oestrogens in man
	Antigenic structure of malignant cells
	Chromosomal abnormalities caused by irradiation
P.E. Thompson Hancock	Therapeutic trial by radiotherapy alone compared with radiotherapy and nitrogen mustard in early cases of Hodgkin's disease
E.M. Ledlie (Mrs.)	
N.F.C. Gowing	
O.F. Garai	
H.E.M. Kay, M.D.	
D.A.G. Galton	
E. Wiltshaw (Miss)	

3. Physics

Professor W.V. Mayneord, C.B.E., D.Sc.	Studies related to the hazards of environmental radioactivity
W. Anderson, Ph.D.	Application of low-level α-counting techniques in studies of natural radioactivity in a wide range of biological materials
R. Bentley, Ph.D.	
J.O. Crookall	
I.G.F. Gilbert, Ph.D.	α and γ spectroscopy of nuclides in biological materials
C.R. Hill, Ph.D.	Investigation of fission products in the atmosphere and analysis of the radioactivity in human tissues
J.M. Radley, Ph.D.	
R.C. Turner, Ph.D.	Physiochemical studies of the binding of metal ions by tissue components
G. Threlfall, Ph.D.	Measurement of fast neutrons from cosmic radiation

3. Physics *(continued)*

J.P.M. Bensted	Experimental biological and physiological investigations:
N.M. Blackett, Ph.D.	Studies of cell population kinetics in various tissues, using tracer and other techniques
A.B. Cairnie, Ph.D.	
V.D. Courtenay	Effects of continuous irradiation on the response of various tissues, particularly the blood forming organs and the small intestine
Professor L. F. Lamerton, Ph.D.	
P.J. Roylance	Carcinogenic effects of bone-seeking radioactive isotopes
G.G. Steel, Ph.D.	
D.M. Taylor, Ph.D.	Metabolic studies with various radioactive isotopes
M. Cottrall	Applications of physics to medicine:
C.A. Greatorex, Ph.D.	Instrumentation
J.H.D. Ireland	Development of solid state radiation detectors
C.H. Jones, Ph.D.	Isotope diagnostic and therapeutic techniques
J.C. Jones	Applications of low background counting to clinical investigations
R.P. Parker, Ph.D.	
A.J. Stacey	Radiation dosimetry, including computer techniques
J.B.H. Stedeford, Ph.D.	Application of ultrasonics to diagnostic problems
N.G. Trott, Ph.D.	

4. Radiotherapy

Professor D.W. Smithers, M.D.	Clinico-pathological reviews of neoplasms at various sites
E.M. Ledlie (Mrs.)	Prognosis in the lymphadenopathies and blood diseases in relation to histology and treatment
E.O. Field, D.M.	Influence of high pressure oxygen on differential sensitivity of normal and tumour tissues
E.N.K. Wallace (Mrs.)	Study of testicular tumours
	Investigation of lymphatic involvement in malignant disease
K.B. Dawson	Effects of irradiation on nerve function
M.M. Gwyther (Miss)	Examination of the effects of radiation on connective tissue by physicochemical and isotopic methods
H. Madoc-Jones	Investigation of individual cell and tissue sensitivity to radiation and chemotherapy
E.M. Stanley (Miss)	Isotope studies on homologous disease in rats

34 London University, Institute of Cardiology

1. Cardiology

W.W. Brigden, M.D. (Director)	Congenital heart disease: anatomy, natural history, physiology, clinical and instrumental differential diagnosis, selection of cases for surgery, abnormalities of blood, coagulation brought out by surgery, post-operative long-term results and respiratory physiology
D.E. Bedford, M.D.	
G.W. Hayward, M.D.	
A.G. Leatham	
E.L. McDonald, M.D.	Rheumatic heart disease: the life history and haemodynamics of mitral valve disease including the accurate assessment of stenosis and incompetence, the effects of pulmonary hypertension, the cause and prevention of embolism, the proper selection of cases for cardiac surgery, and post-operative results. Similar studies on aortic and tricuspid valve disease
R.W. Emanuel, D.M.	
T. Holmes Sellors, D.M.	
D.N. Ross	
R.E.B. Hudson, M.D.	
E. Lockey, (Miss) M.D.	
P.J. Kerley, C.V.O., C.B.E., M.D.	Cardiomyopathies: clinical presentation and various special phenomena
K.E. Jefferson	
B.G.B. Lucas	Ischaemic heart disease: blood coagulation and thrombosis, abnormal lipid metabolism, therapeutic effect of long-term anticoagulant therapy and of various methods of correcting abnormal lipid metabolism
A.J.W. Beard, M.D.	
	The anatomy and pathology of the conducting system of the human heart

1. Cardiology (*continued*)

Pulmonary hypertension: clinical and physiological aspects
Heart failure:diagnostic tests and therapeutic measures
Hypertension: effects of various forms of hypotensive therapy

35 London University, Institute of Child Health

1. Genetics

M.R.C. CLINICAL GENETICS RESEARCH UNIT

J.A. Fraser Roberts, M.D., D.Sc. (Director)	Study of genetic and some other factors in causation of disease

2. Haematology

R.M. Hardisty, M.D., (Head of Department)	Studies on von Willebrand's disease
with K.M. Dormandy (Mrs.)	Micromethods for the investigation of the blood-coagulation mechanism in infancy
with R. Sephton Smith	Redcell metabolism in haemolytic anaemias
R. Sephton Smith	Humoral erythropoietic factors in anaemias of childhood
	Redcell turnover in anaemias of childhood, using Fe^{59} and Cr^{51}

3. Medicine

Professor A.A. Moncrieff, C.B.E., M.D.	Biochemistry of mental defect
with W.W. Payne	Study of nephrosis
R.E. Bonham-Carter	Initial expansion of human lungs
	Effect of early surgery of the prognosis of congenital heart disease
R.T. Brain, M.D.	Use of radioactive isotopes in the treatment of vascular naevi
with F. Bell P.J. Koblenzer	20-year survey of the national history of infantile eczema
E.M. Creak (Miss), M.D.	Research into childhood schizophrenia
M. Coghlan	Allergic conditions in mongolism
B. Kiernander	Common postural and breathing defects in children
with A.T. Richardson E.D.R. Campbell	Study of electrical reactions of children with neuromuscular disorders
A.P. Norman, M.B.E., M.D.	Effect of steroids in asthma
	Clinical care of cystic fibrosis of the pancreas
	Investigation of sweat electrolytes
with G.R. Graham, M.D.	Investigation of respiratory problems
G.H. Newns, M.D.	Adrenal hyperplasia
	Growth deficiencies
G. Pampiglione, M.D.	Polygraphic studies during minimal seizures
	Study of motor co-ordination in normal controls in cerebral palsy and in various types of central and peripheral lesions
with E.M. Creak (Miss), M.D.	Electroencephalographic studies in juvenile psychosis
Professor B.S. Platt, C.M.G., Ph.D.	The maturation of the normal electroencephalogram in puppies fed on normal diets artificially and mother fed

3. Medicine (*continued*)

B.E. Schlesinger, O.B.E., M.D.	Prognosis of ulcerative colitis Course and treatment of Still's disease De Lange's syndrome
Sir Wilfred Sheldon, K.C.V.O., M.D.	Research into coeliac disease
J.M. Tanner, M.D., D.Sc., Ph.D.	Study of the growth and development of a sample of 200 normal children at the Child Study Centre Skeletal maturity of children with Klinefelter's syndrome and of Turner's syndrome Longitudinal study of the excretion of adrenocortical steroids in identical twins Study of the amount and disposition of bone, muscle and fat in young adult men and women by anthropometric and X-ray methods Study of skeletal development in man during the foetal period
J.P.M. Tizard, M.D.	Research into electroencephalography in the newborn Hormonal control of oxygen consumption in young animals
with J.A. Black, M.D.	Investigation into the changes in haematocrit after birth
J.A. Davis, M.D.	Treatment of respiratory disease in newborn infants with antihistamines Incidence and aetiology of hypoplastic anaemia in haemolytic disease of newborn
with J.W. Scopes, M.D.	Construction of artificial placenta

4. Microbiology

Virology:

J.A. Dudgeon, M.C., T.D., M.D. (Head of Department) with P.H. Sandifer, M.D.	Acute encephalitis in children

5. Pathology

M. Bodian, M.D. (Head of Department) with C. Rigby	The biology of vitamin B_{12} especially in relation to tumour chemotherapy
S. Leibowitz	The pathology of megalo-ureters
B. Lake N. Kobayashi	The physiology and pathology of mucous and sweat glands in fibrocystic disease of the pancreas
G.H. Newns, M.D.	Neonatal hepatitis and biliary atresia
D. Danks	Genetic study of neonatal hepatitis and biliary atresia
J.A. Black, M.D. N. Kobayashi	Renal biopsies

Chemical:

B.E. Clayton, M.D., Ph.D. (Head of Department)	Metabolic effects of growth hormone and its assay Diet in phenylketonuria Lead poisoning in children Pituitary function in the foetus and child Enzymes in pseudohypertrophic muscular dystrophy Metabolic balances in disorders of childhood
A.D. Patrick, Ph.D.	Liver enzymes in maple syrup disease Biochemical changes in cystinosis with special reference to enzymes in liver

5. Pathology (*continued*)

Chemical (*continued*)

R.W.H. Edwards, Ph.D.	Two-dimensional chromatography of steroids Pituitary and adrenal function in the child
J.W.T. Seakins, Ph.D.	Metabolism of tryptophan in psychosis Biochemical findings in mentally retarded children

6. Surgery

Professor A.W. Wilkinson	Pattern of urinary composition during the first fortnight of life in normal newborn children and in those subjected to operation during the first few days of life Investigation of the treatment of shock and the metabolic disturbances following extensive burns
with L. Stevens J. Orr (Miss) E. Hughes (Miss)	Effects of intravenous administration of glucose solution, saline, fat emulsion, plasma and amino-acids on post-operative nutrition during the first months of life
L. Stevens	Some aspects of calcium and magnesium metabolism
G. Lloyd Roberts	Investigation on Perthes' disease Infantile scoliosis
B.G.B. Lucas	Research in hypothermia
D.J. Waterston, M.B.E. G.R.Graham, M.D. P. James	Construction of an artificial heart-lung machine suitable for children
D.N. Matthews, O.B.E. M.D.	Reconstruction of congenitally absent thumbs
G.H. MacNab	Treatment and prognosis of hydrocephalus by use of the Spitz-Holter valve
H.H. Nixon	A continued series of cap-splinted cleft palates Function in repaired imperforate anus
D. Innes Williams, M.D.	Investigations into urinary tract obstruction in infants
K. Till	Effects of Cooper's procedure on children with dystonia
J. Lister	Development of a method for the estimation of total body water in the newborn Investigation of congenital oesophageal atresia and associated anomalies of great vessels

36 London University, Institute of Dental Surgery

1. Anaesthetics

V. Goldman	Investigation of methohexitone "L 67" and halothane Effects of prolonged anaesthesia for dental procedures in children Effect of anaesthesia with various agents on blood pressure in the sitting position

2. Biochemistry

W.G. Armstrong	Biochemical and microbiological investigations on normal and diseased oral tissues Investigations into the nature of matrix modifications in carious dentine Studies on the enzymic dissolution of the sound and carious dentine matrix; characterization of products Characterization of carbohydrate materials in carious dentine and investigations on the properties of dentine/carbohydrate components The ultra-violet absorption and fluorescence properties of hard tissues

3. Dental Studies

P. Hargreaves	Non-destructive testing by sonic vibrations of dental materials Determination of physical properties of dental ceramic materials
Children:	
R.R. Stephens	Research directed towards the improvement of the present methods of cavity preparation in children's teeth by the development of special apparatus and instruments Clinical investigation into the aetiology of caries of incisor teeth in babies and young children Clinical investigation into the relative merits of the different types of amalgam for the restoration of cavities in the deciduous dentition Investigation into the injection by high-pressure jet of local anaesthetic solutions for operative dental procedures
Conservative:	
G.A. Morrant	Application of high-speed cutting instruments in clinical dentistry
Prosthetics:	
J.H. Lee	Study of changes in tongue positions and vertical relationship of the jaws following the loss of natural teeth

4. Microbiology

Bacteriology:	
G.C. Blake	Investigation into the role of oral *Actinomyces* and *Nocardia* in paradental infections Investigation into the oral flora as a cause of chronic gingival and periodontal inflammation Investigation into the changes of dentinal tubules as a result of dental caries and attrition with reference to the effect of these changes on the extension of caries and the spread of micro-organisms in the dentine

5. Orthodontics

Professor C.F. Ballard C.D. Parker	The effect of appliances on the vertical development of the dento-alveolar structures
M.S.S. Gould with D.C.A. Picton, Dental Unit, and G. Bryant, Surgical Unit, University College Hospital Medical School	An investigation to develop a suitable method of using strain gauges to measure the forces exerted upon the dentition by the labial and lingual musculature To use the method: (i) to study qualitatively and quantitatively these forces in normally developed dentitions with normal occlusion; (ii) to assess quantitatively the extent to which orthodontic abnormalities are attributable to variations in the morphology and behaviour of the lips and tongue and how these forces are modified by treatment

5. Orthodontics (*continued*)

A.S.T. Franks	Investigation of proprioceptive mechanisms related to the temporo-mandibular joint; histology of nerve endings in joint, and role of the proprioceptors in reflex control of mandibular movement
	Clinical study of temporo-mandibular joint dysfunction
G.G.T. Fletcher	Position of development and path of eruption of permanent incisors in relation to developing malocclusion

6. Pathology

Professor I.R.H. Kramer	Problems in oral histology and histopathology, including the experimental investigation of biological properties of materials
	Tissue changes following the implantation of anorganic bone
	The effects of heat on enamel and dentine
	Changes in the tissues following the injection of fluids by needle and high-pressure jet
	Tissue culture of normal and neoplastic oral tissues

7. Periodontology

W.A.S. Alldritt (Head of Department)	Histological basis of gingival maturation
	Gingival tissue relative to alveolar bone
	Treatment of oral ulceration by systemically administered drugs
	Investigation into gingival re-positioning in marginal periodontitis
W.G. Cross	Bone implants for replacement of resorbed alveolus
	Methods of treatment of intrabony pockets
	Clinical and histological investigations into reattachment of soft tissues
	Investigation into the properties of periodontal packs and potential new materials
	Investigation of plastic pocket measuring points
	Investigation into preparations for the control of oral infection

8. Surgery

Oral:

Professor H.C. Killey	Effects of surgical interference on the growth of the middle third of the facial skeleton
	The part played by the musculature in remoulding of facial bones following fracture
	Properties of anorganic bone when implanted in the experimental animal
L.W. Kay	Nature of pericoronitis
	Survey of the treatment of cysts of the jaws

37 London University, Institute of Dermatology

1. Dermatology

Professor C.D. Calnan	Studies in delayed hypersensitivity to low molecular weight chemicals
	Occupational dermatitis from epoxy resin systems
	Contact dermatitis from leather and from clothing materials
	Photo-contact dermatitis from tetrachlorosalicylanilide
with M.L. Newhouse	Survey of industrial dermatoses in an engineering factory
D Gilbert, Ph.D.	Metabolic control mechanisms in skin

1. Dermatology (*continued*)

F.R. Bettley, T.D., M.D.	Investigations into the effect of soap on the permeability of the epidermis
	Investigations into the nature of the epidermal barrier
Y.M. Clayton (Miss), Ph.D.	Distribution of ringworm fungi and *Candida albicans* in the human environment
	The use of the Ouchterlony agar-gel diffusion technique for the diagnosis of fungal diseases
L. Forman, M.D.	Investigation of protein changes in nickel sensitivity
	Action of thorium X on the skin
S.C. Gold, M.D.	Continued long-term study of lupus erythematosus
I.A. Magnus	Studies with high intensity irradiation monochromator of erythema and pigmentation in normal skin and experimental animals
	Monochromatic photosensitivity tests on patients with photodermotoses and porphyria
	Determination of action spectrum of phyllerythin and other porphyrins in animals with a monochromator
	Appraisal of light-absorbing applications and anti-malarials in patients with photodermatoses
	Determination of action spectrum of photosensitivity due to hydrocarbons
	Study of the action spectrum of protein denaturation by ultra-violet rays
I.A. Magnus with B.E. Johnson	Determination of action spectrum in skin carcinogenesis in animals with a monochromator
	Effect of monochromatic ultra-violet rays on the hair cycle in mice
	Role of phospholipids and tryptophan in ultra-violet rays erythema
	Histochemical survey of the effects of ultra-violet rays on the enzymes in mouse skin
P.D. Mier	Assay of various enzymes in normal and abnormal skin
A.K. Monro, M.D.	Malignant melanoma: clinical series. Results of treatment: the relation of histology to prognosis
J.O. Oliver, O.B.E.	The antistreptolysin results in some skin diseases
R.W. Riddell, M.D.	Assessment of the virulence of *Aspergillus* species by comparing their ability to produce skin lesions with their potential pathogenicity for the chick
with G. Midgley (Miss)	Reassessment of the incidence of *Candida albicans* infections
*E.H. Mercer	Studies on keratin penetration by ringworm fungi using electron microscopy
P.D. Samman, M.D.	Reticuloses: long-term follow-up with special reference to the "premycotic eruptions"
	Nail dystrophies: an investigation into the causes of nail disorders
S. Shuster	Endocrine control of skin structure and function
	Biological effects of ageing on the skin
L. Szur	Natural history and treatment of skin reticulosis
	Clinical comparison between the effects of Grenz rays and superficial X-rays in benign dermatological conditions
	Use of electron therapy in widespread superficial skin conditions
H.J. Wallace, M.D.	Incidence and prognosis of eczema vaccination
	Relationship of Raynaud's syndrome to systemic scleroderma, with particular reference to the late effects of sympathectomy
G.C. Wells	Histochemistry of the skin with particular reference to enzyme systems

*At Chester Beatty Research Institute, London, S.W.3.

38 London University, Institute of Diseases of the Chest

1. Chest Diseases

J.G. Scadding	Sarcoidosis with special reference to aetiology The lungs in collagen diseases
F.J. Prime	Disturbances in acid-base equilibrium in acute and chronic respiratory failure
J.R. Bignall S.W.A. Kuper	Studies on the recovery of malignant cells from the blood in patients with bronchial carcinoma
R.W. Riddell	Studies on the pathogenicity and immunology of fungi causing respiratory diseases Investigation of drug-resistant strains of *Mycobacterium tuberculosis* and of "atypical mycobacteria"
J.R. May	The bacteriology of chronic non-tuberculous respiratory infections
L.M. Reid (Miss)	Embryology of the intrasegmental bronchial tree and hypoplasia of the lung Morbid anatomy of chronic bronchitis and emphysema Experimental and histochemical study of bronchial secretion of mucus Anatomy, normal and morbid, of the pulmonary circulation
I.S. Longmuir	Studies on cellular respiration
J. Pepys	Investigation of common fungi, including *Aspergillus*, *Cladosporium*, *Penicilliim*, *Candida*, and *Trichophyton* genera, for their relationship to hypersensitivity in man Study of immunological effects of organic vegetable dusts in man and of factors concerned in production of potent antigens in mouldy hay, responsible for farmers' lung Study of antigen fractions of the tubercle bacillus in man and animals Study of immunological changes in leprosy

39 London University, Institute of Laryngology and Otology

1. Anatomy

OTOLOGICAL INVESTIGATION UNIT

Professor D.F.N. Harrison, M.D.	The minute anatomy of the petrous bone including the internal ear
J.D. Pye, Ph.D.	The comparative anatomy of the temporal bone and the internal ear and of the larynx

2. Audiology

E. Whetnall (Miss)	Aetiology of congenital deafness and acquired perceptive deafness
A.S. Walker	Methods of auditory training in infants and young children
Professor D.B. Fry, Ph.D. L. Fisch, M.D.	Selection and use of hearing aids for partially and severely deaf infants and pre-school age children Technique for the fitting of inserts especially for infants Tests of hearing in infants Investigation into the learning process in deaf children Evaluation of results of using binaural hearing Investigation of failure to speak due to causes other than deafness

3. Medicine

Physical:

B. Kiernander	A survey of the mode of action and effects of zinc ionization on allergic rhinitis
E.D.R. Campbell	Assessment of the variation of pH of the nasal mucosa in allergic rhinitis
	The electrical reactions and electromyographic changes in facial palsy

4. Otorhinolaryngology

Clinical:

OTOLOGICAL INVESTIGATION UNIT

Professor D.F.N. Harrison, M.D.	Long-term follow-up of carcinoma of upper air passages
	Pathology and treatment of cancer of the pharynx
	Investigation of (i) perceptive deafness and (ii) vertigo of central and of peripheral origin
	Comparison between operative treatment and irradiation of upper respiratory carcinomata
	Plastic surgery of the middle ear
	The surgery of otosclerosis
	Relation between abnormal blood conditions and tumours of the pharynx
	Relation between abnormalities of cardiovascular system and of blood pressure and epistaxis
	Use of intra-arterial alkalating agents in the treatment of neoplastic condition of the ear, nose and throat

5. Pathology

I. Friedmann, M.D. I. Wright (Miss) J.W. Dadswell	Electron microscopy of human biopsy material with particular reference to neoplasia
	Application of histochemical methods to electron microscopy
	The fine structure of the inner ear of the guinea-pig
	The effect of neomycin on the inner ear of the guinea-pig: light and electron microscope study
	Effect of cortisone on the isolated fowl embryo otocyst in tissue culture
	Glutar aldehyde fixation for electron microscopy
	Quantitative electrophoresis on stabilized media
	The study of serum iron levels in relation to the Paterson-Brown-Kelly syndrome
	Isolation and structure of upper respiratory tract viruses
	Pathology of otosclerosis
	Serous otitis: clinico-pathological study
	Pathology of congenital and viral diseases of the ear
	Pathology of epidermoid cholesteatoma and cholesterol granuloma
	Malignant granuloma of the nose
	Fibrous dysplasia of the nose and sinuses

OTOLOGICAL INVESTIGATION UNIT

Professor D.F.N. Harrison, M.D.	The effect on the acoustic and static portions of the ear of ultrasonic waves
M. Flinn	Effects of various chemical substances on the inner ear
J.D. Pye, Ph.D.	Experimental production of the lesions of the Paterson-Brown-Kelly syndrome in rabbits
	Experimental production of post-cricoid neoplasms in rabbits

6. Physiology

OTOLOGICAL INVESTIGATION UNIT

Professor D.F.N. Harrison, M.D.	The variation in range and acuity of hearing under different conditions and localization of sound and echo-location
	Investigation of electric impulses in the eighth cranial nerve and the associated cerebral and cerebellar pathways
J.D. Pye Ph.D. R.W.B. Stephens, Ph.D. M. Flinn	Methods of examination of the organs of equilibration: optokinetic, caloric and rotatory
R.W.B. Stephens, Ph.D.	The physiology and chemical physiology of the sensory end organs of the semicircular canals and the cochlea
M. Flinn	The production of voice: neuromuscular aspect Estimation of ultrasound and calibration of generator

7 Radiodiagnosis

T.V.L. Crichlow (Director)	Cineradiography by means of the image intensifier in the investigation of:
R.S. Couch	The radiological significance of visualization of the cricopharyngeus
R.D. Hoare	
C.G. Whiteside	Abnormal ring contractions in the oesophagus and its relationship with cardiospasm
	The relationship of the cricopharyngeus with regard to pouch formation and post-operative recurrence
	The relationship of the cricopharyngeus with the Paterson-Brown-Kelly syndrome
	The movements of the ossicles
with Sir Victor Negus	The anatomy of the sinuses in different races
	The relationship of pressure with regard to the formation of pouches in the cervical oesophagus
	The possibilities of demonstrating the facial canal
	The surface marking of the semicircular canals
	The value of macrography in suspected cases of cholesteatoma
	Pressure measurements in the oesophagus and their influence on pouch formation
	Cholesteatoma and fistula formation in chronic mastoid disease
	Familial tendencies in oesophageal disease
	Tomography by means of the Massiot polytome (when available) of the ossicles
	Types of calcification in the cartilages of the larynx
with D.A. Osborn	Study of polyostotic fibrous dysplasia

40 London University, Institute of Neurology

1. Neurology

Clinical:

Professor R.W. Gilliatt, D.M.	Motor and sensory nerve conduction in patients and experimental animals
J. Marshall, M.D.	Study of the relationship of hypertension to cerebrovascular disease

1. Neurology (*continued*)

Clinical (*continued*)

R.G. Willison	Analysis of human electromyogram
M.W. Swallow	Fibre analysis in human peripheral nerve
M. Critchley, M.D.	Disorders of language, examined particularly from the standpoint of linguistics
	Developmental dyslexia
	Disorders of highest nervous activity as exemplified by parietal and occipital lesions
W. Gooddy, M.D.	Clinico-physiological aspects of human cerebral activity, with special reference to spatial and temporal orientation, and their relation to language
	Investigation of the human time sense according to physiological principles
	Study of "natural geometry" in connection with navigation and chronometry
with Professor J.N. Cumings, M.D.	Collection of clinical data from cases of motor neurone disease
S.P. Meadows, M.D.	Research into the clinical aspects of certain neuro-ophthalmic conditions, including compression of the visual pathways by aneurysms and tumours, and bilateral retrobulbar neuritis
P. Sandifer	Investigations into the nature of pes cavus, with special reference to determining whether or not idiopathic pes cavus exists as an entity corresponding to idiopathic scoliosis (at the Royal National Orthopaedic Hospital, London)
	Investigations into the nature of acute idiopathic encephalitis of childhood: correlation of clinical features with virological, immunological and E.E.G. findings (at Hospital for Sick Children, Great Ormond Street, London)
R.E. Kelly, M.D.	Research into hyperkinetic conditions and disorders of muscle tone

2. Neuro-Ophthalmology

T.K. Lyle, C.B.E., M.D.	Clinical research into the causes and treatment of ocular palsies
	The treatment of amblyopia ex anopsia
	A study of retrobulbar optic neuritis
	Follow-up study of cases of drüsen of the optic nerve head
H.E. Hobbs	The use of stereocampimetry as an aid to the investigation of defects of the central visual fields
	Investigations into the value of orbital angiography in the diagnosis of proptosis
with H. Dimsdale (Mrs.), M.D.	A controlled trial of steroid therapy in optic neuritis
with Department of Electro-encephalography	Evaluation of electromyography of the extra-ocular muscles as a routine diagnostic procedure
S.J.H. Miller, M.D.	Posterior uveitis associated with discoedema

3. Neurosurgery

H. Jackson	Studies relating to structural disorders of the spinal column: spondylosis and allied states
	Clinical and pathological investigations applied to lesions of the orbital cavity
	Studies in anatomical relationships of the basal nuclei in the application of stereoencephalotomy

3. Neurosurgery (*continued*)

H. Jackson	The application of treatment towards relief of disorders of muscle tone by injection of the pallidus and/or thalamus
	Investigation of endocrine deficiency in relation to tumours of the pituitary gland
	Studies on a new operative method of relief in the treatment of gliomatous and other tumours associated with increased intracranial pressure
	Investigation into more recent procedures for dealing with structural disorders in children
	Controlled use of urea in the relief of intracranial tension
	Studies of physiological reactions applied to the brain
W. McKissock, O.B.E.	A controlled trial of surgical versus medical methods of treatment of ruptured intracranial aneurysms
	A controlled trial of surgical versus medical methods of treating primary spontaneous intracerebral haemorrhage
	A social and economic survey of the late results of extirpation of intracranial and intraspinal meningioma
	The treatment of Parkinson's disease and other forms of disordered movement by thermocoagulation of the thalamus
	A social and economic survey of the late results of treatment by combined surgery and X-radiation of the pituitary adenomas
	A social and economic survey of the late results of total excision of the acoustic neuromas
	The control of midline and paraventricular intracranial tumours by stereotactic implantation of radioactive gold seeds
	The localization of intracranial space occupying lesions with the aid of ultrasound
	A trial of various drugs, in particular urea, in the control of cerebral swelling
*M.C. Smith (Miss), M.D.	Histological studies of degeneration in the human central nervous system with special reference to the spinal cord and basal ganglia
*J.A.V. Bates	Electrophysiological studies on the surgical relief of epilepsy and disorder of the motor system
*P.W. Nathan, M.D.	Clinico-physiological studies on sensation, spasticity and the relief of pain

MAIDA VALE HOSPITAL

V. Logue	Use of stereotaxis in the treatment of intractable pain
	Investigation of the time limits of temporary major vessel occlusion of the cerebral arteries, in the treatment of aneurysms under hypothermia, utilizing isotopes
	Investigation into the cases of epilepsy continuing or appearing after the removal of benign tumours
	Investigation into the prevention of air embolism in neurosurgical operations, in the sitting position

4. Otology

M.R.C. OTOLOGICAL RESEARCH UNIT

C.S. Hallpike, C.B.E., F.R.S. (Director)	Clinico-pathological investigations, including histological examination of the temporal bones and central nervous pathways in vertigo, deafness and other organic derangements of cochlear and vestibular function
M.R. Dix (Miss), M.D.	

*M.R.C. staff

4. Otology (*continued*)

M.R.C. OTOLOGICAL RESEARCH UNIT (*continued*)

J.D. Hood, D.Sc. L. Citron	Clinical, anatomical and electro-acoustic investigations of the loudness recruitment phenomenon, and other aspects of cochlear function in health and disease of the eighth nerve system Physiological studies of the semicircular canal system in man Experimental studies on the physiology and pathology of vertigo Biochemical studies of the labyrinthine fluids

5. Pathology

Professor W. Blackwood	Demyelinating diseases Myopathies and neuropathies
W.G.P. Mair, M.D.	Effect of proton beam irradiation on the nervous system

Chemical:

Professor J.N. Cumings, M.D.	Copper metabolism in hepatolenticular degeneration and related diseases Investigations are being continued into cases of lipoidosis, diffuse sclerosis, disseminated sclerosis, and the pattern of various lipids in the brain at various ages Electrophoretic examinations of the protein patterns of cerebro-spinal fluid and cyst fluids associated with cerebral tumours Examination of various enzymes of both fluids in various disorders and types of tumour Examination of soluble cerebral proteins and associated enzymes in normal and oedematous human brains and in the oedematous brains of animals as a result of the administration of organic tin compounds Biochemical investigations in motor neurone disease Examination of lipids by thin layer chromatography (blood, urine, cerebro-spinal fluid) and by gas chromatography
G. Curzon, Ph.D.	Chemistry of caeruloplasmin Investigations in psychoses and neurological diseases of aromatic metabolism Biochemical abnormalities in extrapyramidal lesions
B.P. Hughes, Ph.D.	Biochemical aspects of muscle disease with particular reference to muscular dystrophy; enzyme studies on parents and siblings of patients with this disease
D.M. Matthews, Ph.D.	Intestinal absorption of copper and amino-acids in animals
F. Newman (Miss)	Electrophoresis of cerebro-spinal fluid
N. Robinson, Ph.D.	Studies in the cytology of the nervous system Chemical studies on enzyme content in nerve cells in cerebro-spinal fluid and blood lipids in Friedreich's ataxia as compared to the normal

MAIDA VALE HOSPITAL

W.H. McMenemey, D.M. H.C. Grant (Miss), M.D. R.O. Barnard	Histopathology of the nervous system
K. Gavrilescu (Mrs.)	Electrophoresis of serum and cerebro-spinal fluid proteins
M. Kidd	Electron microscopy of the brain

6. Physiology

Applied:

D. Williams, C.B.E., M.D., D.Sc.	Role of personality factors in the development of some disorders of neural function
W.A. Cobb	The electrophysiology of the nervous system in health and disease
	The human electroencephalograph with particular reference to symptomatic epilepsy
R.W. Gilliatt, M.D.	Diagnostic value of conduction velocity measurements in human peripheral nerve lesions
H.B. Morton	Application of principles new to the design of multichannel electroencephalographs

7. Psychiatry

MAIDA VALE HOSPITAL

R.T.C. Pratt, D.M. A. Elithorn, M.D. M. Piercy L. Hersov, M.D. M. Kerr (Mrs.) M. Wyke (Mrs.), Ph.D.	Studies on the mental state of patients with brain disease The interaction of the abnormalities in physiological and psychological mechanisms which determine emotional disturbances and disorders of behaviour in children and adults

NATIONAL HOSPITAL

E.T.O. Slater, M.D.	Psychotic states associated with epilepsy
R.T.C. Pratt, M.D.	Follow-up study of patients diagnosed hysteria
R.A. Hunter, M.D. K. Davison	Radiological, pathological and longitudinal study of cerebral atrophy
*M. Halliday †M.E. Wilson E.A. Glithero	Metabolism and electrophysiological effects of antidepressant drugs; psychotic states associated with organic brain disease
V.G. Seal (Miss)	Study of cerebral evoked potentials in disorders associated with cerebral lesions
	Studies of target intensity/area and intensity/duration relationships at threshold in defective visual fields
Professor O.L. Zangwill	Experimental studies of disabilities in visual perception
E.K. Warrington (Mrs.), Ph.D.	associated with cerebral lesions Analysis of amnesic states
E.M. Sprayson (Miss) M. James (Miss)	Studies of language disorders and of intellectual defects in aphasia
	Studies of specific handicap in reading and related problems in children

41 London University, Institute of Obstetrics and Gynaecology

1. Clinical Research

CHELSEA HOSPITAL FOR WOMEN

J.H. Smitham	Investigation and management of patients with stress incontinence

2. Endocrinology and Fertility Studies

CHELSEA HOSPITAL FOR WOMEN

P.M.F. Bishop, D.M.	The role of cervical mucus on infertility
	The effect of various progestogenic compounds on menstrual disorders
	The application of vaginal cytology in the diagnosis and treatment of menstrual disorders and cancer research

*M.R.C. staff
†M.R.C. grant

2. Endocrinology and Fertility Studies *(continued)*

ENDOCRINE LABORATORY UNIT

I.F. Sommerville, M.D., Ph.D. (Director) with M.I. Stern (Miss), Ph.D. K.M. Ferguson E.P. Giorgi (Miss), M.D. J. Lowe (Mrs.) W.P. Collins	The biochemistry of steroid and protein hormones with special reference to disorders in women Studies on chemical and biological techniques of hormone assay: notably the quantitative determination of progesterone and pregnanediol in blood, the quantitative determination of urinary oestrogens, and the fractionation of other urinary steroids by column and paper chromatography, and by isotopic techniques Application of such methods to the study of patients in the Endocrine and Fertility Clinics with the co-operation of the Academic Unit of the Institute

3. Obstetrics and Gynaecology

HAMMERSMITH HOSPITAL

Professor J.C.M. Browne	Uteroplacental haemodynamics Treatment of haemolytic disease of newborn Ovulation in human female Mechanical factors in female infertility Placental insufficiency
P.C. Curzen	A histochemical investigation of placental function
H.G. Dixon with Professor J.C.M. Browne	Chorio-decidual blood flow
H.G. Dixon	Changes in the vessels of the placental bed and their relation to chorio-decidual blood flow
with J.C. White	Abnormal haemoglobins and their effect on pregnancy
W.G. MacGregor	Haemodynamics of circulation in pregnancy Estimation of placental insufficiency Pulmonary compliance in pregnancy
J.D. Murdoch	Ante-partum haemorrhage Uterine healing after section Post-toxaemia hypertension
W.J. O'Sullivan	Changes in total body water in normal pregnancy and pre-eclampsia
E. Wachtel	Early detection of malignant disease in the genital tract of women Cancer prognosis Cytology in normal pregnancy and pregnancy disorders Cytology at term
W.A.W. Walters	Changes in the maternal circulation during pregnancy
H. Payling Wright (Mrs.) C.A. Snodgrass	Correlation in normal pregnancy of urinary hormone excretion, vaginal cytology, total blood volume, vascular bed capacity, haematology
H. Payling Wright (Mrs.) T. Wagatsuma	Placental efficiency tests with fluorescein
H. Payling Wright (Mrs.)	Amniotic fluid composition and electrophoresis

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

J.M. Holmes	Mechanism of labour pain relief from reducing the pressure to the abdominal wall Assessment of analgesic properties of FureMindine and BenzeMindine Perfusion of placentae from normal patients and those with pre-eclampsia
E. Rohan-Williams with Professor J.H.M. Pinkerton, M.D.	A study of the urinary tract post partum in women who had suffered from recurring pyelonephritis in previous pregnancies whilst under the care of Queen Charlotte's Hospital

3. Obstetrics and Gynaecology (*continued*)

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, BERNHARD BARON MEMORIAL RESEARCH LABORATORIES

J. Murray, M.D. (Director)	Iso-immunization in pregnancy Isolation of blood group substances Preparation of Rh antibodies in animals from human antigens
A.E. Claireaux, M.D.	Study of placentae and placental bed in cases of toxaemia Investigation of post-mortem material from all stillbirths and neonatal deaths during March 1958, for the S.W. Metropolitan Region
M. Sandler	Adrenaline and noradrenaline metabolism in pregnancy and the newborn Heat control in the newborn Placental monoamine oxidase activity Amine inactivation in pregnancy Alternative pathways of 5-hydroxyindole metabolism The pathogenesis of mental defect

QUEEN CHARLOTTE'S MATERNITY HOSPITAL AND CHELSEA HOSPITAL FOR WOMEN

Professor J.H.M. Pinkerton, M.D. with E.C. Wood R.T. Booth E.P. Giorgi (Miss), M.D. M. Murray (Miss) F. Osmond-Clarke (Mrs.) I.F. Sommerville, M.D.	Urinary tract infection in women Foetal distress Continuous foetal heart recording Physiology of uterine muscle Fluorescence cytology Methods for induction of labour Steroid studies in oligomenorrhoea and hirsutes and related conditions
P.M.F. Bishop, M.D. M. Murray (Miss) F. Osmond-Clark (Mrs.)	Vaginal cytology in normal and abnormal pregnancy
I.F. Sommerville, M.D.	Urinary and plasma progesterone in normal and abnormal pregnancy
A.E. Claireaux, M.D. Sir John Peel	Placental bed vascular changes in abnormal pregnancy

4. Paediatrics and Child Health

HAMMERSMITH HOSPITAL, INSTITUTE OF CHILD HEALTH AND NUFFIELD NEONATAL RESEARCH UNIT

J.P.M. Tizard	The clinical and electroencephalographic studies of central nervous disease in the newborn
J.A. Davis	The effects of drugs on the response of newborn animals to anoxia
L.B. Strang	Control of blood flow through the lungs of the foetus and newborn
W.W. Payne	Disturbances of blood biochemistry in prematurity and the neonatal respiratory distress syndrome
J.W. Scopes	Blood pressure in newborn babies
L. Goldie	Behavioural studies of newborn babies

5. Pathology

CHELSEA HOSPITAL FOR WOMEN

R.M. Haines, M.D. (Director)	A long-term study of tuberculosis of the endometrium
	Exfoliative cytology of uterine malignant disease
with D.W.T. Roberts	A follow-up of patients with ovarian tumours treated by unilateral oophorectomy
H.P. Ferreira, M.D.	A study of unsuspected carcinoma of the cervix
	A study of the pathology of carcinoma of the body of the uterus

42 London University, Institute of Ophthalmology

1. Anatomy

C.M.H. Pedler, Ph.D., (Head of Department)	The fine structure of the visual cells and the synapses in the retina of the vertebrates; the structure of tapeta
K. Tansley (Miss), D.Sc.	The fine structure of the compound eye with quantitative
J. Rosenberg	studies of its behaviour
	The reaction of the endothelial cells of the retinal vessels to lack of oxygen
	The fine structure of the corneal epithelium and of the interface in corneal grafts
	Morphological studies on the virus of trachoma

2. Neuro-Ophthalmology

T.K. Lyle, C.B.E., M.D. (Dean)	Clinical research into the causes and treatment of ocular palsies
	The treatment of amblyopia ex anopsia
	A study of retrobulbar optic neuritis
S.P. Meadows, M.D.	Clinical features and prognosis of compression of the optic nerves by meningiomas and aneurysms
	Retrobulbar neuritis in childhood
S. Behrman	A study of a spongiose form of sub-acute progressive encephalopathy
	Study of anatomical and physiological aspects of Adie's syndrome
	Influence of blood viscosity on retinal venous circulation
	Senile papillopathy
C.J. Earl, M.D.	Follow-up of patients with myotonic pupils

3. Ophthalmology

Clinical:

F. Ridley	The application of contact lenses in the treatment of recurrent corneal ulceration and symblepharon and in the management of corneal grafts
	The assessment and statistical treatment of visual acuity, especially of low degree
	Investigation of the aetiology and management of keratoconus
	Analysis of some 7000 new cases attending the Department during the past ten years and a follow-up of those cases fitted with contact lenses.
A.G. Cross, M.D.	Study of the arcuate scotoma
	The causes and treatment of uveitis, vasculitis and peri-vasculitis
	Investigations into the treatment of vitreous haemorrhage
E.S. Perkins, M.D., Ph.D.	The aetiology of uveitis
	Theoretical and practical investigations into tonometry and tonography

3. Ophthalmology (*continued*)

Clinical (*continued*)

A.G. Leigh, M.D.	A study of the opacification and vascularization of corneal grafts, with especial reference to immunological factors
	A continuation of a study into methods of preservation of corneal donor material
K.C. Wybar, M.D.	Cancer follow-up, with particular reference to iris tumours
	Long-term survey of visual field changes in pituitary tumours
D. Ainslie, M.D.	A study of the effects of irradiation on certain forms of post-operative vascularization of the cornea, with particular reference to corneal grafting
	Investigation into the possibility of using and possible clinical value of polymyxin methanesulphonate
B.R. Jones	Investigations into virus infections of the eye
J. Redmond Smith	Statistical analysis of the results of a complete ophthalmic and general examination of diabetic patients
H. Hobbs	Ocular effects of chloroquine treatment
P. Hansell	New techniques in off-set lithography
	Filming of the living retina
P. Borrie, M.D.	Observation of the association between diseases of the skin and of the eye
M. Pugh (Miss)	Research on the disturbance in the visual apparatus which gives rise to amblyopia ex anopsia

Experimental:

J. Gloster, M.D., Ph.D.	Tonometry and tonography
	Mechanism of glaucoma
	Intra-ocular vascular circulation
G.B. Arden, Ph.D.	Neurophysiology of the visual pathways
	Electroretinography and electro-oculography
H. Ikeda (Mrs.), Ph.D.	Retinal electrophysiology
D. Ainslie, M.D.	Corneal vascularization
W.S. Foulds, M.D.	Pathogenesis of retinal detachment
D.P. Greaves	Intra-ocular vascular circulation
J.M. Heaton	Role of autonomic nervous system in ocular disease
A.G. Leigh, M.D.	Investigation of factors involved in keratoplasty
S. Singh Hayreh	Mechanism of papilloedema

4. Pathology

Professor N. Ashton, D.Sc. (Director)	Pathology and pathogenesis of the vascular retinopathies
	Tissue culture studies on retinal endothelium
	Rubella cataract
D.R. Barry, M.D.	Chromosome studies in ocular disease
G. Morgan	Reticulo-endothelial tumours of the orbit
C.N. Graymore, Ph.D.	Metabolism of the normal retina during development and at maturity. Studies of some retinal diseases, such as retinitis pigmentosa, diabetic retinopathy and retrolental fibroplasia, and the effects of certain cytotoxic agents
J. Harry	Hypertensive retinopathy
F. Martin	Immunological research on Sjögren's syndrome and diseases of the conjuctiva, cornea, sclera and uvea
A. Taktikos, M.D.	Retinoblastoma
B.R. Jones	Pathological investigations of virus infections of the eye, with particular reference to trachoma
R.T. Collyer, M.D.	Pseudoexfoliation of the lens capsule
I. Duguid, M.D.	Nematode endophthalmitis
B. Jay	Malignant melanoma of the conjuctiva
K.C. Wybar, M.D.	Cancer follow-up of malignant melanoma of the uvea

5. Physiology

D.M. Maurice, Ph.D., (Reader)	Physiology of the cornea and lens Formation of the aqueous humour
D. Cole, Ph.D.	
M. Riley, Ph.D.	

M.R.C. VISION RESEARCH UNIT

H.J.A. Dartnall, Ph.D., D.Sc. (Director)	Photobiology of visual processes
J.D. Moreland, Ph.D.	
D.Y. Wang, Ph.D.	
P. Silver (Mrs.), Ph.D.	Visual sensitivities of animals

Physiological Optics:

R.A. Weale, D.Sc., Ph.D.	The physiology of vision Ocular senescence
J.D. Abrams	Follow-up and results of surgery with and without Diamox Comparative follow-up of cataract extraction performed with and without α-chymotrypsin from the glaucoma standpoint Investigation of the elastic properties of the iris Anatomy of the iris root
D. Froomberg, Ph.D.	Growth of crystalline lens
M. Pugh (Miss)	Study of amblyopia
C.M. Ruben	Sensitivity of cornea and conjuctiva Binocular vision with special reference to aphakia

6. Surgery

H.B. Stallard, M.B.E., M.D.	The irradiation of malignant intra-ocular neoplasms Surgical access to the orbit in particular relation to the exposure and removal of dermoid cysts and neoplasms and for decompression Pathological changes in the levator palpebrae superioris in congenital ptosis Chromosomes in retinoblastoma
P.M. Moffatt, M.D.	Vitreous implants for detachment of the retina
C.D. Shapland	An assessment of the indications for the various methods of treatment of retinal separation A study of detachment of the retina in the aphakic
H. Ridley, M.D.	Intra-ocular acrylic lens surgery Electronic ophthalmoscopy Malnutrition in central Africa
J.R. Hudson	Investigations into the relative merits of the various surgical procedures for treating retinal detachment and a comparison with the results obtained with the surface diathermy techniques in use about ten years ago
L.G. Fison	The effects of posture on retinal detachment A survey of the effects of treatment by light coagulation on tumours inside the eye

43 London University, Institute of Orthopaedics

1. Orthopaedics

H.J. Seddon, C.M.G., D.M. and others	Poliomyelitis Peripheral nerve injuries Congenital dislocation of the hip Volkmann's ischaemic contracture Brachial plexus paralysis Prosthetic replacement of long bones

1. Orthopaedics (*continued*)

A. McPherson	Blood flow in bone
	Coagulation and fibrinolysis
	Viscerosomatic reflexes
P.G. Walker, Ph.D. and others	Enzymes acting on mucopolysaccharides
	Balance studies in metabolic bone disease
	Kinetic studies on glycosidases
	Chemistry and biochemistry of amino-sugars
	Chemistry and biochemistry of uronides
	Histochemical localization of hydrolytic enzymes
	Glycosidases in serum
A.B. Kinnier-Wilson and others	Studies in the use of analogue computer for the analysis of: (i) mechanics of obstructed breathing; (ii) control of powered artificial limbs
	*Development of muscle substitutes: (i) design of suitable motor units; (ii) study of control factors involved, using mechanical or myo-electric signals; (iii) study of various type of transmission systems (splints, artificial arms, harness, etc.)
	Study of mechanical relationships between patient and artificial ventilators
C.H. Lack and others	Plasmin in formation and dispersal of pathological deposits in pathology of blood vessels in breakdown of cartilage
	Insoluble complexes containing chondromucoprotein, fibrinogen and β-lipoproteins with reference to fibrinoid deposition
	L forms of bacteria in body fluids *in vitro* and *in vivo*
J.T. Scales	Materials and their applications in surgery for internal prostheses
	Wound healing and the application of natural and synthetic materials for wound dressings
	The application of synthetic materials for orthopaedic appliances
	Tissue reactions to synthetic materials and metals
H.A. Sissons	Muscle atrophy and hypertrophy in poliomyelitis and other conditions
	Experimental study of longitudinal bone growth
	Normal bone structure
	Uptake and localization of radioactive isotopes in bone
	Tetracyclines as vital indicators of bone formation

44 London University, Institute of Psychiatry

1. Biochemistry

Professor H. McIlwain, D.Sc., Ph.D.	Biochemistry in relation to the central nervous system and mental disease
R. Rodnight, Ph.D. D.B. Gammack, Ph.D.	Intermediary metabolism; metabolism of cerebral tissues, especially in electrically excited conditions, and biochemistry of drugs acting on the central nervous system
	Maintenance of the composition, metabolism and associated electrical properties of the brain and of isolated tissues from it; correlation of electrical and ionic phenomena; physicochemical properties of neural constituents
	Analysis of body fluids in normal and pathological conditions and in relation to treatment

*In collaboration with the Committee for Research on Apparatus for the Disabled (National Fund for Research into Poliomyelitis and Other Crippling Diseases)

2. Pathology

Neuropathology:

Professor P.M. Daniel, D.M., D.Sc.	General neuropathology The hypothalamus and pituitary gland Trauma of the nervous system Diseases of muscles
J.B. Brierley, M.D.	The changes in the brain in anoxic states
O.E. Pratt, Ph.D.	The biochemistry of the brain and of endocrine disorders
E. Beck (Mrs.)	Anatomy of the nervous system Pathological changes in the hypothalamus
F.B. Byrom, M.D.	Experimental hypertensive encephalopathy
S.J. Strich, D.M.	Hydrocephalus Pathology of head injury Congenital abnormalities Diseases of muscles
J.A.N. Corsellis	Neuropathology of ageing Pathology of mental disorders and epilepsy

3. Physiology

Clinical Neurophysiology:

Professor G.D. Dawson	Control of the transmission of sensory information in animals Spread of epileptic discharges from cortical lesions in animals
M.V. Driver	Quantitative assessment of symmetry and change in the electroencephalogram
G. Ettlinger	Effects of brain lesions in man and monkey on complex behaviour
J.H. Margerison	Study of temporal lobe epilepsy, and of the relation between changes in electrolyte balance and the electro-encephalogram in depression

Neuroendocrinology:

Professor G.W. Harris, M.D., Sc.D., F.R.S. B.T. Donovan, Ph.D. H.J. Campbell, Ph.D.	Interaction of the central nervous system and the endocrine system, with special reference to hypothalamic control of anterior pituitary function

4. Psychiatry

Professor Sir Aubrey Lewis, M.D.	Social factors in mental disorder
M. Shepherd, D.M.	Prevalence of mental illness
T.C.N. Gibbens, M.D. P.D. Scott, M.D.	Forensic aspects of mental disease
J.L. Gibbons J.R.G. Carrie G.F.M. Russell, M.D.	Metabolic studies in mental disorder
R.H. Cawley, Ph.D.	Statistics of mental disorder
C. Rashbass, M.D.	Analysis of visual tracking behaviour
R.P. Michael, Ph.D.	The neural basis of behaviour
E. Marley, M.D.	Sympathomimetic amines and the central nervous system
J. Shields	Psychiatric genetics
D.L. Davies, D.M.	Drug addiction
B. Ackner, M.D. W. Linford Rees, M.D. A.D. Leigh, M.D.	Psychosomatic studies
F. Post, M.D.	Mental aspects of old age
F.K. Taylor, M.D.	Dynamics of group structure

4. Psychiatry (*continued*)

K. Cameron	Child psychiatry
W. Warren, M.D.	
E.H. Hare	Ecology of mental disorder

M.R.C. PSYCHIATRIC GENETICS RESEARCH UNIT

E.T.O. Slater, M.D. (Director)	Genetics of mental disorder
V.A. Cowie (Mrs.), M.D.	
B. Harrison (Miss)	

M.R.C. SOCIAL PSYCHIATRY RESEARCH UNIT

Professor Sir Aubrey Lewis, M.D.	Social and psychological studies of chronic psychoses and mental defect
J.K. Wing, Ph.D.	
N. O'Connor, Ph.D.	
J. Tizard, Ph.D.	
P. Venables, Ph.D.	
B. Hermelin (Mrs.), Ph.D.	
G.W. Brown, Ph.D.	
C. Parkes	
K. Rawnsley	Epidemiological studies of mental disorder
J.B. Loudon	
J.G. Ingham, Ph.D.	
J.O. Robinson, Ph.D.	

5. Psychology

Professor H.J. Eysenck Ph.D.	Personality measurement by means of objective tests The application of learning theory to abnormal personality
G.W. Granger, Ph.D.	Perceptual tests (simple physiological) as measures of personality
M.B. Shapiro, Ph.D.	Nature and measurement of depression
I. Martin (Mrs.), Ph.D.	Measure of autonomic and somatic reactivity in response to stress
E. Treadwell (Mrs.)	The effect of drugs on conditioning
P. Broadhurst, Ph.D.	Emotionality in the rat: its measurement, inheritance and correlates
R. Willett	Conditioning and personality
H. Holland	Effect of drugs on meta-contrast and other perceptual phenomena
R. Gooch, M.D.	Measurement of sedation thresholds
S.B.G. Eysenck, Ph.D.	Adaptation and habituation as related to personality

45 London University, Institute of Urology

1. Urology

J.D. Fergusson, M.D. (Director)	Prostatic cancer: statistical study of the result of endocrinecontrol therapy; tracer experiments with labelled phosphorylated stilboestrol; irradiation hypophysectomy with yttrium; cytological diagnosis
with J.J. Stevenson, M.D.	Renal cysts: aspiration diagnosis under X-ray television control
A.R. Harrison, M.D.	Renal calculi with hyperparathyroidism: surgical treatment
J.J. Stevenson, M.D.	X-ray television: new combined radiological and surgical techniques

1. Urology *(continued)*

J.D. Fergusson, M.D.	Polycystic disease of the kidneys: genetic aspects
R.I. Bodman	Hypotensive anaesthesia in urology
J. Chesney, M.D.	Investigation of latent male carrier with *Trichomonas* infestation of the prostate
A.E. Francis, M.D.	Bacteriological studies in relation to urinary infection
H.G. Hanley, M.D.	Cine-fluoroscopic studies on urethral reflex
	Renal tuberculosis
	Male subfertility
A.R. Harrison, M.D. with B.M. Still (Miss), Ph.D.	Calculous disease: follow-up investigations; ultrafilterable and ionized calcium studies; investigation of uric acid lithiasis
A.R. Harrison, M.D.	Investigation and treatment of renal failure: modifications of the techniques of renal dialysis
	Studies of renal function
A.R.C. Higham, T.D.	Cine-cystoscopy
	Treatment of bladder tumours with radium
	Treatment of enuresis by slow dilatation of the bladder
A.M. Joekes	Investigation of glomerulonephritis: renal biopsy studies
	Renal dialysis
	Investigation of individual renal function by isotope renography
	Plasma protein metabolism in patients with heavy proteinuria
K. Owen	Renal vascular disease
	Renal hypertension
with W. Mee	Investigation of ureteric reflux and pyelonephritis
I. Patton (Mrs.), M.D. with J.J. Stevenson, M.D.	Radiological studies with the image intensifier and X-ray television
	Museum of X-ray films
D.E.H. Phillips with A.R. Harrison, M.D.	Granulomatous orchitis and prostatitis
	Treatment of renal failure
J.D. Fergusson, M.D.	Carcinoma of the prostate
R.C.B. Pugh, M.D. with K. Cameron	Malignant disease of the urogenital tract
R.C.B. Pugh, M.D.	Investigation of testicular tumours
	Clinico-pathological correlation of bladder tumours
with A.M. Joekes	Investigation of renal biopsy material
R. C. B. Pugh, M.D.	Cytological investigations of malignant disease of the urogenital tract
with J.L. Pead	Investigation of tumours of the urogenital tract
J.J. Stevenson, M.D.	Assessment of new contrast media in urography
B.M. Still (Miss), Ph.D.	Biochemical methodology
	Estimates of serum acid phosphatase in prostatic cancer
	Biochemical studies during renal dialysis
R.T. Turner-Warwick, D.M. with D.I. Williams, M.D.	Vesico-ureteric reflux
D.M. Wallace, O.B.E.	Cancer of the bladder: statistical investigations; clinical trials in relation to the prophylaxis of bladder tumours
	Urinary infection: prevention by modified methods of closed drainage
with R.W. White M.D.	Biochemical investigations of tryptophan in bladder tumours
D.I. Williams, M.D.	Vesico-ureteric reflux as a cause of recurrent infection
	Paediatric urology

46 London University
King's College Hospital Medical School

1. Anaesthetics

No information

2. Cardiology

S. Oram, M.D.	Studies of the coronary circulation by right heart catheterization
with J.P.H. Davies, M.D.	Cardiac output by an isotope technique and excretion of urinary pressor amines in myocardial infarction
I. Weinbren	Effect of smoking on the electrocardiogram
G. Ross	The P wave in hypertension
	Effect of exercise on the hypertensive cardiogram
	Effect of calcium and magnesium on the rat cardiogram
	Relationship of opening snap to pulmonary venous pressure in mitral stenosis
	Renal calcification following cortical necrosis

3. Dental Studies

Professor R. Cocker	Relationship of cleft lip and palate to dental arch deformity
M.A. Kettle	Experimental methods of treatment for impacted maxillary canines
B.C. Leighton	Investigation into the effect of certain environmental factors on the form and relationship of the dental arches from birth onwards by clinical examination, cinephotography, cephalometry and the use of plaster casts of the dental arches
J.R. Garrett	Salivary gland structure and function and its possible connection with oral disease

4. Dermatology

D.I. Williams	Study of infantile eczema
	Griseofulvin in fungus infections
R.H. Marten	Study of infantile eczema
	Griseofulvin in fungus infections
	Chloroquine: experimental study using guinea-pigs
	Lupus erythematosus
E.L. Rhodes	Griseofulvin in fungus infections
	Study of infantile eczema

5. Haematology

Professor W.M. Davidson, M.D.	Experimental haemolytic anaemias
	Iron metabolism in anaemia
L.F. Thomas (Miss)	Morphological sex difference in leucocytes of man and animals
	Chromosome studies
P.T. Flute, M.D.	Contact factors in fibrinolysis

6. Medicine

C. Hoyle, M.D. (Director)	Sarcoidosis
with R.P. Crick	Ocular sarcoidosis
J. Anderson, M.D.	Calcium metabolism
	Intermediary metabolism in diabetes
	Sodium transport

6. Medicine (*continued*)

L.J. Beilin	Sodium metabolism in man
A.D. Munro-Faure, M.D.	Hypertension
R. Tomlinson	Sodium transport
J. Sheldon	Diabetes and pregnancy
K. Taylor	Biosynthesis of insulin
J.L. Livingstone, M.D. with R.S.B. Pearson, D.M. *K. Maunsell (Miss)	A clinical follow-up of two groups of asthmatic patients over the decade 1953–63: (i) those treated with long-term steroids, and (ii) those treated without long-term steroids
with R.S.B. Pearson, D.M. Professor C.H. Gray, M.D., D.Sc. P.F. Dixon	Investigation of cortisol and its derivatives in the plasma of asthmatics as compared with normal subjects

7. Microbiology

Bacteriology:

Professor A.C. Cunliffe, M.D.	Bacterial hypersensitivity Passive cutaneous anaphylaxis Epidemiology of infections of surgical wounds Bacteriology of *Proteus vulgaris* Immunology of insulin
F.L. Jackson	Mammalian and bacterial cytochrome systems Streptomycin and streptomycin antagonists The penicillin dependence of a staphylococcus
C.P. Farthing	Relation of γ-globulin to antibody
B.M. Partridge (Miss)	Growth of pathogenic fungi on the chorio-allantoic membrane of the hen's egg

8. Neurology

M. Critchley, M.D.	Disorders of language, examined particularly from the standpoint of linguistics Developmental dyslexia Disorders of highest nervous activity as exemplified by parietal and occipital lesions Disorders of the body image

9. Obstetrics and Gynaecology

Sir John Peel	Carbohydrate tolerance in patients suffering from carcinoma of the body of the uterus and non-malignant hyperplasia
S.A. Seligman	Investigation into metabolic acid in newborn babies of diabetic mothers
K.S. Pool	Determination of content of liquor amnii in conditions of potential placental insufficiency by coomassie blue technique Localization of placenta by injected radioactive iodine (I^{132})

10. Ophthalmology

L.H. Savin, M.D. (Head of Department)	Visual problems of night driving Functional spasm of accommodation Spasms and tics in ophthalmic practice; Gilles de la Tourette syndrome Management of ophthalmic operation cases

*Asthma Research Council grant

10. Ophthalmology (*continued*)

T.K. Lyle, C.B.E.	Surgical treatment of ocular palsies including endocrine exophthalmos
	Follow-up study of cases of (i) bilateral retrobulbar neuritis, and (ii) drusen of the optic nerve head
	Amblyopia ex anopsia: causation and treatment
	Orthoptic treatment of concomitant strabismus
	Displacement of the orbital floor and traumatic diplopia
	Retinal vasculitis
	Ocular symptoms and signs in pituitary tumours
	Use and abuse of dark glasses
R.P. Crick	Sarcoidosis and the eye
	Research in perimetric technique
	Systemic ophthalmology
	Aetiology and treatment of uveitis
	Annular peripheral retinal detachment
	Treatment of senile cataract
	Bilateral congenital buphthalmos

11. Otology

T.S. Littler, Ph.D. (Director)	The testing of hearing by bone conduction as a diagnostic procedure, and the design and development of improved bone conduction hearing aids
T.E. Cawthorne	
J.J. Knight	Improvements in hearing aid equipment
C.G. Rice	Incidence and causes of deafness
A.B. Hewlett	Surveys of deafness in industrial situations
	Audiometry
	The surgical treatment of deafness
	Investigation of central deafness
	Aetiology and pathology of Bell's palsy
	Effect of streptomycin on the eighth nerve system
	Investigation of the peripheral and the central vestibular mechanism in health and disease
S.R. Mawson with M. Wilmers (Miss), M.D.	Tonsillectomy: controlled therapeutic trial

12. Pathology

Professor H.A. Magnus, M.D.	A comparison between the histology of the gastric mucosa and cytological findings obtained by gastric lavage
B.S. Cardell, M.D.	The pathology of infants of diabetic mothers
M.K. Mason	Value of cytology in the diagnosis of prostatic cancer
D.G. Rushton	Changes in the lungs in drowning and crush injury
M.E.A. Powell	Investigation into the extent of the pyloric mucosa in gastrectomy specimens
M.K. Mason	
A.C.B. Dean	Fractionation of tissue proteins in cancer patients in an attempt to isolate cancer antigens and antibodies
D.E.H. Tee	
	Studies on the antigens and antibodies in micebearing tumours
G.A. Stirling	Experimental thrombosis
K.A. Barlow	Pathology of renal disease in gout

Chemical:

Professor C.H. Gray, M.D., D.Sc.	Metabolism of adrenal steroids, androgens and synthetic anabolic steroids in health and disease, using unlabelled as well as H^3- and C^{14}-labelled compounds
	Protein binding of steroids
	Structure, stereochemistry, biosynthesis and metabolism of porphyrins and bile pigments

12. Pathology (*continued*)

Chemical (*continued*)

M.J.H. Smith, Ph.D.	Effects of anti-inflammatory and other drugs on intermediary metabolism in animal tissue preparations, using C^{14}-labelled substrates and radio-autographic techniques.
D.C. Nicholson, Ph.D.	Synthesis, structure and metabolism of porphyrins and bile pigments

13. Psychiatry

D.W. Liddell F.J. Roberts A.B. Baker	Psychological effects of phenothiazines on normal subjects
D.W. Liddell	Role of gastric activity in sodium transport with special reference to depression

14. Radiotherapy

V.M. Dalley (Miss)	Investigation into the treatment of malignant disease of the ovary by a combination of surgery, radiotherapy and chemotherapy

15. Surgery

H.C. Edwards, C.B.E. (Director)	
L.T. Cotton	Aetiology and pathology of varicose veins Drug therapy in intermittent claudication Arteriovenous anastomoses in hypertrophied limbs Fibrinolysis in venous and arterial thrombosis
J.G. Murray	The responses of nervous tissue to injury and disease The mechanism of gastric secretion and its relation to peptic ulceration in man A study of pharmacologically active substances in the stomach of man
A.C.B. Dean	Physiology of gastric emptying
S. Taylor	Production of experimental thyroid cancer in rats by radiation and low iodine diet

16. Surgery, Thoracic

W.P. Cleland with *A. Wheatley *N. Howard	Investigation into the incidence and behaviour of solitary lung metastases
W.P. Cleland with †J.B. Johnstone *N. Howard	Investigation into the effects of interstitial and transbronchial radioactive gold (Au^{198}) in the treatment of lung cancer

17. Urology

J.G. Yates-Bell	Polycystic kidneys Radioactive gold grains for bladder carcinoma

47 London University
Lister Institute of Preventive Medicine

1. Biochemistry

Professor W.T.J. Morgan, C.B.E., F.R.S.	Immunochemistry Chemistry and immunology of the human blood group substances and of bacterial and protozoal antigens

*At the Royal Marsden Hospital, London S.W.3
†At the Brompton Hospital, London S.W.3

1. Biochemistry (*continued*)

M.G. Macfarlane (Miss), D.Sc.	Action of bacterial toxins on tissue constituents and the metabolic activity of cells
	Phospholipids and glycolipids in tissues and micro-organisms
W.M. Watkins (Miss), Ph.D.	Immunochemistry
	The action of enzymes on human blood group substances
	The chemical basis of immunological specificity
W.J. Whelan, D.Sc.	Action patterns of starch-metabolizing enzymes
	Structural determination of polysaccharides by chemical and enzyme methods
	Chemical synthesis of polysaccharides
G.M. Gray, Ph.D.	Chemistry and function of phospholipids in normal and abnormal tissues

2. Biophysics

R.A. Kekwick, D.Sc.	Biophysical studies on proteins and other macromolecules of biological origin, particularly concerned with ultra-centrifuge and electrophoresis data
	Proteins associated with the blood clotting system and with antigen-antibody interactions are being especially examined
J.M. Creeth, Ph.D.	Methodology of sedimentation analysis and the applications of the ultracentrifuge and diffusion measurements in protein chemistry

3. Genetics

Human:	**See Haematology**

M.R.C. BLOOD GROUP RESEARCH UNIT

4. Haematology

BLOOD PRODUCTS LABORATORY (ELSTREE)

W.D.'A. Maycock, M.V.O., M.B.E., M.D.	The techniques of freeze-drying plasma proteins
L. Vallet	Physical methods of sterilization of human plasma and plasma fractions
M.E. Mackay (Miss), Ph.D.	Purification and properties of plasma protein fractions

M.R.C. BLOOD GROUP REFERENCE LABORATORY

A.E. Mourant, D.Phil., D.M. (Director)	
K.L.G. Goldsmith, Ph.D.	Investigation of cases of haemolytic disease of the newborn, blood transfusion reactions and other blood grouping problems
	Serological and genetical research into rare antigens and phenomena of special interest arising from such cases
	Investigation of the potentialities of enzymes in blood grouping
	Investigation of antibodies against human leucocytes and platelets
	The study of antihuman-globulin sera by means of immuno-electrophoresis
	Blood grouping of foetuses in relation to marrow replacement
	Investigation of haemagglutinins of vegetable origin
E.W. Ikin (Miss)	Control of routine blood grouping sera, and anthropological blood group investigations
	Serological and genetical research into new antigens and antibodies so discovered
	Examination of antiglobulin sera by titration

4. Haematology (*continued*)

M.R.C. BLOOD GROUP RESEARCH UNIT

R.R. Race, Ph.D., F.R.S.	Blood groups: searches for "new" blood group antigens;
R. Sanger (Miss), Ph.D.	genetical studies of these antigens and their application to human genetics and medicine

5. Immunology

ELSTREE

A.F.B. Standfast	Bacterial vaccines
J.M. Dolby (Mrs.), Ph.D.	The antigenic potency of typhoid vaccines; the antigens of *Haemophilus pertussis*
C. Kaplan	Smallpox vaccine
	Inactivation of vaccinia virus by various physical and chemical agents
	Large-scale production of vaccinia virus in tissue culture
	Accuracy of methods of titrating vaccinia virus and neutralizing antibody in sera
	Relationship between circulating antibody and immunity to vaccinia virus infection
	Rapid early diagnosis of smallpox by fluorescence
	Chemical characteristics of vaccinia virus
B.G.F. Weitz, D.Sc.	Therapeutic sera
D.E. Dolby, Ph.D.	Antigenic characteristics of the serum proteins of man and animals
	Interaction of toxins and antitoxins
	Characters of fractions of antitoxic sera
	Feeding habits of blood-sucking insects of medical and veterinary importance
	Antigens of African trypanosomes

6. Microbiology

B.A.D. Stocker, M.D.	Bacterial genetics; transduction, recombination and lysogenic conversion in *Salmonella*
	Bacterial flagella
	Colicinogeny
	Biochemical microbiology
G.G. Meynell, M.D.	Kinetics of bacterial infections
	Recombination in *Salmonella*
M.W. McDonough, Ph.D.	Chemistry of *Salmonella*
	Flagellar protein
Virology:	
L.H. Collier, M.D.	Properties of trachoma and inclusion blennorrhoea viruses

7. Pathology

Experimental:	
Professor A.A. Miles, C.B.E., F.R.S.	Tissue and vascular reactions and non-specific immunity in the early stages of infection
	Endogenous factors altering vascular permeability in inflammation and other injury
F.R. Wells	Reaction of lymphatic vessels to injury
M.D. Pittam, Ph.D.	*In vitro* cultivation of pathogenic trypanosomes
R. Lemcke (Miss), Ph.D.	Pathogenic significance and antibody production of pleuropneumonia-like organisms and L-forms of bacteria
	Aetiology of non-gonoccocal urethritis

48 London University, London Hospital Medical College

1. Anatomy

Professor R.J. Harrison, M.D., D.Sc.	Embryology: comparative placentation, delayed implantation
	Reproduction: changes in mammalian ovary and reproductive tract
F.R. Johnson, M.D.	Histochemistry of regeneration in various tissues
J.D.W. Tomlinson	Anatomy of vertebral veins
J.W.S. Harris, Ph.D.	Embryology of palate
B.A. Young, Ph.D.	Electron microscopy: endocrines and placenta
Oral:	
R.W. Fearnhead	Fine structure and innervation of teeth
A. Boyde	Structure of teeth

2. Biochemistry

Professor F.L. Warren, Ph.D., D.Sc.	Studies in human genetics by investigation of biochemical individuality
M.W. Neil, Ph.D.	Biochemical processes involved in the metabolism of foetal tissues and the development of certain enzyme systems during foetal growth
C.W. Parr, Ph.D.	
P.J. Warren, Ph.D.	
C.A. Ross, Ph.D.	Studies on the significance of phosphoglucose isomerase and factors influencing its activity in animal tissues
	Copper metabolism in nervous tissue
	Studies on ribonuclease
Experimental:	
Professor C.J.O.R. Morris, Ph.D.	Chemistry of gonadotrophins
	Preparation and properties of cytoplasmic nucleic acids and microsomes
	Study of separation methods in biochemistry
J.S. Fawcett, Ph.D.	Chemistry of thyrotrophic hormone

3. Cancer Research

M.H. Salaman, M.D. (Director) K.E.K. Rowson, M.D.	Study of leukaemia, with special reference to the virus-induced disease. Tissue culture, serological, and other techniques commonly used in study of viruses are being used in this work. The high incidence of leukaemia in the progeny of mice inoculated with a leukaemogenic virus is being investigated. A variety of possible methods of rapid bio-assay of the leukaemogenic viruses are being tested, notably the estimation of plasma enzymes, known to be affected by other viruses. In this connection the virus described by Riley, which causes a rise in the plasma lactic dehydrogenase of infected mice, is being investigated as a model for the murine leukaemogenic viruses, which it resembles in some respects

4. Cardiology

W. Brigden, M.D. L. McDonald, M.D.	Clinical investigation and treatment of cardiovascular disease, aided by special tests which include electrocardiography, radiology, phonocardiography, vector cardiography, angiocardiography and cardiac catheterization, and tests for abnormalities of blood coagulation and immunological reactions

5. Chest Diseases

N.L. Rusby, D.M. K.M.A. Perry, M.D.	Studies of lung function in diffuse interstitial lung disease

6. Dental Studies

Professor A.E.W. Miles	Structure of dental tissues in vertebrates Histology of oral mucosa Abnormalities of dental development Age changes in oral tissues
R.W. Fearnhead	Innervation of the pulp and dentine Fine structure of enamel and dentine
G.T. Hankey	Temporo-mandibular arthrosis
G.R. Seward	Radiographic anatomy of jaws
R. Duckworth	Fluoridated toothpaste: studies with F^{18}
J.P. Waterhouse	Disorders of salivary glands; auto-immune disease
Conservative:	
Professor G.L. Slack, O.B.E., T.D.	Studies in the epidemiology and control of dental caries Dental disease in laboratory animals
N.L. Ward	Rates of diffusion of liquids through enamel and dentine measured by conductivity tests
E. Nicholls	Sensitivity of oral micro-organisms to fluoride compounds
P.J. Holloway	Nutrition in relation to the structure and composition of the oral tissues and their susceptibility to disease in laboratory animals
J.N. Swallow	Reaction of pulp tissue to various drugs Epidemiological studies of dental disease in handicapped children
H. Allred	Identification and distribution of the intertubular and peritubular matrices of dentine by chemical, histochemical and microradiographic techniques
J. Bulman	Investigation into the excretion of zinc in saliva and its effect on exposed oral tissues Anatomical structure of dentine with particular reference to the branching of dentinal tubicles Epidemiological survey of the dental condition and dental health
R.A.D. Williams	Carbohydrate metabolism of selected oral bacteria
D.S. Berman	Clinical trials in preventive dentistry
Orthodontics:	
H.E. Wilson	The study of the frenal attachment Closure of an artificial palatal cleft in a *Macacus* rhesus monkey
J.S. Rose	The study of variations in the positional development of the premolars in man
Prosthetics:	
S.F. Fish	Reaction of oral mucous membrane to dentures Proprioceptors of tongue Examination of structure of matrix of silicate cements thermally and by X-ray diffraction
D. Schwarz A. Sheiham	Survey of partial dentures
M. Braden, Ph.D.	Rupture properties of acrylic resins Liquid absorption properties of acrylic resins Indentor problems: acrylic resins; dental amalgams Resilience properties of cartilage Rheological properties of impression materials

7. Dermatology

B.F. Russell, M.D.	Arsenical skin cancers and visceral malignancy
	The significance of *Demodex folliculorum* in rosacea
	Food dyes in relation to dermatoses
with S.L. Last	Electroencephalography in Besnier's prurigo
J.S. Pegum, M.D.	The use of mixed allergens in patch testing for metal and antibiotic sensitivity
	The effects on the skin of dermabrasion
C.M. Ridley (Miss)	Survey of patients with dermatomyositis
	Treatment of rodent ulcers and radiodermatitis by dermabrasion
	Racial varieties in the incidence of dermatoses
A. Herxheimer	Evaluation of topical treatment in skin disease
	Cholinergic urticaria
	Action of drugs on the skin
H. Baker	Genetic interrelationship of psoriasis and arthritis
	Routine assessment of cutaneous photosensitivity
	Natural history of pityriasis lichenoides and its relationship to parapsoriasis and the reticuloses

8. Haematology

A. Turnbull, D.M.	Studies of iron metabolism in relation to the mechanism and regulation of iron absorption in health, and its alteration in alimentary and haematological disease

9. Medicine

Professor C. Wilson, D.M.	Aetiology and treatment of hypertension
J.M. Ledingham, M.D.	Haemodynamic changes in experimental hypertension
M.A. Floyer, M.D.	Role of the kidney in renal hypertension
D. Jennings	Aetiology and treatment of peptic ulcer
R.H. Balme, M.D.	Treatment of renal failure by dialysis
D.W. Vere	Proteinuria and oedema in renal disease
R.D. Cohen	The kidney and calcium metabolism
A.W. Asscher	Irradiation effects on the kidney and blood vessels

