UNIVERSAL
LIBRARY
OU_166264
UNIVERSAL
LIBRARY

OSMANIA UNIVERSITY LIBRARY

Call No 507.2 G78 S Accession No. G-12236

Author Gt. Britain. Scientific and Industrial Research Dept.

Title Scientific research in British universities and colleges 1961-62

This book should be returned on or before the date last marked below.

DEPARTMENT OF
SCIENTIFIC AND INDUSTRIAL RESEARCH

Scientific Research in British Universities and Colleges 1961-62

LONDON
HER MAJESTY'S STATIONERY OFFICE

Price £1 12*s.* 6*d. net*

1962

Contents

	Page
Introduction	v
List of Universities	vii
List of Colleges of Technology . .	xiv
Research Work in Universities . .	1
Research Work in Colleges of Technology	394
Name Index	455
Index of Subject Headings used in Text	539
Subject Index	544

Introduction

THIS volume provides brief notes on scientific research in progress in British universities, university colleges and associated institutions during the academic year 1961–62. For the first time this edition also lists research being carried out in colleges of advanced technology, national colleges and regional technical colleges in England and Wales, and equivalent colleges in Scotland and Northern Ireland. 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 now 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–xvi. The numbered sections within each organization are arranged alphabetically by subject and an index of the subject headings used has been inserted before the detailed subject index. The work of each department or administrative group has been kept together as far as possible but has been entered under the appropriate conforming subject heading. However, certain ambiguities and illogicalities are regrettably inevitable in this method of arrangement. Alternative arrangements for future editions are under consideration. The numbers quoted in the name and detailed subject indexes refer to the institution and subject concerned—in that order, e.g. 5–3, Cambridge, Anthropology.

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.

For the sake of convenience the colleges are listed separately from the universities at the end of the volume, but 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.

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 arrangement with the British Council. As in previous years the material for the universities, colleges and other institutions has been collected by the British Council from the heads of departments, who alone are responsible for the entries. The material for the technical colleges 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
April, 1962

List of Universities

Code No. *Page*

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

2 **Belfast: Queen's University** 7
Belfast, Northern Ireland.
Telephone: Belfast 30111

3 **Birmingham University** 16
Edgbaston, Birmingham 15.
Telephone: Selly Oak 1301

4 **Bristol University** 35
Bristol 8.
Telephone: Bristol 24161

5 **Cambridge University** 47
Cambridge.
Telephone: Cambridge 58933

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

6 Durham Colleges 64
Telephone: Durham 2233–4

7 King's College, Newcastle upon Tyne 67
Telephone: Newcastle upon Tyne 28511

8 **Edinburgh University** 82
Edinburgh, Scotland.
Telephone: Edinburgh 41001

9 **Exeter University** 96
Exeter.
Telephone: Exeter 71911

Code No. *Page*

10 Glasgow University 99
Glasgow W.2., Scotland.
Telephone: Glasgow, Kelvin 2231

11 Glasgow: Royal College of Science and Technology . . . 113
George Street, Glasgow C.1.
Telephone: Bell 4400-9

12 Hull University 118
Hull, England.
Telephone: Hull 18960

Keele University, *see* North Staffordshire University College

13 Leeds University 121
Leeds 2.
Telephone: Leeds 31751

14 Leicester University 138
University Road, Leicester.
Telephone: Leicester 24211

15 Liverpool University 141
Brownlow Hill, Liverpool 3.
Telephone: Royal 6022

16 Liverpool School of Tropical Medicine 154
Pembroke Place, Liverpool 3
Telephone: Royal 7611

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

Colleges

17 Bedford College 155
Regent's Park, London, N.W.1.
Telephone: Welbeck 5743

Code No. *Page*

18 Birkbeck College 157
Malet Street, London, W.C.1.
Telephone: Langham 7941

19 Imperial College of Science and Technology 161
Prince Consort Road, London, S.W.7.
Telephone: Kensington 5111

20 King's College 181
Strand, London, W.C.2.
Telephone: Temple Bar 5454

21 Queen Elizabeth College 185
61-67 Campden Hill Road, London, W.8.
Telephone: Western 3704

22 Queen Mary College 187
Mile End Road, London, E.1.
Telephone: Advance 4811

23 Royal Holloway College 191
Englefield Green, Surrey.
Telephone: Egham 3751

24 Royal Veterinary College 192
Royal College Street, London, N.W.1.
Telephone: Euston 5321

25 School of Pharmacy 194
29-39 Brunswick Square, London, W.C.1.
Telephone: Terminus 7651

26 University College 196
Gower Street, London, W.C.1.
Telephone: Euston 7050

27 Westfield College 205
Kidderpore Avenue, London, N.W.3.
Telephone: Hampstead 7601

Code No. *Page*

28 Wye College 205
Ashford, Kent.
Telephone: Wye 401

Medical Colleges, Schools and Institutes

29 Charing Cross Hospital Medical School 207
62-65 Chandos Place, London, W.C.2.
Telephone: Temple Bar 0581-4, 5256–9

30 Guy's Hospital Medical School 210
St. Thomas's Street, London, S.E.1.
Telephone: Hop 7600

31 Institute of Basic Medical Sciences 216
Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.
Telephone: Holborn 3474

32 Institute of Cancer Research. 217
Royal Cancer Hospital, Fulham Road, London, S.W.3.
Telephone: Flaxman 8171

33 Institute of Cardiology 221
35 Wimpole Street, London, W.1.
Telephone: Welbeck 1896

34 Institute of Child Health 222
The Hospital for Sick Children, Great Ormond Street, London, W.C.1.
Telephone: Holborn 2196

35 Institute of Dental Surgery 224
Eastman Dental Hospital, Gray's Inn Road, London, W.C.2.
Telephone: Terminus 7251

36 Institute of Dermatology. 226
St. John's Hospital for Diseases of the Skin, Lisle Street, London, W.C.2.
Telephone: Gerrard 8383

Code No. *Page*

37 Institute of Diseases of the Chest 228
Brompton Hospital, London, S.W.3.
Telephone: Flaxman 3707

38 Institute of Laryngology and Otology 228
Royal National Throat, Nose and Ear Hospital, Gray's Inn Road, London, W.C.1.
Telephone: Terminus 8855

39 Institute of Neurology 230
National Hospital, Queen Square, London, W.C.1.
Telephone: Terminus 3611

40 Institute of Obstetrics and Gynaecology 234
The Chelsea Hospital for Women, Dovehouse Street, London, S.W.3.
Telephone: Flaxman 9509

41 Institute of Ophthalmology 237
Judd Street, London, W.C.1.
Telephone: Euston 9621

42 Institute of Orthopaedics 240
Royal National Orthopaedic Hospital, Great Portland Street, London, W.1.
Telephone: Euston 5070

43 Institute of Psychiatry 241
Maudsley Hospital, Denmark Hill, London, S.E.5.
Telephone: Rodney 6333

44 Institute of Urology 243
10 Henrietta Street, London, W.C.2.
Telephone: Temple Bar 5361

45 King's College Hospital Medical School 244
Denmark Hill, London, S.E. 5.
Telephone: Brixton 8661

46 Lister Institute of Preventive Medicine 248
Chelsea Bridge Road, London, S.W.1.
Telephone: Sloane 2181

Code No. *Page*

47 London Hospital Medical College 250
Turner Street, London, E.1.
Telephone: Bishopsgate 0644-8

48 London School of Hygiene and Tropical Medicine . . . 255
Keppel Street, London, W.C.1.
Telephone: Museum 3041, Langham 7621

49 Middlesex Hospital Medical School 259
Mortimer Street, London, W.1.
Telephone: Museum 8333

50 Postgraduate Medical School of London 263
Ducane Road, London, W.12.
Telephone: Shepherd's Bush 2030

51 Royal Dental Hospital of London School of Dental Surgery 266
32 Leicester Square, London, W.C.2.
Telephone: Whitehall 6427

52 Royal Free Hospital School of Medicine 267
Hunter Street, Brunswick Square, London, W.C.1.
Telephone: Terminus 5385

53 St. Bartholomew's Hospital Medical College 272
West Smithfield, London, E.C.1.
Telephone: Monarch 7404

54 St. George's Hospital Medical School 280
Hyde Park Corner, London, S.W.1.
Telephone: Belgravia 1716

55 St. Mary's Hospital Medical School 283
Norfolk Place, London, W.2.
Telephone: Paddington 3612

56 St. Thomas's Hospital Medical School 286
Albert Embankment, London, S.E.1.
Telephone: Waterloo 5656, exts. 23 and 356

Code No. *Page*

57 University College Hospital Medical School 288
University Street, London, W.C.1.
Telephone: Euston 5861.

58 Westminster Medical School. 290
Horseferry Road, London, S.W.1.
Telephone: Victoria 6041-2

59 **Manchester University** 292
Oxford Road, Manchester 13.
Telephone: Manchester, Ardwick 3333

60 **Manchester College of Science and Technology** 307
Sackville Street, Manchester, 1.
Telephone: Manchester, Central 3266

61 **North Staffordshire University College** 316
Keele, Staffordshire.
Telephone: Keele Park 371

62 **Nottingham University** 318
University Park, Nottingham.
Telephone: Nottingham 45511

63 **Oxford University** 326
Oxford.
Telephone: Oxford 48491

64 **Reading University** 342
Reading, Berkshire.
Telephone: Reading 81771

65 National Institute for Research in Dairying 347
Shinfield, Reading.
Telephone: Reading 83103.

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

66 St. Salvator's College, St. Andrews 349
Telephone: St. Andrews 1211

Code No. *Page*

67 Queen's College, Dundee. 352
Telephone: Dundee 22631

68 **Sheffield University** 357
Sheffield 10.
Telephone: Sheffield 27451

69 **Southampton University** 369
Highfield, Southampton.
Telephone: Southampton 54071

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

70 University College of Wales, Aberystwyth 374
Telephone: Aberystwyth 346-8

71 University College of Wales, Aberystwyth: Welsh Plant Breeding Station 378
Plas Gogerddan, Bow Street,
Aberystwyth.
Telephone: Bow Street 255-7.

72 University College of North Wales, Bangor 380
Telephone: Bangor 2501

73 University College of South Wales and Monmouthshire, Cardiff 383
Cathays Park, Cardiff.
Telephone: Cardiff 20781

74 University College of Swansea 387
Singleton Park, Swansea.
Telephone: Swansea 56172

75 The Welsh National School of Medicine, Cardiff 391
34 Newport Road, Cardiff.
Telephone: Cardiff 28434

List of Colleges of Technology

Code No.		*Page*
76	**Battersea College of Technology** Battersea Park Road, S.W.11. *Telephone:* Macaulay 9191	394
77	**Birmingham College of Advanced Technology** Gosta Green, Birmingham, 4. *Telephone:* Aston Cross 3611	398
78	**Borough Polytechnic** Borough Road, S.E.1. *Telephone:* Waterloo 7654	400
79	**Bradford Institute of Technology** Great Horton Road, Bradford, 7. *Telephone:* Bradford 28837	402
80	**Brighton Technical College** Richmond Terrace, Brighton, 7. *Telephone:* Brighton 66544–5	407
81	**Bristol College of Science and Technology** Ashley Down, Bristol, 7. *Telephone:* Bristol 41241	408
82	**Brixton School of Building** Ferndale Road, S.W.4. *Telephone:* Brixton 0944	410
83	**Brunel College of Technology** Woodlands Avenue, Acton, W.3. *Telephone:* Acorn 6661	410
84	**Chelsea College of Science and Technology** Manresa Road, S.W.3. *Telephone:* Flaxman 5747	413
85	**The College of Aeronautics, Cranfield** Cranfield, Bletchley, Bucks. *Telephone:* Cranfield 321	417
86	**The College of Aeronautics, Cranfield.—Advanced School of Automobile Engineering** Cranfield:— *Telephone:* Cranfield 321	419
87	**College of Technology, Belfast** Belfast, Northern Ireland *Telephone:* Belfast 27244	420
88	**Dundee Institute of Art and Technology** 40, Bell Street, Dundee, Angus. *Telephone:* Dundee 27225–6–7	420

Code No. *Page*

89 **Glamorgan College of Technology** 420
Llantwit Road, Treforest.
Telephone: Pontypridd 3050, 3059

90 **Heriot-Watt College, Edinburgh** 421
Chambers Street, Edinburgh, 1.
Telephone: Caledonian 7121

91 **Huddersfield College of Technology** 422
Queen Street South, Huddersfield, Yorks.
Telephone: Huddersfield 7701–10

92 **Kingston-upon-Thames Technical College** 423
Fassett Road, Kingston-upon-Thames, Surrey.
Telephone: Kingston 1204–5

93 **Leicester College of Technology and Commerce** . . . 423
The Newarke, Leicester.
Telephone: Leicester 23171

94 **Liverpool College of Technology** 425
Byrom Street, Liverpool.
Telephone: North 0558

95 **Loughborough College of Technology** 426
Loughborough, Leicestershire.
Telephone: Loughborough 4428

96 **National College for Heating, Ventilating, Refrigeration and Fan Engineering** 428
Borough Polytechnic, Borough Road, S.E.1.
Telephone: Waterloo 7654

97 **National College of Food Technology** 429
St George's Avenue, Weybridge, Surrey
Telephone: Weybridge 3991

98 **National College of Rubber Technology** 429
Northern Polytechnic, Holloway Road, N.7.
Telephone: North 1686

99 **National Foundry College** 430
Stafford Street, Wolverhampton, Staffordshire.
Telephone: Wolverhampton 23955

100 **National Leathersellers College** 430
Tower Bridge Road, Bermondsey, S.E.1.
Telephone: Hop 2544

101 **Northampton College of Advanced Technology** 430
St. John Street, E.C.1.
Telephone: Clerkenwell 7521–5

102 **Northern Polytechnic** 433
Holloway, N.7.
Telephone: North 1686

Code No. *Page*

103 **North Staffordshire College of Technology** 434
College Road, Stoke-on-Trent.
Telephone: Stoke-on-Trent 48655

104 **Nottingham and District Technical College** 435
Burton Street, Nottingham.
Telephone: Nottingham 48248

105 **Paisley Technical College** 438
3, County Place, Paisley, Renfrewshire.
Telephone: Paisley 6111

106 **Plymouth and Devonport Technical College** 438
Tavistock Road, Plymouth.
Telephone: Plymouth 61169

107 **The Polytechnic, London** 439
Regent Street, W.1.
Telephone: Langham 2020

108 **Portsmouth College of Technology** 440
Park Road, Portsmouth.
Telephone: Portsmouth 26923

109 **Rugby College of Engineering Technology** 441
Eastlands, Rugby, Warwickshire.
Telephone: Rugby 4601–2

110 **Salford Royal College of Advanced Technology** . . . 442
Salford, Lancs.
Telephone: Pendleton 5343

111 **Scottish Woollen Technical College** 446
Galashiels, Selkirkshire.
Telephone: Galashiels 2327

112 **Sir John Cass College** 446
Jewry Street, E.C.3.
Telephone: Royal 8321

113 **Sunderland Technical College** 448
Green Terrace, Sunderland.
Telephone: Sunderland 4447

114 **Welsh College of Advanced Technology** 450
Cathays Park, Cardiff.
Telephone: Cardiff 31546-8

115 **West Ham College of Technology** 452
Romford Road, London, E.15.
Telephone: Maryland 4545

116 **Woolwich Polytechnic** 452
Thomas Street, Woolwich, S.E.18.
Telephone: Woolwich 2856

Research Work in 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

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
G.F. Hamilton	Anthropology of N.E. Scotland
J. McKenzie, M.D.	Congenital abnormalities of head and neck and skeleton
A. D. Dickson, M.D.	Congenital deaf-mutism
A. G. D. Whyte, C.B.E.	Histology and histochemistry of the hairy and non-hairy skin
	Histological, histochemical and ultrastructural changes in explanted chick embryos after the application of metabolic inhibitors
	Effect of cortisone on developing tissues
	Experimental embryonic induction
	Development and histochemistry of female genital tract
	Histochemistry of placentation
	Implantation
	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
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

Agricultural:

H. A. Robertson, Ph.D.	Endocrinology in relation to reproductive processes
	Purification and biological assay 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., and colleagues	Kinetics of polymerization and oxidation Solution properties of high polymers Inorganic polymers
P. Meares, Ph.D., D.Sc., and colleagues	Diffusion of ions through polyelectrolyte membranes Diffusion of gases through polymers in the transition region
H.F.W. Taylor, Ph.D., D.Sc., and colleagues	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

Organic:

R. H. Thomson, D.Sc., Ph.D., and colleagues	The chemistry of natural colouring matters. Free radical reactions in solution
O.C. Musgrave, Ph.D., and colleagues	Organo-boron chemistry: aromatic chemistry
D.R. Hogg, Ph.D., and colleagues	The chemistry of sulphenyl halides and related kinetic studies
K.C.B. Wilkie, Ph.D., and colleagues	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. Matthew	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 A. Coull	Analytical and experimental studies of reinforced and pre-stressed concrete and of other structural members
H. Hampson W.M. Ogston J. S. Turton	Heat transfer; condensation of vapours on tubes with extended surfaces
E. Wilkinson, Ph.D. A.M. Hardie, Ph.D. J. C. Earls	Discharge over dielectric surfaces; instruments for measurement of symmetrical component quantities; servo-mechanisms; non-linear dynamical systems

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

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 crystalline rocks with special reference to the Scottish Highlands and Canada
W.E. Fraser, Ph.D.	
M. Munro, Ph.D.	
G. Downie	
A.K. Pringle	Geophysical interpretation of sub-surface structures
E.A. Tait	Sedimentation conditions of Old Red Sandstone of N E. Scotland
F.E. Tocher, Ph.D.	Petrology and structure of Dalradian rocks
	Crystal optics

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)
	History of the Royal Society

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.	Growth of viruses in tissue culture
R. Menzies	Epidemiology of *Erysipelothrix* infection
R. Postlethwaite, M.D.	Polyoma virus
M.G. McEntegart, M.D.	Fluorescent tracers in immunology
H.G. Smylie, M.D.	Epidemiology of staphylococcal infection
A.M. Paton, Ph.D.	Bacterial diseases of plants
T.M. Bell	Adenovirus infection of tissue cells
G. Turner (Miss)	Significance of bacilluria

14. Obstetrics and Gynaecology

Professor Sir Dugald Baird, K.B., M.D., LL.D.	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
*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	Endocrinology in obstetrics and gynaecology
*A. Klopper, Ph.D. D.B. Paintin	Anaemia in pregnancy

15. Paediatrics and Child Health

Professor J. Craig	Incidence of disease in the N.E. region of Scotland
M.S. Fraser J. Wilks	Late results of anoxia of the newborn
N.S. Clark, M.D.	Bronchiectasis
W.H. Galloway	Late results of meningitis
H. Thom (Mrs.), Ph.D.	Liver function in the newborn
E. McKay	γ globulin in the urine

16. Pathology

Professor J.S. Young, M.D.	
A.L. Stalker, M.D.	Microcirculatory studies on the effects of macromolecular substances on erythrocytes Tissue fibrinolysin in renal failure
R.C. Nairn, M.D., Ph.D.	Immunopathology and fluorescent protein tracing Organ-specific antigens
A.W. Branwood, M.D.	Tissue culture studies of arterial intima The effects of various lipids and hormones on arterial intima
A.J. Carr	Enzymological studies of experimental tumours The effects of enzyme inhibitors on malignant tumours

17. Pharmacology and Therapeutics

Professor A.G. Macgregor, M.D.	Therapeutic techniques in hyperthyroidism Effect of drugs on thyroid radio resistance
J. Crooks, M.D.	Reference standards for total exchangeable body electrolytes Statistical techniques in the diagnosis of disease
M.B. Roberts	Effect of drugs on catechol amine content of nervous tissues
T.M. Forrester	Mode of action and clinical use of diuretics Effect of drugs on white cell oxygen consumption

*M.R.C. Obstetric Medicine Research Unit

18. *Physics

Professor R.V. Jones, C.B., C.B.E., D.Phil.	Optics Infra-red spectroscopy Design Crystal growth
F. Ansbacher, Ph.D.	Theory of elementary particles
D.M. Finlayson, Ph.D.	Low temperature semi-conductors
H.D. Griffith	Medical physics
T.J. Buchanan, Ph.D.	
D.D. Lindsay	
D.A. Jones, Ph.D.	Crystal growth
R.W.H. Stevenson, Ph.D.	Optical properties of crystals
A. Duncanson	
S. Davidson, Ph.D.	Crystal chemistry
A.H.S. Holbourn, D.Phil.	Grating engine
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 Dispersion relations Elementary particles
A.E.M. Geddes, O.B.E., D.Sc.	Seismology
T.P. Gill	Van der Waals forces

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
H.W. Kosterlitz, M.D., D.Sc.	Action of morphine on autonomically innervated effectors Analysis of the peristaltic reflex in the isolated ileum
D.W. Taylor, M.D.	Cardiac and respiratory effects of oxygen under high pressure
B.F. Matthews	Renal function in the pregnant rat
M.J. Scott (Miss), Ph.D.	Cardiovascular effects of chemoreceptor stimulation in the cat
J.E. Gelman (Mrs.), Ph.D.	Electron microscope appearances of superior cervical ganglion in the rat
M.W. Goldsmith	Bone metabolism and parathyroid activity in rodents

20. Psychiatry

Professor W.M. Millar, M.D.	
G. Innes	Epidemiological studies of psychiatric breakdown in N.E. Scotland
†G. Sharp	
J.G. Henderson	Psycho-social investigation of delaying factors in cancer diagnosis
A.H.C. Sinclair-Gieben, M.D.	Psychological studies in peptic ulcer Studies in hypnosis
J.D. Taylor (Mrs.)	Personality and social background of premature children

*In Scotland the term "Natural Philosophy" is used

†Grant from Nuffield Provincial Hospitals Trust

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	A medical and sociological sample survey of old people in N.E. Scotland
I.M. Richardson, M.D., Ph.D.	Epidemiology of accidents
R.D. Weir	Various studies in the epidemiology of chronic disease including peptic ulcer and cancer
C.J.H. Mann	
S.J. Kilpatrick	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 Design of control surveys
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

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

24. Statistics (*continued*)

*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

25. Surgery

Professor W.C. Wilson	Blood clotting Biological actions of peptides
H.A.F. Dudley C.G. Clark	Water and mineral metabolism

26. Zoology

Natural History:

Professor V.C. Wynne-Edwards	Vertebrate ecology
G.M. Dunnet, Ph.D.	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
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
D. Jenkins, D.Phil. A. Watson, Ph.D. G.R. Miller	Grouse and moorland ecology

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	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

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

1. Agriculture (*continued*)

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
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
R.S. Irwin, Ph.D.	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
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	Field and laboratory studies on the biology and economic importance of crop pests
A.R. Edwards	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.	*Escherichia coli* infections in pigs
J.K.L. Pearson, Ph.D.	Diagnostic tests for Johne's disease
W.A.M. Gordon	Pig housing investigation
J.F. Gracey, Ph.D.	Brucellosis
C. Dow, Ph.D.	Parasitism and animal production
J.R. Todd, Ph.D.	Anaerobic disease in sheep
J.E.F. Rankin	Hypomagnesaemia
	Histopathology

1. Agriculture (*continued*)

Crop and Animal Husbandry:

Professor J. Morrison	Pig breeding: the practical use of performance records in breeding an elite herd
R.W. Hale	
T.J. Forbes, Ph.D.	Poultry breeding: genetic interactions in laying stock; the practical use of reciprocal recurrent selection
D.W. Holme, Ph.D.	Studies concerning nutrition and management of pigs and poultry for commercial production
	Studies of practical problems in the conservation of grassland herbage and green crops, and in drying and storage of grain
	Value of silage for winter feeding of cattle
	Intensive grazing of sheep
	Practical trials with selective weedkillers

Mycology and Plant Pathology:

Professor A.E. Muskett, O.B.E., D.Sc.	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
J.C. Taylor	
E.L. Calvert	
C.W.R. McCreary	
J.P. Malone, Ph.D.	
C. Logan	
T.R. Swinburne, Ph.D.	

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.	Field and laboratory studies of methods of infection with disease organisms in *Lolium perenne*
K.G. Proudfoot	

2. Anaesthetics

J.W. Dundee, M.D., Ph.D.	Investigation of new intravenous anaesthetics and factors influencing their action
	Relief of chronic pain
J. Moore	Evaluation of phenothiazines and their anti-emetic use on premedication
G.W. Black, M.D.	Effects of cyclopropane on the peripheral blood vessels
L. McArdle, M.D.	
S.H.S. Love, M.D.	Spontaneous hypothermia in children
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
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	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*

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
A.D.E. Pullin, Ph.D.	Infra-red 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.	Reaction mechanisms and stereochemistry Oxidation reactions
R.G.R. Bacon, Ph.D.	Chemistry of organic sulphur compounds, including pseudohalogens Organic reactions and their mechanisms, particularly oxidation and reduction processes

6. Chemistry (*continued*)

Organic (*continued*)

M.F. Grundon, Ph.D.	Studies in heterocyclic chemistry Structure and synthesis 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 Microbiological transformations of organic compounds

7. Dental Studies

Professor P.J. Stoy	Variations in the dentitions of monozygotic twins
P. Saunsbury	The value of induction heating in casting dental alloys
I.A. Findlay	Electromyographic studies of the orofacial musculature Clinical trial of lyophilized chymotrypsin
C.P. Adams	Studies in the development of the dentition
J.D. Eccles	Development of the periodontal membrane Tooth eruption
W.A.B. Brown	The relation of the oral soft tissues to the underlying bone An analysis of bone growth in cattle by means of metallic implants
J. McKenzie (Mrs.)	Craniofacial development of cats studied by means of amalgam implants

8. Engineering

Aeronautical:

Professor A.V. Stephens	Simplification of manual control Flow past resilient surfaces
J.L. Horne	Properties of turbulent boundary layer

Civil:

Professor A.H. Naylor	Stability of filled embankments
W.G. Godden, Ph.D.	Buckling of straight and curved beams in bending and torsion
D.M. McDowell, Ph.D.	Vibration of prestressed concrete members Tidal beach profiles Energy losses at bends in channels
J.G. Stuart	The bearing capacity of pile groups Settlement studies of foundations in sand
M. Gurr	Programming the matrix force method
E.H. Sidwell	Pretensioning of compression members or parts

Light Electrical:

Professor T.P. Allen	Microwave devices containing ferrites and dielectrics
J.M.W. McBride	Ferrimagnetic resonance in garnets
P.J.B. Clarricoats, Ph.D.	Transistor applications in radioastronomy
W.D. Ryan, Ph.D.	Carrier storage devices

Mechanical:

Professor B. Crossland, D.Sc. W.F.K. Kerr, Ph.D.	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, cumulative fatigue damage
F.J. Wallace, Ph.D	Effect of air flow pulsations on heat transfer coefficients
J.M. Gilchrist	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 valves

9. Geography

Professor E.E. Evans, D.Sc.	Folk studies Rural settlement Prehistoric archaeology
N.C. Mitchel	Urban morphology: W. Africa Social geography
V.C.R. Ford	Land use in Uganda
R. Glasscock	English mediaeval rural settlement
R. Harris (Miss), Ph.D.	Social anthropology: Nigeria and Ireland
N. Stephens	Coastal evolution and denudation chronology Peri-glacial and glacial phenomena Climatology and drainage: N. Ireland
L.J. Symons, Ph.D.	Land use in N. Ireland Climatology of upland areas
R.H. Buchanan, Ph.D.	Rural settlement and technology
J.C. Cruickshank	Soils and glacial drifts in N. Ireland
R. Common, Ph.D.	Urban settlement: natural resources

10. Geology

Professor A. Williams	Lower Palaeozoic stratigraphy in Britain and Eire including the Arenig-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)
R. Tavener-Smith	Sedimentary tectonics of Karroo system in Mid-Zambez region of Rhodesia 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, Portraine, Wales and Lake District Brachiopoda

11. Mathematics

Applied Mathematics and Geophysics:

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

Engineering Mathematics:

A.P. Roberts	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

11. Mathematics (*continued*)

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

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	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.	Ringworm epidemiology and immunology
	Morphogenesis of pathogenic fungi

Virology:

Professor G.W.A. Dick, M.D., D.Sc.	Poliovirus vaccines
D.S. Dane	
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
J.B. McFerren, Ph.D.	Virus-neutralizing substances and bovine enteroviruses

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., with I.J. Carré	Gastro-oesophageal incompetence in children as a cause of clinical disturbances
	Investigation of possible causes of adverse reactions and death during exchange transfusion
with S.L. Campbell (Miss), M.D. I.J. Carré	Blood disorders in children

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
F. Vint	Erythroblastosis
I. Allen (Miss)	A study of fever
F. McAleenan	Experimental goitre

17. Physics

Professor K.G. Emeleus, Ph.D., Sc.D.	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.	Circulation in man
E.W. Clarke	Microcalorimetry
A.H.G. Love	
W.E. Glover, M.D.	Circulation in man
R.G. Shanks	Renal circulation

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
S.J. Knox	Psychiatric aspects of mitral valvotomy
W.B. McConnell	The investigation of plasma protein in relation to its modification of drug activity and as a possible metabolic deviation in schizophrenia Amphetamine substances and mental illness in Northern Ireland

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
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

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
	Leukoplakia of the tongue
Professor R.B. Welbourn, M.D.	Results and metabolic effects of gastric operations
	Adrenocortical disorder
D.M. Hancock	Auto-immune disease and tissue transplantation
I.D.A. Johnston	Metabolic aspects of surgery
J. Kennedy	Absorption from alimentary tract in post-operative period
K. Kyle	Influence of pancreas on gastric secretion
J.T. Ward	Effects of endocrine glands on alimentary function
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

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 olefines
	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	Parasitic Crustacea
E.M. Pantelouris, Ph.D.	Role of plasma proteins in the growth of tumours
	Studies on the nutrition of the mammalian foetus
L.T. Threadgold, Ph.D.	Photoperiodicity in birds and electron microscopy
A. Scott, Ph.D.	Osmoregulation and excretion in Crustacea
	Fauna of sandy beaches

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.	Reproductive physiology of Primates and other mammals
A.P.D. Thomson, M.B.E.	The environmental control of reproduction
A.M. Mandl (Miss), Ph.D., D.Sc.	Oogenesis. Reproductive physiology in the female 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.	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

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

3. Bacteriology (*continued*)

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, particularly inositol, in the germination of cereals and pulses Studies on the fatty acids and lipids of wheat, with some reference to the effect of γ irradiation
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	Isolation and characterization of enzymes concerned in rubber biosynthesis from the latex of *Hevea brasiliensis*
D. Kulka (Miss)	Studies on a trisaccharide derived by enzymic degradation from amylopectin β limit dextrin The mechanism of the antibacterial activities of humulone
R.N. Greenshields	The distribution, metabolism and enzymology of free saccharides and nitrogenous substances of *Phaseolus vulgaris* during germination
F.W.J. Teale	Spectrometric study of protein structure
D.G. Walker	Biochemistry of placental and foetal tissues; placental transfer of metabolites

Medical:

Professor A.C. Frazer, M.D., D.Sc.	Lipid absorption and metabolism Small intestinal physiology Composition of food and its effects on the body
with M. Sharratt	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

4. Biochemistry (*continued*)

Medical (*continued*)

Professor A.C. Frazer, M.D., D.Sc. with D.B. Morgan	Steatorrhoea. Malabsorption syndromes Gluten-induced enteropathy (coeliac disease and idiopathic steatorrhoea). Tropical sprue Disorders of calcium and phosphorus metabolism Folic acid metabolism
G.B. Robinson, Ph.D.	Intestinal enzymes
P. Johnson, Ph.D. I.P. Freeman	Biological effects of oxidized fats
R. Schneider, M.D. with H.S.A. Sherratt, Ph.D.	Studies on motility and secretion of the gastrointestinal tract 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. with P.F. Millington, Ph.D.	Structural 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
P. Johnson, Ph.D. with W.F.R. Pover, Ph.D.	Absorption of lipids and lipid-like substances, using radioactive isotope labelled test materials
J.N. Hawthorne, 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
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
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
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.	
R. Belcher, Ph.D., D.Sc.	Micro-organic and inorganic analysis
W.I. Stephen, Ph.D.	Physical methods in analytical chemistry
T.S. West, Ph.D.	Sub-micro analysis
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.	Chemistry in relation to medicine, with specific reference
M.H.B. Hayes, Ph.D.	to cancer, tuberculosis, pneumonia, blood transfusions, etc.
	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, Ph.D.	Fluorine compounds
F.W. Pinkard	Chemistry of the rare metals
C.F. Wells	Organo-metallics 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
R.L. Wormell, Ph.D.	
J. Burdon, Ph.D.	
Z. Atassi, Ph.D.	
J. Lehmann, Dr.Nat.	
P.L. Coe, 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.	Use of physical techniques such as mass spectrometry, radioactive tracer methods, electron magnetic resonance spectroscopy
G.A. Gilbert, Ph.D.	
B.G. Gowenlock, Ph.D.	

6. Chemistry (*continued*)

Physical (*continued*)

R. Lehrle, Ph.D. J.R. Majer, Ph.D. F.W. Peaker, Ph.D. J.K. Brown, Ph.D.	Molecular size and structure of synthetic and natural polymers using osmometry, light scattering, electrophoresis Biosynthesis studies 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
J.K. Tyler 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
R.M. Browne, Ph.D.	Temperature measurement as an indication of blood supply to the gingival tissues The fluid environment of the gingival tissues and particularly the gingival crevice

Pathology:

E.A. Marsland, Ph.D.	Peripheral innervation of the oral soft tissues Effect of ultra-high speed cavity preparation on the human dental pulp
E.A. Marsland, Ph.D. with A.D. Sidaway (Miss)	Use of the artificial mouth in investigations of experimental caries Induction of artificial caries in unerupted teeth
S.L. Rowles, D.Phil	Biochemistry of saliva and dental calculus in man Natural and synthetic calcium phosphates
M.E. Corbett (Miss)	Incidence and formation of secondary dentine beneath carious lesions of deciduous and permanent teeth

Prosthetics:

Professor J. Osborne, Ph.D. T.C. Graty	Clinical assessment of full and partial dentures
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 in urine
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 urinary 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 equilibria for binary and ternary systems at atmospheric, reduced and high pressure
T.R. Bott	Effect of liquid properties in spray drying
P.E. Barker	Plate efficiency, foam formation and holdup studies for
L.G. Miskin	Oldershaw, sieve and bubble cap trays
M.B. King, Ph.D.	Vacuum and molecular distillation
K.E. Porter	Mass transfer in "spraypak" and in wire-mesh packed columns
	Simultaneous heat and mass transfer
	Liquid flow in random packed columns
	Spinning band, brush and horizontal vacuum distillation units
	Sieve tray and mixer settler liquid-liquid extraction apparatus
	Hydrazine-oxygen reaction, and rates of absorption of carbon dioxide in carbonate solutions under pressure
G.V. Jeffreys	Hydrazine synthesis
P.E. Barker	Continuous chromatography columns
G.S. Pittaway	Combustion mechanism of fuels in diesel engines
W.M. Crooks, Ph.D.	Catalytic ozonic oxidation of hydrocarbons and other compounds
	Catalytic kinetics of isopropanol dehydrogenation on zinc oxide
H. Gilmour	Combined miscible flooding:
	(i) Immiscible two phase flow in vertical columns
	(ii) Immiscible two and three phase flow in porous media
R. Long, Ph.D.	Vapour phase oxidation of hydrocarbons
	"Hydrocracking" of hydrocarbons in gas production
	Hydrocracking of cresols and xylenols
	Kinetics of thermal dealkylation of alkyl phenols
	Carbon formation in flames
	Inhibition of 3–4 benzpyrene formation in hydrocarbon combustion
C.W. Nutt, Ph.D.	Froth flotation
	Reaction of hydrocarbons with atomic oxygen
	Spectroscopic and thermodynamic properties of solutes
N. Blakebrough, Ph.D.	Scale-up of electrophoresis
	Agitation and aeration in submerged fermentation
	Biological oxidation of phenol
	Measurement of heats of fermentation
S.H. Bransom, Ph.D.	Continuous crystallization
	Dynamics of fluidization
	Catalytic oxidation of hydrocarbons
	Flame spectra

9. Engineering (*continued*)

Chemical (*continued*)

W.H. Husband, Ph.D.	Adsorption equilibria. Entrainment in evaporators
C.R. Porter, Ph.D.	Synthesis and properties of cyclopentane derivatives
J.S.M. Botterill, Ph.D.	Mechanism of heat transfer in fluidized beds Dynamics of gaseous fluidized systems
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.V. Jeffreys	Batch-operated solvent extraction
J.W. Carter	Transport of vapours in adsorbents. Adsorption in fixed beds. Permeation through polymer films
M.B. King, Ph.D.	P.V.T. and phase relationships of condensed gases Mass transfer over a flat gas/liquid interface Phase equilibria of aqueous systems. Gas hydrates
T.R. Bott	Heat transfer across a scraped surface Continuous reaction of viscous liquids Solubility of chlorine
M.H. Cardew	Formation of bubbles on electrode surfaces
F.M. Mohtadi, Ph.D. K.E. Porter	Diffusion from drops with reference to vortices present both inside the drop and in the wake. Atomization of liquids and spray drying Diffusion from drops suspended in gas streams
V.G. Jenson	Diffusion from horizontal surfaces
M.H. Cardew, Ph.D.	Liquid diffusivities

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 Stresses in slab/column bridges Analysis of stresses in arch dams Analysis of stresses in shell roofs Solution of certain problems in fluid motion concerning aircraft wings
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 Hydraulic analogue in consolidation of soils Wind deposited sands Groups of piles in sands
with R.H. Jones, Ph.D.	Mechanics of beach sand
T.K. Chaplin, Ph.D.	Compressibility of cohesionless soils
G. Lees	Shape of particles in road materials and aggregates Frost action in soils
G.F. Buck	Stresses and strains in granular sub-bases under various loading schemes; "cell action" phenomena
G.C. Y. Hu, Ph.D.	Pavement design theories
F.D. Hobbs B.D. Richardson R.M. Newland	Route locations, traffic engineering, road construction and surface water drainage

9. Engineering (*continued*)

Civil (*continued*)

Professor J. Kolbuszewski	Research into the habits of the motor car user
with F. D. Hobbs	
L.B. Ginsburg	
A. Miller, Ph.D.	Traffic engineering statistical studies
A. Alyanak	Vibration of granular soils
T.K. Chaplin, Ph.D.	Compression of clays with reference to sample size
I.E. Thomas, Ph.D.	Investigation of sill geometry of river measurement weirs
	Study of turbulence in open channels of composite roughness
	Investigation of characteristics of compound weir of triangular profile
I.T.S. Essery	Hydraulics: problems concerned with air entrainment in syphons
G. Brock, Ph.D.	Models for investigating reinforced concrete structures
	The fundamental deformation properties of concrete
	The effect of shear on the ultimate strength of reinforced and prestressed concrete beams
	The diffusion of water in hardened concrete
R.F. Wills	Sedimentation of sewage: investigation of flow distribution in a full scale rectangular sedimentation tank, and associated model tests

Electrical:

Professor D.G. Tucker, D.Sc.	Electronic scanning in radio and acoustic echo-ranging systems
with V.G. Welsby, Ph.D.	Frequency-modulation echo-ranging systems
	Directivity problems of arrays
L. Kay	Spectrum of underwater acoustic reverberation
J.M. Layton	Circuits with time-varying parameters (modulators, etc.)
D.P. Howson	Modulation systems
Professor J.T. Allanson	Properties of neural networks
	Synthesis of electrical networks
with D.P. Howson	Psychological acoustics
J.C. Cluley	Electronic digital and analogue computers
D.C. Cooper	Signal integration systems
D.E.N. Davies, Ph.D.	Radar signal processing
	Air traffic control systems
J.W.R. Griffiths, Ph.D.	Detection of pulse signals in noise on visual displays
J.G. Henderson	Transfer function of an industrial process determined from statistical input and output data
	Losses in end-windings of machines
L. Kay	Ultrasonic testing of materials
	Blind-guidance systems
J.M. Layton	Automatic control systems
I.R. Smith, Ph.D.	Speed control of induction motors
G.T. Wright, D.Sc.	Electric breakdown in liquid dielectrics
	Solid state devices and dielectric valves
	Ferro-electric heater
J. Hudson	Field studies with electrolytic tank
T.S.M. Maclean, Ph.D.	Helical aerials
E.D.R. Shearman	Radio propagation

9. Engineering (*continued*)

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
F. Benson, Ph.D.	Machine interference
K.B. Haley	Linear programming
D.J. White	Dynamic 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
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
F.B. Blader	Development of non-linear vibration isolators
F.B. Scott	Investigation of the supersonic radial diffuser by use of the hydraulic analogue
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
D.J. 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	Settlement studies in Radnorshire
W.B. Morgan, Ph.D.	Geography of W. Africa
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
G.T. Warwick, M.B.E., Ph.D.	Geomorphology of limestone regions and caves
	Ice caves and cave ice
	Geomorphological studies in S. Devon and the W. Midlands

12. Geology

Professor F.W. Shotton, M.B.E., F.R.S.	Stratigraphical:
R.J. Adie, Ph.D.	Stratigraphy of the Lower Palaeozoic of the Williston Basin area, United States and Canada
G.M. Bennison, Ph.D.	Ordovician stratigraphy and structure of parts of the Lake District
D.J. Blundell, Ph.D.	Stratigraphy of the Hagshaw Hills (Scotland) and Blawith (Lake District) areas of Silurian rocks
G.R. Coope	Facies changes and sedimentation of Ludlovian sediments of the Welsh Borderland and south central Wales
P.A. Garrett	Stratigraphy of the Carboniferous rocks of Bowland, and the area south of Galway Bay
D.H. Griffiths, Ph.D.	The stratigraphy and structure of the Permo-Carboniferous and Triassic rocks of W. Spitsbergen
W.G. Hardie	Sedimentological studies of the Calciferous Sandstone Series of Fife
R.F. King, Ph.D.	The Pleistocene sequence of the Avon/Tame watershed, the Tame valley, Nechells (Birmingham) and south Cheshire
E.D. Lacy	
F. Moseley, Ph.D.	
I. Strachan, Ph.D.	

*A.R.C. Unit of Biometrical Genetics

12. Geology (*continued*)

Palaeontological:

- The morphology of *Eurypterus fischeri* from the Silurian rocks of Ösel
- Cyrtogratidae and Retiolitidae from Britain and Central Europe
- The Silurian graptolite fauna of the Cross Fell Inlier
- Non-marine lamellibranch faunas of the Calciferous Sandstone Series, and the Coal Measures of Staffordshire
- Structure and organization of British Coal Measure scorpions
- Pleistocene insects from numerous localities in England
- Macroscopic plant remains and pollen from the Pleistocene of the Midlands

Petrological:

- Theoretical studies upon alumino-silicate glasses and melts
- The effect of water on the physical properties of purified igneous glasses
- Petrography and fabric of north Welsh slates
- The petrology of the Land's End granite aureole
- The petrology of the Glencoe fault intrusion
- Petrology and structure of the Tasermuit Granite and Ketilidian rocks, S. Greenland
- 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

Geophysical:

- Flume studies on magnetic properties of redeposited silts
- Magnetic anisotropy of certain metamorphic and igneous rocks from Scotland and Ireland
- Effect of pressure on the magnetic properties of rocks
- Gravity survey of Wales
- Gravity and magnetic surveys in the Falkland Islands Dependencies and remanent magnetism of igneous rocks therefrom
- Seismic refraction survey of part of Cardigan Bay
- Mapping (electrical) of Romano-British sites in the Midlands

Falklands Islands Dependencies Survey:

- Petrology and structure of W. and E. Antarctica
- Geology of Graham, Danco and Loubet Coasts
- Geology of N.E. Graham Land and King George Island
- A magnetic survey of Hope Bay, South Georgia
- The raised beaches of the South Shetland Islands
- Glaciological observations at South Georgia during the International Geophysical Year

13. Mathematics

Professor P.J. Hilton, D.Phil., Ph.D.	Algebraic topology Homological algebra
Professor H.E. Daniels, Ph.D.	Stochastic processes Approximation techniques
B. Kuttner, Ph.D.	Summability
G.C. Shephard, Ph.D.	Convex bodies Polytopes

13. Mathematics (*continued*)

S.J. Taylor, Ph.D.	Measure theory
H.P. Rogosinski, Ph.D.	Integral equations Moment problems
D.M.G. Wishart, Ph.D.	Theory of queues and related problems
D.E. Cohen, D.Phil.	Algebraic topology
H.B. Griffiths, Ph.D.	Topology
W. Parry, Ph.D.	Measure theory

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
L.A.G. Davidson G. Cumming, Ph.D.	Changes in haemodynamics after mitral valvotomy and other operations on the heart and aorta
R.F. Fletcher, M.D.	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 infraction 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	Study of graphites during solidification and annealing
J.P.G. Farr, Ph.D.	Gases in liquid metals
G.H.J. Bennett, Ph.D.	The strain-ageing of mild steel
G.W. Rowe, Ph.D.	Influence of strain-ageing on deep drawing properties
A.T. Male	Hot working of metals Warm working of steel Working of hexagonal metals The hardening and softening of metals by fatigue Fatigue and fracture phenomena in low-carbon steels

15. Metallurgy (*continued*)

Industrial (*continued*)

Professor E.C. Rollason, Ph.D.	Fatigue damage in high-strength light alloys
	Fatigue of strain-ageing alloys
D.V. Wilson, Ph.D.	Crystal growth in electrodeposited nickel
V. Kondic, Ph.D.	Electron microscope study of electrodeposited surfaces
W.T. Roberts, Ph.D.	Metal flow in sand-mould
D.R. Milner	Flow of metal in pressure die casting
J.P.G. Farr, Ph.D.	Friction during metal working
G.H.J. Bennett, Ph.D.	Effect of "coaxing" on fatigue strength of steel
A.T. Male	Metal/non-metal bonding
G.W. Rowe, Ph.D.	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

Physical:

Professor G.V. Raynor, D.Sc., F.R.S.	The theory of alloy formation, and of the structures of intermediate phases and intermetallic compounds
	Electronic configurations of solute metals in alloys
Professor A.D. McQuillan, Ph.D.	Physical metallurgy of titanium
	The physical properties of the titanium-hydrogen system
	Study of the physical and alloying properties of the early transition elements
T. Wright, Ph.D.	The kinetics of the recrystallization of metals and alloys
W.T. Pell-Walpole, D.Sc.	Fundamental factors affecting the properties and development of new tin-base alloys
R.W. Cahn, Ph.D.	Recrystallization, deformation and twinning in metals
	X-ray and metallographic investigation of ordering and precipitation in Fe-Al alloys
S.G. Glover, Ph.D.	The decomposition of austenite and martensite by metallographic, resistometric and magnetic methods with special reference to the thermal stabilization of austenite; tempering phenomena, and mechanical properties of steels with reference to constitutional factors
J.D. Eshelby, Ph.D.	Interaction of lattice defects; theory of internal strains in crystals, and of fundamental deformation processes
J.N. Pratt, Ph.D.	Measurement of activities, free energies and heats of formation in metallic systems by electromotive force, calorimetric and vapour-pressure methods
D.J. Evans, Ph.D.	Factors affecting thermal expansion coefficients in metals and alloys
R.E. Smallman, Ph.D.	Study of fundamental factors involved in the deformation of metals and alloys
	Study of deformation characteristics of oxides, nitrides and carbides
R.W. Smith, Ph.D.	Study of solid-state transformations in non-ferrous metals and alloys
D.W. Jones, Ph.D.	Magnetic susceptibilities of alloys of the early transition metals
B. Cockayne, Ph.D.	Study of early stages of precipitation in aluminium-rich alloys, with special reference to the role of vacancies
B. Henderson, Ph.D.	Study of electronic constitution of transition metals in alloys
E.J. Hughes	Transformations in titanium and zirconium alloys
J.R. Wilson	Thermodynamics of liquid metals and alloys

16. Microbiology

Professor D.G. Catcheside, D.Sc., F.R.S.	Genetics and cytology of micro-organisms, particularly *Neurospora* Genetical organization of biochemical function
E.H. Creaser, Ph.D.	Ribonucleic acid synthesis during bacteriophage multiplication and induced enzyme formation
J.W. Hopton, Ph.D.	Ecology of 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
R.D. Hartley, Ph.D.	Contact potentials of coals Incendivity of sparks Chemical constitution of coal and humic acids Oxidation of coal

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
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
	The transverse dimensions of the nasopharynx at various ages
	The evaluation of clinical tests in the diagnosis of the site and nature of different lesions responsible for facial paralysis
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 by fenestration
	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

21. Paediatrics and Child Health

Professor D.V. Hubble, M.D.	Endocrine disease in childhood Coeliac disease Adolescence
O.H. Wolff, M.D.	Serum lipoproteins Diabetes Vitamin D-resistant rickets
B.D. Bower, M.D.	Convulsive disorders in infancy and childhood Electroencephalography
J.K. Lloyd (Miss)	Diabetes Obesity
C.G. Parsons, M.D.	Congenital heart disease
D. MacMillan, M.D	Growth hormone assay
Professor A.L. d'Abreu, O.B.E.	Congenital heart disease
R. Astley, M.D.	Cine-angiocardiography
K.B. Rogers, M.D.	Cross-infection in hospital
A.H. Cameron, M.D.	Congenital heart and respiratory disease
A. Innes, M.B.E.	Cerebral palsy
N.L. Crabtree	Hearing defects in early childhood
B.S.B. Wood, D.M.	Neurological disorders in childhood
H.M. Cohen, M.D.	Statutory and voluntary services
P.J. Evans, M.D.	Ocular signs of metabolic disease in children
K.D. Roberts	Tracheo-oesophageal fistula
H.B. Salt	Electrophoretic separation of proteins, lipoproteins and protein-bound carbohydrate
B. Atkins	Steroid assays