10. Microbiology

Bacteriology:

Professor C.F. Barwell, M.D.	Investigations of virus infections in man
	The antigenic relationships of viruses of the psittacosis-lymphogranuloma group
	Serological reactions with *Toxoplasma* antigens
R.G. White, D.M.	The study of cellular aspects of specific immunity and the enhancement of antibody production
	The study of auto-antibody mechanisms in disease of the thyroid and other organs
C.S. Cummins	The chemical composition of bacterial cell walls in relation to antigenic structure and taxonomic position
S.E. Reed (Miss)	The study of tissue culture infection by herpes simplex and other viruses
P.C. Wilkinson	Investigation of a possible auto-antibody mechanism in carcinomatous neuromyopathies
M.J. Davey (Miss)	The antigenic structure and relationships of the viruses of trachoma and inclusion blennorrhoea

11. Neurology

R.A. Henson, D.M., M.D.	Neurological complications of malignant disease
	Clinical and pathological studies of diseases of muscle
	Immunological aspects of myasthenia gravis

12. Neurosurgery

D.W.C. Northfield	Electrocorticography
J.V. Crawford	Recording of electroencephalography from deep electrodes
	Radioactive isotopes in hydrocephalus studies

13. Ophthalmology

A. Lister	Observations by means of stereophotography of the changes, if any, which take place in the filtration angle of the eye of a normal infant and in that of one suffering from congenital glaucoma

14. Otorhinolaryngology

C. Keogh	The protective mechanism of the skin of the external auditory meatus
	Causes of congenital stridor in infants
	Causes of deafness in children
	Malignant cells in oesophageal mucus
	The causes and effects of pharyngeal paralysis
	The causes of Ménière's syndrome

15. Paediatrics and Child Health

R.H. Dobbs, M.D. A.D.M. Jackson, M.D. with Departments of Obstetrics and Haematology	Correlation of maternal antibody titres with clinical severity in haemolytic disease of the newborn due to Rh sensitization
Department of Physiology	Study of problems associated with neonatal respiratory physiology

16. Pathology

Histopathology:

Professor I. Doniach, M.D. E.D. Williams	Growth and regeneration of the rat thyroid gland
J.W. Landells	Histochemistry of cartilage and bone in relation to arthritis
K. Weinbren, M.D.	Regeneration of the liver and other tissues
A.H.E. Marshall	Immunological reactions in the thymus gland
R.G. White, D.M. H. Urich, M.D.	Pathology of carcinomatous neuromyopathy
D. Hourihane	Association of asbestos is with malignancy

17. Pharmacology and Therapeutics

Professor M. Weatherall, D.M.	Effects of drugs on the movements of electrolytes in tissues
C.R.B. Joyce, Ph.D.	Psychological effects of drugs
A. Herxheimer	Physiology and pharmacology of the human skin
A. Stafford, Ph.D.	Catechol amines

18. Physiology

Professor K.W. Cross, D.Sc.	Control of respiration and metabolism of the newborn infant, and respiratory responses in the newborn animal
J. Dobbing	Biochemical physiology of developing and adult nervous tissue, and the metabolic stability of its structural constituents, especially those of the myelin sheath

18. Physiology (*continued*)

J.R. Hill (Miss)	Comparative physiology of newborn and adult animals and human infants with special reference to metabolism, thermal stability and the effects of hypoxia
K.B. Roberts, D.Phil.	Lymphocyte in man and rodents studied in tissue culture
W.H. Marshall	Foetal and adult haemoglobins in mice

19. Radiotherapy

W. Shanks	The treatment of bladder cancer
L.A.W. Kemp	Telecobalt therapy
	The use of wedge filters in radiotherapy
B. Barber	Research in the dosimetry of ionizing radiations, and in particular in the development of guarded-field ionization chambers and their application to the standardization of supervoltage therapy units
R. Sear	Use of isotopic tracers in various research projects

20. Surgery

H.D. Ritchie	Studies on the conjugation and excretion of oestrogens in bile
	Aldosterone excretion after retrocolic anastomosis
	Perfusion of canine liver
J.P. Blandy	Studies on uro-epithelialization of intestinal segments in connection with diversion of urine
K.C.D. Gordon	Cystic artery in health and disease
J.D. Hardcastle	Perfusion of the canine liver
N.W. Struthers	Renal homotransplantation

21. Surgery, Thoracic

V.C. Thompson	Clinical pathological studies on carcinoma of the lung
G. Flavell	The surgical treatment of mitral stenosis
	Studies in the use of a pump oxygenator for the maintenance of extra-corporeal circulation in open operations on the heart
	Studies in the use of profound hypothermia in heart surgery

22. Venereology

A.J. King	The aetiology, diagnosis and treatment of non-specific genital infection (non-specific urethritis)
	The treatment of trichomonal vaginitis
	The significance of complement fixation tests for gonorrhoea performed on the sera of patients recently treated for gonorrhoea
	The natural history, treatment and progress of Reiter's syndrome
	The diagnosis and complications of chronic prostatitis
	The relationship of relapsing uveitis to non-specific genital infection
	The clinical significance of non-syphilitic reactions to standard serological tests for syphilis
	Bacteriological and clinical study of sensitivities of gonococci to penicillin and streptomycin
	Study of urethral strictures in the male: incidence, causes and treatment
	The application of fluorescent techniques to the diagnosis of treponemal infection
	Study of acute salpingitis including assessment of the results of treatment

22. Venereology (*continued*)

A.J. King	Investigation and clinical assessment of complement fixation tests for syphilis, using antigens prepared from the Reiter strain of *Treponema*
	Investigation of the causes of epididymo-orchitis with special reference to viral infections
	Venereal diseases in immigrants: sources of infection
	Trial of prednisone for the treatment of neural deafness due to congenital syphilis
	Trial of topical hydrocortisone in the treatment of balanitis xerotica obliterans
with Institute of Ophthalmology	Role of the virus of trachoma inclusion conjunctivitis (tric virus) in genital infection

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London School of Hygiene and Tropical Medicine

1. Biochemistry

C.E. Stickings, Ph.D.	Biochemistry of micro-organisms, particularly of fungi: Investigation of metabolic products of these micro-organisms, determination of their chemical structure, synthesis and biosynthesis. Investigation of antibiotic activity and other biological properties of these metabolic products

2. Entomology

Professor D.S. Bertram Ph.D.	Virus and malaria transmission
	Electron microscopy of vectors
J.R. Busvine, D.Sc., Ph.D.	Insecticides
B.R. Laurence, Ph.D.	Mosquito biology
	Filarial vectors
R.G. Bird, Ph.D.	Electron microscopy of pathogens and vectors
M.G.R. Varma, Ph.D.	Tick biology and tick virus transmission

3. Microbiology

Professor D.G. Evans, D.Sc.,F.R.S. (Head of Department)	Immunology
Professor F. Fulton, D.M.	Growth of virus in tissues
	Purification of viruses
C.E.G. Smith, M.D.	Arthropod-borne viruses
J.H. Marshall, D.Phil.	Bacterial nutrition and biosynthesis
I.G. Murray	Aetiology of mycetoma
J.W.G. Smith	Prophylaxis of tetanus
E.C. Geraghty (Miss)	Bacteriophage
E.M. Schallibaum (Miss)	Bacterial antigens

4. Nutrition

Human:

Professor B.S. Platt, C.M.G., Ph.D.	Clinical, field and laboratory investigations of patients suffering from protein malnutrition; treatment and prevention of this syndrome, especially in infants and young children; interrelationship of protein malnutrition with effects of zymotic diseases, particularly malaria
W.R. Aykroyd, C.B.E., M.D., Sc.D.	
M.E. Cameron (Miss)	
B.H. Doell	Protein malnutrition syndromes produced experimentally in animals, including methods of producing the syndrome; biochemical and cytological changes in tissues and organs; development of techniques for use in these studies
J. Doughty (Mrs.)	
T.P. Eddy, C.B.E.	
C.R.C. Heard, D.Phil.	
D.S. Miller	

4. Nutrition (*continued*)

Human (*continued*)

A. Mittwoch (Miss) D. Morley, M.D. D.J. Naismith, Ph.D.	The effects of malnutrition on ante- and post-natal development, especially of the skeletal and nervous systems in experimental animals
P.R. Payne P.L. Pellett, Ph.D. R. Schwartz (Miss), Ph.D. B.T. Squires, O.B.E., D.M.	The technology of the foods of colonial peoples, and of people in other tropical and sub-tropical countries, including nutrient content, especially proteins and amino-acids; indigenous methods of processing and the translation of these methods into suitable mechanized procedures
R.J.C. Stewart	Problems arising out of the application of knowledge of nutrition to the improvement of health of peoples in colonial and other tropical and sub-tropical countries
	Investigation of milk proteins in relation to maternal nutrition
	A study of the dietary protein requirements and intake, and the nutritional status of selected groups of the population of the United Kingdom, including children and hospital patients; the relevance of some of the changes produced in animals on various diets to the aetiology of certain disorders occurring in the population of the United Kingdom is also being investigated

5. Occupational Health

Professor R.S.F. Schilling, M.D.	Epidemiological, physiological and environmental studies of industrial pulmonary disease in workers exposed to vegetable dusts. This field work is supplemented by laboratory investigations of cotton dust
	Similar studies of other forms of chronic respiratory disease in cotton workers in Lancashire, Holland and Egypt
	Study of the health of senior executives to determine factors at work influencing health and to assess the value of routine examinations
	Epidemiological study of skin disease in a large automobile factory
C.H. Wood	Operational research with group clinics for the prevention of chronic bronchitis
	Study of the effectiveness of teaching methods
	Clinical and environmental studies of textile workers
S.A. Roach, Ph.D.	Environmental studies of textile workers
	Development of instruments for sampling airborne dusts and methods of measuring dust exposures
	Health hazards of welding

6. Parasitology

Helminthology:

Professor J.J.C. Buckley, D.Sc. F.R.N. Pester	Transmission and behaviour of schistosomes and other trematodes in experimental animals and their infectivity to their molluscan vectors
	Transmission and behaviour of filarial parasites of mammals in experimental animals
	Systematic studies on helminths

Protozoology:

Professor P.C.C. Garnham, D.Sc., M.D.	Tissue phase of malaria parasites
	Biochemical studies on trypanosomes and malaria parasites
W.E. Ormerod	Toxoplasmosis. Leishmaniasis
J.R. Baker, Ph.D.	Electron microscope studies of parasitic protozoa

7. Physiology

Applied:

M.L. Thomson, Ph.D.	Human lung function and its measurement in the field

8. Public Health and Preventive Medicine

Professor W.S. Walton, G.M., M.D. with Professor S.D.M. Court F.J.W. Miller	Growing up in Newcastle upon Tyne: the Thousand Families Survey in Newcastle
S.W. Hinds, M.D. with the Department of Child Health University of Bristol	Aspects of child health which include prematurity, adoption, and environmental effects
H.G. Maule, Ph.D. with J. Cooper (Miss)	An analysis of the background and future intentions of postgraduate medical students and the relation between their intelligence test scores and scholastic attainment
S.P.W. Chave	A survey of mental illness in a new town
M.D. Warren, M.D. with Department of Social and Preventive Medicine, and Department of Physical Medicine, Royal Free Hospital School of Medicine	An analysis of the medical condition and social and industrial needs of patients referred to a hospital resettlement clinic
M. Jefferys (Mrs.) J.E. Arkley (Miss)	A survey into the scope and character of the social work undertaken by personnel of statutory and voluntary social services in the County of Bucks. All those who deal mainly or incidentally with socio-medical, psychological and economic problems of individuals are being asked to record systematically information concerning those helped in a given period. The purpose of the survey is to show on a quantitative basis the social characteristics of those receiving help, the kind of problems they present, the nature of the help they receive and the extent to which different social agencies are involved with the same families and problems

9. Statistics

Professor P. Armitage, Ph.D.	Promotion and analysis of vital statistics
M. Hills	Development of statistical methods for use in design and analysis of field surveys, laboratory experiments and medical trials
*J.O. Irwin, D.Sc., Sc.D.	
*W.J. Martin, Ph.D., D.Sc.	Application of computers in medicine with special reference to epidemiology and problems of classification and diagnosis in clinical medicine

Epidemiology:

Professor D.D. Reid, M.D., D.Sc.	Research on aetiology of cardiorespiratory diseases with particular reference to detection of predisposing personal and environmental characteristics such as smoking and air pollution
G. A. Rose, M.D.	Development of survey technique particularly for international studies
J.T. Boyd	Hazards of radiation to man

*M.R.C. staff

10. Tropical Hygiene

ROSS INSTITUTE

Professor G. Macdonald, C.M.G., M.D.	Epidemiology of malaria and schistosomiasis
G. Davidson	Insecticide resistance studies in mosquitoes: nature and genetics
S. Friedman, Ph.D.	Insecticide resistance studies in mosquitoes: biochemical studies
B.B. Waddy, D.M.	Onchocerciasis
M.J. Colbourne	Epidemiology of insect-borne diseases
G. Mason	Genetics of mosquitoes with special reference to strains of *Anopheles gambiae* and resistance to insecticides

11. Tropical Medicine

Clinical:

Professor A.W. Woodruff, M.D.,Ph.D.	Iron metabolism under tropical conditions including the genesis of haemosiderosis commonly encountered in the tropics
S. Bell, M.D.	
C.K. Thacker	The therapeutic efficiency of various synthetic organic compounds in amoebic dysentery, filariasis and leprosy
	The therapeutic efficiency of various drugs in schistosomal and other helminthic infections
	Clinical manifestations in man of the epidemiology of *Toxocara canis* infections
	The immunological and clinical changes induced in man by schistosomal infections
	Ocular complications in onchocerciasis: their aetiology, course and treatment
	The course, prognosis and treatment of tropical sprue
	Natural history of various haemoglobinopathies and the influence of various substances on their clinical course

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1. Anatomy

Professor E.W. Walls, M.D.	The structure of the human anal canal
P.H.S. Silver, Ph.D.	Experimental studies on head morphogenesis
R.P. Gould	Cytological localization of hydrolytic enzymes
J.G. Bearn	Studies in foetal endocrinology
	Studies on anomalous development in man
	The biological activity of DNA

2. Biochemistry

COURTAULD INSTITUTE OF BIOCHEMISTRY

Professor Sir Charles Dodds, M.V.O., F.R.S.	Synthetic hormone analogues; bacterial enzymes
Professor F. Dickens, D.Sc., F.R.S.	Enzymes, tissue metabolism and cancer research
G.E. Glock (Miss), D.Sc.	
P. McLean (Miss), Ph.D.	
P. Dawkins	
J.G. Bennette	
P.N. Campbell, D.Sc.	Biosynthesis of proteins
I. Roitt, D.Phil.	Thyroid auto-immunity
W. Lawson	Synthetic hormone analogues
A.E. Kellie, Ph.D.	Steroid metabolism
E.R. Smith	

2. Biochemistry (*continued*)

COURTAULD INSTITUTE OF BIOCHEMISTRY (*continued*)

J.B. Jepson, D.Phil.	Pharmacologically active bases and peptides
C.F.M. Rose	Clinical biochemistry
J.M. Wilkins (Miss)	
L.R. Worsley (Miss)	
S.J. Holt, Ph.D.	Cytochemical research
P. Barrow (Mrs.)	Cellular distribution of enzymes
K.J. Ballard (Miss)	Biochemistry of embryological development
A.L. Miller	Chemical pharmacology Clinical biochemical research
G.L. Mills, Ph.D.	Protein chemistry; bacterial enzymes
D.G. O'Sullivan, Ph.D.	Theoretical chemistry
H.E.H. Jones	Hormones
I. Smith, Ph.D.	Hormones in fat metabolism
J.R. Sargent, Ph.D.	Biosynthesis of proteins
W.F. Coulson, Ph. D.	Amine metabolism
H.B. Waynforth	Hormone assay
A.D. Smith	Amine metabolism
E.B. Smith (Mrs.) Ph.D.	Lipids

3. Biology

Professor D.R. Newth, Ph.D.	Nucleic acid metabolism of vertebrate embryos Experimental embryology of amphibians
R.F.J. Withers	Genetical study of human obesity
F.T.C. Harris	Maturation of function in the foetal kidney Cell lineages in echinoderms and molluscs
L.J. Lilly (Miss), Ph.D.	Mutation in micro-organisms
N.E. Gillies, Ph.D.	Modification of radiation damage in micro-organisms
F.S. Billett. Ph.D.	Nucleic acid metabolism in animal embryos

4. Medicine

Professor A. Kekwick	Metabolism of obesity Peripheral vascular disease Studies on metabolism of isolated fat tissue
H. Ashton	Cardiac output
J. Baron	Experimental suppression of hydrochloric acid secretion
J. Slater	Aldosterone secretion rate Control of aldosterone secretion

5. Orthopaedics

P.H. Newman, D.S.O., M.C.	Spondylolisthesis
M. Devas	Stress fracture

6. Otorhinolaryngology

D. Bryant	Detailed 10-year follow-up of laryngeal carcinoma
J.P. Monkhouse	Pathology of otosclerosis
D. Ranger	Vasomotor responses of nasal mucosa
R.A. Williams	Effect of drugs on the action of nasal cilia

7. Pathology

BLAND-SUTTON INSTITUTE OF PATHOLOGY

Professor R.W. Scarff, C.B.E., F.R.S.E.	Histopathology of cancer
R.E.M. Thompson	Bacteriological research
A.C. Thackray, M.D.	Histopathology of cancer
A.D. Thomson, M.D.	
J.W. Stewart	Haematological research
M.A. Epstein, M.D., Ph.D.	Virus research in relation to tumours
J.V.T. Gostling, M.D.	

8. Pharmacology and Therapeutics

Professor C.A. Keele	Chemical factors concerned in the production of pain
D.A.J. Armstrong (Miss), Ph.D.	
F. Hobbiger, M.D., Ph.D. D.Sc.,	Antidotes of organo-phosphate poisoning; actions of chemical transmitters at synapses
C.H. Ashton (Mrs.)	State of the vascular wall in arterial hypertension

9. Physics and Nuclear Medicine

Professor J.E. Roberts, Ph.D., D.Sc.	Physical problems involved in the therapeutic use of ionizing radiations, with particular reference to the application of radioactive isotopes in this field
H.F. Cook, Ph.D.	
J.K. Whitehead, Ph.D.	Development of equipment and methods for the use of radioactive isotopes in clinical diagnosis
R.E. Ellis, Ph.D.	
J.W. Tappin, Ph.D.	Development of scintillation counting methods, improvement of counter characteristics and study of phosphorescent processes
J.E.S. Bradley, Ph.D.	
E.S. Williams	
R.P. Ekins	Study of adrenal corticosteroids of high mineral activity using physical methods of separation, detection and assay
T.H.E. Bryant	
W.S. Reith, D.Sc.	
I.M. Hoppett (Miss)	Study of carcinogenic azo dyes and carcinogenic substances in tobacco smoke, using radioactive methods
A. Deubert (Miss)	
P. Ayres	The distribution of scattered radiation in radiological procedures with special reference to gonad and bone-marrow dose
R. Landbeck	
	Study of radiation effects on solids using electron paramagnetic resonance techniques
	Development of new technique for study of Mössbauer effect
	Biophysical and clinical studies using radioisotopes:
	Iodine 131 for thyroid studies with particular reference to detailed knowledge of iodinated plasma proteins
	Assay of hormones and vitamins by saturation and immuno-assay methods
	Iron 59 and chromium 51 to study metabolism in normal and anaemic conditions
	Iodinated 131 fats in excretion and turnover studies
	Study of amino-acid patterns during carcinogenesis, using double isotope labelling techniques
	Studies in neutron dosimetry

10. Physiology

Professor E. Neil, M.D., D.Sc.	Hypothermia
	Reflex control of circulation and respiration
J.H. Green, Ph.D.	Reflex control of circulation
H.N. Duke, Ph.D.	Pulmonary vascular control

11. Radiotherapy

Professor Sir Brian Windeyer, D.Sc.
M.D. Snelling (Miss)
A.M. Jelliffe, M.D.
S. Dische, M.D.
T.S. Worthy, Ph.D.
P.J. Fitzpatrick

Radiotherapy techniques:
- The treatment of disease by telecurietherapy (Mobaltron), telecobalt, 230 Kv and 95 Kv X-rays
- The use of iodine 131 and phosphorus 32 in the diagnosis and treatment of disease
- Stationary and moving field techniques in treatment by external irradiation with γ-rays
- Treatment by a combination of radiotherapy with surgery, chemotherapy and hormone therapy
- Clinical research into the life history and response to treatment of various forms of cancer and methods of treatment

Bone marrow replacement:
- The use of homologous and autologous bone marrow in the treatment of widespread radiosensitive tumours is being investigated

Carcinoma of breast:
- An investigation into hypophysectomy as a method of treating advanced breast cancer
- A trial of thiophosphoromide is being undertaken in the treatment of advanced breast cancer

Carcinoma of uterine cervix:
- Investigation into the results of treatment of stage I and stage II cases by a full course of intracavitary radiation with radium followed by Wertheim's hysterectomy
- Treatment of stage III and stage IV cases by external radiation with the cobalt 60 unit without any intracavitary radiation

Chemotherapy:
- Investigations are being carried out into the use of chlorambucil, aminochlorambucil thiophosphoromide, cyclophosphamide and steroids in the treatment of advanced cancers
- The treatment of polycythaemia by pyrimethamine is being studied

Effect of deep X-ray therapy on the bone marrow and peripheral blood: immediate and long-term effects

12. Surgery

D.H. Patey
- Sialectasis
- Lymphangiography

L.P. Le Quesne
- Post-gastrectomy syndrome

I. Ranger
- The mechanism of production of hiatus hernia and its treatment

R.S. Handley, O.B.E.
K.L. Williams
- A study of the temperature changes in the skin over tumours

13. Surgery, Thoracic and Cardiac

T. Holmes Sellors, D.M.
- Surgery of the heart

J. Belcher
- Perfusion techniques in cancer chemotherapy

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Postgraduate Medical School of London

1. Anaesthetics

H. Woodfield-Davies (Head of Department)	
G.S. McCarthy	Investigation of the behaviour of the peripheral circulation during anaesthesia
J.F. Nunn, Ph.D.	Investigation of factors governing arterial oxygen tension in anaesthetized man
J.P. Payne	The mode of action of neuromuscular blocking agents
	Factors influencing change of tone in the smooth muscles of blood vessels
	Haemodynamic changes in man during general anaesthesia
	Changes in the acid-base status in the immediate post-operative period
	A clinical and experimental evaluation of certain new intravenous and inhalational anaesthetic agents
M.K. Sykes	Studies of lung mechanics during operation and the post-operative period
	Post-operative respiratory studies after open-heart surgery
	The use of intermittent positive pressure respiration in the neonate

2. Biochemistry — *See* **Pathology,** *Chemical*

3. Biophysics

D.K. Hill	Physiology of muscle
G.R. Ball	Medical engineering
E.H. Belcher, Ph.D.	The use of radioactive isotopes in medical research
J.E. Pallett	Medical electronics

4. Haematology

Professor J.V. Dacie, M.D.	Pathogenesis of haemolytic anaemia in man
J.C. White	Haemoglobin metabolism and abnormal haemoglobins
	Hereditary anaemias
	Mucoprotein of bronchial secretion
	Nucleoprotein metabolism of human tissues
D.L. Mollin	Megaloblastic anaemias and metabolism of vitamin B_{12} and folic acid
S.M. Lewis, M.D.	Pathogenesis of haemolytic anaemia, myelosclerosis and polycythaemia

5. Medicine

Professor J. McMichael, M.D., F.R.S.	Studies in hypertension and hypertensive retinitis
Professor R. Fraser, M.D.	Thyroid disorders; bone metabolism; diabetes; pituitary disorders
Professor E.G.L. Bywaters	Natural history of rheumatoid arthritis and other connective tissue diseases; therapeutic trials; gout; pharmacology of antirheumatic drugs
C.L. Cope, D.M.	Adrenal steroids in disease
C.M. Fletcher, C.B.E., M.D.	Epidemiological and laboratory studies of the aetiology and evolution of chronic bronchitis
J.F. Goodwin, M.D.	Congenital and acquired heart disease in relation to cardiac surgery
	Electrocardiography and angiocardiography
	Pulmonary circulation in heart disease
	Cardiomyopathy studies

5. Medicine (*continued*)

*J. Shillingford, M.D.	Study of the circulation in health and disease by dye dilution curves
	Measurement of intravascular flows
	Studies on heart failure
C. Pallis, D.M.	Spinal cord circulation
	Treatment of epilepsy
	Cerebro-spinal fluid magnesium in health and disease
C.C. Booth, M.D.	Sites of absorption in the small intestine and their relationship to conditions of malabsorption
	Pathogenesis of malabsorption in different conditions
	Histopathology of mucosa of small intestine in health and disease
J.P.D. Mounsey, M.D.	A clinico-pathological study of myocardial infarction
	Functional anatomy of the heart
O.M. Wrong	Studies in electrolyte metabolism and renal function
E.J.M. Campbell, M.D.	Mechanism of dyspnoea
	Control of breathing in disease
	Limitations of exercise tolerance in cardiorespiratory disease
J.T. Scott	Vascular lesions in arthritis
	Hyperuricaemia and ketosis
	Neuropathy
	Aspects of natural history of rheumatoid arthritis
	Gout
	Pharmacology of antirheumatic drugs
C.T. Dollery	Studies of pharmacological effects of hypotensive drugs
J.B. West, M.D.	Respiratory studies using isotopes of xenon and oxygen

6. Microbiology

Bacteriology:

Professor Lord Stamp	Immunity to staphylococcal infection
M. Barber (Miss), M.D.	Comparative study of new penicillins and other new antibiotics with special reference to antibiotic-resistant staphylococci and coliform bacilli
†D.A. Mitchison	Bacteriological aspects of the chemotherapy of tuberculosis
A.C. Dutton	Cross-infection in hospital wards
N. Datta (Mrs.), M.D.	Antibiotic resistance of Enterobacteriacae

7. Pathology

Professor C.V. Harrison M.D.	Pulmonary vascular disease
	Liver disease
J.N.P. Davies, M.D.	African cancer and cardiovascular disease
A.G.E. Pearse, M.D.	Enzyme histochemistry
B.E. Heard, M.D.	Pulmonary emphysema and chronic bronchitis
J. Azzopardi, M.D.	Histogenesis of debatable tumours

Chemical:

I.D.P. Wootton, Ph.D.	Bile acid metabolism
	Metabolic disturbances in renal failure
	Automatic methods of chemical analysis
	Clinical chemistry
K. Fotherby, Ph.D.	Biochemistry of progesterone
	Urinary steroids
C.E. Dalgliesh, D.Sc.	Isotopic and nutritional studies of amino-acid metabolism and protein biosynthesis
	Excretory patterns as an index of biochemical status

*Director, M.R.C. Research Group

†Honorary Director of the M.R.C. Unit for Research on Drug Sensitivity in Tuberculosis

7. Pathology (*continued*)

Chemical (*continued*)

G. Popjak, M.D., F.R.S.	Enzymic mechanisms of cholesterol and fatty acid biosynthesis
	Tumour metabolism
I. MacIntyre, Ph.D.	Isotopic and flame photometric studies of magnesium metabolism
	Studies on mechanism of action of aldosterone
	Gas-chromatographic studies of Krebs' cycle intermediates
W.W. Payne	Ultra-microanalysis
	Chemical pathology of the neonate
R.M. Haslam (Miss)	Clinical chemistry
D.W. Moss, Ph.D.	Characterization of phosphatase isoenzymes
	Spectrofluorimetric methods of estimating enzyme activity

8. Physics

Medical:

E.H. Belcher, Ph.D.	Clinical applications of radioisotopes
	Liquid scintillation counting methods for measurement of radioactive substances
	Whole body counting methods for measurement of radioactive substances in the human body
	Mathematical analysis of radioactive tracer studies by analogue methods
	Radioactive tracer studies of pathways of elimination of inhaled dusts
	Radioactive tracer studies of calcium metabolism

9. Radiodiagnosis

R.E. Steiner, M.D. (Head of Department)	Left ventricular angiography in the diagnosis of valvular incompetence
	The radiological assessment of pulmonary hypertension
	Lung function studies with the aid of the photoelectrical density measurements of the lung and the image intensifier
	Ablation of the pituitary gland by yttrium seed implantation under direct fluoroscopic control, with the aid of image intensifier
F.H. Doyle	Radiological estimations of bone density and mineral contents of bone
	Double contrast cystography of the bladder
J.W. Laws	Radiological study of the alimentary tract in the megaloblastic anaemias
	The correlation of the radiological and pathological appearances in pulmonary emphysema

10. Surgery

Professor R. Shackman	Behaviour of the circulation under anaesthesia and at operation
W.J. Dempster	Ureteric transplants
	Electrolyte metabolism in surgical and urological patients
	Radioactive methods of measurement of cardiac output
	Acute and chronic renal failure
	Kidney homografts in man
J. Calnan	Repair of experimental cleft palate
	Genetics of cleft palate
W.P. Cleland	Clinical application of the Melrose extra-corporeal heart/
H.H. Bentall	lung machine

10. Surgery (*continued*)

M. Bishop (Miss)	Problems in intracardiac surgery
W.J. Dempster	Tissue and organ transplantation
R.H. Franklin	Clinical research in oesophageal surgery
G.C. Knight	Spinal fixation by buried artificial prostheses
P. Martin	Physiology and diseases of the peripheral vessels Arterial homotransplantation Arterial prostheses
D.G. Melrose	Perfusion methods for patients and organs
S. Taylor	Studies of goitre and thyroid function with the use of radioactive iodine
J.I. Burn R.A. Sellwood	Investigation into the exfoliating properties of the cancer cell, the importance of the circulating cancer cell and the effects of cytoxic agents

52 London University
Royal Dental Hospital of London School of Dental Surgery

1. Anatomy

Oral:

H.J.J. Blackwood, M.D.	Human and comparative anatomy of the temporo-mandibular joint Cell population studies of the oral tissues Uptake of radioactive substances by the oral tissues

2. Dental Studies

N.E. Waters	Studies in the properties of dental materials Permeability of enamel

Children:

P.M.C. James	Efficacy of a stannous fluoride-calcium pyrophosphate dentifrice in the control of dental caries Epidemiological studies of oral conditions in different groups of children
M.A. Young	Extrinsic dental staining in relation to other dental and oral conditions

Conservative:

H.M. Pickard	Bonding amalgam restorations
I. Curson	Investigation of causes of pulp damage under silicate restorations
E.E.J. Kirk	Study by autoradiography of collagen formation Oxygen tension in saliva and oral tissues
G.F. Kantorowicz	Socio-economic study of applicants to dental schools in U.K.

Prosthetics:

Professor A.O. Chick, Ph.D.	Relation between mandibular movements and the shape of teeth Permeability of enamel

3. Orthodontics

Professor D.P. Walther	A statistical survey into the effects of skeletal and soft tissue morphology and muscle behaviour on the occlusion of the teeth. The incidence of cleft palate, hare lip, caries, gingivitis, premature loss, environmental factors and fluorine are also taken into account
	Survey divided into groups which include a normal cross-section of children, children attending an orthodontic clinic and children with cleft palate and hare lip supported by cephalometric radiographs and electromyography

4. Pathology

Professor R.B. Lucas, M.D.	Pathology of oral tumours
	Microradiographic investigation of age changes in the mandible
W. Sims	Bacteriology of dental caries, with special regard to the relationship between lactobacilli and streptococci
J.D. Manson	Microradiographic investigation of changes in the mandible in relation to age, region and function

5. Periodontology

A.B. Wade	Recession of the periodontal tissues round mandibular incisor teeth
	Clinical assessment of different drugs in therapy of Vincent's ulcerative gingivitis
	Survey of the incidence of caries, gingivitis and other factors in Iraqi and British children
	An investigation into variations in the structure of the mandible in relation to age, region and function, using microradiography and tetracycline labelling
	Investigation of calculus inhibition
	Periodontal status and caries incidence in relation to diet
	Critical evaluation of gingival health
	Analgesic effect of dextropropoxyphene hydrochloride
	Desensitizing effect of formaldehyde dentifrice
	Relation between *Salvadora persica* and gingival health
	Psychological effect of adding flavouring and colouring agents to mouthwashes
	Melanocytes in the gingivae

6. Radiodiagnosis

S. Blackman	Rotagraphy and its extra-dental applications
	Radioactive isotopes in dental science
	Radiographic observation in the development of skull and teeth
	Pan-oral radiography
	Horizontal tomography of the nasopharynx

7. Surgery

J.H. Hovell	Clinical research into the surgical procedure for the correction of mandibular prognathism
	Bone grafting in oral surgery
D. Greer Walker	Gross developmental errors of the face
	Facial asymmetry in the newborn

53 London University
Royal Free Hospital School of Medicine

1. Anaesthetics

R.A. Green	An investigation into the clinical value of a new short-acting barbiturate: methohexital. The investigations are being carried out in three phases: A comparative study of methohexital and thiopentone involving electroencephalographic studies on volunteers A clinical study into the behaviour of 500 out-patients in whom anaesthesia has been induced prior to dental extraction with an intravenous injection of methohexital A study into the recovery period of volunteers in whom sleep has been induced with an intravenous injection of methohexital. This study chiefly involves an assessment of the subject's ability to drive a car and is being carried out on a "Miles trainer"
	Investigation into the action of fluothane on the pregnant uterus and the effect of this agent on post-partum bleeding
	Recovery from methohexetone anaesthesia; development of a new experimental method for measuring performance under the influence of drugs
C.J. Massey Dawkins, M.D.	Investigation of the nature and degree of the negative pressure in the epidural space by means of an electromanometer (previous work has only been performed with an inaccurate mercury manometer)

2. Anatomy

Professor R.E.M. Bowden, D.Sc.	The pattern of innervation of healthy and abnormal skeletal muscle
	Factors affecting functional recovery after peripheral nerve injury in man
J.R. Napier	Functional anatomy of the primate locomotor system
	Primate palaeontology in relation to human evolution
P.R. Davis, Ph.D.	The functional anatomy of the axial skeleton in man and animals in particular relation to industrial workers
	Comparative studies of the skull of *Proconsul africanus*
	Studies of respiratory mechanics
P.C.B. MacKinnon (Mrs.), Ph.D.	Palmar sweating in man in relation to endocrine activity and the effects of stress

3. Biochemistry and Chemistry

Professor A. Lawson, Ph.D., D.Sc.	Synthesis and mode of action of antithyroid substances
	Synthesis and physiological activity of heterocyclic compounds with five-membered rings
	Synthesis and action of sympathomimetic drugs
H. Baum, Ph.D.	Thermogenesis in the neonate
R.A.F. Bullerwell, Ph.D.	Polarography of 2-mercaptoimidazoles and di-(imidazol-2-yl)-disulphides
B.E. Ryman (Miss), Ph.D.	Effects of local anaesthetics on cell metabolism
	Effects of implanted oestrogenic substances in the cat
F. Kurzer, Ph.D., D.Sc.	Chemistry of urea and thiourea
	Synthesis of thiadiazoles, triazoles, and melamines
P.M. Sanderson (Miss), Ph.D.	Structure of "Hector's bases" (thiadiazolidines)

4. Biology

A.M. Hughes (Mrs.), Ph.D.	Systematics and life histories of Acari with special reference to those associated with stored foods
G.M. Mills (Mrs.)	Calcium metabolism of certain Mollusca
R.J. Berry, Ph.D.	Variation and genetic processes in wild rodent populations; natural selection and developmental genetics
G.C. Budd	Fine structure and function of secretion in the alimentary canal of vertebrates

5. Cardiology

F.V. Gardner (Miss), M.D.	Work on anticoagulant factors in the blood in normal individuals and in patients with myocardial infarctions
	Clinical trial of a new oral diuretic
	Factors involved in blood coagulation
	Use of radioactive isotopes for calculation of intracardiac shunts
	Factors involved in atherosclerosis

6. Dermatology

I. Sarkany	Organ culture of the skin: modern methods used for culture are employed for short-term experiments on cultured skin
	Microtopography of the skin: by using silicone rubber plastic, replicas of the surface of the skin are obtained suitable for high-power microscopic examination
	Studies on erythrasma and the porphyrins responsible for fluorescence
	Investigation of sweating in psoriasis

7. Haematology

W.J.D. Fleming	Investigation of iron metabolism in haemochromatosis with particular reference to iron absorption in patients and relatives
	Mechanisms of leucopenia and thrombocytopenia in patients with splenomegaly, particularly cases of hepatic cirrhosis
	Red cell kinetics and iron metabolism in patients undergoing porta-caval anastomosis for portal hypertension

8. Medicine

P.E. Thompson Hancock with P. Wade (Miss)	Hodgkin's disease, therapeutic trial: an investigation carried out in conjunction with several other hospitals into the comparative effect of a standard form of radiation alone and radiation followed by chemotherapy
	Trial of sodium orthovanadate and piridoxin in the treatment of acute myeloid leukaemia
Professor S. Sherlock, M.D.	Mechanism of hepatic coma
with D.V. Datta, M.D.	Alcohol and the liver
I.A.D. Bouchier, M.D.	Splanchnic circulation and liver disease
E.M. Thompson (Miss)	
B.H. Billing (Miss), Ph.D.	Bile pigment metabolism

8. Medicine (*continued*)

A.M. Dawson, M.D.	Mechanism of fat absorption from the intestine
H.K. Ibbertson	Evaluation of thyroid function
E. Samols	Estimation of insulin in blood
S. Shaldon, M.D.	Renal blood flow and function
M.D. Turner, M.D.	Amine metabolism in health and disease
H.S. Wiggins, Ph.D.	Lipid metabolism
R. Williams, M.D.	Iron metabolism in disease
A. Melvin Ramsay	Research into post-infectious encephalitis and encephalomyelitis
M.E.H. Turner-Warwick (Mrs.), D.M.	A long-term project is being planned to run a hypertensive clinic to investigate the indications for, and the value of treating female patients with systemic hypertensia, with hypotensive drugs
M.I.P. Wilkinson (Miss), D.M.	Research into the aetiology and treatment of migraine (in the Headache Clinic at the Elizabeth Garrett Anderson Hospital, London)
H.A. Kellgren (Miss)	Referred pain in the lower back, left perineum, thigh and leg due to diverticulosis or irritability of the sigmoid colon
A.T. Richardson	Electromyographic investigations into neuromuscular lesions with particular reference to carcinomatous myopathy
	Serology of rheumatoid arthritis

9. Obstetrics and Gynaecology

J.A.M. Moore (Miss) (Director)	
M.E. Egerton (Miss)	Evaluation of the vaginal smear as an index of endocrine function with particular reference to the diagnosis and treatment of the disorders of menstruation and aetiology of uterine tumours
P.R. Norris	Investigations into human uterine muscle physiology with particular reference to the action of cardiac glycosides on the isolated muscle strip taken from the pregnant and non-pregnant uterus together with an attempt to correlate these results by recordings made on the intact uterus
J. Howkins, M.D.	A report on 1000 consecutive total abdominal hysterectomies with special reference to their complications
L. Epsztejn (Miss)	Foetal electrocardiography with particular reference to the stage of gestation
	Investigation into uterine muscle physiology
W. Love (Mrs.)	Measurement of the normal menstrual loss
N. Crowley (Mrs.) W. Love (Mrs.)	Investigation of urinary infections with particular reference to the normal ante-natal patient

Fertility Studies:

M. Moore White (Miss), M.D. with P. Wade (Miss)	Investigation into the effects of hydrotubation

10. Paediatrics and Child Health

U. Shelley (Miss), M.D.	Long-term follow-up of maturation of neuromotor system following prematurity, perinatal hypoxia from whatever cause and unexplained fits in neonatal period

11. Pathology

Professor K.R. Hill, M.D.	Studies on liver disease, including experimental studies in veno-occlusive disease
	Hepatic carcinoma caused by the pyrrolizidine compounds (*Senecio* and *Crotalaria*)
	Comparative pathological and experimental studies of cardiovascular disease
	Cytological diagnosis of gastric carcinoma
D.N. Baron, M.D.	Endocrinological and metabolic aspects of hypophysectomy for carcinomatosis
	Steroidhormone activation of enzymes
	Serum adenylate kinase and iso-enzymes of isocitrate dehydrogenase
	Chemical anatomy of leucocytes in body fluid disturbances
N.F.T. Crowley (Miss)	Study of strains of *Streptococcus pyogenes* associated with acute glomerulonephritis and rheumatic fever, and antigenicity of streptococcal starch
	Study of skin flora in neonatal period
	Investigation of organisms causing pyelonephritis
G.B.D. Scott, M.D.	Investigation of the generalized Schwartzmann reaction
	Investigation of the coagulation mechanism and thrombotic disease
I.P. Beswick (Miss), M.D.	Pathogenesis of diverticulosis of the colon
	Effects of oral contraceptives on the endometrium

12. Pharmacology

Professor E. Zaimis, M.D.	Neuromuscular blocking drugs
	Hypotensive drugs
J.R. Hodges, Ph.D.	Sympathomimetic amines
M.J. Maclagan (Miss), Ph.D.	On the mode of action of reserpine
	The mechanisms controlling the adrenocorticotrophic activity of the adenohypophysis
	The determination of corticotrophin in biological fluids

13. Physics

H.A.B. Simons, Ph.D. (Head of Department)	Use of scintillation spectrometry techniques in the determination of the position and strength of γ-ray sources situated in scattering medium
	Investigations into possible modes of action of radioprotective drugs
M.E. Monk-Jones (Mrs.) with Anatomy Department	Investigations into the effect of various drugs and of physical and emotional stress on the palmar sweat index
N.F. Kember, Ph.D.	Experiments on the effects of ionizing radiations on the mitotic cycles and differentiation patterns of cartilage and bone cells
R.B.J. Palmer (Mrs.), Ph.D.	Measurement of the light output of scintillating materials for α-particles at various energies below 8 MeV

14. Physiology

Professor C.B.B. Downman, Ph.D.	The sites of origin of inhibitory impulses affecting thoracic and other spinal reflex arcs, including the autonomic outflow
	Brain stem regulation of autonomic reflexes. Visceral afferent pathways into the central nervous system
R.E. Moore, Ph.D.	Temperature regulation and control of heat production in newborn and small mammals

14. Physiology (*continued*)

P.P. Scott (Mrs.), Ph.D.	Factors affecting retention of calcium, phosphorus and nitrogen on high protein diets
	Dietary requirements of the cat
	Hormonal regulation of behaviour and reproductive activity
	Factors in the maintenance and termination of pregnancy
B.L. Coles (Miss), Ph.D., M.D.	Enzyme activity in the small intestine of the cat before and after pancreatic duct ligation
	Serum protein pattern in rabbits on a low protein diet with varying levels of carbohydrate intake
J.C.G. Coleridge	Vascular receptors and their reflexogenic actions

15. Psychiatry

S.W. Hardwick, M.D. F. Brown, D.M. A. Elithorn, M.D. A.V. Francis (Mrs.) S. Hollingsworth (Mrs.) D. Jones M.O. Kerr (Mrs.) M. Lobascher M.F. Piercy N. Swift (Mrs.)	Research in the fields of medical psychology, experimental psychology, neurophysiology and sociology, with special reference to the problems of the relationship between anxiety and depression and the cerebral localization of psychological functions, and the importance of orphanhood and childhood bereavement in the aetiology of various psychiatric disorders, including depressive illness, criminality and schizophrenia

16. Radiotherapy

P. Wade (Miss) J.D. Crowley	Clinical study of the effect of oxygenation during radiotherapy
K. Stratton (Mrs.), Ph.D. K. Davis	Protection against radiation by pre-treatment of mice with either guanylthiourea toluene-p-sulphanate or its more toxic oxidation product, 3 : 5-diamino-1 : 2 : 4-thiadiazole toluene-sulphanate
P. Wade (Miss) with J.G.S. Crabbe	Exfoliative cytology
P. Wade (Miss) with G. Qvist	Limited surgery and post-operative radiotherapy; this method is selected as the treatment of choice in patients seen in joint consultation
P.E. Thompson Hancock	Hodgkin's disease, therapeutic trial: an investigation carried out in conjunction with several other hospitals into the comparative effect of a standard form of radiation alone and radiation followed by chemotherapy

17. Surgery

D. Downton with S. Davis	Investigation into techniques for sialography
H. Daintree Johnson	Blood groups in relation to sub-classification of gastric ulcers
	Work on the mechanism of the cardia and on hiatus hernia
with F.S. Freisinger	Anti-urease titres in peptic ulcer and gastric carcinoma
H.E. Hobbs with L.P. Sarks	Preliminary investigation into the application of electromyography in the diagnosis of extra-ocular defects
S.P. Eadie (Miss) A.G. Beckett	Investigation to determine the relation between variations in capillary fragility, progress of retinopathy and the incidence of haemorrhagic complications, including post-operative complications, in diabetics
	Review of visual methods employed in teaching ophthalmology

17. Surgery (*continued*)

J.P. Hopewell	Renal perfusion in a study of long-term organ storage Storage and transplantation of the kidney as a homograft
C. MacLeod	Results of operation and 10-year follow-up in a series of 100 personal cases of radical mastectomy for carcinoma of the breast
L.G. Fison	General research into the behaviour of retinal detachment with particular reference to pre- and post-operative posture

54 London University
St. Bartholomew's Hospital Medical College

1. Anaesthetics

F.T. Evans	Continuous intravenous methohexital in combination with epidural analgesia
R. Bowen	Variable speed motor-driven syringe for continuous injection Anaesthesia in operation for the relief of portal hypertension Airway resistance during anaesthesia
G. Ellis	Halothane administered in closed circuit
R.I.W. Ballantine I. Jackson	Investigation into the clinical value of positive-negative phase-controlled respiration during neurosurgical procedures
R.I.W. Ballantine	Oral administration of hyoscine with Vallergan in the premedication of children
T.B. Boulton	Intra-ocular tension in general anaesthesia for ophthalmic surgery
T.B. Boulton D. Chamberlain	Investigation of the changes in electrocardiogram patterns in patients with previous myocardial ischaemia following general anaesthetics
M. Evans	Modification of respiratory patterns by anaesthetic drugs
P.V. Cole	Modification of A.E. (Cyprane) dental gas machine for use as a patient demand gas-oxygen analgesic apparatus in labour; comparison with Lucy Baldwin machine Assessment of properties of cylinders of a nitrous oxide-oxygen mixture under varying conditions of pressure and temperature Development of disposable kit for the "topping up" of continuous extradural blocks during the post-operative period
P.V. Cole P.J. Lindop (Miss), Ph.D.	Effects of hypothermia and anoxia on the brain temperature and oxygen tensions in dogs, and development of polarographic techniques for measurement of oxygen tensions
P.V. Cole *N. Butler	Perinatal mortality and its relationship to methods of analgesia in labour
P.V. Cole T.B. Boulton	Examination of physiological mechanisms of pre-oxygenation before induction with nitrous oxide

*National Birthday Trust

2. Anatomy

Professor A.J.E. Cave, M.D., D.Sc.	Anatomy and histology of Rhinocerotidae
	Mammalian lymph node histology
	Paranasal sinus anatomy of mammals
	Renal anatomy of Cetacea
O.J. Lewis, M.D.	Morphology of pedal musculature
	Morphology of vertebrate tarsus
F.L.D. Steel	Investigation of long bone changes in increased gravitational fields
	Statistical methods for identification of biological material

3. Biochemistry

G.E. Francis, D.Sc.	Immunochemistry, mainly using isotopically labelled materials
	Cancer research: zinc and tumour tissues
	Radiobiology: the action of radiation and radiomimetic agents on immunological systems, enzymes and other biological systems
E.D. Wills, Ph.D.	Enzymology
	Radiobiology: the action of radiations on enzymes, etc.
J.D. Hawkins, Ph.D.	Immunochemistry
C.A. Lewis, Ph.D.	Skin biochemistry
D.M. Armstrong, Ph.D.	Physical chemistry of collagen
D.P. Moody, Ph.D.	Medicinal natural products

4. Cardiology

G.W. Hayward, M.D. (Head of Department)	Relationship between ischaemic heart disease and hiatus hernia
with D. Weitzman, M.D. D.A. Chamberlain	Study of angina of effort with serial exercise tests
D. Weitzman, M.D.	Electrocardiograms and serum lipids in symptomless men
with M. Honey	Effects of lowering blood cholesterol levels in ischaemic heart disease
M. Honey J. McAllister (Miss)	Comparison of dye and isotope tracer methods of detecting small left-to-right shunts
G. Simon, M.D.	Effects of mitral valvotomy on radiological lung changes
M. Honey	Clinical and haemodynamic study of patients following surgical closure of atrial septal defect
	Evaluation of dye method of quantitating aortic regurgitation
with G.H. Apthorp	Aetiology of acute benign pericarditis: virus studies and long-term follow-up
D.A. Chamberlain	Effects of drugs on right and left ventricular outflow obstruction
G.H. Apthorp	Method of measuring carbon monoxide in blood
	Effect of bilateral upper thoracic ganglionectomy in angina of effort
	Study of pulmonary capillary blood volume in left to right cardiac shunts
with R. Marshall	Diffusion capacity: a comparison of breath holding and steady methods using CO
D. Lacey, Ph.D.	Study of changes occurring in alveolar walls and lung capillaries in patients with mitral stenosis, using electron microscope
R.L. Hewer	Study of electrocardiogram in polymyositis

5. Dental Studies

G.T. Hankey, O.B.E., T.D.	Diseases and complaints of the temporo-mandibular joint
G.A. Cowan	Physiology of the gingival epithelium
J.D. Cambrook	Oral vibrators in post-laryngectomy cases
T.T. Schofield	The control of dental deformities resultant on extension treatment of idiopathic scoliosis

6. Dermatology

R.M.B. MacKenna, M.D. P.F. Borrie, M.D.	Research and investigation into clinical matters ranging from dermatoses associated with lymphatic abnormalities to the use of anti-inflammatory drugs. Purely scientific research also includes a wide range of subjects from the behaviour of radioactive isotopes when applied to human skin to biochemical investigations of skin metabolism

7. Medicine

A.W. Spence, M.D. V.C. Medvei, M.D.	Thyroid function in acromegaly
C.W.H. Havard, D.M.	Effects of hyperthyroidism on muscular structure and function
N.C. Oswald, M.D.	Investigation into the benefits of short-term in-patient treatment of patients with chronic bronchitis during remissions
	Non-reactive tuberculosis and the granulocytes
N.C. Oswald, M.D. J.E. Stark	Survey of viral antibodies in the serum of bronchitics
J.E. Stark	Studies on para-influenza viruses Immune responses to virus infection in reticuloses
E.F. Scowen, M.D. R.W.E. Watts J.C. Crawhall B.M. Dean	General nature of research, metabolic and endocrine: the investigation of hyperoxaluria and the metabolic defects giving rise to this condition. Full investigation of the sources of oxalate in normal and pathological conditions.
E.F. Scowen, M.D. with the Surgical Professorial Unit, and the Imperial Cancer Research Fund	The investigation of hormone-dependent cancer and the factors which influence dependence and non-dependence, and the study of chemotherapy of malignant disease
E.F. Scowen, M.D. A.K. Thould	The investigation of familial goitre and its associations, particularly congenital deafness
A.G. Spencer, G.M., M.D. W.R. Cattell	The transport of amino-acids by the renal tubules The development of new tests of renal function, especially in hypertension and renal disease. Urinary excretion of enzymes in renal disease

8. Neurology

J.W. Aldren Turner D.M. K.W.G. Heathfield, M.D.	Quadriceps myopathy occurring in middle age: a clinico-pathological study
J.W. Aldren Turner, D.M. F. Lees, M.D.	Follow-up studies on neuralgic amyotrophy, congenital myopathy and cervical spondylosis
J.R. Almeyda F. Lees, M.D.	Neurological complications in Ullrich's syndrome

9. Neurosurgery

J.E.A. O'Connell	Involvement of the spinal cord by intervertebral disc protrusion
	Surgery in cervical spondylosis
	Lumbar intervertebral disc protrusions in pregnancy
	Lumbar intervertebral disc protrusions in childhood and adolescence
	Intracranial meningiomata associated with other tumours of the nervous system
	Intracranial aneurysms causing subarachnoid haemorrhage, their surgical treatment and an assessment of its value
	Surgery in the management of intractable pain
	Anterolateral chordotomy in the treatment of intractable pain from pelvic lesions
	Cervical and brachial pain secondary to intervertebral joint lesions
	Neurological problems in pregnancy
	Conjoined twins
J. Andrew	Osteomata of the paranasal sinuses
	Tracheostomy in the management of the unconscious patient
C.G. Beardwell	Cerebral hemispherectomy
R. Campbell Connolly	Results of leucotomy: a study of predictability
	The late results of bilateral trans-section of the fornix in chronic schizophrenia
	Cerebral ischaemia in spontaneous subarachnoid haemorrhage
A.F. Masson	Spontaneous remission in cases of spinal cord compression

10. Obstetrics and Gynaecology

J. Beattie, M.D. (Head of Department)	
D.B. Fraser	Clinical study of myasthenia gravis in pregnancy
J. Howkins, M.D.	The continued study of the surgical treatment of carcinoma of the cervix by synchronous combined abdominovaginal hysterocolpectomy
with D.K. Williams	A review of 1000 consecutive total abdominal hysterectomies by one operator
G.L. Bourne	A study of the anatomy, physiology and pathology of human amnion and chorion, including electron microscopic structure
	Study of the transfer of materials across the human foetal membranes, using colloidal gold
	A clinical study of the effect of folic acid in the treatment of subclinical macrocytic anaemia of pregnancy
	A trial of progestogenic hormone in the treatment of herpes gestationis
	The study of nor-ethisterone in the treatment of puberty menorrhagia
	The study of the effects of allylestrinol in primary amenorrhoea
G.L. Bourne B. Measday	The evaluation of nor-ethisterone in the treatment of functional uterine haemorrhage
	The study of blood urea levels during pregnancy
B. Measday	Incidence of gynaecological pathology in a well women's clinic
	Evaluation of Shirodkar's operation in the treatment of cervical incontinence

10. Obstetrics and Gynaecology (*continued*)

B. Measday	Homozygous sickle cell anaemia in pregnancy
with H. Lehmann	
R. Buckle	Crohn's disease and chronic salpingitis
D.K. Williams	Study of the place of nitrofurantoin in the prophylaxis of urinary infections after vaginal surgery
	Study of the remote effects of vaginal surgery on renal function
	Study of the value of polymethylsaloxane in the prevention of post-operative intestinal distension

11. Ophthalmology

H.B. Stallard, M.B.E., T.D., M.D., LL.D.	The irradiation of malignant intra-ocular neoplasms: retinoblastoma and malignant melanomata
	Chromosomes in retinoblastoma
	Surgical access to the orbit in particular relation to the exposure and removal of dermoid cysts and neoplasms, and for decompression
J.H. Dobree	A survey of the factors involved in the failure of fistula-forming operations for glaucoma
	The factors which influence calibre changes in the retinal vessels
	The evolution of fundus changes in diabetes
with K.O. Black, M.D. R.C. King	The effects of low-fat diet on retinal exudates
D.W. Hill	Epiphora: clinical assessment and operative relief
	Retinal vascular micrometry
N.S.C. Rice	Investigations into the changes in the fundus oculi and intra-ocular pressure associated with cardiac surgery with hypothermia

12. Orthopaedics

H.J. Burrows, M.D.	Cervical root pain
W.D. Coltart	Effects of calcaneal fracture
J.N. Ashton	Excision of locally malignant bone tumours
	Periarthritis of the shoulder
with Institute of Orthopaedics	Fatigue fractures and infractions
	Prosthetic replacement of bone

13. Otolaryngology

R.F. McNab Jones	Experimental iron deficiency in rats: study of its effects on the mucosa of the upper alimentary tract and the possible alteration in the metabolism of the tissues of this area

14. Paediatrics and Child Health

C.F. Harris, M.D. R.A. Shooter, M.D. P.A. Manfield (Miss)	A study of the acquisition of staphylococci by newborn babies and its relation to sepsis
C.F. Harris, M.D.	Gastric digestion of the newborn
S. Mason, M.D.	Relationship between the Koratkow and the Flush methods of blood pressure recording in infants
C.F. Harris, M.D. P.A. Manfield (Miss)	A study of placental weights and their relation to birth weights and subsequent development

15. Pathology

Professor W.G. Spector D.A. Willoughby, Ph.D.	The mechanism of inflammation and local hypersensitivity
Professor R.A. Shooter, M.D.	Infection in hospital wards and out-patient departments Chemotherapy of infection
F.W. O'Grady, M.D.	Pathogenesis of urinary tract infections
A.B. Anderson, Ph.D.	Methods of measuring thyroid function The nature of the melanogen excreted in malignant melanoma The inhibition of alkaline phosphatases by hydroxyphenols and catechols
H.F. Brewer, M.D.	The titre of the indirect antiglobulin test for Rh antibodies in maternal serum The use of pure albumin for restoration of blood volume in shock Specific auto-immune antibodies in acquired haemolytic anaemia Prevention of wastage of blood for transfusion
R.J.R. Cureton, M.D.	Investigation of pathological specimens by X-ray diffraction methods
W.J. Hanbury, M.D.	Lung cancer in women Multiple primary malignant tumours
R. Heath, M.D.	Respiratory virus infections with special reference to para-influenza and adenovirus
H. Lehmann, M.D., Sc.D.	Abnormal haemoglobins Pseudocholinesterase
A.M. Robinson (Mrs.), D.Sc.	Urinary ketosteroids in adrenal tumours Estimation and isolation of urinary steroid alcohols
B.F. Smith (Miss)	Histochemistry of normal skeletal muscle and of natural and experimental myopathies
A.G. Stansfeld	The pathology and experimental production of arterial necrosis and necrotizing arteritis
P. Story, M.D.	Blood platelet changes in anaemia Thrombocytopenia and other bleeding disorders

16. Pharmacology

Professor J.P. Quilliam D.A. Brown, Ph.D. R.C. Elliott	Analysis of the mode of action of centrally acting drugs at peripheral and spinal synapses, using conventional and electropharmacological techniques
D.F.J. Mason, Ph.D.	Control of transmission in sympathetic and parasympathetic ganglia
P.M.G. Bell	Application of electronic techniques to pharmacological research problems
B.W. Payton	Electropharmacology of the skeletal neuromuscular junction

17. Physics

Radiation:

Professor J. Rotblat Ph.D., D.Sc.	Radiation research: effects of ionizing radiations on matter, particularly on living tissue
J.F. Fowler, Ph.D.	The use of a pulse-neutron source for the study of radiation effects in materials
E. Rollinson, Ph.D.	Yield of secondary electrons from thin foils in a high-energy electron beam Determination of lifetime of radicals produced by ionizing radiation
S. Lovell, Ph.D.	Detection of early radiation changes in proteins by means of electron spin resonance
C.G. Orton	Solid state dosimetry

17. Physics *(continued)*

P. J. Lindop (Miss), Ph.D.	Radiation biology:
	Induction of malignant disease, life shortening and ageing of mice by ionizing radiation
	Dependence of acute and long-term effects of radiation on age at irradiation
	Effect of parent irradiation of mice on their offspring
	Influence of dose-rate on acute and long-term effects of radiation in animals
	The effect of oxygen tension and oxygen consumption during whole-body irradiation of animals
	Protection by hypoxia against loss of fertility by radiation
	Radiation-induced lens opacities in mice
	Induction time of radiation damage
	Electron microscope studies of radiation effects in cells
Professor J. Rotblat, Ph.D., D.Sc.	Nuclear physics: structure and properties of nuclei of light atoms
	Photo-disintegration and electron-disintegration processes
	Short-lived radioactivity produced by a pulsed beam of electrons
	Angular distribution of nuclear disintegrations produced by helium nuclei
G.S. Innes A.E. Bradshaw	Medical physics: clinical uses of radiations and radioactive isotopes
	Monitoring and dosimetry of high energy X-ray and electron beams
	The possible use of mixed X-ray and electron beams in radiotherapy
	Physical principles underlying the use of 15 MeV electrons in therapy
	Investigation on the use of telecurietherapy units
J. McAllister (Miss)	The uptake of radioactive iodine, I^{131} and I^{132}, for the study of the thyroid function, particularly on patients with carcinoma of the thyroid
	The use of radioactive krypton in the investigation of cardiac shunts
	The use of radioactive chromium and iron in the study of various types of anaemia

18. Physiology

Professor M. de B. Daly Sc.D.	Cardiovascular reflexes from the carotid sinus and carotid body with special reference to haemodynamic changes in the pulmonary circulation, and the role of the chemoreceptors in the responses caused by systemic hypoxia
D.A. McDonald, D.M., D.Sc.	Haemodynamics with special reference to the arterial system
F.J. Aumonier	A histological study of the responses of human tissues to similar stimuli at different ages
	Comparative histological studies
E.A. Ullmann (Miss), Ph.D.	Renal function with special reference to water and electrolyte metabolism
D.W. Gould	The control of venomotor tone

19. Psychiatry

W. Linford Rees, M.D.	Double blind controlled trials of new drugs in psychiatric treatment, e.g. chlorpromazine, acetyl promazine; antidepressants such as iproniazid, phenelzine and tofranil
	Studies of psychosomatic relationships in asthma, chronic urticaria, hay fever, vasomotor rhinitis with comparable studies of control groups
	Metabolic and endocrine changes associated with postpartum mental disorders and premenstrual syndromes
	Continuing research on temperamental and behavioural correlates of physical types
	Biochemical and clinical studies of depressive illness in relation to their response to different therapeutic measures

20. Radiodiagnosis

R.A. Kemp Harper, M.D.	Complications of gastrectomy and partial gastrectomy
	Radiological features and differential diagnosis in Crohn's disease and ulcerative colitis
	Review of 60 cases of scleroderma, with special reference to colonic changes
	Cinéradiography in post-operative cholangiography
with Surgical Unit	Radiological study of gastric and intestinal motility in the immediate post-operative period
G. Simon, M.D.	Principles of chest X-ray diagnosis
	Unilateral lung transradiancy
	Chronic bronchitis: radiological aspects of a five-year follow-up
	Place of radiology in undergraduate teaching
G.Du Boulay	The radiological evidence of raised intracranial pressure in children
	Clinical use of a 12-in. image amplifier
	Orbital angioma diagnosed by phlebography
	Orbital phlebography in the diagnosis of haemangioma of the orbit
	Use of television in radiology and the storage wheel
	Spasm of intracranial arteries in relation to its cause
	Teleciné in neuroradiology
	Natural history of intracranial aneurysms
	Calcification in chromophobe adenoma
I. Kelsey Fry	Cineradiographic study of defaecation with special reference to rectal prolapse
D.C. Jackson	Lymphangiography in the investigation and control of retroperitoneal glandular masses

21. Radiotherapy

I.G. Williams (Head of Department)	An investigation of the physical problems involved in radiotherapy at energies of 1 to 15 MeV
A. Jones, M.D. R.J.M. Whittle	Studies of ionization in heterogenous media at these ranges of MeV
G.S. Innes	The development of techniques of applying 15 MeV X-rays in treatment
	An investigation of 15 MeV radiation on tissues normal and neoplastic
	A special study of radiation intensity effects
	A study of the effects of 15 MeV and Co^{60} irradiation on the natural history of certain neoplastic diseases
	Researches in electron therapy (up to 17 MeV) along similar lines

22. Statistics

Medical

M.P. Curwen	Collaboration with clinical and other departments on various research projects

23. Surgery

Professor G.W. Taylor	Clinical and experimental investigation of lymphoedema
	Clinical and experimental study of the use of prostheses in occlusive arterial disease
	Measurement of oxygen availability in ischaemic tissue
	Clinical and experimental investigation of staphylococcal wound infection
	Histochemical change in autogenous vein grafts
B.N. Catchpole	Clinical and experimental study of paralytic ileus
	Study of Raynaud phenomenon
M.A. Birnstingl	Clinical and experimental study of pancreatography and the effect of pancreatic duct obstruction
	Effect of total biliary obstruction on renal function
	Experimental arterio-venous fistula in relation to bone growth
	An investigation of digital artery disease
F.E. Weale	Experimental study of pulmonary vascular resistance
	Clinical and experimental study of therapeutic uses of regional vascular perfusion
A.P. Wyatt	Effect of cytotoxic agents on human neoplastic tissue in tissue culture
R.L. Rothwell-Jackson	Study of peripheral blood flow following direct arterial surgery
	Osmotic pressure levels in cyst fluid
J.D. Griffiths with P.J.G. Smart C. Naunton Morgan	Investigation of the blood supply of the colon: topographical distribution of the inferior mesenteric artery in dissected specimens and in injected post-mortem specimens
	Cinéradiographic study of defaecation relating to complete rectal prolapse and the pelvic musculature
	Investigation of the blood supply of tumours of the large intestine
	Perfusion experiments on excised segments of large intestine containing malignant tumour
	Aetiology of ulcerative colitis:
	The natural history of the disease and follow-up of patients
	Investigation of the vascular abnormalities occurring in the mucosa and in the wall of the large intestine in cases of ulcerative colitis
	The normal 17-hydroxycorticosteroids excreted in the urine in cases of ulcerative colitis
	Clinical survey of carcinoma of the rectum and colon since 1948
	Cytological investigation of blood for cancer cells before and after operation in relationship to resection of carcinoma of the rectum and colon
	Investigation of the middle rectal artery in relationship to the blood supply of the ampulla of the rectum
	Investigation of blood supply of the rectum with relationship to operative procedures
	Use of adjuvant therapy in the surgical treatment of malignant disease
D.F. Ellison Nash with P.J.G. Smart	Clinical investigation of urological conditions in spina bifida
	Investigations of bladder and urethral sphincter pressures in paraplegia and following pelvic surgery

23. Surgery *(continued)*

A.H. Hunt	Portal hypertension: various aspects
with H. Lehmann, M.D.	Assessment of liver function by biochemical methods before and after venous shunt operations
P. Knipe	Statistical review of 500 cases of portal hypertension
L.J. Chalstrey P. Knipe	Extrahepatic portal obstruction: a clinical and radiological study, and assessment of the results of treatment
J.C.B. Fenton	Ammonia tolerance before and after porta-caval anastomosis
R.M. Parr, Ph.D. N.G. Trott, Ph.D. D.M. Taylor, Ph.D.	Investigation of the heavy metal content of livers by activation spectroscopy: a chemical, histological and clinical analysis to determine or exclude relationship between heavy metals, cirrhosis and carcinoma
W.R. O'Flynn	Investigation of the causes of hepatic vein obstruction, its clinical manifestations and treatment
J.O. Robinson, M.D.	Clinical survey of cancer of the stomach
P. Knipe	Isolated mammalian liver perfusion

24. Venereology

C.S. Nicol, T.D., M.D.	Suitable culture medium for the growth of *Trichomonas vaginalis*

25. Zoology and Comparative Anatomy

D. Lacy, Ph.D.	Experimental cytology
B. Lofts, Ph.D.	Physiology of reproduction
M.J. Hollingsworth, Ph.D.	Experimental genetics
K. Bowler, Ph.D.	Temperature physiology

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St. George's Hospital Medical School

1. Anaesthetics

P. Riches D. J. Coleman	Investigation into post-operative pulmonary complications Investigation into the use of hypertensinogen
J. Penman D.J. Coleman I. Mair	Investigation into the use of sodium brietal as an anaesthetic for injections of the trigeminal nerve
L.S. Walsh D.J. Coleman	Investigation into the use of sodium brietal as an anasthetic for stereotaxy

2. Cardiology

K. Jefferson G. Hale A.G. Leatham	Application of coronary ciné-angiography to human subjects
T.G. Pilkington A. G. Leatham J.L. Stafford	Long-term study of the treatment of coronary artery disease with anticoagulants, low fat diet, etc.
J. Davies	Development of an internal remote-controlled pacemaker Development of multi-channel tape recorder for pressure pulses and phonocardiography
H. Siddons R. W. Portal A.G. Leatham	Application of pacemakers to subjects with disease of the conducting tissue
B. McCall	Relation of heart sounds and murmurs to left-sided pressure pulses obtained by trans-septal puncture
K. Jefferson B. McCall	Relation of valve movements on ciné-angiocardiography to heart sounds and pressure pulses
K. Jefferson	Left ventricular ciné-angiocardiography in the assessment of mitral valve disease for surgery

3. Medicine

Professor A.C. Dornhorst, M.D.	Peripheral vascular control
T. Pilkington, M.D.	Plasma lipoproteins in disease and their modification by diet

4. Neurology

D. Williams, C.B.E., D.Sc., M.D.	Role of personality factors in the development of some disorders of neural function
F. Clifford Rose	The electroencephalogram and biochemical diagnosis of islet cell adenoma

5. Neurosurgery

W. McKissock, O.B.E. (Head of Department)	A controlled trial of surgical versus medical methods of treatment of ruptured intracranial aneurysms
L.S. Walsh W.J. Penman	A controlled trial of surgical versus medical methods of treating primary spontaneous intracerebral haemorrhage
K. Till A. Richardson	The treatment of trigeminal neuralgia by injection techniques
D. Crompton M. Buckell,(Miss)	A controlled trial of X-radiation in the treatment of the intracranial gliomas under normothermic and hypothermic conditions
	A social and economic survey of the late results of extirpation of intraspinal and intracranial meningiomas
	The treatment of Parkinson's disease and other forms of disordered movement by thermocoagulation in the region of the basal ganglia
	A social and economic survey of the late results of treatment by combined surgery and X-radiation of the pituitary adenomas
	A social and economic survey of the late results of total excision of the acoustic neuromas
	The control of midline and paraventricular tumours by stereotactic implantation of radioactive gold seeds
	The localization and differentiation of intracranial space-occupying lesions with the aid of ultrasound
	Investigation of the gross and microscopic changes in the brain following rupture of intracranial aneurysms and primary intracerebral haemorrhage
	Biochemical studies on the blood and cerebro-spinal fluid of patients suffering cerebro-vascular accidents
	Tissue culture of malignant intracranial tumours and estimation of sensitivity to cytotoxic drugs
	Treatment of malignant gliomas by combined surgery and vaccine
	Surgical treatment of carotid thrombosis by endarterectomy and arterial grafting
	Establishment of the place of tracheostomy as an adjunct to the treatment of acute head injuries and in post-operative chest complications

6. Paediatrics and Child Health

C. Pinckney	A clinical and laboratory study into the phenomenon of cold haemagglutination
	Incidence of streptococcal and other infections in children awaiting tonsillectomy

6. Paediatrics and Child Health *(continued)*

C. Pinckney	Lung function studies in asthma
U. James (Miss)	Coxsackie virus infections in children
C.W. Kesson, M.D.	Aetiology of congenital malformations
Professor C.F. Ballard	Cross-sectional and longitudinal study on the relationship between varieties of facial morphology and the incidence of mouth breathing and upper respiratory infections
A.G. Leatham	Ciné-angiography in congenital heart disease
	Phonocardiographic study of systolic murmurs
N. Hajdu, M.D.	The diagnostic value of plain X-rays of the abdomen in paediatric practice

7. Pathology

Professor T. Crawford	Pathology of arterial lesions
	Pathology of tumours of the nervous system
D. Dexter	Cardiovascular pathology
M.R. Crompton	Pathology of cerebro-vascular disease
K. Carstairs	Immunohistochemical studies of the arterial intima
J. Murrell	Thyroid histochemistry
N. Woolf	Pathogenesis of atherosclerosis
Professor N.H. Martin	Characterization of abnormal proteins in disease
	The genesis of the serum protein with special reference to the aproteinaemias
	The macroglobulins in health and disease
G. Franglen, Ph.D.	Microtechniques of protein and peptide analysis
	Peptide and amino-acid patterns in health and disease
D.J. Perkins, Ph.D.	Protein turnover and interaction
J. Marriott	Protein conjugation studies
J.C. Gregory	The metal binding β-globulins
P. Callaghan	Tertiary structure of aberrant proteins
I.H. Cleave	The serum enzymes in health and disease
Professor S.D. Elek	Studies on viral hepatitis
H. Stern, Ph.D.	Cytomegalic inclusion body disease: viral aspects
G.R.F. Hilson, M.D.	Mycobacterial immunity and host-parasite interaction
L. Butler, Ph.D.	Bacterial transformations
B.V.K. Smith	Electron microscopy of tumours
D. White	Atypical acid fast bacilli in the domestic pig
J.L Stafford	Pathology of primary marrow dyscrasias
	Coagulation and fibrinolytic mechanisms and anti-coagulant therapy
	Cytotoxic therapy in leukaemia
N.H. Kemp	Alkylating therapy in malignant disease; cytogenetics of blood diseases
R.K. Tanner (Miss)	Cytogenetics of blood diseases
C.M. Hawkey (Miss)	Coagulation studies in animals and man
M.B. Howell (Miss)	Fibrinolytic mechanisms in disease states
G.B. Singh	

8. Psychiatry

Professor D. Curran	Psychological aspects of Parkinsonism
P. Hays	
P. Richmond	Comparative trial of anti-depressive medications
A. Roberts	
P. Hays	Mode of onset of depression

9. Surgery

A.H.M. Siddons	Development and use of indwelling pacemakers in complete heart block

9. Surgery (*continued*)

A. H. M. Siddons	The relation of microscopic classification of carcinoma of the bronchus with follow-up following surgical treatment
R. Smith	Relapsing pancreatitis
J.A. Gillespie	Blood flow in vascular disease and after therapy. Post-sympathectomy physiological investigations

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St. Mary's Hospital Medical School

1. Anatomy

Professor F. Goldby, M.D.	Central nervous system of *Myocastor coypus*
A.d'A. Bellairs, D.Sc.	Experimental embryology in reptiles
A.S. Breathnach, M.D.	Investigation of human cutaneous pigmentation (light and electron microscopy)
A.G.H. Menzies, M.D.	Cytology of the gastric mucosa
H.J. Gamble	Degeneration and regeneration in peripheral nerves and nerve roots (light and electron microscopy)

2. Biochemistry

Professor R.T. Williams, D.Sc., Ph.D. J.N. Smith, Ph.D., D.Sc. D.V. Parke, Ph.D. R.L. Smith, Ph.D. J.W. Bridges	Metabolism of drugs and toxic substances; comparative detoxication; applications of spectrofluorescence

3. Biology

C.L. Foster, Ph.D. (Head of Department)	Histochemistry of pars intermedia of rabbit pituitary
A. Fisk, Ph.D.	Effects of toxic agents on mammalian cells in tissue culture
E. Cameron, Ph.D., D.Sc.	Pituitary changes in rabbit following gonadectomy
with C.L. Foster, Ph.D.	Effect of $CdCl_2$ on testis and kidney

4. Haematology

P.L. Mollison, M.D. (Head of Department)	Clinical and serological aspects of human blood group differences Investigation of haemolytic syndromes
N.C. Hughes Jones, Ph.D.	Kinetics and thermodynamics of antigen-antibody reactions
I. Chanarin, M.D.	Folic acid metabolism and megaloblastic anaemias in general
P. Barkhan, M.D.	Problems of blood coagulation; haemoglobinopathies