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 Chemistry of nucleoproteins
C.W. Taylor	Pathology of ovarian tumours Histological control of radiotherapy of cervix uteri
W.T. Smith, M.D.	Neuropathology. Effects of tumour dissemination on the central nervous system Angiomata and other vascular abnormalities of the central nervous system
R. Lannigan, M.D.	Histopathology of myocardium; changes seen in stenotic valvular lesions Experimental study of nephritis
*J.S. Howell, M.D.	Chemical carcinogenesis, with special reference to liver, breast and ovary
D.A. Heath, M.D., Ph.D.	Cardiorespiratory pathology
B.T. Davis	Tumours of the upper respiratory tract and ear 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	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 of skin and ovary Skin grafting Tumour studies in homozygous mice
*C.E. Searle, Ph.D.	Biochemistry of cancer
*A.T. Spencer	Experimental carcinogenesis
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, anti-haemophilic 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	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

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

22. Pathology (*continued*)

Experimental (*continued*)

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.	Serological and plasma protein changes in rheumatoid arthritis
G. Leyton, M.D.	Indoles in urine and mental disorders
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; actiology 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. Haye	Clinical research on selected skin diseases
†M.D. Trotter, Ph.D.	Antigenic polysaccharides of dermatophytic fungi
†S.R. Wood	Studies on *Trichophytion* sensitivity
†H.J. Yardley	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
E. Topley (Miss), M.D.	Anaemia of burns
W. Weiner, M.D.	Blood transfusion problems Haemolytic and haemorrhagic diseases

23. Physics

Professor P.B. Moon, F.R.S.	
Professor W.E. Burcham, F.R.S.	
Professor P.B. Moon, F.R.S.	γ-ray resonances
L. Riddiford, Ph.D. P.M. Rolph, Ph.D. G. Martelli, Lib. Doc. Fis. Sup. C.P. Van Zyl and other members of staff	Nuclear physics, including the acceleration of particles to high energies with cyclotrons and a 1000 MeV proton synchrotron; proton experiments at the Rutherford and U.K.A.E.A. Laboratories, Harwell

*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 (*continued*)

J.H. Fremlin, D.Sc.	Dental studies using radioactive tracers
J. Walker, Ph.D.	Nuclear reactor physics
M.C. Johnson, D.Sc.	Solar physics
K.A. Macfadyen	Breakdown in liquid dielectrics
K.F. Chackett, Ph.D.	Radiochemistry
P.J. Black, Ph.D.	Pre-melting phenomena
J.W. Glen, Ph.D.	Glaciology
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.	Semi-conductors of wide band gap, particularly compounds with the zinc blende crystal structure. Radiative recombination and luminescence in semi-conductors The application of luminescence to the study of dislocations and other crystal defects
Professor J. Sayers, Ph.D.	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
with P. Rothwell	
E.C. MacKenzie	
J.H. Wager	
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.	Field theory and mesons
	High-energy physics
G.D.H. Burkhardt, Ph.D.	
L. Castillejo	
G.V. Chester, Ph.D.	
V.J. Emery, Ph.D.	
J.G. Valatin, D.Ing., D.Sc.	
J.B. Woodward, Ph.D.	
K.A. Redish	Application of electronic computers

24. Physiology

Professor I.E. Bush, Ph.D.	Metabolism and actions of steroid hormones
	Biochemistry of mental disease
B.A. Cooke, Ph.D.	
P. Ramwell, Ph.D.	
B. Hood (Miss)	
A. Weaving, Ph.D.	
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.	Neural transmission in sensory pathways
H.G. Clarke	
E.J. Hamley, Ph.D.	Effects of ionic imbalance on cardiac activity and cardiovascular changes in exercise
H. Asher	Physiology of vision

24. Physiology (*continued*)

W.V. Thorpe, Ph.D.	Metabolism of foreign organic compounds
H.G. Bray, Ph.D.	
S. James (Mrs.), Ph.D.	
K. White, Ph.D.	
E.H.L. Harries, Ph.D.	Gastric function and duodenal ulcer
A.L. Haigh, Ph.D.	
K. Brown-Grant, M.D.	Physiology of thyroid gland and iodine metabolism
J.D. Cumming	Bone marrow physiology
C.E. Rowe, Ph.D.	Phospholipids
M.F. Lockett (Miss), Ph.D.	Control of renal function
G.R. Kelman	Theory of renal concentration mechanisms

25. Psychiatry

Experimental:

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 electro-encephalogram 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.	The aetiology of congenital malformations
R.G. Record, M.D., Ph.D.	Reproduction: observations related to the menstrual cycle, pregnancy, lactation and obesity
J.A.H. Waterhouse, Ph.D.	Growth and development: the influence of inheritance and environment on pre-natal and post-natal growth
C.R. Lowe, M.D., Ph.D.	Evaluation of medical achievement through consideration of the death rate and population growth
J.M. Mackintosh (Miss), C.B.E., M.D.	The design of contemporary medical services
K.W. Cross, Ph.D.	Aetiology of essential hypertension
R.F. Wrighton, Ph.D.	
I.M. Leck	
J.H. Edwards	

27. Surgery

Professor F.A.R. Stammers, C.B.E., T.D.	Clinical approach to post-gastrectomy syndromes
	Obliterative arterial disease
	Stenosing (non-traumatic) cholangitis
Professor A.L. d'Abreu, O.B.E.	Open-heart surgery
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	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

*M.R.C. Neuropharmacology Research Unit

27. Surgery (*continued*)

J.A. Williams	The metabolic consequences of partial gastrectomy with special reference to fat, iron and vitamin B_{12}
	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 P. Dawson-Edwards	Use of ileal loops in diseases of the urinary system
L.D. Abrams	Use of an inductive coupled pace-maker for heart block
G.T. Watts	Wound healing and the biochemistry of ground substance
D.J. Oakland	Exfoliative cytology with special reference to colon and rectum

28. Zoology and Comparative Physiology

Professor O.E. Lowenstein, D.Phil., Ph.D., D.Sc., F.R.S. R.W. Murray, D.Phil.	Comparative physiology of the central nervous system and sense organs
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. R.A. Webb, D.Phil. D.G. Hill-Cottingham, Ph.D.	Nutrition of fruit crops: Trace elements in fruit crops Nitrogen metabolism of fruit crops
E.J. Hewitt, Ph.D. A.J. Abbott	Mineral nutrition of higher plants: Micro-element nutrition of excised tissues
D.J.D. Nicholas, D.Sc., Ph.D. J.A. Anderson, Ph.D.	Nitrogen metabolism of micro-organisms: Nitrifying organisms
H.E. Davenport, Ph.D.	Enzymes of higher plants in relation to photosynthesis
L.C. Luckwill, Ph.D. D.L. Abbott R.R. Williams D. Wilson, Ph.D. B.A. Rake (Miss) E.W. Hobbis, M.B.E.	Pomology and fruit breeding: Plant physiology; growth substances Cider and perry fruit growing Breeding of apples, pears, currants and strawberries Gooseberry culture Plantation management
J.T. Martin, D.Sc., Ph.D. E.J. Skerrett, Ph.D. E. Somers, Ph.D.	Chemistry of insecticides and fungicides: Analytical methods Mode of action of fungicides
D. Woodcock, D.Sc., Ph.D. M. Clarke (Mrs.)	Organic chemistry

1. Agriculture (*continued*)

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

W.D.E. Thomas, Ph.D.	Physical chemistry:
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 and physiology
H.R. Mapother	Spray materials for tropical crops
B.D. Smith, Ph.D.	Biology 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
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)	Nutritional and microbiological aspects of the domestic
M.J. Davey (Miss)	preservation of fruit, vegetables, meat and poultry
K.G. Stott	Culture, utilization, pests and diseases of basket and cricket bat willows
G.M. Clarke	Statistics: design and analysis of experiments; biometry
Agricultural Economics:	
R.R. Jeffrey	Economics of sheep rearing
G.F.C. Mitchell	Survey of mid Somerset
V. Baker	Efficiency standards in farm management
T.E. Godsell	
S.R. Wragg	Economics of beef production
W.J.G. Cowie	Accommodation of farm workers
E.B. Fekete, LL.D.	Production and marketing of fruit and vegetables in the Vale of Evesham
L.J. Hewett	Analysis and interpretation of farm accounting data

2. Anaesthetics

J. Clutton-Brock	Application of electroencephalography to anaesthesia
(Head of Department)	The effect of anaesthesia on the significance of sensory stimuli
G.W. Burton	Autonomic activity during anaesthesia
J.H. Challenger	Nerve block in the treatment of intractable pain
V.T. Baxter	Methods of display of mechanisms of re-breathing

3. Anatomy

Professor J.M. Yoffey, M.D.	Quantitative studies of blood formation, and factors controlling it
with B.L. Dowling	Studies of human foetal blood formation
A. Murray Wilson	
W.J.C. Rich	Effect of irradiation upon the bone marrow
M.K. Tidman	
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.	Nitrogen metabolism and respiration in plants, including kinetics of amino-acid biosynthesis, nucleic acid metabolism, and enzyme studies
B.F. Folkes, Ph.D.	
A.P. Sims, Ph.D.	
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	Osmotic pressure and extracellular space
A.R. Battersby, Ph.D.	Biosynthesis of alkaloids
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
J.F. Hope-Simpson, D.Phil.	Ecology of the vegetation of chalk and limestone soils
B.F. Folkes, Ph.D.	Respiration in plants and micro-organisms Plant biochemistry
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
A.P. Sims, Ph.D.	Metabolism of nitrogen in plants and micro-organisms

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.	Binary compounds of metals with carbon, boron, silicon, sulphur and phosphorus formed at high temperature
E.W. Abel, Ph.D. G. Nickless Ph.D.	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

6. Chemistry (*continued*)

Inorganic and Physical (*continued*)

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
	Photochemical reactions of acetylene
A. Couper, Ph.D.	Hydrogen-activating enzymes
	Heterogeneous catalysis of hydrogen reactions
	Adsorption and diffusion of polymers at metal-solution interfaces
F.S. Stone, Ph.D.	Adsorption and catalysis on metals, oxides and sulphides
	Measurement of heats of adsorption, semi-conductivity and magnetic susceptibility
	Chemistry of the solid state
N.S. Hush, D.Sc.	Kinetics of electrode processes
	Spectra of hydrocarbon ions
	Electronic structure of inorganic complexes
R. Parsons, Ph.D.	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
R.J. Munn	Thermodynamics of solutions
	Intermolecular forces

Organic:

Professor W. Baker, D.Sc., F.R.S.	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.	
J.W. Barton, Ph.D.	
J.F.W. McOmie, D.Phil., D.Sc.	Pyrimidines; natural products; quinones
W.D. Ollis, Ph.D.	Structure, synthesis and biosynthesis of natural products including antibiotics, terpenoids and naturally occurring oxygen heterocyclic compounds
I.O. Sutherland, Ph.D.	
	Chemical taxonomy
L. Hough, Ph.D.	Carbohydrate chemistry and biochemistry
A.R. Battersby, Ph.D.	Structure and synthesis of alkaloids and peptides; studies on alkaloid biogenesis using tracer techniques; chemistry of isoquinoline and indole
R. Binks, Ph.D.	

7. Dental Studies

Medicine:

Professor A.I. Darling, D.D.Sc.	The pathology of caries of the dental enamel The nature of structural faults of the teeth including hypoplasia, fluorosis and aurelogenesis imperfecta
J.P. Fletcher	Variations in keratinization with age of the buccal mucous membrane
M.V. Stack, Ph.D.	Growth rates of deciduous teeth Biochemistry of developing enamel
D.F.G. Poole, Ph.D.	Fine structure of tooth tissues

Surgery:

Professor E.W. Bradford	The structure and pathology of dentine, with special reference to the development of the carious lesions
H.S.M. Crabb, Ph.D.	Development and calcification of normal dental enamel Crystallite arrangement in normal dental enamel
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 interocclusal clearance
A.W. Brooks	Some structural abnormalities of human dental enamel
K.V. Mortimer	Pathology of the lesions of enamel caries
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
T.V. Lawson	Experimental studies of diffusion
R. P. Boswell	Theoretical and experimental studies of helicopter rotors
J. Tinkler, Ph.D.	Preliminary studies of the stability of systems governed by
J.W. Flower	linear differential equations with variable coefficients
D.H. Lloyd	Studies of oscillating pressures in boundary layers Thrust from annular nozzles and performances of air intakes; flow fields due to lifting engines 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

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.	Battened struts; steelwork joints with high strength bolts
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.	Irregular slabs on elastic foundations; stresses in arch dams
M.C. Quick, Ph.D.	Behaviour of fluid vortices

8. Engineering (*continued*)

Electrical:

Professor G.H. Rawcliffe, D.Sc.	Problems in medium and small electrical machinery and plant, and in electrical measurement. In particular,
W. Fong, Ph.D.	problems related to machinery for control purposes;
R.F. Burbidge, Ph.D. and colleagues	unbalanced machine analysis; saturable core devices, and rectifiers
	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
F. de la C. Chard	Use of model techniques and calculating boards in power system analysis and transient stability studies
H. Sutcliffe	Application of semi-conductor devices

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. Gaydon	Theory of plasticity
H. Nuttall, Ph.D.	Upper and lower bounds of collapse loads
L. Sowerby	Boundary layer theory
G. Poots, Ph.D.	Laminar flow, heat transfer

9. Geography

Professor R.F. Peel, M.B.E.	Physiography of arid lands
	Geomorphology of N. and S.W. England
	Geomorphology of Ruwenzori Mountains
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
	Graphical representation of climatic time-series
A.M. Graves	Studies in regional geography
A.E. Frey	Geomorphology of the Bristol area
	Industrial location, settlement and geomorphology of Exmoor

9. Geography (*continued*)

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

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 and Llandovery brachiopods 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
D.T. Donovan, D.Sc., Ph.D.	Submerged erosion features around S.W. England Mesozoic rocks of E. Greenland. Bathonian stratigraphy of Bath area. Palaeontology of Liassic ammonites Pleistocene of Bristol district Geology of the sea-floor south of Dorset and of the Bristol Channel
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 the Queen Elizabeth Islands in Arctic Canada Cambro-Ordovician rocks of N.W. Scotland Cambrian stratigraphy of South Wales
R.J.G. Savage, Ph.D.	Tertiary mammal faunas of N.W. Iran Tertiary mammals of Hampshire Basin Faunas of the Rhaetic Bone Bed 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
S.C. Matthews	Upper Palaeozoic geology of the Callington—Bere Alston area British Upper Palaeozoic conodont faunas Lower Carboniferous ammonoids

11. Horticulture

T.E.T. Bond, D.Sc.	Morphology, diseases, and social history, of horticultural plants (especially ornamentals) Parasitism and taxonomy in fungi
V.W. Fowler	Biology and control of certain pests of horticultural plants

12. Mathematics

Applied:

Professor L. Howarth, O.B.E., F.R.S.	Fluid mechanics
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.	

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
R.E. Reifenberg	Analysis
J.M. Marstrand, D.Phil.	

13. 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

14. Microbiology

Bacteriology:

Professor K.E. Cooper, Ph.D.	Studies in the activity of antibiotics and antiseptics Morphological changes under different conditions
A. Mayr-Harting (Mrs.), M.D., Ph.D.	Studies in growth of bacteria Phages and colicines
A.H. Linton, Ph.D.	
G.C. Ware, Ph.D.	
E.A.van Horn (Miss)	
A.J. Hedges, Ph.D.	Penicillinases
H.R. Cayton	Public health laboratory methods in the control of disease
S.K.R. Clarke (Miss) M.D.	Survey of enteroviruses in normal children
S.K.R. Clarke (Miss), M.D.	Investigation of respiratory syncitial virus
D.B. Peacock	
W.L. Greenham	Survey of rabbit mucoid enteritis Investigations into virus-host cell relationships
A.H. Linton, Ph.D.	Bacteriology of infections in animals
W.A. Gillespie, M.D.	Epidemiology of wound and urinary tract infection Operation of hospital sterilizing plant
M.P. English (Miss)	Mycology of human and animal diseases

15. Obstetrics and Gynaecology

Professor G.G. Lennon	Aetiology and treatment of toxaemia of pregnancy Aetiology of congenital abnormalities
T.M. Abbas, M.D.	Vital capacity changes in pregnancy Post-menopausal bleeding Relationship of minimal albuminuria and asymptomatic urinary infection
P.C. Sen Gupta	Study of exfoliative cytology in normal and abnormal pregnancy

16. Ophthalmology

A.G. Palin (Head of Department) with R.C. Tudway	Investigation of radioactive phosphorus in the detection of ocular malignancy
P. Jardine	Anterior chamber acrylic implants
C.A. Brown	Diseases of the eye in the premature infant
C.I. Phillips	"Low-tension" glaucoma
	Retinal detachment

17. Otorhinolaryngology

J.A. James, M.D.	Treatment of lymphoid hyperplasia of the nasal pharynx with radiation
G.A. Dalton	Aetiological factors in nasal allergy
	The action of ultrasonic radiation on the inner ear
	Hypophysectomy for hormone-dependent neoplasms

18. 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
A.B. Raper, M.D. with A.V. Neale V.J. Marrian (Miss)	Chromosomes in infancy and childhood
V.J. Marrian (Miss)	Uses of a genetic advice service in practice
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

19. Pathology

Professor T.F. Hewer	A study of normal and tumour melanoblasts by "dopa" and fat stains, to elucidate the relationship between melanomas and other naevoid tumours
O.C. Lloyd, M.D.	
E.S. Meek, M.D.	
C.H.G. Price, M.D.	A study of tumours of bone derived from the Bristol Bone Tumour Register
G.M. Jeffree (Miss), Ph.D.	The relationship of skeletal growth and development to bone forming tumours, both benign and malignant
K.B. Taylor	The protection of prostatic acid phosphatase by polypeptides and polyamines
	The protective and inhibitory effects of acid and neutral polysaccharides on prostatic acid phosphatase
	The physicochemical basis of the interactions of thiazine dyes with acid mucopolysaccharides
	An experimental study of the nucleic acids and nucleoproteins in malignant cells

20. 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 adrenocortical hormones Water and electrolyte metabolism in mammals
K. Lederis, Ph.D.	Electron microscopy of and pharmacological activities in hypothalamus

21. 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.	Creep and fatigue in metal
C.R. Burch, C.B.E., Ph.D., F.R.S.	Mineral dressing and applied optics
W.M. Gibson, Ph.D.	Nuclear physics with high energy accelerators
P.H. Fowler, D.Sc.	Nuclear physics at extremely high energies
D.H. Perkins, Ph.D.	High altitude cosmic ray experiments with balloons
C.J. Waddington, Ph.D.	Primary cosmic radiation
R.G. Chambers, Ph.D.	Low temperature physics; magnetoacoustic effect in pure metals
D.F. Gibbs	Dielectric and semi-conducting properties of crystals; high pressure physics
H.F. Kay, Ph.D.	X-ray crystallography
A.R. Lang, Ph.D.	X-ray diffraction
A.F. Devonshire, Ph.D.	Theory of ferroelectrics
J.F. Nye, Ph.D.	Plastic deformation of crystals: glaciology
G.N. Fowler, Ph.D.	Theoretical physics: mesons; field theory; many body problems
P.M. Llewellyn, D.Phil.	Magnetic resonance
A.J. Forty, Ph.D.	Physics of materials; stress corrosion; radiation damage
D. Parsons, Ph.D.	Low temperature physics
J. G. Milne, Ph.D.	
R. Mercier, Ph.D.	Theoretical physics
A. Keller, Ph.D.	Crystallization of long-chain polymers
D. Gugan, Ph.D.	Thermal expansion of solids at low temperatures
J.G. Baker, Ph.D.	Millimetre wave spectroscopy

22. 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 Role of co-enzyme A in bovine ketosis
F.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.	
T.D. Williams, M.D.	
A.S. Cole (Miss), Ph.D.	Soluble material of the gastrointestinal tract
C.F. Phelps, D.Phil.	Mucopolysaccharides and extracellular space
A.F. Rogers, M.D.	Energy expenditure in the Antarctic
T.D. Wiliams, M.D.	Functional development of the neonatal cortex

23. Psychiatry

R.E. Hemphill, M.D. (Head of Department)	Mental illness in child-bearing Studies of disturbances in sleep Creative potentials in old age Effect of drugs on conditioning therapy
R.E. Hemphill, M.D. M. Valentine	Investigation of the rehabilitation of chronic psychotics and problems of day hospital theory
M. Valentine	Motivation towards employment in psychoses
A. Leitch, M.D.	Controlled trials of drugs in psychiatry Investigation of sedation threshholds
P.K.G. Warren	Electroencephalograph changes associated with old age
A. Flood	Vagrancy and psychiatric disorder in casuals
R.F. Barbour W.L. Walker	Serial electroencephalograms on premature children with definite anoxia at birth compared with premature children not anoxic at birth and full-time children not anoxic at birth
R.F. Barbour G. Woods (Mrs.)	Serial electroencephalograms on cerebral spastics, the electroencephalograph findings being correlated with specialized intelligence tests and non-motor sensory and co-ordination defects
R.F. Barbour	Follow-up enuretics
W.L. Walker G. Woods (Mrs.)	Studies of abnormalities of amino-acid metabolism in mental defectives and their families
W.A. Heaton Ward	The effect of new drugs on behaviour disorders in mental defectives The effect of muscle relaxants on muscle performance in spastics

24. Psychology

Professor K.R.L. Hall	Pain and stress. Animal behaviour
L.R. Bowyer (Miss)	Child development. Thinking and perception studied by projective techniques
F.H. George, Ph.D.	Cybernetics and its application to learning and perception; logic
I.W. Pleydell-Pearce, Ph.D.	Conflict, fatigue and stress
K.F.H. Murrell	Occupational psychology; equipment design; problems of older workers
S. Griew, Ph.D.	Skilled performance Psychological aspects of ageing

25. Public Health and Social Medicine

Professor R.C. Wofinden, M.D.	Problems of public health administration
P.W. Bothwell	Epidemiology Motor cycle accidents
E.H.L. Duncan (Miss)	Medical statistics
M.D. Gibson (Miss)	Investigations into causes of "athlete's foot"
G. Herdan, Ph.D., Ll.D.	Statistics of lung cancer in relation to those of other bronchial diseases Comparison of occupational mortality on the basis of the 1931 and 1951 censuses Frequency of cancer in diabetes mellitus "Normalcy" in clinical and epidemiological research
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

26. Radiodiagnosis

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

27. 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
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

28. Surgery

Professor R. Milnes Walker	Portal circulation and portal venous obstruction
C. Shaldon J.H. Peacock	Endocrinological aspects of vasospastic disorders
R. Belsey	Clinical research into diseases of the oesophagus: chiefly congenital atresia of the oesophagus and benign oesophageal strictures
G.L. Alexander	Cerebral vascular conditions
K.H. Pridie	Aetiology of osteo-arthritis of the hip
W.M. Capper	Post-gastrectomy syndromes
H.J. Espiner	Treatment of cancer by chemotherapy

29. Veterinary Studies

Anatomy:

Professor C.W. Ottaway, Ph.D.	Functional anatomy of locomotion in animals
A.S. King, Ph.D.	The respiratory tract of the bird
A.S. King, Ph.D. R.N. Smith, Ph.D.	Functional anatomy of the intervertebral disc
R.N. Smith, Ph.D.	Development of the colon in domestic ruminants Skeletal development in the domestic animals
A.W. Marrable	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

29. Veterinary Studies (*continued*)

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 the young pig
D.L. Dungworth, Ph.D.	Psittacosis-lymphogranuloma venereum group viruses in diseases of sheep
R.H. Penny	Erythropoietic factors in anaemic plasma
A.I. Wright	

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

30. 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
P.M. Jenkin (Miss), D.Sc.	Biology of flamingoes
H.P. Whiting, Ph.D.	Anatomy and physiology of the nervous system
P.C. Caldwell, D.Phil.	Ion transport in muscle and nerve

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
B.W. Bache	The reactions between phosphates and the hydrous oxides in acid soils
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
†E.C. Childs, Sc.D.	Soil physics, with special reference to water movement

*Director, University Farm

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

1 Agriculture (*continued*)

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. W.J. Ridgman	Experimental studies in crop husbandry
W.J.S. Kershaw	A study of natural factors which influence population fluctuations of *Myzus persicae* and *Aphis fabae* on sugar beet
J.L. Joy	Farm management studies in relation to problems of economic growth and development
E.J.M. Kirby, Ph.D.	Physiology of the flowering of grasses
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
W.M.F. Leat, Ph.D.	Vitamin studies in the pig with particular reference to the requirement and metabolism
P.H. Lowings, Ph.D.	Root diseases of cereal crops
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 P.G. James	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.	Neuroembryology
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.	Cerebro-spinal fluid and experimental teratology

2. Anatomy (*continued*)

G.H. Wright, M.D.	Neurology of perception and language
E.H.R. Ford, M.D.	Growth
G. Horn	Experimental neurology
R.T. Sims	Vascularization of nervous system
P.R. Lewis, D.Phil.	Histochemistry
Veterinary Anatomy:	
R.A. Green, Ph.D.	Locomotion in mammals
B.A. Cross, Ph.D.	Neuroendocrinology
A.R. Akester	Cine-radiography: avian respiration
I.A. Silver	Polarography in tissues Neuroendocrinology
D.H. Steven	Vascular anatomy

3. Anthropology

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
M. Southwold	Sociology of East African Bantu

4. Archaeology

Professor J.G.D. Clark	World prehistory Mesolithic cultures of Europe
G.E. Daniel, Ph.D.	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 of aspherical surfaces, especially Schmidt and related systems
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

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. G.H. Smith, Ph.D.	Mechanism of action of insulin on carbohydrate metabolism
A. Korner, Ph.D.	Hormonal control of protein synthesis in cellular particles
H.B.F. Dixon, Ph.D.	Corticotropic and melanocyte-stimulating hormones
M. Dixon, Sc.D., F.R.S. E.C. Webb, Ph.D.	Enzyme biochemistry

See also* **Mathematics

6. Biochemistry (*continued*)

*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
‡D.M. Needham (Mrs.) Sc.D., F.R.S.	Biochemistry of uterine muscle
Sir Rudolph Peters, M.D., F.R.S.	Biochemistry of compounds containing the carbon-fluorine group

7. Biology and Parasitology

MOLTENO INSTITUTE

P. Tate, Sc.D.	Parasitic protozoa and parasitic insects
Professor D. Keilin, F.R.S.	Cellular biology, especially metalloprotein 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
†T. Mann, Sc.D., F.R.S. †C. Lutwak-Mann (Mrs.) Ph.D.	Biochemistry of spermatozoa and accessory glands of reproduction

8. Botany

Professor H. Godwin, Ph.D., Sc.D., F.R.S. R.G. West, Ph.D. D.M. Churchill	Quaternary research (pollen analysis, vegetational history and geology)
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
M.G. Pitman, Ph.D.	Salt uptake by plant 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. H.J. Hudson, Ph.D.	Fungal and bacterial plant diseases

*M.R.C. Research Unit for Chemical Microbiology: Director, Professor E.F. Gale, Sc.D., F.R.S.

†A.R.C. staff ‡Financed by A.R.C. ‖M.R.C. staff

§M.R.C. Group for Research in Chemotherapy

8. Botany (*continued*)

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

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 Sir Alexander 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

9. Chemistry (*continued*)

Physical (*continued*)

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

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

Professor Sir John Baker, O.B.E., F.R.S.

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	Supersonic and transonic flow

Applied Mechanics:

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

11. Engineering (*continued*)

Applied Thermodynamics:

Professor W.R. Hawthorne, F.R.S.	Problems in applied thermodynamics Flexible ships
H.G. Rhoden	Air flow in compressor blade cascades, in rotating blade rows and in ducts
P. de K. Dykes, Ph.D.	Motor industry research problems
R.W. Haywood	Two-phase flow
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.	Vibration of axial compressor and turbine blades
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
P.J. Banks	Dynamics of fluids with density gradients

Chemical:

Professor P.V. Dankwerts, G.C., M.B.E.	Mixing of fluids; gas absorption
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
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, Ph.D.	Reaction kinetics
D. Harrison, Ph.D.	Fluidization
R.M. Nedderman, Ph.D.	Two-phase flow
J.R.A. Pearson, Ph.D.	Non-Newtonian flow dynamics

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	The use of functionals and the application of the 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 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

11. Engineering (*continued*)

Electrical:

Professor C.W. Oatley, O.B.E.	Applications of the scanning electron microscope
G.E. Middleton	Anomalous losses in induction motors
J.C.S. Shaw	Application of electronic switches to the control of a.c. machines
K.F. Sander, Ph.D.	Electron trajectory problems and the design of electron guns
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
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 Plasma physics

Hydromechanics:

A.M. Binnie, F.R.S.	Swirling flow in nozzles; 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	The organization of design teams
F.J. Willett	Problem solving in technical organizations
E.D. van Rest	Small group behaviour
A.D.P. Cunningham	

Soil Mechanics:

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

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 pressed steel sections
K.J. Pascoe	Stress analysis
T.M. Charlton	Shell theory
R.K. Livesley, Ph.D.	Dynamic loading of structures
J.L. Reddaway	Column instability
D.B.C. Taylor, Ph.D.	Plastic theory of structures
L.G. Jaeger, Ph.D.	Automatic computation of structures
H.S.L. Harris	
W.D. Biggs, Ph.D.	
J. Heyman, Ph.D.	
E.K. Frankl	
R.P. Johnson	
F.A. Leckie, Ph.D.	
C.R. Calladine	
J.B. Dwight	
R.P.N. Jones	
D.J. Payne	
B.D. Threlfall	

12. Genetics

Professor J.M. Thoday	Developmental genetics of *Antirrhinum*, *Drosophila* and the mouse
T. Alderson, Ph.D.	
W.F. Bodmer, Ph.D.	Genetics and population genetics of heteromorphic plants
J.B. Gibson, Ph.D.	Linkage and affinity in the mouse
A.R.G. Owen, Ph.D.	Mathematical and statistical genetics
P.A. Parsons, Ph.D.	Mutagenesis in phage
J.A. Pateman, Ph.D.	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*

13. Geodesy and Geophysics

Sir Edward Bullard, Sc.D., F.R.S. (Head of Department)	Magnetism and geothermal work Age determination of rocks
B.C. Browne	Gravimetry
M.N. Hill, Ph.D.	Ocean structure and seismographs
J.E. Jackson	Pendulum measurements
J.C. Belshé, Ph.D.	Palaeomagnetism

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.)	Topics in 19th century historical geography
B.W. Sparks	Geomorphology of parts of E. Anglia: interpretation of non-marine Mollusca of Quaternary deposits
A.T. Grove	Land use in relation to geomorphology in Africa, especially in the Sudan zone of N.E. Nigeria
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	Comparative morphometry

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	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 Research in general medical practice 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
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
R.A. Lyttleton, Ph.D., F.R.S.	Astronomy
L. Mestel, Ph.D.	Astrophysics
H.K. Moffatt	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
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. J.C.P. Miller, Sc.D. D.J. Wheeler, Ph.D. H.P.F. Swinnerton-Dyer	Design and operation of automatic computing machines

Pure Mathematics:

Professor P. Hall, F.R.S. D.R. Taunt, Ph.D.	Algebra
Professor Sir William Hodge, F.R.S. D.W. Babbage, Ph.D. J.A. Todd, Ph.D., F.R.S.	Algebraic and differential geometry
A.J. Ward, Ph.D. C.T.C. Wall, Ph.D. E.C. Zeeman, Ph.D.	Topology

17. Mathematics (*continued*)

Pure Mathematics (*continued*)

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.R. Ringrose, Ph.D.	
J.H. Williamson, 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 Dynamics and calculus of variations

STATISTICAL LABORATORY

A.M. Walker	Statistics
V. Cane (Miss)	

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.	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.	Renal function of the foetus
*I.M. Barrett (Miss)	Absorption and excretion of dietary constituents
*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
*R.D. Montgomery	Toxic substances in pulses used for food in Jamaica
*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)	Excretion of hydrogen ions in the urine

*M.R.C. staff

†M.R.C. Clinical Research Fellow

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, double layer studies; corrosion of lead
G.C. Smith	Mechanism of fatigue in aluminium alloys, fatigue of metals at high temperatures and high stresses, 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
A. Kelly, Ph.D.	Tensile properties of magnesium alloys, 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	Inclusions in steel; oxidation studies on molten metals
J.P. Chilton, Ph.D.	Mechanisms of solidification of eutectics: production of ultra-fine wire filaments
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.	Precipitation in aluminium 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.	Plastic deformation of non-metals X-ray microscopy

20. Mineralogy

Professor W.A. Deer	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 E.J. McIver	Physicochemical mineralogy
J.V.P. Long, Ph.D.	X-ray microanalysis
J.H. Scoon	Mineral and rock analysis

21. Pathology

R.I.N. Greaves, M.D.	Freeze-drying of bacterial cultures and proteins
K.C. Dixon, M.D., Ph.D.	Cytochemistry of cellular injury
G.R.E. Naylor, M.D.	Serum precipitation reaction

21. Pathology (*continued*)

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
G.A. Gresham, M.D.	Histopathological and histochemical studies of naturally occuring and experimentally induced atherosclerosis Virulence of fungi
A.P. Waterson, M.D. J.G. Cruickshank	The structure 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
A.M. Barrett, M.D.	The structure and dimensions of arteries in health and disease. Hypophosphatasia. Sudden death in infancy
D.G. Chalmers	Investigation of leucocyte antibodies Haematological radioisotopes technique Haematolytic disease of the newborn
C.S. Treip, M.D.	Experimental pituitary tumours
J. Rack	Cytology of tumour cells Changes in the hearts of patients who have died from pulmonary embolism
R.W. Ainsworth	Studies on staphylococcal α-toxin
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 and Therapeutics

F. Howarth, M.D.	Cerebro-spinal fluid
H.F. Grundy	Suprarenal function
C.V. Greenway	Poisonous plants

23. Physics

Professor N.F. Mott, F.R.S.	Physics of the solid state
Professor O.R. Frisch, O.B.E., F.R.S.	Nuclear physics: analysis of bubble chamber measurements
E.S. Shire	Energy levels in light nuclei
G.L. Squires, Ph.D.	Neutron diffraction (A.E.R.E. equipment)
K.F. Smith, Ph.D.	Molecular beams
D.V. Bugg, Ph.D.	Nuclear physics, bubble chamber measurements and counter experiments
J.M.C. Scott	Theory of nuclear properties
W.H. Taylor, Ph.D., D.Sc. H. Megaw (Miss), Ph.D. W. Cochran, Ph.D.	Development of methods of analysis of crystal structure, applications to complex metallic phases, minerals and ferroelectric materials
P.B. Hirsch, Ph.D.	Applications of electron microscopy and crystallography, study of deformation and defects in metals
J.M. Ziman, Ph.D.	Theory of transport phenomena in metals
P.C. Clemmow, Ph.D. K.G. Budden, Ph.D.	Theoretical electrodynamics and radio

23. Physics (*continued*)

B.H. Briggs, Ph.D. J.O. Thomas, Ph.D.	Physics of the upper atmosphere: propagation of radio waves through the ionosphere, and their use to study its structure and movements
Professor M. Ryle, F.R.S. F.G. Smith, Ph.D. A. Hewish, Ph.D. J.E. Baldwin, Ph.D. B. Elsmore	Radioastronomy: radio frequency radiations from the sun and galaxy
T.W. Wormell, Ph.D. C.D. Walshaw, Ph.D.	Meteorological physics: atmospheric electricity and thunderstorms; physics of rain clouds (radar studies); radiation problems in the stratosphere
D. Shoenberg, Ph.D., F.R.S. J. Ashmead, Ph.D. Professor A.B. Pippard, Ph.D., F.R.S. T.E. Faber, Ph.D. W.F. Vinen, Ph.D. V. Heine, Ph.D. C.J. Adkins, Ph.D. M.J. Whelan, Ph.D.	Low temperature physics; electrical, magnetic and thermal properties of metals including superconductivity; properties of liquid metals; theory of metals
V.E. Cosslett, Ph.D. K.C.A. Smith, Ph.D.	Electron microscopy; optics of electron lenses; development of the instruments and techniques of specimen preparation; microscopy and microanalysis with X-rays Biophysical studies of the effects of electron microscope procedures on micro-organisms
Sir Geoffrey Taylor, F.R.S. A.A. Townsend, Ph.D., F.R.S.	Laminar and turbulent motion of fluids
F.P. Bowden, Sc.D., F.R.S. D. Tabor, Sc.D. A.D. Yoffe, Ph.D. A. Bailey (Miss), Ph.D.	Physics and chemistry of solids, particularly surfaces, friction, decomposition in the solid state, mechanical properties of materials at high temperatures
*M.F. Perutz, Ph.D., F.R.S. J.C. Kendrew, Ph.D., F.R.S. F.H.C. Crick, Ph.D., F.R.S. S. Brenner, Ph.D.	The structure of crystalline proteins, including the structure of haemoglobin and myoglobin
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

*M.R.C. Unit for Molecular Biology

24. Physiology (*continued*)

Professor A.L. Hodgkin, F.R.S.	Physicochemical studies of single cells with particular reference to nerve and muscle
R.H. Adrian	
I.M. Glynn, Ph.D.	
R.S. Comline, Ph.D.	Physiology of the ruminant and young animal
D.A. Titchen, Ph.D.	
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.	
T. Vickers, Ph.D.	Histology. Electron microscopy
J.T. Fitzsimons	Water balance and water intake
M.B. Walker (Miss)	Cellular physiology
P. Donaldson	Electronic technique and models of neural activity
J.G. Robson	Control of muscles
E.A. Bower	Visceral nerves
Professor A.S. Parkes, C.B.E., F.R.S.	Physiology of reproduction
C.R. Austin, D.Sc.	

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 behaviour
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
E.G. Chambers	Industrial psychology. Psychological statistics
*D.E. Broadbent	Perception and communication Applied experimental psychology

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.	
D. Heard (Mrs.), Ph.D.	

*M.R.C. Applied Psychology Research Unit

26. Radiotherapy (*continued*)

Metabolism of compounds of therapeutic interest labelled with carbon 14 and tritium
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

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
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	The metabolism of magnesium and calcium 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 with J.T. Abrams, Ph.D. F.R. Spratling A.C. Palmer	Avitaminosis A in calves
J.T. Abrams, Ph.D.	The biochemistry of blood in relation to nutrition and environment with special reference to dairy cattle
D.W.B. Sainsbury, Ph.D.	Environmental studies in relation to animal health, with particular reference to pigs and poultry

27. Veterinary Studies (*continued*)

Clinical (*continued*)

J. Hickman	Vascular pattern in bone and joint diseases
R.G. Walker	Surgical relief of disorders of prostate gland in the dog The use of heterografts in blood vessel surgery
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.	Pathology of the pig Blood groups of the pig Physiology of the newborn Respiratory diseases of pigs
P.D.S. Pugh, M.B.E., Ph.D.	Fasting metabolism in pregnancy
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.	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 neurosphysiology
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

28. Zoology (*continued*)

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
H.B. Cott, Sc.D.	Animal colouration and palatability Biology of big game
C.B. Goodhart, Ph.D.	Evolutionary studies on snails; deep sea fishing nets
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	Systematics of Coleoptera

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*
D. Bellamy	Ecological physiology of mire 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.	Halogen fluorides and organic compounds containing fluoride
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

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

2. Chemistry (*continued*)

Radiochemistry (*continued*)

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	Historical geography of Fife Economic geography of Co. Durham
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
V.B. Proudfoot, Ph.D.	Palaeoclimates, geomorphology
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 pre-glacial 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

5. Mathematics (*continued*)

Professor K. Stewartson	Fluid dynamics
D.H. Wilson	
N. Riley, Ph.D.	
E.F. Baxter	Seismology
J. Hawgood, Ph.D.	Wave mechanics
O.E.W.R. Kurth, Ph.D.	Probability
	Stellar statistics

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	
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
E.M. Williamson (Miss), Ph.D.	Theoretical physics
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
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
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
	Theories of learning
	Philosophical psychology

8. Zoology

Professor D. Barker, D.Phil.	
K.R. Ashby, Ph.D.	Sexual differentiation in teleosts
	Ecology of small woodland mammals
J.C. Coulson, Ph.D.	Biological investigations on sea birds
	The ecology of Tipulidae
L. Davies, Ph.D.	Biological studies on Simuliidae
J. Phillipson, Ph.D.	General biology of Phalangida
D.W. Wood, Ph.D.	Neurophysiology of insects

7 Durham University
King's College, Newcastle upon Tyne

1. Agriculture

Professor M.M. Cooper, F.R.S.E.
Professor W. Williams, D.Sc.

Agricultural Botany:

Professor M. Jones	Management of herbage plants for persistency and production
H.H. Clark (Mrs.)	Ecological variation of herbage plants with reference to selection of improved types. Studies on the intraspecific relationships in the Avenae
J.H.W. Holden	Origin and evolution of cultivated plants
F. Blackburn	The microbiology of soil formation and degradation
	The ecology and physiology of predacious fungi in the soil with particular reference to the nematode trapping organisms

Agricultural Chemistry:

Professor B. Thomas, D.Sc.	Digestive capacity of different breeds of hill sheep for heather
F. Hunter	Mineral mixtures in relation to the known mineral requirements of dairy cows
J. Pringle (Miss), Ph.D.	Restoration problems on opencast coal sites, with special reference to soil structure
A. Thompson	Lime and fertilizer responses on hill swards
E. Kirkby	The effects of gonadal hormones upon the calcium and phosphorus metabolism of the hen—studies in which chemical and radiochemical balance data are used to assess the effects of oestrogen and androgen together and separately
	The influence of high and low energy diets combined with high and low magnesium intakes on the composition of the blood of the rat
	The cation-anion concentrations in the blood of sheep fed high and low magnesium diets
	An assessment of the Ekman and other procedures for the determination of the digestibility of dietary protein in the fowl
	The nitrogen requirement of poultry in terms of total proteins and selected individual amino acids
	Moorland reclamation
	Pedology of hill soils in relation to reclamation
	Soil micromorphology
	Organic matter and phosphorus relationships in soil profiles
	Soil structure and grassland productivity

Agricultural Economics:

E.M. Carpenter	Farm management studies; business analysis; budgeting methods and advisory aids
R.F. Lord	Economics of hill sheep farming
S. Robson	Labour productivity studies; work study techniques; building and farm lay-outs
K. Dent (Miss)	Economics of beef, mutton, dairy, poultry and pig production
T. Winter	Variance analysis of fluctuations in farm profits
G.H. Brayshaw	Income and investment in relation to farmers' business expectations
W.G.R. Weeks	International trade in farm products
A.W. Tansey	
J.G. Blake	

1. Agriculture (*continued*)

Agricultural Engineering:

H. Fail	Rotary cultivation: eradication of rhizomatous weeds (*Agropyron, Agrostis* and *Pteridium* spp.)
A.R. Reece	Land reclamation
P. Payne, Ph.D.	Soil tillage
P. Cowell	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
	Centrifugal fertilizer distribution: analysis of the motion of particles on a spinning disc and in flight through the air
	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 (Homoptera: family Psyllidae). The ancestry and evolution of the Insecta, with special reference to their fossil record
A. Ibbotson	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) of selected agricultural pests, e.g. sheep tick (*Ixodes 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)
*R. Laughlin	
*A. South, Ph.D.	

COCKLE PARK EXPERIMENTAL STATION

Professor M.M. Cooper, F.R.S.E.	Cultural and manurial experiments with farm crops
A. Main D.S. MacLusky, Ph.D.	Effects of defoliation on subsequent productivity of leys
W. Smith	Progeny testing of Clun sheep
M. Bichard	Selection in poultry
W.J.M. Black, Ph.D.	Dairy cow nutrition studies
	Progeny testing of Friesians for beef
	Farrowing accommodation studies
	Nutrition of heavy pigs
	Silage feeding of sheep
	Hypomagnesaemia studies

2. Anaesthetics

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

*A.R.C. Unit of Insect Physiology

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
N. Cauna, M.D.	Receptors of the skin and mucous membranes and evolution of limbs
T.E. Barlow, M.D.	Vascular supply in muscle and bone
J.E. Gray	Human chromosomes, sex chromatin
R.S. Snell, Ph.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. 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 History of thought concerning evolution; theoretical biology
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

6. Chemistry

Inorganic:

Professor N.N. Greenwood, Ph.D.	Reactions of iodine pentafluoride and other fluorides Hydrides of boron and gallium
E.E. Aynsley, Ph.D.	Thermochemistry and structure of molecular addition compounds
A.B. Trenwith, Ph.D.	Chemistry of metal carbides and borides
A.B. Littlewood	Spectroscopic studies of inorganic compounds Mechanisms of gas-phase pyrolyses Gas chromatography

Organic:

Professor J. Baddiley, D.Sc., Ph.D., F.R.S.	The structure of bacterial cell walls 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 Stereochemistry of terpene substances 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

6. Chemistry (*continued*)

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.	
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

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
C. Jackson, Ph.D.	

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 organic systems Radiation chemistry of steroids Radiation chemistry of nucleic acids and related compounds

7. 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 adhesion 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 Sterilization methods in the dental surgery
D.N. Allan	Influence of cavity form on the dimension of filling materials
H.F. 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
D.R. McMillan	Denture sore mouth; aetiology and treatment The cytology of the oral mucous membrane
L.W. Kay	The incidence, aetiology, diagnosis and treatment of pericoronitis

7. Dental Studies (*continued*)

J.B. Masterton	Response of the dental pulp to trauma Effect of high speed cutting on the dental pulp
Professor I. Rannie	Abnormalities of oral tissue metabolism
J.G. Walton	Survey of the effectiveness of a polyantibiotic paste in root canal therapy
J. Weyman (Miss)	Assessment of caries problem in children with heart defects Method of treatment of septic root canals with open apices
J.R. Porteous	Caries 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
W.H. Littlefield	The effectiveness of a consultant orthodontic service
G.H. Steel	Investigations into criteria of dental maturation

8. Dermatology

Professor J.T. Ingram, M.D.	No information

9. Engineering

Chemical:

Professor J.M. Coulson, Ph.D.	Heat transfer to boiling liquids Heat transfer to fluidized beds Some problems in studying continuous mixing Development of thin film evaporators Separation of organic acids
J.D. Thornton, Ph.D.	Study of the heat transfer characteristics of two-phase gas-liquid systems Heat transfer studies in slurry 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 Measurement of individual film coefficients in liquid-liquid extraction systems
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

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
J.R. Simpson	The treatability of organic wastes, using large volume respirator apparatus
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

9. Engineering (*continued*)

Civil (*continued*)

T.E.H. Williams, Ph.D.	Basic travel habits in urban areas
J.D. Geddes, Ph.D.	Properties of lateritic soils
	Soil mechanics aspects of mining subsidence
	Properties of grout for use in prestressed concrete
	Thermal stresses and movements in 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
	An automatic plastic design for plane frames
	Effect of mining subsidence on plane frames
	Suspension bridge theory
	Automatic design of floor systems

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
P. Short	Portable bridges for wide-range resistance measurement at 50 c/s
J.T. Kennair	Automatic plotting of electron trajectories
A.G.J. Holt, Ph.D.	Investigation of circuit noise in oscillators
J.L. Dineley	The limitations of current transformers in power system protection

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
F.J. Bayley, Ph.D. and others	General studies of pulsating flow
	Natural convection in liquid metals
	Heat transfer by natural convection in the closed thermosyphon and effect of Coriolis forces
	Heat transfer in thermal regenerators under pulsating flow conditions
	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
G. Walker	Study of the reversed Stirling cycle
J. Linge	Stresses in reinforced apertures in pressure vessels
A.W. Jones	Dynamics of free piston machinery
B. Porter	Non-linear vibrations in universal joints

9. Engineering (*continued*)

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
D.B. Edwards	Study of the effect of bolting reinforcements on the stress distribution around mining excavations 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 A. Emerson W. Robson	Propeller cavitation: Systematic series tests with model propellers in cavitation tunnel
R.L. Townsin F. Leathard P. Mars	Vibration: Effect of entrained water on vibration frequencies of long bars of different cross-sectional shape
	Ship resistance: Application of wave-resistance calculations to ship-hull design Ship-model towing tests
E.J. Glover	Application of low aspect-ratio lifting-surface theory to propellers
J.F. Wellicome	Study of the wake pattern behind axi-symmetrical bodies
F. Taylor	Application of computer to naval architecture and shipbuilding
J.E. Turner	Pressure measurements around ship models in still water and in waves
B.S. Bowden	Theoretical and experimental investigation of ducted propellers

10. 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
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 Greenland and in Antarctica

11. 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
	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.	Ultrabasic rocks of Jotunheim, Norway and Dun Mountain, New Zealand
	Spilites 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 Altarnum district, Bodmin Moor
	Structures of the Lower Palaeozoic rocks from Siccar Point to Burnmouth, Berwickshire
D.G. Murchison, Ph.D. with Research Unit A. Davis	Correlation of physical properties, chemical composition and petrographic components of coal
J.M. Jones, Ph.D.	Coal in relation to Carboniferous sedimentation
M.A. Lappin	Eclogites and related rocks in Norway
N. Farmer	Stratigraphy of the Limestone group of the Carboniferous of Northumberland

12. Mathematics

Applied:

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

12. Mathematics (*continued*)

Computation:	
E.S. Page, Ph.D.	Numerical analysis
H.I. Scoins, D.Phil.	Operational research
J. Eve, Ph.D. M.J. Elphick	Commercial application of automatic computers
Pure:	
Professor F.F. Bonsall	Functional analysis
R.W. Carter, Ph.D.	Group theory
N. Du Plessis, Ph.D.	Theory of functions
D.A. Edwards, D.Phil.	Functional analysis
A.W. Goldie	Theory of rings
R. Harrop, Ph.D.	Mathematical logic
H. Reiter, Ph.D.	Harmonic analysis
Statistics:	
D.A. Evans, Ph.D.	Mathematical statistics