5. Immunology

Professor R.R. Porter, Ph.D.	Structure and biological activity of γ-globulin
S. Cohen, M.D., Ph.D.	The metabolism of γ-globulin in normal and pathological conditions
E.M. Press (Miss)	The structure of the antigenic sites of serum albumin
M.J. Crumpton, Ph.D.	The structure of the antigenic sites of myoglobin
R.H. Pain, Ph.D.	Physical studies of the interaction of antigens and antibodies
A.M. Dresser (Mrs.), Ph.D.	Investigation of the cellular basis of the heterogeneity of γ-globulin and antibodies

6. Medicine

Professor W.S. Peart	Renal hypertension
P.H. Sanderson	Calcium metabolism
J.F. Ackroyd, D.Sc.	Drug sensitivity
J.I.S. Robertson	Renal hypertension Carcinoidosis
J.J. Brown	Renal hypertension and the vascular reactions in hypertension
J.F. Mowbray	Homotransplantation
H. Muir (Miss) D.Phil.	Composition of the arterial wall
A.A. Buchanan	Fat metabolism in leucocytes
W.B. Thomson	Ileal dialysis

7. Microbiology

ALLERGY CLINIC

A.W. Frankland, D.M.	Immunochemical and clinical studies on allergens
R.R. Davies	Mycological aspects of inhalent allergens Griseofulvin in fungal infections in nail

Bacteriology:

Professor R.E.O. Williams, M.D.	Staphylococcal infections in hospital Experimental staphylococcal and streptococcal infections in animals Biology and classification of streptococci L-forms of staphylococci
W.H. Hughes, M.D.	Bacterial variation in single cells Time-lapse cinemicrography in bacteriology and cytology
W. Brumfitt, M.D.	Investigation of renal and respiratory tract infections Experimental pyelonephritis Mechanism of antibiotic resistance
A.A. Glynn, M.D.	Phagocytosis and cellular antibacterial mechanisms
E.W. Meynell (Mrs.)	Attachment of bacteriophage to host cells
T.D. Brogan, Ph.D.	Respiratory tract mucins and antibacterial mechanisms Study of urinary tract infections
R.R. Davies, Ph.D.	Airborne pollen, fungi and bacteria as inhalant allergens Fungi causing disease

8. Paediatrics and Child Health

R.C. Lightwood, M.D. (Director)	Childhood leukaemia and its treatment An investigation of home care of sick children Epidemiology and aetiology of primary renal tubular acidosis
T.E. Oppé	Adaptive mechanisms in the newborn infant Social and psychiatric aspects of the family
P.J.N. Cox	Study of the circulating thyroid hormone in infancy and childhood Genetics of malignant disease

9. Pathology

Professor D.M. Pryce, M.D.	Pulmonary carcinoma Intralobar sequestration and experimental embolism Heart block
E.A. Wright, M.D.	Protection from radiation by anoxia and chemicals Radiation carcinogenesis Radiation effects in the central nervous system Experimental radiotherapy in relation to anoxia
K.A. Porter, M.D., D.Sc.	Immunology of tissue transplantation
R.A. Parker, M.D.	Effects of electrolyte imbalance on the kidney

9. Pathology (*continued*)

E. Neumark, M.D.	Aplastic anaemias and erythraemic myelosis Bone marrow pathology Cytology
J. Guthrie	Testicular teratomas Experimental induction of testicular teratomas in birds Examination of mechanism of metal carcinogenesis
E.C. Foot	Aspects of eosinophil function
Chemical:	
Professor A. Neuberger, F.R.S.	Carbohydrate complex in egg albumin and other glycoproteins
with K.D. Gibson, Ph.D.	Biosynthesis of porphyrins, chlorophylls and related enzymic problems
N.M. Green, Ph.D.	Effect of biotin on enzymic reactions
V.H.T. James, Ph.D.	Metabolism of steroids
B.J. Houghton	Use of N^{15}-labelled compounds in the investigation of clinical problems Studies of renal function during artificial fever
F.F. Richards	Enzymic defect in acute porphyria

10. Pharmacology and Therapeutics

H.C. Stewart, M.D. (Head of Department)	Investigation of the mode of action of analgesic drugs
with K.R. Butterworth, Ph.D.	
M. Weinstock (Miss), Ph.D.	
K.R. Butterworth, Ph.D.	Pharmacology of *Myocastor coypus*
C.M. Saunders (Miss)	Investigation of some clinical analgesic problems, including the control of withdrawal symptoms in addiction
A.E.B. Matthews	Study of pain and uterine contractions in labour in conditioned patients
P.A. Nasmyth, Ph.D.	Mechanism of action of sympathomimetic amines not having a catechol nucleus Mode of propagation of sympathetic nerve impulses
W.H.H. Andrews, D.M. with I. del Rio Lozano	Investigation into the origin of hepatic lymph; the microanatomy of the hepatic blood vessels in destructive jaundice; the action of drugs on the circulation of the liver
P.L. Sharma	Investigation into the mechanism of experimental auricular flutter and fibrillation

11. Physics

S. Rowlands, Ph.D. (Head of Department)	The physical aspects of the circulation of blood
A.C. Groom, Ph.D.	The circulation of blood using radioactive isotopes and electrical methods
B. Lord	Action of radiation on cells of the bone marrow
J.A. Sirs, Ph.D.	Permeability of natural membranes to gases, with particular reference to the erythrocyte

12. Physiology

Professor A.St.G. Huggett, D.Sc., F.R.S.	Foetal carbohydrate metabolism and prenatal growth
R. Creese, Ph.D.	Mineral metabolism in muscle
P. Holton (Mrs.), D.Phil.	Ganglion transmission with special reference to substance P

12. Physiology (*continued*)

D.A. Nixon, Ph.D.	Foetal inositol metabolism and renal function
H.G. Britton, Ph.D.	Carbohydrate metabolism of placenta and foetal liver
D.P. Alexander (Miss)	Foetal renal efficiency and excretion
M.L. Jones (Mrs.)	Pancreatic vasculature and metabolism
J.F. Mitchell, Ph.D.	Transmission at central synapses

13. Surgery

Professor W.T. Irvine, M.D.	Studies in the reconstruction of diseased arteries Role of the liver and gastrin in acid secretion Aetiology of renal damage when the aorta is clamped below the renal arteries Prevention of hyperchloraemic acidosis by colon mucosal irradiation
J.R. Kenyon	Cardiopulmonary by-pass with deep hypothermia Renal transplantation Arterial reconstruction and the preservation of arteries The reconstruction of the thrombosed and stenosed internal carotid artery
V. Wynn, M.D.	Metabolic problems in medicine and surgery with special reference to the regulation of water and electrolyte balance
K.J. Kingsbury, Ph.D.	Metabolic problems in surgery with special reference to nutrition and calorie balance The aetiology of atheroma and pathological thrombosis Fundamental aspects of lipid metabolism and blood coagulation The biological effects of surface-active compounds
M.C. Berenbaum	Inhibition of the homograft response; histocompatibility grouping in outbred animals Studies in tumour immunity
R.J. Luck	Gastric hypothermia as a means of reducing gastric acidity Use of β irradiation to reduce colonic absorption of chlorides following ureteric transplantation

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1. Anatomy

Professor D.V. Davies	Anatomy and physiology of joints Electron microscopy of joint tissues
C.H. Barnett	Anatomy and physiology of joints The mammalian foot
W. Hewitt	The basal ganglia of vertebrates
E.W.T. Morris	Cardiac anomalies Anatomy of the normal heart
A.J. Palfrey	The human pelvis Electron microscopy of connective tissues
R.A. Stockwell	Histochemistry of cartilage

2. Biochemistry

Professor L. Young, D.Sc., Ph.D.	Biochemistry of toxic agents The metabolism of sulphur compounds
M.B. Thorn, Ph.D.	Electron transport systems

3. Biology

A.G. Hamilton, D.Sc., Ph.D. (Head of Department)	The relationship between the output of carbon dioxide and sexual maturation in insects
P.S.B. Digby	Periodic discharge of carbon dioxide by insects and its relationship to diapause
	Physiology and behaviour in flight of *Calliphora*
	Growth of synovial cells *in vitro* and problems of cell interaction
	Factors affecting vertical migrations of marine plankton in Arctic regions
	Mechanism of pressure sensitivity in marine Crustacea

4. Medicine

Professor E.P. Sharpey-Schafer	Circulatory dynamics
I.H. Mills, M.D.	Endocrinology
B. Creamer, M.D.	Gastroenterology
P.F.D. Naylor, M.D.	Dermatology
S.J.G. Semple, M.D.	Respiratory function
E.D. Barlow	Psychiatry

5. Microbiology

Bacteriology:

Professor R. Hare, M.D.	The epidemiology of staphylococcal and anaerobic cocca infection
R.F. Williams	Studies of the sensitivity of staphylococci to antibiotics
E.H. Letchner (Miss)	Studies on *Listerella* and anaerobic cocci

6. Pathology

Professor R.C. Curran M.D.	Histochemistry of mucopolysaccharides
	Experimental silicosis
	Electron microscopic structure of the human villus
H. Spencer, M.D.	Relationship of lung cancer to lung scars, and the nature and development of such scars
J.W. Whimster	Pigmentary disorders of human skin
	Pigmentation of normal and regenerating reptile skin
D. Lovell	Normal and abnormal white cell metabolism

Chemical:

Professor F.T.G. Prunty, M.D.	The identification and measurement of urinary excretion products of adrenal cortical hormones and the response to adrenocorticotrophin
	Metabolic effects of steroids
R.R. McSwiney	General metabolic problems in human disease
	Biochemical abnormalities in hyperparathyroidism
J.S.M. Hutchison	Biological effects of hormones in the experimental animal
R.V. Brooks, Ph.D.	Biochemistry of urinary steroid metabolites

7. Pharmacology and Therapeutics

Professor R.S. Stacey, M.D.	Investigations on the distribution, secretion and function of 5-hydroxytryptamine
T.J. Sullivan, Ph.D.	Action of cardiac glycosides on the uterus
S.E. Smith, PhD.	Uptake of amino-acids by isolated tissues

8. Physics

W. Cochrane, Ph.D. (Head of Department)	Electron diffraction
A. Nightingale, Ph.D.	Myo-electric control of ortheses and prostheses

9. Physiology

Professor H. Barcroft, M.D., F.R.S.	Action of nerves and hormones on blood vessels in muscle and skin
M.J. Allwood, Ph.D.	
B. Greenwood	
A.F. Cobbold, Ph.D.	Circulation in joints and muscles; muscle metabolism
M.H. Evans, Ph.D.	Neurophysiology of spinal reflexes

10. Surgery

Professor J.B. Kinmonth, M.S. and staff	Open cardiac surgery and related physiology Investigation of materials for repair of cardiac defects Cause and treatment of bleeding after perfusion for open heart surgery Replacement and repair of cardiac valves Lymphangiography Lymphatic and other forms of oedema Long-term results of arterial replacement by grafts and prostheses Late results of operations for varicose ulceration Acid-base balance during surgery and anaesthesia
E.G. Brewin	Venous pressure changes during circulatory arrest Critical closing pressure of arteries
F.B. Cockett	The post-thrombotic syndrome of the leg and the long-term results of operations on the lower leg perforating veins Investigation of operative cholangiography in biliary disease

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1. Clinical Research

M.R.C. LABORATORY

E.E. Pochin, C.B.E., M.D. (Director)	The iodine metabolism of the normal human thyroid gland, of the gland in hyperthyroid patients and of thyroid carcinomata, particularly using radioactive iodine in investigation and in therapy
T. Shimaoka, M.D.	
B. Thompson, Ph.D.	
C.F. Barnaby, Ph.D.	Properties of plastic phosphors for use as scintillation counters
E.N. Rowlands, M.D.	Gastrointestinal function in man in health and in disease
D.A.W. Edwards, M.D.	
C. Edmonds, M.D.	Studies of electrolyte transport

2. Dental Studies

Professor A.S. Prophet	
D.C.A. Picton	Measurement of tooth mobility in man and measurement of forces acting on the teeth
G.M. Ritchie	Changes in the teeth caused by metabolic diseases
A.G. Alexander	Factors influencing the formation of dental calculus

3. Medicine

Professor M.L. Rosenheim, C.B.E., M.D.	Treatment of hypertension and renal disease
Professor C.E. Dent, M.D., Ph.D., F.R.S.	Metabolic studies: Calcium and phosphorus metabolism Renal tubular syndromes Disorders of amino-acid metabolism Biochemical research: Isolation and identification of amino-acids in urine

3. Medicine (*continued*)

W.R. Trotter, D.M.	Thyroid diseases and iodine metabolism
D.R. Laurence, M.D.	Pharmacology of circulation, tetanus and of involuntary movement
E.J. Ross, Ph.D., M.D.	Significance of alderosterone secretion in man
T.A.J. Prankerd, M.D.	Red cell abnormalities in haemolytic anaemia. Dynamics of red cell product on and destruction
C.J. Dickinson, D.M.	Cerebral ischaemia; action of angiotensin; hypertension

4. Microbiology

Bacteriology:

Professor G. Belyavin, M.D.
A. Cohen
F. Biddle

The research work of the department is mainly concerned with the elucidation of the mechanism of infection in virus diseases and the factors involved in host susceptibility and resistance. Most of this work is done with the influenza viruses but other viruses, e.g. vaccinia, herpes, etc. are included as occasion requires

The immediate interest is the dependence of the biological behaviour of the influenza virus on the surface structure of the virus elementary body. This is being pursued through the study of the non-specific haemagglutination inhibitors, and the relation between their chemical structure and their ability to adsorb on to the virus surface and block virus-cell union. In particular the infectivity-neutralizing potency of the γ-type haemagglutination inhibitors, active against A_2 strains, is being investigated from this point of view

The antibody response to virus antigens is also under investigation. The immune response of rabbits to artificial immunization with poliomyelitis virus is being studied in detail by different serological methods such as gel-diffusion, direct tube flocculation and tissue culture infectivity neutralization. The physical nature of the antibodies produced is being analysed by chromatographic fractionation and other physical methods

5. Obstetrics and Gynaecology

Professor W.C.W. Nixon, M.D.

Assessment of placental function by biochemical, hormonal, histological and cytological assays
Foetal electrocardiography and phonocardiography
Electrical and mechanical studies of uterine action in labour
The effects of drugs upon the human uterus in pregnancy, labour and post partum
Studies of respiration in the newborn
Studies of diagnostic procedures and treatment for dystocia
Studies of anaesthetics and uterine action
Investigation of electrolytes in human uterus

G.I.M. Swyer, D.M. M.D., D.Phil.

Immunological methods for assay of gonadotrophins
Urinary oestrogen determination as an index of placental function in late pregnancy
Outcome of pregnancy in previously infertile women
Endocrine therapy for various menstrual disorders
The effects of various progestogens and allied substances on women with special reference to oral contraception
The bio-assay of progestogens in women
Therapy of male infertility

6. Pathology

Professor Sir Roy Cameron, F.R.S.	Biliary cirrhosis Liver necrosis Schistosomiasis
J.F. Smith	Lead encephalopathy Problems of nephritis
A. Jarrett	Dermatological pathology, especially eczema and various vitamin deficiencies
P. Hughesdon	Tumours of the ovaries Chronic endometritis
W.G. Spector	Nephrosis Birth injuries Chemical mediation of inflammation
P. Sutton	Lymphomata; experimental study of hepatoma
J. Wigglesworth	Histochemistry of the placenta in health and disease
Chemical:	
Professor C. Rimington, F.R.S.	Biochemistry of porphyrins and diseases of pyrrole pigment metabolism
K.R. Rees, Ph.D.,	Mechanisms of liver injury; enzymic activities of isolated cell nuclei
T.F. Slater, Ph.D.	Biochemistry of lactation and effects of drugs on enzyme systems
Clinical :	
Professor M. Maizels, F.R.S.	Water and cation exchange of red cells
F.V. Flynn, M.D.	Electrophoretic studies of urine proteins in disease
E.J. Stokes (Mrs.)	Investigation of a claim that a spirochaete-like organism is the cause of multiple sclerosis Prevention of staphylococcal hospital infection

7. Surgery

Professor R.S. Pilcher	Metabolism in human liver Blood flow in peripheral vascular disease Enzyme treatment of thrombosis Methods of augmenting the blood supply of the myocardium Exfoliative cytology for cancer diagnosis Regional perfusion with cytotoxic agents for cancer
C.N. Smyth	Blood gas exchange apparatus for partial and total body perfusion Ultrasound camera: biological applications
P.J.D. Heaf, M.D.	Alterations of respiratory physiology in diseases of lungs
B.G.B. Lucas	Design of breathing apparatus for fire services and industry Pathology of cerebral anoxia

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1. Haematology

J.G. Humble, C.V.O.	Electromagnetic studies on red blood cells with special reference to anaemia in malignant diseases, together with spectrophotometric and electrophoretic studies of haemoglobin and other blood pigments in these conditions; spectrographic and spectrometric studies of living tissues and tumours; study of bone marrow transplantation in the human

2. Medicine

Professor M.D. Milne, M.D.	Studies on the excretion and metabolism of various drugs
	Studies of the biochemical abnormalities in uraemia
A.M. Asatoor, Ph.D.	Amino-acid transport in health and disease
P.R. Fleming, M.D.	Measurement of urinary organic acids in renal failure; comparison of the values in patients with acute and chronic renal failure, with and without acidosis
L.W. Loughridge	Participation in M.R.C. anterospective trial of steroids in the nephrotic syndrome, with renal biopsy
	Study of oliguric renal failure from acute glomerulonephritis with renal biopsy
	Study of the relationship of sphygmomanometric blood pressure to central aortic pressure
	Study of relationship between wave-form of central aortic pressure pulse and indirectly recorded carotid arterial pulse
	Studies on left ventricular contractility and the factors influencing the form of the left ventricular pressure pulse; the first derivative of the left ventricular pressure in various conditions (mainly aortic valve disease) is plotted to determine, for example, (i) the maximum rate of pressure rise and (ii) the influence of the rate and duration of ejection on the form of the pressure pulse

3. Microbiology

Bacteriology:

Professor B.W. Lacey, M.D.	Antigenic constitution of *Bordetella pertussis* and related organisms
	Influence of environment on antigenic structure
	Mechanisms of chemotherapeutic synergy

4. Pathology

Professor A.D. Morgan, M.D.	Relation of coronary occlusion to atherosclerosis of other arteries
D.H. Mackenzie, M.D.	General studies in tumour pathology
	Amyloidosis in lymph nodes and in the carpal tunnel syndrome
H.B. Hewitt, M.D.	Investigations of the therapy of mouse leukaemia using whole-body radiation
	Survival curves for tumour cells irradiated *in vivo*; the implications for radiotherapy

Chemical:

Professor N.F. Maclagan, M.D., D.Sc.	Elaboration of new methods in clinical biochemistry with special reference to disease of the thyroid gland
	Protein metabolism in malignant disease
J.H. Wilkinson, Ph.D.	Investigation of serum enzymes in normal and diseased states
J.F. Zilva (Miss), M.D.	Biochemical changes in protein and mineral metabolism, and in body fluids with special reference to malignant disease
J.D. Billimoria, Ph.D.	Biochemistry of atheroma
K.B. Cooke	Serum protein separation methods

4. Pathology (*continued*)

Clinical:

J. Kohn	Electrophoretic techniques on cellulose acetate
	Immunodiffusion methods on cellulose acetate
	Presence of pharmacologically active substances in patients with burns
	Immunology of burns: bacterial antibodies; toxic factor? "specific burn antigen?"; " C reactive protein "

Experimental:

I.M.P. Dawson, M.D.	Distribution of enzymes in human and animal adrenal glands and effects of administered hormones; distribution of enzyme systems in normal human gastro-intestinal tract
	Histochemical studies on carotid body tumours

5. Physics

Medical:

C.W. Wilson, Ph.D.	Applications of radioisotopes as tracers in various clinical problems
	The study of thyroid disorders with I^{131} and Geiger counters
	The measurement of X-ray and γ-ray doses using ionization chambers
	The uptake of S^{35} by the mouse knee joint and hind limb soft tissues, and the effect of X-rays upon them
	Measurement of body water, sodium and potassium in patients
	Effect of various diuretics on body sodium and potassium; changes in body sodium and potassium during treatment of malignant disease; P^{32} uptake in relation to tumour activity
	Study of potassium loss in patients with chronic intestinal disease
	Microradiography of tissue sections including normal and irradiated mouse bone
	Development of various electronic equipment: apparatus for continuous infusion of chemotherapeutic agents; apparatus for monitoring foetal heart during labour; apparatus for electronarcosis; apparatus for preservation of bone marrow at —79°C; an apparatus for measurement of neuromuscular block produced by drugs and anaesthetic gases
	Work on physical aspects of a 6 MeV linear accelerator
	Cytological and histochemical studies of the effect of X-rays on the tibia of the growing mouse
	Arteriography of control and irradiated hind limbs of the mouse
	Fat absorption in intestinal disorders examined with radioisotopes

6. Surgery

Professor H. Ellis, D.M.	Healing of peritoneum
	Adhesion formation in the peritoneal cavity
	Tissue culture as a screening method for cancer chemotherapy
with C. Wastell	Physiological effects of vagotomy
R.Y. Calne	Studies of experimental renal homografts and investigation of chemical inhibition of the immunological rejection process
N.L. Browse, M.D.	Studies on the circulatory response to surgery, mesenteric thrombosis and fibrinolysis

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1. Anaesthetics

H.J. Brennan, M.D. (Director)	Development of automatic blood pressure recorder
	The inefficiency of controlled respiration
	Investigation of vagal apnoea
T.D. Culbert	The use of methohexitone in dental anaesthesia
T. Dinsdale	The assessment of safety in nitrous oxide anaesthesia
A.R. Hunter, M.D.	Studies of artificial ventilation of the lungs
	Controlled respiration in neurosurgery
M.W. Johnstone, M.D.	Electrocardiovasculography
W.K. Jones	Development of mechanical respirators
	Methods of hypothermia
	The place of fluothane in dental anaesthesia
R.I. Keen	Certain metabolic aspects of hypothermia
J.B. Montgomery	The aetiology and prevention of cold-induced ventricular fibrillation
T.M. Young	Assessment of vaporizers

2. Anatomy

Professor G.A.G. Mitchell, O.B.E., D.Sc.	Central and peripheral arrangements of the autonomic nervous system
	The central connections of the cranial nerves
	Microradiographic studies
E.R.A. Cooper (Miss), M.D., D.Sc.	The venous drainage of the central nervous system
	Further studies on the absorption of cerebro-spinal fluid
	Hydrocephalus
E.L. Patterson, M.D.	Congenital cysts of the heart
	The anatomy of the lingual branch of the facial nerve
	Electron microscope study of the thymus and other lymphoid tissues and of the ophthalmic membranes
	Anatomical examination of Bronze Age human remains
G.T. Ashley, M.D.	Studies of possible efferent fibres in dorsal nerve roots
	The development of Nissl granules in the neurones of the brain stem nuclei
	Studies of developmental anomalies
A.D. Dixon, Ph.D.	Innervation and development of oral structures
	Electron microscope study of trigeminal pathway
	Radioactive tracer studies of bone and tooth development and growth
J.B.D. Torr, M.D.	The blood supply of the cord and the vertebral venous plexuses
	Sex chromatin
	Studies of human chromosomes
D. Bulmer, M.D.	Development and histochemistry of female genital tract
	Histochemistry of the rat placenta
T.H. Williams, Ph.D.	Neurility of viscera studied by histological and electrical methods
A.W.F. Fisher	Studies on innervation of trachea, bronchi and lungs
	Histochemical studies on the developing hypophysis cerebri
S.D. Sutherland	Studies on the innervation of the liver, gall bladder and pancreas
	Histochemical studies on the developing pancreas

3. Archaeology

C.A. Burney	Excavations at Yanik Tepe near Tabriz, in north-west Iran (1960–62)
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T. Burton-Brown	Full report on excavations in the Shahriyar district of Iran in 1957
	Preparation of a detailed survey of the archaeology of Egypt
	Preparation of a work on the prehistoric archaeology of the Near East
J. Forde-Johnston	A survey of the Iron Age hill forts of England and Wales

4. Astronomy

Professor Z. Kopal, D.Sc.	Double stars
	Stellar hydrodynamics; theory of orbits; solar system
J. Hazlehurst, Ph.D.	Cosmical gas dynamics
F.D. Kahn, D.Phil.	Interstellar matter
	Plasma physics
M. Kitamura, Ph.D.	Eclipsing binaries

Radioastronomy:

Professor Sir Bernard Lovell, O.B.E., F.R.S.	Radioastronomical investigations using the 250-ft steerable radio telescope at Jodrell Bank, including the following:
Professor R. Hanbury Brown, F.R.S.	Satellite instrumentation
J.H. Thomson, Ph.D.	Development of receiver techniques, i.e. parametric
C.H. Slater, Ph.D.	amplifiers
J.G. Davies, Ph.D.	The galactic and extra-galactic radio emission, including
H.P. Palmer, D.Phil.	measurements of the size of radio stars
R.D. Davies, Ph.D.	Investigations of the hydrogen line emission from the
R.C. Jennison, Ph.D.	interstellar gas
M.I. Large, Ph.D.	Radio echo investigation of meteors
R.G. Conway, Ph.D.	Delineation of orbits and studies of the physical pro-
B. Rowson, Ph.D.	cesses in the upper atmosphere
E.J. Daintree	Measurement of upper atmosphere winds by the observation of radio echoes from meteor trails
	Radio echo studies of the aurora borealis
	Radio echo studies of the moon and planets
	Satellite and space probe tracking

5. Audiology and Deaf Education

Professor Sir Alexander Ewing	Linguistic development of very young deaf children as a result of home training; problems, methods and results
Lady Ewing	in parent guidance
Professor Sir Alexander Ewing with I.G. Taylor, M.D., Ph.D. G.B. Campbell	Survey of hearing-impaired children in the County of Cheshire
T.J. Watson, Ph.D. with K. Harrison, M.D.	Speech discrimination in relation to causation of deafness; conductive deafness in childhood
H.L. Owrid, Ph.D.	Survey of the hearing of mental patients in hospitals

5. Audiology and Deaf Education (*continued*)

I.G. Taylor, M.D., Ph.D.	Neurological mechanisms of speech and hearing Differential diagnosis of deafness and communication difficulties in childhood
D.C. Wollman, Ph.D.	Provision of secondary education for deaf and partially hearing children
J.E.J. John	Determination of the performance of hearing aids and audiometers
with J.N. Howarth (Miss)	Spectrographic analysis and intelligibility of the speech of deaf children
H.L. Owrid	Linguistic development of deaf children

6. Biochemistry

PATERSON LABORATORIES, CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

P.J. O'Connor, Ph.D. L.G. Skinner	Correlation of gonadotrophin content of urine with the clinical course of breast cancer Time sequence of changes induced by growth hormone in the hypophysectomized mouse Organ specific feedback control of growth in regeneration of liver

7. Botany

Professor C.W. Wardlaw	Studies in morphogenesis by experimental methods
M.G. Calder, Ph.D.	Palaeobotany: fossil conifers
K.J. Dormer, Ph.D.	Variation in *Plantago* and *Taraxacum* Development of mathematical methods in taxonomy
E.W. Simon, Ph.D.	Biochemistry of germination and senescence Microstructure and function
J.N. Hartshorne, Ph.D.	Control of sex ratios in dioecious flowering plants
R.C. Pecket, Ph.D.	Studies on flower colour variation in anthocyanin-pigmented species. Distribution of anthocyanins and other phenolic compounds
E.G. Cutter, Ph.D.	Experimental and developmental studies of shoot morphogenesis
J.H. Tallis, Ph.D.	Peat formation in the southern Pennines
P. Newton, Ph.D.	Physiology of growth; horticulture
R.D. Butler, Ph.D.	Mitotic rhythms in shoot apical meristems Electron microscopy of meristematic cells
D.L. Smith, Ph.D.	Palaeobotany Morphogenesis
B. Truelove, Ph.D.	Respiration of plant tissues with special reference to organic acid metabolism
C.A. Stace	Experimental taxonomy of European flowering plants
Cryptogamic:	
Professor J. Colhoun, Ph.D., D.Sc.	Mycology and plant pathology; epidemiology of plant diseases particularly *Fusarium* diseases of cereals and club root disease of Brassicae; factors underlying resistance of lenticels of fruit to invasion by fungi; morphogenesis of fungi
A. Allsopp, Ph.D.	Morphogenesis, with special reference to Pteridophyta and Bryophyta
D. Park, Ph.D.	Investigation of soil-borne plant pathogens
G.S. Taylor, Ph.D.	*Fusarium* diseases of cereals; fungi inhabiting root surfaces

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J.W. Franks, Ph.D.	The flora of Andorra Pollen analysis of Quaternary and Tertiary sediments

8. Cardiology

A.M. Jones (Director)	Heart disease and pregnancy
E.G. Wade, M.D.	Coronary heart disease
	Haemodynamics of pulmonary circulation

9. Chemistry

Inorganic:

Professor J. Lewis, D.Sc.	Chemistry of metalcarbonyls and low valency state
D.J. Machin, Ph.D.	metals; infra-red spectroscopy and magneto chemistry of inorganic compounds; application of ligand field theory to structure of inorganic complexes
A. Thompson, Ph.D.	Reactions of some oxygen and sulphur containing ligands with niobium and tantalum pentahalides
	Studies of some group III halide complexes
W.C.E. Higginson, D.Phil.	Studies of the kinetics and mechanisms of oxidation-reduction and complex-substitution reactions in solution
I.G. Campbell, Ph.D.	Chemical consequences of nuclear activation in inorganic crystals, and the effects of nuclear radiation on the surface properties
J.R. Miller, Ph.D.	Structural chemistry of transition metal complexes and chemistry of nickel(I)
N.L. Paddock	The properties of phosphonitrilic derivatives and the determination of their structures and physical and chemical properties; the chemistry of cuprous hydride

Organic:

Professor A.J. Birch, F.R.S.	Structure and biosynthesis of natural products: structure of and reduction by metal-ammonia solutions; synthesis of steroid hormones
G.R. Barker, Ph.D.	Studies on nucleotides and related materials
G.F. Smith, Ph.D.	Heterocycles and natural products, especially alkaloids
J.D. Bu'Lock, Ph.D.	Natural products, especially fungal materials
D.C.C. Smith, Ph.D.	Synthesis of steroid hormones
J.D. Watkinson, Ph.D.	Studies on infra-red spectra
	Steric effects in reaction mechanisms
T. Quibell, Ph.D.	Structure and synthesis of natural polyphenolic compounds
F.R. Jevons, Ph.D.	The nature of the linkage between protein and carbohydrate in mucoproteins
R.W. Rickards	Structure and biosynthesis of natural products
A. Pelter, Ph.D.	Oxygen heterocycles, insect hormones, and synthesis of B_{12}

Physical:

Professor G. Gee, C.B.E., F.R.S.	Studies in polymer science, including
G. Allen, Ph.D.	(i) thermodynamic properties of polymer solutions
R.O. Colclough, Ph.D.	(ii) static and dynamic physical properties of polymers
	(iii) selected polymerization reactions
E. Warhurst, Ph.D., F.R.S.E.	Spectra and reactivities of ketyls and alkali, and alkaline earth metal complexes
J.H. Baxendale, D.Sc.	Chemical reactions induced by X- and γ-radiation and electrons
	Photochemistry of solutions
	Kinetics and mechanisms of oxidation and reduction reactions

9. Chemistry (*continued*)

H.A. Skinner, D.Phil.	Thermochemical studies on organo-metallic compounds
G. Pilcher, Ph.D.	Heats of combustion
J.B.M. Herbert	Low temperature calorimetry
O.S. Mills	X-ray crystal structure analysis of organo-metallic compounds and crystalline polymers
H.O. Pritchard, Ph.D.	Reactions of free radicals in the gas phase Application of computers to chemical problems
A.R. Allnatt, Ph.D.	Equilibrium and non-equilibrium statistical mechanics of simple fluids, ionic solutions, and lattice defects in solids Experimental study of lattice defects in simple ionic solids

Radiation:

PATERSON LABORATORIES CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

J.V. Davies, Ph.D.	Electron spin resonance study of the effect of radiation on molecules of biological interest
C. Russell, Ph.D.	
M. Ebert, Ph.D.	Radiation chemistry of organic materials in studying primary events
J. Swallow, Ph.D.	Radiosensitizing effect of NO in micro-organisms
	Effect of fractionated versus single doses of X-rays on root meristems of barley and broad bean

10. Dental Studies

Preventive Dentistry:

Professor J.L. Hardwick, Ph.D.	Isotope studies in fluoride uptake and release from the enamel surface: the fluorine content of the dental plaque
	Isotope studies of the permeability of the enamel to small ions and molecules, including glucose, sucrose and lactic acid
	The preparation of undecalcified sections of the hard dental tissue for microscopic examination: phase contrast examination of the dental enamel
J. Miller, D.D.S.	The relationship between dental diseases in children
P. Hobson (Mrs.)	A clinical evaluation of methods of treatment of caries in children
J.A. Hargreaves	The relationship between the premature loss of teeth and orthodontic conditions
	Root treatment of deciduous teeth
	The bacteriology of infected pulps and the use of antibiotics in pulp therapy
	Microradiographic studies of enamel and dentine

Prosthetics:

Professor E. Matthews, D.D.S., Ph.D.	The physical and chemical properties of materials used in dentistry, with reference to their biological adequacy
J.F. Bates	Investigation of stress in partial dentures
D.C. Smith, Ph.D.	An investigation into the physical and mechanical properties of dental materials with special reference to dental polymers
H. McIntyre	An investigation into haemorrhagic diseases
E.A. Wain	The development of a miniature pressure transducer for the study of the distribution of masticatory forces in prosthetic appliances
W.T. MacCulloch, Ph.D.	Relation of properties to the incorporation of quantities of indium metal in dental amalgams; dental sterilization
H.J. Wilson, Ph.D.	Search for new anterior restorative materials
E.C. Combe	Studies in the effects of added salts on the setting of dental plaster

10. Dental Studies (*continued*)

Surgery:

Professor H. G. Radden	
J.R. Grundy	Inhalation hazards to the dental surgeon
S.D. Hatt with Rowett Research Institute	Dental problems in hill farm sheep
P. Rothwell	Investigation into the magnitude and the consequence of thermal changes in the surface of enamel
H. ten Bruggen Cate	Industrial erosion of teeth
A. H. Ellam	Recurrence of caries under fillings; life of fillings
	Investigation into elastic impression materials for inlays and bridges
E.P. Turner	Development and formation of cusps of human molar teeth

11. Engineering

Civil:

Professor M.R. Horne, Sc.D.	Plastic theory of structures; stability in elastic-plastic range; effect of strain-hardening
E.R. Bryan, Ph.D.	Effect of membranes on the strength of structures
J.E. Gibson, Ph.D.	Theoretical and experimental stresses in shell roofs
	Distribution of wind stresses in multi-storey office blocks
R. Mathieson, Ph.D.	Water hammer: cavitation erosion
K. Peaker	Comparison of earth pressure theories using model studies
P.W. Rowe, D.Sc.	Development and experimental proof of the stress-dilatancy theory for soils
M.G. Derrington	Temperature stresses
P. Montague	Plastic collapse of shells
A. Jennings	Elastic buckling loads of rigid frameworks
	Aerodynamic lifting surface theory
J. Stebbings	Characteristics of self-formed channels in alluvial material
R. Taylor	Composite action in reinforced concrete structures: beam-slab interaction
	Use of high strength steels in reinforced concrete
J.M. Davies	Investigation of the phenomena of shakedown and incremental collapse for structures with members carrying significant axial loads
C.D. Goode, Ph.D.	Reinforced concrete subject to torsion and bending
L. Barden	Application of the stress-dilatancy theory to clays

Electrical:

Professor F.C. Williams, C.B.E., F.R.S.	
Professor T. Kilburn, D.Sc.	Engineering developments of electronic digital computers
D.B.G. Edwards, Ph.D.	
F.H. Sumner, Ph.D.	
G.R. Hoffman, Ph.D.	
M. Lanigan	
D. Aspinall, Ph.D.	
E.M. Dunstan, Ph.D.	
D.C. Jeffreys	
J.A. Turner	

11. Engineering *(continued)*

Electrical: (continued)

R.A. Brooker C.M. Popplewell (Miss) R.B. Payne, Ph.D. D. Morris, Ph.D. D.J. Evans, Ph.D.	Application of electronic digital computers
R. Cooper, Ph.D. T.E. Broadbent, Ph.D.	Dielectric breakdown
E.R. Laithwaite, Ph.D. D.E. Hesmondhalgh, Ph.D. D. Tipping J.F. Eastham G.F. Nix G.W. McLean	Development of induction motors and linear synchronous machines
C.N.W. Litting, Ph.D.	Electroluminescence
G.F. Turnbull J.M. Townsend	Non-linear servomechanisms and sampled-data systems

Mechanical:

Professor J. Diamond	Heat transfer
F.J. Edwards	Forced convection heat transfer with rough surfaces
J.L. Livesey, Ph.D.	Internal aerodynamics of gas turbine combustion chambers Secondary flows about struts in thick boundary layers Generation and decay of velocity profiles having high velocity gradients Air-excited vibration of heat exchanger tube banks
J.D. Jackson	Effect of temperature on convection heat transfer
F. Cheers	Unsteady flow in axial compressors
A. Williams	Heat transfer between solids in contact
W.J.D. Annand	Combustion variability in spark-ignition reciprocating engines Combustion of gaseous fuels in reciprocating engines Heat transfer in internal combustion engines
B.H. Baines, Ph.D.	Thermal stresses in elastic and overstrained axially symmetric bodies Inertia effects in oscillating fluid flow Non-Newtonian fluids in vibration dampers

Nuclear:

Professor W.B. Hall P.H. Price, Ph.D.	Heat transfer and fluid mechanics problems in nuclear reactors
M.J. Harris	Radiation-induced nucleation in boiling water systems
D.G. Walton	Effect of boundary condition on heat transfer and mass transfer in tubes and cluster of rods Analogue studies of the transient behaviour of advanced gas-cooled reactors and fast reactors Measurement of the effect of boiling phenomena on reactor physics using a water moderated sub-critical assembly Lattice parameter measurements, using graphite moderated exponential pile Slowing down and diffusion of neutrons in anisotropic media

12. Genetics

Cytogenetics:

PATERSON LABORATORIES, CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

S. Muldal	Time sequence of human chromosome duplication in health and in disease
A.J. Bateman, D.Sc.	Numerical variation in chromosome numbers in man
C. Ockey	Study of non-disjunction of chromosomes and spontaneous breakage pattern
J. Muskett (Mrs.)	Morphological study of abnormal chromosome complements with special reference to sex abnormalities and abnormalities associated with malignancy
A.C. Chandley (Miss)	Effects of radiation on non-disjuncton and re-combination of the X-chromosomes in the *Drosophila* male
	Nature of X-ray-produced dominant lethal mutations in the mouse

13. Geography

Professor P.R. Crowe, Ph.D.	Problems of climatic classification
T.W. Freeman	Population problems: England and Wales, Ireland
D. Sylvester (Miss)	Celtic and English rural settlement
R.H. Johnson	Geomorphology of S. Pennines
H.B. Rodgers	Manchester region: geography and planning
D.L. Niddrie	Problems of land use in the West Indies
J.S. Duncan, Ph.D.	The evolution of settlement in Australia and New Zealand
W.C. Brice	Historical geography of Turkey and the Near East
J. Carter (Miss)	Agricultural geography with special reference to tropical regions
G. North	The commercial relationships of W. Germany
D.J. Fox	Land use in central America

14. Geology

Professor E.A. Vincent, Ph.D.	Opaque minerals in igneous rocks: geochemical analysis including neutron activation
W.S. MacKenzie, Ph.D.	Experimental petrology
G.D. Nicholls, Ph.D.	Geochemistry of sediments
	Geology of the ocean floor
I.M. Simpson, Ph.D.	Pleistocene geology
R.A. Howie, Ph.D.	Petrology and mineralogy of charnockites and aplites
	Silicate mineralogy
F.M. Broadhurst, Ph.D.	Upper Carboniferous and Silurian palaeoecology
W.L. Brown, Dr.sc.nat.	X-ray crystallography of feldspars; metamorphism
R. Nicholson, Ph.D.	Structural geology and petrology of metamorphic rocks
J.F. Dewey, Ph.D.	Structural geology and sedimentation
J.E. Pollard	Coal Measure Ostracoda; palaeoecology of non-marine environments

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D.E. Owen, Ph.D.	Systematic study of Silurian Bryozoa
R.M.C. Eagar, Ph.D.	Carboniferous palaeontology and stratigraphy; boron in sediments

15. Haematology

M.C.G. Israëls, M.D. (Director)
E.J. Watson-Williams

Research investigations are being carried out in general on haematological subjects, in particular on macrocytic anaemia, including pernicious anaemia, nutritional anaemias, steatorrhoea, macrocytic anaemia of pregnancy and refractory anaemias, the importance of folic acid, vitamin B_{12}, pyridoxine and similar substances. Abnormalities of haemoglobin as a cause of anaemia with family studies

Haemophilia: investigation, control and newer treatment (with a regional follow-up clinic)

Leukaemias: general investigations on the acute and chronic leukaemias, with particular reference to aetiology and newer forms of therapy such as ACTH, cortisone, folic acid antagonists, nitrogen mustards and similar drugs

Hypochromic, aplastic and haemolytic anaemias: investigations on aetiology and treatment, including studies of abnormalities of enzymes

Morphology of blood cells

Chromosome abnormalities and changes during treatment in blood diseases

16. Mathematics

Applied:

Professor F. Ursell, Sc.D.	Applied mathematics
C.R. Illingworth	Fluid dynamics (all branches)
M.B. Glauert	
R.F. Chisnell, Ph.D.	
F.A. Goldsworthy, Ph.D.	
E.J. Watson	
B.R. Morton, Ph.D.	
G.L. Camm, D.Phil.	Statistical dynamical astronomy
S. Levine, Ph.D.	Theory of colloids
E. Wild	Electromagnetic theory
D.R. Bland	Visco-elasticity
L.W. Morland, Ph.D.	
W.D. Collins, Ph.D.	Applied mathematics

Pure:

Professor M.H.A. Newman, F.R.S.	Geometrical topology
Professor K. Mahler. F.R.S.	Theory of numbers Diophantine analysis
J.F. Adams, Ph.D.	Algebraic topology
M.G. Barratt, Ph.D.	
B.J. Birch, Ph.D.	Theory of numbers
J.A. Green, Ph.D.	Group theory
N. Blackburn, Ph.D.	
R.O. Gandy, Ph.D.	Mathematical logic
C.B. Haselgrove, Ph.D.	Numerical analysis
J. Walsh (Miss), Ph.D.	

17. Medicine

Professor D.A.K. Black, M.D.	Disorders of body fluid and renal function
Professor Sir Robert Platt, Bt., M.D.	Clinical studies in genetics, hypertension, etc.
S.W. Stanbury, M.D.	Renal function and electrolyte metabolism Metabolic bone disease
J.B.L. Howell, Ph.D.	Normal and abnormal respiratory function
G.M. Berlyne	Renal function in health and disease

18. Metallurgy

Professor C.R. Tottle	Deformation of metals Studies of anisotropy in metals and alloys Materials for nuclear energy and high-speed flight
H.J. Axon, D.Phil.	The structure of metallic meteorites
G.M. Leak, Ph.D.	Investigation of magnetic and other amplitude-dependent contributions to the damping capacity of metals Decay of vacancies in quenched Al-rich alloys Grain boundary properties of metals (damping capacity) Segregation in grain boundaries Grain boundary energy measurements Diffusion of alloying elements, especially interaction Textures in metal
R.A.J. Shelton	Deposition of metals from vapour phase Reactions of halogens with metals
J.R. Stubbles, Ph.D.	High temperature thermodynamic studies of sulphides Non-stoichiometry in metal-sulphur systems
P.H. Spriggs	X-ray crystallographic studies of intermetallic phases and compounds
N. Ridley, Ph.D.	Density anomalies in solid solutions Effect of alloy additions on kinetics of austenite-pearlite transformation
R. Elliott, Ph.D.	Variation of damping capacity during quench ageing in aluminium alloys Solidification of eutectic alloys

19. Microbiology

Bacteriology:

Professor P. Collard, M.D.	Metabolic lesions in infections Serology as an epidemiological tool
T.S.L. Beswick, M.D.	Spread of poliovirus within the central nervous system Epidemiology of respiratory viruses
N.W. Preston, M.D.	Pertussis antigens in relation to immunity
G. Taylor, M.D.	Immunology
R.M. Stirland	Acquired resistance to macrolide antibiotics

20. Neurology

F.R. Ferguson, M.D. (Head of Department) G.E. Smyth, M.D. L.A. Liversedge, M.D.	The Department concerns itself largely with problems of clinical research under the following main headings: Management of cerebro-vascular disease Epilepsy Myasthenia gravis Relief of spasticity Electroencephalography Neurological complications of myxoedema Migraine

21. Neurosurgery

R.T. Johnson, O.B.E. J.M. Potter W.B. Jennett	Midbrain compression: morbid anatomy and experimental studies in animals. Investigation of eye movements Intracranial aneurysms and the cerebral circulation Infection of the central nervous system Certain aspects of hydrocephalus
A.R. Hunter	Anaesthesia in relationship to neurosurgery

21. Neurosurgery (*continued*)

P.O. Yates	The morbid anatomical and histological localization of damage to the brain stem resulting from brain shift
	Cerebro-vascular disease:
	The demonstration of the importance of atheromatous stenosis of the vertebral arteries by post-mortem dissection and histological study
	A pathological investigation into the significance of birth injury to the vertebral arteries in the newborn as a cause of cerebral palsy
	A pathological survey of cerebral atherosclerosis and its relationship to atherosclerosis elsewhere in the body

22. Obstetrics and Gynaecology

Professor W.I.C. Morris	The management of the pregnant diabetic
A.H.C. Walker	Liquor amnii and serological studies in the prediction of haemolytic disease of the newborn
F.A. Langley	Ovarian tumours: development of a register of ovarian tumours with the collaboration of pathologists in the Manchester Hospital Region
with R.F. Jennison	Study of perinatal pneumonia
H. Fox	Study of placental pathology
J. Cocker	

23. Occupational Health

Professor R.E. Lane, C.B.E., M.D.	
I. Dingwall-Fordyce (Miss)	Mortality in lead workers
W.R. Lee	Studies in electric shock
G. Atherley	Hearing changes in workers exposed to noise
M. Molyneux	Dust studies in cotton card rooms
E. King	Fibrogenic effects of various crystalline silicas and their modification by additives

24. Ophthalmology

O.M. Duthie, M.D.	Aetiology and treatment of uveitis and glaucoma
A. Stanworth, M.D. Ph.D.	Characteristics of fusion, depth perception and amblyopia in strabismus
E.J. Naylor, Ph.D.	
P.A. Graham	

25. Orthopaedics

H. Thompson	Results of fusion in treatment of spontaneous dislocation of the cervical spine in rheumatoid diseases
	Movements of the normal shoulder
I.J. MacQueen	Factors influencing the re-innervation of partially denervated skeletal muscle
K. Norcross	Natural history of osteitis deformans

26. Otolaryngology

Professor V.F. Lambert	Melanomata of the nasal passages
with B.Brown (Miss)	Interstitial radium treatment of vocal cord cancer
K. Harrison	Some causes of deafness in children
B. Brown (Miss)	Malignant tumours of the upper jaw
	Papillomata of the nose and air sinuses
D. Chadwick	Occupational deafness
	Noise in industry
R.D. Stride	Steroid therapy in allergic rhinitis: clinical trial
	Clinical trials in external otitis
	Investigation of recurrent laryngeal nerve paralysis
	Malignant granuloma

27. Paediatrics and Child Health

Professor W.F. Gaisford, M.D.	Studies with BCG tests and with lipopolysaccharides
	Maintenance of allergy: long term follow-up of infants
with G.V. Feldman	vaccinated with BCG at birth
*F.T. Perkins	Neonatal immunization with single and multiple antigens
	Attenuated poliomyelitis and measles vaccines in infancy
A.H.C. Walker	Heamolytic disease of the newborn: ante-natal prediction
R.J.Jennison, M.D.	and perinatal management.
A. Holzel, M.D.	Mechanism of allergic reactions in childhood
with V. Schwarz	Carbohydrate metabolism
	Aetiology of mucoviscidosis
G. Watson	Congenital heart disease
J.K. Steward, M.D.	The Children's Tumour Registry
V. Schwarz, Ph.D.	Further studies in galactosaemia: biochemical, genetic
with A. Holzel, M.D. G.M. Komrower	and clinical
F. Cavanagh (Mrs.)	Deafness in childhood
A.N. Guthkelch, M.D.	Late results of surgical treatment of hydrocephalus and spina bifida
J.B. Hartley, M.D.	Studies in tomography
H.A. Haxton, M.D.	Hypothermia and closure of atrial septal defects
A. Jolleys, M.D.	Sequelae of cleft palate
G.M. Komrower	Control of urinary infections in the first year of life
with W.I.C. Morris	Management of the "diabetic" baby
N. Gordon, M.D.	Studies in mental retardation with disturbed amino-acid metabolism
H.B. Marsden	Histopathological studies of neuroblastoma in relation to monoamine production
	Chromogenic mycobacterial infections
with Professor W.F. Gaisford, M.D.	Differential tuberculin testing in chromogenic infections

28. Pathology

Professor A.C.P. Campbell	Argentaffin and argyrophil cells
A.H. Gowenlock, Ph.D.	Biochemistry and chemical pathology of steroids
P.O. Yates, M.D.	Neuropathology
V. Schwarz, Ph.D.	Investigation of the effect of diet in lipid synthesis in the newborn
G. Williams, M.D.	Connective tissue metabolism

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

J.P. Smith, M.D.	Testicular tumours
	Reticuloses; cytology
A.M. Barlow, M.D.	Reticuloses; platelet function

Experimental:

PATERSON LABORATORIES, CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

J.W. Byron, Ph.D.	Study of the mechanism of radiation-induced cell death
L.G. Lajtha, M.D., D.Phil.	in mammalian cells
C. Lange	Exploration of the possibilities of extra-corporeal irradia-
A.W.H. Nias	tion of the peripheral blood
D.D. Porteous	
R. Schofield	

* M.R.C. staff

28. Pathology (*continued*)

Experimental (*continued*)

	Study of the kinetics of bone marrow stem cells
	Attempts to modify tissue proteins to produce auto-immune disease
	Kinetics and mechanism of transformation of lymphocytes produced by phytohaemagglutinin
	Quantitative autoradiography as a method of studying rates of metabolic processes at the cellular level
	Analysis of the mechanism of radiation effect on the process of DNA synthesis

29. Pharmacology

Professor A.D. Macdonald, M.D.	Studies on analgesics and anaesthetics
A.R. Hunter, M.D.	Studies on muscle relaxants in relation to anaesthesia
*H. Jackson, Ph.D.	Chemotherapy of malignant disease
	Therapeutic anti-fertility drugs
L. Wislicki, M.D.	Sympathomimetics and their blockade

PATERSON LABORATORIES, CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

*H. Jackson, Ph.D.	Carcinogenicity and mutagenicity of various alkylating agents
A.W. Craig, Ph.D.	
B.W. Fox, Ph.D.	Analysis of the genetic effects of selected alkylating agents in rats and mice
M. Partington (Miss), Ph.D.	Effects of alkylating agents on the developing foetal gonad
R.M.V. James	Synthesis of metabolic and biological study of new alkylating agents
B. Hemsworth	
	Structure versus activity relations using a series of sulphonated esters, ethylene imines and aliphatic nitrogen mustards
	Cumulative effects of di- and mono-functional sulphonic esters on different phases of spermatogenesis

30. Pharmacy

Professor K. Bullock, Ph.D.	Local anaesthetics
	Hydrolytic enzymes
	Antiseptics, fungistats and fungicides
J. Thomas, Ph.D.	Synthesis of certain quaternary compounds
C. Melville, Ph.D.	Infestation of vegetable drugs with special reference to mites
	Quality control of vegetable drugs
D.M .Bellis	Re-examination of the coumarin derivatives of certain plants with a view to establishing biosynthetic relationships
H.B. Woodhead	Pharmaceutical applications of vapour-phase chromatography
A. Tallentire, Ph.D.	Survival studies following exposure of micro-organisms to ionizing radiations
G.J. Rigby, Ph.D.	Viable counts of *Streptococcus*, *Staphylococcus* and *Bacillus* spp.
	The germicidal activity of formaldehyde and cationic germicides

*M.R.C. Staff

31. Physics

Experimental:

Professor E.B. Paul, Ph.D.	Nuclear structure; nuclear reactions
J.O. Newton, Ph.D.	
J.M. Calvert, Ph.D.	
I.S. Grant, Ph.D.	
A.A. Jaffe, Ph.D.	
W.R. Phillips, Ph.D.	
J.C. Lisle, Ph.D.	
R.J. Ellison, Ph.D.	
I.F. Wright, Ph.D.	
G. Nassibian	Heavy ion linear accelerator
D. Broadbent	
Professor H.E. Hall, Ph.D.	Solid state physics
E.B. Mendoza, Ph.D.	Low temperature physics
D.J. Sandiford, Ph.D.	
A.J.F. Boyle, Ph.D.	Mössbauer effect
D.St.P. Bunbury, Ph.D.	
H.J.J. Braddick, Ph.D.	Optical instrument development
J.F. James, Ph.D.	
J.B. Birks, Ph.D.	Physics of organic molecules and crystals
N.J. Dunning	
N.H. Johannesen, Dr. Techn.	Experimental fluid mechanics
H.K. Zienkiewicz	
J.H. Gerrard, Ph.D.	
I.M. Hall, Ph.D.	

Medical:

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C.W. Gilbert, Ph.D.	4 MeV pulsed electron beam studies of primary radiation chemical reactions
J.P. Keene, Ph.D.	
J. Law, Ph.D.	Statistical studies of grain count distributions on autoradiographs over individual cells or chromosomes
	Chemical and biological effects of both positive and negative small ions
	Calorimetric investigation of the G value of ferrous sulphate for Co^{60} radiation

Theoretical:

Professor B.H. Flowers, D.Sc., F.R.S. with A.R. Bodmer, Ph.D. S.F. Edwards, Ph.D. L.J.B. Goldfarb, Ph.D. F. Mandl, D.Phil. A. Herzenberg, Ph.D. J. Murphy	Quantum theory of fields; nuclear reactions and the structure of atomic nuclei; meson physics; statistical mechanics, theory of ionized gases; transport properties of metals and of liquids; atomic and molecular physics

32. Physiology

Professor W. Schlapp	Physiology of the spinal cord
F.B. Beswick	
L.P. Kendal, Ph.D.	Metabolism of alcohols
J.N. Mills, M.D.	Human respiration
	Human renal function

33. Psychiatry

Professor E.W. Anderson	The psychiatric indications for the artificial termination of pregnancy and the psychiatric aspects of abortion
with J.C. Kenna	The psychopathology of memory
J.C. Kenna	History of British psychology, 1875–1950
J. Hoenig	A demographic psychiatric study
G.F. Reed	Laterality. Satiation and "un-learning"
J.C. Kenna	Sensory deprivation
G.F. Reed	

34. Psychology

Professor J. Cohen, Ph.D.	Experimental and developmental studies of psychological probability
	Psychogenesis of concept of time
with P. Cooper	Experiments on credibility, subjective units of information and interrelationships between apparent time, distance and speed
F.E. MacNeill (Miss), Ph.D.	Range of sensory choice in personality development
	A new adult projective test series
C.E.M. Hansel	Central mechanisms in the perception of colour and form
J. Morris, Ph.D.	Executive selection procedures
	Education for family life
R.R. Skemp, Ph.D.	Reflective intelligence
	Psychological assessment of handicapped children
	Psychological basis of learning mathematics
	Schematic learning
E.E. Rump	A study of blaming; perception of shape
E.J. Dearnaley	The subjective future
	Studies in the psychology of aviation
A.H. Gregory	Experiments on how far the efficiency of the eye is limited by quantum fluctuations of light at low luminances

35. Public Health and Social Medicine

Professor C.F. Brockington, M.D.	A follow-up of premature infants
	A study of the status of the student's father (1957) in relation to educational progress
	Studies into the history of English public health
	Final analysis of Stockport Survey of the Aged
A. Kushlick	Epidemiology of mental subnormality
with J.E. Leeson (Mrs.)	Selection for and working of a psychotherapeutic club
R.J. Frankenberg, Ph.D.	Epidemiology of accidents in school children
J.E. Leeson (Mrs.)	Study of the use of a questionnaire for assessing the health of school children and of the relationship between health and social factors in children
S.M. Lempert (Mrs.)	Study of the case load at the Darbishire House Health Centre
	Final analysis of Stockport Survey of the Aged
R.F.L. Logan, M.D.	*Occupational studies in medical care in hospital and general practice
M.W. Susser with Z. Stein (Miss)	Social and epidemiological studies of mental subnormality; mental illness; enuresis; the health of school children; peptic ulcers

*Supported by the Nuffield Provincial Hospitals Trust.

36. Radiobiology

PATERSON LABORATORIES, CHRISTIE HOSPITAL AND HOLT RADIUM RESEARCH INSTITUTE

M.V. Haigh (Mrs.)	Study of the effect of inert and anaesthetic gases on oxygen-dependent radiosensitivity
A. Howard (Mrs.), Ph.D.	Exploration of the use of green filamentous algae as radiobiological material
	Effect of irradiation on the mitotic cycle in plant and animal cells

37. Radiotherapy

CHRISTIE HOSPITAL AND HOLT RADIUM RESEARCH INSTITUTE

E.C. Easson, M.D.	Clinical radiotherapy
J.L. Dobbie	Series of clinical trials
H.C. Warrington	Development of isotope therapy (including therapy for hyperthyroidism)
R. Gibb	
M. Cole (Miss), M.D.	Megavoltage studies
R.C.S. Pointon	Development of techniques for malignant disease in children
E. Sherrah-Davies	
K.E. Halnan, M.D.	Chemotherapy of the reticuloses and malignant disease
J.G. Stewart	Hormone therapy and endocrine procedures for breast cancer
K.S. Holmes	

38. Rheumatism Research

Professor J.H. Kellgren	The definition and classification of rheumatic diseases in terms of abnormal connective tissue processes; controlled therapeutic trials
M.R. Jeffrey, M.D.	
A.J. Popert	
J. Ball, M.D.	Histological and serological studies in rheumatic diseases, and bone and joint pathology
C.H. Wynn, Ph.D.	Enzyme systems of connective tissue metabolism
J.A. Chapman, Ph.D.	Biophysical studies of connective tissue and other biological material
J.S. Lawrence, M.D.	Field studies of the prevalence of the various rheumatic diseases in population groups

39. Statistics

Mathematical:

Professor P. Whittle, Ph.D.	Stochastic processes and statistical inference
S.D. Silvey, Ph.D.	Estimation and hypothesis testing
M.B. Priestley, Ph.D.	Stochastic processes

40. Surgery

Professor A.M. Boyd	Clinical study of peripheral vascular disease in all its aspects
A.G. Riddell, M.B.E.	Clinical study of portal hypertension
	Biochemistry of hepatic coma
	Physiological studies of the isolated liver
	The evaluation of heart/lung machines
	Extra-corporeal perfusion of tumours with chemotherapeutic agents

41. Zoology

Professor R. Dennell, D.Sc.	Functional morphology of the Crustacea
	Arthropodan cuticle
J.G. Blower	Soil faunal studies; ecology and systematics of Myriapoda
E.J. Popham, Ph.D., D.Sc.	Biology of aquatic insects

41. Zoology (*continued*)

E.J. Iles, Ph.D.	Taxonomy of Ostracoda
J.H. Kennaugh	Neurosecretion in insects
M.P. Thomas, Ph.D.	Freshwater plankton
M.E.G. Evans, Ph.D.	Biology of Coleoptera
P.D. Gabbutt Ph.D.	Ecology of spiders and false scorpions Distribution of fleas on arct c mammals
R.R. Askew, Ph.D.	Biology and taxonomy of Chalcidoidea
R.J. Wood, Ph.D.	Mosquito biology and genetics; insects of medical importance
THE MUSEUM	
E.L. Seyd	Systematic studies of montane forms of Oribatei (moss mites) in Britain Systematic study of the Oribatei of Rostherne, Cheshire
A. Brindle	Taxonomic studies on the immature stages of British Diptera and Trichoptera

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1. Biochemistry

Professor A.A. Eddy, D.Phil.	Cell structure and transport processes
K.J. Indge	Metabolism in micro-organisms
P. McIntosh (Miss)	
J. Carnie, Ph.D.	Immunochemical approaches to transport problems
A.N. Hall, Ph.D.	Metabolism in micro-organisms
B. Hodgson, Ph.D.	Bacterial metabolism and composition
E.V. Rowsell, Ph.D.	Amino-acid metabolism in animals Proteolytic enzymes in plants
A. Dalby, Ph.D.	Biochemical changes underlying morphogenesis Fibrinolytic system of blood

2. Building Studies

Professor D. Harper, Ph.D.	Structure of the building industry
J.R.A. McDonald	Noise surveys in urban areas
C.H. Garrett	Study of regional climatology in relation to building
R.A. Burgess	Design of building elements in relation to site productivity
T. Hesp	Incidence of timber destroying agents in municipal housing in the Manchester area Effect on the strength of Red Deal of pressure impregnation treatment using chemical preservative at varying retentions
V.C. Barnes	Long-period measurement of temperatures in beams and floors of a reinforced concrete building
R. Dilworth	Comparative analysis of claddings
T.A. Harwood	Study of changes required in methods of preparation of quantities for building work consequent upon decimalization
J.W. Simpson	Measurements of thermal transmittances of brick walling of various types including V brick construction

3. Chemistry

Inorganic and Physical:

Professor R. N. Haszeldine, Ph.D., D.Sc., Sc.D.	Hydride chemistry Organo-metallic and organo-metalloidal compounds Inorganic chemistry of strong acids Inorganic polymers Polymers containing Si, P, B, N, O as hetero-atoms Metal carbonyls

3. Chemistry (*continued*)

Inorganic and Physical (*continued*)

S.M. Neale, D.Sc.	High-frequency dispersion of dielectric absorption in polyelectrolytes and in the double layer
H.M.E. Steiner, Ph.D. D.Phil.	Kinetics of homogenous gas reactions Mechanism of catalysis on oxide contacts Structure of oxide catalysts Liquid phase oxidation of hydrocarbons Polymerization of olefins on metal oxide catalysts
A.F.H. Ward, Ph.D.	Rheology of systems containing polymers
G.W.R. Bartindale, D.Phil.	Molecular structures by X-ray diffraction
M.M. Crowder	Reactions of co-ordination compounds in solution
A.S. Dunn, Ph.D.	Kinetics of addition and condensation polymerization reactions Molecular weight distribution Emulsion polymerization
G.S. Heaton, Ph.D.	Kinetics and mechanism of reactions in solution
R.B. Heslop	Peroxo compounds of phosphorus and sulphur Radiochemical studies of solubility
J.A. Hockey, Ph.D.	Wetting calorimetry Surface chemistry of oxides
G.J. Kakabadse, Dr.Ing.	Specificity of analytical reactions Chemistry of vanadium Persilicates Ferrous hydroxo complexes Rapid methods of organic microanalysis
M.F. Lappert, D.Sc., Ph.D.	Organo-boron and other electron-deficient compounds; co-ordination compounds; inorganic polymers; inorganic boron compounds Pseudohalides; organo-tin compounds
J. Lee, Ph.D.	High-resolution nuclear magnetic resonance Use of electronic digital computers in physicochemical calculations
G.J. Leigh, Ph.D.	Non-transitional element complexes Mechanism of the reduction of titanium compounds
A.B.P. Lever, Ph.D.	Co-ordination chemistry Magnetism and spectra
A.O. McDougall, D.Phil.	Equilibria in solution
M.J. Newlands, Ph.D.	Organo-metallic chemistry of group IVB elements Transition element complexes Metal carbonyls
J.B. Pedley, Ph.D.	Development of a vacuum-jacketed anaeroid bomb calorimeter Semi-empirical calculations on: (i) electronegativities of hybrid atomic orbitals; (ii) development of an equation, relating the heats of formation of simple molecules and radicals to the hybrid characters of the bonds
P.J. Robinson	Kinetics of gas-phase decomposition reactions
R.D. Sedgwick, Ph.D.	Mass spectrometry Ion-molecule reactions
R.F. Simmons, Ph.D.	Kinetics of gas-phase decomposition reactions Mechanism of the extinction of flames by halogens Kinetics of combustion reactions
S. Smith, D.Phil.	Polymer chemistry Co-polymerization
P.J.T. Tait, Ph.D.	Kinetics of stereo-specific polymerization Co-polymerization Thermodynamic studies on crystalline polymers

3. Chemistry (*continued*)

Organic:

Professor R.N. Haszeldine, Ph.D., D.Sc., Sc.D.	Fluorocarbon derivatives and reactions Silicones and polysiloxanes Hydride chemistry Polymers containing hetero-atoms Organic sulphur compounds Carbene reactions Polyhalogeno-aromatic compounds Infra-red spectra of aliphatic compounds Polymerization mechanism Organic compounds of nitrogen Plastics and polymers Organo-metallic and organo-metalloidal compounds Chemistry of strong acids Mechanism of the oxo reaction Phosphorus chemistry
G. Baddeley, D.Sc., Ph.D.	Effects of molecular conformation and configuration on chemical reactivity Aluminium chloride as a reagent in organic chemistry Chemical consequences of the association of molecules Cationic attack on alkanes Nitro compounds as agents of dehydrogenation
R.E. Banks, Ph.D.	Fluorine chemistry
J.M. Birchall, Ph.D.	Diphenylamine chemistry Free radical chemistry Fluorine chemistry
R.S.W. Braithwaite, Ph.D.	Polycyclic cinnoline derivatives Tautomeric arylazo derivatives of cyclic ketones
P.C. Crofts, Ph.D.	Organic chemistry of phosphorus
R. Fields, Ph.D.	Fluorine chemistry
W.T. Flowers	Fluorine-containing polymers
M.S. Gibson, D.Phil.	Natural products (alicyclic) Halogenated organic compounds Reaction mechanisms
M. Green, Ph.D.	Polyfluoroalkyl phosphorus chemistry Optically active phosphorus compounds Organic chemistry of transition metals Mechanisms of reactions of phosphorus compounds
G. Holt, Ph.D.	Action of Friedel-Crafts catalysts on aromatic sulphonic acids and derivatives Studies on aliphatic diazo compounds Synthesis of polymers from benzene-type intermediates
A.W. Murray, Ph.D.	Natural products Heterocyclic chemistry Reaction mechanisms
N.H.P. Smith, Ph.D.	Effects of molecular conformation on physical and chemical properties of organic compounds Use of polyphosphoric acid in organic synthesis
D.R. Taylor	Organic fluorine compounds
D.W. Theobald, D.Phil.	Natural products Philosophy of science
A.R. Thompson, Ph.D.	Phenol-formaldehyde condensation products Infra-red spectra of aromatic compounds Light absorption of organic compounds Effect of hydrogen bond formation on electronic spectra Colour filters Azoic and anthraquinone dyes
A.E. Tipping	Free radical studies

4. Engineering

Chemical:

Professor F. Morton, Ph.D., D.Sc.	
with H. Holness	Oxidation of transformer oils
P.J. King, Ph.D.	Separation of complex hydrocarbon mixtures
A. Sagarra, Ph.D.	Constitution of mineral oils
T.K. Ross, Ph.D., D.Sc.	Corrosion of magnesium-sprayed steel
	Polarization of sprayed aluminium
	Corrosion due to combustion of hydrocarbons
	Velocity effects in submerged corrosion
	Adsorption inhibition of corrosion
	Cathodic protection in flowing systems
	Zinc-rich coatings on steel
	Anodic passivation of iron
	The melting of solids
	Diffusion-controlled reactions on catalysts
	Determination of diffusion in flow systems
	Stability of liquid films in adsorption columns, distillation columns and on heated surfaces
	Distillation in packed columns
	Distribution studies in packed towers
with A. Rushton	Heat transfer in sublimation
H. Holness with R.W. Adams	Hydrolysis of some metallic compounds
F.P. Stainthorp, Ph.D.	Thickness and wave profile of liquid films
	Dynamic response of fractionating columns
	Dynamic response of multi-pass heat exchangers
	Non-linear control systems with load changes
with G.T. Clegg	Frequency response determinations of flow distributions and physical structures
I.A. Menzies, Ph.D.	Oxidation of metals and ceramics
	Coatings for reactive metals
	Behaviour of metals in non-aqueous solutions
	Preparation and properties of diffusion coatings
G.C. Wood, Ph.D.	Mechanism of alloy oxidation
	Electron-probe microanalysis of oxide scales
	Properties of anodized aluminium
	Corrosion of aluminium and its alloys
	Passivation of iron-carbon and iron-chromium alloys
	Influence of metal defect structure on dissolution
C.A. Curtis, D.Sc.	The effect of agitation on heterogeneous liquid-liquid reaction rates
D.B. Scully, Ph.D.	Vibrations of naphthalene
	Use of digital computers in chemical engineering calculations

Electrical:

Professor C. Adamson, D.Sc.	Analogue computers for the solution of several mathematical and technological problems
Professor E.H. Rhoderick, Ph.D.	Commutation studies
N.N. Hancock, Ph.D.	Network synthesis
V.H. Attree	X-ray detection
N.M. Barratt	High-voltage direct current studies: system protection and control
B.D. Nellist, Ph.D.	General study of a.c.-d.c. interconnected systems
J. Rawcliffe	Protective gear studies; semiconductor relays; development of a generalized theory of protective relaying
C.S. Gledhill	
B. Horsley	Power system analysis and control problems
F. Walker, Ph.D.	Two- and four-port networks as very high frequency filters

4. Engineering (*continued*)

Electrical (*continued*)

E. Kuffel, Ph.D.	Transistor devices
M.G. Hartley	Chain codes
A.G. Heaton	Microwave discharges; microwave plasma studies
J. Reeve	Helical aerials
J.B. Knowles, Ph.D.	Adaptive control; digital control systems
G.F.A. Hoffmann de Visme	A.C. modulated control systems
	Radio and television interference problems from high-voltage insulators
W.D. Humpage	
M.M.Z. El-Kharadly, Ph.D.	Compensating networks for a.c. systems
	A.C. rotary transducers
A.J. Wright	Control of steam generating plant
A.E. Efthymiadis	Moulded insulation
D.C. Barker	Measurement of microwave power
D.R. Wilson	Digital processes for traffic control
M.J. Billings	Development of torque-balance instruments
H.D. McKell	Measurement of small temperature differences
	Measurement of errors in instrument transformers
	Developments of the oscillating-electrode voltmeter
	High density current plasma studies
	Ultra-corona discharges
	Time lag studies in electronegative gases
	General semiconductor studies, including diffusion in semiconductors and piezo-electric properties of semi-conductors
	Practical applications of superconductivity

Mechanical:

Professor W. Johnson, D.Sc.	Explosive stretch forming, and possible application of a shock tube to metal forming
Professor F. Koenigsberger, D.Sc.	Indentation and cutting mechanics
	Plastic bending and low cycle fatigue
Professor R.S. Benson, Ph.D.	Study of extrusion of rod and sheet
	Measurement of cutting forces during milling operations under various cutting conditions
J.H. Lamble, D.Sc.	
G.S. Cantle, Ph.D.	Investigations into the wear of turning tools and milling cutters
A.P. Hatton, Ph.D.	
G.R. Schiffer	Use of different measuring systems for machine tool positioning and control
J. Parker, Ph.D.	
J.K. Royle, Ph.D.	Rigidity characteristics of welded machine tool structures by models and full scale experiments
J. Kettlewell, Ph.D.	
B.J. Fielding	Servo problems in the positioning and control of machine tool slides
M. Barash, Ph.D.	
J. Skorecki, Ph.D.	Residual stresses and dimensional stability of welded machine tool structures
H.J. Baker	
R. Kitching	Effect of non-load carrying welds on the fatigue strength of plate materials
I.S. Donaldson, Ph.D.	
R. Bell	Machine tool misalignment and the accuracy of a diffraction grating measuring system
R.H. Thornley	
G. Needham	Stresses, deflections and support reactions for flat plates subjected to uniformly varying hydrostatic loading and to rolling loads
M.J. Hillier	
F.W. Travis	
J.L. Duncan	Relation of parts of the S/N curve in fatigue with tests.
	Mechanics of the sandwich method
	Stresses at a branch or nozzle in a thick cylinder subject to internal pressure
	Membrane stresses in flat plates subject to uniform and uniformly varying hydrostatic loading
	A study of the scarphed joint
	Stresses in thin-walled cylinders with large openings under bending and torsion

4. Engineering (*continued*)

Mechanical (*continued*)

Professor W. Johnson, D.Sc.	Stress distribution in an extrusion container
	A study of breaking discs
Professor F. Koenigsberger, D.Sc.	Measurement of heat transfer coefficient on smooth and rough flat plates by velocity and temperature surveys in the boundary layer
Professor R.S Benson, Ph.D.	Use of computers in solving heat transfer with laminar and turbulent flow in ducts
J.H. Lamble, D.Sc.	Velocity temperature and eddy diffusitivity variation in a smooth annulus
G.S. Cantle, Ph.D.	Behaviour of metals under complex stress conditions beyond the elastic limit
A.P. Hatton, Ph.D.	Non-linear damping of a hydraulic control
G.R. Schiffer	Feedback control on hydrostatic film bearings
J. Parker, Ph.D.	Stiffness improvement in high gain electrohydraulic drives
J.K. Royle, Ph.D.	Selective non-linear effects for improving hydraulic control systems
J. Kettlewell, Ph.D.	Mechanical properties of spark-eroded surfaces
B.J. Fielding	Erosion properties of high power sparks
M. Barash, Ph.D.	Study of a rolling process.
J. Skorecki, Ph.D.	Vibration of prime movers (diesel engines)
H.J. Baker	Vibration of machine tools
R. Kitching	Investigation of the effect of different rates of strain-hardening on the machining process
I.S. Donaldson, Ph.D.	On the transition from a continuous chip to a discontinuous chip, and the influence on the geometrical and physical properties of the machined surface
R. Bell	The influence of starting conditions on the steady cutting state
R.H. Thornley	Restricted tool chip contact cutting experiments: (i) at low speeds using photographic techniques (ii) at high speeds
G. Needham	Shear angle analysis comparison of theory with experiment
M.J. Hillier	Rate of wear and change in frictional forces in simple three-point sliding contacts
F.W. Travis	Admission of a cutting fluid to the chip-tool contact region
J.L. Duncan	Skirt units for ground effect machines
	Flexibility of and stresses in fabricated pipe bend
	Stress distribution around forged nozzles in pressure vessels
	Multi-metal strips under uniform heating with special reference to thermostats
	Influence of production techniques for surface finish on the fatigue life of a mild steel
	Vibration of grinding machines
	Transient gas flow in internal combustion engine exhaust systems
	Unsteady flow in pipes with restrictions
	Plastic instability in tension
	Slip-line fields in plane plastic flow
	Thermodynamics of two-plane fluid flow
	Theory of form grinding
	Thermal stresses due to nuclear heating