13. Medicine

Professor G.A. Smart, M.D. S.G. Owen, 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
R.B. Thompson, M.D. W.E. Mills (Miss)	Trial of oral vitamin B_{12} in pernicious anaemia; long-term study Study of pyridoxine deficiency in pregnancy
R.B. Thompson, M.D.	Clinical study of acute leukaemia in childhood
C.N. Armstrong, M.D.	Nuclear chromosome studies as applied to the diagnosis of sex
H.A. Dewar, M.D.	Clinical trials of coronary vasodilator drugs
H.A. Dewar, M.D. A.R. Horler, M.D. A.J. Cassells-Smith	Trial of treatment of coronary artery thrombosis with intravenous fibrinolysin
A.G. Ogilvie, M.D.	An inquiry into the frequency of bronchitis at home and abroad A study of the bronchographic change in chronic bronchitis A prospective study of the development of chronic bronchitis in 300 cases A study of prognosis in bronchial asthma
T.H. Boon, M.D. Professor G.A. Smart, M.D. S.G. Owen, M.D.	Anticholinergic drug trial in peptic ulceration
J. Vallance-Owen, M.D. M.D. Lilley, (Miss)	Studies on insulin activity and antagonism in plasma, with special reference to the isolation of a hormone-dependent insulin antagonist associated with plasma albumin
H.G. Miller, M.D.	Demyelinating diseases, clinical and experimental, including epidemiological and immunological studies of multiple sclerosis and study of experimental "allergic" encephalitis in animals
J.N. Walton, M.D.	Clinical and experimental research into muscular dystrophy and other muscle diseases including biochemical studies of families of patients with dystrophies, and tissue culture of dystrophic muscle from man and mice with a view to histological and biochemical studies

13. Medicine (*continued*)

G.W. Pearce, Ph.D. R.J. Pennington, Ph.D.	Oxidative phosphorylation in normal and dystrophic muscle
D.D. Barwick	Electron microscopy of normal and dystrophic muscle Serum enzyme studies in muscular dystrophy and other muscle diseases
D.N.S. Kerr W. Elliott D.T. Pearson	Improvements to the efficiency of the artificial kidney
D.N.S. Kerr D.T. Pearson	Study of the action of diuretics and aldosterone antagonists
Professor G.A. Smart M.D. A. Robson	Development of a quantitative method of measuring the Achilles tendon jerk
S.G. Owen, M.D. F. Clark	New method for measuring saturation of thyroid hormone carrying plasma protein
T.H. Boon, M.D. R.O.K. Schade, M.D. G. Middleton	Investigation into cytological changes in the human stomach

14. 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 Hardening of aluminium by precipitated particles
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	Structure and metallography of alloys of iron, carbon and nitrogen
D. Hardie, Ph.D.	Effect of hydrogen on zirconium alloys Adsorption of gases on oxides Lattice defects in quenched alloys
J.D. Meakin, Ph.D.	Studies of the yield and flow of polycrystalline alloys
A.E. Wraith	Inter-phase mass transfer in refining processes

15 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 C.A.H. Trench	Tissue culture
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 psittacosis virus
D.C. Turk	Respiratory tract carriage of *Haemophilus influenzae*

16. Obstetrics and Gynaecology

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

17. Occupational Health

Industrial:

Professor R.C. Browne, D.M.	Human response to machine indicator displays: application of physiological principles to design of indicators
R.I. McCallum, M.D.	
G.L. Leathart	Experimental and social study of aetiology of miners' nystagmus
J. Steel, Ph.D.	Investigation of form of teaching best suited to combine the clinical, social and industrial aspects of disease
D.J. Newell, Ph.D.	Investigation into the relationship between occupation, health and the social effects of both
R.W. Ellis	†Investigation into problems of hospital administration
J. Lion (Mrs.)	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
	†Organization of industrial health service on Tyneside
	Clinical trial of anti-tuberculous chemotherapy in sputum-negative progressive massive fibrosis of coal miners
	Lead absorption and poisoning in shipbreaking

18. Orthopaedics

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

19. 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

*Under the auspices of the M.R.C.

†Under the auspices of the Nuffield Provincial Hospitals Trust

20. 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. G.S. Anderson, M.D.	A clinical and pathological study of the respiratory distress syndrome in the newborn
G.A. Neligan, D.M.	Measurement of blood pressure in newborn infants
W. Walker, M.D. M.E. Barton (Miss)	Studies in neonatal hyperbilirubinaemia
F.J.W. Miller, M.D. M.D. Taylor (Miss), M.D.	Continuing observation of the clinical course and outcome in 600 children in whom the exact time of primary tuberculous infection was known. This is part of a comprehensive study of the natural history of tuberculosis in childhood
M.E. Morley (Miss), D.Sc. Professor S.D.M. Court, M.D.	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. J.D. Andrew	Respiratory function testing in normal children and children with chronic respiratory disease
E.G. Knox, M.D.	Epidemiological and genetic aspects of children's diseases

21. Pathology

Professor A.G. Heppleston, M.D.	The pulmonary deposition and disposal of inhaled particulate matter, using a double-dusting technique The electron microscopy of the lung in pathological states, human and experimental The mechanism of serum polysaccharide elevation in experimental inflammatory and neoplastic states
R.O.K. Schade, M.D.	Early carcinomatous lesions of the stomach Histochemical study of gastric mucosa in health and disease The relationship of chronic gastritis to peptic ulceration and carcinoma
A.J. Watson, M.D.	Fat embolism Ulcerative colitis
J. Hart-Mercer	Congenital hepatic fibrosis
E.J. Field, M.D.	Experimental allergic encephalomyelitis
C.H. Corby	Myocarditis in relation to sudden death Estimation of time since death
S.M. Murray	Experimental renal tubular damage
I. MacLeod	Auto-immune mechanisms
G.W. Pearce, Ph.D.	Tissue culture and electron microscopy of striated muscle
Chemical:	
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
R.J. Pennington, Ph.D.	Biochemical studies related to muscular dystrophy
J.C.B. Fenton	Origin of ammonia in blood under normal and diseased conditions

22. 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

23. 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
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
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 semi-conductors. 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
H.C. Bolton, Ph.D.	Quantum theory of solids
I.D.C. Gurney, Ph.D.	Statistical mechanics and solid state theory
P.J. Wood, Ph.D.	Many body problem Hydrodynamics and hydromagnetics

24. Physiology

Professor A.A. Harper, M.D., F.R.S.E. T. Scratcherd H.J. Lake, Ph.D. E.L. Blair	Physiology of digestion: Gastric and pancreatic secretion
B. Schofield, M.D.	Control of gastric secretion
J.A. Saunders, Ph.D.	Fat digestion
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 Composition of dental plaque
D.E. Wright, Ph.D.	Cytology of human saliva
R. Keeler, Ph.D.	Renal function

25. Psychiatry

Professor M. Roth, M.D. with L.G. Kiloh, M.D. R. McDonald P.J.G. Quinn G. Fitzpatrick D.W. Kay	Social and hereditary factors associated with mental illness in Northumberland and Durham
Professor M. Roth, M.D. with M. Harper B. Glockling (Mrs.)	Clinical, physiopathological and biochemical studies in the phobic anxiety depersonalization syndrome and temporal lobe epilepsy
D.W. Kay	Natural history and aetiological basis of the schizophrenias
Professor M. Roth, M.D.	of middle and old age
L.G. Kiloh, M.D. Professor M. Roth, M.D. D.W. Kay C.F. Lascelles P.J.G. Quinn D. Irwin	Clinical trials of anti-depressive drugs
L.G. Kiloh, M.D.	Clinical study of pseudodementia
with J.W. Osselton	Study of vertex sharp waves in children
with J.R. Roy J.W. Osselton B. Marjoram	E.E.G. changes in schizophrenia
S. Brandon, M.D.	Habituation and addiction to the amphetamine drugs
D.W. Kay with P. Beamish (Mrs.)	Survey of a random sample of old people in Health Service Institutions and in the community
D.W. Kay	Genetic factors in mental disorder of old age
R.F. Garside	Effect of mental illness on intelligence
J. Liggett	Perception of self and society in normals and abnormals
J.W. Osselton	Stabilization of low frequency wave analyzer
with W. Stanton	Investigation into the effects of electroconvulsive therapy on the electroencephalogram
L.P. Lassman B. Majoram	Electrocorticography in the treatment of focal epilepsy
J.W. Walton, M.D. D.D. Barwick	E.E.G. changes in muscular dystrophy

26. Public Health

R.C.M. Pearson, M.D.	No information

27. 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

27. 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

28. Statistics

Mathematical:

See **Mathematics**, *Statistics*

29. 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	Neurovascular changes in fatal head injuries
J.E.S. Scott	Study of tumours from bone forming elements of the skull
F. Braithwaite, O.B.E.	A study of recurrences following operation for nodular goitre
L.G. Brock	
P.H. Dickinson	Stereotactic investigations of the basal ganglia
G.H. Dunstone	Methods of cerebral hypothermia
F. Ellis	Urinary tract substitution
L.B. Fleming	Continued work with extra-corporeal circulation, hypothermia and cardiac arrest
J. Hankinson	
E. Little (Miss)	Structural and dynamic effects of prolonged vesico-ureteric reflux
G.A. Mason	
I.F. McNeill	Studies in tissue and organ transplantation
G.F. Rowbotham	Elaboration of a method for excretion pancreatography
J. Swinney, M.C., M.D.	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

30. Venereology

W.V. Macfarlane, M.D. (Head of Department)	Lightning pains: evaluation of treatment
	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
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

31. 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 osmo-regulation 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 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 Standards of efficiency in farm management

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

1. Agriculture (*continued*)

Agricultural Chemistry:

A.M. Smith, 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. P. McDonald, Ph.D. R.A. Edwards	Digestibility of foodstuffs, nitrogen metabolism; hypomagnesaemia; chemical changes in ensilage; nutrition of grazing animals
H. Tod, Ph.D. P. Crooks J.F.D. Greenhalgh, Ph.D.	Factors involved in variations in chemical composition of milk

Agricultural Microbiology:

T. Gibson, D.Sc.	Bacteriology of silage, milk, eggs, the rhizosphere of crops 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 distribution of motor nerve endings in muscles 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
W.N.M. Ramsay, Ph.D. and others	Iron metabolism
G.S. Boyd, Ph.D. and others	Cholesterol metabolism and arteriosclerosis
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.	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

7. Chemistry

Clinical:

C.P. Stewart, D.Sc., Ph.D.	Metabolism following trauma Metabolism of ascorbic acid Electrolyte metabolism in disease Renal function
S.L. Tompsett, D.Sc., Ph.D.	Inorganic metabolism; urinary phenols
S.C. Frazer, Ph.D.	Enzymes in relation to disease
R. Kapeller-Adler (Mrs.), D.Sc., Ph.D.	Histaminase and related enzymes

Inorganic and Physical:

Professor T.L. Cottrell, D.Sc.	Molecular energy transfer in gases
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.B. Brown, M.Sc.	Computation of higher virial coefficients
J.L. Holmes, Ph.D.	Gas phase reactions of nitric oxide and aromatic free radicals
W.P. Doyle, Ph.D.	Optical absorption in inorganic solids

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. R. Wall, Ph.D.	Chemistry of the carbohydrates: determination of the molecular structures of polysaccharides; studies of the size and shape of macromolecules; enzymic synthesis and degradation of carbohydrates; studies of reaction mechanisms in the carbohydrate group; the chemistry of the carbohydrate components of grasses and algae
N. Campbell, D.Sc. H. Heller	Chemistry of aromatic polycyclic compounds and heterocyclic compounds

7. Chemistry (*continued*)

Organic (*continued*)

D. Leaver, Ph.D.	Chemistry of heterocyclic compounds; radiation chemistry of non-aqueous solutions
*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.	A study of mesio-occlusion (relative mandibular protrusion) as regards its incidence, diagnosis, actiology, treatment and prognosis
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
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
J.N. Mansbridge, Ph.D.	Epidemiology of dental caries Methods for the prevention and control of dental caries
C.P. Wallis	Reaction of enamel with fluoride Polarographic determination of fluoride
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.	Pemphigus vegetans
with Departments of Pathology and Bacteriology	A study of cutaneous reticulo-endotheliosis and virus infection in relation to the common wart (verruca vulgaris)

10. Engineering

Chemical:

Professor P.H. Calderbank, Ph.D.	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

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.	Stresses in arch dams
I.F. Christie	Consolidation of soils and settlement of structures
T.C. Hsu, Ph.D.	Mode of plastic deformation in formation processes

*A.R.C. Staff
†M.R.C. Staff

10. Engineering (*continued*)

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
R.C. Dorf, Ph.D.	Adaptive control systems
L.M. Muggleton, Ph.D.	Ionospheric problems in communication engineering
J.V. Oldfield, Ph.D.	Power system networks

11. Forensic Medicine

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

*A.R.C. Staff
†M.R.C. Staff

14. Geography

Professor J.W. Watson, Ph.D.	Urban geography of Canadian Maritimes Geography of Bermuda
N.R. Elliott, Ph.D.	Development of industrial seaports Interpretation of aerial photographs Political world maps
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.	Aspects of urban society in Hereford Ecology of the British town Geographic appraisal of retail facilities in Edinburgh Social areas in Edinburgh
J.J. Klawe	Problems of photo-reproduction in atlas cartography Colour layering in atlases Symbols in post-war atlases Relief representation for young children
D.R. Macgregor	Land use in central Scotland Development of Scottish burghs
A. MacPherson	City climates; problems of applied climatology Regional geography in Scotland
C.J. Robertson, Ph.D.	Evolution of plantation economies Development of the Italian South Geographic patterns of economic development
J.B. Sissons, Ph.D.	Deglaciation of parts of Scotland Subglacial drainage 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
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
M.R.W. Johnson, Ph.D.	Structure and metamorphism of Moine rocks in Moidart, Sunart and Ardgour Structures in N.E. Scotland Buchan metamorphism
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
W.J. Wadsworth, D.Phil.	Petrology of Kapalagulu complex, W. Tanganyika Petrology of Belhelvie intrusion, Aberdeenshire
E.K. Walton, Ph.D.	Southern Uplands geology Recent sediments in the Firth of Tay

Other research being carried out in the Department includes:
Structure and petrology of mid-County Down. Petrology of the N. bank of the River Dee from Ballater to Crathie

16. Mathematics

Professor A.C. Aitken D.Sc., F.R.S.	Modern 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.	Fourier series and Tauberian theorems
D. Monk, Ph.D.	Homogeneous spaces and geometries
J.L. Mott, Ph.D.	Markov processes

17. Medicine

Professor K.W. Donald, D.S.C., M.D., D.Sc.	Arterial hypertension: haemodynamic and pharmacological studies
S.H. Taylor A. Doig	Factors controlling myocardial efficiency and cardiac output Blood flow studies by indicator dilution techniques Studies of renal function and blood flow, particularly in relation to unilateral renal ischaemia
R.H. Girdwood, Ph.D., M.D.	Studies of nutritional and metabolic disorders concerning vitamins and amino-acids
J. Richmond	Clinical and biochemical studies of disorders of the small intestine The applications of radioactive iron, chromium and cyanocobalamin
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
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

18. 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.P. Duguid, M.D.	Bacterial cytology
J.H. Bowie	Hospital infection: sterilization
J.F. Wilkinson, Ph.D.	Chemical bacteriology
R.R. Gillies, M.D.	Epidemiology of streptococcal and *Shigella* infections

19. Mining

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

20. Neurology

Surgical:

Professor N.M. Dott, C.B.E., F.R.S. 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. P. Harris 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
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.
	Study of chromosome patterns of intracranial tumours by methods of tissue culture
A.F.J. Maloney and staff	Effects of radiation

21. Obstetrics and Gynaecology

Professor R.J. Kellar, M.B.E.	The haemodynamics of pregnancy
G.D. Matthew	Fluid and electrolyte balance in pregnancy in relation to adrenal function
F.J. Scandrett, Ph.D. P.R. Myerscough	Placental function in relation to metabolism, enzyme function and blood supply
	The excretion of gonadotrophins, oestrogens and progesterone in various obstetrical and gynaecological disorders
	Studies on uterine activity in relation to anaesthesia
	Problems in blood clotting in obstetrics
	Fat metabolism in pregnancy with special reference to spiral arteriolar degeneration

22. Orthopaedics

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

*Supported by the Poliomyelitis Research Fund

†Supported by the Empire Rheumatism Research Council

‡Supported by grants from Scottish Hospital Endowments Research Trust

23. 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
A. Lloyd (Mrs.)	Aminoaciduria
J. Thomson, M.D.	Growth of infants

24. Pathology

Professor G.L. Montgomery, C.B.E., Ph.D., M.D.	Studies in pathology of arterial disease
A.D. Bain, M.D.	Tissue culture of tumours of children
J.D. Black	Tumour growth
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.	Experimental diabetes
M.K. Robson (Mrs.)	Electron microscopy of the kidney
A.A. Shivas, M.D.	Invasive growth of tumours
A.E. Stuart, Ph.D.	Reticulo-endothelial system and immunity
A. Wynn Williams, M.D., Ph.D.	Intestinal malabsorption

25. Pharmacology and Therapeutics

	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
M. Vogt (Miss), Dr.Med., Dr.Phil., Ph.D., F.R.S.	Adrenal cortex
H.M. Adam	Histamine
W.E. Brocklehurst, Ph.D.	The mechanisms of antigen-antibody reactions
B.L. Ginsborg, Ph.D.	Junctional transmission
T.B.B. Crawford, Ph.D.	Sympathomimetic amines
R.P. Stephenson	Mode of action of drugs
R.B. Barlow, D.Phil.	Synthesis of drugs
K.A. Scott	

Therapeutics:

Professor Sir Derrick Dunlop, M.D.	Clinical endocrinology Clinical trials of drugs
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

25. Pharmacology and Therapeutics (*continued*)

Therapeutics (*continued*)

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

26. 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 and disintegrations produced by cosmic rays using nuclear emulsions Studies of fluorescent X-rays and γ-rays, using a curved crystal spectroscope Studies of boundary layers using a low-velocity air tunnel
G.R. Evans, Ph.D.	High-pressure cloud chamber studies
P.S. Farago, Dr.Phil.	Studies in parity non-conservation; electron g-factor; electron and positron scattering
H.C. Sutton, Ph.D.	Radiation chemistry
A.F. Brown, Ph.D.	Deformation of solids using radioactive tracers and other methods
J. Kyles	β- and γ-ray spectrometry; parity non-conservation
R.M. Sillitto	Fast neutron studies (energy range 1-10 MeV)
D.H. McIntosh, D.Sc.	Mathematical meteorology
P.J. Kennedy, Ph.D.	Energy losses of electrons in solids Radiation damage under charged particle bombardment
Mathematical:	
Professor N. Kemmer, Dr.Phil., F.R.S. with D.J.Candlin, Ph.D. P.W. Higgs, Ph.D. G.R. Screaton, Ph.D.	Quantum theory of fields Theory of elementary particles General relativity

27. Physiology

Professor D. Whitteridge, D.M., F.R.S.	Visual mechanisms in the central nervous system
L.M. Pickford (Miss), D.Sc.	Endocrines and the vascular system
M.H. Draper, Ph.D.	Metabolic aspects of ion transport in voluntary and cardiac muscle cells
E.G. Walsh, M.D.	Vestibular apparatus; vibration
A.D. Dewar, Ph.D.	Physiology of pregnancy in the mouse
A. Iggo, Ph.D.	Non-myelinated afferent nerve fibres from skin and viscera; electrophysiology of spinal cord; electrophysiology of vascular smooth muscle
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
T. Astarabadi	Influence of the pituitary gland on compensatory renal hypertrophy

28. Psychiatry

Professor G.M. Carstairs, M.D.	Prevalence of convulsive disorders Observer variation in psychiatric diagnosis
F.J. Fish	Syndromes of thought disorders and perceptual change in schizophrenia Perceptual change in schizophrenia and depression, and their response to drugs
J.R. Smythies, M.D.	Psychopharmacology; mode of action of hallucinogenic drugs
W.I.N. Kessel	Clinical and social factors in attempted suicide
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 the blind Psychological effects of sleep deprivation and its effect on physiological concommitants of dreaming
with R. J. Berger	Studies of the incorporation of external stimuli into dreams
C.B. Kidd, M.D.	Student Mental Health Survey
with G.W. Lynch	Epidemiological study of the likely relationship between deliberative occupational stress and psychoneurotic disorders
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

29. 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.M. MacKenzie	Inspection in industry
J. Cookson (Miss)	The selection of nurses
I.M.L. Hunter, D.Phil.	Remembering and thinking
M. Donaldson (Miss) Ph.D.	The development of thinking in young children
R. Lakowski	The relation between colour vision and age

30. Public Health and Social Medicine

Professor J.H.F. Brotherston, M.D., F.R.S.E.	Inquiry into accidental injuries in Edinburgh Evaluation of experimental student nurse training course in Glasgow Royal Infirmary
with F.M. Martin, Ph.D.	Studies in the sociology of medical education
with R. Scott, M.D. M.M. Gilmore (Mrs.)	Edinburgh out-patient inquiry
W.A. Barr	Endocrinology of reproduction in plaice Assay of pituitary gonadotrophin
D. Cameron with G.D. Forwell Ph.D.	Epidemiology of epilepsy and diabetes
J. Baird	Study of diabetes and obesity
J.W.B. Douglas with M. Clow (Mrs.)	National survey of health and growth of children (born 3–9 March 1946)

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

B.M. Hobson, Ph.D.	Estimation of gonadotrophin, pituitary and chorionic, in urine and tissue
	The pituitary gonad relationship in *Xenopus laevis*
K. Lévy (Mrs.)	Genetics of some neurological conditions in man
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
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 nurse training course in Glasgow Royal Infirmary

31. 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

32. 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	Cineradiographic 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: (a) electrolyte disturbances; (b) immunity reactions
	Experimental ascites
	Repair of recurrent herniae
J.W.W. Thomson	Bladder position after major pelvic surgery
	Mortality rate in peritonitis
J.W.W. Thomson A.V. Foote P. Edmond	Local perfusion and chemotherapy in malignant disease: (a) chemotherapy of malignant disease; (b) 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

32. Surgery (*continued*)

Clinical (*continued*)

R.M. Preshaw	Effect on gastric secretion of insulin-induced hypoglycaemia
	Effect of parenteral gastric juice and saliva on gastric secretion and histology
	Experimental ascites, and the use of a peritoneo-venous shunt
P.W. Harvey	Peripheral vascular reflexes from the alimentary canal
	Results of biliary surgery
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. Woodruff, 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	
D. Wade	Cardiopulmonary by-pass research
	Hypothermia

33. Tuberculosis and Chest Diseases

Professor J.W. Crofton, M.D.	Clinical and bacteriological aspects of the chemotherapy of tuberculosis

34. 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

34. Veterinary Studies (*continued*)

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
	Diagnostic methods in veterinary medicine
E.A. McPherson	Dermatophytes of domesticated animals
H.S. McTaggart	Metabolism of ruminants in relation to disease

Veterinary Microbiology and Poultry Diseases:

A. Wilson Taylor, D.Sc., Ph.D.	Mycobacterial infections in animals and birds
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

Veterinary Physiology:

F.J. Elliott, Ph.D. F.R.S.E.	Cardiovascular investigations on domestic animals
H. Lundy	Studies on stretch receptors

35. Zoology

Professor M.M. Swann, Ph.D.	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	Ultrastructure of cells with particular reference to microsomal particles in unusual forms
M. Bastock, D.Phil.	Changes in behaviour caused by gene mutations in *Drosophila*
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	Population genetics. Nucleocytoplasmic relations in *Acetabularia*
A.R.I. Cruickshank	E. African Triassic dicynodonts. Scottish Mesozoic mammals
A.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

35. Zoology (*continued*)

R. Logan, Ph.D.	Cell growth and metabolism in synchronized tissue cultures
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
N.A. Mitchison, D.Phil.	Antigen persistence in immunological tolerance
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
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
W. Sinclair	Differentiation between melanization and sclerotization in insects
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
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
J.E. Harrison	
G.D.D. Davies	
J.A. Langley	A continuing economic survey of a group of horticultural holdings
E.T. Davies	
H.M. Cole (Miss)	Economics of livestock production and marketing
R.C. Rickard	Economics of farm mechanization
W.J. Dunford	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

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	

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

J.W. 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.	Electronic spectra of conjugated carbonium ions, carbanions and charge-transfer complexes Acidity of the methyl group in aromatic systems Optical rotatory dispersion and circular dichroism
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
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.	Studies on enzyme models

6. Geography

Professor A. Davies	The discovery of America Portuguese African exploration Historical cartography of the 15th and 16th centuries

6. Geography *(continued)*

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
R.S. Waters	The geomorphology of Dartmoor and adjacent areas
	Periglacial erosion
E.M. Johns	Experiments in descriptive geography
	Landscape and painting
T. Revesz, Ph.D.	Phenology of S.W. England

7. 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
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

8. 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
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. Herszberg, Ph.D.	Algebraic geometry
D. Hammond Smith, Ph.D.	Analytic topology
I.G. Macdonald	Algebraic geometry
H.P. Mulholland, Ph.D.	Theory of functions of a real variable

9. 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	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 semi-conductors
	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
R.E. Meads, Ph.D.	Solid state physics
N.A. Portman	Behaviour of solids at microwave frequencies
W.G.V. Rosser, Ph.D.	Spectroscopy of β- and γ-rays
R. Jakeways	

10. Psychology

R. Lynn, Ph.D.	Personality and behaviour theory
A.C. Staniland	Decision processes in perception
J. Szafran, Ph.D. with J.N. Brebner I.E. Gordon	Analysis of human skilled performance (with special reference to ageing) and its bearing on the understanding of brain function

11. Zoology

Professor L.A. Harvey	Field studies of populations of Orthoptera Terrestial and marine ecological survey of the fauna of Lundy 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.	Insect physiology

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.	The fine structure of nuclear membranes Electron microscopic studies of the alimentary tract
P. Bacsich, D.Sc.	Micro-incineration studies of cells and tissues under normal and experimental conditions
A.D. Hally	The fine structure of gastric mucosa
A. Young	Embryology
J.G. Warbrick, M.D., Ph.D.	Studies on the post-partum uterus
A.F. Hayward	The fine structure of irradiated cultured cells
H. Nagy (Mrs.)	In vitro studies of grafted organs

3. Astronomy

Professor P.A. Sweet, Ph.D.	Stellar structure Cosmical electrodynamics
M.W. Ovenden, Ph.D.	Celestial mechanics 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.	Nucleic acid metabolism and cytochemistry
R.M.S. Smellie, Ph.D.	
R.Y. Thomson, Ph.D.	
H.M. Keir, Ph.D.	
R. Burdon	
H.N. Munro, D.Sc.	Protein metabolism and nutrition
A. Fleck	
G. Leaf, Ph.D.	Plant biochemistry
I.C. Gardiner, Ph.D.	
W.C. Hutchison, Ph.D.	Biochemistry of the adrenal gland
E.A. Dawes, Ph.D.	Microbiological biochemistry
D.W. Ribbons, Ph.D.	
G. Crosbie, Ph.D.	Biosynthesis of pyrimidines
J.D. Pitts	
J. Paul, Ph.D.	Biochemical aspects of tissue culture
P. Fottrell	
Clinical:	
E.B. Hendry, Ph.D.	Applications of clinical biochemistry Osmotic properties of body fluids
W.H.S. Thomson, Ph.D.	Muscular dystrophies and studies of serum enzymes
M. Fletcher (Miss), Ph.D.	Chemistry of abnormal body fluids
C. Watts	Tests of hepatic function; differential diagnosis of jaundice
E. Sutherland (Miss)	Study of renal function in surgical cases
J. Stewart (Miss)	Nucleic acid synthesis
D.M. Goldberg	Nucleic acid enzymes in body fluids

6. Botany

Professor J. Walton, D.Sc., Sc.D., F.R.S.E.	Palaeobotany (Palaeozoic)
S. Williams, Ph.D. D.Sc., F.R.S.E.	Pteridophyta; experimental morphology Symbiotic nitrogen fixation
G. Bond, Ph.D., D.Sc.	Antagonism and antibiotics in nature
S.A. Hutchinson, Ph.D.	Physiology of parasitism Sporulation in Basidiomycetes
E. Conway (Mrs.), Ph.D.	Marine ecology: autecological studies of northern species Experimental ecology of *Pteridium aquilinum*
A.C. Crundwell	Ecology and taxonomy of British bryophytes
B.W. Ribbons	Studies on the British flora
G.D. Scott, Ph.D.	Nitrogen metabolism and synthesis of lichens
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 *Fusarium*

7. Chemistry

Professor J.M. Robertson, D.Sc., F.R.S.	
Professor R.A. Raphael, D.Sc.	
Inorganic:	
D.S. Payne, Ph.D.	Study of the mixed halides of phosphorus and of complex halides involving phosphorus Phosphite chemistry

7. Chemistry (*continued*)

Inorganic (*continued*)

G.S. Harris, Ph.D.	Study of organo-derivatives of the halides of phosphorus arsenic, antimony and bismuth Investigation of Group V element—nitrogen compounds

Organic:

Professor R.A. Raphael, D.Sc.,	Acetylene chemistry
J.D. Loudon, D.Sc.	Synthesis of natural products
G.L. Buchanan, Ph.D. K.H. Overton, Ph.D.	Structural investigations of natural products
R.P.A. Sneeden, D.Phil.	Heterocyclic chemistry
A.I. Scott, Ph.D. N. J. McCorkindale, Ph.D.	Reactions involving sulphur extrusion
G. Eglinton, Ph.D.	Seven-membered ring compounds
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

Physical:

Professor J. M. Robertson, D.Sc., F.R.S. J. C. Speakman, D.Sc. G.A. Sim, Ph.D.	X-ray diffraction methods applied to problems of crystal and molecular structure
T.H. Goodwin, D.Sc.	Theoretical calculations
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. R.I. Reed, Ph.D.	Mass spectrometry
S.J. Thomson, Ph.D. I.M. Hoodless, Ph.D. K.C. Campbell, Ph.D.	Radioactive tracer studies of surfaces and solids
G.H. Nancollas, Ph.D. H.S. Dunsmore (Miss)	Electrochemistry, including the use of potentiometric, 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

8. Dental Studies

Professor J. Aitchison	Study of sex differences in human teeth Dangers associated with congenital fibrous dysplasias Hypertelorism and associated dental anomalies
with D.A. Lunt (Miss)	Age assessment from cranial sutures

8. Dental Studies (*continued*)

Professor J. Aitchison	Association of dental caries and pathological conditions of gums with blood groups
A. Carmichael	
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
	Pathology of fluorosis in rodent teeth. Pathology of osteolathyrism in rodents
G.D.C. Kennedy	Experimental caries in rodents
J.S. Kennedy	
G.S. Nixon, Ph.D.	X-ray diffraction studies of human tooth enamel
	Measurement of mercury in dental tissues from dental amalgam
G.S. Nixon, Ph.D.	Bacteriology of dental instruments
L.G. Bruce	
G.S. Nixon, Ph.D.	Activation analysis for trace elements in teeth
Hamilton Smith, Ph.D.	
G.S. Nixon, Ph.D.	Audiometric survey on dental high-speed drills
J.M.A. Lenihan, Ph.D.	
G.D.C. Kennedy	Study of the mechanism of calcification of the dental tissues
J.S. Kennedy	
H. Clark, Ph.D.	Radiation hazards in dental radiography
H.W. Noble	Innervation of dental tissues
A. Carmichael	Apical therapy in developing teeth
with H. Noble	Electron microscopy of dental and periodontal tissues

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.	Aerodynamic effects on earth satellites
Nonweiler, Ph.D.	Aerodynamics of re-entry to the atmosphere
	Man-powered flight
	Stability and control of submarines
	Effect of flexible surfaces on the boundary layer
A.S. Thom, Ph.D.	Thermodynamic method 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
A.W. Babister, Ph.D.	Non-homogeneous linear differential equations
	Theory of stability
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

10. Engineering (*continued*)

Civil:

Professor W.T. Marshall	The measurement of stresses in reinforcement of concrete columns in framed structure during and after construction
	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 and cofferdam struts of new vehicular tunnel under River Clyde
	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

Electrical:

Professor J. Lamb	Viscoelastic relaxation in liquids
T.R. Foord, Ph.D.	Shear wave measurements in liquids at pressures up to 200 000 p.s.i.
J.H. Collins	
A.J. Barlow, Ph.D.	High rate of shear rotating cylinder viscometer
O.K. Gashus, Ph.D.	Shear properties of polymer solutions
R.C. Langlands	Propagation of shear and compressional waves at microwave frequencies
	Measurement of temperature using inductive ratio bridge networks
	Slow wave modes in ferrite-loaded waveguides
	Magnetic field configurations in loaded waveguides with rectangular boundaries
	Dynamic performance of power systems
	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.	The construction of an experimental supercritical steam generator, and associated development research
E.A. Bruges, Ph.D.	
B.E.L. Deckker, Ph.D.	Thermodynamic properties of high pressure steam
R. Donaldson	Measurements on viscosity of steam
W.W. Mackie	The measurement of oxygen and the behaviour of hydrazine in boiler feedwater
W.L. Taylor	
S.K. Nisbet	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

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

10. Engineering (*continued*)

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
M. Livingstone	Pressure effects in waves
N.S. Miller	Computational methods
R.M. Cameron	Masts and rigging

11. Forensic Medicine

Professor J. Glaister, D.Sc., M.D. J.A. Imrie, M.D. E. Rentoul, M.B.E. 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
G.L. Le Bouvier, Ph.D.	Immunology and virology of human cell cultures
J.H. Renwick, Ph.D.	Protein variation in human cell cultures
B.L. Cohen	Genetics of mouse serum proteins
D.A. Hopwood, Ph.D.	Genetics of *Streptomyces*

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
E.D. Currie (Miss), D.Sc.	Scottish cephalopods
N. Holgate, Ph.D.	Petrochemistry of igneous magmas
R.H. Cummings, Ph.D.	Carboniferous Foraminifera
A.C. McLean, Ph.D.	Geophysical surveys in Scotland Deep structure of Scottish coalfield

14. Geology (*continued*)

W.E. Tremlett, Ph.D.	Caledonian structure 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
W.W. Bishop, Ph.D.	African Tertiary mammalian faunas Scottish Pleistocene geology
F. Whyte	Scottish Carboniferous vulcanism
A.F. Wright, Ph.D.	Metamorphic geology
J.F. Watt	Stratigraphy and sedimentology of the Old Red Sandstone
K.A.G. Shiells	Productoid brachiopods

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. Aitchison	Mathematical 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

COMPUTING LABORATORY

D.C. Gilles, Ph.D. (Director)	Numerical analysis, particularly solution of integral equations and partial differential equations
D.G. Williams	Theory of automata
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.	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
I.P.C. Murray	Biosynthesis of the thyroid hormones, with particular reference to thyroid protein
J.A. Thomson	Study of the mechanism and control of iodide trapping and binding by the thyroid

17. Medicine (*continued*)

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.	Cardiac studies using ballistocardiography and dye dilution methods
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.	Physical and chemical structure and growth of herpes virus. Studies on interaction between tumour viruses and cells. Polyoma virus
P. Wildy	
K.B. Fraser, M.C., M.D.	

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
R.A. Shanks, M.D.	Electroencephalography in infantile febrile convulsions
J.O. Craig	Somatotyping in children
A.M. MacDonald, M.D.	Nephrocalcinosis
F.H. Stone	Effects of hospitalization on children of varying ages. Infantile autism
G.C. Arneil, M.D., Ph.D.	Studies in nephrosis
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

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

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 and adreno-genital syndrome, and carcinoma of breast
B. Cruickshank, M.D.	Antigen-antibody: site of reaction by method of fluorescence Pathology of rheumatoid disease
R.S. Patrick	Experimental aspects of liver necrosis
P. Pullar	Experimental investigations of skin and pituitary tumours
J.S. Kennedy	Radioactive isotopes in connective tissue pathology, experimental carcinogenesis, and pathology of thyroid gland
W.P. Duguid	Effect of hypothermia on the lesion of complete renal ischaemia in rats
G. Studzinski	The effect of ACTH on the dehydrogenase enzyme systems of the pentose phosphate and Krebs' cycles

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
B. Lennox, M.D.	Skin tumours: histopathology and carcinogenesis Nuclear sexing Human chromosomal abnormalities
J.R. Anderson, M.D.	Experimental erythroblastosis foetalis Auto-immunization Immunopathology of thyroid and "collagen diseases" Auto-immunity
A.T. Sandison, M.D.	Pathology of the mamma Pituitary ablation for carcinoma Cytotoxic agents for carcinoma Induction of rat neoplasms by gastric methyl cholanthrene Isolation of malignant cells from blood
J.A. Milne	Histopathology of the skin
R.B. Goudie	Tissue antigens and antibodies in human disease Auto-immunization
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	Bone tumours Pathology of orthopaedic lesions
J.S. Beck	Human anti-antibody Osteoporosis Immunopathology Antigen of cell nucleus
H.M. McCallum (Miss)	Experimental lathyrism Formation of elastic tissue
J. Hume Adams	Hypothalamo-hypophyseal relationships

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
G. Onuaguluchi	The natural history and pharmacological aspects of post-encephalitic Parkinsonism
D.H.A. Boyd	Carbohydrate metabolism in malignant disease
J.P. Finlayson	Pathogenesis of obesity

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
with F. Stothers (Mrs.)	Influence of inter-onium distance on muscle relaxant activity
B. Mir	Mode of action of anti-hypertensive agents
F.M. Carey (Miss)	Influence of alkyl group size on muscle relaxant activity
K. Ahmad	Effect of drugs on calcium flux in skeletal muscle
T.C. Muir	Influence of ether function on muscle relaxant activity
G.R. Van Petten	Influence of drugs on 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
S. Nanjappa	Actions of 5-hydroxytryptamine analogues

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
J.M. Reid I.S. Hughes, 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
G.A.P. Wyllie, Ph.D.	Solid state physics
H. Mykura, Ph.D.	Surface self-diffusion
W.K. Burton, Ph.D. R. Giles	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 W. Forbes	Staining of nerve and of nerve endings with the silver diamine ion (Bielschowsky-Gros) method. The effect of vascular lesions on peripheral nerves
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.	Ion fluxes in cultured cells
J.S. Gillespie, 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	Humoral transmission in the gut
J.R. Greer, Ph.D.	Control of respiration in animals and man
J.V.G.A. Durnin 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 mechanism 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
M.B. St. Clair (Mrs.)	A follow-up study of puerperal illness with special reference to mothers and babies hospitalized together

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
G. Jahoda, Ph.D.	Occupational choice among school leavers Social class and social mobility Psychological problems of cultural change in Ghana 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 Aetiology of mongoloid mental defect
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
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
A.C. Forrester	Research in hypothermia using air cooling with particular reference to the accurate production of body temperature
D. Campbell	Research into the effects on the cardiovascular and respiratory systems of a new patient-triggered ventilator

WESTERN INFIRMARY

Professor Sir Charles Illingworth, C.B.E., M.D.	Researches on cardiovascular surgery: studies of effect of high-pressure oxygen on experimental coronary artery occlusion. Clinical and experimental observations
G. Smith, M.B.E., M.D. assisted by I.McA. Ledingham G.R. Sharp J.N. Norman	on effect of oxygen at 2 atmospheres pressure in various ischaemic states and during operations involving cardiac arrest
	Effect of high-pressure oxygen in carbon monoxide poisoning
	Investigations on ischaemic neuritis
A.P.M. Forrest, M.D. assisted by H.J. Stewart (Miss)	Hormonal approach to breast cancer: destruction of the pituitary by radioactive implants; adrenal physiology; use of chemotherapeutic agents; isolation of cancer cells in peripheral blood
	Studies in gastric secretion
W. Burnett assisted by C.A. Gordon (Miss)	Studies of liver and bile-duct function: cholangiography; formation of gallstones; chromatography of bile; diagnostic use of the fiberscope
	Human gastric secretion and its relation to results of gastric surgery
R. Shields	Intestinal absorption of water and electrolytes; effect of adrenocortical hormones and diuretics
E.J. Cartwright (Miss)	Test of pancreatic function

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, determinations of exchangeable body sodium on domestic animals. Treatment of disease caused by external parasites. Epidemiology of *Filaroides osleri* infestation Diagnosis of tuberculosis in dogs and cats
I.M. Lauder V. Hawthorn	Relation of canine and feline tuberculosis to human tuberculosis
R.N.C. Aitken E. Morgan (Miss)	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
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 J.M. Hamilton	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	Absorption of sugars, fatty acids and calcium by intestinal segments in vitro from the chicken and mouse
Professor W.I.M. McIntyre R.G. Dalton E.W. Fisher, Ph.D.	Factors affecting absorption of water and electrolytes
H. Pirie W.F.H. Jarrett, Ph.D.	Pathology of pneumonia in pigs
W.F.H. Jarrett, Ph.D. W.B. Martin, Ph.D.	Animal tumour virology. Bovine lymphosarcoma
W.A. Greig, Ph.D.	Vitamin D in ruminants: effects and toxicity of massive doses 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
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	Intestinal obstruction in the dog

29. Veterinary Studies *(continued)*

D.D. Lawson G.S. Nixon, Ph.D. H.W. Noble	Correlation of clinical, radiographic and pathological features of dental diseases in the dog
D.D. Lawson	Veterinary radiology
D.D. Lawson G. Smith, M.B.E. T.A. Douglas, Ph.D.	Studies on effects of various O_2, CO_2 mixtures and experimental carbon monoxide poisoning in dogs Effects of high pressure oxygen in experimental carbon monoxide poisoning in the dog Studies on effects of high pressure oxygen on experimental cerebral vascular occlusion Effects of high pressure oxygen in acute coronary occlusion in the dog
J. Sanford J.R. Campbell D.D. Lawson T.A. Douglas, Ph.D.	Studies on anaesthesia in animals
I.M. Lauder J.G. O'Sullivan	Dermatomycosis in animals
S. Jennings	Tranquilizing 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.)	Circulation of the blood in the coronary vessels in the heart of the fowl
J. Sanford	Factors affecting the motility of the ruminant stomach Distribution of histamine in sheep and cattle. Mode of action of analeptics
R.S. Jones	Studies on drugs affecting the behaviour of horses
F.E.F. Lindsay (Mrs.)	Radiographic anatomy (veterinary) The foetal lung (calf)

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.)	Studies on the effect of Johne's disease vaccination on the reliability of the tuberculin test
A.J.D. Campbell	Studies on problems of deep litter in poultry husbandry
Professor J.S.S. Inglis R.G. Hemingway N.S. Ritchie	Effects of fertilizers on the mineral composition of farm crops and their association with mineral deficiencies in livestock with particular reference to magnesium and copper
A.J.D. Campbell M. Weipers (Mrs.)	Effect of intermittent flash lighting on growth of piglets

Pathology:

Professor J.W. Emslie J.G. O'Sullivan	Dermatomycosis

29. Veterinary Studies (*continued*)

Pathology (*continued*)

R.S.F. Campbell T.D.V. Lawrie, M.D.	Experimental atherosclerosis of poultry
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	Serological studies in canine distemper, contagious hepatitis and leptospirosis Natural and experimental leptospirosis in pigs Serological studies in Johne's disease
S.W. Michna R. Tadayon, Ph.D.	Studies on the incidence of *Brucella* organisms in bovine milk in the west of Scotland
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. G. Owen, D.Sc. J. Bowden, Ph.D.	Marine biology: functional morphology of Mollusca
H.D. Slack, Ph.D.	Freshwater biology
J.D. Robertson, Ph.D.	Composition of body fluids and tissues of animals
H.F. Steedman, Ph.D.	Histological and technical methods
S.A. Barnett	Stress. Behaviour. Heterosis
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

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

11 Glasgow
Royal College of Science and Technology

1. Building Studies

Professor F. Fielden A. MacLean E. Morris J. Wilson	Studies on timber structures Studies on radiant heating

2. Chemistry

Professor P.L. Pauson

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	Metallochromic indicators
D.H. Brown, Ph.D.	Tungsten complexes
R.A. Ross, Ph.D.	Surface chemistry and adsorbents

Organic:

Professor P.L. Pauson	Organo-metallic compounds Non-benzenoid aromatic systems Natural products
J. McLean, Ph.D.	Structure and transformations of triterpenoids and steroids Metallic carbides as a source of organic compounds
A.C. Syme, Ph.D.	Microanalytical methods
W. Sharp, Ph.D.	Antibiotics and chemotherapeutics
H.C.S. Wood, Ph.D.	Chemical studies on the biosynthesis of pteridines and related topics
P. Bladon, Ph.D.	Chemistry of steroids and alkaloids
W. Lawrie, Ph.D.	Chemistry of triterpenes and steroids
G.R. Proctor, Ph.D.	Synthesis of azatropolones
D.K. Nonhebel, Ph.D.	Reactions of metal chelates of β-diketones
J.A.D. Jeffreys, Ph.D.	Alkaloids and natural quinones

Physical:

W. Good, D.Sc.	Amphipathic electrolytes Catalysis in iron solutions
A.J. Hyde, Ph.D.	Light scattering by polymer molecules
F.L. Swinton, Ph.D.	Kinetics of crystallization of polymers
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 Impulse, a.c. and d.c. calibrations for uniform field spark gaps
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 Effect of non-linear torque in servomotors Servomechanisms with backlash Sampling servomechanisms

3. Engineering (*continued*)

Electrical (*continued*)

W.S. Wood	Machines:
F. Flynn	Transient characteristics of d.c. machines

Mechanical, Civil and Chemical:

Professor A.S.T. Thomson	Civil engineering hydraulics: Traction of stream bed material
Professor A.W. Scott	Wave action in channels
Professor W. Frazer	Laboratory studies of density non-homogeneity effects
Professor J.C. Orkney	Soil mechanics:
A.M. Laird	Behaviour of granular materials
H.L. McBroom	Behaviour of clay soils under consolidation pressure
C.M. Moir	Cement and concrete:
R.M. Kenedi	Effect of curing conditions on concrete strength
W. Ferguson	Rheology of fresh concrete
G.V. Stabler	The pressure of concrete on formwork
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 and others	General thermodynamics: Nozzle erosion
	Thermodynamic steam trap
	Free-piston compressor
	Nuclear power engineering
	Fluids: Ship ventilation
	Lubrication: Varying loads on sleeve bearings
	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
	Study of skin tensions in the human body
	Concrete slab and shell structures
	Wind pressure on buildings
	Technical dynamics: Shaft whirling
	Gyroscope nutation
	Damping characteristics
	Production engineering: Investigation of honing characteristics
	Cutting tools
	Machine tools
	Chemical engineering: Spray drying
	Fluid energy milling
	Mixing
	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.	Theory of viscous and inviscid jets
J.B. Helliwell, Ph.D.	Hodograph methods in transonic flow
J.L. Smyrl, Ph.D.	Initiation of explosions
F.J. Warner D.G. Weir, Ph.D. D.D. McGregor	Magneto-gas dynamics
R.D. Lord	Statistics
B. Noble	Integral equations
C.C. Bartlett	Numerical methods for boundary-value problems
W.W. Muir, Ph.D.	Diffraction theory
G. Eason, Ph.D.	Elasticity
J.G. Fraser	Applications of electronic computers
A.J. Howie, Ph.D.	Applied statistics

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 Kinetics of heat-resistant moulds related to food spoilage problems
J.A. Blain, Ph.D.	Lipoxidases and other fat oxidase systems Effect of moisture levels on enzyme activity Bacterial lipopolysaccharides Bacterial lipids

7. Microbiology (*continued*)

Applied (*continued*)

B. Lloyd (Miss), Ph.D.	The periostracum of *Mytilis edulis* Physiology of Cestodes Host-parasite relationship in *Cuscuta* Enzyme systems in *Helianthus-Puccinia* host-parasite relationship

8. Pharmacy

Professor J.B. Stenlake, D.Sc.	Chemotherapeutic compounds for tuberculosis Active principles of crude drugs Neuromuscular blocking agents
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
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*
J.L. Paterson	Percutaneous absorption of medicaments Pharmacological effects of bacterial lipopolysaccharides
J.A.M. Shaw	Bacterial endotoxins: chemical studies
W.D. Williams, Ph.D.	Analytical methods

9. Physics

Professor J. Irving J.F.I. Cole A.S.V. McKenzie	Plasma physics: theta pinch
J.W. Sharpe	Electron microscopy
L. Jacob, D.Sc.	Gas discharges
A.S. McLaren	Photoelasticity
L.G. Griffiths, Ph.D. D.A. Jones, Ph.D.	Visco-elastic stresses in single crystals
C. Weaver	Thin film investigations Diffusion in solids
T.S. Wylie	Crystallography

10. Technology

Chemical:

Professor P.D. Ritchie	Physicochemical studies on airborne dusts 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

10. Technology (*continued*)

Chemical (*continued*)

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

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

12 Hull University

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

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	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
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
G.C. Bond, Ph.D. P.B. Wells	Heterogeneous catalysis: the kinetics of the catalytic hydrogenation of acetylene and of diolefins The kinetics of the dissolution of metals in aqueous systems
P. Bruck, Ph.D.	Solvolysis and rearrangement of derivatives of some polycyclic bridged systems
K. Clarke, Ph.D.	Study of dihydroxy-indoles and related compounds 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