4. Engineering (*continued*)

Municipal:

Professor J.R.D. Francis	Generation of waves by wind on the sea; development of improved dredging equipment
G.B. Tait	Astronomical surveying: application of radio time signals; automatic recording of altitudes; devices to eliminate personal error of observation; design of registering chronometer
E. Spencer	Nature of the flow of sand beneath model foundations; bearing capacity of model foundations
J.B. White	Probability methods applied to reservoir storage Vortex drops and bellmouth spillways
P. Coackley, Ph.D.	Fundamental study of sludge solids-water relationships Recovery of nutrients from sewage effluents Corrosion of reinforcement in concrete
J.C. Collins	Deposition of radioisotopes on natural sediments; use of radioisotopes as tracers of liquid flow Disposal of radioactive wastes
G.M. Bish	Permeability of soils
F.T. Howell	Some aspects of the preglacial surface of parts of N.W. England

Structural:

Professor W. Merchant S.S. Gill, Ph.D. S.J. McMinn, Ph.D. R.B.L. Smith D.M. Brotton, Ph.D. F.N. Pannell N.W. Williamson, Ph.D. J.F. Dooley J.L. Robinson	Investigation of the elastic, plastic and stability phenomena of structures, reinforced and prestressed concrete; application of digital computers to structural problems, especially to frameworks and suspension bridges; pressure vessels

5. Industrial Administration

Professor R.W. Revans, Ph.D.	Comparative study of the length of patient stay in different hospitals
J.C. Beresford	Wastage of nurses and other hospital staff
J.E. Macdonald	Study of the problems of communication and control within hospitals
J.W. Wright	Comparative study of urban transport costs and capacities Optimization of farm output by linear programming methods Use of exponential smoothing techniques for forecasting stock values on a computer Use of simulation techniques and computers in transport planning
J. Butterworth	Incentive schemes and motivation Study of the social consequences of the Cotton Industry Act, 1959 Study of the effectiveness of job evaluation and wage incentive schemes Examination of Trade Union attitudes towards work study Shop floor interpretation of engineering design without recourse to measured or detailed drawings

5. Industrial Administration *(continued)*

P.L. Smith	Measurement and analysis of supervisory attitudes Study of decentralization in financial administration Appreciation by management of the significance of sociological and related ideas The relation of a field manager in Lancashire to the headquarters organization in London A field study of the needs of Ghana for administrative and managerial talent Teaching of managerial control in the universities of Europe An examination of the control of materials used in a firm of medium size
A. Roberts, Ph.D.	The validity of gaming as a technique for training managers

6. Mathematics

Professor G.J. Kynch	Rheological and sedimentation problems Stress waves Kinetic theory of ionized gases Finite difference calculus Applications of statistics Statistical thermodynamics of colloid and co-operative systems
R.K. Bullough, Ph.D.	Theory of high polymers: light scattering; uniqueness of crystal structures
R. Butler, Ph.D.	Hydraulic servomechanism theory; numerical analysis
W.M. Fairbairn, Ph.D.	Theoretical nuclear physics: co-operative systems
F. Foster, Ph.D.	Harmonic analysis
G. Kovacs, Ph.D.	Group theory
A.S. Lodge, Ph.D.	Theoretical and experimental rheology of concentrated polymer solutions
H. Neumann (Mrs.), Ph.D., D.Sc.	Group theory; foundations of geometry
J.A.H. Shepperd, Ph.D.	Group theory
H.B. Shutrick, Ph.D.	Differential geometry
J. Wiegold, Ph.D.	Group theory
R.A. James	Theoretical astronomy
A. Davis, Ph.D.	Kinetic theory
P.A. Wallington	Statistical theory of queries
G.F. Roach	Binary systems: theoretical astronomy
B.D. Sharp (Mrs.),Ph.D.	Hydrodynamics
A.T. Amos, Ph.D.	Quantum theory of atoms and molecules

7. Metallurgy

Professor K.M. Entwistle, Ph.D.	Internal friction of quench-ageing alloys Vacancy-solute atom interaction in aluminium alloys Magneto-elastic damping Changes of damping during fatigue stressing
H.J. Bray, Ph.D.	The removal of phosphorus and sulphur from certain metals by electrolysis of fused slag Fibre metallurgy Metallographic, dilatometric, thermal and X-ray study of the ternary system Al–Cd–Sn Study of the ternary system Mg–Mn–Zr Effect of surfaces and substrate on the formation of wear particles

7. Metallurgy (*continued*)

P.E. Evans, Ph.D.	Investigation of fine structure by replica and thin film electron microscopy
	Arc-image furnace as a research instrument
	Structure and properties of certain oxides, nitrides and borides
	Control of grain growth in metals and ceramics
	Continuous roll compaction of powders
W.J. Kitchingman, Ph.D.	X-ray diffraction studies of the effects of deformation, phase transformations and structures of metals and alloys
	Electrical resistivity and dilatometric studies of phase transformations in metals and alloys
	Mechanisms and kinetics of phase transformations in β-phase alloys of silver and gold
	Mechanism and kinetics of the $\beta \rightarrow \alpha$ transformation in dilute uranium alloys
R. Rolls	Scaling and hot workability of steels

8. Physics

Professor H. Lipson, F.R.S.	X-ray diffraction, particularly crystal structure determination by optical diffraction methods
C.A. Taylor, D.Sc., Ph.D.	Crystal structure determination by optical methods
	Physical optics of the image formation
A. Hargreaves, Ph.D.	Crystal structure determination
E. Stanley, Ph.D.	
I.G. Edmunds, Ph.D.	
R. Diamond, Ph.D.	Crystal structure determination by direct methods
	Electron deffraction
H. Steeple, Ph.D.	Crystal structures at low temperatures
	Calorimetry at low temperatures
F. Fowweather, Ph.D.	Room acoustics and noise
M.M. Woolfson, D.Sc., Ph.D.	Crystal structure determination by direct methods
	Origin of solar system
J.E. Geake, Ph.D.	Instrumentation, particularly photoelectric spectrophotometry
	Organic and mineral luminescence spectroscopy
J. Latham, Ph.D.	Thunderstorm electrification

9. Technology

Textile Chemistry and Paper Technology:

Professor R.H. Peters	Preparation and study of block copolymers with particular reference to their dyeing properties
	Dyeing theory studies
	Studies in diffusion
	Reaction mechanism in cross-linked polymers
H.A. Turner	Fundamental processes of textile printing, with special reference to dye transfer and discharge processes
F. Lyth Hudson, Ph.D.	Physical properties of cellulosic fibres and paper under various conditions of humidity and temperature
	Radioactive tracers in paper: investigations of the sorption of sulphur dioxide by paper in relation to its permanence
	Cross-linking of paper-making fibres
	Drainage characteristics of paper suspensions
	Effect of splitting of printing ink films on paper properties
G.S. Egerton, Ph.D.	Photochemistry of azobenzene and its derivatives and of amino-anthraquinone compounds
	Action of light on dyes and textile fibres
	Physicochemical changes in dye high-polymer systems

9. Technology (*continued*)

Textile Chemistry and Paper Technology (*continued*)

W.G. Harland, Ph.D.	Application of network theory to the cross-linking of cellulose Effect of cross-linking on the mechanical properties of cellulose monofilaments
G.J. Howard, Ph.D.	Cross-linking of polymers Solution properties of polymers Adsorption of polymers from solution Polyesterification
A. Johnson, Ph.D.	Chemistry of esters of leuco vat dyes Heats of dyeing reactions Studies with synthetic polypeptides Reactivity of chlorinated Nheterocycles Dyeing with mixtures of dyes
R. McGregor, Ph.D.	The mechanisms involved in the diffusion of dyestuffs in polymers
L.W.C. Miles, Ph.D.	A study of the effect of migration in drying of crease-resist resins
R.I.C. Michie, Ph.D.	Studies of non-woven fabrics
T.P. Nevell, Ph.D.	Reactions of cellulose
L.C. Spark, Ph.D.	Heats of dyeing reactions Colorimetric studies on dyeing and printing systems
R.F.T. Stepto, Ph.D.	Cross-linking of polymers Solution properties of polymers Diffusion
L.A. Kirk	Heat and mass transfer in fluidized beds Application of computers to automatic control problems in paper making Drainage characterisitics of paper suspensions
J.D. Peel	Studies on the compressibility of paper and of the super-calendering process
A.B. Truman, Ph.D.	Rheology of paper in the printing process Examination of the bonded structure of paper using microscopic techniques
J.H. Young	Constituents of natural cellulosic fibrous raw materials and their reactions during the isolation of cellulose by industrial pulping processes Measurement of physical properties of papermaking fibres and the effect of bonding treatment on them Measurements of properties of paper sheets which affect behaviour during printing operations and the effect of variations in these properties on the quality of the printed reproduction
J.R. Aspland	Reactions of halogenated water soluble heterocyclic compounds with hydroxyl and alcoholate ions

Textile Technology:

Professor J.J. Vincent	Weft insertion
Professor W.E. Morton	Rectilinear comber design
G.E. Cusick	Fabric drape and the factors governing it Thermoplastic fibres
J.W.S. Hearle, Ph.D.	Structure and physical properties of textile fibres and yarns. Non-woven fabrics
J.S. Taylor	Distribution of fibre mass in carding Cause of carding sliver Long wave irregularity
G.R. Wray	Drafting behaviour of various fibre assemblies Textures filament yarns

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1. Agriculture

Professor J.D. Ivins, Ph.D.	Evaluation of grass production techniques in terms of animal production
	The utilization of herbage by the grazing animal
	Developmental studies of herbage plants
with N. McDermott (Mrs.), M.B.E.	Factors affecting yield of potato crop
P.M. Bremner	Growth analysis and yields of cereals, sugar beet and potatoes
G.E. Lamming, Ph.D.	Factors affecting the reproductive activity of sheep
	Effect of ovarian hormones on resistance to genital infections
	Effect of steroid hormones on growth rate and carcase quality in ruminants
G.A. Lodge, Ph.D.	Nutrition of the breeding sow during pregnancy and lactation
	Nutrition of the bacon pig
C.G. Payne, Ph.D.	Environment, nutrition and growth rate in poultry
J. Chatterton	Crop drying

Agricultural Botany:

Professor F.L. Milthorpe, Ph.D.	The growth of leaves
	Growth of the potato
	Factors influencing the transpiration rate
	Host-pathogen relationships
M.M. Edwards (Miss), Ph.D.	The germination of seeds of charlock, *Sinapis arvensis*
K.W. Dent, Ph.D.	Competition between grasses
B.G. Lewis	Host-pathogen relationships
	Competition between soil fungi
W.J. Whittington, Ph.D.	Cytology and growth characteristics of *Festulolium loliaceum* (Huds.)
	Genetic control of leaf growth
	Physiological role of boron

Agricultural Chemistry:

Professor E.G. Hallsworth	Studies on pedogenesis
	Soil structure in relation to nutrient movement
	Biochemistry and nutrition of Leguminosae
	Aluminium and plant growth
D.V. Crawford, Ph.D.	Biological aspects of podzolization
G. Norton, Ph.D.	Aluminium and plant growth
	Biochemistry of tuber formation in potatoes
P.E. Cansfield	Studies in the nutrition and biochemistry of the Leguminosae
I.R. Cowan	Heat and moisture movement in soils
	Micrometeorology
I.F. Taylor	X-ray mineralogy of soils
D. Lewis, Ph.D.	Nutrition of pigs: definition of dietary allowances; protein and energy relationships; amino-acid requirements; digestibility of fats
	Nutrition of poultry: metabolism of arginine and dietary requirements for arginine; examination of consequences of amino-acid imbalance; bio-assay of amino-acids; pigmentation of eggs; protein and energy relationships
E.R. Ling, Ph.D.	Chemical nature of the caseinate-phosphate complex of milk

1. Agriculture (*continued*)

Agricultural Economics:

Professor D.K. Britton	Incidence and spread of long-term changes in British agriculture
R.B. Jones	Problems of farm classification Economics of large scale farming
K.A. Ingersent	Response of potato acreage to price changes Impact of irrigation on potato production in Britain
G.E. Jones	Factors affecting the adoption of new farm practices
T.K. Warley	Economics of scale and location in egg packing plants
W.S. Senior	Economics of scale in commercial egg production under various systems of management
M.E. Daw	Scope for profitable changes in enterprise combinations on Nottinghamshire farms

Agricultural Microbiology:

M. Woodbine, Ph.D. A. Seaman, Ph.D.	Mass production of micro-organisms, with reference to their production of fat or protein Bacteriology and chemotherapy of the Corynebacteriaceae Microbiology of sub-lethal heating Bacteriology of *Rhizobium* spp.

Agricultural Zoology:

P.W. Murphy, D.Phil.	The fauna of leaf litter and studies of the habits and activities of soil-inhabiting mites (Acarina) and microarthropods Soil animals as indicators of site conditions; biological characterization of "humus forms" with particular reference to the animal component The oribatid mites associated with fruit trees

2. Botany

Professor C.G.C. Chesters	Soil microbiology, with special reference to rhizosphere studies and the biology of soil-inhabiting fungi Taxonomy and physiology of bark-inhabiting Ascomycetes Microbiological decomposition of seaweed products Physiology of fungi with special reference to fungal enzyme systems Certain aspects of forest pathology
M. Turner (Mrs.)	Bacterial populations of estuarine salt marsh muds Classification and biology of species of *Mortierella*
G.J.F. Pugh, Ph.D.	Studies of the rhizosphere populations of salt marsh plants
M.C. Pearson, Ph.D.	Ecology of *Hippophae rhamnoides* Study of Pleistocene deposits of the Trent Valley
W.D. Connell	Germination in relation to dormancy
E.C.D. Cocking, Ph.D.	Biochemical and immunological aspects of growth and development with special reference to plant cells
G.E. Mathison, Ph.D.	Biology of keratinophilic fungi Fungi as allergens
W.D.P. Stewart, Ph.D.	Physiology and taxonomy of marine blue-green algae
G.N. Greenhalgh	Biology and taxonomy of fungi, especially Pyrenomycetes

3. Chemistry

Inorganic:

Professor C.C. Addison	Structure of metallic complexes; inorganic molecular addition compounds
W.E. Addison, Ph.D.	Preparation, properties and X-ray study of metal nitrates
D.G. Tuck, Ph.D.	Properties of freshly formed surfaces
N. Logan, Ph.D.	Physicochemical properties of liquid metals and alloys
K.M. MacKay, Ph.D.	Reactions in non-aqueous solvent systems
B. Sowerby, Ph.D.	Mineral silicates
M.J. Dove, Ph.D.	Applications of radioactive tracers
D. Sutton	Studies of solvent extraction processes
	Fluorine chemistry

Organic:

Professor A.W. Johnson, Ph.D., Sc.D.	Investigations on natural products, especially mould metabolites and compounds related to vitamin B_{12}
B.D. Shaw, Ph.D.	The chemistry of plant growth substances
J.C. Roberts, Ph.D.	Structural studies on di- and tri-terpenes
T.J. King, D.Phil.	Extractives of resistant hardwoods
C.J. Timmons, Ph.D.	Studies of the spectroscopy of organic compounds
H. Booth, Ph.D.	Investigations of certain classes of nitrogenous heterocyclic compounds
E. Bullock, Ph.D.	

Physical:

Professor D.D. Eley, O.B.E.	Catalysis chemisorption and solid state physical chemistry of metals, metal oxides, polymers and enzymes
S.C. Wallwork, D.Phil.	Organic semiconductors
R.B. Cundall, Ph.D.	Monolayer and multilayer studies
G.D. Parfitt, Ph.D.	Ionic polymerization
R. Rudham, Ph.D.	Homogeneous gas kinetics
M.R. Willis, Ph.D.	Colloid chemistry of organosols
D.J. Craik, Ph.D.	X-ray studies of organic and inorganic complexes and hydrogen-bonded crystals
C.H. Rochester, Ph.D.	

4. Engineering

Chemical:

Professor R. Edgeworth Johnstone	Study of scale-up factors in solvent extraction
	Throughput of mixer-settlers
with S. Hartland G.C. Coggan	Back-mixing in solvent extraction
S. Hartland with G.D. Wise	

Civil:

Professor R.C. Coates Ph.D.	Flexure of skew slabs
D. McKay, Ph.D	Pile driving by vibration methods
	Plastic collapse of reinforced concrete frames
	Computer methods of plastic structural analysis
P.S. Pell, Ph.D.	The fatigue strength of bitumen and bituminous mixes
D. Lenczner	The distribution of pressures under flexible footings
	Behaviour of granular materials in silos
F. Sherratt, Ph.D.	Fracture of extruded aluminium alloys
with B. Mayfield	Steering of vehicles in soft ground
R.W. Sparrow, Ph.D.	Cyclical shear of soils
	Load transfer from piles to soil
with C. Tory	Stresses in layered systems
G. Cullingford	Motion resistance of a towed wheel
	Geophysical methods of site investigation

4. Engineering (*continued*)

Electrical:

Professor J.E. Parton, Ph.D	Analogue computer for studies of nuclear reactor control and machine transients
	Homopolar generator with mercury slip rings
	Reciprocating machines
	Permanent magnet machines
	Logical computers
W. Alexander, Ph.D.	Magnetic elements in computer circuits and computer logic
	Energy spectra of isolated pulses
S.A. Swann, Ph.D.	Electromagnetic fault detection in non-ferrous pipes
	Reciprocating machines
	Reactance of cylindrical conductor in a semi-closed slot
S.J.T. Owen, Ph.D.	Physical properties of electrical materials
A. Pugh	Digital computers
J.P. Newsome	A study of Hall effect and magneto-resistance effect devices
	Non-destructive testing; a study of certain aspects of the " eddy-current " technique
A. Wright, Ph.D.	Protection of teed feeders
	Study of radioactive lightning conductors
	Transformer internal fault current levels
A.R.M. Noton, Ph.D.	Adaptive control systems
	Measurement of control system characteristics by means of a cross correlator
P. Strange, Ph.D.	Jitter in control system synchros
	Complex vector loci
	Digital control systems
A.M. Marsden	Factors affecting visual perfomance
	Inter-reflections in interior lighting design

Mechanical:

Professor A.G. Smith	Heat and mass transfer in turbulent boundary layers
	Variation of material properties in fatigue
	Arc jets
Professor G.B. Warburton	Vibration of shells
	Effect of overloading and mean stress on fatigue
H. Fessler, Ph.D.	Photoelastic determination of stresses in pressure vessels, arched dams and engine components
	Plasto-elastic stress distributions studied by photo-elastic reflection technique
	Strains near cracks
	Creep of plastics
E. Markland, Ph.D.	Performance of diffusers
	Mixing of jets
	Performance of hydraulic control valves
	Response of pneumatic control elements
H. McCallion, Ph.D.	Determination of the control characteristics of plant
	Mechanism of vibrating conveyors
	Statics and dynamics of framed structures
	Complete theory of gas bearings
	Effect of bearings on gyroscope behaviour
B.R. Dudley	Effect of cold rolling on fatigue strength of large shafts
	Propagation of fatigue cracks
with M.J. Owen	Strength of rotor discs
E.Ollerton, Ph.D.	Fatigue in rolling contact
T.F. Roylance	Aspects of heat transfer during evaporation
	Heat transfer to evaporating two-component mixtures
	Flame stabilization by bluff bodies
with N.T. Bloomer, Ph.D.	Statistical factors in metal fatigue

4. Engineering (*continued*)

Mechanical (*continued*)

A. Lichtarowicz, Ph.D.	Characteristics of hydraulic systems

Production:

W.B. Heginbotham, Ph.D.	Effects of cutting conditions on surface finish when turning
	Photographic studies of the metal cutting process
	Probability characteristics of automatic feeders
	Development of a twist drill dynamometer
E.A. Roberts	Cumulative damage in fatigue

5. Food Science

E.A. Rolfe, Ph.D.	Biochemistry
M. Stein, Ph.D.	Biophysics and physics of freeze drying with special reference to enzyme systems and surface chemistry

6. Geography

Professor K.C. Edwards	Geographical distributions in Luxembourg
	Geographical aspects of urban development
G.J. Fuller (Miss), Ph.D.	Development of settlement and population along the eastern coastlands of San Francisco Bay between 1850 and 1955
	Development of settlement and population in Santa Barbara, California, between 1850 and 1955
	Development of settlement in central Derbyshire in the Middle Ages
F.A. Barnes	Anglesey: historical and regional geography
with C.A.M. King (Miss), Ph.D.	Beach changes on the Lincolnshire coast
C.A.M. King (Miss), Ph.D.	Beach characteristics in W. Ireland
R.H. Osborne, Ph.D.	Economic geography of central and eastern Europe
	Geographical aspects of population changes in Great Britain
J.P. Cole	Urban geography of Latin America
P. T. Wheeler	Economic and social development of Highlands of Scotland especially N.W. Highlands and the island of Unst, Shetland

7. Geology

Professor W.D. Evans	The Lower Palaeozoic rocks of W. Wales
	The Devonian rocks of N. Cornwall
	The geochemical properties of coal
	The petrogenesis of unconsolidated sediments
	The geochemistry of oil
R.B. Elliott, Ph.D.	The structure and petrology of the metamorphic rocks between Sota and Hoydalen, Jotunheimen, Norway
	Geology of the pre-Cambrian Kongsberg-Bamle formation between Kragerø and Risør in S. Norway
A.M. Honeyman	The stratigraphy and palaeontology of the Carboniferous Limestone of S. Wales
R.J. Firman, Ph.D.	Study of fracture systems in the Great Scar Limestone, Yorkshire
	Geochemistry of the Great Scar Limestone, Yorkshire
	Application of atomic absorption techniques to the analysis of rocks and minerals

7. Geology *(continued)*

A.J. Rowell, Ph.D.	Inarticulate brachiopods Lower Palaeozoic rhynchonelloid brachiopods
F.M. Taylor, Ph.D.	The morphology, ontogeny and taxonomy of the Avonian rugose corals of Derbyshire Permo-trias stratigraphy in Nottinghamshire and Derbyshire Morphology, ontogeny and taxonomy of Silurian rugose and tabulate corals
W.A. Cummins	Stratigraphy and structure of Salopian rocks of N.W. Montgomeryshire, Wales Salopian geosynclinal sedimentation Origin of greywackes
R.D. Morton, Ph.D.	Mineral synthesis with special reference to phosphates The structure and petrology of the Pre-Cambrian Kongsberg-Bamble formation around Kragerø, Norway The causes of regional scapolitization in S. Norway The phosphate deposits of the southern Norwegian Pre-Cambrian Equilibria in the system $Ca_3(PO_4)_2$–$CaCl_2$ The stratigraphy, structure and igneous rocks of the central Teign Valley, S. Devon
B.S. Cooper, Ph.D.	Organic geochemistry of sediments
W.A.S. Sarjeant, Ph.D.	Palaeontology, taxonomy and palaeoecology of fossil microplankton: their use as stratigraphic and environmental indices, especially in the Upper Mesozoic and Cainozoic Relation of fossil and modern sedimentological environments to microplankton assemblage character Mineralogy and mineral mining in Derbyshire Stratigraphy of the Upper Mesozoic

8. Horticulture

Professor J.P. Hudson, M.B.E., G.M., Ph.D.	Effects of different water regimes and salt concentrations on the growth and yield of plants under temperate and arid tropical conditions (part of this work is done at the University of Khartoum, Sudan) Factors affecting regeneration of plants, especially from roots Control of environment for experimental work with plants and effects of environment on growth; possibilities of adjusting responses of plants to particular weather conditions
M.E. Marston (Miss), Ph.D.	Vegetative propagation of plants, with special reference to regeneration from leaf cuttings
W. Heydecker, Ph.D.	Effects of environment on vegetable seed germination and and seedling establishment
W.M. Dullforce (Miss)	Growth and development of the lettuce plant in relation to environmental factors; some effects of transplanting

9. Mathematics

Professor H.R. Pitt, Ph.D., F.R.S.	Fourier analysis and random function
Professor G.G. Hall, Ph.D.	Quantum mechanics of atoms, molecules and solids
M.E. Noble, Ph.D.	Theory of functions
A. Rose, D.Sc.	Mathematical logic and logical computers
L.E. Prior	Geometry
G. Power, Ph.D.	Fluid mechanics

9. Mathematics (*continued*)

E.E. Jones, Ph.D.	Potential theory and elasticity
M. Jackson (Miss), Ph.D.	Hypergeometric series and special functions
C.W.J. Granger, Ph.D.	Spectral analysis of time series
G.F. Paechter, D. Phil.	Homotopy theory
M.J. Sewell, Ph.D.	Mechanics of solids and fluids
G.H. Fullerton, Ph.D.	Functional analysis
M.B. Pate	Homotopy theory
E. Foxley, Ph.D.	Logical computers
J.A. Anderson	Exponential series
B.L.R. Shawyer	Summability
M.F. McCarthy	Fluid mechanics

Theoretical Mechanics:

Professor J.E. Adkins, D.Sc.	Finite elastic deformations and continuum mechanics Theory of plasticity
A.J.M. Spencer, Ph.D.	Continuum mechanics
W.A. Green, Ph.D.	Theory of plasticity Wave propagation

10. Metallurgy

Professor J. W. Cuthbertson	Fundamental research on electrodeposition including bright plating; corrosion
E. Holmes, Ph.D.	Fatigue properties of pressure welds Effect of minor additions in aluminium age-hardened alloys
R.B. Waterhouse, Ph.D.	Fretting corrosion
P.A. Brook, Ph.D.	Polarography applied to electrodeposition
M.E. Henstock	Electrodeposition of alloys
S.J. Harris	Electrochemistry of iron

11. Mining

Professor F.B. Hinsley	Study of heat and humidity in mines Thermal properties of Coal Measure rocks Flow of air in rough ducts
R.L. Whitmore, D.Sc.	Hydrodynamics of suspensions Study of mineral concentration processes
L.H. Morris	Methane content of coal seams
P. Hackett, Ph.D.	Study of ground movement in mining Study of physical properties of Coal Measure rocks
J.R. Brown, Ph.D.	Study of noise in fan systems
D.J. Hodges	Oxidation of coal

12. Pharmacy

Professor G.E. Trease
Professor M.W. Partridge

Pharmaceutical Chemistry:

Professor M.W. Partridge	Environmental carcinogenesis Chemistry of polyazapolycyclic carcinogens
F.C. Cooper, Ph.D.	Chemistry of potential schistosomicides
H.J. Vipond, Ph.D.	
R.J. Grout, Ph.D.	

12. Pharmacy (*continued*)

Pharmaceutics:

H.A. Turner, Ph.D.	The pharmaceutics of quaternary ammonium compounds
W.B. Hugo, Ph.D.	Studies in the mode of action of antibacterial substances; stability of pharmaceutical products
	Bacterial lipases
	Formulation
G.M. Watson (Miss)	Pharmaceutical history in the 18th century

Pharmacognosy:

Professor G.E. Trease	The pharmacognosy of species of *Rauwolfia* and the study of pharmaceutical history
W.C. Evans, Ph.D.	Alkaloidal and histological studies in the genera *Datura* and *Rauwolfia*
R. Hardman, Ph.D.	Chemical and histological studies on steroid-yielding species of *Dioscorea*

Pharmacology:

J. Crossland, Ph.D. with R.E. Gilbert, Ph.D.	Distribution, nature and functional significance of pharmacologically active substances in the central nervous system
B.E. Leonard I.H. Stockley	Relationship between electrical and chemical events in the central nervous system
	Metabolism of acetylcholine and other choline esters

13. Physics

Professor L.F. Bates, Ph.D., D.Sc., F.R.S.	Heat changes accompanying magnetization processes
	Bitter figure studies of ferromagnetic domains
	Magnetic susceptibilities of rare earth and uranium alloys
Professor K.W.H. Stevens, D.Phil.	Theoretical investigations of the ferromagnetism of metals and alloys, and of the paramagnetism of salts. Maser theory
K.J. Standley, D.Phil.	Microwave properties of ferrites; paramagnetic resonance; solid state masers
J.C. Woolley, Ph.D.	Properties of high coercivity magnetic materials
	Properties of semiconducting materials
W.F. Nash, Ph.D.	Penetrating cosmic radiation
G.D. Adam, Ph.D.	Magnetic resonance
J.H. Philips, M.C., Ph.D.	Properties of high coercivity magnetic materials
J.C. Matthews, Ph.D.	Semiconductors and low temperatures
P.M. Rowell, D.Phil.	Low temperature physics
L.J. Challis, D.Phil.	Heat flow at low temperatures
C.A. Bates, Ph.D.	Theory of the solid state
F.W. Sheard	Lattice vibrations
R.M. Bull	Penetrating cosmic radiation
W.S. Moore, Ph.D.	Electron spin resonance
M. Heath, D.Phil.	Ferromagnetic resonance
B.C. Rastin	Penetrating cosmic radiation
J.D.N. Cheeke	Heat flow at low temperatures

14. Zoology

Professor E.J.W. Barrington, D.Sc.	Cytology and function of vertebrate digestive and endocrine systems
A. Aitken	Metabolism of fish
K.U. Clarke, Ph.D.	Physiological adaptation in insects
M.R. Young (Miss), Ph.D.	Parasitology
	Marine biology
B. Morris, Ph.D.	Mammalian embryology
R. Morris, Ph.D.	Osmoregulation in cyclostomes
A.K. Kent, Ph.D.	Endocrine control of teleost colour change
J.C. Hartley, Ph.D.	Biology of insects and freshwater invertebrates

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1. Agriculture

Professor G.E. Blackman, F.R.S.	The analysis of environmental factors governing plant growth and development, especially the light factor The physiology of growth substances Physiological studies of phytotoxicity and the factors controlling selective action
with M.H.R. Soper	Factors affecting the development and productivity of the bean under field conditions
J.L. Harley, D.Phil. R.P. Martin, D.Phil. B.C. Loughman, Ph.D.	Investigations of plant nutrition, active transport and phosphorus metabolism; application of tracer methods to agricultural problems; physiology of mycorrhiza
R.L. Lucas, Ph.D.	Transport in fungi
J.M. Barry, D.Phil.	Biochemistry of peptide and protein biosynthesis
J.R. Clarke, D.Phil.	The adreno-pituitary system in mammals
G.B. Masefield	Environmental effects on the nodulation of leguminous crops
D.C. Smith, D.Phil.	Physiology of symbiosis

Agricultural Economics:

INSTITUTE FOR RESEARCH IN AGRICULTURAL ECONOMICS

C. Clark (Director)	Terms of trade Population
A.H. Maunder	Economics of farm organization
K.E. Hunt	Supplies and prices of agricultural commodities
G.P. Hirsch	Rural social organization
A.G. Antill	Economic statistics of agriculture
W.H. Beckett	Credit, co-operation and agricultural development of overseas territories
G.R. Allen	Agricultural policy with special reference to prices and marketing: developed and underdeveloped countries
H. Frankel	State intervention in agriculture
G.H. Peters	Economic growth Location
M. Haswell	Production and consumption patterns of primitive and low income agricultural communities
G.T. Jones	Analysis of supply and demand
L. Moore	International trade in agricultural commodities
G.L. Williams	Educational planning in agricultural areas

Agronomy:

A.R.C. UNIT OF EXPERIMENTAL AGRONOMY

Professor G.E. Blackman, F.R.S. with G.L. Hodgson, D.Phil. C.C. McCready, D.Phil. D. Smith (Mrs.), Ph.D. R.G. Powell C. Parker J.A. Sargent, Ph.D.	Studies in the principles of phytotoxic action The physiology of growth substances The development of herbicides
E.S. Bunting, Ph.D.	The introduction, development and selection of new crops in Great Britain with special reference to oil-seed crops and maize for grain and silage production

1. Agriculture (*continued*)

Soil Science:

P.H.T. Beckett, D.Phil.	Relation of soils to land-forms Physical chemistry of soil colloids Factors controlling the release of ions from soils and their uptake by plants
P.H. Nye	Soil forming processes Availability of nutrient ions

2. Anaesthetics

NUFFIELD DEPARTMENT

Professor Sir Robert Macintosh H.G. Epstein, Ph.D. J.V. Mitchell A. Crampton-Smith J. Parkhouse, M.D.	Use of air as vehicle for volatile anaesthetics: clinical observations on respiration, blood gases, pCO_2, etc. Measurement of lung function and composition of respired gases in mechanically ventilated patients Design of portable bellow respirators for use during anaesthesia Study of appliances for endotracheal intubation

3. Anatomy

Human:

Professor G.W. Harris, Sc.D., M.D., F.R.S.	
A.G.M. Weddell, M.D., D.Sc.	Anatomy and physiology of cutaneous sensibility
J.S. Weiner, Ph.D.	Physical anthropology
K.J. Collins, D.Phil.	Climatic adaptation; anatomy and physiology of sweat gland function
D.F.B. Roberts, D.Phil.	Physical anthropology with particular reference to geographical and climatic factors
R. Barer G.A. Meek, Ph.D.	Biological application of new methods of microscopy, including electron microscopy and cell refractometry
D.A.T. Dick, D.Phil.	Cell permeability
T.P.S. Powell W.M. Cowan, D.Phil.	Studies of the central nervous system with particular reference to the connections of the basal ganglia and hippocampus, and the phenomenon of transneuronal degeneration
G.N.C. Crawford	Factors regulating the growth of voluntary muscle and tendon
S. Bradbury, D.Phil.	Histochemistry
A.R. Lind, D.Phil.	Effect of temperature on muscular activity
R. Hellon, D.Phil.	Circulatory changes in response to radiant heat

4. Anthropology

Social:

Professor E.E. Evans-Pritchard, Ph.D.	E. Africa (Nilotics) and Arabs
J.G. Peristiany, D. Phil.	E. Africa (Nilo-Hamites) and Cyprus
R.G. Lienhardt, D.Phil.	E. Africa (Nilotics)
J.H.M. Beattie, D.Phil.	E. Africa (Bantu)
D.F. Pocock, D.Phil.	India and E. Africa (Indians)
R. Needham, D.Phil.	S.E. Asia

5. Archaeology

E.T. Hall, D.Phil.	X-ray fluorescent spectrometry of metals and ceramics; development of automated methods, improved counters and vacuum path
	Electron probe microanalyser
	Analysis of paint films, surface enrichment of metals and ceramic glazes
	Optical emission spectrography of metals and ceramics
	Neutron activation analysis of coins by γ-ray spectrometry
	Analysis of ceramic glazes by β-ray back scattering
	Development of a transistorized differential flux-gate magnetometer for archaeological prospecting
M.J. Aitken, D.Phil.	Thermo-remanent magnetic dating of fired clays and pottery
	Detection of buried archaeological features using a proton magnetometer
	Thermoluminescent dating of ceramics
	X-ray crystallography of ceramics

6. Astronomy

Professor D.E. Blackwell	The solar corona and zodiacal light; solar spectroscopy
M.G. Adam (Miss), D.Phil.	Magnetic and velocity fields in sunspot regions
A.D. Petford, D.Phil.	Instrumental techniques
M.F. Ingham, Ph.D.	Airglow and interplanetary material

7. Biochemistry*

Professor Sir Hans Krebs, M.D., F.R.S.	Cell metabolism
Professor D.D. Woods, F.R.S.	Nutrition and metabolism of micro-organisms, with special reference to the cellular function of folic acid and vitamin B_{12}
C.W. Carter	Nutrition with special reference to metabolism in avitaminosis
L.A. Stocken, D.Phil.	Radiation biochemistry
D.S. Parsons, D.M.	Intestinal absorption; metabolism of intestinal mucosa
R. Cecil, D.Phil.	Sulphur chemistry of amino-acids and proteins
P.W. Kent, D.Phil.	Biochemistry of fluoro- and amino-sugars
M.G. Ord (Miss), Ph.D.	Biochemical effects of X-radiation
W. Bartley, Ph.D.	Biochemical and osmotic properties of isolated mitochondria; fatty acid composition of tissues; fatty acid transport in intestine; adaptive enzyme formation in yeast
J. Lascelles (Miss), D.Phil.	Microbial synthesis of tetrapyrroles; biochemistry of photosynthetic sulphur bacteria
R. Whittam, Ph.D.	Active transport and metabolism
R.G. Tucker, D.Phil.	Biochemistry of bacteriophage growth
†K. Burton, Ph.D. with †M.R. Lunt (Miss), D.Phil. †J.A. Grunau, Ph.D.	Function and structure of nucleic acids
†D.E. Hughes, Ph.D. with †J.T.Y. Chou, D.Phil.	Structure and enzymology in micro-organisms; biochemical studies on the inner ear

*Houses the M.R.C. Unit for Research in Cell Metabolism: Honorary Director, Professor Sir Hans Krebs, M.D., F.R.S.
†M.R.C. staff

7. Biochemistry (*continued*)

R.M. Acheson, D.Phil.	Urine constituents; chemistry and biochemistry of heterocyclic compounds
*J.R. Quayle, Ph.D.	Metabolism of oxalate and C_1-compounds in micro-organisms
C.A. Pasternak, D.Phil.	Metabolism of amino-sugars and sulphated compounds
M.W. Whitehouse, D.Phil.	Sterol metabolism; action of drugs on cellular metabolism
D.E. Griffiths, Ph.D.	Oxidative phosphorylation

Clinical:

RADCLIFFE INFIRMARY

J.R.P. O'Brien (Director)	Physicochemical properties of haemoglobin. Rapid rate reaction methods
L. Bagratuni, D.M.	Blood protein changes in collagen disease
W.H. Bannister	Studies in gastric acidity
J. Becker	Methods of steroid analysis
G.P. Burn	Enzymic constitution of erythrocytes
M.P. Esnouf, D.Phil.	Biochemistry of blood coagulation
G. Higgins	Methods of steroid analysis
J. Liddell, M.D.	Albumin turnover in man in negative nitrogen balance
P.J.R. Phizackerley	Effects of anoxia on brain metabolism
R.H. Wilkinson, D.M.	Intracellular metabolism in disease

8. Biometry

N.T.J. Bailey, D.Sc.	Theoretical and practical problems in statistical science and biometry
J.F. Scott	
M.G. Bulmer, D.Phil.	Experimental design
G.J. Draper	Mathematical statistics
	The application of mathematics and statistics to problems in biology and medicine
	Mathematical theory of epidemics
	Mathematical genetics
	Function and design of hospitals
	Problems of medical diagnosis
	Queueing theory
	Time series

9. Botany

Professor C.D. Darlington, D.Sc., F.R.S.	Chromosomes, cell physiology, evolution and the genetics of human society
E.F. Warburg, Ph.D.	Taxonomy: British flora
F.A.L. Clowes, D.Phil.	Developmental anatomy
V.S. Butt, Ph.D.	Carbohydrate metabolism, enzymes at cell surfaces
E.A. Bevan, Ph.D.	Genetics of fungi
K.R. Lewis, Ph.D.	Evolution of genetic systems
K.W. Fuller, Ph.D.	Biochemistry of root growth
S.R.J. Woodell, Ph.D.	Experimental taxonomy and ecology of *Primula*
L.K. Crowe, Ph.D. (Miss)	Genetics of higher plants
R.G. Milne, Ph.D.	Plant viruses
B.E. Juniper, D.Phil.	Electron microscopy of the fine structure of the cell

*M.R.C. staff

10. Chemistry

Organic:

Professor E.R.H. Jones, Ph.D., D.Sc., F.R.S.	Natural products, especially of the triterpene and acetylene types
T.G. Halsall, Ph.D. M.C. Whiting, Ph.D. G.D. Meakins, D.Phil. V. Thaller, Ph.D. G. Lowe, Ph.D.	Chemistry of steroids, polyenes and of acetylenic and allenic compounds
J.C. Smith, D.Sc., Ph.D.	Physical properties of long-chain compounds Investigations and synthesis of fatty acids
M.L. Tomlinson (Miss), D.Phil.	Indole, carbazole, phenazine and chroman derivatives
W.A. Waters, Sc.D., F.R.S.	Study of free radicals Investigation of free radicals by electron spin resonance Investigation of mechanisms of oxidation by transition metal ions
J.A. Barltrop, D.Phil.	Natural products Organic photochemistry Application of radioisotopes to the solution of chemical and biochemical problems
N. Polgar, D.Phil.	Constituents of lipids of acid fast bacilli
G.T. Young, Ph.D.	Chemical investigation of peptides and proteins
A.S. Bailey, D.Phil.	Chemistry of nitrogen heterocyclic compounds; aromatic hydrocarbons
T.G. Halsall, Ph.D.	Chemistry of isoprenoid compounds including bitter principles Synthesis of fused ring systems Reduction of peroxides
M.C. Whiting, Ph.D.	Organic chemistry of transition metals Mechanism and thermodynamics of olefinerearrangements
B.R. Brown, D.Phil.	Investigation of the tannins Enzymic oxidation of phenols Hydride-Lewis reductions
G.D. Meakins, D.Phil.	Studies in alicyclic chemistry Applications of spectroscopy in organic chemistry
R.O.C. Norman, D.Phil.	Mechanisms of organic reactions, especially those of aromatic compounds and compounds of biological importance
G. Lowe, Ph.D.	Synthetical routes to cephalosporin C Mechanism of some hydrolytic enzymes

Physical, Inorganic and Chemical Crystallography:

Professor Sir Cyril Hinshelwood, O.M., D.Sc., F.R.S.	Chemical kinetics including biophysical applications
E.J. Bowen, D.Sc., F.R.S.	Photochemistry; study of fluorescence
R.P. Bell, F.R.S.	Catalysis and quantum chemistry
H.W. Thompson, C.B.E., D.Sc., F.R.S.	Spectroscopy with special reference to infra-red
L.E. Sutton, D.Phil., F.R.S.	Electron diffraction and dielectric phenomena
C.J. Danby, D.Phil.	Mass spectrometry and chemical kinetics
J.D. Lambert, D.Sc.	Ultrasonic dispersion, and the properties of gases and vapours
R.F. Barrow, D.Phil.	Spectroscopy with special reference to the ultra-violet
R.E. Richards, D.Phil., F.R.S.	Nuclear magnetic resonance

10. Chemistry (*continued*)

Physical, Inorganic and Chemical Crystallography (*continued*)

R.H.P. Gasser, D.Phil.	Surface phenomena
E.B. Smith	Thermodynamics of imperfect gases and mixtures
A.C.R. Dean	Physical chemistry of living cells
B.A. Coles, D.Phil.	Electron spin resonance
F.M. Brewer, M.B.E.	Inorganic chemistry of rarer elements
L.A.K. Staveley, D.Sc.	Thermochemistry and phase equilibria of matter at low temperatures
J.W. Linnett, D.Phil, F.R.S.	Study of flames: valency problems
C.S.G. Phillips	Analytical problems: separation of gases by adsorptive methods
L.A. Woodward	Structural problems and Raman spectra
R.J.P. Williams, D.Phil.	Structure and properties of ions in solution Study of polymers
A.D. Buckingham	Theory of dielectric and optical phenomena
L.M. Venanzi, D.Phil.	Co-ordination compounds
M.I. Christie (Miss)	Photochemistry and reaction kinetics
F.J.C. Rossotti, D.Phil.	Inorganic chemistry of complex compounds
H.M. Powell, F.R.S.	Chemical crystallography with special reference to X-ray work
Professor D.M. Hodgkin F.R.S.	Fluid-dynamic X-ray structure analysis

11. Engineering

Professor D.W. Holder, Ph.D., D.Sc., F.R.S. H. Motz, Dr.Ing. R.E. Franklin, Ph.D. L.C. Woods, D.Phil., D.Sc. D.L. Schultz, D.Phil. J.E. Bialokoz, Ph.D. D. Walsh, D.Phil. P. Smart	Experimental and theoretical studies of fluid-dynamic problems including transonic, supersonic and hypersonic flows, the properties and dynamics of high-temperature gases, the performance of shock tunnels and related facilities, shock-tube studies of thermally ionized gases, the instrumentation of transient gas flows, waves in plasmas, skin friction for turbulent flow in an annular passage, heat transfer by forced convection and by free convection near the critical point, low-density flow, and tidal surges; static pressure measurements, bed formation under moving streams, wind-excited oscillations, and wake and cavity flows
C.J. Wood, Ph.D.	Millimeter wave generation; Cerenkov and undulator radiation; solid state masers Soil mechanics and the dynamics of granular materials Flow-concentration curves for single-lane traffic
G. Bomford, O.B.E., D.Sc. A.R. Robbins, D.Phil.	Geodetic astronomy; geodesy; deviation of the vertical
J.D. Campbell, D.Phil. J.D. Todd, D.Phil. E. Lightfoot, Ph.D. V. Marples	Structural problems including the effects of rate of loading, temperature and other factors on the plastic deformation of metals, elastic stability of frame structures, and stress distribution in plates; vibration of structures and whirling of shafts
S.S. Wilson	Mechanical transmission efficiencies and dynamometry
B. Wise	Control systems

12. Entomology

Professor G.C. Varley, Ph.D.	Insect population ecology Studies of the behaviour of parasitic insects Field study of factors controlling population densities of winter moth

12. Entomology (*continued*)

B.M. Hobby, D.Phil.	Bionomics of British flies of the family Empididae Insect morphology and taxonomy
M.W.R. de V. Graham, D.Phil.	Taxonomy of braconid and chalcidoid Hymenoptera

13. Ethnology and Prehistory

PITT RIVERS MUSEUM

T.K. Penniman (Curator)	Problems of ethnology and archaeology, including techniques of ancient and modern Stone Age cultures, textiles, ancient metallurgy, ivory, bone, antler, musical instruments, etc.
A.J. Butt (Miss), D.Phil.	American and African ethnology and techniques
K.O.L. Burridge, Ph.D.	Asiatic and Oceanian ethnology and techniques
D. Britton	European archaeology (Neolithic-Iron Age) and ancient techniques
D.F.W. Baden-Powell	Prehistoric archaeology (Palaeolithic-Mesolithic) and ancient techniques

14. Forestry

Professor M.V. Laurie, O.B.E.	Tropical forestry; forestry and land use; forest policy
L. Chalk, D.Phil.	Systematic anatomy of wood Anatomical basis of variation in structure and properties of wood Identification of timbers
E.W. Jones, Ph.D.	Ecology and silviculture of forest trees in Britain Tropical African forests
G.H. Thompson	Cinematography of insects and other small animals; research on techniques and the preparation of teaching films
J.J. MacGregor	Timber resources; supply and demand trends; prices; economic aspects of forest policy; economic survey of private forests; work science; influence on efficiency of size of tree; economics of scale in timber conversion
W.R.C. Handley, Ph.D.	Investigations on the activities of micro-organisms in the breakdown of vegetable debris
L. Leyton, Ph.D.	Mineral nutrient relations of forest trees; water relations of the forest (forest hydrology)
T.W. Tinsley, Ph.D.	Pathology of forest trees with particular emphasis on virus diseases
G.W. Dimbleby, D.Phil.	Ecological study of acid soils in Britain with special reference to soil development
T.E. Edwardson	Methods of measurement of trees and woods
A.C. Hoyle	Taxonomy and ecology of trees and shrubs, mainly of tropical Africa, and particularly the revision of the genus *Brachystegia*
F. White	Taxonomy and ecology of tropical trees and shrubs, mainly from Africa, and particularly from N. Rhodesia A revision of the Ebenaceae
W.A. Gordon	Forest law; tropical forestry
F.C. Osmaston	Forest management and working plans Silvicultural systems Aerial survey
C.J.W. Pitt	Forest utilization: engineering and fire protection

15. Geography

Professor E.W. Gilbert	The geography of areas of administration University towns in England and Germany The tourist industry

15. Geography (*continued*)

R.P. Beckinsale, D.Phil.	Physical geography
F.V. Emery	Historical geography History of regional studies in 17th century
F.R. Gullick	Economic geography, with special interest in transport
J.M. Houston, D.Phil.	Social geography The regional study of water resources Iberian Peninsula
M. Marshall (Miss)	Cyprus
A.F. Martin	Italy, Newfoundland
E. Paget	Tropical geography, with special interest in W. Indies Settlement in Sweden
N.C. Pollock	Southern Africa
D.I. Scargill, D.Phil.	The W. Yorkshire conurbation
C.G. Smith	Local climate Middle East, with special interest in economic development in Israel
M.M. Sweeting (Miss), Ph.D.	Physiography of limestone regions in Australia and elsewhere; denudation chronology of a part of the N. Pennines
M.J. Webb	Location of economic activity The Indian monsoon

16. Geology and Mineralogy

Professor L.R. Wager, D.Sc., F.R.S.	Petrology and geochemistry of igneous rocks, particularly the Tertiary igneous rocks of Greenland and Scotland and recent volcanic rocks of the British West Indies Age of rocks by radioactive methods
J. Zussman, Ph.D.	X-ray diffraction studies of amphiboles and serpentine minerals; X-ray fluorescence analysis
K.S. Sandford, D.Sc., D.Phil.	Geology of North Africa; also North-East Land, Spitsbergen
W.S. McKerrow, D.Phil.	Stratigraphy and structure of Lower Palaeozoic rocks of W. Ireland Brachiopods and stratigraphy of: (i) the Great Oolite Series; (ii) the Upper Llandovery of the Welsh Borderland
G.M. Brown, D.Phil.	Layered instrusions of Rhum, Skaergaard and Bushveld Pyroxenes of igneous rocks Recent volcanic rocks of the British West Indies Melting relations of Skye granites
R.St.J. Lambert, Ph.D.	Problems of metamorphism in the Scottish Highlands Age determination of rocks and minerals from Scotland and Austria Studies on metamorphic rocks from the vicinity of Mount Everest Crystallography of prehnite
H.G. Reading, Ph.D.	Stratigraphy and structure of the Eo-Cambrian and Lower Palaeozoic of Finnmark, N. Norway Sedimentation of the Namurian of the central and southern Pennines, and also of the Carboniferous of Devon and Cornwall
B.C.M. Butler, Ph.D.	Composition of Moine Schists and micas in metamorphic and igneous rocks X-ray fluorescence analysis Mineral identification Orientation of diamond crystals by X-ray methods
E.R. Oxburgh, Ph.D.	Structural and metamorphic studies in Hohe Tauern region of the eastern Alps; structure and composition of the upper mantle

16. Geology and Mineralogy *(continued)*

J.M. Edmonds	History of geology in Oxford and local Jurassic stratigraphy
A.W.G. Kingsbury	The rarer secondary lead, copper, zinc, etc. minerals in the British Isles The mineralogy and mineralization of the Lake District, and occurrences and distribution of rarer minerals and elements, in particular beryllium, in Devon and Cornwall
J.V. Harrison, D.Sc.	The geology of central Peru The geology of salt domes
M.W. Porter (Miss), D.Sc.	Morphological and optical crystallography
D.F.W. Baden-Powell	Pliocene and Pleistocene geology and raised beaches from the Arctic to the Mediterranean

GEOLOGICAL AGE AND ISOTOPE GROUP

M.H. Dodson S. Moorbath, D.Phil. N.J. Snelling, Ph.D. L.E. Long, Ph.D. E.I. Hamilton, D.Phil.	Age of rocks and minerals by potassium-argon, rubidium-strontium, uranium-lead and common lead methods

17. Mathematics

I.M. James, D.Phil.	Algebraic topology
M.F. Atiyah, F.R.S.	Algebraic geometry and topology
J.H.C. Thompson, D.Phil.	Elasticity and the solid state
I.W. Busbridge (Miss), D.Phil.	Mathematics of transfer theory
E.C. Thompson	Algebraic geometry: ideal theory of Noetherian rings
J.G. Mauldon	Probability theory: Markov chains and percolation theory
P.D. Watson, D.Phil.	Analytic topology
A.P. Cobbe (Miss), D. Phil.	Algebra
J.M. Hammersley	Mathematical statistics: Monte Carlo methods and stochastic processes
K.A.H. Gravett	Algebra; mathematical logic
J.T. Lewis	Quantum theory
M.J. Kearsley (Miss) D.Phil.	Nuclear physics, field theory and defects in solids
A.B. Tayler, D.Phil.	Compressible flow and non-linear equations
P.D. Robinson, D.Phil.	Quantum mechanics
M.E. Rayner (Miss), D.Phil.	Isoperimetric inequalities in mathematical physics
A.M. Arthurs	Operator theory and quantum theory
A.W. Ingleton	Algebraic topology and geometry
J.D. Murray	Fluidization; viscous flow theory
J.B. McLeod, D.Phil.	Eigenfunction expansions
A.L.S. Corner	Abelian groups
D.A. Edwards, D.Phil.	Functional analysis
G.R. Screaton	Quantum field theory

ROUSE BALL CHAIR OF MATHEMATICS

Professor C.A. Coulson, F.R.S.	Wave mechanics; theoretical chemistry Chemical reactivity Theory of metals Molecular structure and spectra

17. Mathematics (*continued*)

SAVILIAN CHAIR OF GEOMETRY

Professor E.C. Titchmarsh, F.R.S.	Eigenfunction expansions associated with differential equations

SEDLEIAN CHAIR OF NATURAL PHILOSOPHY

Professor G. Temple, C.B.E., F.R.S.	Theory of distributions Boundary layer theory Non-linear differential equations

WAYNFLETE CHAIR OF PURE MATHEMATICS

Professor G. Higman, D.Phil., F.R.S.	Algebra Logic

18. Medicine

REGIUS CHAIR OF MEDICINE

Professor Sir George Pickering, M.D., D.M.	Location of renin Action of hypertension Experimental fibrinoid necrosis of arterioles Coronary atheroma Occlusive disease of large arteries
G. de J. Lee	Dynamics of the pulmonary circulation Body plethysmograph
W.I. Cranston	Mechanism of fever Treatment of hypertension
R. Ross Russell	Cerebral vascular disease
J.R.A. Mitchell	Arterial thrombosis
M.R. Lee	Vasoactive polypeptides
W.F. Cook, D.Phil.	Location of renin

NUFFIELD INSTITUTE

G.S. Dawes, D.M. (Director)	Physiological changes in foetal and newborn animals
J.C. Mott (Miss), D.Phil.	Physiology of shivering
M.J. Dawkins	Enzymes in foetal and newborn animals
G.M. Ardran, M.D.	Cineradiological techniques applied to the physiology of swallowing and phonation, and of gastrointestinal movements
M.M.L. Prichard (Miss), D.Phil.	Physiological and anatomical studies of the peripheral circulation by a variety of radiological and histological methods
H.B. Parry	Studies of a disease causing nervous degeneration in sheep (scrapie)
H. Hooton (Mrs.), D.Phil.	Changes in carbohydrate metabolism at birth
D.G. Wyatt, D.Phil.	Design of electromagnetic flowmeters
G.R. Barer (Mrs.)	Physiology of reflexes from the heart and lungs

Clinical:

NUFFIELD DEPARTMENT

Professor L.J. Witts, C.B.E., M.D.	Clinical and experimental study of anaemia
S. Callender (Miss), M.D.	
G.H. Spray, D.Phil.	
S.C. Truelove, M.D.	Experimental, statistical and clinical studies in gastroenterology
J. Badenoch, D.M.	
Dame Janet Vaughan, D.M.	The study of bone metabolism with radioactive isotopes
M. Owen (Mrs.), D.Phil.	

19. Metallurgy

Professor W. Hume-Rothery, O.B.E. D.Sc., F.R.S.	Constitution of molybdenum alloys and niobium alloys of very high melting point Constitution of iron alloys Constitution of gold alloys Constitution of austenitic stainless steels General work on the theory of alloy structures
J.W. Christian, D.Phil.	Crystallography and kinetics of phase transformations Mechanical properties of face-centred cubic alloys of low stacking fault energy Flow stress-temperature-strain rate relations in hexagonal close-packed face-centred cubic and body-centred cubic materials
J.W. Martin, D.Phil.	The fracture characteristics of uranium The effect of internal oxidation on the properties of some copper and nickel alloys Dispersion hardening in austenitic stainless steels Recrystallization in aluminium-copper alloys Effect of alternating stresses on solid state diffusion processes
S.L. Altmann, Ph.D.	Theoretical investigations of the band structure and Fermi surfaces of metals
A. Hellawell, D.Phil.	The freezing of metals and alloys

20. Neurosurgery

J.B. Pennybacker (Director)	Intracranial neoplasm, hydrocephalus angiomatous malformations; infections of nervous system Head injuries, epilepsy and surgical treatment of mental disorders
J.M. Potter	Cerebral circulation and vascular disorders; head injuries

21. Obstetrics and Gynaecology

Professor J.C. Moir, M.D.	X-ray pelvimetry and cephalometry in relation to labour Surgical treatment of bladder injuries in the female Exfoliative cytology as an index of ovarian activity
M.P. Embrey, M.D.	Clinical measurement of uterine contractility and action of drugs on the uterus
J.A. Stallworthy	Genital tuberculosis

22. Ophthalmology

A. Pirie (Mrs.), Ph.D. R. van Heyningen (Mrs.), D.Phil.	Biochemistry of the eye with particular reference to changes in cataract formation
S.G. Waley, D.Phil.	Proteins and peptides of the lens
M.H. Luntz	Studies on glaucoma produced experimentally in rabbits

23. Orthopaedics

NUFFIELD DEPARTMENT

Professor J. Trueta	Studies on osteogenesis with special reference to epiphyseal cartilage growth
J.W. Goodfellow	Study of the pathogenesis of deformities of the hands particularly in reference to rheumatoid arthritis Studies on the effects of continuous traction on fracture healing
H.B.S. Kemp	Clinical and experimental study of the cardiopulmonary function in relation to the development of deformities of the thoracic spine
K. Little (Miss)	Electron microscopy of hard tissues

23. Orthopaedics (*continued*)

NUFFIELD DEPARTMENT (*continued*)

T.K.F. Taylor	X-ray diffraction as the main method of following chemical changes in the disc in normal, ageing and pathological conditions
J.A.F. Valderrama	Investigation of power and action of spinal muscles and their part in shaping the vertebral column, both experimentally and in cadavers

24. Pathology

SIR WILLIAM DUNN SCHOOL OF PATHOLOGY

Professor Sir Howard Florey, Ph.D., M.D., P.R.S.	Arterial disease
M.A. Jennings (Hon. Mrs.), D.M.	Atherosclerosis in the pig; arterial disease
G.P. Gladstone	Pathogenicity and immunology of staphylococci
W.E. van Heyningen, Sc.D.	Mode of action of tetanus toxin; the isolation and mode of action of the toxin(s) of *Clostridium sordellii*
A.M. Woodin, Ph.D.	Properties of the two components of staphylococcal leucocidin Mechanisms of secretion in mammalian cells
E.P. Abraham, D.Phil., F.R.S. G.G.F. Newton, D.Phil.	Biochemistry of peptides with biological activity
N.G. Heatley, Ph.D	Purification of Castle's intrinsic factor. Secretin
A.G. Sanders, D.Phil.	Study of tissue reactions
J.E. French, D.M., D.Phil.	Experimental atherosclerosis
Sir Paul Fildes, O.B.E., F.R.S. D. Kay, D.Phil.	Biochemistry of phage-bacterium complexes
Professor J.L. Gowans, D.Phil., F.R.S.	Life history and function of lymphocytes
J.F. Watkins, M.D.	Investigations on trachoma virus
J.C.F. Poole, D.M.	Properties of endothelium Artificial thrombosis
D.S. Robinson, Ph.D.	Mechanism of fat transport Plasma lipoprotein synthesis and fatty livers

RADCLIFFE INFIRMARY

A.H.T. Robb-Smith, M.D.	Morphology, physiology and pathology of connective tissue Disorders of lymphoreticular tissue
R.G. Macfarlane, M.D., F.R.S.	Blood coagulation Thrombosis
F.O. MacCallum	Virology
M. Pickles (Miss), D.M.	Immunohaematology
R.L. Vollum, D.Phil.	Mycobacterial infections
A.I. Spriggs, D.M.	Exfoliative cytology
D.R. Oppenheimer	Neuropathology
A. Sharp, M.D.	Blood platelets Haemostasis

25. Pharmacology

Professor W.D.M. Paton, D.M., F.R.S.	Synaptic pharmacology
H.R. Ing, D.Phil., F.R.S.	Structure-action relationships of drugs which act on the autonomic nervous system

25. Pharmacology (*continued*)

E. Bülbring (Miss), M.D., F.R.S.	Electropharmacology of smooth muscle
H. Blaschko, M.D., Ph.D., F.R.S.	Biochemical pharmacology: amine metabolism
J.M. Walker, D.M.	Hormones of the neurohypophysis
E.M. Vaughan Williams, D.M., D.Sc.	Electropharmacology of heart muscle
E.W. Gill, D.Phil.	Ion transport in cells, and chemical structure of drug receptors
D.B. Hope, D.Phil.	Pharmacologically active polypeptides

26. Physics

CLARENDON LABORATORY

Professor B. Bleaney, D.Phil., F.R.S. R. Berman, D.Phil. A.H. Cooke, D.Phil. A.J. Croft, D.Phil. D.T. Edmonds, D.Phil. G. Garton, D.Phil.	Low temperature and solid state physics: properties of liquid and solid helium 3 and helium 4; the superconducting state; transport phenomena (electrical and thermal conductivity) in metals, semiconductors and insulators; thermal expansion, calorimetry and mechanical properties at low temperatures; properties of trans-uranic elements; properties of semiconductors
J. Hatton, D.Phil. R.W. Hill, D.Phil. N. Kurti, Dr.Phil., F.R.S. K. Mendelssohn, D.Phil., F.R.S. B.V. Rollin, D.Phil. H.M. Rosenberg, D.Phil. J. Wilks, D.Phil. M.F. Wood	Paramagnetism, in particular relaxation effects and magnetic cooling; nuclear paramagnetism and nuclear relaxation; nuclear orientation applied to solid state and nuclear physics; nuclear cooling; ferromagnetism, ferrimagnetism and antiferromagnetism; ultrasonic investigations at microwave frequencies; cryogenic techniques; production of strong magnetic fields
D.M.S. Bagguley, D.Phil. J.M. Baker, D.Phil. J.H.E. Griffiths, D.Phil. W. Hayes, D.Phil. J. Owen, D.Phil. F.N.H. Robinson, D.Phil.	Microwave spectroscopy: short electromagnetic waves; paramagnetic and nuclear magnetic resonance phenomena; semiconductors and cyclotron resonance; optical spectroscopy of the solid state; dynamic nuclear polarization
H.G. Kuhn, Ph.D., F.R.S. G.W. Series, D.Phil. G.K. Woodgate, D.Phil.	Optical spectroscopy and atomic beams: interferometric spectroscopy; nuclear and radiation effects in atomic spectra; radio-frequency resonance in excited states; atomic beam resonance
J.H. Sanders, D.Phil.	Precise measurements of fundamental constants; optical maser
J.T. Houghton, D.Phil.	Physics of the upper air
D. ter Haar, Ph.D. G. Barton, D.Phil. D.M. Brink, D.Phil. C.A. Caine, D.Phil. H. Davies, D.Phil. R.J. Elliott, D.Phil. M.J. Kearsley (Miss), D.Phil. M.C.M. O'Brien (Miss), D. Phil. W.E. Parry, D.Phil. D.J. Roaf J.A. Spiers, D.Phil.	Quantum theory of elementary particles; theories of nuclear and atomic structure; theories of the solid state and collective phenomena

26. Physics (*continued*)

NUCLEAR PHYSICS LABORATORY

Professor D.H. Wilkinson, Sc.D., F.R.S.	Nuclear physics research Nuclear structure research using 500 and 1200 KV Cockcroft-Walton Generators (20 MV Van de Graaff system scheduled for completion in 1963) in Oxford and 3 to 14 MV Van de Graaff generators at A.E.R.E. Harwell and A.W.R.E. Aldermaston
A.B. Clegg, Ph.D. C.H. Collie W.T. Davies, Ph.D. M. Derrick, Ph.D. P.S. Fisher, Ph.D. M.A. Grace, D.Phil. T.L. Green P.E. Hodgson, Ph.D. C.M.P. Johnson, Ph.D. P.B. Jones, Ph.D. S. Lokanathan, Ph.D. K.I. Mayne, D.Phil.	Nucleon-nucleon and nucleon-nucleus studies up to 150 MeV using the cyclotron at A.E.R.E. and the proton linear accelerator at the Rutherford Laboratory, Harwell. Elementary particle studies using nuclear emulsions, bubble chambers, spark chambers and electron counting devices (presently with accelerators at Birmingham and CERN, Geneva; 7 GeV proton synchrotron, Nimrod, at the Rutherford Laboratory scheduled for completion in 1963)
J. Moffatt, D.Phil. J.H. Mulvey, Ph.D. F.V. Price, D.Phil.	Mass spectrometric studies of He^3 and He^4 production; computer studies of nuclear structure and nuclear reaction mechanisms
D. Radojicic, Ph.D.	Research into elementary particle beam separators
D.J. Roaf, D.Phil. J.G. Rushbrooke D.F. Shaw, D.Phil. P.F.D. Shaw, D.Phil. N.W. Tanner, Ph.D. W.S.C. Williams, Ph.D.	Design and construction of 80-cm helium bubble chamber

27. Physiology

Professor Sir Lindor Brown, C.B.E., F.R.S.	Neurophysiology
R.J. Banister (Miss)	Circulatory physiology
S. Cooper (Mrs.), Sc.D.	Structure of muscle receptors
R.V. Coxon, M.D., D.Phil.	General and intermediary metabolism. Neurochemistry
D.J.C. Cunningham	Regulation of respiration
I. de B. Daly, C.B.E., M.D., F.R.S.	Cardiovascular physiology
G. Gordon, D.M.	Neurophysiology
R.H. Kay, D.Phil.	Physical aspects of physiology
E.H. Leach	Histology
B.B. Lloyd	Respiration and nutrition
P.B.C. Matthews, M.D.	Neurophysiology
C.G. Phillips, D.M., F.R.S.	Central neurophysiology
M.H. Pirenne, D. ès Sc., Ph.D.	Vision
R.W. Torrance	Circulatory physiology and neurophysiology
J.G. Widdicombe, D.Phil.	Respiratory neurophysiology
J.G. Nicholls, Ph.D.	Biophysics
R. Porter	Neurophysiology

28. Psychology

Professor R.C. Oldfield	Visual perception Experimental study of language
B. Babington Smith, O.B.E.	Holism and Gestalt theory Functional thresholds and subliminal stimuli Effects of attitude in perceptual situations Adaptation and adaptability
S. Sutherland	Stimulus-analysing mechanisms
M. Treisman	Central factors affecting threshold levels Mechanisms of arousal and attention

28. Psychology (*continued*)

Experimental:

M. Argyle	Classification of delinquents by personality types Origins of the conscience in different types of children Studies of aggressiveness
E. Crossman	Plant operator skills Decision in control processes Saccadic eye movements
D. Vowles	Studies in the activity of the bird brain with reference to instinctive behaviour

29. Public Health and Social Medicine

A.M. Stewart, M.D. (Head of Department)	Population studies. Malignant disease in children and adults. Pregnancy surveys
P. Cowen, Ph.D.	Skeletal development during childhood
D. Hewitt	

30. Statistics

E.F. Jackson (Director)	Estimation of the national product of Nigeria, 1950-57
K.G.J.C. Knowles D. Robinson	Inquiry into wage rates and earnings, wage "rounds" and wage " leadership", skill differentials, and regional variations in wages
J.M. Hammersley, D.Sc.	Problems in mathematical statistics
D.G. Holland	Foreign aid
A.D. Hazlewood	Transport in E. Africa
T. Schulz (Miss)	Family budgets and human needs diet
P. Vandome	Testing of an econometric model of the U.K. economy Design of computer programmes
M.J. Artis	Financial organization and monetary policy, 1939-59

31. Surgery

NUFFIELD DEPARTMENT

Professor P.R. Allison, D.M.	Study of recanalization of thrombosed arteries Study of the effects of substances applied to the vein wall with a view to preventing rethrombosis following removal of a previously induced thrombus
Professor P.R. Allison, D.M. A.J. Gunning	Surgery of vascular disease with special reference to coronary occlusion and the application of endarterectomy Open-heart surgery involving the use of the artificial circulation with and without hypothermia as an adjuvant
R. Marshall M. Dunnill Professor P.R. Allison, D.M.	Embolization of the pulmonary arteries by platelet agglutinates with observations of the effects on the cardiovascular and respiratory systems
A.J. Gunning M. Wright	Design and building of a rotating disc oxygenator incorporating a heat exchanger to be used in acute surgery especially the surgery of coronary heart disease and babies
A.J. Gunning	Replacement of the aortic and mitral valves by homologous and heterologous valves in animals and its possible application to human heart surgery Study of the vasculature of heart valves Effect of prolonged hypothermia and extra-corporeal circulation for cardiac anomalies on the enzymes glutamic oxalacetic transaminase and lactic dehydrogenase

31. Surgery (*continued*)

NUFFIELD DEPARTMENT *(continued)*

R. Marshall A.J. Gunning	Physiological and pathological effects of replantation of the dog lung
R. Marshall with Chest Clinic	Controlled trial of the effect of corticosteroids on pulmonary function in patients with extensive pulmonary tuberculosis
R. Marshall	Experiments on the mechanics of breathing and their relationship to the work of respiration and the control of respiration
C.U. Webster	Functional studies of the colon in ulcerative colitis and Crohn's disease
L.G. Brock J.E. French	A study of the pathogenesis of atherosclerosis, with particular emphasis on platelet deposition and endothelial permeability in injured arteries
J. Whitehead	Iron absorption in the totally gastrectomized rat

32. Surgery, Plastic

E.W. Peet	Causes and treatment of palatal insufficiency
T.J.S. Patterson, M.D. T.F. Wilkie	Causes and treatment of congenital and acquired jaw deformities
F.R. Wells	Jaw development in cleft lip and palate patients
D.S. Hayton-Williams	Establishment of air-conduction hearing in cases of congenital ear deformity
	Congenital deformities of the hand
	Aetiology of ring constriction
	Plastic surgical evaluation of experimental onlay grafts of bone substitutes
	Methods of lymphatic injection *in vivo* in man and experimental animals
	Cutaneous lymphatic circulation in lymphoedema, post-irradiated skin and healing skin grafts
	Experimental production of post-irradiation changes in animals
	Delayed jaw fracture treatment
	The use and fate of homogenous bone grafts in the mandible
	Control of haemorrhage following dental operations on patients with bleeding diathesis

33. Zoology

Field Studies:

Professor Sir Alister Hardy, D.Sc., F.R.S.

BUREAU OF ANIMAL POPULATION

	The Bureau studies density, structure, distribution and natural controlling processes in animal populations; the relations between species and between members of the species; the nature of animal communities of mixed species. Its chief material has been small mammals and certain groups of birds, but it also works on invertebrate populations
C.S. Elton, F.R.S. (Director)	Ecological survey methods and animal community patterns
H.N. Southern	Population relationships of wild mice and voles and the owls that eat them
	Dimorphism in the common guillemot
P.H. Leslie, D.Sc.	The structure and dynamics of populations from the mathematical aspect
K. Southern (Mrs.), D.Phil.	Animal communities in bracket fungi

33. Zoology (*continued*)

EDWARD GREY INSTITUTE OF FIELD ORNITHOLOGY

D. Lack, Sc.D., F.R.S.	Migration and population dynamics
R.E. Moreau	African ecology and migration
N.P. Ashmole, D.Phil.	Biology of seabirds
C.M. Perrins	Population ecology and breeding biology

Zoology and Comparative Anatomy:

Professor J.W.S. Pringle, M.B.E., Sc.D., F.R.S.	Physiology of insect flight muscle
J.R. Baker, D.Sc., F.R.S.	Cytology, cytochemistry, microtechnique and electron microscopy
E.B. Ford, D.Sc., F.R.S.	Genetic and evolutionary studies
N. Tinbergen, D.Phil., F.R.S.	Animal behaviour
H.K. Pusey	Amphibian phylogenetics
W. Holmes, D.Phil.	Comparative histology
A.E. Needham, D.Sc.	Regeneration; nitrogen metabolism; pigments of animals
A.J. Cain, D.Phil.	Taxonomy and evolutionary studies
P.C.J. Brunet, D.Phil.	Biochemistry and physiology of insects
P.L. Miller, Ph.D.	Physiology of insect respiration
D. Nichols, D.Phil.	Evolution, histology and ultrastructure of echinoderms
J.D. Currey	Functional histology of bone and field genetics of *Cepaea*
M.E. Varley (Mrs.)	Effects of temperature on fishes
J.B. Gurdon, D.Phil.	Experimental embryology
H.B.D. Kettlewell	Genetic, ecological and evolutionary studies
J.M. Cullen, D.Phil.	Fish behaviour studies
C.J. Henty	Ontogeny of behaviour
J.D. Delius, Dr.rev.nat.	Brain stimulation and behaviour in birds
R.G.B. Brown, D.Phil.	
D.R.S. Kirby	Experimental embryology; physiology of the trophoblast

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1. Agriculture

Professor A.N. Duckham, C.B.E.	Comparative agriculture
	Agricultural seasonality
R.S. Tayler	Irrigation of grass and arable crops
P.M. Harris	
J. Pearce, Ph.D.	Effect of level of nutrition on growth and development and carcase quality of steer calves reared for beef production
	Efficiency of food conversion in pig production
S. Fox	The effects of light on growth and reproductive performance of the fowl
T.R. Morris	
D.M. Allen, Ph.D.	The interaction of energy and protein in the diets of chicks and laying stock
	Early fat lamb production
	Intensive stocking of sheep
	Out-of-season lambing
	Relationship between nutrition and reproductive performance in the ewe
	Factors controlling the appetite and growth of early weaned calves
	Growth of lambs on diets supplemented with salts of steam-volatile fatty acids

1. Agriculture (*continued*)

J.A.C. Gibb	Mechanical handling of farm materials
F.M. Batting	Instrumentation and control systems for, and applications of electricity to, agriculture
K.E. Morgan	Tractor design with special reference to steering and automatic control
J. Pearce, Ph.D. J.N. Dominy	Effect of design and layout of farmstead on productivity and use of labour
D.H. Lloyd	Development, structure and economics of the poultry industry
J. Pearce, Ph.D. J. H. Dominy D. H. Lloyd J. Pearce, Ph.D.	A study of the yard and parlour layout in southern England Effect of farm layout, soil type and other physical factors on choice of system of farming
Agricultural Botany:	
Professor A.H. Bunting, D.Phil.	Crop physiology and agronomy: ecology applied to agricultural problems
P.M. Cartwright (Miss), Ph.D.	Growth physiology of crops: physiology of root nodule formation in legumes
J.K. Jones, Ph.D.	Cytogenetics and plant breeding, especially in Gramineae and Rosaceae
H. Owen, Ph.D.	Physiology of parasitism in fungi
D. Snow, Ph.D.	Physiology of pathogenic fungi; spore germination; root nodule formation in legumes
R.W. Snaydon, Ph.D.	Nutritional aspects of ecotypic differences in wild and cultivated plants
D.S.H. Drennan, Ph.D.	Growth physiology of field crops
G.D. Rowley	Experimental taxonomy of *Rosa* and succulent plants
Agricultural Economics:	
	No information

2. Botany

Professor T.M. Harris, Sc.D., F.R.S.	Palaeobotany: fossil plants of the English Jurassic
E.V. Watson, Ph.D.	Classification and ecology of Bryophyta
F.B. Hora, Ph.D.	Systematics of and experiments on higher fungi. Plant physiology
R.M. Wadsworth	Ecology; water relations

3. Chemistry

Professor E.A. Guggenheim, Sc.D. F.R.S.	Thermodynamics
M.L. McGlashan, Ph.D.	Thermodynamic properties of gases and mixtures
J.E. Prue, D.Phil.	Electrolyte solutions Homogeneous catalysis
P.F. Holt, Ph.D.	Chemistry of silicosis Polycyclic compounds containing ring nitrogen
D. Bryce-Smith, Ph.D.	Organo-metallic compounds Free radicals Aromatic substitution
I.M. Mills, D.Phil.	Molecular structures by high resolution infra-red spectroscopy
Physiological:	
Professor C. Tyler, D.Sc.	Egg shell composition: physical properties and structural characteristics

3. Chemistry (*continued*)
Physiological (*continued*)

T.G. Taylor, Ph.D.	Mineral metabolism in relation to egg shell formation
A. Wild, Ph.D.	Chemistry of phosphorus compounds
	Cation exchange properties of clay minerals
K.A. Hassall, Ph.D.	Toxicity in relation to physical and chemical properties of organic compounds
F.H. Grimbleby, Ph.D.	Effect of heat on the stability of milk proteins

4. Dairying and Food Technology

Professor E.L. Crossley	Scientific and technical studies of milk processing and the manufacture of dairy products
R. Scott	Heat processing of milk and cream
J. Rothwell	Physical properties of cream and ice cream
M.I.W. Benjamin (Miss)	Bacteriological properties of cream, condensed milk and dried milk
E.C. Apling	Coliform bacteria in dairy products
	Chemistry and bacteriology of cheese ripening
	Physical properties of cream, ice cream and dried milk
	Processing of cereals
	Physical and enzymic modification of starch in relation to baking

5. Economics — *See* **Agriculture,** *Agricultural Economics*

6. Geography

Professor A.A. Miller, D.Sc.	Denudation chronology and river development
	Climate and vegetation
A.M. Frood	The Nile Basin and N. Africa
M. Parry	Urban climates
	Atmospheric pollution
G.R. Lucas	Registrar General's statistics
	Census returns of houses
P.D. Wood, Ph.D.	Political boundary development
	Settlement geography
	Strip lynchets
J.R. Hardy, Ph.D.	Hydrology
	Coastal physiography
J.B. Whittow, Ph.D.	Denudation chronology
	Coastal physiography
	Glaciology
D.C. Large	Regional geography of the United States and Canada

7. Geology *

Professor P. Allen	Structure, stratigraphy and sedimentology of the Torridonian in the Gairloch and Coigach districts
	Source of detritus in Upper Jurassic Lydite Beds
	Significance of Upper Jurassic and Lower Cretaceous glauconites
	Sedimentology of the W. European Wealden
	Theory of stratigraphical models
	Applications of trend-surface analysis to sedimentology
	Photogeology
	Water supply problems in Kent, Sussex and Berkshire
Emeritus-Professor H.L. Hawkins, F.R.S.	Hydrology
	Fossil echinoids

*Includes Sedimentology Research Laboratory

7. Geology (*continued*)

J.R.L. Allen	Sedimentology of the Lower Old Red Sandstone of S. Wales and the Welsh Borderland, R_1 beds in the High Peak district of Derbyshire, Huddersfield White Rock of the mid-Pennines, Yoredale Series of the Wensleydale area, Folkestone Beds of the Weald, Niger Delta and Nigerian continental margin, Barmouth estuary and adjacent coast
N.E. Butcher	Stratigraphy, structure and petrology of Devonian and Carboniferous sediments and their associated igneous rocks in Devon and N. Cornwall and the effects of the granites upon them Variscan and Alpine monoclinal folds in Britain Deformation of Tremadoc *Angelina sedgwicki* sediments, N. Wales
R. Goldring, Ph.D.	Stratigraphy and palaeontology of the Upper Devonian and Lower Carboniferous in N. Devon Carboniferous and Permian trilobites Stratigraphical and sedimentological studies on the Carboniferous of W. Eire
P. Kaye, Ph.D.	Lower Cretaceous Ostracoda Jurassic Ostracoda with special reference to Liassic forms Stratigraphy and palaeoecology of the British Lower Cretaceous Relations of fossil and recent microplankton to their sedimentary environments
A. Lees, Ph.D.	Sedimentology of Lower Carboniferous "reef" limestones of W. Europe (particularly Ireland) and N. America Recent and Pleistocene carbonate sediments of Florida and the Bahamas Sedimentology of the Lower Carboniferous rocks in S. Eire with special reference to the transition from Waulsortian limestones to "Carboniferous Slate" Sedimentology of Viséan limestones of shelf, "reef" and basin facies in N. Staffordshire and S. Derbyshire Carbonate banks and their sediments Sedimentology of Upper Devonian "reef" and associated limestones in the Canadian northwest territories, and comparative studies on Devonian limestones in England and Belgium
E.J. Raynor	Clay mineralogy of the Upper Jurassic and Lower Cretaceous in W. Europe
G.N. Rose	Variation in the mineralogical and chemical composition of a composite sill at Broadford, Skye Origin of mineralization and ore at Bawdwin and Mochochany, Burma
T.C.F. Sibly	Gravity and magnetometer studies in S. England and Arran
J.E. Thomas	Petrology and petrochemistry of the Tan-y-grisiau Intrusion, N. Wales Geochemical investigation of Lower Palaeozoic rocks of N. Wales Geochemistry of the Hampshire basin Eocene Investigation of rapid methods of chemical analysis of silicate and carbonate rocks Geochemistry of natural waters in N. Wales
P.S. Walder (Miss)	Eocene and Oligocene sedimentology, including clay mineralogy, of the Hampshire basin Weardale Grits of Co. Durham

8. Horticulture

Professor O.V.S. Heath, D.Sc., F.R.S.	Developmental physiology and growth substances; photosynthesis, respiration and stomatal physiology; competition between ground-covering ornamentals (and weeds)
G.P. Harris, Ph.D.	Developmental physiology of glasshouse flower crops; initiation of roots and buds
D. Prue (Mrs.), Ph.D.	Developmental physiology; effects of wavelength of light
H.F. van Emden	Interrelations of insects and plants

9. Mathematics

Professor R. Rado, Ph.D., Dr.Phil.	Combinatorics; transfinite numbers
M.J. Baines, Ph.D.	Theory of metals
D.E. Daykin, Ph.D.	Algebra; number theory
M.S.P. Eastham, Ph.D.	Eigenfunctions; conjugate functions
E.C. Milner	Set theory; combinatorics
D.H. Parsons, Ph.D.	Differential equations
J.S. Pym	Topological algebra; measure theory
P. White, Ph.D.	Elasticity statistics

10. Microbiology

Professor B.C.J.G. Knight, D.Sc.	Microbial nutrition Microbial physiology in relation to classification
E. Billing (Miss), Ph.D.	Bacteriophages active against plant pathogenic and other *Pseudomonas* species
H.P. Charles, Ph.D.	Microbial genetics Morphogenesis in algae
M.T. Heydeman	Microbial utilization of alkanes
R.M. Keddie, Ph.D.	Physiology and classification of coryneform bacteria and of lactobacilli
R.W.A. Park, Ph.D.	Microaerophilic vibrios Life cycles of bacteria
P.M.F. Shattock (Miss), Ph.D.	Serological and physiological studies on streptococci
L.J. Zatman, Ph.D.	Microbial physiology, especially the metabolism of one-carbon compounds and the biosynthesis of pyridine nucleotides

11. Physics

Professor R.W. Ditchburn, Ph.D.,F.R.S.	Vision with a stabilized image
with G.V. Marr, Ph.D.	Absorption spectroscopy in near and far ultra-violet
Professor E.W.J. Mitchell, Ph.D.	Irradiation damage of solids
C.D. Clark, Ph.D.	
J.N. Lomer (Miss), D.Phil.	
S.D. Smith, Ph.D.	Absorption spectra and Faraday effect in the infra-red
T.B. Rymer, Ph.D.	Electron scattering intensities
P.C. Banbury, Ph. D.	Surface properties of semiconductors in ultra-high vacuum
G.W. Green, Ph.D.	
B.L. Evans, Ph.D.	Low temperature optical measurements
T. Evans, Ph.D.	Electron microscopy: study of crystals
E.A. Faulkner	Magnetic resonance studies of solids
P.G. Harper, Ph.D.	Theoretical (solid state) physics
H.K. Henisch, Ph.D.	Semiconductors; electroluminescence

11. Physics *(continued)*

R.S. Leigh	Theoretical (solid state) physics
K. Robinson, Ph.D.	X-ray crystallography of intermetallic compounds
B. Szigeti, Ph.D.	Theoretical (solid state) physics
D.H. Tomlin, Ph.D.	Investigations using radioactive tracers, particularly diffusion in metals

12. Psychology

Professor M. D. Vernon, Sc.D.	Visual perception
R. Davis, Ph.D.	Information handling and human skill
B.R. Singer	Subliminal perception Confidence
G.K. Wallace, Ph.D.	Visual perception and behaviour in insects Human shape constancy

13. Zoology

Professor A. Graham	Anatomy and physiology of gastropod molluscs
V. Fretter (Miss), D.Sc.	Functional anatomy and embryology of invertebrates
M.I. Crichton, Ph.D.	Functional anatomy of insects; the biology of caddis flies; leaf miners
K.H. Mann, Ph.D.	Ecology and physiology of freshwater animals, particularly leeches Study of populations of fish and invertebrates in the Thames
G. Williams	Diurnal activity of the floor community with particular reference to arthropods Timing mechanisms of insect life histories
M.G. Hardy	Nervous system of Crustacea and Mollusca
D. Bryce, Ph.D.	Systematics and general biology of the Diptera, with particular reference to the larvae of the Chironomidae
E. Johnson (Miss), Ph.D.	Factors affecting the growth and replacement of hair

65 Reading University
National Institute for Research in Dairying*

1. Biochemistry

DEVELOPMENT COMMISSION UNIT FOR BIOCHEMICAL RESEARCH BEARING ON FISHERIES PROBLEMS

S.K. Kon, D.Sc. (Head of Unit)	The vitamin A chain in the sea Vitamin B_{12} and marine productivity
C.B. Cowey	Non-protein nitrogen in aquatic animals
K.W. Daisley, D.Phil.	Pigments of compound eyes
L.R. Fisher, Ph.D.	
P.A. Plack, Ph.D.	

Radiobiochemistry:

R.F. Glascock, Ph.D., D.Sc. (Head of Department)	Biochemical investigations of fat absorption and transport in the ruminant
G.D. Braithwaite, Ph.D.	The metabolism of small molecules and pathways of glucose catabolism in various tissues of various species
R.W. Smith	The metabolism of labelled oestrogens by animals and animal tissues
V.A. Welch, Ph.D.	Effect of oestrogens on the metabolism of various labelled substrates both *in vivo* and *in vitro* by various species Preparation and use of tritium-labelled substances

* Director: Professor R. G. Baskett, O.B.E.

2. Chemistry

S.J. Rowland, Ph.D. (Head of Department)	Fundamental study of variations in milk composition: environmental and genetic effects
R. Aschaffenburg, Ph.D.	Milk proteins: their constitution, properties and inheritance; heat denaturation and role of sulphydryl groups
R.L.J. Lyster, Ph.D.	
J.A.F. Rook, Ph.D.	Food utilization by the dairy cow; rumen metabolism
R.H. Smith, Ph.D.	Hypomagnesaemia in dairy cattle
J.E. Storry, Ph.D.	Calcium and magnesium metabolism in calves

3. Dairy Husbandry

A.S. Foot (Head of Department)	Grassland and fodder crops in relation to milk production Cow management factors in milk production
R. Braude, D.Sc.	Factors controlling growth in pigs
P.A. Clough	
F.H. Dodd, Ph.D.	
R.G. Kingwill	
C. Line	
K.G. Mitchell, Ph.D.	
J.C. Murdoch, Ph.D.	

4. Dairy Products

H.R. Chapman (Miss)	Experimental dairy: Ripening of cheese and its control Studies concerning milk and cheese quality New methods of making cheese

5. Engineering

H.S. Hall (Head of Department)	Machine milking; bulk milk handling
R.T. Budd	Mechanization of cheesemaking
H. Burton	Heat treatment and aseptic filling of milk
J.B. Hoyle	Testing dairy machinery and equipment
S.F. Suffolk	Design of scientific apparatus
C.C. Thiel, Ph.D.	Cleaning and disinfection of milking machines

6. Feeding and Metabolism

C.C. Balch, Ph.D. (Head of Department)	Efficiency of food utilization by the ruminant Factors controlling the voluntary intake of food by cattle
W.H. Broster, Ph.D.	Factors affecting yield and composition of milk
R.C. Campling Ph.D.	Ruminant digestion
J.H.B. Roy, Ph.D.	Factors influencing the growth and milk yield of dairy heifers Rumen development and other factors affecting the utilization of food by the ruminant calf Milk substitute diets in relation to the health and growth of herd replacement and veal calves

7. Microbiology

Bacteriology:

W.A. Cuthbert (Head of Department)	Bacteriology of milk products Improvements in processing; ultra-high temperature sterilization
C.M. Cousins (Miss), Ph.D.	Disinfection of apparatus, utensils and plant used in dairying; management in relation to udder infection
J.G. Franklin, Ph.D.	
E.I. Garvie (Miss), Ph.D.	
D.J. Jayne-Williams, Ph.D.	Micro-organisms of the rumen and alimentary tract: antibiotics and growth rate in animals

7. Microbiology *(continued)*

Bacteriology: *(continued)*

M. Lev, Ph.D.	Taxonomy and serology of lactobacilli
F.K. Neave	Taxonomy of streptococci and other dairy organisms
B. Reiter	Assay of vitamin K
M.E. Sharpe (Miss), Ph.D.	Nutrition and metabolism of lactic acid streptococci Lactic acid streptococcal phages

Chemical Microbiology:

N.J. Berridge, D.Sc. (Head of Department)	Differentiation of bacteria according to their content of free amino-acids
G.C. Cheeseman, Ph.D.	Chemical and bacteriological studies of cheesemaking and ripening
L.A. Mabbitt, Ph.D.	Rennin and the nature of its action on casein

8. Nutrition

S.K. Kon, D.Sc. (Head of Department)	Nutritive value of milk (proteins, vitamins, minerals, fat)
M.E. Coates (Miss), Ph.D.	Effects of heat treatment and processing on nutritive value of milk and of feeding and management of cows on its vitamin content
J.E. Ford, Ph.D.	Methods, chemical, physical, biological and microbiological, for measuring vitamins and for assessing the nutritive quality of food proteins
M.E. Gregory (Miss), G.F. Harrison	
K.M. Henry (Miss), D.Sc.	Absorption and metabolism of vitamin B_{12}; vitamin B_{12}-like compounds
W.S. Miller	Role of intestinal flora in nutrition; germ-free animals
J.H. Moore, Ph.D.	Digestion and assimilation of carbohydrate, protein, fat and minerals in the young pig and calf
J.W.G. Porter, Ph.D.	
S.Y. Thompson, D.Sc.	Vitamin D and antagonistic factors in pastures and hays
J. Toothill (Miss), Ph.D.	

9. Physics

G.W. Scott-Blair, D.Sc. (Head of Department)	Kinetic studies of enzyme reactions on casein and of changes in physical properties of milk under action of rennet; rheological measurements; studies in syneresis; physical changes in curd during early stages of cheesemaking; physical methods for measuring "body" of cheese
F.A. Glover	
J.D.S. Goulden, Ph.D.	
L.W. Phipps	
J.H. Prentice	
H.W. Thomas, Ph.D.	Thermal properties of emulsions, especially milk and cream, including preparation and processing
	Electrical and ultrasonic measurements on dairy products
	Mechanical properties of fats and butter
	Infra-red spectroscopy of aqueous solutions and of dairy products; spectroturbimetric studies of homogenization
	Biophysics: flow-birefringence, sedimentation measurements and rheological properties of bovine cervical mucus and mucoids; studies in coagulation and flow of bovine blood; flow properties of semen; accurate physical methods for counting sperm and for studying viability

10. Physiology

S.J. Folley, D.Sc., F.R.S. (Head of Department)	Physiology of milk secretion: neural and hormonal factors and mechanisms concerned in mammary growth and in initiation and maintenance of lactation

10. Physiology (*continued*)

P. Andrews, Ph.D.	Neuroendocrine milk-ejection reflex: release of milk-ejection hormone (oxytocin) into the blood in relation to milking and other stimuli
A.T. Cowie, D.Sc.	
R.A. Gibbons, Ph.D.	
H. Gutfreund, Ph.D.	Studies on prolactin assay with special reference to blood levels of prolactin in various physiological states
E.A. Jones, Ph.D.	
G.S. Pope, D.Phil.	Biosynthesis of main milk constituents in the living animal, in the perfused udder and in mammary tissue preparations; metabolic pathways in mammary tissue
G.P. Roberts, Ph.D.	
D. Tampion, Ph.D.	
J.S. Tindal, Ph.D.	Studies on enzymes of mammary gland and milk
	Sex hormone levels in the blood of ruminants in relation to reproduction and lactation; oestrogens in pasture plants
	Biochemistry of cervical mucus with special reference to the control of fertility; interactions between cervical mucus and sperm

11. Statistics

Z.D. Hosking (Miss)	Principles and methods of experimentation with dairy cattle
	Biometry in dairy research

66 St. Andrews University
St. Salvator's College, St. Andrews

1. Anatomy

Professor R. Walmsley, M.D.	Bone, experimental
	Joints
	Heart
J.W. Smith, M.D.	The mechanism of joints
	Physical properties of bone
	Structure of bone
J. Frame	Comparative study of bone
T.R. Murphy	Joints

2. Astronomy

Professor D.W.N. Stibbs	Photometry of galactic nebulosities and extra-galactic nebulae
	Stellar kinematics and galactic structure
	Theory of stellar atmospheres and interiors
T.B. Slebarski	Astronomy and celestial mechanics
T.R. Carson, Ph.D.	Theoretical astrophysics
A.J. Meadows, D.Phil.	Stellar structure and stellar evolution

3. Biochemistry

Professor A.E. Ritchie, M.D.	
S. Bayne	Carbohydrate structure and metabolism
G.R. Tristram, Ph.D.	Chromatography of proteins and structure
G.A.J. Goodland, Ph.D.	Tumour-host relationships
D. Thirkell, Ph.D.	Plant pigments
F.S. Steven, Ph.D.	Protein structure

4. Botany

Professor J.A. Macdonald, D.Sc.	The nuclei of fungi: life cycles of parasitic fungi

4. Botany (*continued*)

M.C.H. Blackler (Miss), Ph.D.	Ecology of marine algae with regard to seasonal variation in growth and reproduction
	Culture of certain species and study of their autecology
D.C. Weeks, Ph.D.	Physiology of adaptation in maritime plants and algae
D. Davidson, D.Phil.	Chromosome breakage: organization of apical meristems of roots
E.G. Duncan	Speciation in diaphoromictic fungi
R.M.M. Crawford, Ph.D.	Physiology and ecology of reproduction in angiosperms

5. Chemistry

F.D. Gunstone, D.Sc	Stereochemistry; chemistry of terpenes and camphors; essential oils; alchemy and historical chemistry
	Animal and vegetable fats; long-chain fatty acids and related compounds; shellac
D.H. Reid, Ph.D.	Homocyclic and heterocyclic aromatic systems; studies of hydrogen transfer
D.M.G. Lloyd	Alicyclic compounds; non-benzenoid aromatic systems; terpenes
C. Horrex, Ph.D.	Kinetics of thermal decomposition of organic compounds with a view to determining bond energies
	Free radical and free atom reactions in the gas phase
D. Calvert, Ph.D.	Organo-metallic compounds
G.G. Cameron, Ph.D.	Polymer degradation processes
I.J. Worrall, Ph.D.	Halides of group III and related compounds

6. Geography

K.M. MacIver (Miss), Ph.D.	Problems of tropical geography, with particular reference to Africa
	Scotland: geomorphology; water resources
	Regional geography: methodology
J.H. Paterson	Geographical methodology
	Functional urban geography
G.W. Whittington, Ph.D.	Historical geography of land use in Britain

7. Geology

Professor C.F. Davidson, O.B.E., D.Sc., F.R.S.E.	The genesis of ore deposits
	Geochemistry of the radioactive elements
	Regional petrology of the Outer Hebrides
H.I. Drever, Ph.D., F.R.S.E.	Petrogenesis of picritic rocks
W.T. Harry, F.R.S.E.	The Cairngorm granite mass
	The diorite intrusion near Comrie, Perthshire
A.R. MacGregor, Ph.D.	The Llandeilo rocks of S.W. Wales
	The Silurian of the Girvan District
J.A. Weir, Ph.D.	Lower Palaeozoic geology of (i) the Slieve Bernagh Mountains, Co. Clare; (ii) the region between Creetown and Gatehouse, Kirkcudbrightshire
	Silurian trilobites of Girvan
	Ashgillian *Cyclopyge* faunas from N. Wales.
A.M. Hopgood	The Lewisian gneiss of Barra, Outer Hebrides

8. Mathematics

Professor E.T. Copson, D.Sc.	Partial differential equations. Asymptotic expansions

8. Mathematics *(continued)*

D.E. Rutherford, D.Sc.	Algebra
A.R. Mitchell, Ph.D. D.Sc.	Numerical analysis
D. Borwein, D.Sc.	Summability
J.R. Gray	Statistics
P.H.H. Fantham, D.Phil.	Algebraic topology
J.D. Lambert	Numerical analysis
D.M.E. Foster (Miss), Ph.D.	Geometry of numbers
T.W. Parnaby, Ph.D.	Dimension theory
G.J. Makinson, Ph.D.	Numerical analysis
J.B. Tatchell, Ph.D.	Summability
D.B. Fairlie, Ph.D.	Quantum field theory

9. Physics

Professor J.F. Allen, F.R.S.	Hydrodynamics of superfluid helium and the helium film
D.V. Osborne, Ph.D.	
P.W.F. Gribbon, Ph.D.	
D. Bijl, Ph.D.	Electron spin resonance of free radicals Spin lattice relaxation phenomena
F.A. Rushworth, Ph.D.	Nuclear magnetic resonance in molecular crystals

Theoretical:

Professor R.B. Dingle, Ph.D.	Problems in metals and semiconductors Mathematical methods
C.G. Kuper, Ph.D.	Hydrodynamics of liquid helium The many-body problem
S. Jorna	Asymptotic expansions and perturbation theory

10. Physiology

Professor A.E. Ritchie, M.D.	Nerve injury diagnosis Physiotherapy
J.H. Taylor	Physique and stress
C.G. Ingram	Muscle development; human nervous system tests
W.G.S. Stephens	Medical electronics: design and application

11. Psychology

H.H. Ferguson	General and social psychology Motivation

12. Zoology

NATURAL HISTORY AND GATTY MARINE LABORATORY

Professor H.G. Callan, D.Sc., F.R.S.	Cytogenetics: structure and properties of giant cell nuclei and of lampbrush chromosomes
D.R.R. Burt	Avian parasitology and helminthology in general
G.A. Horridge, Ph.D.	Anatomy and physiology of nervous systems of invertebrates; coelenterates, annelids, lamellibranchs and arthropods
C. Muir, Ph.D.	Metabolic and chemical aspects of ageing in animals
M.S. Laverack, Ph.D.	Sensory physiology of annelids and molluscs

67 St. Andrews University, Queen's College, Dundee

1. Anatomy

Professor R.E. Coupland	Histochemistry of the peripheral nervous system Problems relating to the synthesis, storage and release of pressor amines and insulin, including the use of radioactive isotopes and electron microscopy

1. Anatomy *(continued)*

J.D.B. MacDougall, M.D.	Tissue culture in relation to cell metabolism and endocrine organs
I.H.M. Smart	Histogenesis and organization of nervous system
D. Hopwood	Radioisotopes; electron microscopy; problems related to endocrine organs and autonomic nervous system

2. Chemistry

Inorganic and Physical:

Professor A.D. Walsh	The effects of surfaces on combustion reactions; the combustion of hydrocarbons with special reference to their behaviour in internal combustion engines
	The oxidation of phosphorus
with P.A. Warsop, Ph.D.	Absorption spectra in the vacuum ultra-violet and under high resolution in the near ultra-violet
D.E. Hoare, Ph.D.	The oxidation of methane
	Oxidation of ammonia and of phosphine
J. L. Copp, Ph.D.	Thermodynamics of strongly polar solutions
J. Iball, D.Sc.	The investigation by X-ray diffraction methods of the crystal and molecular structure of organic compounds and of metal-organic complexes
with C.R. Allen, Ph.D.	A study of the properties of surfaces in relation to the structure of thin deposited films
D.E. Hoare, Ph.D.	The photochemical oxidation of ketones. The thermal and photochemical oxidation of di-t-butyl peroxide
	Decomposition of hydrogen peroxide vapour and its use in initiating hydrocarbon oxidation
D.E. Bethell, Ph.D.	Infra-red spectra of inorganic compounds and force constant calculations
R.F. Jameson, Ph.D.	The stability, spectra and magnetic properties of transitional metal complexes
	The chemistry of phosphorus compounds
E.T. Stewart, D.Phil.	Wave-mechanical studies of atomic and molecular energy levels
P.G. Wright, Ph.D.	Thermal conductivity and viscosity of gases
	Evaporation and condensation
	Heterogeneous inhibition of combustion
	Theory of low-pressure rates of unimolecular reactions
C.R. Allen, Ph.D.	Inhibition of combustion reactions
P.A. Warsop, Ph.D.	Electronic spectra of small polyatomic molecules
W.K. Busfield, Ph.D.	Preparation and properties of some phosphorus polymeric compounds
	Kinetics and thermodynamics of reactions involving inorganic polymers

Organic:

R. Roger, Ph.D.	Synthesis and reactions of aziridines
	Synthesis and reactions of optically active substituted tetrahydrofurans. Investigations of molecular rearrangements using optically active materials
	Synthesis and reactions of optically active desylamines
K.M. Watson (Mrs.), Ph.D.	Chemistry of imidates
R. Foster, D.Phil.	Charge-transfer complexes. Mechanisms of aromatic substitution
A. Nechvatal, Ph.D.	The mechanism of substitution at allylic carbon atoms
D.G. Neilson, Ph.D.	Chemistry of imidates, amidines, formazans and tetrazolium salts
	Stereochemical topics
G.R. Inglis, Ph.D.	Carbohydrate problems

3. Dental Studies

Professor A.D. Hitchin, D.D.Sc.	Odontomes in animals and man
with D.C. Hall	Clinical oral pathology
W.D. McHugh, D.D.Sc.	Epidemiology of dental disease and its correlation with causative factors
J.D. McEwen	
N.B.B. Symons	A histochemical study of the dental tissues
J.D. McEwen	Incisal relationship
W.D. McHugh, D.D.Sc.	Histology and histochemistry of the periodontium, both normal and pathological
G.B. Summersgill	Assessment of pre-operative medication
J.N. Anderson with J.W. McCrorie	Clinical evaluation of partial dentures and of tooth form in full dentures
	Elastic impression materials
	Dental waxes
	Wrought stainless steel wires
I.W.M. Jeffrey	Biological effects of zinc oxide eugenol
D.C. Hall	Variations in dietary fats and possible effects on teeth
with H.C. Fowlie	Salivary changes in mental disease

4. Engineering

Civil and Mechanical:

Professor J. Dick	
A.P. Hall, Ph.D.	Velocity distribution in fluid streams
W. McNicoll	Scale models of hydraulic structures
A. Gibb	Stability of web stiffeners
R.L. Williamson	Boundary layers on curved surfaces
N. Jackson, Ph.D.	Ultimate strength of structural sections in combined torsion and bending with special reference to circular arc bow girders

Electrical:

Professor E.G. Cullwick, O.B.E., D.Sc.	Electromagnetic theory
A.J.O. Cruickshank, Ph.D.	Non-linear problems in control systems
	Solid state control of electric motors
J.A. Bennet, Ph.D.	Transistor circuitry

5. Geology

F. Walker, Ph.D., D.Sc. (Head of Department)	Tertiary dyke swarms of Hebrides
	Contact phenomena of dolerites
	Basaltic crystallization
J.E. Richey, Sc.D., F.R.S.	Ordovician dykes of Tyrone
D.M. Ramsay, Ph.D.	Metamorphic petrology of Grampians and of Søroyen Island (Hammerfest)

6. Mathematics

J.M. Jackson, Ph.D.	Sound and water waves in non-homogeneous media
T.E. Faulkner, Ph.D.	Statistics
H.G. Anderson, Ph.D.	Group representations
R.P. Pearce, Ph.D.	Dynamical meteorology
H. Jack	Analysis
J.M. Rushforth, Ph.D.	Dynamical meteorology
I.T. Adamson, Ph.D.	Algebra and number theory
A.D. Sands, Ph.D.	Abelian groups
C. Dixon	Dynamical meteorology

7. Medicine

Professor I.G.W. Hill, C.B.E. K.G. Lowe, M.D. D. Emslie-Smith, M.D. H. Watson	Studies in intracardiac electrocardiography, vectorcardiography and haemodynamics
K.G. Lowe, M.D.	Renal tubular defects
W.K. Stewart	Haemodialysis
H. Watson	Cine-angiocardiography with image intensification Investigation of congenital heart disease in early infancy
J.A.R. Lenman	Experimental studies in neuromuscular disorders, using intracellular electrodes in healthy and dystrophic mammalian muscle Angiographic studies of cerebral circulation
W.K. Stewart	Homeostatic mechanisms governing sodium and water economy Oedema and the action of diuretics
D. Emslie-Smith, M.D. W.K. Stewart P.C. Robertson	Biochemical studies in chronic cor pulmonale

8. Microbiology

Bacteriology:

T. Sommerville, M.D.	Studies on mating systems and suppressor genes of *Shigella sonnei*
W. Shepherd, M.D. with J.N. Christison (Mrs.)	Study of the colicines of *Shigella sonnei*
D.A.R. Simmons, M.D.	Chemical investigation of type-specific polysaccharides of micro-organisms
D.M. Green, M.D.	Effects of nitrogen mustard on antibody production Studies in auto-immunity Investigation of chronic bronchitis
H.M. Dick (Mrs.)	Studies of adenovirus in tissue culture

9. Obstetrics and Gynaecology

Professor J. Walker	Statistical and clinical investigation of the aetiology of stillbirth, neonatal death and foetal deformity Clinical and laboratory investigations in prematurity
M.C. Macnaughton	Clinical and laboratory investigation in abortion Early pregnancy hormone metabolism
M.G. Coyle (Miss)	Urinary steroid excretion in normal and abnormal pregnancy
M. Greig (Miss)	Chemical studies of progesterone metabolism: mother and foetus
M.C. Miller (Miss)	Statistical and clinical review of gynaecological malignant disease

10. Ophthalmology

A.A. Douglas, M.D.	The aetiology of congenital squint The cause of tobacco amblyopia Refractive changes in diabetes The eyes and vision in premature infants

11. Orthopaedics

I.S. Smillie, O.B.E.	Aetiology and surgical pathology of meniscus tears Osteochondritis dissecans and related conditions Paget's disease Preparation of cancellous bone grafts Stenosing tendovaginitis Lower limb prostheses

12. Otorhinolaryngology

A.G. Gibb J. Mowat	Investigation into deafness in the jute industry
A.G. Gibb	Investigation into hypernasality following tonsil and adenoid removal

13. Paediatrics and Child Health

Professor J.L. Henderson, M.D.	Cerebral palsy
R.G. Mitchell, M.D.	Histamine metabolism in childhood
K. Rhaney	Foetal anoxia Neonatal pneumonia Placental pathology
C.C. Forsyth (Miss), M.D.	A study of suprarenal cortical function in the newborn period

14. Pathology

Professor A.C. Lendrum, M.D., and staff	Plasmatic vasculosis Pulmonary hypertension Pathology of trophoblast Pathology of hypercalcaemia Myocardial damage Pregnancy anaemia Elliptocytosis Fibrinolysis So-called collagen diseases

15. Pharmacology and Therapeutics

Professor R.B. Hunter	Studies on thyrotropic hormone and thyrotoxicosis
P.B. Marshall, Ph.D. W. Walker	The relationship between mast cell and non-mast cell histamine
D.M. Shepherd, Ph.D. R.S. McNeil	The pharmacology and therapeutics of hypoglycaemic agents
A.J. Matty, Ph.D.	The effects of drugs on enzyme systems
J.G. Sprunt	Studies on thrombosis and haemorrhage, and the pharmacology of anticoagulants The pharmacology of 5-hydroxytryptamine Study of gas diffusion in the lungs and the effect of drugs on respiratory pharmacology Intermediate metabolism of steroids Enzymic mechanisms in the formation and metabolism of histamine and 5-hydroxytryptamine

16. Physics

Professor G.D. Preston, Sc.D.	
S.G.G. MacDonald, Ph.D. D.M. Burns, Ph.D.	Structure of organic molecules
E. Braun, Ph.D.	Solid state physics
W.G. Ferrier, Ph.D. D.W. Young, Ph.D.	Structure of fibres
H.R. Wilson, Ph.D.	Structure of biological molecules

17. Physiology

Professor G.H. Bell, M.D.	Physiology of bone growth

17. Physiology *(continued)*

R.P. Cook, D.Sc.	Cholesterol metabolism generally and in relation to atherogenesis
B.L. Andrew, D.Sc.	Innervation of muscle
G.J. Dutton, Ph.D.	Uridine diphosphate glucuronic acid and the biosynthesis of glucuronides and mucopolysaccharides
J. Tibbs, Ph.D.	Motility in sperms and in micro-organisms
J.T. Hemingway, Ph.D.	Studies in mechanisms involved in control of mitosis rates

18. Psychiatry

Professor I.R.C. Batchelor, F.R.S.E. with Professor R.B. Hunter, M.B.E.	Clinical and biochemical study of adrenocortical function in manic-depressive psychosis
A. McGhie, Ph.D.	Clinical and experimental study of disturbances of attention and perception in schizophrenia

19. Public Health and Social Medicine

Professor A. Mair and staff	Epidemiology of chronic bronchitis Respiratory disease in jute and flax workers Survey of the Student Health Service in Britain Road accidents to pedestrians Aspects of rehabilitation and resettlement Noise levels and hearing survey in the jute industry

20. Radiotherapy

W. Cameron Swanson	Carcinoma of breast
J.F. Riley	Mast cells and carcinogenesis

21. Surgery

Professor D.M. Douglas	The treatment of congenital and acquired valvular lesions of the heart by surgical means
J. Grieve, M.D.	
W.F. Walker	The healing of incised wounds in fascia in relation to local factors Use and storage of vascular grafts Biochemical aspects of collagen synthesis in healing wounds Recording of pressures in urinary tract in patients with unexplained urinary infections Biochemical aspects of total body perfusion Calcium metabolism in relation to surgical procedures

22. Tuberculosis and Chest Diseases

R.N. Johnston, M.D.	Antibiotic treatment of chronic bronchitis Optimal dose of streptomycin in pulmonary tuberculosis Declining tuberculin sensitivity with advancing age

23. Zoology

F.L. Waterhouse, Ph.D.	Insect microclimates and biology of sawflies and stored products insects
A.R. Sanderson (Miss), Ph.D.	Cytology of parthenogenetic insects
B.J.A. Nowosielski-Slepowron, Ph.D.	Biology and control of tsetse and stored products insects

68 Sheffield University

1. Anatomy

B.F. Martin, M.D.	Histochemical studies of various tissues under normal and experimental conditions Aspects of human anatomy

1. Anatomy *(continued)*

T.S. King	The conducting system of hearts of Carnivora and Cetacea Aspects of human anatomy
P.F. Harris	Studies of fundamental aspects of haemopoiesis
G. Haigh	Histological studies of red bone marrow

2. Biochemistry

Professor Q.H. Gibson	Intermediate compounds of haemoglobin with gases
M.A.G. Kaye, Ph.D.	Phenylketonurea of brain metabolism
G. Weber, M.D., Ph.D.	The properties of protein molecules as revealed by spectroscopic and fluorescent techniques
T. Hofmann, Ph.D.	Proteolytic enzymes
P.M. Harrison (Mrs.), D.Phil.	Structure of ferritin and apoferritin
V. Massey, Ph.D.	Oxidative enzymes
K. Dalziel, Ph.D.	Enzyme kinetics
J. Sykes, Ph.D.	Mechanisms of action of antibiotics
S. Ainsworth, Ph.D.	Polarization spectra

3. Botany

Professor A.R. Clapham, F.R.S.	Geotropism of woody shoots Autecology of *Galium odoratum* and *Milium effusum*
J.G. Boswell, D.Sc.	Polyphenol metabolism with reference to oxidation systems in the higher plants Nitrogen, phosphate and organic acid metabolism in relation to terminal oxidase systems
J. Webster, Ph.D.	The ecology of fungi, especially aquatic Hyphomycetes The succession of coprophilous fungi Taxonomy of Pyrenomycetes with special reference to their conidial states
C.D. Pigott, Ph.D.	Soil development on limestone Factors in plant nutrition on limestone soils Analysis of climatic factors controlling the distribution of various species at the margin of their geographical range in the Pennines
A. Booth, Ph.D.	Mechanism of correlative inhibition, especially in the potato

4. Cardiology

D. Verel, M.D.	Management of cardiac failure in infancy Assessment of electrocardiographic evidence of myocardial hypertrophy and strain Prediction of blood volume in infants Measurement of blood loss in cardiac surgery Electrolyte control in cardiac surgery

5. Chemistry

Inorganic:

R.G. Wilkins, Ph.D. D.Sc.	Mechanism of reactions of complex compounds Chemistry of protactinium Chemistry of sulphur-nitrogen compounds
J.B. Headridge, Ph.D.	Studies in metallurgical analysis
A.J. Smith, Ph.D.	Chemistry and crystal structure of mixed metal oxides
S.F.A. Kettle, Ph.D.	Metal carbonyls
P.G. Perkins, Ph.D.	Physical properties of molecular addition compounds

5. Chemistry (*continued*)

Organic:

Professor R.D. Haworth, D.Sc., Ph.D., F.R.S.	Natural products, particularly resins, lignins, terpenoids steroids and alkaloids; chemistry of cafesterol Phenolic oxidation products Naturally occurring gallotannins Synthesis of depsides Derivatives of quinic acids Angularly bridged cyclic structures
T.S. Stevens, D.Phil., F.R.S.	Molecular rearrangements Chemistry of porphin
A.H. Lamberton, Ph.D.	Chemistry of nitroamines Polycyclic aromatic compounds
J. McKenna, Ph.D.	Stereochemical problems
J.M. Tedder, Ph.D.	Organic fluorine compounds Diazonium compounds
E. Haslam, Ph.D.	Analogues of dehydroshikimic acid Biosynthesis of tannins
P.I.A. Finan, Ph.D.	Carbohydrates Furan chemistry
D.N. Jones, Ph.D.	Steroid chemistry
R. Brettle, D.Phil.	Synthesis of naturally occurring fatty acids
R.A.Y. Jones, Ph.D.	Nuclear magnetic resonance studies

Physical:

Professor G. Porter, Sc.D., F.R.S.	Spectroscopy, structure and reactivity of free radicals and excited molecules Photochemistry and radiation chemistry of aromatic molecules Phosphorescence and the triplet state Reactions in rigid solvents Atom recombination
A.S.C. Lawrence, Sc.D., Ph.D.	Study by various physical methods of the solubility of organic substances in aqueous solutions of soaps of all types as phase equilibria in partially miscible ternary systems The nature and stability of emulsions
H.J.V. Tyrrell	Thermal diffusion and associated phenomena in liquids Complex equilibria in solution Infra-red spectroscopy
P.A.H. Wyatt, Ph.D.	Properties of dissociating solvents
J.H.A. Leisten, Ph.D.	Organic reactions in strong acids
B. Stevens, D.Phil.	Electronic and vibrational relaxation in aromatic molecules Energy transfer in fluid media Kinetics of excimer formation and dissociation Effects of molecular orientation on fluorescence spectra of, and energy transfer in, aromatic crystals
J.N. Murrell, Ph.D.	Theoretical chemistry
B. Brocklehurst, D.Phil.	Radiation chemistry and spectroscopy
K.R. Jennings, D.Phil.	Reactions of atoms and radicals in the gaseous phase and in matrices at low temperatures
R.N. Dixon, Ph.D.	Spectroscopy
N.M. Atherton, Ph.D.	Electron spin resonance spectroscopy of organic free radicals

6. Dental Studies

Professor G.L. Roberts

Oral Anatomy and Histology:

R. Sprinz, Ph.D.	Experimental work on the mandibular joint in experimental animals
M.M. Wedgewood (Miss)	Growth of jaws and eruption of teeth in experimental animals

Orthodontics:

J.H. Gardiner	A survey of impacted teeth: their aetiology and treatment by orthodontic means
	An investigation into the joining of stainless steel surfaces with special reference to soldering
	Incisor positioning and the oral musculature
	Tongue and malocclusion
	Anterior bite plane in orthodontic treatment
V.S. Iyer	Investigation of the aetiological factors in cleft palate patients
	Influence of environmental factors upon skull growth
	Comparison of the facial pattern in Indian and English adults

Pathology:

Professor J.J. Hodson, Ph.D.	The histogenesis and structure of enamel defects
	The pathology of caries
	The incidence, nature and pathology of vestigial and developmental structures in the oral region
	The histogenesis of giant cell lesions and certain debatable tumours
J.H. Allan	Histological, microradiographic and polarization microscopy studies on normal mature and developing mammalian dental tissues
	The structure, ultrastructure and development of dog enamel and dentine in experimental fluorosis

Prosthetics:

A.J.W. Turrell	An investigation into the causes of inflamed denture-bearing tissues and angular cheilosis with special reference to the effects of trauma, allergy, and the bacterial flora
J.P. Smith	Observations on temporo-mandibular joint dysfunction
M.L. Lehman	Investigation into the causes of failure of bridges and partial dentures

Surgery:

Professor E.L. Hampson A. Atkinson (Miss)	An investigation into the bacteriology of pulpless teeth and the drugs used to sterilize their root canals
Professor E.L. Hampson R.D. Medd	A study of the accuracy of copper deposited dies made from silicone and rubber base impression materials
J. Clarke	An investigation into the methods of fusing porcelain to gold

7. Dermatology

I.B. Sneddon	Follow-up of the effect of systemic steroids in constitutional eczema
	The ACTH stimulation test in patients who have been on systemic steroids for a number of years
	The study of genetic factors in psoriasis
	Investigation of the association between Bowen's disease and internal carcinoma

7. Dermatology (*continued*)

R.E. Church, M.D.	Studies of lipid metabolism in xanthelasma
	Studies in epidermal sensivity to hydrocortisone precursors

8. Engineering

Applied Mechanics:

Professor W.A. Tuplin	Endurance of materials loaded and lubricated as in toothed gearing
	Dynamic loads on gear teeth
M.L. Meyer	Fatigue with non-sinusoidal loading
	Axisymmetric loading of discs and wheels by frozen-stress photoelasticity
P. Freeman	Investigation of electrical methods for the measurement of lubricant film thicknesses
	Performance of journal bearings lubricated with water and steam
	Influence of operating conditions on the thermal equilibrium of a journal bearing
E. Rose	Development of a precision pneumatic servo with power amplification
	Performance analysis of capstan type torque amplifiers

Civil:

Professor N.S. Boulton	Fatigue strength of steel under variable loads
	Strength and deformation of V-ribbed floor plates
	Effect of delayed yield on flow to pumped well
W. Eastwood, Ph.D.	The bearing power of various forms of pile
	Vibration in foundations
	Impact strength of concrete
	Design of machine tool foundations
C. Osgerby	Lateral stability of plane frames
E.J. Sarginson	Scale effects in bellmouth spillway models
C.B. Wilby, Ph.D.	Plastic redistribution of bending moments in reinforced concrete frames
	The characteristics of diagonal tensile failures for prestressed concrete beams

Electrical:

Professor A.L. Cullen, Ph.D.	Generation of millimetre waves
	Applications of millimetre waves to plasma diagnostics
	R.F. corona on aerials
	Supergain aerials
	High power waveguide systems
	Torque-operated millimetre wave wattmeter
O.I. Butler, D.Sc.	A.C. characteristics of magnetic materials
	A.C. motor characteristics
	Closed-loop control of induction motors
D. Harrison, Ph.D.	Analogue computer methods in engineering problems
F.A. Benson, D.Eng.	Attenuations of waveguides at millimetre wavelengths
	Harmonic generation and detection at millimetre wavelengths
	Characteristics of glow discharge tubes
D.J. Harris, Ph.D.	Microwave amplification by unstable electron beams
	Supergain aerials
	New methods of generating electric power

8. Engineering (*continued*)

Electrical (*continued*)

P.N. Robson	A Doppler method of millimetre-wave generation Cyclotron wave amplifiers and harmonic generators Microwave propagation in plasma sheaths
H. Hartnagel	Hollow beam gun design
P.J.B. Clarricoats, Ph.D.	Electromagnetic wave propagation in plasma wave-guides Propagation along periodically loaded ferrite rods Ferrite sphere aerials
R. Brown, Ph.D.	Air-gap spaceharmonics in electrical machines Control of electromagnetic vibrators
J. Allison, Ph.D.	Generation of millimetre waves Microwave plasma phenomena
A.M. Howatson, Ph.D.	Gas discharge measurements

Mechanical:

Professor J.P. Duncan	Stress analysis of heat exchanger and pressure vessel components Mechanical design of metal cutting tools
E.P.Bernat	Mixing of supersonic and subsonic air flows Boundary layer separation and reattachment
G.C. Briggs	Air-cooled diesel engine operation Fuel injection nozzles for air-cooled diesel engines
D.S. Dugdale, Ph.D.	Mechanics of metal cutting Stress analysis of rotating discs
T.B. Ferguson	Fluid mechanics and thermodynamics of turbo-machinery
B. Kenny	Stress analysis of thick plates Three-dimensional photoelasticity
P.B. Neal, Ph.D.	Hydrodynamic lubrication of journal and thrust pad bearings
L.G.M. Sparling	Slab metal rolling with particular reference to planetary mills
J.D. Stringer	High speed hydraulic valves Refrigeration
W.A.C. Swift	Stress analysis in plates with large deflections Mixing of supersonic and subsonic air flows
D.M. Woo	Axially symmetrical forming on sheet metal

9. Forensic Medicine

G. Forbes, M.D.	The applications of blood group serology to medico-legal problems Factors affecting the protective capacity of the skull Chemical methods of assessing the time since death Medico-legal aspects of heart disease

10. Genetics

Professor J.A. Roper, Ph.D.	Genetics of micro-organisms Extra-chromosomal determinants
C.E. Blank, Ph.D.	Mutation rate estimates in man Effects of parental age and birth order on the incidence of various human conditions Human chromosome studies
R.A. Woods	Genetics of micro-organisms

11. Geography

Professor C.A. Fisher	Social, economic and political geography of S.E. Asia and Japan
Professor A. Garnett, Ph.D.	Microclimatology of the S. Pennines
	Factors affecting the distribution of atmospheric pollution, and air pollution survey in the Sheffield region
	Analyses of long period rainfall records and regimes in the Sheffield-High Peak region
I.S. Maxwell	Geography of 11th century Yorkshire from Domesday sources
A.J. Hunt	Problems of urban development in the Sheffield region
R.A.G. Savigear	Slope analysis and problems of slope evolution in S. Pennines, S. Wales, Cornwall, N. Africa and Pakistan
J.L.H. Sibbons	Evaporation and potential evapo-transpiration
A. Straw	"Surface" and drainage development, and glaciation of E. England, with particular reference to Lincolnshire, Norfolk and N. Derbyshire
G.M. Lewis	Regional geomorphology of the S. Pennines
	Natural environment and historical geography of the American Great Plains
D.B. Grigg, Ph.D.	Agriculture in S. Lancashire
B.E. Coates	Agriculture and industry in 18th and 19th century northern England from Landed Estate sources

12. Geology

Professor L.R. Moore	Studies of carbonaceous rocks, various types of coals; oil shales of the Midlothian region of Scotland and S. England; genesis of oil
	Palaeontological studies; fauna and flora of Coal Measures
P. Wilkinson	The metamorphic structure and stratigraphic geology of the Moine Thrust complex east of Loch Eriboll, Sutherland
	Mineralogy, petrology and chemistry of Kilimanjaro and Rift Valley Volcanics
C. Downie, Ph.D.	Carbonaceous rocks; Jurassic oil shales of S. England and Scotland
	Investigation of microplankton, pollen and spores from Palaeozoic and Mesozoic sediments
D.W. Humphries, Ph.D.	Stratigraphy and petrology of the Lower Cretaceous rocks of the S.W. Weald and the Isle of Wight
	Nubian Sandstones of the Djado plateau, Niger
	Petrology of Yorkshire hand axes
	Sedimentology and palaeoecology of Carboniferous rocks of Sheffield, the Derbyshire and S. Yorkshire areas
	Petrology of recent desert sediments
A.E. Currall, D.Phil.	Metamorphism and tectonics of Dalradian, Co. Mayo, Eire
	Structural and petrological studies in the Ox Mountain migmatitic complex, Eire
P.E. Brown, Ph.D.	Petrological and structural studies in Sutherland
	Petrological studies in the Ross of Mull
R.H. Wagner	Stratigraphy and fossil flora of Carboniferous in N.W. Spain
	Permian flora of Turkey and New Guinea
	Coal Measure plants (genus *Alethopteris*)

12. Geology (*continued*)

L.G. Love, Ph.D.	Origin of sulphide in bituminous shales and black shale ore deposits Lower Carboniferous palynology of Scotland Stratigraphy of the Sheffield district Carboniferous Oil Shale of Scotland
R. Neves, Ph.D.	Palynological and petrological investigations in the Upper Palaeozoic sediments of northern and central England Upper Palaeozoic micropalaeontology and stratigraphy of Asturias, N. Palencia and Leon, Spain Sedimentology and paleoecology of Millstone Grits of Sheffield, the Derbyshire and S. Yorkshire areas
H.J. Sullivan, Ph.D.	Distribution of spore microfloras through Upper Carboniferous coals and shales of the S. Wales coalfield Palynological investigation of the age of the pre-Trenchard measures in the Forest of Dean Spores of the Lower Limestone Group in the Midland Valley of Scotland Spore assemblages of the Radstock Group in the Somerset coalfield Palaeoecology of Westphalian Cannel coals and associated humic coals and shales
C.D. Curtis	Geochemistry of Coal Measure sediments
Professor L.R. Moore W.H. Wilcockson P. Wilkinson C. Downie, Ph.D. D.W. Humphries, Ph.D. R. Neves, Ph.D.	The geology and glaciology of Kilimanjaro

13. Mathematics

Applied:

Professor D.N. de G. Allen	Relaxation methods; numerical methods; structural analysis
P.H. Blundell	Electronic computation
D.E. Bourne, Ph.D.	Fluid mechanics
D.M. Burley, Ph.D.	Theoretical physics; statistical mechanics
P. Chadwick, Ph.D.	Theoretical physics; mechanics of solids
H.D. Deas, Ph.D.	Quantum theory of molecules; crystallography
S.C.R. Dennis, Ph.D.	Motion of viscous fluids past cylinders and a sphere; studies in numerical analysis
R.C. Hewson-Browne, Ph.D.	Fluid mechanics
S. Wardle, Ph.D.	Numerical methods

Pure:

Professor D.G. Northcott, Ph.D., F.R.S.	Algebraic foundations of geometry; ideal theory of commutative rings and homological algebra
H. Burkill, Ph.D.	Non-absolutely integrable functions and almost periodicity
H.K. Farahat, Ph.D.	Theory of group representations
L. Mirsky, Ph.D.	Linear algebra and analytic theory of numbers
A.F. Ruston, Ph.D.	Functional analysis

14. Medicine

Professor C.H. Stuart-Harris, C.B.E., M.D.	Studies on immunization against influenza and poliomyelitis Study of acute respiratory disease from the standpoint of causation The pathogenesis of chronic bronchitis and emphysema Mechanism of cor pulmonale

14. Medicine *(continued)*

R.S. Duff, M.D.	Studies on the peripheral circulation and on hypertension
	Studies on the pulmonary circulation in acquired and congenital heart disease
M.M. Platts (Miss), M.M.	Measurement of gastric blood flow
	Investigation of renal function and anatomy in hydronephrosis
	Effect of weak acids on excretion of urinary acid
J.J. Daly, M.D.	Studies on pulmonary hypertension and on disorders of pulmonary function in chronic chest disease
R.W.B. Penman, M.D.	Studies on chemical and reflex control of respiration
	Studies on pulmonary haemodynamics in chest disease
J.R. Cox, M.D.	Mechanism of control of secretion of aldosterone
E. Jackson	Effect of pressor amines on renal blood flow and cor pulmonale

UNITED SHEFFIELD HOSPITALS

H.F. West, M.D.	Assay of steroid hormones in biological fluids
A.W.D. Leishman, D.M.	Clinical trials of new hypotensive agents
	I^{131}-labelled hippuran in the renal investigation of hypertension

15. Metallurgy

Professor A.G. Quarrell, D.Sc., Ph.D. (Head of Department)	Nucleation and growth of graphite in steel
	Effect of impurities on carbide
	Transformation rates in molybdenum steels; fatigue properties of welded structures
	Effect of carbide constitution on the creep behaviour of alloy steels
Professor R.W.K. Honeycombe, Ph.D., D.Sc.	Precipitation of carbides in alloy steels
	Deformation and fracture of alloy single crystals
	Intergranular fracture in steels
	Thermal cycling and deformation of zirconium
	Phase transformation in austenitic steels
Professor B.A. Bilby, Ph.D.	Mechanical twinning and martensitic transformations
	Continuous distribution of dislocations
	Interactions of lattice singularities and dislocations
	Theory of fracture
W.R. Maddocks, Ph.D.	A re-examination of the distribution of sulphur between metal and slag in iron and steel making
H.T. Protheroe, Ph.D.	Effect of mould materials upon the solidification of ingots
J.H. Woodhead	Effect of small amounts of niobium on the yield behaviour of iron alloys
	Pearlite in alloy steels
	Tempering of carbon and alloy steels
A.R. Entwisle, Ph.D.	Yield point phenomena in non-ferrous alloys
	Transformations in iron-nickel alloys
	Martensitic transformations in alloy steels
B.B. Argent, Ph.D.	Relationship between thermodynamic properties and structure
	Constitution and properties of alloys containing niobium
	Mechanical properties of alloys based on niobium
W.J.M. Tegart, Ph.D.	Recrystallization during creep
	Mechanical properties of zone-refined iron at elevated temperatures
	Structural changes during hot working of aluminium and its alloys
C.W. Haworth, Ph.D.	Solidification of polyphase alloys
	Precipitation studies in copper alloys
	Quantitative measurements using the electron probe X-ray microanalyser

15. Metallurgy (*continued*)

J.M. West, Ph.D.	Stress in electrodeposited chromium Propagation of stress-corrosion cracks Determination of oxygen activity in molten iron and steel
D.H. Warrington, Ph.D.	Influence of dislocation structure on stress and ductility in iron and steels
J. Beech	Effect of impurities on transformations in alloy steels
A. Mitchell, Ph.D.	Evaporation of groups III, IV, and V elements from liquid metals Hydrogen solubility in liquid iron alloys Kinetics of desulphurization Solubility of neutral metals in liquid silicates
C.J. Ball, Ph.D.	Substructures in dilute alloys Internal friction in aluminium Annealing of point defects
D.H. Kirkwood, Ph.D.	Distribution of alloying elements in steels
S.A. F. Murrell	Theory of fracture, particularly brittle fracture Effect of triaxial stress systems on strength of brittle materials Creep of non-metallic crystalline solids

16. Microbiology

Professor S.R. Elsden, Ph.D.	Growth of bacteria in relation to their energy supply
B.A. Fry, Ph.D.	Bacteriophage and bacteriocines
D.S. Hoare, Ph.D.	Metabolism of photosynthetic bacteria
M. Knight, Ph.D.	Metabolism of methane-producing bacteria
J.L. Peel, Ph.D.	Energy metabolism and biosynthesis in anaerobic bacteria
Bacteriology:	
Professor C.P. Beattie J.K.A. Beverley, M.D.	Epidemiological and experimental studies in toxoplasmosis
J.M. Hoskins, Ph.D.	Studies on poliovirus and on host-induced mutation in viruses
I.H. Sheddon	Hospital cross-infection: fluorescent antibodies
Virology:	
R.N.P. Sutton	Virus studies of coryza and other acute respiratory infections
G.C. Schild	Biological and serological properties of common cold viruses
J.M. Hoskins, Ph.D.	Variation in enteroviruses with particular reference to virulence

17. Mining

Professor F.S. Atkinson	The use of photoelastic methods in the assessment of strains around mine openings Spontaneous combustion in coal mines Roof control on mechanized faces
A. Roberts, Ph.D.	Fundamental study of the strength of rocks under triaxial loading Impact stresses in rocks Time-dependent strains and rock fracture Environmental studies in mines
G. Hurst	Characteristics of froth flotation studies Application of hydrocyclones to coal preparation Effects of faulting on subsidence
F.T. Williams	Study of the rheology of rocks Failures in trailing cables and their mechanical properties

. Mining (*continued*)

B.R. Pursall	Ventilation of vehicular tunnels and mine roadways Study of air flow in mine shafts using laboratory models Gas chromatography and mine air analysis Study of methane layering in a model roadway
J.R. Metcalf	Rock drilling
I. Hawkes, Ph.D.	Study of explosive substitutes in blasting
H.J. Bunt	Stress transmission in drill rods

18. Obstetrics and Gynaecology

Professor C.S. Russell	Investigation and management of urinary fistulae and urinary incontinence Pregnanediol excretion in normal and abnormal pregnancy Methods of monitoring the foetal heart Factors leading to foetal injury
C.J. Dewhurst	Chromosomal abnormalities in cases of primary and secondary amenorrhoea Gynaecological aspects of bladder exstrophy and anorectal deformities
D.W. Warrell	Investigation of urinary incontinence Bladder function studies using radio pill and other electronic pressure measuring devices Relationship between occult pyelonephritis and chronic cystitis Effects of antispasmodics on bladder function
F.A. Best	Uterine action; the properties of the endometrial hormone

19. Paediatrics and Child Health

Professor R.S. Illingworth	Problems of infant feeding Problems of the normal child with particular regard to behaviour problems Development of the normal child with particular regard to prediction of intelligence Early diagnosis of mental deficiency and cerebral palsy Prognosis of children with birth injury Problem of the handicapped child in the home Treatment of cerebral palsy
J. Lorber, M.D.	Natural history and treatment of primary tuberculosis Different types of BCG vaccine Aetiology of erythema nodosum Multiple puncture BCG vaccination Natural history of congenital hydrocephalus Controlled studies in the treatment of congenital hydrocephalus and meningomyelocele Treatment of obesity
K.S. Holt, M.D.	The mentally defective child Impact of handicapped children upon the family Treatment of phenylketonuria Growth disturbances in infantile spastic hemiplegia Evaluation of treatment of cerebral palsy
V. Dubowitz, M.D.	Histochemical studies of myopathies

20. Pathology

Professor D.H. Collins, M.D.	Bone pathology
F.N. Ghadially, M.D.	Experimental and human cancer
W.A.J. Crane, M.D.	Endocrine pathology Hypertension
O.G. Dodge, M.D.	Geographical pathology
G. Meachim, M.D.	Cartilage and osteoarthritis

21. Pharmacology and Therapeutics

Professor G.M. Wilson, M.D.	Iodine metabolism; thyroid physiology and pathology Action of diuretics Clinical therapeutic trials
D.S. Munro, M.D.	Thyroid-stimulating hormone Adrenal cortical hormones Measurement of body composition by isotope dilution techniques
G.R. Tudhope, M.D.	Red cell volume and production in anaemia and leukaemia Vitamin B_{12} metabolism Red cell proteins
R. Kilpatrick, M.D.	Gonadotrophic control of the ovary Control of steroid production by the ovary
J.D. Acland	Iodide transport
G.D. Broadhead, Ph.D.	Urinary iodide excretion Thyroidal iodine content Iodine content of milk

22. Physics

Professor N.H. March	Electrons in metals and alloys Many-body problems
T.R. Kaiser	Radioastronomy The upper atmosphere Space research
R.S. Tebble	Magnetic susceptibility of metals at high temperatures Magnetic properties of Heusler alloys Radiation damage in ferromagnetic material Domain structure Magnetic resonance
E.W. Lee	Magneto-optic effects in ferromagnetics Eddy current effects Properties of thin magnetic films
J. Crangle	Intrinsic magnetic properties of metals and alloys Antiferromagnetism in metals
P. Gaunt	Antiferromagnetism and crystal structure High coercivity alloys
J.M. Titman	Nuclear magnetic resonance in alloys The Pauli susceptibilities of alkali metals
J.E. Enderby	Electrical properties of liquid metals and semiconductors
I.G. Austin	High pressure effects in semiconductors and metals

23. Physiology

Professor D.H. Smyth, M.D., Ph.D.	Intestinal absorption
V.R. Pickles, M.D.	The menstrual stimulant
G. Wiseman, Ph.D.	Transport of ions; amino-acid metabolism; nutrition
H. Newey, Ph.D.	Intestinal absorption
R.J.C. Barry, Ph.D.	Electrical changes related to intestinal absorption
E.L. Jervis (Miss), Ph.D.	Intestinal absorption: vascular changes in diabetes
R.J. Levin	Effect of endocrines on intestinal absorption
T. Kershaw	Transport of ions; amino-acid metabolism
P.C. Clegg (Mrs.), Ph.D.	Smooth muscle (uterine); adrenergic mechanisms

24. Psychiatry

Professor E. Stengel, M.D.	Suicide and attempted suicide Occupational adjustment and neurosis
W.L. Tonge, M.D. F.A. Jenner, Ph.D.	Metabolic changes associated with periodic mental disorder
F.G. Spear	Psychogenicpain from the clinical and statistical point of view

24. Psychiatry (*continued*)

H. Merskey	Psychogenic pain: experimental studies
I. Pilowsky	Hypochondriasis: a clinical study
D. Parkin	Suicide and attempted suicide in Sheffield
P.R.F. Clarke	Memory processes and their disturbances in mental disorders

25. Psychology

Professor H. Kay, Ph.D.	Automated methods of training Discrimination learning in animals
N. Moray, D.Phil.	Behaviour in genetics
J. Annett, D.Phil.	Cue techniques in training
P. McKellar, Ph.D.	Mental imagery
M.E. Sime	Teaching machines

26. Public Health and Preventive Medicine

Professor J. Knowelden, M.D.	Assessment of the protective effect of vaccines Epidemiological studies of cancer in the tropics
P.E. Brown	Social and medical survey of elderly people living at home in Sheffield
J.W. Roe	Factors influencing pulmonary diffusing capacity Iodine content of diets

27. Radiotherapy

G.W. Blomfield	Therapeutic use of radioactive colloids Studies on leukaemia Cytological effects of ionizing radiation and its bearing on the treatment of carcinoma of the cervix Studies in radiation arteritis and mitotic activity following radiation Use of cytotoxic agents in treatment of advanced malignant disease by intra-arterial perfusion

28. Statistics

H. Ruben, Ph.D.	The spherical normal distribution Sequential sampling Stochastic processes
D.F. Kerridge	Foundations of statistical inference

29. Surgery

Professor A.W. Kay, M.D.	The physiology of human gastric secretion Clinico-physiological problems of peptic ulcer Radio telemetering in relation to the alimentary tract Studies on alimentary anaemia
I.E. Gillespie	The physiology of the pyloric antrum in man Gastric secretion studies in dogs Studies in human gastric pepsin secretion
A.G. Cox	Clinico-physiological problems of intestinal absorption
S.D. Clarke	Cancer chemotherapy

30. Technology

Fuel:

Professor M.W. Thring C. Hulse, Ph.D.	Combustion of solid, liquid and gaseous fuels in relation to heat transfer, soot formation and chemical action on material heated Application of new principles and methods to furnace heating and power production

30. Technology (*continued*)

Fuel (*continued*)

Professor M.W. Thring C. Hulse, Ph.D.	Use of cold models for study of fluid flow pattern re-circulation and mixing in furnaces, combustion chambers and rockets Direct electricity processes, both magnetohydrodynamics and fuel cell
R.G. Siddall, Ph.D.	Fundamental problems in heat transfer and fluid flow Magnetohydrodynamics
M.G. Perry	Simultaneous heat and mass transfer in drying
K. Littlewood, Ph.D.	Functional group analysis in bituminous coals Direct conversion of coal into chemicals
I. Fells, Ph.D.	Rate processes in flames, ionization in flames by mass spectroscopy, magnetohydrodynamics and fuel cells
A.E. Beet, Ph.D.	Rapid methods of chemical analysis of fuels and their derivatives The nitrogenous constituents of coal and their importance in carbonization
P.L. Start, Ph.D.	Combustion and gasification of solid fuels Heat transfer and aerodynamics
A. B. Hedley, Ph.D.	Combustion of pulverized coal
G. Underwood, Ph.D.	Smoke and fume production from combustion of all fuels
I.A. McGrath, Ph.D.	Physical and chemical processes in the temperature range 2000–6000°K. Magnetohydrodynamics
P.J. Foster	Soot formation and structure

Glass:

Professor R.W. Douglas, D.Sc.	Investigation of the structure and properties of glass by physical and chemical methods Variation of the physical properties of glass with time Strength of glass Infra-red absorption of glasses Reactions of glasses with water Viscosity and delayed elasticity of glasses Phase equilibria in glass-forming systems
T. Bates	Coloured glasses including applications of ligand field theory
M. Cable, Ph.D.	Fundamental processes of glass formation
J.O. Isard, Ph.D.	Electrical conductivity and dielectric properties of glass Electrode potentials of glasses
S. Parke, Ph.D.	Viscosity and delayed elasticity of glasses
R.F.R. Sykes	Investigations of the chemical analysis of glasses
A.E. Owen, Ph.D.	Electronic processes in various glasses

Refractories:

Professor J. White	Equilibrium relationships at high temperatures in systems containing iron oxides Phase relationships in uranium carbide-metal and uranium nitride-metal systems Equilibrium at high temperatures in systems containing oxides of uranium Effect of atmosphere on the densification of UO_2 powders Wetting relationships and the spatial arrangement of the phases in cermets
W.F. Ford, Ph.D.	The tensile properties of refractories at high temperatures Factors affecting the spatial arrangement of the phases in refractories containing MgO An investigation of the system Al-Ti-O Equilibrium relationships at high temperatures in systems containing the oxides of copper

31. Zoology

Professor I. Chester Jones, D.Sc.	Comparative endocrinology
E.T.B. Francis, Ph.D.	The conductive system of the vertebrate heart Water relations in reptiles Host reactions to parasites with special reference to the gut
F. Segrove, Ph.D.	Estuarine and marine shore ecology
F.J. Ebling, Ph.D.	Factors influencing the mammalian epidermis, hair and sebaceous glands The mode of action of hormones on mammalian tissues The ecology of a marine lake
J.D. Jones	Respiratory function in invertebrates, especially burrowing polychaetes and aquatic pulmonates
K.C. Highnam, Ph.D.	Endocrinology of post-embryonic development and diapause in Lepidoptera and Orthoptera
L. Hill	Endocrinology and metabolism of post-embryonic development in Orthoptera
O. Lusis, Ph.D.	Post-embryonic development and activity of the reproductive system of *Arion ater* Histology and histochemistry in the reproductive system of *Schistocerca gregaria*
D. Bellamy, D.Phil.	Comparative endocrinology

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1. Biochemistry

Professor K.A. Munday, Ph.D.	Intermediate metabolism in invertebrates Effect of lyophilization on nutritive materials The study of free radicals
G.A. Kerkut, Ph.D.	Characterization of neurohormones
R.J. Walker, Ph.D.	Chemistry of neurotransmission

2. Botany

Professor W.T. Williams Ph.D., D.Sc.	Whole plant physiology Statistical methods of ecology
G.R. Lane, Ph.D.	Effects of ionizing radiation on the cell Cytology of *Spartina*
J.M. Lambert (Miss), Ph.D.	General bog, fen and saltmarsh ecology Competition studies Statistical ecology
J.G. Manners, Ph.D.	Plant pathology, especially larch canker; rust fungi and physiology of parasitism Taxonomy of Uredinales and Discomycetes
A. Myers, Ph.D.	Chemistry of plant cell walls Physiology of parasitism Nucleic acid metabolism
L. Watson	Anatomical and morphological aspects of taxonomy Ericales

3. Chemistry

Inorganic:

G.W.A. Fowles, Ph.D.	Reactions in liquid ammonia Complex compounds of the transition elements
E. Cartmell	Raman spectroscopy
D.H. Kerridge, Ph.D.	Reactions in liquid metals and fused salts

3. Chemistry (*continued*)

Organic:

Professor R.C. Cookson Ph.D.	Natural products Reaction mechanisms Spectroscopy and photochemistry Organo-metallic compounds
I.G.M. Campbell (Miss), Ph.D.	Stereochemistry of organic compounds of phosphorus and arsenic
I.D.R. Stevens, Ph.D.	Carbene reactions and reaction mechanisms
J. Hudec, Ph.D.	Synthesis of natural products and synthetic methods
L.C. Johnson, Ph.D.	Investigation of photochemical reactions

Physical:

Professor G.J. Hills, Ph.D.	Temperature and pressure coefficients of translational processes Electrode processes at high temperatures Electrochemistry of fused salt systems
A.C. Riddiford, Ph.D.	Kinetics of electrode processes Contact angles
E.A.S. Cavell, Ph.D.	Kinetics of reactions in solution Dielectric properties of solutions
H.M. Frey, D.Phil.	Kinetics of photochemical and thermal gaseous reactions

4. Electronics

Professor E.E. Zepler, Ph.D.	Noise in transistors
W.A. Gambling, Ph.D. T.H. Wilmshurst, Ph.D.	Noise in travelling wave tubes and other microwave devices
R.C. Smith, Ph.D.	Stability and noise generation in electron beams Tunnel diode and parametric low-noise frequency convertors Nuclear magnetic resonance including spin-echo techniques The ammonia maser as a microwave spectrometer preamplifier Instrumentation for electron spin resonance spectroscopy Study of the gaseous optical maser and optical non-linearity in crystals Electron spin resonance studies of free radicals
S.W. Punnett	Barkhausen noise in ferrites
B.H. Venning	Analogue computers applied to non-linear vibrational systems Determination of mechanical properties of resilient materials under high rates of stress
G.G. Bloodworth	Analogue gating circuits
K.G. Nichols	Network theory
E.V. Vernon, Ph.D.	Investigation of deposited films
G.G. Bloodworth K.G. Nichols E.V. Vernon, Ph.D.	Physics and technology of microcircuits

5. Engineering

Aeronautical and Astronautical:

Professor E.J. Richards, O.B.E., D.Sc.	Aerodynamic noise Acoustic fatigue Turbulence Design of ground silencers for jet aircraft

5. Engineering (*continued*)

Aeronautical and Astronautical (*continued*)

B.L. Clarkson, Ph.D.	Correlation of acoustic pressures near an air jet Response of structures to noise
I. Torbe, Ph.D.	Response of linear systems Cumulative damage in fatigue
P.O.A.L. Davies, Ph.D.	Correlation measurement of turbulent reaction in a jet Pressure measurements in unsteady flow Derivative measurements of a highly swept delta in high speed flow
J.P. Jones, Ph.D.	Helicopter blade oscillations Separated flows Yacht aerodynamics
D.J. Mead	Internal damping of structures Effect of noise on structures
T. Tanner	Aero/hydrodynamics of sailing yachts
K.N.C. Bray	Hypersonic aerodynamics
J.P. Appleton, Ph.D.	Aerothermodynamics
S.N. Curle, Ph.D	Heat transfer Laminar boundary layers Shock wave/boundary layer interactions Aerodynamic noise generation
M.K. Bull	Noise due to boundary layer turbulence
P.C. Parks	Automatic flight Panel flutter Magnetic suspension of aircraft in wind tunnels
P.E. Doak	Axial flow fan noise Influence of flexible walls on boundary layer turbulence Aerodynamic noise Acoustic radiation theory
G.M.L. Gladwell	Matrix analysis of vibration Resonance testing Vibration of motor cars Unsteady airfoil theory
M. Judd	Magnetic suspension Wing surface fluctuating pressures Stability derivatives Aircraft response to turbulence

Civil:

Professor P.B. Morice, D.Sc., Ph.D.	Application of electronic digital computers to linear structural analysis and structural design Analysis of infilled and clad frames Load distribution in grillages
H. Tottenham	Doubly curved shells of negative curvature Thin-walled members
A.P.K. Tate, Ph.D.	Load-carrying capacity of eccentrically loaded pile groups in clay Effects of vibration on soil consolidation
N.B. Webber	Tidal model studies Effects of scale in hydraulic models
J.R. Rydzewski, Ph.D.	Structural behaviour of arch dams End block stresses in prestressed I-beams Structural models
H.G. Allen, Ph.D.	Use of "plastics" for structures
K.V.H. Smith	Estuarine hydraulics and pollution
A. Coull, Ph.D.	Shear wall structures Skew slabs

5. Engineering (*continued*)

Civil (*continued*)

R. Butterfield	Arching in beams and slabs Underground structures
L.G. Booth, Ph.D.	Wind tunnel studies on structures Timber structures

Electrical:

Professor L.G.A. Sims	Thermal properties of magnetic steel sheets
B.A. Carré	Power system analysis Application of digital computers to the solution of field problems
K. Morgan	Semiconductor devices
K.L. Morphew	Study of electrical discharges at very low gas pressures
R.E. Steven, Ph.D.	Synchronous machine performance and measurement of reactances
E.E. Ward, Ph.D.	Control of rotating machines by semiconductors
B.M. Weedy, Ph.D.	Transient thermal behaviour of electrical apparatus Steady state and transient performance of power systems
R. Yorke	Transient performance of the acoustical loudspeaker Electrical analogues of vibrating systems

Mechanical:

Professor A.N. Black	Traffic studies
C.H. Helmer	Automatic control
H.J. Sara	Turbine pumps
N.S. Grassam, Ph.D.	Gas bearings and water-moderated nuclear assemblies
R.J. Foyle, Ph.D.	Fluid dynamics of mixed phase flow
T.R.G. Williams	Fatigue; brittle fracture
J.B. Hunt	Machine tool vibration
R.W. Page	Heat transfer and physics of water moderated assemblies
M.T. Thew	Fluid dynamics of mixed phase flow
G.C. Spencer	Machine lubrication

6. Geography

Professor F.J. Monkhouse, D.Sc.	Regional geography of W. Europe (Belgium and Netherlands) The heathlands of W. Europe Cartographic methods Aerial photographs
L.E. Tavener, Ph.D.	Local geography of Dorset Common lands, with special reference to the commons of Hampshire The revival of Israel; the Middle East
R.A. Pelham, Ph.D.	Historical geography of England and Wales Political geography of Europe
G.W.S. Robinson	The geography of "tourism"
R.J. Small, Ph.D.	Geomorphology of central S. England
R.G. Barry	Water vapour over N.E. North America Computational methods
I.B. Thompson, Ph.D.	Demography of North America Land reform and regional planning in France and Corsica
B.P. Birch	Rural settlement in North American Middle West

7. Geology

Professor F. Hodson	Carboniferous stratigraphy, particularly of Ireland Carboniferous goniatites "Dirt" bands in coal seams

7. Geology (*continued*)

P.H. Shelford	Irish Namurian stratigraphy Superficial deposits around Stevenage
M.E. Cosgrove	Petrological and chemical studies of basic igneous rocks of Padstow-Camelford area
D. Moore	Sedimentology of Yoredale Series Role of bacteria in sediments

8. Mathematics

Applied:

Professor H.A. Jahn, Ph.D.	Theoretical nuclear physics
Professor B. Thwaites, Ph.D.	Theoretical fluid mechanics
L. Cohen, Ph.D. H.J. Davies, Ph.D. J. Heading, Ph.D. D. Schonland, Ph.D. R.J. Gribben, Ph.D. L. Marder, Ph.D. W.S. Hall J.B. Willis, Ph.D.	Electromagnetic theory

Computation:

P.A. Samet, Ph.D. (Director)	Numerical solution of differential equations and the tabulation of special functions
D.G. Burnett-Hall	Linear algebra
J.P. Cleave, Ph.D.	Logical structure of automata

Pure:

Professor E.T. Davies, D.Sc., Ph.D., D.Math. R.S. Clark, Ph.D. F. Brickell, Ph.D. A.W. Deicke, Ph.D. F. Rhodes, Ph.D.	Differential geometry
C.R. Maunder, Ph.D.	Algebraic topology

9. Physics

Professor A.M. Taylor, Ph.D.	Metal optics; refractive indices in the ultra-violet
Professor G.W. Hutchinson, Ph.D. R.M. Benwell J.G. McEwen, Ph.D. D. Ramsden, Ph.D.	High-energy particle physics; cosmic ray research in satellites and rockets
S. Weintroub	Thermal, electrical and elastic properties of single crystals of metals and of liquid metals
K. Kellner, Ph.D.	Thermal conductivities of fluids at low temperatures and high pressures
H.G. Jerrard, Ph.D.	Studies of macromolecules by viscosity, optical scattering, dielectric constant, sedimentation and birefringence induced by flow, electric or ultrasonic fields
D.M.A. Mercer, Ph.D.	Acoustic absorption by tuned resonators; correlation techniques applied to acoustic measurements
B.J. Hopkins, Ph.D. C.H.B. Mee, Ph.D.	Surface physics in ultra-high vacuum with thermionic and photoelectric techniques
R.G. Scurlock, D.Phil.	Properties of magnetic solids below 1°K; nuclear magnetic resonance in ferromagnetics

10. Physiology

Professor K.A. Munday, Ph.D.	Endocrinology of the response to cold in the vertebrates Physiology of hypothermia
G.A. Kerkut, Ph.D.	Physiology of the nervous system in relation to behaviour Isolation of neurohormones
R.J. Walker, Ph.D.	Neurophysiology and pharmacology of molluscs

11. Zoology

Professor J.E.G. Raymont, D.Sc.	Studies on the physiology of marine zooplankton Seasonal cycles of plankton in Southampton Water Experiments on fertilization of marine waters and growth of bivalves
A.R. Hockley	The biology of *Limnoria* and other marine wood-borers Studies on trematode parasites
R.E. Hall	Ecology of Chironomidae Studies on *Chirocephalus*
M.J. Delany	Ecology of heathlands with reference to the arthropod population Ecological studies on small mammals
G. Shelton, Ph.D.	Physiology of hearing Respiration in fishes
A.P.M. Lockwood, Ph.D.	Osmoregulation

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1. Chemistry

Professor C. Eaborn, Ph.D., D.Sc.	Mechanisms of reactions: organic and organo-metallic compounds; organo-silicon, organo-germanium and organo-tin compounds Substituent effects in electrophilic aromatic substitution Use of tritium in hydrogen exchange reactions Effects of high energy radiation on organo-metallic compounds
E.R.A. Peeling, Ph.D.	Kinetics and mechanisms of hydrogenations and hydrogenolyses
C.N. Banwell, Ph.D.	Infra-red spectroscopic studies of internal molecular motions
E.O. Bishop, D.Phil.	High resolution nuclear magnetic resonance spectroscopy Optical rotary dispersion
R.A. Jackson, D.Phil.	Mechanisms of organic free radical reactions in solution
J.D. Smith, Ph.D.	Inorganic polymers; co-ordination chemistry
A. Pidcock	Nuclear magnetic resonance studies of co-ordination compounds

2. Mathematics

Professor D.B. Scott, D.Sc.	Algebraic geometry, especially topological and transcendental aspects
W. Ledermann, Ph.D., D.Sc.	Group theory; homological algebra; linear algebra
R.H. Rogers (Miss), Ph.D.	Motion of rotating fluids; boundary layer theory

3. Physics

Experimental:

Professor K.F. Smith, Ph.D.	Molecular beam spectroscopy

3. Physics (*continued*)

Experimental (*continued*)

D.F. Brewer, D.Phil.	Properties of He^3
W.D. Hamilton, Ph.D.	β- and γ-spectroscopy
L. Allen, Ph.D.	Caesium–nitrogen laser
D.G.C. Jones, Ph.D.	Caesium–nitrogen laser
A.D.C. Grassie	Fermi surfaces

Theoretical:

Professor R.J. Blin-Stoyle, D.Phil.	Theoretical nuclear physics and elementary particle physics
J.P. Elliott, Ph.D.	Theory of the many-body problem
J.M. Radcliffe, Ph.D.	Theory of solid state
R.E. Turner, Ph.D.	