2. Chemistry *(continued)*

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 diphenyl derivatives
	The chemistry and substitution of *p*-terphenyl
	The mode of action of phenolic and other germicides on certain bacteria. The chemical composition of bacterial cell walls
B.J. Hathaway, Ph.D.	The preparation and properties of anhydrous transition metal perchlorates and tetrafluoroborates
J.J. Kipling, D.Phil.	Adsorption from the liquid phase on (a) carbon adsorbents, (b) oxide adsorbents
	Carbonization and graphitization of polymeric materials
	Examination of surface area, pore structure and "molecular sieve" properties of active charcoals
A.D. Norris, D.Phil.	Electrochemical measurements on (a) kinetics of reactions in solution, (b) size of ions in relation to Stokes's law, (c) equilibrium of complex ions and ion pairs in solution
M.B.H. Stiddard, Ph.D.	Stabilization of low valency states of transition metals. Spectrophotometry of ionic solutions
J. Shorter, D.Phil.	Kinetics and mechanism of organic reactions
D.E. Webster, Ph.D.	Reactions and infra-red spectra of organo-silicon and organo-tin compounds

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	Goole: an urban study
	Development of coastal resorts in N.W. England, with particular reference to Cumberland, Westmorland and N. Lancashire
with J.H. Appleton	Aspects of historical geography of the British Isles
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
A. Lathbury (Miss)	Coastal geomorphology of Holderness
R.C. Ward	Hydrological investigations in Berkshire and in Yorkshire, with particular reference to rainfall
C.R.R. Layzell (Miss)	Geomorphology of part of N. Nottinghamshire
G. de Boer	Geomorphology of the Yorkshire Wolds. Development of cirques and troughs. Coastal geomorphology of Holderness

4. Geology

L.F. Penny (Head of Department)	Pleistocene deposits of E. Yorkshire
J.W. Neale, Ph.D.	Micropalaeontology of: Speeton clay Eocene at Barton, Hants. Pleistocene clays at Dimlington Tertiary Ostracoda of the Hampshire Basin Upper Oxfordian of Dorset and Yorkshire Upper Ordivician between Ambleside and Ribblesdale with particular reference to the Trilobita Silurian stratigraphy of Howgill Fell
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.	Petrological studies of Lower Palaeozoic igneous rocks in Wicklow mountains and Co. Tyrone Petrology and mineralogy of the Currywongaun-Doughruagh intrusion, Co. Galway, Eire

5. Mathematics

Professor N.B. Slater, Ph.D., F.R.S.E.	Chemical kinetics; molecular vibrations; Eddingtonian physics
Professor W.H. Cockcroft, D.Phil.	Algebraic topology
I.T. Cook	Theory of elasticity
H.W. Parsons, Ph.D.	
V.W.D. Hale, Ph.D.	Quasi-group theory
G.T. Roberts, Ph.D.	Functional analysis
S. Sankaran	
R. Shaw, Ph.D.	Quantum field theory
J.E. Wallington, Ph.D.	Algebraic geometry

6. Physics

Professor G.F.J. Garlick	Luminescence and related phenomena in solids
A. Cunliffe, Ph.D. M.N. Jones	Microwave techniques, microwave electron resonance in solids
C.E. Reed	Surface studies of phosphor semi-conductors
J. Goodyear, Ph.D. W.J. Duffin, Ph.D.	X-ray crystallography of clay minerals and of single crystal phosphors
F.J. Bryant, Ph.D.	Radiation damage in semi-conductors
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

7. Zoology

Professor P.G. 'Espinasse with *D. Stenhouse Stewart	Regeneration of the lens of the eye

*Honorary Research Associate

7. Zoology (*continued*)

E.R. Trueman	Studies in the lamellibranch shell
N.W. Nowel, 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

13 Leeds University

1. Agriculture

Professor T.L. Bywater	
T.G. Boaz, M.B.E.	Sheep: winter feeding of sheep on silage; intensive grassland fat lamb production; a study of carcase weight
R. Holliday	and quality of fat lambs
J. Dalley	
D.R. Hodgson, 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
J.R. Proud	
D.C. Dalton, Ph.D.	Mice: study of response to selection at two levels of feeding
	The effect of plant population on yield and quality of crops
	Organic manuring: the interaction with nitrogenous fertilizers
	Investigations into some soil profile effects upon crop production
	Investigations into some of the factors affecting yield in the grass crop

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 phosphate status of soils
	Plant toxicity factors associated with pulverized fuel ash
D.A. Swann	Animal nutrition: studies on ruminant protein digestion

Agricultural Economics:

W.H. Long	The economic organization and relative profitableness of farming systems in Yorkshire
A.G. Jeffrey	
J.B. Butler	Capital and labour in farming
G.B. Clarke	The economics of dairy farming
C.J. Black	The development of Yorkshire farming since the 17th century
I.G. Simpson	

*Honorary Research Associate

1. Agriculture (*continued*)

Agricultural Economics (*continued*)

A.J. Wynne E.M. Wright (Miss)	A statistical study of the determinants of management earnings in farming
M.C. Mathieson (Miss)	Mechanization and machinery depreciation
A.A. Marsh	Programme planning applied to agriculture
E. Dawson	Variations in farm income Profitability of improved grassland production and utilization

Agricultural Microbiology:

J. Wolf A.N. Barker, Ph.D.	Germination, sporulation and metabolic requirements of aerobic bacilli 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

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

4. Biochemistry

Professor F.C. Happold, Ph.D., D.Sc.	Enzymological and immunological studies in bacterial metabolism *The biological treatment of industrial effluents
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

*Gas Council grant
†M.R.C. grant
‡A.R.C. grant
§Wellcome Trust grant

4. Biochemistry (*continued*)

R.P. Hullin, Ph.D.	The 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
T.J. Bowen	Application of physical techniques to biochemical problems
D.G. Wild, D.Phil.	Yeast metabolism
T.A. Scott, Ph.D.	Plant metabolism

5. Biomolecular Structure

K.M. Rudall, Ph.D., D.Sc. J. MacArthur, Ph.D. F.G.E. Pautard, Ph.D. W.E. Seeds, Ph.D. E.A.C. Follett, Ph.D. E. Beighton, Ph.D. K.D. Parker, Ph.D. A. Millard G.N. Graham, Ph.D. P.G. Kelly W. Kenchington P.T.P. Oliver N.A. Durrani	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
Professor R.D. Preston, Ph.D., D.Sc., F.R.S.	Molecular structure of plant cell walls: X-rays, polarizing microscope, electron microscope, etc. Tensile properties of plant cell walls Sap ascent Translocation
E. Frei (Miss), Dr.Sc.Nat.	Molecular structure of algal cell walls
E. Robinson (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. 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* sp.
D.H. Jennings, D.Phil.	Ion uptake and active transport mechanisms Physiology of marine fungi

7. Chemistry

Colour Chemistry and Dyeing:

Professor W. Bradley, Ph.D., D.Sc.	Mechanism of formation of natural and synthetic colouring matters Chemistry of aromatic substitution by anions and other bases Chlorination of anthraquinone Chemistry of diazonium salts Chemistry of indanthrone

7. Chemistry (*continued*)

Colour Chemistry and Dyeing (*continued*)

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)
F. Jones, Ph.D.	Mechanism of vapour phase dyeing Vapour pressures of dyes
D. Patterson, Ph.D.	Optical properties 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
R.S. Bradley, Sc.D.	Kinetics of evaporation and condensation The measurement of low vapour pressures Chemistry and geochemistry at high pressures
D.W.J. Cruickshank, Ph.D. M.R. Truter (Mrs.), Ph.D. G.E. Pringle, Ph.D. J.H. Robertson, Ph.D.	Studies of stereochemistry, molecular structure and valency by X-ray analysis; development of computational techniques for X-ray analysis; lattice vibrations Co-ordination compounds
J.A.S. Smith, D.Phil.	Nuclear magnetic resonance
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
S. Trippett, Ph.D.	Chemistry of organo-phosphorus compounds
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

7. Chemistry (*continued*)

Physical (*continued*)

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
S.M. Weidmann, Ph.D.	Mechanism of calcification
J.A. Weatherell, Ph.D.	Nature of the organic matrix in dental and skeletal tissues Studies on the ageing of bone
D. Jackson, D.D.S.	Regional survey of fluorine concentration in bone and teeth. Epidemiological studies of dental ill-health in children and adults
R.T. Heylings	Periodontal studies Parathormone effects on alveolar bone The aetiology and treatment of recurrent buccal ulcerations
A.J. MacGregor	Clinical and experimental investigations of the effect of local anaesthesia on alveolar bone healing
S. Haynes	Eruption paths of incisor teeth The incidence of malocclusion and caries in 5-year old children

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

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	
C.N. Collinge	Condensation of binary vapour mixtures
J.R. Hulett, D.Phil	Convection within thermal insulations
I.R.M. McDougall	Thermal regenerators
	Distillation:
	Efficiency of distillation trays as a function of the properties of the fluids (binary and ternary)
	Representation of stagewise ternary distillation
	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

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. Lightfoot, Ph.D.	Photoelastic and theoretical determination of stress distributions in beams and slab systems
	Analysis of circular and rectangular tanks and bunkers
	Structural analysis of spandrel-braced arches
	Dynamic stresses in jib cranes
E.W. Bennett, Ph.D.	Moment redistribution in continuous prestressed concrete beams
	Composite prestressed concrete beams
	Fatigue of prestressed concrete beams
	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
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"

10. Engineering (*continued*)

Civil (*continued*)

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
H.J. Wootton	Analysis of traffic surveys by electronic computer Collection of traffic data Effect of curing temperature on the compressive strength of concrete

Electrical:

Professor G.W. Carter P.J. Lawrenson	Electromagnetic field problems; electromagnetic aspects of rotating machines; a synchronous machine for control-system use
G.S. Brayshaw, Ph.D.	Analysis and synthesis of electrical networks; measurement of acoustic absorption coefficients
A.E. Guile, Ph.D. A.E.D. Heylen, Ph.D.	Mechanism of cold-cathode arc movement in a magnetic field
A. Richardson	Simulation of ideal transformers by active networks
P.H. Walker, Ph.D. J.M. Stephenson	Application of electronics to control systems, instrumentation, and simulation devices

Mechanical:

Professor D.C. Johnson	Vibration, particularly in connection with toothed gearing; shaft whirl
A.S. Leah, Ph.D.	Combustion, including flame temperatures and general study of gas combustion
D. Bradley, Ph.D.	Thermodynamic properties of gases
D. Dowson, Ph.D.	Lubrication
G.R. Higginson, Ph.D.	Elasto-hydrodynamic effects
L.H. Tanner	Supersonic flow experiments using a shock tube
W.B. Palmer, Ph.D.	The metal cutting process

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
I.B. Thompson, Ph.D.	Demographic problems in the U.S.A. Problems of rural economy in Metropolitan France and Corsica

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
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	Carboniferous 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 compostion of magmas
W.C. Gregory	Petrology of igneous and floor rocks of the Bushveld Igneous Complex and their contact relationships in part of East Transvaal
A.R.J. Gaskin	Structure and genesis of the Tonkolili iron ores, Sierra Leone
I.G. Gass, Ph.D.	Orientation of local stress fields in rocks during deformation
	Structure and petrography of the Troodos massif, Cyprus
	Petrology of the "younger" granites and associated rocks of the N.E. Sudan

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 S.E. Southern Rhodesia
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.N. Wood, Ph.D.	Karroo igneous activity in S.E. Southern Rhodesia

14. Mathematics

Professor H.S. Ruse, D.Sc.	Differential geometry

14. Mathematics (*continued*)

Professor T.G. Cowling, D.Phil., F.R.S.	Astrophysics; atmospheric problems
Professor J.W. Craggs, Ph.D.	
W. Barrett, D. de l'U.	Pure mathematics
M.H. Lob, Ph.D.	Mathematical logic
B.L. Welch, Ph.D.	Mathematical statistics
G.S. James	
D. Kirkby, Ph.D.	Algebraic geometry
H.L. Price, Ph.D.	Aerodynamics
H.D. Ursell	Analysis

ELECTRONIC COMPUTING LABORATORY

G.B. Cook, Ph.D. C.M. Reeves, Ph.D. K. Wolfenden	Computational techniques and theory of computing; quantum mechanics of molecules

15. Medicine

Professor R.E. Tunbridge, O.B.E., M.D.	Clinical and experimental problems of diabetes mellitus
with C.R. Blagg (jointly with Urological Department)	Clinical and experimental work with various forms of artificial kidney Studies of metabolism in renal failure
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	Experimental studies on insulin and insulin antagonists
D. Taverner, M.D., M.B.E.	Clinical electromyography Studies in human pharmacology
with E.P. Langworth	Nerve conduction studies
G.A. Rose	Problems relating to calcium metabolism
J.R. Fountain, M.D.	Chemotherapeutic studies in leukaemia and polycythaemia

Clinical:

Professor S.J. Hartfall, M.D.	Study of oedema in rheumatoid arthritis Problem of disseminated lupus erythematosus
Professor S.J. Hartfall, M.D. W.C. Walker	Basal and maximal acid secretion in the stomach in relation to oral and parenteral steroid administration
Professor S.J. Hartfall, M.D. K. Swinburne	Evaluation of anabolic steroid in treatment of 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

15. Medicine (*continued*)

Clinical (*continued*)

V. Wright, M.D.	Investigation into the effect of combining nialamid with steroid therapy in rheumatoid arthritis
W.C. Walker	
R.A.H. Morison	Problem of placebo responses in arthritic patients
	Relationship between hyperuricaemia and rheumatoid arthritis
	Body constitution and arthritis
	Psychological stress and rheumatoid arthritis
A. Woodmansey	Studies in C-reactive protein levels in rheumatoid arthritis
	Salicylate levels in rheumatoid arthritis
Medical Physics:	*See* **Physics,** *Medical*

16. Metallurgy

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor J. Nutting, Ph.D.	Phase transformations in the solid state
R. Shuttleworth, Ph.D.	Dislocation theory of yielding and creep
P.A. Feltham, Ph.D.	
P.R. Beeley, Ph.D.	Atom movement and interaction within solids
I. Codd, Ph.D.	
P.M. Kelly, Ph.D.	Properties of cermets
R.M. Douthwaite	Fatigue of alloys at elevated temperatures
W.R. Berry, Ph.D.	Casting of steel

17. 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
G.C. Turner, M.D.	Nutritional requirements and diagnosis of *Haemophilus*
	Hospital cross-infection
C.J.P. La Touche	Fungus infections in man and animals
A.T. Willis, Ph.D.	The differentiation of clostridia
	Bacterial toxins
S.I. Jacobs	Antigenic analysis of *Cl. botulinum*

18. 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

18. Mining (*continued*)

J.O. Myers, Ph.D.	Investigation of magnetic anomalies Gravity investigations into concealed structures in coal-fields 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

19. Obstetrics and Gynaecology

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

20. Ophthalmology

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

21. Paediatrics and Child Health

Professor W.S. Craig with W. Goldie	Clinical problems in the neonate Dysmaturity
G.M. Lewis	Recurrent haemorrhagic nephritis Acute respiratory infections in infancy
J.M. Littlewood	Malabsorption syndrome: the clinical value of selected biochemical tests The Wright peak flow meter: possible applications in paediatric practice

22. Pathology

Professor C.E. Lumsden, M.D. with *R. Blight *D. Robertson, Ph.D.	Myelination and demyelinating processes (experimental, cytological and biochemical aspects)
D.G.F. Harriman	The myoneural junction in muscle diseases

*Research Fellow in Multiple Sclerosis

22. Pathology (*continued*)

Chemical:

Professor G.H. Lathe, M.D., Ph.D. with T.R. Ricketts	Development of liver enzymes during the neonatal period
J.B. Holton	Serum inhibitor of bilirubin conjugation
M.J. Levell	Parathormone and oxidative phosphorylation
D. Park	Liver proteins
W.N. Anderson, Ph.D.	Metabolism in uraemia
J. Summerscales	Amino-acid excretion in familial mental deficiency
P. Lord	Effect of Synkayvit and bilirubin on brain metabolism
T. Hargreaves	Metabolism of bilirubin

Experimental Pathology and Cancer Research:

Professor H.N. Green, M.D.	Mechanism of carcinogenesis Tumour chemotherapy Immunological theory of cancer
G.M. Bonser (Mrs.), M.D.	Aromatic amine cancer and endocrine aspects of cancer
D.B. Clayson, Ph.D.	Aromatic amine cancer
J.W. Jull, Ph.D.	Endocrines and cancer
L.R.A. Bradshaw	
L.H. Stickland, Ph.D.	Biochemical problems in cancer
J.O. Laws, Ph.D.	Regeneration and carcinogenesis in the liver
G.M. Thomas (Mrs.), M.D.	Statistical survey of human lung cancer
M.R. Anderson (Miss)	Study of carcinogenic action of mineral oils
P. Reed (Mrs.)	Electron microscopy
H.M. Anthony (Mrs.)	Immunology
M. Parsons (Mrs.)	Chemotherapy

23. Pharmacology

Professor D.R. Wood	Gastric secretion
G.A. Mogey, M.D.	*Amanita muscaria*
E.R. Clark, Ph.D.	Chemistry of steroid analogues and of adrenergic nerve-blocking drugs
K.A. Exley, M.D.	Neuropharmacology
E.T. Abbs	
G.A. Nelson, Ph.D.	Plant constituents
R.C. Kaye, Ph.D.	Micelle formation and polarographic diffusion currents
D. Mackay, Ph.D.	Histamine and histidine decarboxylase

24. Physics

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

24. Physics (*continued*)

E.F.W. Seymour, Ph.D.	Nuclear resonance in metals
R.F. Youell, Ph.D.	X-ray crystallography of minerals
B.J. Thompson, Ph.D.	Optical properties of metals
**Medical:*	
Professor F.W. Spiers, 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 the chemical and carcinogenic action of radiation
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
N. Jacobs (Mrs.) with S.I. Jacobs	Bacterial micro-colony formation as a biological indicator of dosage

25. Physiology

Professor A. Hemingway J.R. Ledsome 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

26. 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
J.M. Roberts with Department of Biochemistry	Clinical and biochemical studies of depression
A.J. Young	Personality characteristics of placebo reactors
D.G. Brown	Psychosomatic correlates in contact dermatitis: further studies
E.A.M. Wood	Steriod 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
A.H. Wilson	Search for inherited metabolic abnormalities contributing to mental deficiency
J.C. Little	Clinical studies on the phobic anxiety—depersonalization state
	Clinical study of "physical prowess and neurosis"

*Includes M.R.C. Environmental Radiation Research Group: 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

27. 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.	Psychological aspects of laboratory work
D.H. Holding, Ph.D.	Learning processes in children Vocational guidance in comprehensive schools Motor skill training problems Psychophysics and information theory in connection with smoke pollution Effect of cues in the wording of instructions

28. Public Health and Preventive Medicine

Professor D.B. Bradshaw	
R. Sutherland, M.D.	Random survey of the nature and origins of public attitude to disease in general, to cancer and to the medical services

29. 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	Study of chronic pericarditis Small bowel radiology Cineradiography of the soft palate Tomography of the accessory nasal sinuses
J.N. Glanville	Simple tumours of the oesophagus Small intestinal function following gastrectomy Gall bladder function following gastrectomy or vagotomy
D.C. Jackson M.D. Rawson	Influence of antispasmodics on absorption of cholecystographic media Accuracy of radiological diagnosis in lesions of stomach and duodenum Purge colon studies

30. Surgery

Professor J.C. Goligher H.L. Duthie	Investigation of secretory activity of stomach before and after operating for duodenal ulcer
J.D. Atwell R.C. Bennett	Controlled trial of several different operations in the treatment of duodenal ulcer
M. Fields (Mrs.)	Study of the effect of gastrectomy and vagotomy on the absorption of fat 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

31. Surgery, Thoracic

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

32. 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
H.E. Nursten, Ph.D.	Substances giving colour and flavour to foods
R. Reed, Ph.D.	Application of electron and light microscopy to food structure

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
G.L. Isles Ph.D.	Fundamental studies of flame processes
L. Barker, Ph.D.	Combustion noise
J.R. Catchpole	Adsorption by activated clays

32. Technology (*continued*)

Leather:

Professor A.G. Ward, O.B.E.	Physical studies of skin and leather Natural gelling agents
F.O. Flint (Miss), Ph.D.	Histochemistry of skin
H.E. Nursten, Ph.D.	Structure and properties of plant phenolic substances, including 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 proteins and of other naturally occurring macromolecules Studies of spread monolayers

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
N.H. Chamberlain, Ph.D. Professor P. Grosberg, Ph.D. D.L. Munden G.F. Raper P.A. Smith 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. A. Skertchly, Ph.D. D.J. Johnson	X-ray, electron microscope, ultracentrifuge, and infra-red studies of fibre structure

33. 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

33. 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	Renal lithiasis: factors influencing the renal excretion of calcium; diagnosis of primary hyperparathyroidism; nature of the defect in idiopathic hypercalciuria; 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
M.J. Chinnery (Mrs.)	Study of mucopolysaccharides and mucoproteins in urine in normal patients and in patients suffering from calculus disease of the kidney
	Assay of parathyroid hormone in blood and urine
M.J. Purton	Crystallographic investigations into urinary calculus using X-ray diffraction techniques, polarized light and micro-focus X-ray techniques

34. Veterinary Studies

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

35. Zoology

Professor J.M. Dodd, Ph.D., F.R.S.E.	Comparative endocrinology of lower vertebrates
T. Kerr, D.Sc.	The development of teeth in fish and amphibians
H. Henson, D.Sc., Ph.D.	Growth and metamorphosis in insects
E. Broadhead, D.Phil.	The ecology of psocids
J. Brust (Miss), Ph.D.	The cycle of the flank gland and histochemistry of the skin in the golden hamster
I. Werth (Miss)	Flocking in birds
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

14 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.	Control of metabolic pathways
K.M. Jones, D.Phil.	

2. Botany

Professor T. G. Tutin	European flora, experimental taxonomy
G. Halliday	
P.W. Ball	
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
J.M. Horwood (Mrs.)	