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1. Agriculture

Agricultural Botany:

Professor P.T. Thomas, Ph.D.	Cytological aspects of differentiation
H. Rees, Ph.D.	Genetical determination of chromosome behaviour
A. Durrant, Ph.D.	The interaction of genotype and environment
E. Griffiths, Ph.D.	Microbiology of grassland
D.B. James	Physiological aspects of plant distribution
B. Mann (Miss), Ph.D.	Host-parasite relations

Agricultural Economics:

J.R.E. Phillips	Economics of the dairy industry
M.B. Jawetz	Input-output relationships in various types of farming Density of stocking with sheep and cattle, and productivity of livestock-rearing farms Problems of farm size
D.H. Evans	Economic changes on a sample of Welsh farms over the last ten years Agriculture and economic development
W.D. Jones	Economics of store cattle and beef production Economic aspects of turkey production Public works schemes and their economic and social effects on agriculture
M.H. Dummer	Economics of hill farming Economics of potato production Economics of sheep farming (hill and lowland flocks)
R.D. Crotty	Economic effects on Ireland's agriculture of membership of the European Economic Community Production function analyses of Irish farm accounts
P.G. James	Economics of agriculture and forestry in mid-Wales Economics of egg and table poultry production
G. Hallett	Agricultural policy in the European Economic Community

Animal Health:

K.B. Sinclair, Ph.D.	Metabolic and nutritional diseases in farm animals

Animal Husbandry:

Professor J.E. Nichols, Ph.D. with J.L. Lees T. L. Powell	Ecological aspects of sheep husbandry; genetic and environmental factors affecting production in dairy cattle; selection methods; nutritional and management factors involved in lamb production Shelter research; agricultural aspects

1. Agriculture (*continued*)

Crop Husbandry:

Professor W. Ellison, Ph.D.	Studies of marginal land problems Pasture improvement in upland areas
R.S. Edwards, Ph.D. J.L. Hammerton, Ph.D.	The productivity and longevity of leys in upland areas and their response to certain major and minor plant nutrients
I.B. Warboys	Factors affecting the formation of herbage mat on certain types of re-seeded hill pasture The influence of various types of soil tilth on the germination and establishment of grasses and clovers Measurement by test cropping and soil studies of the residual fertility following five different grass species Effects of weed competition on kale; weed control in kale by herbicides Studies on weed species of the genus *Polygonum L.* Investigations into methods of grassland renovation by mechanical and herbicidal means Introduction of arable crops into unploughed swards Measurement of wind-borne salt drift and its effects on crop plants Grass conservation studies; moisture relationships in cut herbage of different physiological ages under varying conditions of temperatures and humidity

Dairying:

J. Lewis (Director)	Performance and operational costs of farm dairy equipment Studies on the manufacture and ripening of Caerphilly cheese
with A. Davies (Mrs.)	The relative efficiencies of agents used in the chemical sterilization of dairy utensils

2. Biochemistry

Agricultural:

Professor T.W. Goodwin, D.Sc.	Biosynthesis of vitamins Photosynthesis Biochemistry of seed germination Toxic action of insecticides on plants
W.M. Ashton, Ph.D.	Phytin and related compounds in cereals with special reference to oats Coumarin and related compounds in sweet vernal Aspects of hypermagnesaemia
V.I. Stewart, Ph.D.	Significance of iron-organic matter patterns in soil profile morphology Influence of geomorphological processes on the soils of the Aberystwyth area
E.I. Mercer, Ph.D.	Terpene metabolism in relation to formation of the photosynthetic apparatus Plant sulpholipid metabolism
B.H. Davies, Ph.D.	Carotenoid biosynthesis

3. Botany

Professor P.F. Wareing, D.Sc., Ph.D.	Developmental plant physiology Problems of dormancy in seeds and buds, especially in relation to hormones and growth inhibitors Tree physiology, including cambial activity, flowering and effects of gravity

3. Botany (*continued*)

I.M. Wilson (Miss), Ph.D.	Marine fungi. Cytology and development of Ascomycetes
P.W. Carter	History of botany in Wales and some counties of England
E.H. Chater	Salt marsh ecology with special reference to new forms of *Spartina townsendii*
	Leaf development problems in *Callitriche intermedia*
J.W. Bradbeer, Ph.D.	Metabolism of succulent plants
	Metabolic aspects of dormancy in seeds
J.P. Savidge, Ph.D.	Cytotaxonomical studies of *Callitriche* and *Stachys*
E.I. Newman	Ecological aspects of germination and seed production

4. Chemistry

Professor A.F. Trotman-Dickenson, Ph.D., D.Sc.	Gas kinetics; energy transfer; free radicals
M.M. Davies, Ph.D., D.Sc.	Spectra, structures and interactions of molecules
	Dielectric absorption studies
	Sublimation pressures and lattice energies
S.H. Graham, Ph.D.	The chemistry of substances derived from cyclo-octatetraene; the study of medium rings
J.A. Kerr, Ph.D.	Gas phase reactions of free radicals
C.B. Monk, Ph.D., D.Sc.	Electrochemistry of multivalent electrolyte solutions; nuclear chemistry
G.A. Morrison, D.Phil.	Chemical kinetics of bacteria; modes of action of drugs; metabolism of *Leptothrix* organisms
A.H. Price, Ph.D.	Dielectric absorption
W.J. Orville Thomas, Ph.D., D.Sc.	Infra-red absorption and dispersion; ultrasonics
	Molecular orbital and potential function calculations
A.J.S. Williams	Chemistry of small carbon rings
J.C. Young, Ph.D.	Reactivity of silyl radicals

5. Geography

Professor E.G. Bowen	Historical geography of Atlantic Britain
W. Fogg	Human geography of Wales
	Human geography and sociology of the Barbary States
E. Watson	Glacial and periglacial phenomena in mid-Wales
G.M. Howe, Ph.D.	National Atlas of Disease
	Human bioclimatology in Britain
	Hydrological studies in W. Wales
H. Carter	The urban geography of Wales
R.A. Yates	Coastal studies in W. Wales
J.A. Taylor	Land Use Survey of Wales
	Vegetation studies of the Welsh uplands
	Soil texture and growth variation in S.W. Lancs.
	Farm studies in Wales
P.R. Mounfield Ph.D.	Geographical aspects of industrial location in the United Kingdom
B.S. McCann	Geomorphological studies of the west coast of Scotland
J.N.H. Douglas	Political geography and local administration
M.E.L. Davies	Social geography of mid-Wales

6. Geology

Professor A. Wood, D.Sc., Ph.D.	Micropalaeontology, with particular reference to smaller Foraminifera
	Geomorphology of cliff and valley slopes
	The coast line of Wales
	The origin of greywackes

6. Geology (*continued*)

N. Kirk (Miss), Ph.D.	The stratigraphy and tectonics of the area east of Rhyader The Lower Palaeozoic rocks of N. Wales
J.R. Haynes, Ph.D.	Sedimentation and ecological relations of the recent and sub-Recent Foraminifera in Cardigan Bay and St. George's Channel Foraminifera of the Cretaceous and Tertiary of Libya Gault Foraminifera of England
W.J. Phillips, Ph.D.	The stratigraphy, structure and petrology of the Moine-Lewisian rocks of Morar The palaeogeography and petrology of the Lower Palaeozoic rocks of Merioneth and Pembrokeshire
H. Jones, D.Phil.	Recent sedimentation in Cardigan Bay
H. Convery	A study of the tectonic and metamorphic history of the Ben Ledi area, Perthshire
D.E.B. Bates	The stratigraphy and tectonics of the Lower Palaeozoic rocks of Anglesey

7. Mathematics

Applied:

Professor T.V. Davies, D.Sc.	Hydrodynamics and its meteorological and geophysical applications Non-linear differential equations
C.E. Easthope, Ph.D.	Problems in vectorial mechanics
D.W. Beard	Magnetohydrodynamics
K. Walters, Ph.D.	Rheology
E.M. James (Mrs.)	Non-linear differential equations
M.J. Davies	Satellite dynamics
P. Ramm (Miss)	Hydrodynamics and its meteorological and geophysical applications

Pure:

Professor W.B. Pennington, Ph.D.	Theory of numbers; theory of series
D.S. Meyler (Miss)	Algebraic geometry
A.O. Morris, Ph.D.	Theory of group representations

8. Physics

Professor W.J.G. Beynon, C.B.E., D.Sc., Ph.D. E.M. Job G.M. Brown	Studies of the upper atmosphere
D.A. Richards	Optical studies of artificial earth satellites
W.M. Jones, D.Phil.	The flow of gases and vapours through porous media and adsorbent beds
D.H. Edwards, Ph.D. D.H. Trevena, Ph.D.	Experimental investigations on the propagation of stress waves in solids The mechanical properties of metals and the tensile strengths of liquids at high rates of stressing The measurement of pressure and velocity in detonation waves in gaseous mixtures
A.D. Maude, Ph.D.	The hydrodynamics of suspensions
E.R. Wooding, Ph.D.	Microwave properties of plasma Radiation from plasmas Transient phenomena in plasma

9. Zoology

Professor Bryn Jones, D.Sc. with I. Cunningham (Miss)	Cell biology, particularly problems of cellular adhesion Cell cultures in protein-free media

9. Zoology (*continued*)

E.E. Watkin, Ph.D., D.Sc.	Taxonomy of amphipods
F. G. Rees (Miss), Ph.D., D.Sc.	Studies on helminth parasites
J.R.E. Jones, Ph.D., D.Sc.	Studies on the ecology of rivers Biological aspects of river pollution
P.C.T. Jones, Ph.D.	Cell movements
P. Fortune (Miss), Ph.D.	Studies on endocrine systems in the lower chordates
T.B. Poole, Ph.D.	Behaviour and colour patterns of the hybrids produced by polecats and ferrets
W. Sinclair, Ph.D.	Electron microscopy studies
L. Slay (Mrs.)	Problems of the ecology of birds
A. Joyner, Ph.D.	Aspects of neurophysiology, particularly of marine fauna

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1. Agronomy

Ll.I. Jones
D.G. Miles
R. Hughes
A. Troughton, Ph.D.
A.H. Charles, Ph.D.
A.G. Davies (Miss)
J.M.M. Munro

Grassland:

Herbage plant performance in terms of establishment, survival and productivity in simple and complex swards

Animal—sward complex and the role of management and fertilizer in maintaining the productivity of herbage plants

Assessment of the digestibility of herbage varieties as a guide to their nutritive value

Improvement of hill pastures and the potential of various grasses and legumes for breeding varieties suitable for reseeding different situations on hill land

Microclimate of hill swards, and its influence on the performance of different herbage varieties

Relationship between the root and shoot system of herbage plants, and the definition of the most efficient root system for particular environments

Growth rate of contrasting types of herbage plants and the effect of management on their regrowth potential in different environments

Grassland experimentation technique studies: to define the nature of varietal differences and provide a better guide to their value under a range of practical farming conditions

2. Chemistry

G. ap Griffith, Ph.D.
D.I.H. Jones, Ph.D.

Chemical composition of herbage with particular reference to varietal differences and the effect of season and management

Non-protein nitrogen of herbage particularly nitrate nitrogen

Nitrate metabolism in sheep

Laboratory methods of predicting digestibility

Relationship of chemical composition to digestibility and nutritive value

3. Cytology

Professor P.T. Thomas, Ph.D.	The cytology of grasses, clovers and cereals in relation to breeding

4. Genetics

J.P. Cooper, Ph.D.	Genetics of production characters in herbage grasses Selection for physiological and biochemical differences in herbage grasses Variation and climatic adaptation in herbage grasses Intraspecific variation in nutritional response and requirements in the herbage grasses
K.J.R. Edwards, Ph.D.	Genetics of competition
C.J. Eagles, Ph.D.	Variation in carbohydrate metabolism in herbage grasses

5. Pathology

A.J.H. Carr, Ph.D. P.L. Catherall	Assessment of yield losses from pasture due to endemic fungus diseases Selection and breeding for resistance to fungus and virus diseases of grasses, herbage legumes and cereals Physiology of pathogen–host metabolism

6. Plant Breeding

	Cereals, beans, and Brassicae breeding:
J.D. Hayes	Study and development of breeding techniques for the improvement of cereal crops Production of new varieties of winter oats, spring barley and winter rye Breeding for disease resistance
T.D. Johnston	Breeding improved varieties of rape and kale Study and development of special breeding techniques in kale
H. Thomas, Ph.D.	Production of new varieties of spring oats and spring wheat Cytogenetical studies of species interrelationships within the genus *Avena* Breeding work with field beans
	Grass breeding:
E.L. Breese, Ph.D. I. Davies	Breeding improved varieties of *Lolium*, *Dactylis*, *Phleum*, *Festuca*, *Agrostis* etc. Phenology of grasses in relation to meteorological conditions
E.L. Breese, Ph.D.	Population studies in *Lolium*
M.D. Hayward, Ph.D.	Quantitative inheritance in herbage grasses Techniques of variety construction
M. Borrill, Ph.D.	Experimental taxonomy of herbage grasses especially *Dactylis* and *Festuca* Development anatomy of various grasses
E.J. Lewis	Artificial intergeneric hybridization and induced polyploidy in *Lolium* and *Festuca* Synthesis of specialized varieties of *Lolium perenne* and *L. multiflorum* by interspecific hybridization
I. Davies	Techniques for the assessment of breeders' material
	Herbage legume breeding:
W.E. Davies	Breeding: genetics; plant introduction studies; breeding techniques; assessment studies in *Trifolium*, *Medicago*, and *Lotus*

6. Plant Breeding (*continued*)

A.M. Evans (Miss), Ph.D.	Interspecific hybridization; breeding, genetic and embryological studies in induced polyploids of *Trifolium*, *Medicago* and *Lotus*
D.G. Jones	Investigation of nodulation problems in *Trifolium* spp. Inoculation trials and manurial treatments: *T. repens*
	Seed multiplication:
D.J. Griffiths, Ph.D. H.M. Roberts J. Lewis	Multiplication of seeds of the Station-bred varieties of cereals, grasses and clovers, and investigation of the effect of environmental and other factors on the seed produced from the bred varieties of grasses
J. Lewis	Effect of different factors on the viability of crop and weed seeds under various storage conditions
J.L. Stoddart	Nutritional and other factors affecting seed production in grasses and clover

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University College of North Wales, Bangor

1. Agriculture

Professor I.A.M. Lucas	Value of milk products in pig nutrition High concentrate rations in beef production
G.M. Davies, Ph.D.	Effect of spring defoliation on the growth of winter sown cereals Use of herbicides in pasture renovation without ploughing
G.L. Williams	Selection for economic characters in mountain sheep kept under two environmental conditions Nutrition of hill ewe lambs Intensive fat lamb production Canary stain in wool
W. Brown	Study of sheep behaviour in relation to shelter under different weather conditions on hill land
J.H. Watson, Ph.D.	Selection studies with pigs Biochemical genetics of mountain sheep Maternal effects as barriers to effective selection Studies of antibody absorption in piglets
M.B. Alcock	Physiology of regrowth in grasses and cereals Comparative physiology of strains of grasses
Agricultural Botany:	
Professor J.L. Harper, D.Phil.	The comparative biology of closely related species, especially ecological differentiation and reproductive isolation The biology of weeds. Plant competition. The seed in the soil. Hemiparasites Dynamics of plant populations in model systems
D.W. Parry	Studies in the Gramineae with especial reference to opaline silica bodies
M.J. Mence (Miss)	Microbial causes of seedling mortality
A.D. Bradshaw, Ph.D.	Population differentiation and hybridization in *Agrostis* species Mode of operation of natural selection Evolution of populations of herbage plants adapted to different soil types. Natural hybridization in *Crataegus*
G.R. Sagar, D.Phil.	Movement of herbicides and assimilates in plants Organization within whole plants Experimental ecology with especial reference to the role of micro-environment in plant establishment

1. Agriculture (*continued*)

Agricultural and Forest Zoology:

J. Hobart (Head of Department)	The ecology of the arthropods of forest soils General biology and control of insect pests
J.B. Ford,Ph.D.	Behavioural studies on the feeding, and biochemical studies on the nutrition and metabolism of insects Ecology of Chironomidae
I.V. Herbert	Animal parasitology: Cytochemistry and nutrition of Trypanosomidae Nutrition of nematode parasites of farm stock
J.M. Cherrett, Ph.D.	Distribution and abundance of terrestrial arthropods in relation to the ecology of predators as exemplified by spiders Ecology of Coccidae

2. Biochemistry

Professor W.C. Evans, Ph.D.	Biochemistry of farm animals in health and disease Cattle: bracken poisoning
R.A. Evans	Biochemistry of some mammalian alimentary tract enzymes
A.J. Thomas, Ph.D.	Plant constituents which affect cell growth and multiplication
I. Antice Evans (Mrs.), Ph.D.	Cell culture of bovine monocytes, and some bone marrow cells
R.F.E. Axford	Metabolic disorders of farm animals; mineral metabolism in the ruminant
I. Graham-Bryce, D. Phil.	Problems in physical biochemistry

3. Botany

Professor P.W. Richards, Sc.D.	Ecology of British vegetation and of the tropical rain forest Biology of British plants (for Biological Flora) Bryophyta
C.G. Dobbs, Ph.D.	Soil mycology Tree-ring analysis
P. Greig-Smith	Pattern in vegetation Systematics of Lejeuneaceae
D.J. Griffiths	Physiology of growth in unicellular algae
G.A.D. Jackson, Ph.D.	Role of ascorbic acid in plant metabolism
W.S. Lacey, Ph.D.	Palaeobotany
M. Martin (Miss), Ph.D.	Algae
N. Woodhead	Freshwater algology

4. Chemistry

Professor S. Peat, Ph.D., D.Sc., F.R.S. J.R. Turvey, Ph.D.	The constitution, enzymic and biological function of the carbohydrates of land and sea plants
P.F. Lloyd, Ph.D.	Mucopolysaccharides and related substances
F. Holmes	Co-ordination compounds
J.M. Thomas, Ph.D.	Heterogeneous gas-solid reactions
W.R. Angus, Ph.D., D.Sc.	Magnetism and molecular structure
D.R. Marshall, Ph.D.	Reactions of aromatic and pseudo-aromatic compounds
T.D. Smith	Aluminium hydrides

5. Engineering

Electronic:

Professor M.R. Gavin, M.B.E., D.Sc.	Ion beam analogue for microwave tubes Parametric amplification
F.J. Hyde	Transistor measurements

5. Engineering (*continued*)

Electronic (*continued*)

R. Mavaddat, Ph.D.	High-speed transistor switching
A.R. Owens	Small motor design
G. Ratcliff	
H.J. Roberts	

Materials Technology:

Professor R.W. Cahn, Ph.D.	Epitaxial growth of silicon carbide Ionic exchange between metals and solutions
D.W.F. James, Ph.D.	Effect of stress on solid solutions
M.P. Callaghan	

6. Forestry

Professor E.C. Mobbs, O.B.E.	Natural regeneration of exotic conifers Establishment and development of various species under conditions of exposure and high elevation
T.H. Owen	
D. Kinloch	Structure and qualities of timber from conifer plantations in varying site conditions
G.K. Elliott	
E.R. Huggard	Investigation of forest machinery, tools and equipment
T.H. Owen	Extraction of forest produce: methods and costings
C.G. Dobbs, Ph.D.	Mycology: biology of soil micro-fungi Dendrology: growth rings of trees

7. Marine Biology

D.J. Crisp, Ph.D. (Director)	Biology of cirripedes Distribution of intertidal fauna Settlement of invertebrate larvae Vision in marine invertebrates
C. Burdon-Jones, Ph.D.	Embryology and histochemistry of Hemichordata Sense organs and behaviour of littoral gastropods
C.P. Spencer, Ph.D.	Biochemistry of marine organisms Chemical hydrography of inshore water Pigments from red algae
W.E. Jones, Ph.D.	Settlement, growth and cytology of algae Algal ecology and distribution
D.A. Dorsett, Ph.D.	Ecology and physiology of polychaetes Flight physiology of insects
J.G. Harvey	Heat budget of seas and lakes Hydrography of Menai Straits
G.D. Floodgate, Ph.D.	Physical and chemical conditions of inshore waters Marine bacteria
A.O. Christie, Ph.D.	Mode of action of toxic compounds in sea water

8. Mathematics

Applied:

Professor D.R. Davies, D.Sc.	Turbulent diffusion Heat transfer General circulation of the atmosphere
R.A. Newing, Ph.D.	Kinematical relativity Astrophysics; rotating stars
Ll.G. Chambers	Electromagnetic theory Cosmology
A. Hare, Ph.D.	Hydromagnetics
J.B. Hughes	Quantum mechanics
J. Cunningham	Quantum field theory

8. Mathematics (*continued*)

Pure:

Professor D.E. Littlewood	Algebra Invariant theory Group representation theory
C.C.H. Barker	Algebraic geometry

9. Physics

Professor E.R. Andrew, Ph.D.	Nuclear magnetic resonance
R.G. Eades, Ph.D. J.P. Llewellyn, Ph.D. A. Bradbury, Ph.D.	
S. Clough, Ph.D.	Electron spin resonance
D.P. Morris, Ph.D.	X-ray and magnetic investigation of alloy systems
R.H. Tredgold, Ph.D.	Conduction processes in dielectrics and semiconductors
P. Wright, Ph.D.	Annealing kinetics of metals
S.W. Charles, Ph.D.	Infra-red spectroscopy

10. Soil Science

Professor W.C. Evans, Ph.D.	Biochemical processes occurring in soils; metabolism of aromatic compounds by soil micro-organisms
R.I. Davies	Correlation of soil type with the incidence of stomach cancer
F. Smithson, D.Sc.	Phytoliths (silica bodies) in plant and soil
I. Graham-Bryce, D.Phil.	Factors involved in the movement of ions in soils

11. Zoology

*Professor F.W.R. Brambell, F.R.S. †W.A. Hemmings †I.G. Morris, Ph.D. I.B. Wilson, Ph.D.	Embryology, foetal physiology and immunology of mammals in relation to problems of sterility and prenatal mortality
L.H. Jackson	Marine biology
T.B. Reynoldson, D.Sc.	Taxonomy and ecology of freshwater triclads
W.C. Jones, Ph.D.	Physiology and growth of sponges
R.M. Alexander, Ph.D.	Biophysics of the teleost swim-bladder
N.W. Runham, Ph.D.	Molluscan histochemistry
P. O'Donald, Ph.D.	Population genetics

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University College of South Wales and Monmouthshire
Cardiff

1. Anatomy

Professor J.D. Lever, M.D.	Experimental cytology and electron microscopy of endocrine tissues Low Kv X-ray studies
F. Jacoby, M.D., Ph.D.	Histology and histochemistry of salivary glands Tissue culture, especially studies on growth of pure population of macrophages, and the relationship of macrophages to fibroblasts
with M.B.L. Craigmyle, M.D.	Electron microscopy of salivary glands

*Honorary Director, A.R.C. Unit of Embryology

†A.R.C. staff

1. Anatomy (*continued*)

H. Hughes	Growth and regeneration of tissues and organs in the post-natal period
	Growth and behaviour studies on Chiroptera
	Anatomy and pathology of prehistoric man
D.B. Moffat, M.D.	Regulating mechanisms in arteries
	In vivo, studies of the circulation in the uterine vessels of the rat
	Development of the vascular system
M.B.L. Craigmyle, M.D.	Electron microscopy

2. Archaeology

Professor R.J.C. Atkinson	Problems of European prehistory with special reference to Britain in the 2nd millennium B.C.
	Archaeological field techniques
L. Alcock	Iron Age and medieval archaeology with special reference to Wales
M.G. Jarrett, Ph.D.	Romano-British archaeology with special reference to Wales
	Chronology of medieval pottery in the north of England

3. Biochemistry

Professor J. Pryde, D.Sc. K.S. Dodgson, Ph.D. F.A. Rose, Ph.D. A.G. Lloyd, Ph.D. G.M. Powell (Miss), Ph.D. N. Tudball, Ph.D.	The biochemistry and enzymology of sulphuric acid esters and cognate structures, including the biochemistry of mucopolysaccharides, of connective tissues and of epithelia

4. Botany

Professor G.F. Asprey, Ph.D., D.Sc.	Plant ecology of industrial waste areas
	Tropical plant ecology with particular reference to the Caribbean area
	Studies on the nyctinastic movement of leaves
M.S. Percival (Mrs.), Ph.D.	Pollen presentation in flowering plants
A.G. Lyon, Ph.D.	Palaeobotany
K. Benson-Evans (Miss)	The physiology of reproduction in the Bryophyta
R. Harvey	The endophytic fungi of the roots of aquatic plants
	Aerobiology with particular reference to fungal spores
S.E. Arney	Shoot growth and morphogenesis in *Fragaria*, including the induction of flowering and dormancy
E.C. Hill	The bacteriological decomposition of effluents
	The effects of γ-radiation on micro-organisms
M.A. Williams (Mrs.)	The bacterial ecology of caves and natural waters
	Biological deposition of calcite
A.G. Callely, Ph.D.	The bacterial oxidation of organic compounds
	The effect of fluorine-organic compounds on microbial metabolism
	Biochemistry of algae
J.R. Etherington	Plant-soil water relations

5. Chemistry

Professor A.G. Evans, D.Sc. N.H. Rees, Ph.D.	Activation of carbon-carbon double bonds by cationic catalysts, anionic catalysts, and by metal alkyl/metal halide catalysts
	Production of carbonium ions by the action of metal salts
	Effect of solvent on the ionization of organic halides

5. Chemistry (*continued*)

A.R. Pinder, Ph.D.	Studies in natural product chemistry
N. Thorne, Ph.D.	Studies in the tetraphenylethylene series
J.H. Thomas, Ph.D.	Gas phase reactions of nitrogen dioxide
E. Whittle, Ph.D.	Gas phase bromination of alcohols Reactions of CF_3 radicals
G.O. Phillips, Ph.D.	Radiation chemistry and reaction mechanism studies of carbohydrate systems
R.P. Houghton, Ph.D.	Chemistry of metal chelate compounds
P.G. Blake, Ph.D.	Unimolecular gas-phase decompositions
K.D. Warren, Ph.D.	Kinetic studies of fluorene derivatives
E.D. Owen, Ph.D.	Studies of photo reactions in solution
D.A. Whiting, Ph.D.	Studies in natural product chemistry

6. Engineering

Civil:

Professor H.C.H. Gurney, D.Sc.	Fracture of materials
D.G. Ashwell, Ph.D.	Finite distortion of elastic plates and shells
J.L. Bannister	Characteristics of prestressing tendons and concrete reinforcement
W.F. Thomas, Ph.D.	Mechanical properties of glass
C.F. Trigg	Earth pressures on retaining walls

Electrical:

Professor E. Williams, Ph.D.	Electronic circuits and devices
W. Davies, Ph.D.	Contact resistance and associated phenomena
P. Lilley	Microwave parametric amplifiers
W.H. Powell, Ph.D.	Noise problems in coal mines
J.G. Thomas, Ph.D.	Electronics applied to physiology

Mechanical:

Professor S.P. Hutton, D.Eng.	Characteristics of parallel disc thrust bearings Cavitation and stability characteristics of centrifugal pumps handling various liquids Dynamic errors on flowmeters
B.J. Brinkworth	Propagation of thermal radiation in a scattering atmosphere Light scattering techniques applied to flow measurement
L.H. Butler, Ph.D.	Friction and surface effects during plastic deformation of metals
H.A. Slyper, Ph.D.	Mechanical vibration of gas turbine blades Static and dynamic properties of laminated plastics
T.T. Lewis	Fatigue of fibres
R.O. Bray	Free piston engines

7. Geology

Professor J.G.C. Anderson, D.Sc.	Stratigraphy, structure and petrology of the Caledonides in Scotland and Ireland
with J.W. Baker	Glacial and post-glacial geology of S. Wales
G.G. Lemon	Stratigraphy and structure of Ffestiniog district, N. Wales
C.R.K. Blundell, Ph.D.	Caledonian and Hercynian structure in S.W. Wales
C.R.K. Blundell, Ph.D. J.W. Baker	Geology of the Old Red Sandstone and Carboniferous rocks of S. Wales
R.M. Appleby, Ph.D.	The evolution of the ichthyosaurs The Mesozoic rocks of S. Wales
C.R.K. Blundell, Ph.D.	Geophysical investigations in S. Wales
D.E.T. Bidgood	Palaeomagnetism of E. Greenland rocks

8. Mathematics

Applied:

Professor P.T. Landsberg, Ph.D.	Statistical mechanics; theory of solids
R.M. Morris (Miss), Ph.D.	Theory of elasticity
T.L. John, Ph.D.	Radiative and scattering processes

Pure:

Professor J.L.B. Cooper, D.Phil.	Fourier transforms; linear spaces
J.F. Rigby, Ph.D.	Algebra
D.E. Edmunds, Ph.D.	Elasticity
G. Gould, Ph.D.	Linear spaces; measure theory

9. Metallurgy

R.D. Garwood	Transformations of alloys in the solid state
D.L. Carpenter, Ph.D.	Explosibility characteristics of coal dust clouds Controlled oxidation of coals and its effect on physical properties
R. Rawlings, Ph.D.	Constitution of iron nitrogen alloys containing a third element Internal friction of beryllium
J.L. Taylor	Electron microscopy of aluminium alloys

10. Mining

Professor J. Sinclair, Ph.D.	Mining subsidence Application of the electron microscope to problems of mining and other industries
J. Platt, Ph.D.	Mineral preparation and organization
K.M. Brown	Mine dusts
W.H. Powell, Ph.D.	Noise from underground machinery
R.D. Potter	Strata pressure and the economics of roadway supports
J. Taylor	The efficiency of mine ventilation and gas emission from power-loaded faces, and factors affecting the flow from methane drainage boreholes

11. Physics

Professor A.J.C. Wilson, Ph.D., F.R.S.	Theory of the diffraction of X-rays Statistical methods in X-ray analysis
D. Grant, Ph.D. R. Hine, Ph.D. R.G. Howells J.P.G. Richards, Ph.D. R. Dewsberry	Crystal and molecular structure of organic compounds, particularly natural substances
B.W. Delf, Ph.D.	Development of counter diffractometer
J.W. Hughes, Ph.D.	Identification problems
I.E. Lewis (Miss) M. Langford	Extension of A.S.T.M. X-ray powder data file

12. Physiology

Professor J.M. Peterson, D.Sc.	Distribution of body solutes
R.C. Jordan, D.Sc. F.W. Beswick	Vector electrocardiography
E.T. Waters, D.Sc.	Carbohydrate metabolism Anaphylactic shock Coagulation of blood
S.L. Stone	Liver function
H.E.F. Davies, M.D.	Renal function

13. Technology

Fuel:

T. Evans	Physical properties of the pure coal substance
D.L. Carpenter, Ph.D.	Ignition and explosive properties of coal dust

14. Zoology

Professor J. Brough, D.Sc.	Vertebrate palaeontology
with M.C. Brough (Mrs.), D.Sc.	Early history of tetrapods
E.M. Sheppard (Miss), D.Sc.	Systematics of isopods
G.T. Jefferson, Ph.D.	Heat injury in insects and reproduction in locusts
W.A.L. Evans, Ph.D.	Digestion in insects and other invertebrates
D.A. Erasmus, Ph.D.	Life histories of trematodes, and physiology of *Taenia pisiformis*
B.W. Staddon, Ph.D.	Nitrogenous excretion in insects
T.E. Thompson, Ph.D.	Marine gastropods
M.F. Claridge, D.Phil.	Parasitic Hymenoptera
J.M. Edington, Ph.D.	Stream ecology

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1. Botany

Professor H.E. Street, D.Sc.	Studies in growth, metabolism and genetics involving the culture of excised roots and callus tissues Heterotrophic metabolism of unicellular algae Free-cell cultures of higher plant cells Establishment of vegetation on industrial sites
I. Isaac, D.Sc.	Taxonomy of species of *Verticillium* and of closely related genera *Verticillium* wilt and other diseases of crop plants
G.T. Goodman	Autecology of selected species of *Eriophorum* in Britain Establishment of vegetation on industrial sites
J. Hayward, Ph.D.	The inorganic nutrition of the smaller algae
E.G. Brown, Ph.D.	Metabolism of purines, pyrimidines and related compounds in higher plants
A.J.E. Smith D.Phil	Experimental taxonomy of British species of *Melampyrum*
H. Öpik Ph.D.	Development of respiratory enzymes during germination
D.R. Trollope	Metabolic studies with *Mycobacterium* and related genera

2. Chemistry

Professor C.H. Hassall, Ph.D.	Structural chemistry of naturally occurring organic compounds, in particular alkaloids, polypeptides, mould metabolites and chemical genetics
J.A. Ballantine, Ph.D.	Metabolites of fungi
R.F. Curtis, Ph.D.	Natural products chemistry
K.J. Gallagher, Ph.D.	Solid state chemistry
H.E. Hallam, Ph.D.	Infra-red spectroscopy
D.A. Long, D.Phil.	Raman spectroscopy
J.A. Schofield, Ph.D.	Amino-acids and peptides
G. Stedman, Ph.D.	Reaction kinetics
G.H.R. Summers, Ph.D.	Steroids; other natural products
C.A. Wellington, Ph.D.	Reaction kinetics in the gas phase

3. Engineering

Chemical:

Professor J.F.Richardson, Ph.D.	Gas flow patterns in a fluidized bed Mass transfer between lean and dense phase in a fluidized bed Hydrodynamics of solid-liquid fluidized systems
D.J. Gunn	Flow of gas-liquid mixtures through nozzles and packed beds Interfacial phenomena
J.C. Lee, Ph.D.	Gas absorption accompanied by chemical reaction in disperse systems Study of liquid-liquid dispersions Mechanics of three-phase fluidized beds
J.M. Smith	Extrusion of polymers Mixing of non-Newtonian fluids
W.J. Thomas, Ph.D.	Heterogeneous catalytic oxidation of hydrocarbons Effects of impurities on oxidation of carbons
R.M. Wood, Ph.D.	Transient behaviour and control of large distillation columns Heat transfer in rotating disc exchanger Transient behaviour of liquid-liquid extraction columns

Civil:

Professor O.C. Zienkiewicz, Ph.D.	Analysis of arch dams Interface problems in elasticity and visco-elasticity Thermal stress analysis Stress analysis by finite elements and rock mechanics
J.D. Davies, Ph.D.	Reinforced concrete tanks Interaction of structures and foundations
H.E. Evans, Ph.D.	Soil pressure gauges Foundation pressures Pore water pressure measurement
G.S. Holister	Development and application of photo-elastic coating techniques
B.W. Preece	Steel trusses: repeated loading collapse Collapse of tubular trusses
K.C. Rockey, Ph.D.	Buckling of plate girders Brittle fracture Collapse of trusses
J.A. Sandover, Ph.D.	Generation of waves by wind Breaking of waves Stability of ground effect machines Bed and side movement of large blocks in shallow fast flowing streams Potential of the Severn Barrage Scheme

Electrical:

Professor W. Fishwick, Ph.D. A. Griffin R.S. Ramshaw, Ph.D.	Control systems including non-linear servomechanisms, analogue computer studies and machine vibrations Machine design
H. Dickinson R.O. Dunmore P.L. Arlett	High-voltage measurements; behaviour of liquid dielectrics and glass under high field stress power systems
J. MacCormack V.J. Phillips, Ph.D.	Measurement of transistor parameters and transistor circuitry Transistorized multi-channel communication systems Modulation techniques

3. Engineering (*continued*)

Electrical (*continued*)

S. Venkateswaran, Ph.D.	Active network theory
H.W. Gosling	Measurement of magnetic fields by nuclear methods and applications
W.G. Townsend, Ph.D.	Study of avalanche and Zener breakdown in silicon rectifiers

Mechanical:

Professor R.H. Macmillan	Application of adaptive control to industrial processes: continuously variable speed power transmission systems including techniques for regeneration and control
	Pneumatic servo
D.M. Christie	Machine tool transmission
	Belt gears for power transmission
T.C. Daniels, Ph.D.	Density separation in fluidized beds
	Two-phase heat transfer from steam at critical conditions
T.H. Davies	Thermosyphon cooling of rotating machines
W.E. Eder	Mechanical variable speed gear
R.T. Griffiths	Inertia systems for power transmission
A.A. Nicol, Ph.D.	Effect of vapour velocity and surface roughness on condensation of steam in pipe lines
J.A. Sandover, Ph.D.	Stability of air cushion craft at significant forward speeds

4. Geography

Professor W.G.V. Balchin, Ph.D.	Problems of water supply in Great Britain
	University location in Great Britain
	Evolution of limestone topography
J. Oliver	Local climates, in particular mountain climates and oceanic influences in local climates
	Climatic change in Wales
G.E. Groom (Miss)	Coastal evolution and denudation chronology of S. and S.W. Wales
	Solutional processes and the physiography of limestone regions
	Glacial and periglacial landforms and deposits in S. Wales
	Landslides and mass movement in S. Wales
	Late glacial and post-glacial vegetational changes in S. Wales
D.H. Maling, Ph.D.	The geology and glaciology of the S. Orkney Islands
	Map projections
	Developments in photogrammetry, cartography and geodesy in the U.S.S.R.
	Methods of plotting from super wide aerial photographs
S.H. Cousens, Ph.D.	Historical geography of Ireland and rural S. Wales
G. Manners	Economic geography of power industries
	Economic geography of S. Wales
H.R.J. Davies	Economic and social geography of the Nile Basin
	Historical geography and changing patterns of land use in the Sudan
G. Humphrys	Regional science studies in S. Wales
	Economic geography of Canada, the W. Indies and the mineral industries
H.R.J. Henderson	Agricultural geography of southern Africa and Wales
E.M. Bridges	Evolution and classification of soils
	Relation of soils to the geomorphological pattern of the landscape

5. Geology

Professor F.H.T. Rhodes, Ph.D.	Cambrian microfaunas from New Zealand Carboniferous micropalaeontology Conodont studies
with T.R. Owen	Sedimentary and palaeoecological study of the Basal Coal Measures of S. Wales
T.W. Bloxam	Chemical studies of sedimentary rocks, and recent and fossil invertebrates
B. Simpson	Petrological study of the rocks of the Silurian-Devonian Boundary at the Usk Reservoir Supply Tunnel, S. Wales Problems of coast erosion at Ogmore-by-Sea A study of the lithology, movement and depositional features of the sands of Caswell Bay, S. Wales
T.R. Owen	The *Dibunophyllum* zone in S. Wales (including Pembrokeshire) The Penlan Quartzite Structural problems in S. Wales The relationship of drainage and geological structure in the S. Wales coalfield
with D.G. Jones	The Millstone Grit-Carboniferous Limestone junction in the S. Wales and Pembrokeshire coalfields The Namurian and Basal Coal Measures of the eastern portion of the S. Wales coalfield The Carboniferous rocks of the Ifton district
V.G. Walmsley, Ph.D.	The geology of the Silurian inlier of Usk, Monmouthshire The stratigraphy and palaeontology of the Upper Silurian of Pembrokeshire and the Ludlow District Study of Dalmanellid brachiopods Investigation of *Pteronitella retroflexa* (Wahlenberg)
T.W. Bloxam, Ph.D.	Petrology and chemistry of the glaucophane schists in California, Wales, and Scotland Ultrabasic and basic rock relationships, S. Ayrshire (petrology and geochemistry) Lavas and basic intrusions, S. Pembrokeshire (petrology and geochemistry) Sedimentary geochemistry, particularly the geochemistry of coal Radioactivity of rocks
G. Kelling, Ph.D.	Stratigraphy, structure and petrology of Lower Palaeozoic sedimentary rocks in S.W. Scotland Petrological studies in the Pennant sandstones of S. Wales Sedimentology of Old Red Sandstone rocks in S. Pembrokeshire
with R.O. Muir	Sedimentation of basal Carboniferous rocks in E. Lothian
P.R. Hooper, Ph.D.	Dykes of Graham Land, W. Antarctica Geology of Oksfjord, N. Norway Geochemistry of the igneous rocks of S. Wales
J.C.W. Cope	Palaeontology and stratigraphy of the Middle and Upper Kimmeridge Clay

6. Mathematics

Applied:

Professor J.G. Oldroyd, Ph.D., D.Sc.	Flow of elastico-viscous liquids; deformation of visco-elastic solids; rheology
J.R. Jones, Ph.D.	
G.W. Evans, Ph.D.	Irreversible thermodynamics
M. Gurr	Data processing of structural analysis and design
F.T. Malins Smith	Plasticity theory
T.S. Walters	Atmospheric turbulence and diffusion
J. Wilkinson, Ph.D.	Three-dimensional viscous boundary layer theory

6. Mathematics (*continued*)

Pure:

Professor J.D. Weston, Ph.D., D.Sc.	Functional analysis; operational calculus
H.O. Foulkes, D.Sc.	Symmetric functions Matrix representation of groups
H.J. Godwin	Theory of algebraic numbers
J.G. Brennan	Linear series on algebraic curves
F.R. Keogh, Ph.D.	Properties of schlicht functions Summability problems Fourier series
C.N. Linden, Ph.D.	Functions regular in the unit circle
S.K. Zaremba, D.Phil.	Probability theory and stochastic processes
G.M. Petersen, Ph.D.	Matrix theory of summability Additive number theory Tauberian theorems

7. Metallurgy

Professor H. O'Neill, D.Sc.	The deformation properties of metals and alloys at various temperatures
Professor A.R.E. Singer, Ph.D.	The control of process variables in the extrusion rolling and pressure welding of metals
J.P. Dennison, Ph.D. P.W. Davies, Ph.D. B. Wilshire	Fundamental studies of tertiary creep and fracture in pure metals and very dilute binary alloys
A.P. Greenough	Surface energy of solid metals The fatigue damage of metals
D.E. Davies, Ph.D.	The oxidation of silver and gold The corrosion of metals

8. Physics

Professor F. Llewellyn Jones, D.Sc.	Electron and discharge physics Surface ionization phenomena and properties of thin films Temporal growth of ionization Electrical contact phenomena
P.M. Davidson, Ph.D.	Theoretical physics; quantum electrodynamics, transport phenomena in gases, temporal growth of ionization
M.R. Hopkins, Ph.D.	Electrical contact phenomena and properties of metals at very high temperatures
J. Dutton, Ph.D.	Electrical breakdown of gases at high pressures and properties of positive ions
C. Grey Morgan, Ph.D.	Electron and discharge physics
L.R. Griffin	Arc discharges and spectrographic sources
K.A. Thomas	Spectroscopy of electrical discharges

9. Zoology

Professor E.W. Knight-Jones, D.Phil.	Marine biology
A. Macfadyen	Extraction methods for soil animals Continuous records of respiratory rates of small animals
P. Makings, Ph.D.	Entomology and neurophysiology
E. Naylor, Ph.D.	Ecology and taxonomy of Isopoda Fauna of artificially warmed docks Rhythms of behaviour in marine animals
R.F.O. Kemp	Genetics of fungi (Basidiomycetes)
P.E. King, Ph.D.	Reproductive systems of Hymenoptera
B.L. James, Ph.D.	Helminthology and intertidal ecology

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1. Anaesthetics

Professor W.W. Mushin	Cardiovascular effects of automatic ventilation Methods of relief of intractable pain Pharmacology of newer drugs
W.W. Mapleson, Ph.D.	Theoretical and experimental study of gas flow in anaesthetic systems Dynamics of controlled respiration Distribution of anaesthetic drugs

2. Haematology

A.L. Bloom	Changes in blood after extracorporeal circulation Effects of blood cell damage on coagulation Investigations to detect coagulation changes in heparinized blood
A. Jacobs	Tissue response to anaemia with particular reference to epithelial and leucocyte function Investigation of the Paterson-Brown-Kelly syndrome
J.L. Withey	Investigation into incidence of anaemia in school children Comparison of the serum B_{12} levels upon treatment with cyanobalamin and hydroxocobalamin

3. Medicine

Professor H. Scarborough, Ph.D.	Bleeding diseases Thrombocytopenia Capillary fragility
A.H. James, D.M., M.D.	Gastric and duodenal acidity
L.P.R. Fourman, M.D.	Disorders of calcium metabolism and their effects on the kidney
J.P. Thomas, M.D.	Adrenal cortical hormones

ASTHMA AND ALLERGY RESEARCH UNIT

D.A. Williams, M.D.	Clinical investigations in asthma and hay fever
H.A. Hyde	Atmospheric pollen and spores in relation to allergic disease

4. Microbiology

W.G. Strawbridge, M.D.	Bacterial residues in lesions of the lung Determination of the aetiology of sarcoidosis The active principle of Kveim antigen Determination of strains of acid-fast bacteria by examination of lipid fractions Lipid fractions in lesions of leprosy
Professor S. Thomson, M.D.	The bacteriology and mechanism of infantile gastroenteritis Cross-infection in hospitals Influence of pCO_2 upon sodium ion transport
R.A. Holman, M.D.	Bacterial respiration The formation of antibodies Anaerobes Mycobacteriaceae *Bacillus proteus* Respiration of tumours

5. Obstetrics and Gynaecology

Professor A.S. Duncan, D.S.C. A.H. John	Investigation of a method of forecast of placental insufficiency by means of a hypoxic test and of atropine transference
J.G. Lawson, M.D. D.K. Watkins, Ph.D.	Investigation of β-glucuronidase and α-mannosidase in vaginal fluid and mucosa
E.B. Butler (Miss)	Investigation of anaemia in pregnancy with particular reference to haemodilution

6. Paediatrics and Child Health

Professor A.G. Watkins, M.D.	M.R.C. therapy trial in rheumatic fever Hospital morbidity survey
P.T. Bray	Fibrocystic disease Parent group studies
J. Jacobs, M.D.	Primary tuberculosis Long-term follow up of haemolytic anaemia of the newborn Personality testing in children *Pyocyanea* infection in a premature unit
O.P. Gray	Rheology studies Pulmonary syndrome Eye refraction in the newborn
K.M. Laurence	Pathology and natural history of hydrocephalus and spina bifida cystica Pathology of choroid plexus papilloma Genetics and epidemiology of the major central nervous system malformations Cerebral changes in perinatal anoxia Investigation of chromosome abnormalities

7. Pathology

Professor J. Gough, M.D.	The pathology of emphysema and asthma The pathology and radiology of pulmonary hypertension The pathology of byssinosis
H.J. Whiteley, M.D.	The mechanism of hair growth and hair replacement in the rabbit The effect of the hair cycle on experimental skin carcinogenesis in the rabbit The effects of age on the reactions of the skin of the mouse
W.R.L. James, M.D.	A study of fatal acute lung infections in infants
J.W. Keyser, Ph.D.	Studies of the serum glycoproteins Investigations of laboratory techniques
E.E. Payne M.D.	The vascular patterns of the spinal cord in man The pathology of the spine
J.G. Leopold	Correlation of pathological lung changes with clinical and radiological findings Vascular changes in lung diseases
J.L. Withey	Investigation into the serum B_{12} levels in random samples of the population Investigation into the serum B_{12} levels in diabetes
T. Dauncey	Histology of ovaries in various gynaecological disorders Relationship of trauma and soft tissue tumours in the rabbit
P. Callaghan	Immunological mechanisms in diffuse hepatic fibrosis Hospital cross-infection
A.L. Bloom	A study of fibrinolysis *in vitro* with particular reference to the release of thrombin from fibrin by fibrinolysis

7. Pathology (*continued*)

B. Knight	Histochemistry of myocardial infarction
D.B. Thomas	Maturation of the haematopoietic tissues
	Tissue transplantation with special reference to foetal haematopoietic cell transplantation
	Cellular differentiation in relation to environmental factors

8. Pharmacology and Therapeutics

Professor F.W. Landgrebe, D.Sc.	Purification and assay of chorionic gonadotrophin
	Isolation and separation of pituitary autacoids, with particular reference to ACTH and melanophore dispersing hormone
J.D.P. Graham, M.D.	Antihistamine and antiadrenaline drugs
G.M. Mitchell	Functional significance and metabolism of chorionic gonadotrophin
	Differentiation and assay of melanophore expanding hormone and ACTH
R.S. Tonks, Ph.D. with A. Hughes,	Rheumatic carditis
R.J. Ancill	Chorionic gonadotrophin: chemical aspects
	Steroid biosynthesis and metabolism
	Correlations between quantum mechanical data and pharmacological activity in drug molecules

9. Social and Occupational Medicine

Professor C.R. Lowe, M.D., Ph.D.	Organization and effectiveness of health services
	Arterial pressure in population samples
	Anthropometry
	Aetiology of congenital malformations
	Smoking habits and disease
R.A.N. Hitchens, M.D.	Epidemiology of acute rheumatism
	Aetiology of industrial accidents
	Utilization of hospital facilities
H. Campbell	Application of statistical methods to medical problems
	Infertility
	Childhood morbidity

10. Surgery

Professor A.P.M. Forrest	Treatment of advanced breast cancer: and investigation of endocrine aspects
	Experimental gastric secretion in dogs and relationship to peptic ulcer in humans
	Small bowel absorption tests and motility
A.S. Aldis	Malignant melanoma; cytotoxic infusion; properties of melanoma cells
G.E. Heard	Peripheral vascular disease; grafting procedures; evaluation of sympathetic activity; peripheral blood flow
	Nerve sheath tumours: natural history
	Perforated peptic ulcer: prognosis
H. Wade	Injury to parathyroid glands at parathyroidectomy
H. Richards	Tendons and sheaths: primary repair of flexor tendons; radiological demonstration of flexor sheaths for diagnostic and reconstructive purposes; composition of tendon sheath and joint fluid
D.M.E. Thomas	Cardiac surgery: problem of perfusion
C. Langmaid	Congenital spinal lesions

11. Tuberculosis and Chest Diseases

*Professor A.L. Cochrane	Epidemiology of several common diseases in defined communities
J. Marks, M.D.	Chemotherapy of experimental silico-tuberculosis
	Properties of the "anonymous" or "atypical" mycobacteria
	Nature of tuberculin hypersensitivity

*Honorary Director, M.R.C. Epidemiological Research Unit

Part II: Colleges of Technology

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1. Chemistry

Inorganic:

J.E. Salmon, Ph.D. (Head of Department)	The reactions of iso- and hetero-poly acids of molybdenum and tungsten in solution Study of complex compounds by ion-exchange chromatography Metal fluoride complexes in aqueous solution
C.E.A. Brownlow, Ph.D.	Complexes of Group IIIB metals
A. Earnshaw, Ph.D.	Magnetic studies on carboxylic acid complexes and easily oxidizable complexes of transition metals
J. Genge	Complex formation between tervalent metals and oxyacids of Groups V and VI Metal hypophosphate complexes in aqueous solution, and fluoride species in non-aqueous media
R.J. Irving, Ph.D.	Ruthenium species in aqueous solution Nitrosyls and carbonyls of ruthenium and osmium Thermochemistry of co-ordination compounds
L.F. Larkworthy, Ph.D.	Transition metal complexes and the action of nitric oxide on such complexes Action of nitric oxide on organo-metallic compounds
D.J. Phillips, Ph.D.	The preparation and characteristics of nitrato and nitrate complexes of transition metals with triphenylarsine oxide
J.P. Redfern, Ph.D.	Ion-exchange studies of oxy-anion systems Thermogravimetric and differential thermal analysis techniques

Organic:

M.H. Abraham, Ph.D.	Mechanism of autoxidation and reactions with nitric oxide of organo-metallic compounds
C.L. Arcus, Ph.D., D.Sc.	Preparative chemistry and kinetics of reactions of groups attached to macromolecules Catalysis by macromolecules
L.A. Cort, Ph.D.	Heterocyclic compounds of oxygen, nitrogen and sulphur *S*-alkyluronium salts in the synthesis of heterocyclic compounds Darzen's glycidic ester synthesis in the indan-1-one series
R.E. Marks, Ph.D.	Azido reactions of benzfluorenols, unsaturated ketones and carbinols, bicyclic ketones and olefins
J.A. Reid (Mrs.), Ph.D.	Partial asymmetric synthesis in the Reformatsky and related reactions and the absolute configuration of β-hydroxy-acids obtained therefrom Interaction of a α-halogenoacel halides and alcohols
T.J. Howard, Ph.D.	Partial asymmetric synthesis effected by catalytic hydrogenation, and the gas-liquid chromatographic separation of diastereoisomers

Physical:

D.P. Benton, Ph.D.	Adsorption from electrolyte solutions by diamond, metal oxide and metal powders Sedimentation volumes of powdered solids in electrolyte solutions
G.J. Buist, Ph.D.	The mechanism of oxidation of glycerol and pinacol by periodic acid

1. Chemistry (*continued*)

Physical (*continued*)

Emeritus-Professor C.W. Davies, Ph.D., D.Sc.	Investigations into the physical chemistry of ion exchange resins
	The theory of colloidal electrolytes
Z.L. Ernst, D.Sc.	The effect of substituents on the stabilities of complexes
P. Howard, Ph.D.	Polymer-solvent interaction and the thermodynamic treatment of polymer solutions
W.H. Lee, Ph.D.	Ultrasonic velocities in aqueous solutions
	High frequency titrimetry and its applications
D.I. Stock, Ph.D.	Effects of the nature of the ligands on the dissociation constants of bivalent metal carboxylates
	Interpretation of solubility measurements on solutions of salts containing two hydrolysable ions

Spectroscopy:

V.S. Griffiths, Ph.D.	Ultra-violet and infra-red spectroscopy of organo-metallic compounds
	Electron spin and nuclear magnetic resonance studies of phosphorus-containing compounds
	Electrochemical studies of plating bath additives
	Electron spin resonance studies of irradiated organic systems
A.W.S. Tarrant	Spectral distribution of energy in sunlight and daylight

2. Engineering

Chemical:

S.R. Tailby, Ph.D. (Head of Department)	Heat transfer in the field of gas-heated equipment
	Fluidization processes
W.J. Thomas, Ph.D.	Thermal diffusion. Mass transfer mechanisms. Liquid-liquid extraction
	Solid-liquid extraction
	Heat transfer from gas bubbles
S. Portalski, Ph.D.	The hydrodynamics of liquid films
R.W. Goulcher, Ph.D.	Multi-component distillation.
M.A.T. Cocquerel, Ph.D.	Mixing phenomena in fluidized beds
E.K. Clutterbuck, Ph.D.	Heat transfer in the field of gas-heated equipment

Civil:

Z.S. Makowski, Ph.D. (Head of Department)	Analytical and experimental stress distribution in three-way grid frameworks
	Investigations of structural use of plastics
	Load distribution in prefabricated double-layer grid structures suspended systems
R.L. Wajda	The behaviour under shear of cement pastes and fresh mortars in a rotational viscometer
	Thermal and shrinkage effects on concrete structures
	Creep in tension of dense and lightweight concrete at ordinary and elevated temperatures
	Behaviour of prestressed beams at extreme fibres under sudden changes of temperatures and humidity and under load conditions
	Structural properties of lightweight concrete
	Embedment of electrical resistance strain gauges in concrete structures
	Investigation into the shear failure in prestressed concrete elements
	Torque deformation characteristics for concrete hollow square section

2. Engineering (*continued*)

Civil (*continued*)

R.L. Wajda	Properties and stability of cohesive soils
A. Tarzi	Thixotropy of clays
	Failure of heaving of the bottom of a circular braced excavation in cohesive soils
	Use of models for the solution of soil mechanics and foundation problems
R.C. Vaughan	Investigation of stresses in water towers
	Efficiency of joints in precast concrete structural elements
	Pre-cast prestressed shell roofs
	Stresses in continuous flat slabs supported by rows of columns
D.E. Murchison	Timber roof truss investigation

Electrical:

W.F. Lovering (Head of Department)	
N. Ream	Closed loop control of systems involving finite, variable, delay times. Control of systems having time variant parameters
R.A. Woodrow, Ph.D.	Synthesis of filters containing active elements
P.J. McVey	
J.R. Chetham	Development of stabilized current sources
	Noise in ferrites
E. Watson	Nuclear resonance techniques

Mechanical:

W. Carnegie, Ph.D. (Head of Department)	Turbine and compressor blade vibration including programming of general equations of motion for solution on a digital computer
	Solution of equations of motion for tapered blades
	Investigation of the effects of rotation including the construction of a high-speed rotating rig
Z. Reif	Vibration isolation of systems employing non-linear springs
B.J. Zaczek, Ph.D.	The fouling and corrosion of combusion chambers, including the effects in gas turbines
	Heat transfer from flames to granulated solids
	Air pollution by exhaust gases from diesel engines
	The operation of recuperators of the type used in the steel industry
	Spontaneous ignition of kerosene, the effect of additives, surface roughness and pressure
S.R. House	Reflection polariscope techniques
	Static and fatigue strength of lugs
	Progressive fatigue testing
	Shear centres of asymmetrical aerofoil cross-sections
J.W. Wielogorski	Hydraulic jump in sloping channels
	Cavitation in Venturi meters
	Pre-whirl in axial flow pumps
	Propagation of pressure waves in pipes
	Hydraulic analogue of heat transfer problem

3. Mathematics

F.M. Arscott, Ph.D. (Head of Department)	Ordinary differential equations with periodic coefficients
	Solution of the wave equation and Laplace's equation in paraboloidal and ellipsoidal co-ordinates
	Two-parameter eigenvalue problems

3. Mathematics (*continued*)

F. M. Arscott, Ph.D. (Head of Department)	Theory and computation of Lamé functions
	Convergence of series with general-order recurrence relations
	Orthogonality properties and integral equations for solutions of Hill's equation
J.H. Wilkinson, Ph.D.	Torsion and flexure-with-shear for a cylindrically aeolotropic elastic material
M. Davies, Ph.D.	Curve fitting and functional optimization by the use of digital computers
M.M. Clark, Ph.D.	Application of relaxation methods to engineering problems
W. Davidson, Ph.D.	Hydrodynamics of a compressible fluid (supersonic flow)
	Observational and theoretical aspects of the cosmological problem
	Interpretation of inertia, energy and mass in general relativity theory
	Observational tests of general relativity

4. Metallurgy

L.W. Derry (Head of Department)	
A.P. Miodownik, Ph.D.	Transformations and properties of structures occuring on tempering zirconium-molybdenum alloys
	Transformations of beta-copper-tin alloys, with particular reference to the beta-gamma transformation
	Study of interactions between solid iron and liquid zinc
	Electrical transport properties of zirconium containing intersitial alloying elements
	Study of eutectic crystallization
	Analysis of allotropic transformation as a method of studying the relative stability of metal structures
	Variables affecting micro-hardness testing using spherical indentors
B.L. Daniell, Ph.D.	The effects of manganese, nickel, chromium and molybdenum on the continuous cooling characteristics and mechanical properties of low carbon steel
	Determination of martensite transformation in steels by an electromagnetic method
	Structure and properties of steels quenched directly to sub-zero temperatures in a fluidized-bed medium
	Study of reducibility and reactivity of sinter in blast furnace
J.K. Prall, Ph.D.	High-temperature oxidation of uranium and uranium metal compounds
	Factors which cause stresses in electrodeposits
	The mechanism of addition agent action in electrodeposition
	Anodic oxidation of titanium in formic acid solutions
	Passivity and activity of nickel during anodic polarization
Z.C. Szkopiak	Strain-ageing and interaction of internal friction peaks in niobium containing interstitial elements
	Effects of irradiation of internal friction in niobium
	Strain-ageing mechanism in tantalum and vanadium
	Study of interstitials and dispersed phases in cast nickel and cobalt alloys
R.L. Samuel	Effects of electromagnetic fields on diffusion of chromium into iron
	Diffusion of substitutional elements into niobium and tantalum

4. Metalurgy (*continued*)

R.L. Samuel	Mechanism of sintering of tungsten in reactive atmospheres
	Dispersion hardening of nickel and nickel alloys by displacement reactions during sintering
	Surface alloying of creep-resisting alloys during sintering process
	Kinetics of oxidation reactions of iron and nickel alloys using constant pressure differential apparatus and gravimetric methods
	Kinetics and thermodynamics of gas-metal reactions during open-coil annealing in different atmospheres
	Oxidation and thermal corrosion properties of aluminium-coated creep-resisting alloys
	Thermal stability of oxide coatings on nickel base alloys
	Effects of surface composition and surrounding atmospheres on high temperature creep properties of b.c.c. metals
	Hydrogen embrittlement of high-tensile steels in various corrosive media
P. Cotterill, Ph.D.	Effect of composition on recrystallization of aluminium alloys after deformation
	Effect of mode of deformation on recrystallization of aluminium alloys
M.G. Bader	Fatigue deformation in ordered solid solutions
	Deformation (including fatigue) in metastable solid solutions
	Fatigue of hard-faced shafts
	Mechanical and fatigue properties of thick aluminium alloy plate at room and at elevated temperatures
	Mechanical properties of aluminium and magnesium casting alloys at room and at elevated temperatures
	Cumulative damage in fatigue of aluminium alloys
	Notched fatigue of aluminium alloys
D. Lewis, Ph.D.	Micro-X-ray beam diffraction study of deformation in metals
	Strain and particle size measurement in ionic crystals by X-ray line broadening
	Crystal structure of boiler scale
M.F.C. Ladd	Crystal structure determination: diosegenin iodoacetate
	Crystal structure determination: euphenyl iodoacetate
	Lattice energies and associated thermodynamic properties of crystalline solids
	Structure of dehydration products

5. Physics

L.R.B. Elton, D.Sc. (Head of Department) D.F. Jackson (Miss), Ph.D.	Theoretical investigations in nuclear structure
K.E. Puttick, Ph.D. J.G. Rider, Ph.D. P. Charsley, Ph.D. P.R. Doidge, Ph.D. T. Hinton	Lattice defects in crystals
K.E. Puttick, Ph.D. R.G. Rider, Ph.D. P. Charsley, Ph.D. P.R. Doidge, Ph.D. T. Hinton	Low temperature properties of metals
A.G. Crocker, Ph.D.	Theoretical investigation of lattice defects in crystals

5. Physics (*continued*)

K.W.H. Foulds, Ph.D. Y. Klinger, Ph.D. J.R. Blakey	Microwave properties of ferro-electric materials
K.W.H. Foulds, Ph.D. Y. Klinger, Ph.D. J.R. Blakey	Interaction of electromagnetic waves with plasmas
R.G. Harlow, Ph.D.	Attenuation of sound in gas mixtures
B.E. Stern (Miss)	Effect of radiation on leucocytes
R.J. Huck, Ph.D.	Viscosity and thermal conductivity of gas mixtures
I.J. Zucker, Ph.D.	Statistical mechanics

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1. Chemistry

Inorganic:

W.G. Parker, Ph.D. (Head of Department of Chemistry)	
E.R. Clark, Ph.D.	Heteropolyacids of germanium and tellurium
A.W. Downs, Ph.D.	The configuration of a series of nickel ammine thiocyanates

Organic:

A. Holt, Ph.D.	The chemistry of carbohydrate sulphates
A.W.P. Jarvie, Ph.D.	The reactions of silylamines
P.A. Ongley, Ph.D.	The preparation of chloro-nitroso compounds
J.B.F. Lloyd	Cyclic diones and bridged cyclo-alkenes
J.S. Pizey	Reactivity of activated alkenes
M. Williams, Ph.D.	Organic submicroanalysis

Physical:

J.D. Butler, Ph.D.	Vapour phase catalytic oxidations
A.V. Golton, D.Phil.	Study of intermolecular interactions by infra-red spectroscopy
P.D. Groves	The effect of solvent composition on the stability of metal complexes
A.E. McCarthy	X-ray analyses of the structure of complex salts
V.S.K. Nair, Ph.D.	Studies of metal complexes in solution
P.F. Onyon, Ph.D.	Kinetics of vinyl polymerization
J.E. Stuckey	Mechanical degradation of vinyl polymers
F.M. Page, Ph.D.	Electron affinities of atoms and radicals
A.F. Gaines, Ph.D.	Mass spectrometry of negative ions
W.G.S. Parker, Ph.D. W.S. Williams	Pyrolytic studies in flames
R.H. Perrett	Gas chromatography
S. Walker, Ph.D.	Study of molecular interactions by physical methods

2. Engineering

Chemical:

W.G. Parker, Ph.D. (Head of Department of Chemistry)	
B. Gay, Ph.D.	Local transfer coefficients in a shell-and-tube heat exchange
A.R. Cooper	Control of industrial gas-fired furnaces
J.L.R. Kirkaldy, Ph.D. D.E. Creasy, Ph.D.	Characteristics of novel designs of packing for water cooling towers

2. Engineering (*continued*)

Civil:

G.M. Mills	Dynamic loads on foundations due to heavy machinery
O.M. Bennett	Stress-strain relationships of granular and cohesive soils
L.H. Martin	Composite action between steel beams and concrete slabs

Electrical:

E. May (Head of Department)	
R. Cramp	Novel instruments
B. Farasmand	Electrical breakdown of dielectrics
R.K.J. Ford	The temperature dependence of noise in semiconductor devices
R.C. Johnson	Analysis of non-linear effects in machines under transient conditions
D. Karo, D.Eng., Ph.D.	Precision measurements and calibration Circuitry of sensing elements and transducers Transformer noise elimination Investigation into ceramics New semiconductor devices New instruments based on semiconductors New methods of electro-plating and electro-deposition Magnetic flaw testing for ropes and tubes Magnetic annealing Novel induction instruments Modern materials in electrical engineering
G.K. Steel	Optimizing control systems
J. Ward	Sub-miniature, two-phase induction motors as servo-mechanism elements
K.B. Wilson	Transistor operation of electromagnetic devices Speed control of induction motors using silicon-controlled rectifiers

Mechanical:

A.C. Walshaw, Ph.D. (Head of Department)	
E. Downham, Ph.D.	Critical whirling speeds and natural vibrations of complex shaft-rotor systems High-frequency transmission vibrations in automobiles
D.H. Sansome, Ph.D.	Effect of dynamic loading on the depression of the yield point
D.H. Sansome, Ph.D. I.M. Cole	Effect of front and back tension on tube rolling
B.H. Lewin, Ph.D.	Stress determination by photo-elastic methods
G. Boxer, Ph.D.	De-rating of turbo-charged compression-ignition engines
D.C. Hickson	Heat transfer with condensing steam containing air
D.J. Maries	Investigation of pressure distribution in the cylinder of a firing engine
W.L. Flint	Investigation of thermal boundary layer conditions in liquid flow
J.A.C. Thorne	Swash plate motors and pumps
G.K. Lewis	Hydrostatic journal bearings

3. Mathematics

N. Mullineux, Ph.D. (Head of Department)	Use of integral equations in approximation
A. Goodman, Ph.D.	Design of optical systems by differential corrections
A.M. Rajput, Ph.D.	Study of groups whose variances are assumed to be unequal
M. Jackson	Computer techniques

4. Metallurgy

I.G. Slater, Ph.D. (Head of Department)	Problems relating to the exploitation of metallic materials in under-developed countries
T. Ll. Richards, Ph.D.	The mechanical properties of polycrystalline aggregates
M. Kaliszer	
J.C. Wright, Ph.D.	Metallurgy of deep drawing and pressing
L.W. Crane	
R.T. Derricott	
N.W. Thomson	Influence of casting variables on structure and properties of die casting
B.J. Meadows	Fire cracking of 70/30 brass tubes
A.D. Hopkins	Hardenability of hot die steels
A.E.J. Evans	
K.A. Reynolds	Constitution of titanium alloys
D. Green	Deformation and recrystallization texturse in f.c.c. metals
V.N. Whittaker	Study of the character of the fatigue limit in light alloys
A.D. Hopkins	The ausforming of wire for spring applications
B.J. Meadows	

5. Pharmacy

F.R.C. Bateson (Head of Department)	
M. Harris, Ph.D.	Effect of certain antibacterial compounds on the growth of mixed cultures
	Disinfection of mixed bacterial cultures
	Sterilization of surgical materials
J.G. Hughes, Ph.D.	Developmental physiology of bryophytes

6. Physics

C.S. Bull, Ph.D.	Fluctuations in valves, semiconductors and resistances (experimental)
	Theory of stationary and non-stationary fluctuations
	Entropy exchanges in fluctuating systems
C.S. Bull, Ph.D.	The total emission of oxide cathodes
R.K. Fitch	
R.K. Fitch	Contact potentials
G.L. Rogers, Ph.D.	Diffraction patterns arising from complicated objects
	Theory of image formation and insect vision
A.M. Short, Ph.D.	Decay of cosmic rays underground
G. Knott	Relativity
G.V. Ball	Dark adaptation
A.G. Sabell	Contact lenses

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1. Engineering

Electrical:

V. Pereira-Mendoza (Head of Department)	
G.R. Arney	Losses in waveguide filters
	Methods of noise measurement
	Theory of ultra-linear amplifiers
D.H. Brown	Error correcting and detecting codes in binary communication channels
	The performance of blocking oscillators and their use in multistable circuits
L. Leigh	Logical circuits with three stable states, and their associated logic

1. Engineering (*continued*)

Electrical (*continued*)

P.W. Palmer	The measurement of losses in semiconductor rectifiers
L.F. Spence	Effect of harmonics on the operation of induction instruments
E.L. Topple	Sources of distortion in a television flying-spot scanner and their correction
D.C.J. Thorogood	Characteristics of an experimental "generalized" machine

Mechanical:

J.F. Douglas (Head of Department)	Flow through segmental orifices Structural failure in dental plates A study of the characteristics of a rotary positive displacement pump Causes and effects of cyclical variation in ignition timing on the performance of a dual-fuel oil engine
J.C. McVeigh	Flow through orifices at low Reynolds number Mechanical seals in rotating shafts
J.F. Heward	Effect of compression ratio variation on the performance of a comprehensive ignition engine
T.N. Gillbe	Numerical control of machine tools by electro-pneumatic methods
D.H.W. Hykin	Experimental and theoretical analysis of the deflections of grid structures
P.J. Nyland	Deformation of a non-uniform bar under combined axial and torsional loading
D.L.M. Pickard	Wearing properties of cams
S. Saul	Design and development of a cyclic work and heat transfer apparatus
R.A.C. Slater	A study of the characteristics of a rotary positive displacement pump
G.E.D. Waller	A study of diesel injection systems

2. Mathematics

E.A. Baggot, Ph.D. (Head of Department)	
D.J. Memory	Development of electronic analogue computer, and its application to problems in linear programming and in non-linear differential equations; the mathematics of laminar boundary theory
W.C. Craze	Evaluation of double integrals
E.L. Klein	The use of linear algebra in the logical design of digital computers
C.H. Learner	Development of the analogue computer for the solution of non-linear differential equations
R.D. Parslow	Multi-dimensional geometry; the Z-transform and Boolean algebra in relation to switching circuits

3. Metallurgy

G. Isserlis (Head of Department)	Internal stresses in electrolytically deposited metals
T.P. Fisher	Effects of sonic and ultrasonic wave energy on liquid and semi-liquid metals

4. Physics

A.J.L. Collinson (Head of Department)	Mechanism of Geiger counters containing argon–xenon–oxygen–nitrogen Measurement of radon in the atmosphere Non-linearity of energy response of alkali halide phosphors

4. Physics (*continued*)

J.M. Zarzycki	Behaviour of argon–xenon mixtures in the proportional region
I.C. Demetsopoullos	Photoelectric yield of soft X-rays on clean metallic surfaces
A.J. Jiggins	Characteristics of semiconductor radiation detectors
T.L. Watkins	Measurement of first ionization coefficient in argon-xenon mixtures

5. Technology

Chemical:

S. Cotson, Ph.D. (Head of Department)	Inorganic polymers
D.R.J. Hill, Ph.D.	Allylidene polymerization studies
J.R. Powell, Ph.D.	Oxidation of hydrocarbons of coal
J. Goodspeed	Inorganic co-ordination compounds
R.J. Phillips, Ph.D.	Shellac, composition, modification and applications
J.A. Speed, Ph.D.	Inorganic co-ordination compounds
W.M. Morgans, Ph.D.	Pigment dispersions
R.G.W. Pye	Analysis of strains in mould cavities
J. Dando	Efficiency of oil extenders in P.V.C. compositions
J.E. Procter	Hydrogenation of olefinic bonds by hydrazine
B.E. Weller, Ph.D.	Kinetics of acyl chloride hydrolysis

Food:

D.B. Smith, Ph.D. (Head of Division)	Cacao bean; fermentation and drying
	Freeze-drying of foodstuffs
P. Wix, Ph.D.	Flocculation of micro-organisms
P.F. Payne	Emulsifying agents in chocolate production

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1. Biological Sciences

E. Lees, Ph.D. (Head of Department)	Parasitology of cold-blood vertebrates
D.M. Archer	
M. Merrett, Ph.D.	Metabolism of Xanthophyceae
	Regulation of respiration in virus-infested tissue
	Radioactive tracer research on algal metabolism
E. Lees, Ph.D.	Effect of sex hormones on parasitization levels in amphibia
D.M. Archer	
H.V. Wyatt, Ph.D.	Active transport of cations and location in cells
D.J. Hambler, Ph.D.	Experimental taxonomy of critical species
S. Housley, Ph.D.	An investigation into naturally occurring plant hormone systems
T. Cross	Coremia in *Streptomyces*
A.A. Wright, Ph.D.	Comparative biochemistry

2. Chemistry

R.L. Elliott, Ph.D. (Head of Department)	Action of amines and alkalis on wool fibre components
R.L. Elliott, Ph.D.	Action of acids on wool and fibre components
R.S. Asquith, Ph.D.	

2. Chemistry (*continued*)

W.R.A.D. Moore, M.B.E., Ph.D.	Thermodynamic studies of polar polymer; liquid interaction
	Thermodynamic properties of solutions of cellulose derivatives
	Viscosity-temperature relationships for dilute solutions of polar polymers
	Chain configurations of polar polymers
	Solution properties of polar polymers
	Studies of thermal degradation of melamine formaldehyde resins
	Solution properties of stereo block polypropylene
	Solvation of polar polymers
W.R.A.D. Moore, M.B.E., Ph.D. B.M. Tidswell, Ph.D.	Studies of association in polymer solutions
B.M. Tidswell, Ph.D.	Molecular weight distributions of polymers
R.P. Sheldon, Ph.D.	Studies of adhesion
	Crystallization of amorphous polymers
W.A. Straw	Studies of chemical degradation of acrylic fibres
F.L. Jagger	Metallography of stainless steels: effects of atmosphere of carbon dioxide on high alloy steels
G. Shaw, Ph.D., D.Sc.	Structures of membranes of pollens and spores
	End-group assay of proteins
G. Shaw, Ph.D., D.Sc. D.V. Wilson	Nucleic acid chemistry
G. Shaw, Ph.D., D.Sc. D.V. Wilson	Synthesis of potential tumour inhibitors
R.L. Edwards, Ph.D.	Pigments of higher fungi
	Spectra of quinones
F. Franks, Ph.D.	Surface chemistry of colloidal electrolytes: hydrolysis equilibria of absorbed monolayers
	Oxidation and polymerization of long chain unsaturated fatty compounds
	Solubility of non-electroytes in water
F. Franks, Ph.D. C.V. Wright	Thermodynamics of condensable vapours: vapour association in the water-pyridine and water-alcohol systems
R.T. Bottle, Ph.D.	Interaction of component proteins in gluten
	Physicochemical studies of gum arabic
D.W. Jones, Ph.D.	Nuclear magnetic resonance studies
D. Robinson	Inorganic and analytical chemistry of the lower valency states of niobium
	Design of automatic and recording titrators
E. Coates	Spectrophotometric studies: thermodynamic properties of metal-dye complexes
	Spectrophotometric and other studies of chrome dyestuff-glycine systems in aqueous solutions
	Potentiometric studies of metal-dye-amino-acid complexes
R.L. Elliott, Ph.D. R.S. Asquith, Ph.D.	Action of technical chemical reagents on wool fibre components
R.L. Elliott, Ph.D. R.S. Asquith, Ph.D.	Action of halogens on proteins with particular reference to chlorine and wool fibres
H. Heaney, Ph.D.	Studies in organo-metallic chemistry
R.M. Haines, D.Phil.	Synthesis and reactions of new water soluble free radicals: use as initiator of polymerization
R.S. Edmundson, Ph.D.	Organo-phosphorus chemistry, particularly cyclic compounds
J. Diaper, Ph.D.	Effect of high-energy radiation on chlorine-containing compounds
M.A. Hughes	Thermal decomposition of complexes

2. Chemistry (*continued*)

F. Franks, Ph.D. W. Good, Ph.D. M. Gent	The viscosity of water between 1° and 90°
F. Franks, Ph.D. W. Good, Ph.D. M. Gent	Fluidity of electrolytic solutions and the structure of water
P.J. Staples, Ph.D.	The preparation and properties of azidobisethylene-diammine cobalt (III) complexes Nucleophilic substitution reactions at an octahedrally co-ordinated metal atom The preparation, properties and mechanism of reaction of chromium (III) complexes
E. Sherwin	Decomposition and isotopic exchange reactions of chloro-ethylenediammine diammine cobalt (III) salts in methanol
P. Fawcett	Isotopic exchange of phosphate Co (III) complexes
E.J. Price	A study of fracture paths in steels saturated with hydrogen

3. Engineering

Chemical:

C.W. Page (Acting Head of Department) M. Ruhemann, Ph.D. D.K. Houtby	Examination of regenerator characteristics at 100°C
C.W. Page M. Ruhemann, Ph.D. W.H. Granville, Ph.D.	Examination of regenerator characteristics at liquid nitrogen temperatures
D.K. Houtby	Design of heat exchangers by digital computer methods Use of digital computers for the design of low temperature fractionating columns
V.C. Marshall	Agitated cooling
D. Geldart	Calcination and hydration reactions in fluidized beds
C. Hanson, Ph.D.	Development of solvent extraction equipment Development of new processes incorporating solvent extraction
J.C. Williams P.J. Mendies	Granulation of powders in a rotating dish
J.C. Williams	Performance of vibrating screens in powder technology Segregation of powders on pouring Segregation of powders in vibrating beds The behaviour of particles in rotating drums

Civil:

C.B. Wilby, Ph.D. (Head of Department)	
W. Appleyard	Plywood box portal frames
L.C.M. Baff	History of building Costing methods in building
R. Green J.K. Levitt	Foundation materials locally: assessment from geological aspects and through soil mechanics
A. Waterhouse	Highway materials, with particular reference to impact loads on pavements
A. W. Astill	Ultimate load for portal frames with floors Asymmetrically loaded columns in reinforced concrete
R. Green	The engineering significance of plant ecology
F.S. Hudson	Acoustics analysis of buildings
D.W. Franklin	Effect of curing conditions on tensile strength of concrete

3. Engineering (*continued*)

Electrical:

G.N. Patchett, Ph.D. (Head of Department)	
D. Midgley, Ph.D.	Measurement of Hall and Corbino effects in electrolytic iron
	Analyses and computations for magnetic field problems
A.R. Bailey	Synthesis of transfer functions in control systems
E.C. Bell	Development of an impulsive noise-limiter for television systems
	The thermal design of power amplifiers for use at low frequencies
E.C. Bell R.V. Leedham	Development of a novel type of digital phase-meter
R.V. Leedham	Semiconductor circuit techniques
	Electronic pattern generation for loom control
S. Simmons	Behaviour of induction motors with square-wave input

Mechanical:

J.G. Jagger (Head of Department)	
P.R. Lancaster	Lubrication in metal forming operations with particular reference to sheet and bar drawing
H. Higgins	Frequency response analysis of a hydraulic servo system
P.J. Walburn	Stability and instability of flameholding in air fuel spray mixtures
J. Wells	Hard-particle impregnation of sliding surfaces
	Fatigue testing: effect of surface finish and notch sensitivity of case and through hardening steels
	Fatigue and creep testing of plastics
P.N. Cockshott	Diffuser for centrifugal compressors

4. Mathematics

J.G. Freeman, Ph.D. (Head of Department)	A generalization of Riemannian geometry
	Determination of comet's ephemeris by electronic computer, taking account of perturbations
C. Mack	Some reductions of maps (4 colour conjecture)
	Finite number of different machines (Queue theory)
	Repair discrimination (Queue theory)
	The true meaning of the negative exponential repair distribution
	An exact solution for two operatives (Queue theory)
	Optium allocation: (Operational research)
	Theory of pirn sloughing in shuttle weaving
	Theory of action of rollers in twisting (wool) and doubling (cotton)
	Investigation of methods of producing beams and cheeses of uniform length
	Analysis of chemical data into sum of first order reactions
	The loss in strength of rayon cellulose upon acid hydrolysis (in collaboration with Shirley Institute)
	Properties of angular divisions of triangles
G.R. Walsh	A study of oscillatory spin and recovery of a modern aeroplane, using simplified equations
	Continuation of aircraft problem. In particular, a comparison of the effectiveness of various controls, applied separately or simultaneously, in producing recovery from a spin

4. Mathematics (*continued*)

C. Mack	Methods for solving Laplace's equation in 2 and 3 dimensions
S.W. Smethurst	
J. Stephenson	Investigation into the possibility of modifying proxy analysis for use in electrical network synthesis
C. Mack	
M.P. Hyde	Optimal search patterns
P. Jarratt	Investigation of techniques for evaluating Bessel functions on a digital computer
	The numerical integration of ordinary differential equations
J. Hawkins (Miss)	The mechanical properties of card-webs and non-woven fabrics
M.L. Chambers	Interval estimation withy many parameters

5. Pharmacy

Pharmaceutical Chemistry:

J.M. Rowson, Ph.D. (Head of Department)	
P.H.B. Ingle	Synthesis of imidazole derivatives of potential pharmacological value
H. Taylor, Ph.D.	
J.A. Grundy	Synthesis of benzidine derivatives of potential pharmacological value
W. Good, Ph.D.	Structural properties of water in biological systems
F.P. Martin, (Mrs.)	The polarographic reduction of chelates
C.G. Butler, Ph.D.	
C.G. Butler, Ph.D.	Investigation of the redox properties of quinoline derivatives
M.F. Coldman	Studies in the comparative permeability of erythrocytes towards water
W. Good, Ph.D.	
J.A. Smith	Synthesis and properties of amidines as partial structures related to histamine
H. Taylor, Ph.D.	
D. Swift	Synthesis of N-heterocyclics of potential biological activity
H. Taylor, Ph.D.	Mannich reaction of diketones

Pharmaceutics, General:

A.G. Wood (Miss)	Effect of electrolytes on particle size distribution in suspensions
C.G. Butler, Ph.D.	
M. Feather (Mrs.)	Small-scale infra-red drying
T.G. Booth	Electrochemical studies with platinum micro-electrodes and with the dropping mercury electrode
K. Marshall	Mechanisms of compression processes
E. Adderson	Studies in the use of cationic surfactants and mixed cationic and non-cationic surfactants as emulgents
H. Taylor, Ph.D.	
H.H. Laycock	Uptake of antiseptics by micro-organisms
C.G. Butler, Ph.D.	

Pharmaceutics, Microbiology:

D. Wiseman	Mode of action of antibacterial compounds

Pharmacognosy:

K.R. Fell, Ph.D.	Phytochemical studies in leaves of the genus *Rubus*, sp. R. *idaeus* and R. *molluccanus*
H. Taylor Ph.D.	
S. Ellis (Miss)	Anatomical and phytochemical studies on leaves of the genus *Podophyllum*
K.R. Fell, Ph.D.	
J. Peck (Miss)	Pharmacognostical studies in the Boraginaceae
K.R. Fell, Ph.D.	

5. Pharmacy (*continued*)

P.A. Linley J.M. Rowson, Ph.D.	A comparative investigation of the chemical and pharmacological properties of the glycosides of *Digitalis purpurea*
F. Newcombe	Pharmacognostical and chemical studies of *Voacanga Schweinfurthii*
K.J. Harkiss K.R. Fell, Ph.D.	Pharmacognostical studies in the Scrophulariaceae
Pharmacology:	
H.A. Perkin	An X-ray crystallographic study of the structure of the sympathomimetic amines
G.D.H. Leach, Ph.D. D.E. Clarke	Effect of reserpine in modifying tissue sensitivity to cholinergic and sympathomimetic agents
R. Hicks	Modification of guinea pig anaphylactic response by corticosteroid materials
G.D.H. Leach, Ph.D. K.R. Fell, Ph.D.	Estimation of oxytocic and spasmolytic activity in raspberry leaf samples
C.E. Grist (Miss) G.D.H. Leach, Ph.D.	An investigation of the mode of action of purgative drugs
J.R. Fozard G.D.H. Leach, Ph.D.	The measurement of drug effects on the responses of vascular smooth muscle
G.D.H. Leach, Ph.D.	Measurement of histamine activity of chemical analogues to histamine

6. Physics

D.L. Smare, Ph.D. (Head of Department)	
G. Brown, Ph.D. A. Aspinall S. Warren	Measurement of properties of excited states in nuclei of medium atomic weight
B. Yates, Ph.D.	Measurement of the coefficients of expansion and of specific heats of alkali halides at liquid hydrogen temperatures
J.M. Rooum	Statistical investigations on polynomial distributions
L.D. Pickwell L.A.F. Stockley M. Sheridan	Electroretinogram research, particularly with reference to abnormal colour vision
J.H. Davies, Ph.D.	Accurate recognition of printed characters by electronic means
R. Steadman	The crystal structures of χ-phase Nb–Re and σ-phase Mo–Re
	The mechanisms of thermal transformations in kaolin-type silicates

7. Textiles

F. Happey, Ph.D. (Head of Department)	Physical and physicochemical studies of fibre formation in natural and synthetic polymers
	Physical and physicochemical studies of proteins and related materials in growth and biosyntheses
	The formation and growth of cellulose in mammalian tissues
	The structure of the human intervertebral disc
C. Earland, Ph.D.	Fundamental chemical studies of structure of fibrous proteins and related synthetic and natural substances
	The effect of oxidizing agents on soluble proteins
C. Earland, Ph.D. J.T. Ball	Chemical and physical study of the problems associated with the extrusion of regenerated cellulose and a study of the resultant cellulose fibres

7. Textiles (*continued*)

R.G. Oversby F. Bramma S. McNaughton	Studies in new methods of fabric production: general development work on all forms of textile machinery
D. Wilson	Conventional and modern methods of drawing and spinning and their effects on cloth manufacture Comparative efficiency of worsted carding machines
D. Wilson H. Needham	A study of worsted drafting
F. Happey, Ph.D. R.G. Oversby	Fabric development from British wools in collaboration with a number of breed societies, e.g. Swaledale, Herdwick, etc.
F. Bramma S. McNaughton	Study of lappet weaving and loom design
E. Dyson, Ph.D.	Combing and spinning Development of drafting mechanisms Statistical studies of yarn levelness and its effects on cloth structure
E. Dyson, Ph.D. J.T. Ball	The extrusion of fusible polymers and the problems associated with their cold-drawing
F. Happey, Ph.D. H. Needham D. Wilson	Influence of backwashing upon processing properties
F. Happey, Ph.D. H. Needham D. Wilson	Wool lubricants
W. Parkin	The study of the factors which effect the blending of textile fibres
F. Happey, Ph.D. E. Dyson, Ph.D. D. Wilson H. Needham	Studies of new methods of twist insertion and drafting of stable fibre yarns
F. Happey, Ph.D. C. Earland, Ph.D.	The structure of keratin and related natural and synthetic fibrous material
F. Happey, Ph.D. E. Dyson	Extrusion of fibres
F. Happey, Ph.D. C. Earland, Ph.D. D. Wilson	Research on raw wool to finished top by solvent scouring on continuous alignment
H. Needham	Problems of apron draft spinning
F. Happey, Ph.D. J.T. Ball	The chemistry of cellulose and related fibres
E. Harrison	Research and development in design and colour in woven designs
C. Earland, Ph.D. J.T. Ball R.B. Beevers, Ph.D. E. Dyson, Ph.D.	Research on new polymers, new methods of polymerization and optium conditions of extrusion
C. Earland, Ph.D. J.T. Ball R.B. Beevers, Ph.D. E. Dyson, Ph.D.	Regeneration of protein fibres
H. Weston F. Bramma	Pilot plant development of unwoven tissues
F. Bramma E. Dyson, Ph.D. S. McNaughton E. Harrison	Studies of methods of weft insertion both conventional and unconventional, particularly in relation to circular weaving and knitting Fine art in the application of design to continuous filament, woollen, worsted and mixture yarn structures

7. Textiles (*continued*)

R.B. Beevers, Ph.D.	Measurement of glass temperature of vinyl polymers
D. Wilson J.A. Iredale	Development of multi-zone drafting in worsted processing
D. Wilson	Investigation of possibilities of the use of a "rotomatic fancy" on a worsted card
H. Weston	Setting and properties of cloths in wool/fibro yarns
W. Parkin H. Needham	Use of spinning assistants in Raper drawing and A.S.D. spinning

81 Brighton College of Technology

1. Chemistry

J.D. Donald (Head of Department)	O-phenylenediammonium salts of the halo complexes of the first transition metals. Diamine complexes with copper II oxy-anion salts. Tetranitrate complexes of first transition metals
R.G. Barr	Effect of surface agents on condensation coefficients. Study of change in dielectric constants in organic reactions
W.R. McGregor, Ph.D.	Investigation of various sulphur and nitrogen containing ligands with transition metal halides. Tetranitrate complexes of first transition metals
I.R.L. Barker, Ph.D. R.H. Dahm	The effects of configuration and other special influences upon the reactivity of hydroxylic compounds
W.J. Popiel, Ph.D.	Physico-chemical study, including electrophoretic migration, of sugars and other polyhydroxy compounds as anionic complexes
H.V. Ansell	Investigation of isotopic exchanges involving tritium by radiochemical methods
T. Riley, Ph.D.	An investigation of some Lewis acids in non-aqueous solvents with particular emphasis on their catalytic properties. Deuterium isotope effects on reaction rates
B.B. Hunt, Ph.D. P.W. Poulter	Investigations of some novel organo-metallic compounds Neighbouring group effect on hydrolysis of nitriles

2. Engineering

Civil and Building:

P.E. Sleight, O.B.E. (Head of Department)	
D.J. Peake	Effect of particle shape on the properties of sand
J.D. Richards	Sulphate attack on concrete at elevated temperatures

3. Human Biological Services

R.H. Goodman (Head of Department of Computing, Cybernetics and Management)	The cybernetics of teaching machines and of computer-controlled instruction
S. Ogilvie (Miss)	Problems of teaching computer programming with special reference to auto-instructional aids

4. Pharmacy

J.C. Parkinson, M.B.E., T.D., Ph.D., (Head of Department)	
E.A. Rawlins, Ph.D.	Factors affecting the sterilization of powders by ethylene oxide The preparation and purification of penicillinase

4. Pharmacy *(continued)*

F.A.J. Talman	An investigation of repulsive forces between solid particles in fluid suspensions
J.A. Baker, Ph.D.	Studies in the synthesis of pyridothiazoles and benzpyridothiazoles
A.R. Rogers	The precision and accuracy of procedures in pharmaceutical analysis
	The influence of salts on the absorption of ultra-violet light by aqueous solutions of aromatic alcohols
P.B. Turner	The hydrolysis of open chain sugar acetals
P.S. Cowley, Ph.D.	Chemical studies in the genus *Digitalis*
	Examination of agricultural antibiotic feeding supplements
J.M. Harris	Studies on the anaphylactoid reaction in rats

5. Physics

Applied:

N. Pentland, Ph.D. (Head of Department)	
A.R. Heath	A study of the equilibrium phases resulting from ternary additions to copper-tin alloys
P.A. Lee, Ph.D.	An examination of the crystal structure of ternary semiconducting compounds
M. White, Ph.D.	An investigation by microradiographic techniques of the structure of aluminium-tin alloys
	The design and construction of an X-ray contact microradiography camera
S.E. McClelland, Ph.D.	An X-ray study of the orientation texture of doped copper wires
	Preparation and X-ray examination of crystals of substances with zinc-blende structures
J.L. Lloyd, Ph.D.	The study of recoil-free emission and absorption of gamma
A.W. Harrison, Ph.D.	rays (Mossbauer effect)
A.A. Balchin	Crystallographic structures of organic compounds associated with plant metabolism
A. Branwood, Ph.D.	A study of electrical surface phenomena in near insulators
A.J. Dixon	Determination of the thermoelectric properties of ternary semiconducting compounds
E.W. Ray, Ph.D.	A study of the plastic deformation of metal crystals using ultrasonic techniques.
R.C. Stanley	An X-ray examination of a ternary semiconducting compound

82 Bristol College of Science and Technology

1. Biology

R.W. Bolland, Ph.D. (Head of Department)	
M.W. Hardisty	Biology of lampreys. Biometrical studies on river
B.J.R. Taylor, Ph.D.	lampreys of the Severn
	Sex differentiation in the ammocoete larva and cytological studies on oogenesis
	Comparative study of the adenohypophysis in various species of lampreys
T.D.H. Catchpool	An investigation of the occurence of indole auxins in *Phycomyces blakesleeanus* and their role in the phototropic response of Sporangiophores
V.W. Fowler	The biology of *Otiorrhynchus* spp. on blackcurrants
R.V. Brunt, Ph.D.	The metabolism of tertritols
L. Jacobs, Ph.D.	The taxonomy of *Saprolegnia* and yeasts

2. Chemistry

R.W. Bolland, Ph.D. (Head of Department)	
E. Minshall	Investigation of absorption of cations on cellulose and allied surfaces, and relation with chromatography
W.J. Williams, Ph.D.	Investigations in cobalt chemistry especially analytical aspects Reference standards in inorganic analysis
J.N. Andrews, Ph.D.	Radiation damage studies in lithium compounds
L. Carlton (Miss)	Investigation of the *p*-bromnitrosobenzene structure by X-ray method
S.F. Dyke, Ph.D.	Chemistry of isoflavones Organic chemistry of fluorine Chemistry of morphine alkaloids
N.F. Taylor, D.Phil.	Synthesis of potential inhibitors of nucleic acid and carbohydrate metabolism. Aspects of organic fluorine chemistry related to compounds of pharmacological and chemotherapeutic interest Synthesis and reactivity of unsaturated sugars
H.L. Williams	Condensation products of phenols and ketones
P.F. Tiley, Ph.D. G.R. Fitch	Purification of volatile liquids by moving bed chromatography
P.F. Tiley, Ph.D.	Measurement of high vapour pressures and critical constants Selective countercurrent absorption of vapours in packed columns
L.L. Leveson	Electrometric study of cobalt complexes in solution

3. Engineering

Aeronautical:

J. Black, Ph.D. (Head of Department)	Centre body injector test rig
A. Akers	Aerodynamics of slewed wings
D. Foster	Re-circulating "cushions" for ground-effect machines
J. Wavien	Residual strength and creep of structures after typical temperature cycles
D. Owen P. McMahon H. Hardistry	Heat transfer from an electrically-heated wall to liquids at high heat fluxes
P. Vine	Heat transfer in ceramic ducts with electrically-heated walls
D.E. Bowns A. Sclesinger	The hydrodynamics of liquid flow past air bubbles trapped in bends

Electrical:

A.J. Eales (Head of Department)	
A.R. Daniels	Locus diagrams applied to asymmetrical operation of polyphase induction motors Speed control of squirrel-cage motors Series motor without a commutator Torque measurement
P.G. Davis	Methods of computation and data reduction by analogue devices
A.J. Prescott	The development of a self-optimizing closed loop control system
J.S. Williams	Development of a speech analyser for analysis-synthesis telephony. (Bandwidth-compression system)

3. Engineering *(continued)*

Electrical (continued)

B. Bolton	The propagation of discharge channels in solid dielectrics
D. Jones	Overvoltages under fault conditions in 3-phase systems
E. Whipp	The propagation and scattering of ultrasonic stress waves in polycrystalline metals

Metallurgy:

J. Black, Ph.D. (Head of Department)	
A. Harding	Preliminary investigation of problem of low-conductivity ceramics coating for turbine blades

4. Mathematics

D.E. Bailey, Ph.D. (Head of Department)	
R.A. Ballinger, Ph.D.	Quantum mechanical calculations for semiconductors

5. Pharmacy

D.A. Norton (Head of Department)	Containers for ophthalmic preparations; properties of existing containers; proposed standards
	Studies in cell culture in connection with bio-assay techniques
J.I. Harris	Flocculation studies in aqueous suspensions of barium sulphate in relation to formulation of X-ray diagnostic preparations
	Studies in bacteriostasis and fungistasis related to formulation of ophthalmic preparations
L.M. Atherden, Ph.D.	Steroid metabolism and inhibition thereof
	Condensation reactions of acetylenes with aromatic bases
	Loss of mercurial bactericides from eye-drops during sterilization and storage
	Determination of constitution of some natural fats of pharmaceutical interest
	Amino-acid synthesis
D.W. Shaw	Investigation of anatomical characters of *Ryania* spp. *Rauwolfia oxyphylla:* a possible adulterant of *R. vomitaria* and *R. serpentaria* (the commercial varieties)
M.J. Davis, Ph.D.	Investigation of pharmacology of a new series of local anaesthetics
	Cardiac action of oral hypoglycaemic agents
	Interaction of acetylcholine and adrenaline on the intestine
	Nervous and hormonal effects on sensitivity of the uterus to drugs

6. Physics

S.H. Aycliffe, Ph.D. (Head of Department)	
W.C. Clark, Ph.D.	Optical and surface properties of titanium dioxide pigments
	Flow properties of fine coal
F.A. Underwood, Ph.D.	Crystal structure of certain minerals and organic compounds
A. Gerrard	Construction and application of diffractometer
P.C. Roberts	Arcing effect in electrode boilers
J.B. Rowcroft (Miss)	Structural effects in solids on exposure to nuclear radiations
	Radiation damage in lithium compounds

83 Brixton School of Building

1. Building Studies

Architecture:

A. Reed (Head of Department)	
P. Ansdell Evans	Planning of technical college buildings (in association with the Association of Technical Institutions and the Association of Principals of Technical Institutions)
R.G.C. Linton	

2. Engineering

Structural:

F.G. Etches (Head of Department)	
E.R.E. Catchpole	Resistance of welded beam-column connections to repeated loading

84 Brunel College

1. Biology

J.D. Gillett, O.B.E., D.Sc., Ph.D. (Head of Department)	Behaviour of mosquitoes
M.L.R. Pettersson, Ph.D.	Development of "metric usage" in chemical sciences
F.G.B. Jones	Nutritional studies on *Chaetomium* sp
T.G. Onions, Ph.D.	Studies on the biology of *Alphitobius diaperinus*
J. Dore, Ph.D.	Studies on the regeneration of horse-radish
J. Douglas	Studies on bacterial physiology
A.J. Lacey, Ph.D.	Studies on the biology of the sycamore
E.M. Firth (Miss), Ph.D.	Histology and physiology of hairless mouse skin
M.D.R. Jones	Physiological and behavioural aspects of hearing in some Orthoptera

Biochemistry:

D. Walker, Ph.D.	Effect of barbiturate drugs on acetylating mechanisms in pigeon livers

2. Chemistry

J.H. Skellon, T.D., Ph.D. (Head of Department)	Constitution of lipids. Autoxidation of unsaturated fatty acids and esters
S.C. Bevan, Ph.D.	Study of heteropoly acids. Inorganic gas chromatography
D.H. England	Development of amperometric titrimetry
P.H. Gore, Ph.D.	Studies of the reactivity of polycyclic systems
T.E. Green	High frequency titrimetry and determination of stability constants by polarographic methods
G.J.L. Griffin	Frictional properties of plastics materials
D.F.C. Morris, D.Phil.	Radioactivation analysis. Solution chemistry of inorganic complexes. Solvent extraction
L.P. McHatton	Synthesis of vinyl carbinols
S. Thorburn	Gas chromatography and its applications
C.F. Bell, D.Phil.	Studies of metal complexes in solution
F.G.R. Gimblett	Inorganic polymers. Study of phosphonitrilic chloride compounds
J. Grundy	Synthesis and structure of chemotherapeutic agents
D.A.L. Hope, Ph.D.	Mathematical treatment of kinetic rate equations and optical properties of electrolyte solutions

2. Chemistry *(continued)*

K.A.K. Lott, Ph.D.	Inorganic oxyions of transition metals
D.B. Parker	The properties and structure of polybenzyl and related polymers
G.L. Reed, D.Phil.	Raman and γ-ray spectroscopy. Application of electronic computer in chemical problems
G.M. Saul	Investigation of sodium complexes
C.J.G. Shaw, Ph.D.	Stereochemistry of cyclic diol systems
A.J.B. Spaull, Ph.D.	Surface chemistry
D.N. Waters, D.Phil.	Infra-red and Raman spectroscopy in study of inorganic complexes
R.E. Busby, Ph.D.	Preparation of benzyloxy acid chlorides
P.R. Bloomfield	Semi-inorganic polymers
G.R. Sothern	Physics of polymers
E.L. Short	Optical and radiochemical studies of inorganic species

Metallurgy:

R.J. Maitland, Ph.D.	Growth and scaling in spheroidal graphite iron. Growth behaviour of silal, nicrosilal and Ni-resist irons
J.K. Critchley, Ph.D.	The electrode position of alloy chromium. Constitution of copper-nickel-cadmium alloys
J.I. Buckley	Transformations in the β and ζ phases in the silver-zinc alloys systems
B.L. Davies	Effects of oxidation on sintered iron and iron alloy components
H. Lister	The effect on metallic surface finish of mould reactions in the investment casting process
J.S. Prestt	The ageing characteristics in the cadmium-copper alloy system
B.G. Fookes	Constitution of nickel-zinc-cadmium alloys

3. Engineering

Electrical and Electronics:

R.T.A. Howell, Ph.D. (Head of Department)	Phase end amplitude characteristics of amplifier circuits Wide-band parametric amplifiers
H.A.J. Barrett	Microwave beam formation with non-homogeneous dielectric lenses Variable beam-width microwave aerials
R.D. Nimmo	Semi conductor inverter analysis and applications

Mechanical:

G.C. Shipp, Ph.D. (Head of Department)	
V. Lewis	Secondary flow in bends and curved pipes
D.J. Shawe (Mrs.)	An investigation of deflecting jets and their application to pneumatic computing elements
E.J. Small	Free convective heat transfer in a vertical tube closed at its upper end
S.A. Urry	Buckling of thin-walled cylinders in compression bending and torsion

4. Mathematics

J. Crank, DSc. (Head of Department)	
C.C. Ritchie	Design and construction of analogue computer circuits Numerical solution of partial differential equations
P. Macdonald	Mathematical planning
J.A. Murphy	Solutions of the diffusion equation for a dissolving sphere
T.S. Wilson	Elasticity and numerical methods

5. Physics

C.A. Hogarth, Ph.D. (Head of Department)	Crystal growing. Physical properties of semiconductors
G.F. Lewin, D.Phil.	High voltage rapid oscilloscope
D.J. Pacey	Vacuum physics and a novel form of low pressure gauge
J. Blitz	Propagation of ultrasonic waves in semiconductors
R.H. Creamer	Electrical properties of liquid metals
R.V. Sharman, Ph.D.	Studies of vibrating systems
T.F.J. Quinn	Crystallographic studies of wear of (i) steels and (ii) graphite
G.R. Blackwell	Crystal growing
B.R. Orton	X-ray diffraction from liquid metals

6. Psychology

M. Jahoda (Miss), Ph.D. (Head of Department of Psychology and Social Science)	A search for optimal conditions of learning intellectually complex subject matter
L.F. Thomas, Ph.D.	
A. Hughes (Miss)	
L.F. Thomas, Ph.D.	Subjective judgement in inspection and quality control
R. Borger	The acquisition of skill in process control
A. Hughes (Miss)	The learning of concepts with negative and positive information

85 Chelsea College of Science and Technology

1. Botany

R.D. Purchon, D.Sc. (Head of Department of Zoology and Botany)	
C.J.A. Berkeley	Biology of *Digitalis purpurea*: seed development
E.R. Turner, Ph.D.	Respiratory pathways in *Pisum sativum*
S.R. Chant, Ph.D.	The physiology of virus-infected plants
G.C. King, Ph.D.	The nuclear cytology of the genera *Closterium* and *Micrasterias*
N.J. Dix, Ph.D.	Decay of plant organs: origin and order of succession of saprophytic soil fungi colonizing moribund angiosperm roots *in situ*

2. Chemistry

Biochemistry:

J.F.J. Dippy, Ph.D., D.Sc. (Head of Department)	
D.F. Evered, Ph.D.	Studies on (i) the metabolism of β-amino-isobutyric acid in human genetic variants, (ii) amino-acid uptake by various mammalian tissues, (iii) metal activation of a plant transaminase

Inorganic:

J.A.W. Dalziel, Ph.D.	Investigations on metal chelate compounds involving sulphur ligands. The preparation and degradation of substitute ferrocenes
A.F. LeC. Holding, Ph.D.	The preparation and degradation of substituted ferrocenes
P.W.C. Barnard, Ph.D.	Studies of (i) the metal ion catalysed decomposition of tert. butyl perbenzoate, (ii) the mechanism of hydrolysis of some arsenic compounds

2. Chemistry *(continued)*

Inorganic (continued):

J.D. Donaldson, Ph.D.	The preparation, chemistry and crystallography of tin (II) compounds

Organic:

J.F.J. Dippy, Ph.D., D.Sc. B.V. Smith, Ph.D.	A study of the hydrolysis rates of various substituted aromatic esters
J.F. McGhie, Ph.D., D.Sc.	Studies in the fields of (i) tetracyclic terpenoids, (ii) higher fatty acids, (iii) substituted thiophenes intended for use as synthetic intermediates, and (iv) the photochemistry of simple organic molecules. In collaboration with Imperial College of Science and Technology, London University: (i) photochemical studies of some triterpenoids, and (ii) the chemistry of pentacyclic terpenes
W.A. Ross, Ph.D.	Gas chromatography with special reference to the use of optically active stationary phases for the separation of stereoisomers
D.E. Ames, Ph.D.	Syntheses of (i) unsaturated fatty acids and (ii) pyridine and cinnoline derivatives
N.M. Waldron, Ph.D.	Syntheses of sterically hindered keto-acids

Physical and Biophysical:

A.M. James, D.Phil.	Physical investigations on bacterial surfaces: studies of (i) the effects of chemical treatments with a view to identifying the principal surface components, (ii) the effects of capsules and fimbriae on the physical properties of *Klebsiella aerogenes*, (iii) the electrical properties of Group A streptococci with reference to their chemical and serological properties Electrokinetic and surface conductance studies of model particles with and without surface ionogenic groups
S.R.C. Hughes, Ph.D.	Studies of the electrical conductivity of strong electrolytes in pure and mixed organic solvents
S. Ross, Ph.D.	A study of the causes of a series of forbidden transitions in the infra-red spectra of tetrahedral anions
A.W. Ellis	A study of the reactions involved in the synthesis of methane from carbon monoxide and hydrogen

3. Geology

W.E. Smith, Ph.D. (Head of Department)	The stratigraphy and sedimentary petrography of the Cenomanian and Upper Albian deposits of Dorset and adjacent counties The microstructure of cherts with particular reference to those occurring in the Cretaceous rocks of southern England The sedimentology and palaeoecology of the Lower Eocene deposits in the Isle of Wight The sedimentology of the Scarborough Limestones and contiguous deposits in Yorkshire The sedimentology of the Cosheston Beds and Shrinkle Sandstone, Pembrokeshire The stratigraphy, palaeontology and structure of the Namurian and Dinantian rocks to the east and south of Leek, North Staffordshire The comparative study of the mineralogy and texture of the Dartmoor Granite and its inclusions The petrology of eclogitic rocks from the Loch Duich area, Wester Ross

3. Geology (*continued*)

C.F. Tozer, Ph.D.	The stratigraphy, tectonic structure and petrology of the metamorphic rocks in central Donegal
R.O. Muir	The petrography of the Calciferous Sandstone Group in East Lothian
	The sedimentology of Recent sediments in the Mawddach estuary, Merioneth

4. Mathematics

A.E. Ludlam (Head of Department)	Non-linear integral equations
S.N. Biel, Ph.D.	Group representation. Application of Banach algebra to the theory of summability
D. Charlton	Supersonic flow at low pressure
R.K. Colegrave	Atomic collisions
J.E.A. Dunnage, Ph.D.	Integral functions of infinite order
P. Morley	Electromagnetic theory
H.G. Pinsent	Compressible boundary layer theory
M.E. Solari (Mrs.), Ph.D.	Iterative least squares
E. Stein (Mrs.), Ph.D.	Finite geometry
D.B. Stephens, Ph.D.	Electromagnetic theory. Waveguides
L. Varnavides, Ph.D.	Theory of numbers. Antisymmetric Markov forms

5. Pharmacy

A.H. Beckett, Ph.D., D.Sc. (Head of Department)	Synthesis and configurational studies involving synthetic analgesics and other central nervous system active compounds
	Synthesis and reactions of ganglionic and neuromuscular blocking agents
	The determination of the configuration of organic molecules by stereoselective adsorbents
	The steric interactions in substituted cyclohexadienes
	Metabolic dealkylation of analgesics and phenothiazines
	Infra-red studies of hydrogen bonding and molecular interactions
	Investigations of restricted rotation in certain organic molecules
	Studies of the application of analytical techniques in metabolic problems, e.g. chromatography, spectrofluorimetry, polarography
	The stereochemistry of addition to ketones
M. Donbrow, Ph.D.	Complexing between drugs, particularly purines or xanthines and amines, carboxylic acids of their derivatives
	Stability of vitamin A in aqueous dispersions
	Molecular interactions between cationic and anionic organic molecules
	Changes in physical properties in solutions containing micelles
	Grass pollen antigens; analytical methods and formulation of extracts
	Instrumental methods of analysis
G.O. Jolliffe, Ph.D.	The investigation and design of automatic control devices
G. Kirk, Ph.D.	The synthesis and investigation of the stereochemical requirements of drugs
	Configurational studies with sympathomimetic amines

5. Pharmacy (*continued*)

R.G. Lingard, Ph.D.	Research in hypotensives, antibacterials and analgesics
A.E. Robinson (Miss), Ph.D.	Various aspects of drug metabolism
J. Walker, Ph.D.	Stereochemistry of meso-substituted dihydroanthracenes
	Diazoanthracene derivatives as potential pharmacologically active agents
	Potential anti-inflamatory agents
H.S. Bean, Ph.D.	Investigation of antibacterial activities
J.E. Carless, Ph.D.	Investigation of the physiochemical properties of suspensions and emulsions
	Autoxidation of oils and aldehydes
N.D. Harris, Ph.D.	Effect of their environment on the viability of damaged bacteria
	Investigations into the lethal actions on bacteria of X-rays and radio-mimetic agents
B.A. Mulley, Ph.D.	Solvent properties and synthesis of non-ionic surface active agents
J.P. Richards, Ph.D.	Investigation of antibacterial activities
E.J. Shellard, Ph.D.	Anatomical and chemical examination of plants (i) to isolate constituents of medicinal importance (ii) to investigate taxononic relationship between the chemical and botanical aspects
	Application of modern techniques to the evaluation of crude drugs
A.B. Simmonds (Miss), Ph.D.	Synthesis of drugs with psychotropic properties

6. Physics

K.W. Keohane, Ph.D. (Head of Department)	Biophysical investigations of cell membranes
	Bio-electric phenomena in mitotic cells
C. Dodd (Miss)	Electro-acoustic techniques applied to sound analyses in the audio-frequency range (music, speech, and noise)
L.W. Kite, Ph.D.	Ultrasonic propagation in liquids
H.G. Leventhall	Transient response of filters and other analysing systems
R.S. Longhurst, Ph.D.	Diffraction patterns and images with partially coherent light
	Measurement of thin films of dielectrics on metals
J.E. Houldin, Ph.D.	Capacitance of space-charge limited diodes
A.R.F. Plummer	Surface phenomena on semiconductors
E.L. James, Ph.D.	Effect of stress waves on physical properties
W.G.B. Britton, Ph.D.	Charge production by inhomogeneous stresses in alkali halide crystals
H.R. Post, Ph.D.	Several-identical-particle systems in first quantisation

7. Physiology and Pharmacology

S.E. Dicker, Ph.D., D.Sc. (Head of Department)	Relation between neurohypophysis and kidney functions, including the interrelationship between the former and other endocrine glands, and an investigation of neurosecretory material
	Investigation of metabolic paths of specific drugs with a tranquilising effect, including their mode of action
	Investigation of the mechanism by which certain blocking agents potentiate the action of sympathicomimetic drugs

8. Zoology

R.D. Purchon, D.Sc. (Head of Department of Zoology and Botany)	
E.M. Brown (Miss), Ph.D.	Studies on parasitic dinoflagellates (Syndinidae) of marine planktonic organisms; protozoal studies in connection with sewage disposal Parasitic diseases of freshwater fish
M.F. Sutton (Miss), Ph.D.	The later embryonic development of *Salpa fusiformis* (Cuvier); entomological studies
T.J. Mortimer, Ph.D.	Structure of the alimentary canal in adult Lepidoptera
G.E. Barnes	Physiology of locomotion of *Anodonta*

86 The College of Aeronautics, Cranfield

1. Aerodynamics

Aerodynamics and Fluid Mechanics:

Professor J.A.J. Bennett, D.Sc., Ph.D. (Head of Department of Aerodynamics)	Powered lift system Problems of rotorcraft
G.M. Lilley	Aerodynamic noise Turbulent boundary layers
J.J. Spillman	Man-powered aircraft
J.R. Busing	Experimental hypersonic flow facilities Heat transfer to catalytic walls
E.A. Boyd	Hypersonic flow Aerodynamics of sails
J.F. Clarke, Ph.D.	High temperature gas physics
T.H. Hodgson, Ph.D.	Pressure fluctuations in shear flow turbulence
P.A.T. Christopher	Non-linear stability theory
J.W. Cleaver	Relaxation effects in dissociated corner flows
T.N. Stevenson	Gas injection into a turbulent boundary layer
M. Gaster	Hydrodynamic stability theory of boundary layers
A.J. Alexander, Ph.D.	Ground effect machines. Edge blowing on slender wings
G.S. Ram	Aerodynamic noise. Response of structures to noise
A.H. Craven, Ph.D.	Drag reduction by suction or injection
D. Battat	Low density molecular flow

Aerofoil Characteristics:

Wing Commander C.G.B. McClure, A.F.C. (Head of Department of Flight)	
D. Hyde	An investigation into the characteristics of a full scale swept wing model with distributed suction, mounted on an aircraft

Data recording:

Wing Commander C.G.B. McClure, A.F.C. (Head of Department of Flight)	
M.A. Perry R.G. Thory	Development of a hybrid digital and analogue airborne data recording system employing both airborne magnetic tape recording and P.C.M. telemetry

2. Chemistry

Organic:

Professor A.J. Kennedy, Ph.D. (Head of Department of Materials)	
D.A. Smith	Various reactions of perfluoro-glutaric acid are being investigated in an effort to synthesize its diketone and diene derivatives

3. Documentation

Information Retrieval:

C.W. Cleverdon (Librarian)	The efficiency of indexing systems for information retrieval

4. Engineering

Aircraft:

Professor W.S. Hemp (Head of Department of Aircraft Design)	Optimum design of structures in the manner of A.G.M. Michell
A.Rothwell D.J. Johns	Investigation into problems of cut-outs and discontinuities in cylindrical and spherical shells
D.J. Johns	Thermal stress effects in cylindrical shell and multi-web box structures
D. Howe	Investigation of the dynamic and landing characteristics of a slender delta wing supersonic airliner using both model and theoretical techniques
D. Howe F.M. Burrows, Ph.D.	Study of supersonic airliner design problems
F.M. Burrows, Ph.D.	Analysis and synthesis of incompressible turbulent flows in jets, cavities and exhaust manifolds
K.H. Griffin	Investigation into deformation of structures under cyclic application of load temperatue distribution Numerical solution of plan strain distributions in bodies of specified shape under edge loading

Electrical:

Professor G.A. Whitfield (Head of Department)	Manual control of aircraft; effects of display system and "feel" and aerodynamic characteristics on controllability
R.J.A. Paul H.B. Gatland D.E. Hyndman	Hybrid computing techniques; development and evaluation of the elements of a hybrid system and of special purpose devices employing those elements
R.J.A. Paul	Synthesis of active R C networks with independent adjustment of each coefficient of the transfer function Adaptive control systems; orthogonal function synthesis of the mathematical model during system operation
H.W. Loeb, Ph.D.	Investigation of space charge layer widths and capacitance-bias relationship by means of resistance network simulation methods Applicability of charge storage parameter specification to very high frequency fast-switching transistors
H.W. Loeb, Ph.D. S.S. Gould	Semiconductor reliability; investigation of long term changes in gas ambient at ultra-high vacuum pressures and correlation with ultimate stability of silicon devices
R.N. Lord	Surface currents on conducting sheets at ultra-high and microwave frequencies
S.R. Deards	Extension of combinatorial network theory into the complex ployhedral domain; synthesis of single-energy networks according to prescribed indicial response

4. Engineering (*continued*)	
Electrical (continued)	
K.C. Garner	Use of tapped potentiometer-net analogue computer for solution to field problems and as an s-plane analogue
K.C. Garner R. Thomason	Guidance and control of pilotless powered lift vehicle
Mechanical:	
Professor A.H. Lefebvre, Ph.D. (Head of Department of Aircraft Propulsion)	
J.R. Palmer	Stage interaction in axial compressors
J.H. Dunmore	Whirling of shafts The load carrying capacity of an oil lubricant film at high temperature
Production:	
Professor J. Loxham (Head of Department)	Development of high precision machine tools incorporating devices and hydrostatic lubrication
W.T. Singleton	Application of ergonomics to machine tool design Acquisition of high-speed skills, with special reference to key-board operation
J. Cherry	The development of optium metal cutting conditions for specified materials
L.P.B. Oxley, Ph.D.	Plastic flow of material during cutting and forming operations
5. Metallurgy	
Metal Physics:	
Professor A.J. Kennedy, Ph.D. (Head of Department of Materials) R.G.C. Hill	Combined creep and fatigue effects in light alloys at elevated temperatures. Ageing effects in fatigue. High frequency and random stressing. Activation of recovery processes by dynamic stresses
B.S.Hockenhull	Internal friction in metals and its relation to the precipitation processes in light alloys
M.J. Steward	Ferromagnetic damping
W.D.G. Bennett. Ph.D.	Crack propagation characteristics of alloys; grain size effects. Fundamental fracture mechanisms in single crystals
Professor A.J. Kennedy, Ph.D.	The stress and temperature dependence of microcreep in pure metals and alloys. Sensitivity of the microcreep characteristics to fatigue damage The dependence of microwave attenuation, at 9000 mc/s, on the degree and nature of precipitation in the surface layers of light alloys. The attenuation changes connected with (early) surface fatigue damage
A.R. Sollars R.S. Brown	Ageing processes in precipitation-hardening aluminium alloys
Professor A.J. Kennedy, Ph.D. A. Younger, Ph.D.	The creep and fracture characteristics of graphite at high temperature (2000°—3000°C)
6. Physics	
Polymer Physics:	
Professor A.J. Kennedy, Ph.D. (Head of Department of Materials)	
A. Kaye	Use of the rheological equations of state for describing the properties of viscoelastic fluids in simple types of flow

6. Physics (*continued*)

Polymer Physics (*continued*)

D.E. Saunders, Ph.D.	Experimental investigations into (i) the elastic properties of and departures from ideal elasticity, and (ii) the stress-strain-birefringence relationships in various rubber-like systems

7. Technology

Fuel Combustion Technology:

Professor A.H. Lefebvre, Ph.D. (Head of Department of Aircraft Propulsion)	
E.R. Norster	Flame stabilization in high-velocity streams
B.V. Archer	Fuel dispersion in a gaseous stream
	Influence of fuel injection process on combustion performance
	Airblast atomization
	Jet penetration in hot flowing combustion products
D.S. Carton	Solid propellant combustion in rocket motors
	Performance evaluation of non-cryogenic propellants in rocket motors
K.W. Nobbs	The effect of fuel spray characteristics on flame radiation in a gas turbine combustion chamber
	Film cooling
R.W. Roberts	Combustion noise

87 The College of Aeronautics, Cranfield Advanced School of Automobile Engineering

1. Engineering

Automobile:

Professor J.R. Ellis, Ph.D. (Director)	
N.A. Carter	An investigation into the mechanics of steering force developed by a pneumatic tyre

88 College of Technology, Belfast

1. Chemistry

D. Hamer, Ph.D. (Head of Department)	Condensations of cyclohexanone
	Reduction of purines and pyrimidines
	Lactone-sulphydryl interactions
	Protein denaturation
E. Tyrrall	Polymerization mechanisms
	Stability of picrates
C. Wilson	Ketones from durene
H.S. Blair	Stereochemistry of stilbene-forming condensations

2. Pharmacy

J.A.M. Shaw, Ph.D. (Head of Department)	Endotoxic properties of Gram-positive bacteria and pathogenic fungi
	Bacterial lipopolysaccharides

3. Physics

O.M. White, Ph.D. (Head of Department)	Flicker effects in the electron emission from tungsten
F.J.H. Dibdin	Applications of radioactive materials
W. Fleck	Voltage current relationships in transistors and in transmission lines

89 Dundee Institute of Art and Technology

1. Chemistry

T.J. Morrison, Ph.D. (Head of Department)	Solubility of gases and volatile liquids
I.R. McGregor	Zone melting and oxidation of metals
W. Johnston	Stereochemistry of ferrocene derivatives

2. Engineering

Mechanical:

W.F.K. Kerr, Ph.D. (Head of Department)	
G. Robertson, Ph.D.	Stresses in short circular cylinders subjected to internal fluid pressure Stresses in stepped circular shafts and in shafts provided with collars The effects of rotation of principal stresses on observations made using transmission and scattered light methods of photoelastic analysis
J.B. Main	The radial leakage at the exit of steam turbine nozzles and the effect of axial clearance on this leakage

90 Glamorgan College of Technology

1. Chemistry

L.H. Thomas (Head of Department)	Molecular association and hydrogen-bond enthalpies in the pure liquid state
R. Meatyard	
J.H. Davies	
L.H. Thomas	Chemical properties of aryl orthoborates
R.F. Morgan	
G.J. James, Ph.D.	Reaction of carbon with sulphur compounds

91 Hatfield College of Technology

1. Botany

R.F. Robbins, Ph.D. (Head of Department)	
K.W. Thomas	Peat pollen analysis

2. Chemistry

R.F. Robbins, Ph.D. (Head of Department)	Diazapyrenes
W.M. Boardman	Dropping mercury electrode studies
R.J. Cremlyn, Ph.D.	Potential fungicides
J. Barrett, Ph.D.	Photochemical studies
A.L. Mansell, Ph.D.	
A. Gibson	Amino-quinones

3. Engineering

Aeronautical:

D.R. Samson (Head of Department)	Structural fatigue
J.M. Howe	Response of swept wings to dynamic loadings

3 Engineering. (*continued*)

Civil:

D.R. Samson (Head of Department)	
A.F. Fulwood	Cracking of resistance of prestressed concrete
J. Holland	The rheology of freshly mixed concrete

Electrical:

B.F. Gray (Head of Department)	
W.B.K. Ellis	Investigation into the effect of impurities in epitaxial diodes
W.R. Johnson	Wideband coaxial to waveguide transition
W.L. Barlow	Use of analogue models in the compensation of feedback control systems
W. Burrows	Electromagnetic wave propagation in the troposphere A study of the characteristics of long distance V.L.F. transmission

Industrial:

C.E. Cumins (Head of Department)	
J.G.H. Brown	The metallography and mechanical properties of heat-treated wrought aluminium bronzes of composition 7 to 10 per cent aluminium with 2·5 per cent and 3·0 per cent iron
R.J. Ford	The wear behaviour of carbide and sintered oxide cutting tools

Mechanical:

D.R. Samson (Head of Department)	
C.L. Kirk, Ph.D.	Effect of rotational unbalance on acceleration of a spring-borne mass through a resonant frequency
T.J. Evans	Effect of restraints on the vibration characteristics of compressor blades
R.W. Jackson, Ph.D.	Strength of corrugated aluminium roof decking

4. Mathematics

J.A.P. Hall (Head of Department)	Non-linear ordinary differential equations
G.H. Bailey	Linear operators on a Hilbert space
R.D. Johnson	Investigation of the solution of systems of non-linear equations by methods of optimization
H. Retkin	Investigation of the geometric and algebraic properties of the cubic arcs of a Galois plane
R.W. Sharp, Ph.D.	Computational aspects of spectral analysis of time series
J. Stevens	Construction and testing of a linear, Skinner-type programme for a self-instruction device for college first year mathematics

92 Heriot-Watt College, Edinburgh

1. Brewing and Applied Biochemistry

Professor I.A. Preece, Ph.D., D.Sc. (Head of Department)	Enzymolysis of phytic acid: separation and characterization of cereal enzymes concerned in this change and establishment of their relation to other cereal phosphatases

1. Brewing and Applied Bioehemistry *(continued)*

Professor I.A. Preece, Ph.D., D.Sc. A.M. MacLeod (Miss), Ph.D.	Enzymolysis of hemicelluloses: comparison of the activities of enzyme preparations from cereals and from moulds in affecting the degradation of specified hemicelluloses
	Physiology of malting: influence of oxygen tension and of chemical growth regulators on the germination of barley, with special reference to the technical requirements of the malting process
A.M. Macleod (Miss), Ph.D.	Studies on the fatty substances and lipases of barley
G. Tebb, Ph.D.	Genetic studies of *Drosophila* in interaction with environment
	Enzymic potentialities of cereal pests
I. Campbell, Ph.D.	Morphology of bacteria in relation to virulence

2. Building Studies

N.C. Sidwell, Ph.D. (Head of Department)	Measurement of wind forces on roofs of varying shapes
	Wind effect on open patios
J.V. Valentine	Investigation of fungal decay of African woods and field test resistance

3. Chemistry

Professor F. Bell, Ph.D., D.Sc. (Head of Department)	The reactions of dihydroxy-naphthalenes
A. Mackie, Ph.D., D.Sc.	The reactions of some derivatives of *t*-butylbenzene
W. Kemp, Ph.D.	Investigations in the chemistry of unusual fatty acids
K.R. Buck, Ph.D.	Gas chromatography
J.A. Hunter, Ph.D.	Study of nickel chelates with reference to their analytical utility
R.C. Howie, Ph.D.	Metallurgical aspects of cobalt-chromium alloys in dentistry
W.H. Massie, Ph.D.	Investigations on the conditions for ion-exchange of some metal ions
W. Steedman, Ph.D.	Investigation of decomposition of some β-keto-aldehydes
I.H. Anderson, Ph.D.	Rate studies on polymerization reactions

4. Engineering

Chemical:

Professor P.H. Calderbank, D.Sc. (Head of Department)	The physical and mass-transfer properties of froths and foams on distillation plates
	The mass-transfer properties of bubble clouds rising through deep pools of liquid
	Physical rate processes in industrial deep fermentation operations
	Kinetics of reactions in fluidized beds of solid catalysts
	The phenomen of the decaying mass-transfer coefficient as a single bubble rises through a liquid
	Kinetics and mechanism of carbon deposition on surfaces
D. Wilson, Ph.D.	A study of gas absorption and desorption
	Gas absorption in liquids flowing over a spherical body
	A study of liquid-phase diffusion coefficients
N. MacLeod, Ph.D.	Mass transfer between rotating coaxial cylinders
	Mass transfer between the walls of pipes of various shapes and fluids flowing therein
	The use of profilometric techniques in the study of heat and mass transfer
	A study of spinning-band distillation columns

4. Engineering (*continued*)

Chemical (*continued*)

R. Jackson	The hydrodynamics of two phase flow (gas-liquid systems in a vertical pipe) Optimization of distillation and reactor schedules

Electrical:

Professor M.G. Say, Ph.D. (Head of Department)	
E.O. Taylor J.S. Armstrong	Power system load flow using Kron's tensorial methods

Mechanical:

Professor R.S. Silver, Ph.D., D.Sc. (Head of Department)	Investigations of fluid flow under conditions of phase change; heat transfer and flow resistance during condensation and evaporation
W.L. Bride	The determination of stresses from strains in an elasto-plastic biaxial stress system with particular reference to solution in a digital computer
H.F. Black	The application of variational methods to the calculation of flexural vibration modes of rotating cantilevers, with emphasis on iteration processes: criteria for stability of whirl in long, flexible shafts, in the vicinity of critical speeds, taking account of possibly distributed eccentricities

5. Mathematics

Professor R. Smart (Head of Department)	Power system load flow
M.E. Robertson (Miss)	Scattering of electrons by ions

6. Mining

Professor R. McAdam, Ph.D. (Head of Department)	Mine rescue apparatus Environmental conditions in mines Geophysical exploration Strata correlation by coal spores (Joint Department with the University of Edinburgh)

7. Pharmacy

H.H. Campbell (Head of Department)	
B.G. Townsend	The pituitary-gonad relationship in *Xenopus laevis*
G.C. Jefferson	Pharmacology of local anaesthetics
R.J. McBride	Organo-phosphorus derivatives of Schiff's bases
I.A. Swanson	Synthetic hypnotics
J. Lyall	Acyl derivatives of tartronic acid

93 Huddersfield College of Technology

1. Chemistry

E. Tittensor, Ph.D. (Head of Department)	Ring systems derived from pyridine
R. Livingstone, Ph.D.	Chemistry of chromans, benzofuran, and naphtho-furan, pyran, furanone, and pyrones
C.F. Wallis	Reaction mechanisms
J.G. Washington	Ion exchange in the study of complexes
G. Hallas, Ph.D.	Steric effects in di- and tri-arylmethane dyes
F. Jordinson R. Lockwood	Tests for colour vision
G. Ozog J. Bryant	Reaction between o-hydroxy aldehydes and diphenyl ethylenes
D.A. Crombie, Ph.D.	Synthesis of benzodiacenaphthylenes

2. Engineering

Mechanical:

J.D. Walker (Head of Department)	Investigation into power circulating testing techniques on power transmission drives
J.P. Cole	Investigation into pressure distribution in oil-driven centrifuge circuit
R.I. Newsome	Effect of sliding velocity on fatigue life of bronze discs
	Power transmission by multi- vee-belt drive

3. Textiles

H.S. Bell (Head of Department)	Sett of woollen and worsted cloths
J. Mahony	
J. Mahony	Colour systems
C.M. Freebury (Miss)	
H.S. Bell	Raising of woollen fabrics
H.L. Hallas	
A. Brearley	Behaviour of fibres in woollen blends
E. Hopkinson	Woollen blending
W.J. Kendall	Experimental study of weaving properties of super cop
E. Oxtoby	Spinning conditions in woollen yarn manufacture
	The effect of settings on drawing and spinning of worsted yarns

94 Kingston Technical College

1. Chemistry

N. Lindop (Head of Department)	
P.B. Brindley, Ph.D.	Kinetic studies on organo-boron compounds
D.R. Palmer, Ph.D.	Synthetic and kinetic studies in the indole field
J. Phillips	Solvation of cations in strong sulphuric acid solution
R.H. Williamson	Alkylation of aromatic compounds with alkyl tosylates

2. Engineering

K.J. Tolley (Head of Department)	
D.G.J. Sellwood	Mechanical strength of sintered ferrite
	Life of ancient dies
L.J. Hope	Vibrational stresses in fan blades
J.B. Spooner	Stiffening of aircraft structural components by honeycomb cores
D.G. Lees	Heat flow in thin metal skins
	Hydraulic analogue computer for aerodynamic heating problems
S.B. Mathur	Complex creep under varying stress

3. Physics

L.E. Lawley, Ph.D. (Head of Department)	
D.N. Hall, Ph.D.	Ultrasonic attenuation in liquid mixtures
K.J. Dean	Ultrasonic velocity and absorption in liquid salts
R.B. Morrison, Ph.D.	Problems in meteorological physics
F.C. Evans	Electronic recognition of printed characters

95 Lanchester College of Technology, Coventry

1. Chemistry

M.E. Foss, Ph.D. (Head of Department of Chemistry and Metallurgy)	A study of complexes formed between transitional metals and compounds containing the S–C–C–S system
W. Geary, Ph.D.	A study of the metal complexes of heterocyclic ligands
	The reaction between anhydrous iron halides and aliphatic amines
C.W. Went, Ph.D.	The chemistry of the cinnolines
E. Catterall	Studies in the copolymerization of diene hydrocarbons using organo-metal catalysts
	Studies in the copolymerization of olefin oxides using soluble organo-metal catalysts
J. Robbins, D.Phil.	The stereoregulated polymerization of olefine sulphides
N. Jones	The acylation of aliphatic and alicyclic olefines under Friedel-Craft conditions
D.V. Nowell	The determination of surface properties of some homogeneously precipitated salts of aluminium and zirconium
W.S. Owen	The reaction of phosphorus halides with organic acids and their derivatives at elevated temperatures
W.M. Dowson R.J. Winterton	The use of zirconium nitrate for the separation of phosphorus in qualitative analysis

2. Engineering

Aeronautical:

H.G. Cuming, Ph.D. (Head of Department) W.C. Keen R.A. Streather	Aeroelastic deformation of low aspect ratio wings in supersonic flow
A.G. Cuming, Ph.D. W.C. Keen R.A. Streather	Dynamic stability of re-entry vehicles
E.L. Place	Stall characteristics of axial flow fans
B. Saravanos	Kinetic analysis of the elastic stability of thin beams
G.B. Bolland	Matrix force and displacement analysis of pressurized fuselages

Civil and Building:

H.E. Walker (Head of Department) W.C. Norfolk	An investigation into the efficiency and economics of the different types of fixing methods used to attach timber backings and finishings to vertical, sloping and horizontal surfaces of reinforced concrete

Electrical:

E.A. Hanney, Ph.D. (Head of Department)	
A.W. Keen	Analysis and synthesis of active networks
S.S. Hakim, Ph.D.	Theory and design of digital control systems
S.S. Hakim, Ph.D. R. Barrett	Data transmission systems
K.G.M. Tippett	Design of insertion networks

Mechanical:

B.B. Overy (Head of Department)	Force and slip relationships at metal to metal surfaces under conditions of fretting
A. McConkey	Investigation of the timing characteristics of diesel engine injection

2. Engineering (*continued*)

Mechanical (*continued*)

J.B. Arnold	The effect of exhaust gas addition on part throttle knock in a petrol engine
G.A. Johnson	Deformation characteristics of banded pressure vessels
M.E. Stoneham	Correlation of rate of pressure rise with crank/connecting rod configuration in diesel engines

Production :

R.L. Aston (Head of Department)	
J.I. Willmore	Relationship between accuracy of workpiece and rate of metal removal by grinding
A. Smith	Electrolytic machining
A. Hague	Production of internal threads by fluteless tapping

3. Mathematics

R. Wooldridge (Head of Department)	
L.W.F. Elen	Hydrodynamic stability
G.B. Sewards	Heat conduction
W.J. Ferguson	Algebraic eigensolutions
H.G. Miles	Artificial satellite observation

4. Metallurgy

M.E. Foss, Ph.D. (Head of Department of Chemistry and Metallurgy)	
G.B. Heslop	The effect of trace elements in the graphitisation rates of white cast irons
B. Arnold	The effect of shot peening on the fatigue resistance of aluminium alloys
T.C. Mead, Ph.D.	An assessment of organic polymer films as deep drawing lubricants for aluminium
R. Blackwell	The internal friction characteristics of austenite/bainite transformation in iron/carbon alloys
D. Kirk, Ph.D.	Deformation and annealing characteristics of sheet materials
T.A. Myers	

5. Physics

Applied :

F.J. Pearson, Ph.D. (Head of Department)	Relativity Statistical mechanics
L. Wardle, Ph.D.	Solid state physics Thin films
D.A. Davies, Ph.D.	X-ray crystallography Growth and properties of metal whiskers
D.A. Perrott	Colour mixing and colour vision
J.P. Bunn	High-speed pulsed Geiger counting
R. Carey, Ph.D.	Magnetic properties of materials
E.D. Isaac, Ph.D.	

96 Leeds College of Technology

1. Biology

W.R. Burnham, Ph.D. (Head of Department of Chemistry and Biology)	
J. Palka	Vertical distribution and feeding mechanisms of Enchytriaedeae
S. Powell (Mrs.)	Anatomical and development studies of Valsa and allied genera to establish the characteristics of the family and to separate genera and species within the family

2. Engineering

Electrical:

E.C. Walton, Ph.D. (Head of Department of Electrical Engineering and Physics)	
R.V. Buckley (Miss), Ph.D.	The study and comparison of field plotting methods
W. Paterson	Power system protection: the protection of lines alive on the ground
P.G. Spowage	Experimental investigation into the distribution of force on the side of an armature slot and its relation to the ratio of slot width to gap width

Mechanical:

J. Pidduck (Head of Department)	
E.P. Booth, Ph.D.	An investigation of the electrical conductivity of the combustion gases of open flames
W. Edwards-Smith	Cutting properties of ceramic tools
A.C. Farren	

3. Physics

E.C. Walton, Ph.D. (Head of Department of Electrical Engineering and Physics)	
A.D. Oates	Comparison of ionic and electronic bombardment as a surface cleaning technique
C.N. Owston, Ph.D.	Electronic spin resonance in complex organic materials and mixed phases

97 Leicester College of Technology and Commerce

1. Biology

Pharmacology:

E.J.B. Bish, Ph.D. (Head of Department)	
R.S.H. Finney	Methods of evaluation of anti-inflammatory compounds
	Assay of protein anabolic agents
	Physiology of thirst
B.P. Block, Ph.D.	Evaluation of local anaesthetics
	Investigation of secretaion of drugs into the uterus

2. Chemistry

L.P. Priestley (Head of Department)	
S. Walker, D.Phil.	Identification of small polyatomic aromatic radicals by their absorption and emission spectra in the visible and ultra-violet regions
	Studies of molecular interaction (including inter- and intra-molecular hydrogen bonding and the donor-acceptor type) by molecular polarization and dipole moment measurements
E.R. Ward, Ph.D., D.Sc.	Synthesis, reactivity and pharmacological properties of heterocyclic compounds derived from o-aminothiols
	Synthesis, and reactivity, of dinaphthyls and dibenzo-biphenylenes
	Synthesis and reactivity of diazo-compounds of the naphthalene series, including isomer distribution in diazocoupling reactions
	The history of coal tar and related industries (1840–60)
F.R. Mumford	Synthesis of potential antiviral agents in the imidazole series
A.J. Nunn, Ph.D.	Synthesis and pharmacological properties of quaternary salts of heterocyclic compounds derived from o-aminothiols
Radiochemistry:	
R.W.C. Broadbank, Ph.D.	Symmetrical exchange reactions at aromatic carbon atoms
R.D. Harding	Ion exchange and other properties of certain salts of heteropolyacids and their applications to the determination of traces of caesium 137
P.H. Bailey	The evaluation of certain separations in qualitative analysis

3. Mathematics

M. Bridger (Head of Department)	
R.H. Bromley	An investigation into possible rheological equations of state
J. Pedoe	Applications of Markov chains including queuing
T.F. Goodwin	Automatic programming and its relation to machine design of digital computers

4. Pharmacy

C. Gunn (Head of Department)	
S.J. Carter	The evaluation of fungicides
H.W. Fowler	Studies in the drying of porous granular solids
R.M. Ridgway	Studies in certain saponin-containing drugs allied to *Polygala senega*. (Supervised by Bradford Institute of Technology)
C.H.R. Palmer	Studies on the sources of pyrogen, their elimination and stability and suppression of their effects by drugs. (Supervised by University College Hospital, London)
E.G. Bain	The accurate counting of small numbers of yeast cells in aqueous suspensions and determining their response to conditions of stress
J.A. Box	The application of microbiological assay to the clinical diagnosis of anaemias. (In conjuction with the Leicester Royal Infirmary, and supervised by School of Pharmacy, University of London)
J.R. Furr	The mode of action of antibacterial agents

98 Liverpool College of Technology

1. Biology

K.S.W. Sing, Ph.D. (Head of Department)	
D.C. Pickering	Uptake of radio elements by plants and effects of radiation
G. Anderson, Ph.D.	Genetics of *Caprinus lagopus;* protein assay suing *Streptococcus zymogenes*

2. Chemistry

K.S.W. Sing, Ph.D. (Head of Department)	Gas adsorption and the surface properties of inorganic gels and precipitates
J.W. Lucas	Radiochemical exchange of precipitates and catalysts
G.C. Bye, Ph.D.	Ageing of inorganic gels and precipitates: studies by X-ray powder diffraction and electron microscopy
J.O.V. Oubridge, Ph.D.	Sorption of water vapour on and in metal oxides and magnetic susceptibility of mixed oxides
R. Stock, Ph.D.	Sorption of gases and vapours on solids and in non-volatile liquids
J. Cast, Ph.D.	Infra-red spectra of surface chemical systems
O.E. Ford, Ph.D.	Thermodynamic quantities obtained by gas-liquid chromatography
A. Crawshaw, Ph.D.	Synthesis and polymerization of non-conjugated dienes
G.G. Jayson, Ph.D.	Radiochemistry and radiation chemistry of systems of biological importance
R.J. Newcombe	High-speed cinematography and oscilloscopic studies of the dropping mercury electrode
J.M. Wilson	Dissociation constants of sterically hindered organic acids
A.R. Denaro, Ph.D.	Glow discharge electrolysis
T.C. Owen, Ph.D.	Radiation protective sulphur compounds
C.B. Clarke, Ph.D.	Correlation of structure and ultra-violet spectra in nitrogen heterocycles
D.J. Shaw, Ph.D.	Adsorption of proteins at oil-water interfaces
D.N. Grindley	Investigation of analytical methods

3. Engineering

Electrical:

E.G. Lamb (Head of Department)	
K.R. Jones	Sampled data control systems
D. Kingham	Microwave techniques
C. Pomfret	Field-pulsation losses in electrical machines

Mechanical, Marine and Production:

R.F. McMahon, Ph.D. (Head of Department)	Comparison of solutions of hydraulic surge tank equations obtained from a model surge tank and an analogue computer
J.O. Williams	Strains in reinforced concrete plates caused by impact
A.E. Swinnerton	Performance of a supercharged diesel engine with water injection
E. Walshaw	Investigation of plastic injection moulding variables
H.N. Linton	Mechanical mixing of viscous fiuids
V.A. Hallet	Investigation of certain aspects of two-phase fluid flow
J.S. FitzPatrick	Air flow around a rotating fan
T. Fullwood	Corrosion studies of heat-affected zones in ferritic steel
A.G. Humphreys	Plastic flow of metals in metal cutting
J. Rees Jones	High-speed seaming of metal containers

4. Mathematics

J.F. Shearer, Ph.D. (Head of Department)	
B.Bunday, Ph.D.	The theory of deutron stripping reactions at high-energy levels
A.E. Renshaw, Ph.D.	On the equations of fluid mechanics as derived from general relativity

5. Pharmacy

T.L. Bowyer (Head of Department)	
H.N. Gerrard	Fungicidal action of certain compounds against the spores of *Penicillium spinulosum*
D.B. Cowell, Ph.D.	Application in pharmaceutical analysis of non-aqueous titrimetry
R. Whittaker	A study of the biochemical mechanisms of inflammation and the mode of action of anti-inflammatory drugs
W.E. Court	Pharmacognostical studies of the African species of the genus *Rauwolfia*

6. Physics

J.F. Shearer, Ph.D. (Head of Department)	
D.W. Parkin, Ph.D.	Investigations into cosmic dust
W. Hunter	
R. Thorburn, Ph.D.	Ionization and dissociation of molecules by electron impact

99 Loughborough College of Technology

1. Chemistry

Industrial:

R.F. Phillips, Ph.D. (Head of Department of Applied Sciences)	Electrochemistry: anodic electrode processes Study of solid reactions
M.C. Ball, Ph.D.	Oriented transformations in inorganic crystals
W.E. Blake	Sulphide precipitations with thiocarbonates
D.B. Bigley, D.Phil.	Investigation of decarboxylation of unsaturated acids Organo-boron chemistry
D.S. Brown, Ph.D.	X-ray crystallography of inorganic and organic complexes
I.M. Downie	Organo-phosphorus chemistry
A.G. Fogg, Ph.D.	An investigation of inorganic reactions having analytical applications Thin film chromatography
N.A. Hampson	Electrode reactions
W.P. Hayes	Effects of solvents and steric hindrance on the ultra-violet absorption spectra of ketones
R. Haynes, Ph.D.	Effect of hydrogen on mechanical properties of titanium and its alloys
A.G. Lawrence	Study of the softening processes of aluminium-magnesium alloys
J.B. Lee, Ph.D.	Sugar derivatives of potential physiological activity Plant extractives
J.D. Lee, Ph.D.	X-ray crystallography of inorganic and organic complexes
J.W. Lewis, D.Phil.	Heteroenoid systems: synthesis of long-chain aliphatic compounds
J.V. McLaren, Ph.D.	Physicochemical properties of polyelectrolytes

1. Chemistry (*continued*)

Industrial (*continued*)

A.H. Norbury, Ph.D.	Infra-red spectra and structure of some cyanato complexes
G. Oldham	The use of radioactive isotopes in physicochemical and analytical measurements
D.W. Poxon	Paper chromatography of oxidized oils
G.F. Reynolds, Ph.D.	Studies of azo dyes and their metal complexes
	Polographic and infra-red spectrophotometric studies of pyridine and related compounds
	Studies of substractive polarography and chromato-polargraphy
	Studies of the analytical application of sulpholane compounds
	Investigation into the determination of benzene in toluene by nitration, separation and polarography
	Study of 4[1] amino 4[1] chlorodiphenyl for the determination of sulphates
	Investigation of the separation of metals by the manganese " collection " method
A.N. Strachan, Ph.D.	Reactions of free radicals
A.E. Underhill, Ph.D.	Complexes of transition metals with quinoxaline
	A comparison of the changes in the ultra-violet and visible spectra of aqueous metal ions on complex formation
J. Watson-Walker	The application of instrumental analytical techniques to the identification and classification of bacteria
R.E. Wetton, Ph.D.	Viscoelastic and dielectric properties of polymers over wide temperature ranges
	Thermal conductivity and diffusion processes in polymers over wide temperature ranges

2. Engineering

Aeronautical:

K.L.C. Legg
(Head of Department of Aeronautical and Automobile Engineering)

D.W. Kew	The limitation of compressor performance due to flow instability
K.B. Ayers	Temperature effects in stiffened box beams and shell structures
F.G. Maccabee	The influence of free stream turbulence on the convective heat transfer rates from surfaces
P.W. Sharman	Approximate methods for stress and small deflection analysis of plates of arbitrary planform, loading and support conditions
S.J. Stevens	An investigation into aerodynamic methods of controlling the expansion in convergent-divergent nozzles at off design pressure ratios
S.J. Stevens D.M. Waters	Aerodynamic characteristics of the flow induced by air jets in the vicinity of the ground

Automobile:

K.L.C. Legg
(Head of Department of Aeronautical and Automobile Engineering)

K.L.C. Legg A.B. Greene	An investigation of the action of solid lubricants in the internal combustion engine
D.W. Kew	High-speed car wind tunnel tests
A.B. Greene	The determination of friction losses in compression ignition engines
G.G. Lucas	Investigation into combustion characteristics and performance of the N.S.U. rotary engine

2. Engineering (*continued*)

Chemical:

D.C. Freshwater, Ph.D. (Head of Department)	The performance of plate type apparatus in a 1 ft diameter absorption column
	The use of the heat pump in multi-component distillation
N.J. Hassett, Ph.D.	The behaviour of narrow beds of glass spheres in a stream of air or water
	The continuous thickening and sedimentation of finely divided calcium carbonate
D.J. Spikins, Ph.D.	Vapour/liquid equilibrium for ternary mixtures and their prediction
W.F. Calus	The boiling of mixtures of iso-propyl alcohol and water
H.W. Kropholler	Transient response and residence times in a plate absorption column

Civil:

G. Brock, Ph.D. (Head of Department)	Ultimate load models of reinforced concrete structures
W.S. Moffat	Application of seepage models to stability of sand slopes and dewatering problems
	Permeability of sands of varying grain sizes at different temperatures

Electrical:

H. Buckingham, Ph.D. (Head of Department)	
B. Currie	Analogue computation
D. Longley	
N.G. Hingorani, Ph.D.	Power system control and relaying
	Development of a new d.c. overcurrent and reverse current relay
	Study of travelling waves in power lines and generalized solutions on digital computers
R. Leek	Magnetostriction of steels
	Superconductivity
	Transitor circuit gain and bandwidth
	A new type of strain gauge
J.M. Richards, Ph.D.	Experimental studies of convection in fluids and their application to atmospheric problems
J. Watson, Ph.D.	Switching performance of field-effect transistors
	Performance of transistors associated with photomultipliers
	Evaluation of new electro-optical position sensitive transducers
J.K. Hall	Methods of achieving commutation in inverters by the use of capacitors
R. Walker	Survey of adaptive control theory
P. Catterall (Mrs.)	Effects of magnetic field on mercury vapour gap

Industrial:

M. Seaman (Head of Department of Industrial Engineering and Management)	
W.H. Bickers	Development of standard costing for use in foundries, particularly those of small and medium size
H. Madan	Analysis of dynamic behaviour of milling machines under vibration
M.J. Sargeaunt	Investigation of methods of bringing numerical control to the point of the cutting tool

2. Engineering (*continued*)

Mechanical:

B. Downs (Head of Department)	Digital computers: application to engineering and educational problems
R. Holmes	Vibrations: theoretical and experimental studies; vibration of shafts on oil film bearings
P.H. Broadhurst, Ph.D. R.K. Turton W.F. Glasspoole	Mechanics of fluids: theory of the hydrocyclone; flow characteristics of non-newtonian fluids in manifolds; stability of artificially generated velocity profiles in 2-dimensional ducts
M.R. Leeson J. Dent	Heat transfer: heat transfer in reciprocating parts; effect of tube pattern and baffle arrangement in shell and tube heat exchangers
T.P. Priestley	Automatic control: effect of time lags in braking servomechanisms; analytical and experimental studies of performance of hydraulic and pneumatic control units and systems

3. History and Philosophy of Science

A.M. Duncan (Senior Lecturer)	History of chemical theory, especially in the 17th and 18th centuries

Teaching Methods:

F.G. Higson (Senior Lecturer)	Programmed learning

4. Human Biological Sciences

Applied Physiology:

J.A. Jeffery (Senior Lecturer) M. Ellis W.Worth	Physiological aspects of work (investigation of the physiological responses of man to control intervals of work and rest)
P.M.R. Jones P. Stone	Anthropometric investigations relating physique to performance
J. Atha	Studies in motor performance (the power capacity in man related initially to the adolescent)

Ergonomics and Cybernetics:

W.F. Floyd, Ph.D. (Head of Department) P.T. Stone N.S. Kirk	Anthropometric, physiological and psychological studies of seating, with special reference to motor vehicles
W.F. Floyd, Ph.D. J.S. Ward (Mrs.)	The validation, under factory and field conditions, of recommendations concerning machine design and work-place layout based on anthropometric and physiological principles
W.F. Floyd, Ph.D. E. Edwards, Ph.D. V. Floyd (Miss) E. Hughes (Miss)	Physiological and psychological studies of skilled movements, e.g. keyboard operating
E. Edwards, Ph.D. A. Hindle	Physiological and psychological studies of motor vehicle control
J. Stone (Mrs.)	Studies of noise in factories and the effects upon hearing. Laboratory and field study of the efficacy of various types of ear defenders
B.L.M. Chapman, Ph.D.	Theoretical and experimental investigations of networks containing adaptive components and of evolutionary processes for synthesizing special assemblies

5. Mathematics

R.F. Phillips, Ph.D.
(Head of Department of Applied Sciences)

A.C. Bajpai	Applications of matrices to electric network theory
J. Hyslop	Neutron transport theory: collision probability methods for approximate solution of integral transport equation
Computation:	
H.H. Johnson (Director, Computer Centre)	Optimization procedures in the rearrangement of permutation arrays subject to integral time access factors Generation of random numbers

6. Physics

R.F. Phillips, Ph.D.
(Head of Department of Applied Sciences)

D.E.G. Williams, Ph.D.	The paramagnetic susceptibilities of transitional elements and alloys at temperatures below 293°K
D.J. Harrington, Ph.D.	Measurement of stress optical coefficients in polymers

100 National College for Heating, Ventilating, Refrigeration and Fan Engineering

1. Engineering

Fan:

R. Azad, Ph.D.	Development of apparatus for measurement of turbulence
W.C. Osborne	Investigation of fan noise

Heating and Ventilation:

D.R. Scott, Ph.D. (Head of College)	Measurements on turbulent jets Pneumatic conveyance of solids

Refrigeration:

A.D. Bewley	Heat transfer in refrigeration evaporator tubes
R.W. Webb	Use of mixed refrigerants for non-isothermal cooling Vapour transfer through small holes and passages

101 National College of Food Technology

1. Engineering

Food, and Processing:

R. Jowett (Reader)	
N.D. Cowell (Senior Lecturer)	Evaporation from produce during cold storage
J.G. Brennan	The bactericidal effects of homogenizers
R.H. Skinner	The development of a method of dewpoint measurement based on the Peltier effect

2. Food Science

D. Pearson (Senior Lecturer)	Chemical methods for assessing the spoilage of meat
M. Spencer (Senior Lecturer)	The Browning reaction between sugars and amino-acids, and related substances
R.M. Johnson	A quantitative study of nucleophilic aromatic sustitution reactions in nitrogen heterocyclic compounds with particular reference to activation by the N-oxide function in these compounds
A.W. Kenchington	Chemical modifications of zein
G.G. Birch	Chemical transformations of trehalose

102 National College of Rubber Technology

1. Technology

Polymers:

G.N. Welding,. Ph.D	Precision osmometry of high polymer solutions
	Nucleation and growth of bubbles in liquid polymers
J Glazer, Ph D.	Reaction of sulphur monochloride with olefins
	Reactions of monolayers of olefins
N.H. Langton, Ph.D.	Ultrasonic degradation of high polymers in solution
	The initiation of ultrasonic cavitation in polymer solutions
	Electron microscopy of high polymers
G.L. Duncan, Ph.D.	Graft polymerization by chemical transfer to low molecular weight polymers
G.N. Welding, Ph.D.	Kinetics of cross-linking in the accelerated sulphur
D.A. Smith	vulcanization of natural rubber
J. Glazer, Ph.D.	Formation and characterization of high polymers from
G.L. Duncan, Ph.D.	hydroxy-acid derivatives of shellac

103 National Foundry College

1. Metallurgy

J.B. McIntyre	The effects of melting conditions upon the structure and properties of blackheart malleable cast iron

104 National Leathersellers College

1. Technology

Leather:

R.L. Sykes, Ph.D.	Co-ordination of chromium (III) ions and organic molecules, including natural and synthetic high polymers
	Analysis of mineral tanned leathers
	Instrumentation in tannery practice
J.F. Shillito	The elasticity of wet leather in relation to its hydrothermal stability
G.H.W. Humphreys	The physical properties of belting leathers

105 Northampton College of Advanced Technology

1. Chemistry

D.J. Alner, Ph.D. (Head of Department)	A study of the thermodynamics of complex formation involving metallic ions and alkanolamines
	Precise measurements of the pH values of buffer solutions employing cells with free diffusion
R.F. Greenwood	The physical chemistry of hydrogen bonding molecules in solution
E.B. Elliott	Studies of diffusion couples in refractory metals and the effects of interstitial impurities on the properties of some newer metals
M. Vahrman, Ph.D.	The chemistry of fuels with special reference to the chemistry of carbonisation products and their relationship to the chemical constitution of solid fuels
D. Inman, Ph.D.	Electrochemical studies in molten salts with particular reference to their structure and the kinetics of electrode processes
C. Blakeley, Ph.D.	Investigations of the synthesis and properties of silicon-carbon and boron-nitrogen-carbon polymers containing aromatic groups in the main chain

2. Engineering

Aeronautical:

G.A. Tokay, D.Eng. (Head of Department)	Drag estimation of a multistage body of revolution
M.J. Cohen, Ph.D.	Design of integral axi-symmetric high-speed nozzles Ground effect on vertical and peripheral high-speed jets

Civil and Mechanical:

J.C. Oakden (Head of Department)	
J.C. Levy, Ph.D.	Cumulative damage in fatigue Fatigue under complex stress conditions Extrapolation of creep data Testing of materials using bi-axial stress systems
N.P. Roberts	Work hardening of steel reinforcement Bond of deformed reinforcing bars Ultimate load theory for combined shear and bending in reinforced concrete beams
J.A. Coutts, Ph.D.	Series interferometry for principal stress determinations
J.B. Thirlwell	A study of photo-plastic phenomena in epoxy resin
V.F. Bignell	Reinforcement of brittle araldite for photo-elastic studies
W.J. Morris	Photo-elastic investigation of structural shell roofs
R.H. Foster	Contact pressure and settlement in tall buildings
R.A. Duckworth	Flow characteristics of non-cohesive particles in liquid suspension in pipes

Electrical:

P.F. Soper, Ph.D. (Head of Department)	Preparation of professional type examinations
P.F. Soper, Ph.D. A.K. Godden	The determination of the parameter of electrical machines appropriate to the application of generalized theory
P.F. Soper, Ph.D. G.J. Edwards A. Barder	Transient analysis of power networks
H. House, Ph.D.	The electrical B.D. strength of organic liquid insulants and its dependence upon gas content and temperature Study of electrical discharges in organic liquid insulants A study of non-linear resistance oscillators and the stability of negative resistance devices The voltage distribution on strings of non-linear semi-conductor rectifiers
H. House, Ph.D. T. J. Douglas	The stability of silicon controlled inverter circuits with loads of varying power factor
H. House, Ph.D. A. Jebb	Random sampled data systems
F.C. Widdis, Ph.D.	Transistor switches Analogue-digital conversion by magnetic core switching A study of transformer coupled junction transistor pulse generators using square-loop ferrite cores The use of charge-controlled parameters in the analysis of transistor switching circuits
F.C. Widdis, Ph.D. T.R. Hewish	Precise measurement of low-level audio frequency voltages
F.C. Widdis, Ph.D. E.C. Talboys	Transient behaviour of non-linear resistors
F.C. Widdis, Ph.D. R. Chapman	Cross-over distortion in class B transistor amplifiers
F.C. Widdis, Ph.D. B.M.A. Slaney	Data transmission systems
G.S. Brayshaw, Ph.D.	Analysis and synthesis of electrical networks

2. Engineering (*continued*)

Production, Technology and Control:

G.M.E. Williams (Head of Department)	
L. Finkelstein	Non-destructive testing of steel wire ropes
	Design of instrument and control equipment with special consideration of use in explosive environments
	The application of matrix methods in the theory of instrumentation and control
L. Finkelstein	Automation in Civil Defence
D.E. Manning, O.B.E.	
R.D. Watts	Design of instrumentation for measurement and control

3. Mathematics

A. Geary (Head of Department)	
A.W. Gillies, Ph.D.	Non-linear vibration
	Electrical networks
	Sub-harmonic resonance
B. Girling	The logical control of analogue computer by digital blocks and the design of a "logical design" simulator
R.E. Scraton	Solution of a partial differential equation
R. Jordinson	Approximate and exact solutions in the design of wind tunnel contractions for incompressible flow
M. Clutton-Brock	Reduced density matrices
	Monte Carlo methods
H. Lampkin	18th century work on heat in relation to theory of Fourier
J.W. Searl	Electron spin resonant absorption in a polycrystalline powder (with uniaxial g–value anisotropy)
	Excitation of mercury by electron impact
S.W. Twine	The analysis of time series
	The reduced form method
	Algebraic geometry and group theory
W.J. Robinson, Ph.D.	Solution of a problem in general relativity based on a metric with cylindrical symmetry
I.I. Berenblut	Design and analysis of experiments for evaluating precision of standard test procedures of the Institute of Petroleum (sponsored research)
P.M. Eagles	Numerical solution of the Boltzmann equation for ionised impurity scattering in germanium and silicon, including low field magnetic effects
P.C.I. Crookes	Mathematical theory of replacement and applications
V.E. Price, Ph.D.	The calculation of the latent roots of a matrix whose rank is much less than its order
	The solution of the stability equations for earth dams with general slip surfaces

4. Ophthalmic Optics

J. Walton (Head of Department)	Relationships between visual accommodation and convergence
J.B. Davey	Visual problems in relation to vehicle driving
	Effects on visual acuity of non-reflecting films on spectacle lenses
R.M. Case	Aspects of phenomenal regression
E.F. Fincham	Monocular diplopia
R.J. Fletcher	Measurement of surface curves of small radius
	Effects of tinted contact lenses on visual acuity

4. Ophthalmic Optics (*continued*)

E.A. Mussett, Ph.D.	Phase changes occuring on reflection from transitional surfaces
	Determination of optical constants by reflection studies
	Spatial frequency response of image forming systems
G. Ruskell	Sympathetic nerve pathways in orbit of rabbit

5. Physics

F.Y. Poynton (Head of Department)	Development of piezoelectric ultrasonic camera
C.N. Smythe	
A. Walsh	Electron microscopy (metallurgical and biological applications)
T. Lukes, Ph.D.	Application of stochastic theory to problems in solid state physics
E.G. Steward, Ph.D.	X-ray diffraction: mosaic structure of irradiated graphite
H.W. Thickett	
D.W. Stops, Ph.D.	Evaporated films
J. Ewins	
S.J. Parkin	Relative luminous efficiency curve at high luminance
J.I. Missen	High-speed computer circuit using transistors
C.A. Padgham, Ph.D.	Subjective brightness. Visual after images
J.E. Caffyn	Mechanical and electrical properties of single crystals of
T.L. Goodfellow, Ph.D.	ionic solids; also optical absorption due to impurities and colour centres at low temperatures

106 Northern Polytechnic

1. Biology

W. Gerrard, D.Sc. (Head of Department)	
A. Terry (Mrs.), Ph.D.	Study of host reaction to repeated infection by helminth parasites
D. Etherington	Life history of sporozoan parasites in marine worms
J. Etherington (Mrs.)	Systematics of brown and red algae
D.E.G. Irvine, Ph.D.	Taxonomy and systematics of Sphacelariaceae

2. Chemistry

W. Gerrard, D.Sc. (Head of Department)	The chemistry of organic compounds of boron, silicon, tin, phosphorus and sulphur and the development of inorganic and semi-inorganic polymers
	Solubility of hydrogen halides in organic compounds
C.G. Smith, Ph.D.	The conductance and viscosity of electrolytes and the Parker effect
I.L. Finar, Ph.D.	The chemistry of pyrazoles and their sulphur derivatives
P.L. Wyvill, Ph.D.	The solubility of hydrogen halides in organic compounds containing oxygen
E.F. Mooney, Ph.D.	The development of infra-red and nuclear magnetic resonance spectroscopy and gas chromatography to organic and organo-metallic compounds
M.J. Frazer, Ph.D.	Complexes of non-metal halides
N. Singer, Ph.D.	The surface properties of carbon blacks
W.J. Barry, Ph.D.	The chemistry of pyrazoles
N. Stuart, Ph.D.	The bonding of rubber to metals
H.R. Hudson, Ph.D.	Rearrangement of alkyl groups during the formation of alkylhalide
W. Gerrard, D.Sc.	
B.R. Currell, Ph.D.	Semi-inorganic polymers

3. Mathematics

W. Gerrard, D.Sc. (Head of Department)	
M.A.E. Nutkins (Mrs.), Ph.D.	Quantum theory of solids
W.G. Gilchrist	Analysis of time series with weighted data

4. Physics

M.E. Pillow (Miss), Ph.D. (Head of Department)	Investigation of excitation of nitrogen within and outside an electron beam Examination of factors affecting nitrogen afterglows
J.C. Barton, Ph.D.	60 track recording on magnetic tape. Multi-channel logarithmic pulse height analyser. Measurement of nanosecond time differences Amplitude distribution of noise pulses from photo-multipliers Influence of impurities on the scintillation efficiency of gases Design of very large scintillation counters. Application of pulse shape discrimination Interactions of high-energy μ-mesons Intensity of cosmic radiation in deep mines
W.J.T. Dunstan	Properties of colour centres Photo-voltaic effects
J.D. Swift, Ph.D.	Study of the energy distribution of electrons in a positive column Investigation of diffusion rates of metastable states in gas discharges
E.B.M. Steers, Ph.D.	Infra-red atomic spectra Development of improved steady spectral sources

107 North Staffordshire College of Technology

1. Chemistry

Analytical:

W.K. Wilde (Head of Department)	
A.H. Carter, Ph.D.	The compilation of reactions of the zinc group in qualitative inorganic analysis

Applied:

K.S.R. Ashton	The synthesis and properties of highly conjugated aromatic and heterocyclic organic compounds with a view to their use in scintillation counters
B.J. Williams, Ph.D.	An attempt to find a relationship between structure and scintillating efficiency

Biology:

R.A. Tribbeck	The distribution of the Chironomidac and the position of the larval forms as an element in freshwater and brackish water faunas, normal and polluted

Organic:

R.A. Pritchard, Ph.D.	The preparation and degradation of tetrose disulphones

Physical:

F.H. Goodyear	A polarographic study of azo dyes

1. Chemistry (*continued*)

Radio:

B.E. Mills	A study of isotopic reactions Investigation of exchange capacity and adsorption phenomena of various clays Determination of ionic self-diffusion coefficients in aqueous and non-aqueous solutions Electron transfer mechanisms in the ferrous/ferric system

2. Physics

R. Teale (Head of Department)	
D.A. Calder	A study of the uses and limitations of electronic techniques to nuclear physics and in particular circuits designed to detect prompt and delayed coincidences

3. Technology

Ceramics:

W.L. German, D.Sc., Ph.D. (Head of Department)	Use of lithium compounds in ceramic bodies and glazes
W.L. German, D.Sc., Ph.D., S.W. Ratcliffe	Research on salt glazed pipes (sponsored research)
S.W. Ratcliffe	Use of Ca-silicate waste from phosphorous furnaces in ceramic tile bodies
W. Gilbert	Properties of bricks made from slate dust Properties of refractories made with high calcium alumina cement Research on the use of basalt in bodies and glazes (sponsored research) Phosphate bonding of tabular aluminas of different packing density Firing properties of refractories up to 1600°C.
B.E. Waye	Factors affecting the sintering and electrical properties of some simple oxides and spinels Influence of grain size of raw materials in properties of electrical porcelain Influence of extrusion and shaping techniques on properties of electrical porcelain
R. Griffiths	Use of aluminium phosphate as a bonding material in refractories Effect of lateral stress on the transverse strength of ceramic materials
C. Radford	Estimation of carbon in clays

108 Nottingham and District Technical College

1. Biology

J.R. Rowlands (Head of Department)	
G. Leadbeater	Taxonomy, reproduction and physiology of parasitic *Mucorales*
P. Jefferson	Studies on earthworms (Lumbricidae) in relation to soils, fertilizers and micro-organisms. The ecology of parasitic water mites

2. Chemistry

J.R. Rowlands (Head of Department)	
D. Harrison, Ph.D. R.M. Anderson, Ph.D.	Studies in synthesis and properties of nitrogen-containing heterocyclic compounds

2. Chemistry (*continued*)

T.A. Elliot, Ph.D.	Dynamic aspects of surface chemistry. Infra-red investigation of protein degradation
P.R. Falkner	The application of certain pyridine derivatives as reagents in analytical chemistry
A.K. Willetts	Synthesis and properties of metal nitrates and nitrato co-ordination compounds of the transition metals

3. Engineering

Building and Civil:

C.B. Brewington (Head of Department)	An investigation into the adequacy or otherwise of present live loading requirements of structural floors in buildings. (In conjunction with the D.S.I.R.)
P.L. Clark	Study of the natural lighting of buildings: the development of types of heliodons with practical applications into the effect of solar lighting both inside and outside buildings
J. Brown	The simulation of the behaviour of reinforced concrete by means of models
I.A. Seeley	Expansion schemes under the Town Developments Act, 1952, with particular reference to Haverhill
R. Truswell	Repeated loading of soils

Electrical:

S.J. Cotton	Standard frequency source
C.C. Christodoulou	Speed control of induction machines Transient torque measurement
H. Barber	Construction of a network analyser
P.G. Holmes	Speed control of induction machines
D. Roberts	Construction of analogue computer

Mechanical:

C.T. Butler (Head of Department)	
W.F.C. Fisher	Investigation of the application of macro-moiré fringe techniques and model analysis to the experimental design of bed structures having maximum stiffness—weight ratio
S.T.W. Keiller	Study of the propagation of pure torsional waves in a thin-walled tube, initially stressed to the yield limit in pure torsion in order to determine the effects of strain rates on wave propagation
J. Mann R. Munton, Ph.D.	Study of radial heat transfer across an air-filled annulus with a rotating inner member and varying annular gap. Provision is made for introducing other fluids and for longitudinal flow
G. Moltschaniwskyj	Study of the effects of the major cutting parameters on tool life, power consumption and surface finish, with special reference to carbide tools
J. Robertson J. Covell	Determination of optimum cutting conditions for high duty steels and the relationship between tool life and cutting conditions
T.R. Simes	Study of the reliability of existing approximate theoretical relationships of strength and stiffness of flat circular plates subject to lateral loads producing large distortions
J. Swannell	Study of the influence of shape-factor on short-life fatigue in bending of beams of identical section-modulus but of different cross-sectional shape, subjected to high stress fatigue in bending

3. Engineering (*continued*)

Mechanical (*continued*)

J.B. Wilcox	A theoretical and experimental investigation into the effects of bearing flexibility, unbalance and errors in shaft geometry on the critical speeds of shafts carrying a single disc, with special reference to the gyroscopic effects
	Study of the vibrational behaviour of a prestressed compound beam at frequences near the natural frequency, to determine the associated stress distributions in both steel and concrete

4. Metallurgy

J.R. Rowlands (Head of Department)	
G.T. Jackson	The effect of tempering on the hardness of alloy steels case hardened by nitrogen and other gaseous media
T.A. Towers	The effect of small additions of titanium to low carbon steel

5. Mining

J.R. Ashton (Head of Department)	
S.W. Barry	Utilization of small coal and coal dust
L.A. Chambers	
W. Buchanan	Application of hydraulics to mining
P.A.D. Sheen	Economics of planned maintenance and the application of work study to maintenance
F.A. Shepherd	Application of the theory of errors to surveying techniques
J.H. Ball	with particular reference to linear measurement
P. Hopkins	Sedimentary petrology of the Permo-Trias in the Nottingham area
P.C. Stevenson	Forms of crystallization of bort and coated diamonds

6. Physics

A. Middleton, Ph,D, (Head of Department)	
N.P.R. Sherry, Ph.D.	The physical behaviour of powders, techniques of particle size analysis and the physical properties of powder aggregates
	Investigations into field patterns and methods of plotting

7. Textiles

C.H. Edwards (Head of Department)	
W.L. Lead, Ph.D.	Identification of disperse dyes by means of ultra-violet and visible absorption spectra. The nature of substantivity of dyes for cellulose
D. Haigh	Identification of disperse dyes by chemical spotting tests
	Factors affecting the dyeing of rabbit fur
A.T. Cole	The relations between knitted fabric structure and properties
R.W. Mills	A study of weft knitting motions and the effect of variations in machine knitting on fabric dimensions
D. Wheatley	The effect of various machine settings on the properties of warp knitted fabrics

109 Paisley Technical College

1. Chemistry

J.S. McLean (Head of Department)	
G.R. Jamieson	Response characteristics of gas-chromatography detectors Gas-chromatographic investigation of amino-acids
J.D.M. McConnell	Adsorption of oxygen on oxides with anion defects
D.R. MacSween	
D.A. Paterson	

2. Engineering

Civil:

T.M. Howie (Head of Department)	
S. Leith	Critical speeds of shafts rotating in viscous fluids
D. Armour	Accelerated testing of concrete
T. Gibson	Concrete surface finishes

Mechanical:

J. Anderson (Head of Department)	
D.D. Forbes	Photo-elastic investigation of taper shrink fits
W. Little	Vibrations of machine tools

3. Physics

J.R. Denholm (Head of Department)	
J.F. Henderson	Measurement of internal conversion coefficients

110 Plymouth College of Technology

1. Biology

A.B. Meggy, Ph.D. (Head of Department)	
F.A. Stanbury (Miss)	Study of the genus *Cladophora* with a view to their correct classification

2. Chemistry

A.B. Meggy, Ph.D. (Head of Department)	The structure of glycine peptides Analysis of clay minerals by the electron microscope
A.D. Boney, Ph.D.	Effects of carcinogens and biologically active compounds on growth and metabolism of marine algae (in conjunction with the Medical Research Council)
D.R. Glasson, Ph.D.	Reactivity of lime and related oxides
B.L. Tonge, Ph.D.	Synthesis of phosphorous containing peptides and related compounds Reaction of triaryl phosphite addition complexes

3. Engineering

Mechanical:

N. Morton (Head of Department)	
D.R.S. Rabley	Stress distribution in webs and journals of crank shafts using photo-elastic techniques, with special reference to fillet stresses employing scattered light method
T.H. Bouncer	Absolute calibration of vibration transducers for the measurement of displacement, velocity and acceleration

4. Pharmacy

V. Smith (Head of Department)	
E. Adams	Effect of pH on bacteriostatic and bactericidal action of crystal violet
G.E. Walster	Studies in the physiology and biochemistry of muscle in the decapod crustacean, *Maia squinado*

111 The Polytechnic, London

1. Biochemistry

C.W. Hyde (Head of Department)	
L.M. Wootton	A biochemical study of the factors inducing the production of trapping organs in nematode trapping *Hyphomycetes*

2. Botany

C.W. Hyde (Head of Department)	
C.L. Duddington, Ph.D.	Predacious fungi and their use in the control of plant-infesting nematodes Fungi inhabiting the rhizosphere

3. Chemistry

C.W. Hyde (Head of Department)	
B.E. Betts, Ph.D.	Chemistry of predacious fungi Chemistry of cyclohexane 1 : 3 diones
K.M. Johnston, Ph.D.	Some aspects of reaction mechanisms, particularly those involving free radicals

4. Engineering

Civil and Mechanical:

B. Fergusson, Ph.D. (Head of Department)	Effect of deformation at point contact on oil film thickness
R. Gohar	
W.N.C. Moore	Expansion of gas in a liquid stream Refrigeration compressor performance at increased speed
M.A. Wahhab	Evaluation of burning velocities by Schlieren method
J.A. Percival	Analysis of bond stress in reinforced concrete
D. Kinch	An investigation into the structural possibilites of sandwich fibreglass construction

Electrical:

J.H. Gridley, Ph.D. (Head of Department)	Shielding of overhead transmission lines against lightning (with special reference to scale model techniques)
R.G. Meadows	Study of mode conversion by circular waveguide components (including an investigation into helix mode filters)

5. Physics

J. Yarwood (Head of Department)	Investigation of the pumping action in cold cathode ion pumps Measurement of "accommodation coefficient" using new methods and ultra-high vacuum techniques
K.J. Close	Investigation of mechanical-type vacuum gauge Investigation of ion impact with metal surfaces using ultra-high vacuum techniques
R.M. Whittle	Measurements of thermal conductivities of irradiated liquids

6. Zoology

C.W. Hyde (Head of Department)	
B. Barrard (Mrs.)	Planktonic decapod larvae
C.O.R. Everard	Aspects of the biology of brackish water nematodes
F. Haynes	Bryophytes and their relationship to soil formation
F. Jones	Biology of the predacious *Phycomycetes* (Zoopogaes)
A.J. Juniper, Ph.D.	Intertidal fauna with special reference to Porifera, Coelenterata and Polyzoa
R.W. Webster	Economic entomology

112 Portsmouth College of Technology

1. Biology

J.W. Griffin, Ph.D. (Head of Department)	
S.C. Turner	The origin of the columella of *Rana temporaria* in relation to the hyoid arch
J.H. Price	Taxonomy of the Rhodophytan marine genus *Callithamnion*
F.R. Stranack (Miss), Ph.D.	Correlation of proximal convoluted tubule length with age in the human kidney
A.L. Martin, Ph.D.	On feeding, digestion and some aspects of food storage in Gammarids

2. Chemistry

J.W. Griffin, Ph.D. (Head of Department)	
K.F. Blurton	Study of electrode processes
M.I. Pope, Ph.D.	Absorption of vapours on solids
T.A. Crabb, Ph.D.	Investigation of indigenous natural products
D.H.D. Elias, Ph.D.	
T.A. Crabb, Ph.D.	Synthesis in the field of indole alkaloids
D.H.D. Elias, Ph.D.	Aromatic nucleophilic substitution
A.J. Vosper, Ph.D.	A study of system CO_2–H_2O–NH_3
B.J. Brisdon, Ph.D.	Non-aqueous chemistry of some transition metals

3. Engineering

Electrical:

T.McGreevy (Head of Department)	
R.H. Dadd	On-off relay servo systems, sample-data controlled
T.T. Drake	The effect of rectangular slugs of ferrite, magnetized longitudinally, in a rectangular waveguide at X-band frequencies
G.W. Hatt	Back-fire in a single-anode mercury-arc rectifier initiated by impulse voltage applied during the reverse cycle at different points of the cycle
S.W.G. Reeves	The design and construction of micromachines (alternators only) for power system studies
R. Walker	Flux penetration in the rotors of a.c. machines with solid steel rotors

Mechanical and Civil:

E.D. Rees (Head of Department)	
W.G.A. Gardner	Investigation into the comparative loads required to drive grouped and large diameter cylinder piles in a clay medium. (In collaboration with Institution of Civil Engineers and Building Research Station, D.S.I.R.)

3. Engineering *(continued)*

Mechanical and Civil (continued)

A.G. Pillidge	Investigation of the shell forces, moments and edge moments in a centrally supported hyperbolic paraboloid thin shell
J. Langdon	Research by statistical methods into the economics of road construction
J.E. Beanland	Investigation of the heat transfer to and from mercury drops falling through a constant temperature liquid field
J.O. Doley	Stresses induced in space frames by vibrations
T. Lanyon	

4. Geography

J.W. Griffin (Head of Department)	
T.H. Rawkins	A regional study of South-western Andalucia

5. Mathematics

R. Parker, Ph.D. (Head of Department)	
P.S. Haskell, M.B.E.	The enumerative geometry of triangle systems

6. Pharmacy

E. Thorpe (Head of Department)	
F. Perks, Ph.D.	Preparation of pyrrolidine derivatives as local anaesthetics
P.A. Clarke	Derivatives of pyridine as local anaesthetics
F. Perks, Ph.D.	
P.J. Russell	Conformation studies of local anaesthetics
F. Perks, Ph.D.	
W.W. Binns	Chemical investigation of *Lithospermum officinale*
F. Perks, Ph.D.	
W.W. Binns	Studies on mode of formation and manner of occurence of calcium oxalate in medicinal leaves
H. Glynn	Chemical activity of large molecules
R.W. Fox	Problems of tablet compaction

Pharmacology:

B. Livett	Pharmacological investigation of *Lithospermum*
P.J. Watson	Effect of hormones on lactation

7. Physics

R. Parker, Ph.D. (Head of Department)	The electrical properties of ferrites
D. Elwell, Ph.D.	Conduction processes in nickel ferrites
A.G. Randell	The use of ferrites at microwaves for phase shifter devices
J.G. Scane	X-ray investigation of the structure of terpenes and associated compounds

113 Robert Gordon's Technical College

1. Chemistry

M.B. Watson, Ph.D. (Head of Department)	The determination of the configurational relationships of alkyl and aryl substituted acetic acids by chemical means
G.W. Youngson, Ph.D.	
G. Buchan	
M.B. Watson, Ph.D.	The determination of the configurational relationships of alkyl and aryl substituted acetic acids by physical means
J. Towler	

1. Chemistry *(continued)*

G. Fraser	The thermal dehydration and decomposition of compounds of certain elements of the first transition series

2. Engineering

Electrical:

E. Wilkinson, Ph.D. (Head of Department)	Cathode-ray oscillograph display, for the measurement of phase angle and frequency
A.M. Hardie, Ph.D.	Investigation of a clutch-operated servomechanism using dry powder clutches
	An electronic method of finding the roots of a polynomial and simultaneously displaying its plot on the complex plane
J.C. Earls	An analogue computer study of circuits which include magnetic cores and show certain non-linearities

Mechanical:

H. Hampson (Head of Department)	Condensation on extended surfaces; effect of air-vent position, heat-load and type of extended surface
	Two-phase pressure drops in pipes (and fittings) with refrigerants circulating at -40°F, (for D.S.I.R. Torry Research Station)
	The effect of moisture on the thermal transport properties of cold-room insulation, and moisture migration in insulation
	The compression and discharge process in a C.P.T. vane-type compressor
	Design, construction and use of apparatus to determine the thermal conductivity of insulating slabs at low temperatures
	The relation between the calculated and actual performance of steam turbine engines
	The performance of an axial-flow fan
H. Hampson J.M. Corry	Condensation on extended surfaces (finned and threaded tubes)
W.M. Ogston	Convection in the insulating materials of cold rooms
J.S. Turton	Local Nusselt numbers for forced convection in a tube with given axial temperature, and the computer programming for their theoretical calculation
	Theoretical models for wall temperature variations under vapour bubbles and films and their application to determine the maximum heat flux (for Atomic Energy Authority)
	Boiling heat transfer: the maximum flux (for Atomic Energy Authority)
F. Thomson	Application of vector analysis to mechanical structures
	Investigation of the mechanical properties of granite and the use of granite in structures
R. Hosie	The influence of fluctuations on the discharge of a nozzle or orifice near critical flow conditions

3. Pharmacy

Pharmaceutical Chemistry:

D. Edwards, Ph.D. (Head of Department)	The synthesis of branched-chain quarternary ammonium compounds to be tested for ganglion-blocking and neuromuscular-blocking activity
D. Edwards, Ph.D. G.R. Page	The synthesis of long-chain bisdialkylaminoalkylα-β unsaturated sulphones to be tested for tuberculostatic activity
D. Edwards, Ph.D. G.M. Bowen (Miss)	The synthesis of aliphatic sulphides with conjugated double bonds to be tested for tuberculostatic activity
D. Edwards, Ph.D. W.H. Stewart	The synthesis of aliphatic amino-acid hydrazides to be tested for tuberculostatic activity

114 Rugby College of Engineering Technology

1. Chemistry

J.S. Wignall, Ph.D. (Head of Department)	
S.M. Peach	The study of nitrosated phenols and their application in the analytical chemistry of zirconium and hafnium

2. Crystallography

J.S. Wignall, Ph.D. (Head of Department)	
G.R. Roberts	Growth, anisotropy and plasticity studies of ferro-electric crystals

3. Engineering

Electrical:

A. Draper, M.B.E. (Head of Department)	Design and development of a primitive machine
R.W.G. Ward	Representation and simulation of active systems
W.K. Low	Commutation
C. Evans	Waveguides with non-homogeneous sections
G.J. Evans	Comparison between cross-field theory and double-revolving field theory for single-phase, squirrel-cage induction motors with deep bars
G. Bancroft	Development and construction of a high-speed oscilloscope and measuring equipment for impulse testing
R. Bourne	Accurate measurement of the components of leakage reactance of the induction motor and the effect of saturation
P.C. Hodson	Rectifier-controlled electrical machines
J. McKay	The measurement of phase difference at low frequencies
H. Rogers	Investigation of electrical breakdown along surfaces of insulating materials
K.R. Tulley	Digital circuitry

Mechanical:

W.A. Pullman, Ph.D. (Head of Department)	Non-steady gas flow in ducts
F.L. Twigg	Indicating free piston compressors
W.H. Bruck	Air cooling of high-speed spark ignition engines
D.J. Picken	Pulsating flow and turbo-charger performance
D.H. Freeston	Control of boundary layer separation of wide-angle diffusers
D.C. Chandler	High strain fatigue under torsional loads
C.G. Williams	Effects of friction on surge tank analysis
H. Cameron	Torsional vibrations on high-speed engines

4. Mathematics

Dr. J.S. Wignall (Head of Department)	
L. Haller	Stability of systems analysed by the second method of Lyapunov
J.L. Peake	Evaluation of the damage function in graphite
J. Jordan	Use of conducting techniques in the analysis of metal salts in solution
B.R. Leadbeater	Applications of the classical potential theory to cathodic protection
B.H. Rudall	Numerical methods in connection with high speed computers

5. Metallurgy

J.S. Wignall, Ph.D. (Head of Department)	
D. Tambini	Phase studies of nickel-hafnium alloys

6. Physics

J. S. Wignall, Ph.D. (Head of Department)	
E.V. Smith	Magnetic and optical properties
J. Blackshaw	Production and properties of thin ferromagnetic films

115 Rutherford College of Technology, Newcastle upon Tyne

1. Chemistry

L.H.W. Hallett (Head of Department)	
T.C. Downie, Ph.D. C.W. Goulding, Ph.D.	Electrochemistry of corrosion of aluminium
R. Hemming, Ph.D. J. Parrick, Ph.D.	Boron-nitrogen heterocyclic compounds
D. Booth, Ph.D.	Thermal decomposition in the gas phase of hydrogen peroxide
J. Rasburn	Stability of coumarinic acids
M.J.C. Williams, Ph.D.	Chemistry of α-amino-acid complexes of metals
A.B. Calder, Ph.D.	Applications of statistical methods to analytical chemistry and biometry

2. Engineering

Electrical:

D.H. Thomas (Head of Department)	Investigation of the characteristics a p-n junction when subjected to voltages causing breakdown and negative resistance characteristics in the reverse direction
D.H. Thomas A. Ritchey	Analysis of the self-oscillating junction transistor mixer
D. Vitkovitch	The use of the electrolytic tank and other devices for field plotting (including non-linear media)
R. Barnes	Construction of resistance power system analyser

Mechanical:

J.H. Bock, D.Ing. (Head of Department of Mechanical and Civil Engineering and Naval Architecture) T.D. Eastop	Experimental investigation into heat transfer through a shaft from a high tempreature heat source
J. Czekanski	Heat transfer characteristics of liquid metals in the open thermosyphon
P.J. Richards	Investigation into friction welding of tubular sections on to flat plates
J.H. Southwell	Effects of the variation in friction on the motion of machine tool slide
C.E. Stratton	Pressure and temperature distribution in a hydrodynamic oil seal film
A. Watson	The application of the Farnborough principle to new electronic indicator
K.W. Deas	Dynamic stresses in hinged beams due to impact loads

3. Mathematics

J. Pritchett (Head of Department)	
E.K. Greatrix	The application of finite difference relaxation methods to determine the free stream line boundaries in certain problems concerning the flow of very viscous fluids, (in association with the University of Sheffield)
C.A. Stewart R. Atkinson	Investigation into the factors affecting automatic control of pH in liquids

4. Physics

D.T. Turnbull, Ph.D. (Head of Department)	Optical properties of thin metal and dielectric films
R.G. Turner	
D.D. Carruthers, Ph.D.	Use of radioisotope techniques to investigate the solubility of water in hydrocarbons
G.H. Olsen	Construction and use of an electrolytic tank for studies in terrestrial magnetism
G.G. Matthews, Ph.D.	Electrical properties of semiconductors and thin metal films
C. Bingham, Ph.D.	Neutron flux measurements using a sub-critical reactor assembly

116 Salford Royal College of Advanced Technology

1. Chemistry

G.R. Ramage, Ph.D., D.Sc. (Head of Department of Chemistry and Applied Chemistry)	Khellin analogues Dihydropyranochromones
L.S. Bark	Investigation into complexes of niobium and tantalum Investigation of nitrogen heterocycles for determination of nitrites Investigation of compounds for analysis of platinium group metals Investigation of methods of determination of microgramme quantities of nitrate Some studies in the spectra of phenoxyacetic acids Investigation of the metathesis of barium sulphate and sodium carbonate in semi-micro analysis
W.E. Sharples L.S. Bark	Chromatographic investigations of a series of substituted phenoxy-acetic acids
D. Dollimore, Ph.D.	The effect of heat treatment on the surface properties of various carbon containing compounds The preparation and surface properties of silica gel The strength of brittle materials and the effect of the sorption of various gases and vapours on these strengths The strength and surface properties of compacted coal and related materials Surface properties of homogeneous precipitates Development of new apparatus to investigate surface phenomena Research into thermal decompositions of salts of various metals

1. Chemistry (*continued*)

H. Suschitzky, Ph.D.	Ionic and free radical reactions of aromatic fluorine compounds
	Oxidations of heterocyclic compounds with manganese dioxide
	Synthesis of heterocyclic systems
	Synthesis of quinoxalines and benzimidozoles
	Fluorine substituted naphthyl-hydrazines
	Fluorine substituted alkylnaphthyl-hydrazines
J. Wilkinson, Ph.D.	Effect of 250 Kv peak X-rays on nitromethane
	Radiolysis of methyl cyanide
J. Wilkinson, Ph.D. A.Dyer, Ph.D.	Investigation of the reaction between sulphur dioxide and some oxyacids of phosphorus
J. Bond (Mrs.), Ph.D.	The role of chelating agents in the initiation of polymerization
A. Davies	Biochemistry and histochemistry of chaetae formation in *Arenicola marina* with particular reference to amino-acid metabolism transaminase systems and polyphenols
M.R. Harris, Ph.D.	The surface properties of hydrolysed titania
	The influence of water pre-adsorbed on alumina, on gas adsorption, and adsorption from solution
D. Bailey	Syntheses of nitrogen heterocyclics in the azaindene series
A. Dyer, Ph.D.	The diffusion of ions and molecules into analcite with particular reference to the tracing of tritiated water
	The hindered migration of cation into chabazite including an investigation of the diffusion of the ions of rare earth elements into chabazite
P.St. J. Edwards	Culture of blue-green algae
	Microbes attacking wool
R. Whitehead	Second order perturbation theory
R. Lawson, Ph.D.	Structure and development of the vertebrae in the amphibia with special reference to intra-vertebra cartilage
P.A. Lowe, Ph.D.	Synthesis and reactions of heterocyclic diketones
	Reactions of heterocyclic diketones
	Synthesis of heterocyclic compounds
J.D. Madeley, Ph.D.	Surface properties of rutile correlated with flotation behaviour
R.W.A. Oliver	Infra-red spectra of adsorbed molecules on metal oxide surfaces
	Infra-red spectra and molecular structure correlations of organic molecules
M.J. Parr	Taxonomy and bionomics of Ceraphrontidae (*Hymenoptera parasitica*)
F. Scheinmann, Ph.D.	Synthesis of naturally occurring oxygen heterocyclic compounds
A.W. Somerville Ph.D.	Reaction of diazomethane with heterocyclic N-oxides
G.G.J. Boswell, Ph.D.	Investigation of industrially important surfaces using radio-tracer techniques
J.H. Carter, Ph.D.	Magnetochemistry
	Kinetics of inorganic reactions
P. Clarke, Ph.D.	Syntheses and properties of tetrahydroquinoxalines and pyrimidines
J.G. Heathcote, Ph.D.	Biochemistry of amino-acids
T. Henshall, Ph.D.	Catalysis by ion-exchange resins
	Physical organic chemistry
M. Huglin, Ph.D.	Solution properties of polymers
	Synthesis of co-polymers
D. Price, Ph.D.	Reaction kinetics in gas phase
	Lewis acid-base reaction studies in vapour and liquid phases

2. Engineering

Building and Civil:

W. Fitton (Head of Department)	
A Bannister I. Robb S. Howell	Behaviour of structural joints incorporating pre-loaded bolts and connections for pre-cast concrete members
A. Bannister S. Raymond B.J. Taylor	Properties of pulverized fuel ash concretes and grouts; properties of pulverized fuel ash and plaster mixtures and pulverized fuel and resin mixtures
S. Raymond W. Gemmell	Shear strength and other properties of pulverized fuel ash; pore pressure measurement techniques
F.L. Thomas G. Rhodes	Meteorological aspects of atmospheric pollution
S. Raymond	Traffic generation studies Field studies of cement-stabilized pulverized fuel ash
R.W. O'Garra A.T. Stuckey	Flow in pipe networks

Electrical:

J.H. Calderwood, Ph.D. (Head of Department)	Dielectric research Medical electronics
J.H. Calderwood, Ph.D. A.R. Cownie, Ph.D.	Human reactions to situations involving risk
W.H. Heyes	Electrical breakdown in solid dielectrics
K. C. Kao, Ph.D.	Dielectrics in high fields
S. Zoledziowski	Electrical breakdown of polluted insulators
D.F. Binns	Electrical breakdown of electronegative gases
R.G. Bennett	Relaxation in dielectrics
G.L. Gooberman, Ph.D.	Ultrasonic degradation of polymers Ultrasonic absorption of polymer solutions Ultrasonics in medical diagnosis Development of an electronic hydraulic pipe network simulator
M.D. Samain	Medical ultrasonics
B. Stuttard A.R. Hayes G.H. Tomlinson	Negative impedance regulators
R. Sharples, Ph.D. C. Golding	Commutation of d.c. machines using silicon controlled rectifiers

Mechanical:

A.W.J. Chisholm (Head of Department)	The effects of non-metallic inclusions on machinability in metal cutting Investigation of hydrostatic oil-lubricated journal bearings with particular reference to stiffness and damping characteristics A basic investigation of grinding wheel wear and its effect on the cutting properties of the wheel Dynamic behaviour of lathe spindles
G. Boothroyd	Fundamental investigation of vibratory feeders Investigation of static and dynamic characteristics of machine-tool main-spindle assemblies Investigation of the effects of temperature on tool wear in metal machining Friction in the metal-cutting process A transient method for the determination of the thermal properties of commercial steels at elevated temperatures
B. Fogg	Drawing and ironing of cylindrical cups Pressure lubrication in the re-drawing process Friction in the extrusion process

2. Engineering (*continued*)

Mechanical (*continued*)

H. Portnoy, Ph.D.	Theoretical investigations in linearized supersonic flow
F.A. Shepherd	Heat transfer, in the presence of forced and natural convection between vertical co-axial circular cylinders
P. Dransfield	Leakage rate and interaction forces experienced with moving capilliary-seals subjected to high hydraulic pressures
R.A. Jackson	The compressible discharge of air through small thick-plate orifices
W.L. Green	The performance and stability of hydraulic poppet-valves
B. Gregory	Interaction between tool and workpiece materials with particular reference to the wear of cutting tools
W.A. Gray	Thermal strains in machine-tool frames
R. Johnston	Mechanics of the finish blanking process
J.T. Henshaw	Design of a man-powered aircraft
I.G. Davies	Residual stresses in cemented carbide-tipped brazed cutting tools

3. Mathematics

E. Kerr, Ph.D. (Head of Department)	Numerical analysis
J. Ashcroft	
G.A. Wilson	
F. Walden, Ph..D	
R.A. Sack, Ph.D.	
A. Wragg	
R.A. Sack, Ph.D.	Statistical mechanics of polymers and crystals
	Mathematical methods in quantum mechanics
N.R. Scott	Computer simulation of resistance networks
D.C. Dowson	Nuclear reactor theory
B.V. Landau	Theory of textile drafting
J.S. Lowndes, Ph.D.	Integral transforms, their properties and applications
A. Wragg	Non-equilibrium theory of queues
E. Huntley	Response of slender aircraft to turbulence
B.A.L. Hart	Supersonic flow in viscous and inviscid media
J.E. Sellars	
E. Wilde, Ph.D.	Helicopter dynamics
N.R. Scott	
A. Brooks (Miss)	Nuffield research project on the use and application of mathematics in electrical engineering
A.W. Lee	
H.B. Ramsay	

4. Physics

B. Yates (Miss) (Acting Head of Department of Pure and Applied Physics)	
P. Lord, Ph.D.	Variation of internal energy losses with cross linking of chlorobutyl
	Behaviour of Helmholtz resonators at close distances from source
	The design of lightweight partitions for high noise reduction
B.W. Lowthian, Ph.D.	Investigation of properties of age-hardened aluminium alloys using internal friction and electrical resistivity measurements
J. Dollimore	Heat treatment of polymers. Study of micropore structures
	Kinematics of heat treatment of oxalate systems

4. Physics *(continued)*

A.C. Newns, Ph.D.	Diffusion processes, sorption and solution equilibria of high polymers
P. Chippindale, Ph.D.	Optical and electron microscope investigations of gramophone record wear
B. Brown, Ph.D.	Cleaning by ultrasonics

117 Scottish Woollen Technical College

1. Technology

Textile:

J.G. Martindale, Ph.D. (Principal)	The structure and properties of woollen yarns
B. Hogley	

118 Sir John Cass College

1. Botany

J.K. Spearing, Ph.D. (Head of Department)	Cytochemistry of selected Cyanophyceae
	The autecology and physiology of *Asteromyces cruciatus*
	Anatomy of members of the Stapeliad section of the Asclepiadaceae
	Cytology of various Zingiberaceae
M. Brandon-Bravo	Nucleic acids of Cyanophyceae
	Physicochemical and biological aspects of hydroseral development
P.M. Joy (Mrs.), Ph.D.	Ecological studies on algae and sulphur bacteria at Tring reservoirs
	Studies of endophytic mycorrhiza in *Glyceria maxima*
	Studies of fungi-parasitizing aphids
	Physiology of reproduction of Phycomycetes

2. Chemistry

D.W. Wilson (Head of Department)	Factors influencing crystal growth from solutions
	Formation of precipitates of uniform particle size for industrial processes
	Precipitation from homogeneous solution, with application to gravimetric analysis
	Determination of elements in organic compounds
D.B. Powell, Ph.D.	Infra-red spectroscopic studies of platinum group metal complexes
	Substitution reactions in chromium complexes
	Solid state spectra at low and elevated temperatures of compounds containing CH_3 and NH_3 groups
	Studies in infra-red spectroscopy below 400 wave numbers
D.C. Ayres, Ph.D.	Chemistry of lignans
F.H. Kendall, Ph.D.	Kinetic studies involving tritium exchange
	Synthesis of labelled indole-acetic acid and application to plant physiology
	Studies on neutron-irradiated sulphur
	Reissert reaction and exchange reaction of benzaldehyde
	Exchange reactions in substituted phenols
	Low background counting techniques
R.F.M. White, Ph.D.	Nuclear magnetic resonance spectroscopy
	Electrochemistry of strong acid-solvent systems
C.W. Crowne, Ph.D.	Solvolysis of phosphate esters
	Oxidation by anthraquinone derivatives in solution
	Gas phase decompositions

2. Chemistry (*continued*)

P.G. Farrell	Electronic spectra and structure of carbonium ions Charge transfer spectra
U. Eisner (Miss), Ph.D.	Studies of porphyrin reduction products and the reactions of some metallo-porphyrin complexes Determination of structure of a new heterocyclic ring system Study of some asaquinoxalines
J.E. Ruffhead	Infra-red spectroscopic investigation of some organo-boron compounds
P.J. Hendra, Ph.D.	Construction of infra-red spectrometer to operate beyond 250 wave numbers Infra-red spectroscopic investigation of inorganic complexes containing saturated heterocyclic ligands
K.E. Johnson, Ph.D.	Electrochemistry of oxy-anion melts. Reaction of molten salts Electronic and paramagnetic resonance spectra of molten salts and solid solutions containing transition metal ions
U. Eisner (Miss), Ph.D. H. Williams	Mechanism and kinetics of dihydropyridine rearrangements
D.C. Ayres, Ph.D. H. Williams	Methods and mechanism of reduction of organic compounds by metal hydrides
P.J. Hendra, Ph.D. D.B. Powell, Ph.D.	Metal-ligand bond strength determination by infra-red spectroscopy
D.B. Powell, Ph.D. R.F.M. White, Ph.D.	Structural studies and molecular interaction effects in inorganic systems by nuclear magnetic resonance
J.V. Westwood	Polarographic studies of nitro compounds Electrometric studies of some molecular complexes Theoretical and practical studies of vibrating electrodes Polarographic studies of metals in complexing solutions Exchange reactions involving radio-mercury

3. Geology

R.R. Skelhorn, Ph.D. (Head of Department)	Composite intrusions of the Tertiary Volcanics of N.W. Scotland and N.E. Ireland The field relationships of the various rock types within the granophyric veined quartz-dolerite of Sgurr nam Meann, Centre II, Ardnamurchan, Argyllshire The form and structure of the Beinn à Ghraig, Knock and associated ring-dykes, Mull, Argyllshire The thermal decomposition of the amphiboles with special reference to South African crocidolites and amosites
Geography:	
J.D.S. MacDougall	Sedimentation structures within the Weald Clay
T.I. Kilenyi	The evolution and ecology of Kimmeridge ostracods
J.E. Prentice, Ph.D. R.R. Skelhorn, Ph.D.	Thames Estuary: an investigation of the changes in the detailed morphology of the river bed between Woolwich and Southend, together with a study of the constituents of the sediments now forming
N.V. Pears	The present tree-line in the Cairngorms and its relation to former tree-lines

4. Mathematics

B. Spain, Ph.D. (Head of Department)	Harmonic spaces Equivalence of Christoffel symbols. Transport equation
M.G. Smith	Infinite systems of ordinary differential equations
W.P. Eames, Ph.D.	Ordering of Abelian groups Finitely additive set functions
T.J. Fletcher	Documentation of mathematical films. Stereosynthesis
E.E. Burniston	Bending and stretching of thin isotropic plates

5. Metallurgy

L L. Shreir, Ph.D. (Head of Department)	Hydrogen embrittlement of high tensile steels Electrodeposition from non-aqueous solutions Anodic oxidation of titanium in formic acid Anodic behaviour of nickel in sulphide-containing solutions Stress in electrodeposits
E.J. Easterbrook	Sulphide capacities of $MnO + Al_2O_3$ and $MnO + SiO_2 + Al_2O_3$ MnO activities in silicate melts of the type $MnO + MgO + SiO_2$, $MnO + SiO_2$ and $CaO + MnO + SiO_2$
P. Hardaker	Oxidation and growth resistance of alloy cast irons
M. Perry	Theory and determination of heats of formation in certain transition metal alloys Study of factors affecting structural deformation of aluminium

6. Physics

A. Suddaby, Ph.D. (Head of Department)	Molecular theory of liquids Statistical theory of irreversibility
J.V. Champion, Ph.D.	Anistropy of flow of liquids
A.E. Kiss	Techniques of X-ray detection Soft X-ray spectroscopy Scintillation processes
J.A. Pryde, Ph.D.	Structure of thin metallic films deposited under ultra-high vacuum
J. Goddard, Ph.D.	Surface structure, friction and wear of solids Magnetic properties of thin films
J.B. Ramage (Miss), Ph.D.	Microtopography of diamond surfaces
W.G.P. Lamb, Ph.D.	Analogue computing methods, applied to problems in liquid theory

7. Zoology

J.K. Spearing, Ph.D. (Head of Department)	
J. Rzoska, D.Phil.	Plankton of River Nile Biology of Crustacea in Tring reservoirs Plankton distribution under influence of water movements in Metropolitan water reservoirs
D.M. Duval (Miss), Ph.D.	Anatomy of lamellibranch siphons
W.D. Broughton	Communication behaviour of grasshoppers Factors controlling aggregation and dispersal in aphids Feeding behaviour and associated morphology of scorpion flies (Mecoptera, Panorpidae)
W.N. Bonner	Population dynamics of Southern elephant seal in South Georgia Recolonization of Scotia arc by *Arctocephalus tropicalis gazella* (fur seal)

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1. Biology

J. Ratcliffe (Head of Department of Chemistry and Biology)	
G.E. Beedham, Ph.D.	Structure, function and secretions of the shell of lamellibranch molluscs

1. Biology *(continued)*

P. J. Baron	The helminth parasites of Passeriforme birds
D. Hide, Ph.D.	Nutritional studies on Phycomycetes and dermatophytes
W.A. Stevens	Effect of virus infection on the nitrogen metabolism of higher plants

2. Chemistry

J. Ratcliffe (Head of Department of Chemistry and Biology)	Substitution processes in organic chemistry. Hydrolysis by ion exchange resins of amides Corrosion of mild steel by controlled atmospheres
P. Heath	Complexes of Group 8 metals
K.A.J. Sugars, Ph.D.	Separation of rare earths Application of ion exchange resins
A.A. Zimmerman	Thin metallic films and their properties

3. Physics

H.S. Barlow (Head of Department)	
J. Blackie, Ph.D.	Measurement of refractive indices of gases available in small quantities. Interferometric examination of hardness indentations

120 South-West Essex Technical College

1. Biochemistry

S. Lewin, Ph.D. (Head of Department)	Interaction of amino-acids with aldoses and phosphoaldoses, by electrometric, paper chromatographic and ionophoretic methods Reduction of oxidation-reduction indicators by amino-acid-aldose complexes, using simultaneous redox e.m.f. and absorptiometric determinations Interactions of acid imino groups and acid sulphydryl groups with formaldehyde and aldoses Interactions of nucleic acids and their components with formaldehyde The action of urea and guanidine on DNA and RNA Polynucleotide synthesis Polynucleotide-protein interactions Protein synthesis

2. Chemistry

Inorganic:

S. Lewin, Ph.D. (Head of Department)	
R.D. Langstaff	Corrosion of metals
A.G. Swallow, Ph.D.	The determination of the atomic positions in dibenzyldithio-ethylene complexes of copper using X-ray diffraction techniques

Organic:

S. Lewin, Ph.D. (Head of Department)	
T.J. Willcox, Ph.D.	The synthesis of indolocarbazoles, and the reactions of benzylidene dihalides

3. Physics

S. Lewin, Ph.D. (Head of Department)

T.A. Lee, Ph.D. — The development of equipment for measuring the performance of anti-vibration mountings

4. Zoology

S. Lewin, Ph.D. (Head of Department)

V.A.P. Harris, Ph.D. — Histological survey of nuchal crest tissue in lower vertebrates

Methods of studying the dynamics of blood circulation in lower vertebrates

121 Sunderland Technical College

1. Chemistry

E.P. Hart, Ph.D. (Head of Department)

N. Ferry — Physical measurements of organic compounds

D. Hall, Ph.D. — X-ray fluorescence

W.R. Longworth, Ph.D. — Cationic polymerization of styrene

2. Engineering

Civil:

F. Bettess (Head of Department) — Investigation of the behaviour of a compound rectangular weir

B. Archer

E. Litton — Design investigations in structural steelwork using the electronic digital computer

J.D. Clarke — Methods of stabilizing calcined colliery shale and a quantitative assessment of the results

Electrical:

A.H. Langley, Ph.D. (Head of Department)

E.A. Freeman, Ph.D. — Investigation of the use of digital techniques for function generation in analogue machines

A study of the effects of the non-linear characteristics on the performance of pneumatic controllers and their influence on process control system design

An investigation into the controlability of non-linear distributed parameter processes, with particular reference to a glass temperature control problem

A study of a non-linear technique for stabilizing relay servo-mechanisms

An investigation into a delay circuit suitable for an analogue computer

An analogue computer study of certain non-linear control systems

Mechanical:

D. Tagg (Head of Department)

G. Alderson — Investigation of crankshaft deflections

F. Bennison — An investigation of discharge coefficients for branched manifold systems

2. Engineering (*continued*)

Mechanical (continued)

J. Lockey	An investigation into the viscosity of industrially important gases and gas mixtures at elevated temperatures and pressures
N. Maw	An investigation into the effect of non-concentricity on the flow of air through an annular space under viscous and turbulent conditions
B. McNaughton	Heat transfer between a flat plate and impinging oil jets and mists

Naval Architecture:

D.B. Lynch (Head of Department)	Design of ship's masts and derricks

3. Geology

F. Rylance (Head of Department)	
W. Layton, Ph.D.	The mineralogy, classification and occurence of the amphiboles
	The structure and classification of zeolites

4. Mathematics

J.F. Reed (Head of Department)	Non-linear differential equations
J. Ogden	The application of a digital computer to numerical analysis
J.S. Roper	Application of the digital computer to the solution of engineering problems

5. Pharmacy

F.H. Oliver (Head of Department)	
W.G. Smith, Ph.D.	Pathological significance of slow reacting substance of anaphylaxis
R. Atkinson	Anaphylaxis and lipid metabolism
A. Firth	Purine derivatives and anaphylaxis
P. Goadby	Anti-inflammatory agents in anaphylaxis
D.G. Wibberley, Ph.D.	Oxidative and reductive cyclization
R.T. Coutts, Ph.D.	Reductive cyclisations
M. Hooper, Ph.D.	Isatogens and anthranils derivatives
D.G. Wibberley, Ph.D.	Halogenomethyl pyridines, indolizines and isatogens
D.R. Bragg	Pyridylacetic esters and indolizines
J. Lewis, Ph.D.	Sterols related to ergosterol
J. Lewis, Ph.D.	Structure activity relationships in griseofulvin type of antibiotic
J.A. Vickers	Chemistry and anatomy of *Uncaria gambier*
B.P. Jackson (Miss), Ph.D.	Anatomy of roots of certain species of *Datura*
	Phytochemical and anatomical studies on certain rutin-producing plants
C. Jackson, Ph.D.	Electron spin resonance

6. Physics

K.E. Pattinson (Head of Department)	
J.L. Clark, Ph.D.	Onset of high-frequency electrical breakdown in gases at low temperatures
	The physics of the thyratron
J.R. Kirkman, Ph.D.	Space-charge limited currents in insulating crystals
S. Wilks	Measurement of the helicity of the anti-neutrino
J.H. Harris	Electrical properties of sea mist

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1. Chemistry

A.H. Henson (Head of Department)	
B. Ellis	Vulcanization of rubber; polymer analysis
P.J.F. Griffiths	X-ray crystallography: cinchona alkaloids
R. Williams	Uptake of radioisotopes by simple plants
R.E. Hughes, Ph.D.	Vitamin C deficiency
J.R. Evans	
B.C. Cox, Ph.D.	Electron impact studies; polymer analysis
J.D.R. Thomas	Peat chemistry
A.H. James (Mrs.)	Study of Epicocci
G.S. Park, Ph.D.	Diffusion in polymers

2. Engineering

R.W. Steed, Ph.D. (Head of Department)	
W.S. Down	Investigation, using models, of the reaction forces on furnace injector nozzles
K.F. Martin	Torque characteristics of a solid-plate magnetic clutch
J. Richards	Distortion and stresses in short cylindrical shells with symmetrical and skew loading
A. Slater	Design of machine tool elements
A.F. Radford	Friction welding
L. France	Stability of water-bearing sand at tunnel face
D. Fitzgeorge	Air induction in a compression-ignition engine
Electrical:	
C.T. Baldwin (Head of Department)	
G. Griffiths	Variable frequency/constant frequency converter systems
V. Cook	Transient response of power systems
D.M. German	Transient response of machine windings

3. Industrial Economics

J.E. Cule (Head of Department of Commerce)	
T.M. Hodges	Research into occupational structure of Welsh manufacturing industry
T. Boyce	
G.P. Crawley	

4. Mathematics

N.D. Hayes, Ph.D. (Head of Department)	Application of digital computing to engineering problems

5. Pharmacy

R.V. Lloyd (Head of Department)	
P.J. Nicholls, Ph.D.	Cotton dust and other plant dusts in relation to byssinosis
P.J. Nicholls, Ph.D.	Pharmacology and biochemistry of glutarimides
D. Allcock	
V. Askam, Ph.D.	Macrocyclic compounds related to steroid hormones
D. Bailey	

5. Pharmacy *(continued)*

V. Askam, Ph.D. M. Barr	The synthesis of hydroxylated sulphones and other antibacterials
H.J. Smith, Ph.D. D.J. Ringshaw	Synthetic studies of rotenoids
H. Williams	Action of basis on chloroform
H.J. Smith, Ph.D. M. Davies	Synthesis of 2 : 2-dimethylchromenes which may have physiological activity
H.J. Smith, Ph.D. E. Brierley	Estimation of the biologically active constituents of derris
I.H. Harrison K.C. James	Conductivity of emulsions
K.C. James	Mechanism of decarbonylation and related reactions
K.C. James M. Rees	Some physical properties of testosterone esters
A.D. Russell, Ph.D.	Studies on the action of penicillin.
T. Turner	Histological and phytochemical studies of members of the family Euphorbiaceae
V. Askam, Ph.D. H.J. Smith, Ph.D.	Chemical transformations in glycyrrhetic acid
V. Askam, Ph.D. H.L. Deeks	Medicinal sulphonamides
H.J. Smith, Ph.D. E. Brierley	Estimation of the biologically active constituents of derris
K.C. James C. Beynon	Kinetic studies in the decomposition of salicylates
I. Thomas, Ph.D. M. Davies	Kinetic studies on the hydrolysis of esters of possible medicinal application
A.D. Russell, Ph.D. R.V. John	Antibacterial action of amino-acids
A.D. Russell, Ph.D. M. Hundlesby	Action of phenols against spores
T. Turner J.A. Gatheridge	An investigation of the antibacterial action of essential oils
T. Turner G.C. Toms	Studies in *Phaseolus* spp.

6. Physics

J.R. Bristow, Ph.D. (Head of Department) B.L. Rees	Electron microscopy : dislocations in layer structures and decomposition due to the electron beam
B. Thomas, Ph.D.	Radiation damage in magnesium oxide
J.E. Aubrey, Ph.D.	Low temperature physics : microwave properties of solids
S.D. Probert	Low temperature physics : transport phenomena, effect of pressure on thermal and electrical conductivity
L.C. Morrison	The nature of space perception

123 West Ham College of Technology

1. Chemistry

F.L. Allen, Ph.D. (Head of Department)	Synthesis of fluorine-subsituted heterocyclic compounds
G.V. Boyd, Ph.D.	New homocyclic and heterocyclic aromatic systems
D.L. Marshall	Gas chromatography of thermally unstable compounds
R.A. Tingey	Interactions of organo-phosphorus compounds with boron halides
R.H. McDougall, Ph.D.	Heterocyclic analogues of non-benzoid aromatics

1. Chemistry *(continued)*

R.M.W. Rickett, Ph.D.	Ultra-violet and polarographic study of purines and pyrimidines
J.A. Sandbach	Interaction of hydrogen halides with organic solvents
A. Powell	Viscometric study of polymers
G.B. Ansell	X-ray study of phosphonitrilic compounds

2. Engineering

Civil:

F.C. Scott (Head of Department of Civil and Mechanical Engineering)	
H.I. Milnthorpe	General investigation into the properties of concrete mix design with particular reference to: workability as indicated by V.B. consistometer; segregation; optimum course aggregate content; high strength

3. Mathematics

N.T. Bloomer, Ph.D. (Head of Department)	Statistics of metal fatigue failures

4. Physics

W.F. Williams, Ph.D. (Head of Department)	Behaviour of ortho-positronium in gases and liquids
J. Bor J. Przybylski, Ph.D.	Optical properties of (a) evaporated films of the noble metals, lithium, germanium, silicon and indium antimonide, (b) single crystals and alloys
	Explanation of these properties in terms of the free electron and band theones
	Faraday rotation of fused quartz in the U.V.
	Investigation of oxidation and ageing of surfaces by polarized light technique
L.D. Brown	Investigation of coupling and mode of action between air column and transverse mouth of an organ pipe
M.J. Gregory	X-ray investigation of the structure of intermetallic and inorganic compounds
P. Dye	Investigation of the defect structure of single crystals of sodium chloride from measurements of their mechanical, electrical and optical properties

124 Woolwich Polytechnic

1. Biology

C.S. Wood-Baker, Ph.D. (Lecturer-in-Charge)	Variation in *Dactynotus* (D.) *obscurus* (Koch) (Hem. Aphidoidea)
	Variation in *Dactynotus* (D.) *hypochoeridis* H.R.L. and *D.* (*D.*) *cichorii*(Kalt.)
	Records of ants (Hym. Formicoidea) associated with aphids (Hem. Aphidoidea)
	Records of gall-midges (Dipt. cecidomyiidae) predacious on aphids (Hem. Aphidoidea) in Britain
	Records of British aphids (Hem. Aphidoidea)
G.M. Brown	Contributions to a Flora of Kent
L.H. Williams, Ph.D.	Work on behaviour and feeding of sphingid larvae (Lepidoptera, Sphingidae)

2. Chemistry

A.I. Vogel, D.Sc. (Head of Department)	Instrumental methods in chemistry Researches in analytical chemistry
A.I. Vogel, D.Sc. G.H. Jeffrey, Ph.D. D.W. Andrews	Physical properties and chemical constitution
A.I. Vogel, D.Sc. G.H. Jeffrey, Ph.D. C.P. Albon	Large ring compounds
C.W.N. Cumper, Ph.D. D.J. Bullock J.F. Read	Dipole moments and chemical constitution
C.W.N. Cumper, Ph.D. A. Melnikoff	Applications of microwave measurements in chemistry
C.W.N. Cumper, Ph.D. L. Blight	Aspects of surface chemistry
S.R. Landor, Ph.D. B. Demetriou R.J.D. Evans D.K. Black P. F. Whiter C.S.L. Baker	Acetylenic and allene chemistry
P.D. Landor (Mrs.), Ph.D. E.S. Pepper	Allenic antibiotics
J. Bassett	Complexometric titrations. Potentiometric titrations
G.B. Leton	Thermogravimetric analysis and new organic reagents in analysis
D.J. Morantz, Ph.D. G.W. White A.J. Wright M.A. Sterne	Studies on trapped radicals; kinetics of transients in photoexcited chlorophyll and transition metal complexes; stimulated emission of light
A.R. Tatchell, Ph.D.	Investigation of acetals and ketals of monosaccharides Investigation of N-arylglycosylamines
P.W.G. Smith, Ph.D.	Reduced pyridine ring systems
P.W.G. Smith, Ph.D. A.W. Miller	Amino-acids and peptides
J.T. Chamberlain, Ph.D.	Interaction of phenols with alkyl nitrites
H.A. Glastonbury	Studies in polarography

3. Engineering

Civil, Mechanical and Production:

H. Heywood, D.Sc., Ph.D. (Principal) J. Walker (Head of Department)	Incidence of solar radiation on surfaces at various attitude
B.J. Jeffery	Measurement of pulsating gas flow by sharp-edged orifices
K.R. Knowles	Stress analysis of a multi-cell tube under torsion
A.G. Burne	Performance of aluminium wire ropes under bending stress reversal
R.G.S. Smart	The movement of rainwater to the water-table and the effect of vegetation on this movement
V.D. Naylor	Vibration with special reference to the mechanism of decay
G. Hassan	Thermal characteristics of flat plate solar heat collectors
G.E. Cheetham	Failure of light alloy, battened, struts
A.T. Hawkins	Effect of shear on the behaviour of a plastic hinge formed in a reinforced concrete member
J. Dewhurst	Thermoelectric generation using solar heat source

3. Engineering *(continued)*

Electrical:

G.F. Freeman (Head of Department)	Relaxation studies
D. Griffiths	Studies of sub-transients
S. Robinson	Flux leakage fields of low value
K. Pandya	Harmonics in rectifier-capacitor circuits
I.L. Stefani	Application of matrices

4. Mathematics

D.E.R. Godfrey, Ph.D. (Head of Department)	Two-dimensional problems of elasticity and plasticity
C.H. Sefton	The dynamics of the tropical cyclone
K. Pitman	Use of computer in solving hyperbolic and elliptic partial differential equations
G.C. Stalker	Use of computer in solving parabolic partial differential equations
J.I. Sonn	Analysis of systems by analogue computer
A.J. Goody	Stability of rotating fluids
D.S. Bone	Analysis of elastic shells
J. Abram	Tensor calculus applied to mechanics of continuous media and general relativity
E.G. Shalders	Use of computer in statistical problems
J.M. Dubbey	Topics in the history of mathematics
G.A. Read	Overconvergence of Taylor series
M.E. O'Neill	Non-axisymmetric motion of a liquid generated by the movement of spheres
A. Graham	Network synthesis by numerical means
D.J. Fyfe	Numerical solution of ordinary differential equations
B. Knight	Transform methods in quantum mechanics

5. Physics and Telecommunications

D.H. Smith, Ph.D. (Head of Department)	Measurement of velocity of sound in gases and the principal specific heats of gases
K.B. Reed	Problems in the measurement of electrical noise
T.D. Beynon	Neutron flux in UR238 in electrons
P.R. Pallister, Ph.D.	Specific heat of metals
J.L. Williams, Ph.D.	Solid-state low-drift amplifiers

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Printed in England for Her Majesty's Stationery Office by
Henry Blacklock & Co. Ltd., Manchester, 8

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