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 oxyarions and oxycations
M.J. Blandamer, Ph.D.	Ion-ion and ion-solvent interactions studied by magnetic resonance, spectrophotometry and ultra-sonic relaxations
I.M.T. Davidson, Ph.D.	The kinetics of gas-phase reactions of organo-silicon compounds
C. Eaborn, D.Sc. with R.W. Bott	Organo-silicon compounds Organic derivatives of germanium, tin, and lead Mechanisms of reactions of organic and organo-metallic compounds Substituent effects in electrophilic aromatic substitution Hydrogen-exchange reactions (detritiations) in organic compounds Reactions of fluorene derivatives Effects of high-energy radiation on organo-metallic compounds Organo-metallic compounds containing phosphorus
R.D. Guthrie, Ph.D.	Structures and reactions of periodate-oxidized carbohydrate derivatives Synthesis and reactions of amino sugars
S.H. Harvey, Ph.D.	Structure and reactions of organic nitramines
E.R.A. Peeling, Ph.D.	The kinetics of the low-pressure catalytic hydrogenation of aromatic compounds Physicochemical measurements on cyclohexane derivatives
J.D. Smith, Ph.D.	Al-N addition compounds and polymers

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
O.P.D. Cutteridge, Ph.D.	Synthesis of linear electrical networks: An investigation of Darlington's conjecture relating to 3-terminal R.C. networks
E.N. Pickering, Ph.D.	Synthesis of RLC, N-terminal networks

5. Geography

Professor N. Pye	Environmental relations of soil associations Dynamic and synoptic climatology Arid regions Cartographic method and techniques
W. Kirk	Indian Ocean area Environmental archaeology of Scotland Geographical methodology
R. Millward	Historical geography of 19th century England The Mediterranean
A.H.W. Robinson, Ph.D.	Shallow water morphology
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	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)
J.H.M. 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

6. Geology (*continued*)

T.D. Ford, Ph.D.	Carboniferous stratigraphy, palaeontology and micro-palaeontology, especially the Lower Carboniferous of Derbyshire and Leicestershire
	Geological aspects of speleology
	Quaternary stratigraphy of Leicestershire
	Pre-Cambrian fossils
A.M. Evans	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

8. Physics

Professor E.A. Stewardson, Ph.D.	X-ray spectroscopy
J.E. Wilson	
T.B. Jones, Ph.D.	
Professor E.A. Stewardson, Ph.D.	Space research (solar and stellar X-ray emissions)
K.A. Pounds, Ph.D.	
P.C. Russell, Ph.D.	
E. Mathieson, Ph.D.	Photo-nuclear processes
V.A. Briglmen (Miss), Ph.D.	
W.E. Spear, Ph.D.	Conduction processes in semi-conductors and insu lators
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
M.J. Pickersgill (Miss), Ph.D.	Research into perception of seen movement and its clinical applications

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

15 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

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
J. Wright	Hepatic circulation

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
E.R. Redfearn, Ph.D.	Photosynthetic processes
	Lipids in enzyme systems
	Electron transport systems
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

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.	The metabolism of nitrogen compounds
A.R. Cook	Amino-acid metabolism
T.R.G. Gray, Ph.D.	Bacterial populations of estuarine salt marsh muds
C.D.K. Cook, Ph.D.	Biosystematics of aquatic flowering plants
J. McNeill, Ph.D.	Biosystematics of flowering plants and taxonomy of E. Mediterranean flora
D.A. Thurman, Ph.D.	Metabolism of nitrogen compounds

5. Building Studies

Professor A.W. Hendry	Wind flow around buildings 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 Load bearing brickwork
with P. Manning	Selection of structural forms and materials for industrial buildings
P. Manning	Survey of factory roof design with special reference to the economics of natural lighting
A.L. Britch with A.C. Benson	Long-term study of the degradation of building materials in a polluted industrial environment
B. Whitehead	The application of the electronic digital computer to the preparation of bills of quantities
B. Whitehead	The application of work study and related techniques to the design of buildings

6. Chemistry

Inorganic and Physical:

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
A. Hickling, D.Sc., Ph.D.	Electrochemistry: overpotential, glow discharge electrolysis Anodic behaviour of metals
F.D.S. Butement, Ph.D.	Radiochemistry
A.K. Holliday, Ph.D.	Study of inorganic hydrides
H.W. Douglas, D.Sc., Ph.D.	Colloid chemistry; electrophoresis
T.B. Grimley, Ph.D.	Theoretical work on properties of solids and solutions

6. Chemistry (*continued*)

Inorganic and Physical (*continued*)

C.F.H. Tipper, D.Sc., Ph.D.	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

Organic:

Professor G.W. Kenner, Sc.D., Ph.D. 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.	Analytical and synthetical investigations of natural products and related compounds, particularly peptides, porphyrins, fungal metabolites, bacterial metabolites and terpenoids
R.J. Abraham, Ph.D.	Nuclear magnetic resonance spectra of organic compounds
D. Bethell, Ph.D.	Mechanisms of organic reactions
M.J.T. Robinson,	Physical organic chemistry of alicyclic compounds

7. Dental Studies

Professor E.D. Farmer	Virus investigation, laboratory and clinical, of herpes simplex and aphthous ulcers
W.R. Burston, Ph.D.	The pre-natal development of the mammalian skull The early dental orthopaedic treatment of cleft palate infants
R.L. Hartles, D.Sc.	The biochemistry and microbiology of saliva Dental caries in experimental animals An investigation of the minor organic fractions of the teeth and bones
C.C. Knowles	The post-natal development of the cranial base in man
T.H. Melville	Metabolic processes of oral actinomycetes
Professor F.E. Lawton	Dental caries in experimental animals
H.W. Ferguson	Effects of variations in nutrition on the histology of bones and teeth
J.M. Mumford	Electrical stimulation of human teeth Clinical evaluation of new local anaesthetic agents
R. Storer	Clinical and laboratory study of resilient denture base materials

8. Engineering

Civil:

Professor J.B.B. Owen, D.Sc.	Geometric considerations in structural design
H. Waters	Transmission of vibration Study of plate girder webs Edge stresses in metal domes
J.A. Proudlove	Wave pressures on sea-walls: full scale measurements Traffic flow studies

8. Engineering (*continued*)

Civil (*continued*)

A. Bolton, Ph.D.	Relation between critical, limit and failure loads of structures
R.B. Whittington, Ph.D. A.R. Halliwell	Variation of tidal ranges and movement of constructional materials in natural and artificial waterways; flood relief works and harbour wave studies
L. Barden	Contact pressures under foundation beams
G.J.W. King	Dynamic properties of soils
R. Ashworth	Strain measurements in reinforced concrete columns

Electrical:

Professor J.M. Meek, D. Eng. Professor J.D. Craggs, Ph.D. H. Edels, Ph.D. J.H. Leck, Ph.D. M.R. Barrault G. Carter, Ph.D. J. Durnford J.A. Harrison, Ph.D. K.R. Hearne, Ph.D. J.J. Lennon J. Lucas, Ph.D. A.B. Parker, Ph.D. A.N. Prasad, Ph.D. D. Whittaker, Ph.D.	Electrical discharges in gases comprising: Collision processes in gases, in single collision and swarm conditions. Physical properties of arc, high pressure glow and spark discharges High current discharges Vacuum physics
A.S. Aldred, Ph.D. J.W. Lynn, Ph.D.	Power system analysis. Analogue computer studies of power systems including nuclear reactors
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.	Pressure surges in hydraulic pipe lines
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-dynamics studies using shock tubes
H. Barrow	Turbulent heat transfer Coupling between non-uniform heat transfer and vorticity
G.B. Bishop	Neutron flux depression
R.S. Benson, Ph.D. W.A. Woods, Ph.D.	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
W.J. Sutcliffe	Plastic and elastic design of structures

9. Genetics

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

10. Geography

Professor R.W. Steel	Problems of land and population in tropical Africa
M.M. Bower (Miss)	Blanket peat bog development; salt marshes on the Cheshire and Lancashire coast and in particular in the Dee estuary; pollen analytical work
E. Brooks, Ph.D.	Development areas; economic geography of Poland
E.M. Driscoll	Geomorphology of the N.W. Pennines Geomorphology of S. Wales Geomorphology of 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
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
A.T.A. Learmonth, Ph.D.	Medical geography; population distribution and regional planning in India; area sampling
R. Lawton	Historical geography of population change and movement in Britain. Journeys to work in England and Wales
J.A. Patmore	Urban geography. Transport geography of the British Isles
R.M. Prothero	Medical geography and population movements in Africa south of the Sahara; land and population in Nigeria
E.S. Simpson	Economic geography of the British Isles

11. Geology

Professor R.M. Shackleton, Ph.D.	Structural geology of metamorphic rock complexes (Eire, Scotland, Anglesey, Kenya); Variscan structures of N.W. Spain; Rift Valley structures (E. Africa)
J.C. Harper, Ph.D.	Lower Palaeozoic faunas (Eire, N. Wales)
C.D.V. Wilson, Ph.D.	Seismology (field and marine); magnetism (marine); gravity
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	Sedimentology (Carboniferous Limestone; Namurian; Purbeck; Wealden) Carbonate diagenesis; carbonate sedimentation on the Great Bahama Bank
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

12. Histology

N.M. Hancox, M.D. J. Kruszynski, M.D.	Electron microscopy and tissue culture studies on bone absorption; freeze methods in cytochemistry; micro-ciné-photography. Microincineration and measurement of
E.B. Beckett (Miss), Ph.D.	refractive index of tissue sections. Cytochemistry and
B. Boothroyd, Ph.D. J.J.T. Owen	electron microscopy of muscle infected with *Trichinella spiralis*. 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
J.M. Kain (Miss), Ph.D.	Culture of microscopic marine algae Ecology of sub-tidal seaweeds
G. Russell, Ph.D.	Life histories and taxonomy of algae

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
S. Brenner (Miss), Ph.D.	Atomic and nuclear physics
M.G.J. van der Burg, Ph.D.	General relativity
S.D. Daymond, Ph.D.	Conformal mapping with approximately circular boundaries
D.G. Drake, Ph.D.	Fluid dynamics
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
N. Lynn, Ph.D.	Mathematical physics
P.J. Message, Ph.D.	Dynamical astronomy
C.B. Rayner, Ph.D.	Differential geometry and relativity
G.L. Sewell, Ph.D.	Quantum field theory Solid state theory
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
M.C.K. Tweedie J.R. Green, Ph.D.	Mathematical statistics, with applications

14. Mathematics (*continued*)

Applied (*continued*)

A. Young, Ph.D.	Variations in the length of the day Variations of latitude 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
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
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	Algebraic topology
I.R. Porteous, Ph.D.	Algebraic and differential geometry
R.L.E. Schwarzenberger, Ph.D.	Differential topology
M.C. Irwin	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.	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 An experimental study of time-dependent strain in body-centred cubic metals at sub-zero temperatures Kinetics of the tempering of martensite
S.J. Kennett, Ph.D.	Yield phenomena in aged silver-copper alloys
C. Bodsworth, Ph.D.	Oxygen potentials of simple slag systems Measurement of the activity of carbon and nitrogen in ternary alloys of iron by gas equilibria methods Kinetics of tempering chromium steels

16. Metallurgy (*continued*)

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 Theoretical treatments of the kinetics of reactions in metals
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 Kinetics of graphitization of white irons
T. Ellis, Ph.D.	Deformation of single crystals of tantalum and niobium
D. Hull, Ph.D.	The martensite transformation Study of deformation phenomena in terms of crystal defect theory Development of a small scale brittle-fracture test Electron microscopy of thin films of metals and alloys
G.T. Higgins, Ph.D.	Recrystallization mechanisms and kinetics

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
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 disturbance in relation to pregnancy
B.M. Hibbard	Blood changes during the puerperium 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.	The spectrophotometric determination of trace elements in sea water and in marine sediments
L.A. Fairbairn	Turbulent flow in tidal currents
P. Hughes	Mixing processes in a tidal estuary Influence of wind on water movements

TIDAL INSTITUTE AND OBSERVATORY

J.R. Rossiter, D.Sc.	Tide models
G.W. Lennon 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

21. Paediatrics and Child Health

Professor J.D. Hay, M.D. H.G. Farquhar O. Scott (Mrs.), M.D. R.S. Jones, M.D.	Congenital cardiovascular disorders
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
	The nervous system in infancy
	Infant feeding
R.M. Todd, M.D. S.E. Keidan	The use of hydrocortisone in the treatment of primary tuberculosis
R.M. Todd, M.D. J. Neville	Assessment of physical, mental and emotional status after tuberculous meningitis
R.M. Todd, M.D.	Electrophoretic pattern of serum proteins in paediatric disorders
	Corticosteroids in the treatment of nephrotic syndrome
	Pseudohypertrophic muscular dystrophy: Investigation of serum aldolase and transaminases Treatment with gastric mucopolysaccharide
R.M. Todd, M.D. K. McCarthy, M.D.	Measles vaccination
R.M. Todd, M.D. R.W. Smithells	Digitalis in respiratory distress syndrome
R.S. Jones, M.D.	Investigation of asthmatic children and therapeutic measures by respiratory function tests

22. 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

23. 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

23. Pharmacology and Therapeutics (*continued*)

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

24. Physics

Experimental:

Professor J.M. Cassels, F.R.S. Professor A.W. Merrison B. Collinge, Ph.D. W.H.R.F. Muirhead, Ph.D. J.R. Wormald, Ph.D. S.G.F. Frank, Ph.D. A.N. James	Fundamental particle physics at high energy, especially using 380 MeV cyclotron
M.J. Moore	Plant engineering
L.L. Green, Ph.D. J.C. Willmott, Ph.D. G. Parry, Ph.D. P. Dagley, Ph.D. P.T. Andrews	Nuclear physics, using tandem Van de Graaff generator
W.H. Evans, Ph.D. D.N. Edwards, Ph.D. P. Mason, Ph.D. R.A. Donald, Ph.D.	Liquid hydrogen bubble chambers
J.R. Holt, Ph.D. H.C. Newns, Ph.D.	Electron synchrotron design
H.D. Parbrook, Ph.D. M.G. Davies, Ph.D. W. Tempest, Ph.D. R. Holmes, Ph.D.	Acoustics
D.G.E. Martin	β-ray spectroscopy
G. Rickayzen, Ph.D.	Theory of many-body problems

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
B. Szigeti, Ph.D.	Theory of dielectrics
G.R. Allcock, Ph.D.	Quantum field theory
H.C. Newns, Ph.D.	Nuclear physics
G. Rickayzen, Ph.D.	Theory of superconductivity

25. Physiology

Professor R.A. Gregory, D.Sc., Ph.D.	Gastric secretion
T.G. Richards, M.D., Ph.D. P. Marioni	Circulation in special regions of the body

25. Physiology (*continued*)

I. Calma, M.D. G. Kidd, Ph.D. D.V. Roberts	Neurophysiology
H.J. Tracy	Gastric secretion
A.G. Singleton	Ruminant physiology

26. Psychiatry

S.B. Hall, M.D. (Director)	Nature and meaning of physical symptoms in depressive states
R.R. Hetherington, Ph.D.	Alcoholism Assessment of handicapped children
R.R. Hetherington, Ph.D.	Psychological reactions to physical illness
M.S. Spelman	
D.H. Miller	Personality and intellectual changes following mitral valvotomy Psychiatric syndromes associated with cancer
R.G. Moles, M.D.	Comparative quantitative study of ventral (specific sensory) and lateral (associative) nuclear groups of the thalamus

27. Psychology

Professor L.S. Hearnshaw	Conceptual thinking History of British psychology
A. Crawford (Miss), Ph.D.	Ability and achievement in junior schools. Colour vision
D. Straker	Vocational guidance: industrial training
D.B. Bromley	Psychological aspects of ageing with special reference to higher mental processes
G.W.H. Leytham	Perceptual thresholds. Conditions affecting animal learning
A. Heron, Ph.D.	Occupational aspects of ageing

28. 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
V.J.M. Stark, M.D.	Investigation into the causes of home accidents
T.L. Begg	Employment of mentally subnormal in sheltered conditions
W.H. Parry, M.D.	Epidemiology of salmonellosis with special reference to imported foods and stream pollution Epidemiology of virus diseases in Liverpool
T.L. Hobday, M.D.	Investigation into the source of contamination of imported hides by anthrax bacillus

29. Radiodiagnosis

P.H. Whitaker, M.D. A.J. Robertson, M.D.	Radiological changes in pneumoconiosis associated with smelters in tin oxide
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

30. Surgery

Professor C.A. Wells	Post-gastrectomy syndromes Ileus
Professor C.A. Wells K. Rawlinson L.F. Tinckler J.W. Richardson	Post-operative intestinal motility
I.W. McPhee, M.D.	Cell energy and cell cation exchanges
D. Annis, M.D.	Physiology of micturition
C.R. Helsby	Experimental urolithiasis
L.J. Temple	Operations on the open heart and hypothermia
A. Marsden	Results of herniorrhaphy
J.H. Johnston	Treatment of burns Clinical research into hiatus hernia: analysis of weight records, blood groups, etc.
F.R. Edwards, M.D.	Operations on the open heart
I. Forshall (Miss)	Investigations into the aetiology, frequency and histology of undescended testicles Follow-up and investigations into the late complications of hare lip and cleft palate cases Survey of malignant disease of the genital tract in children, excluding ovarian tumours Review of neoplasms of ovaries in children
P.P. Rickham	Investigation into the aetiology of congenital malformations Biochemical changes in muscles of newborn infants undergoing surgery Changes in blood volume and body fluids produced by operation in newly born babies
I. Forshall (Miss) P.P. Rickham	Clinical assessment of intestinal duplications. Statistical survey of newborn infants admitted during the first six years of the Neonatal Surgical Unit
P.P. Rickham E.G. Hall	Metabolic studies on the effect of intravenous fat emulsion in newborn infants following operation
P. Lynch	Sterilization of surgical gloves. Post-operative wound sepsis
L.F. Tinckler K. Rawlinson	Intestinal activity following surgery
A. Tumarkin	Dynamics of the Eustachian tube
J.C. Ross N. Gibbon	Urogenital surgery; paraplegic bladder
E. Edwards	Anuria and the artificial kidney
R. Brearley	Liver proteins after hepatic resection
R.S. Todd	Body temperature during operations
F.I. Tovey A.C. Chatterjee	Duodenal ulcer
I.W. McPhee D. Sykes	Renal infarction
J.K. Edmundson	Chemotherapy of cancer

31. Venereology

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

32. Veterinary Studies

Anatomy:

Professor A.S. King, Ph.D.	Avian breathing. Age changes in the intervertebral disc
J.W. Dransfield	Correlation of structure and function in the hip joint of the dog
T.D. Glover, Ph.D.	Transport and fate of gametes
G.K. Benson, Ph.D.	Hormonal control of lactation
R.A.L. Batt	Growth rates of tissues

Animal Husbandry:

J.O.L. King, Ph.D.	Influence of different methods of management on the response of growing poultry to certain dietetic additives
R. Ewbank	Effect of different management factors on the development of young animals

Clinical:

Professor J.G. Wright	Surgical techniques in horses and cattle. Anaesthesia in horses and cattle. Infertility in bovines. The diagnosis of disease in the bovine abdomen
P.A. Neal	
H.E. Ritchie	
G.B. Edwards	The blood picture as an aid to diagnosis in the bovine species
	Sedation and anaesthesia in pigs
A.C. Shuttleworth	Surgical techniques in dogs
L. Arnall	Dental development in the dog
	Diseases of cage birds

Pathology:

Professor D.L. Hughes	
A. Buxton, Ph.D.	Immunological studies on salmonellosis in animals
J.R. Thomlinson	Diagnostic problems in veterinary clinical pathology
	Pig diseases
D. Allan	Food hygiene: the relation of ante-mortem status to post-mortem change
J. M. Howell	The 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
R.L. Cornwell	Helminthiasis in farm animals

33. 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

33. Zoology (*continued*)

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
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

16 Liverpool University, School of Tropical Medicine

1. Parasitology and Entomology

Professor W.E. Kershaw, V.R.D., M.D., D.Sc.	Pathogenicity of parasites, and their population dynamics Immunity
J.F.B. Edeson, M.D. C.P. Ramachandran S. Nair (Miss) M.A. Zaini	Malayan filariasis
W.W. Macdonald A. Husain	Mosquito genetics and insecticides
M.J. Clarkson	Coccidiosis and blackhead in turkeys
L.S. Forbes	Hydatid infections Cestode physiology
R. Augustin (Mrs.), D.Sc. A.P. Ridges (Mrs.) R. Connolly	Immunochemistry
T.R. Williams L.E. Obeng (Mrs.) P.S. Barker	Crabs and *Simulium*
A. Venkataratnam	Onchocerciasis in horses and cattle
G. Hearnshaw (Mrs.), Ph.D. D.J. Brewster	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
R. Jarumilinta (Mrs.)	Enzyme systems of *Entamoeba histolytica*
N. Marsh (Mrs.)	Metabolism of malaria parasites and host tissues in malaria
C. Bolton (Miss)	Effects of malaria on mitochondrial respiration
T. Tella	Pharmacologically active substances in malaria
K.A. Fletcher	Adrenal cortical hormones Electron microscopy of malaria parasites Erythrocyte enzyme systems
C.S. Leithead	Physiological adjustment and maladjustment to heat
C.S. McKendrick, M.D. M.B. Skirrow	Physiological basis of cardiac arrhythmias, infarction and shock
A.J. Robertson, M.D.	Effects of inhalation of tin dust
A.R.D. Adams, M.D.	Chemotherapy of malaria and leprosy, etc.
D.R. Seaton	Clinical research

17 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

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
C.H. Holland	Stratigraphy and palaeontology of Silurian rocks of the Dingle Peninsula, Co. Kerry

4. Geology (*continued*)

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
D.C. Turner	Granites and associated rocks of the Cairngorms, Central Highlands, Scotland
R.V. Beavon, Ph.D.	Stratigraphic and volcanic studies near Beddgelert, N. Wales

5. Mathematics

Professor H.G. Eggleston, Sc.D.	Hausdorff measure Convex sets
G.L. Clark, Ph.D.	Relativity
G.T. Kneebone, Ph.D.	Logic
P.C. Kendall, Ph.D.	Magnetohydrodynamics
W.L.C. Sargent (Miss), Sc.D., Ph.D.	Functional analysis

6. Physics

Professor H.O.W. Richardson	Investigation of nuclear radiations and energy levels by magnetic spectrometry and other methods
R. Mansfield, Ph.D.	Transport phenomena in semi-conductors and their magnetic properties
N.E. Hill (Miss), Ph.D.	Measurement of dielectric constants and absorptions Micro-friction in liquids
V.I. Little, Ph.D.	Properties of dielectrics especially at high frequencies Structure of liquids
L. Pincherle, Dott.Fis.	Theory of metals and semi-conductors
C. Cooke, Ph.D.	Electron scattering and applications of scintillation counting

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
A.M. Bond (Miss), Ph.D.	Fluorosis
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
D.W. Forrest, Ph.D.	Association between mental and physical traits Personality factors in recall Personality and perceptable thresholds
S. Chown (Mrs.), Ph.D.	The rigidities Psychological aspects of ageing

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
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

18 London University, Birkbeck College

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

2. Chemistry (*continued*)

Physical:

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
G.H. Dury, Ph.D.	Geomorphology 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
R.G. Cooke, D.Sc.	Infinite matrices; sequence spaces; linear operations
C.H. Dowker, Ph.D.	Algebraic topology
P. Vermes, D.Sc.	Summation of series and transformation of series by infinite matrices

5. Mathematics (*continued*)

R.W. Tiffen, Ph.D.	Theory of elasticity and hydrodynamics
E.H. Kronheimer, Ph.D.	Quantum mechanics
D.A. Greenwood, Ph.D.	Solid state theory
M.R. Mehdi, Ph.D.	Functional analysis
J. Herszberg, Ph.D.	Algebraic geometry

6. Physics

Professor J.D. Bernal, F.R.S.	Theory of solids and liquids
Professor D. Bohm	Many body theory Plasma physics Fundamentals of quantum theory and relativity theory
W. Ehrenberg, Ph.D., D.Sc.	Electrical properties of semi-conductors and dielectrics including the effect on them of electron beams
with J. Hirsch, Ph.D.	Barrier layer problems 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 Development and use of low-energy lens β-spectronmeter Study of γ-γ and β-γ angular correlations Measurement of short life times of nuclear states
N.E. Cusack, Ph.D.	Electrical properties of metals in the liquid state Cosmic rays: investigation into the behaviour of μ mesons at various depths below ground
B.J. Hiley	Theory of statistical mechanics

Crystallography:

Professor J.D. Bernal, F.R.S.	Studies of composition and origin of meteorites
with C.H. Carlisle, D.Phil M.A. Rosemeyer	Structure of organic crystals and crystalline enzymes Chemical investigations of enzymes
J.W. Jeffrey, Ph.D.	Structures of inorganic crystals and minerals, using X-ray and electron diffraction techniques
A.L. Mackay, Ph.D.	Development of X-ray crystallographic apparatus, particularly micro-apparatus
J.W. Jeffery, Ph.D.	Methods of measurement of X-ray intensity
A.L. Mackay, Ph.D.	Research on structure of magnetic minerals and meteorites 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 metal-chelate complexes formed by acetylacetone, and of phosphonitrilic compounds

6. Physics (*continued*)

Crystallography (*continued*)

with A. Klug, Ph.D.	*X-ray and physical studies of plant and animal viruses and related substances
J.T. Finch, Ph.D.	†X-ray and physical studies of poliomyelitis virus and turnip yellow mosaic virus
K.C. Holmes, Ph.D.	†X-ray and physical studies of tobacco mosaic virus
A. Klug, Ph.D.	X-ray diffraction analysis of non-periodic systems

Numerical Automation:

A.D. Booth, Ph.D. D.Sc. (Head of Department)	Logical principles in computation Design of electronic computers and the application of these to problems of crystal structure analysis and of mathematical physics Design of magnetic systems Mechanical translation Ferro-electricity Analysis of spoken words Theory of games Pattern recognition
K.H.V. Booth (Mrs.)	Programming of physical problems for digital computers Simulation of neuron networks
M. Levison K.H.V. Booth (Mrs.)	Linguistic analysis

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
B.M. Foss	Perception and thinking; 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
R.S. Peters, Ph.D.	Methodological and conceptual problems in psychology Theories of motivation and emotion The psychology of morals and moral education
T. Veness (Miss)	Aspirations of school leavers Social motivation and affiliation Social perception Prejudice in children

Occupational:

Professor A. Rodger	Vocational guidance Management selection and succession Industrial rehabilitation Youth employment Job specification

*Financed by U.S. Public Health Service Grant
†Partially financed by the A.R.C. and M.R.C.

7. Psychology (*continued*)

Occupational (*continued*)

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

9. Zoology

Professor W.S. Bullough with E.B. Laurence (Mrs.), Ph.D.	Physiology of cell division
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 dinosaurs
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

19 London University, Imperial College of Science and Technology

1. Aeronautics

Aerodynamics:

Professor H.B. Squire, F.R.S.	Fluid mechanics
F.G.Irving	Supersonic flow
J.L. Stollery	Hypersonic flow
A.J. Taylor-Russell, Ph.D.	Heat transfer in supersonic flow

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

1. Aeronautics (*continued*)

Structures (*continued*)

with S. Kelsey H. Kamel K. Thomas, Ph.D.	Static and dynamic analysis of fuselages and wing of arbitrary planform; theory and experiment Effect of coverbending
S. Kelsey K. Thomas	Fatigue of structures under programme and random 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

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 Nutrition of calcifuges
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
A.H. Dadd, Ph.D.	Adaptation
J.L. Gay, Ph.D.	Sporulation of fungi in relation to vapour pressure gradients; sporulation of yeasts

2. Botany and Plant Technology (*continued*)

Mycology and Plant Pathology:

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 (*Penicillium 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*
B.E.J. Wheeler, Ph.D.	Tropical plant diseases: studies on infection of tobacco by *Alternaria longipes* Physiology of sclerotia formation

**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.	Enzymes concerned with fructose metabolism in the artichoke
J.W. Hannay, Ph.D.	Photoinduction and dark CO_2 fixation in *Kalanchoe*
C.L. Mer, Ph.D.	The effect of sugar and nitrogen supply on growth of the coleoptile and mesocotyl of oat and wheat seedlings in the presence and absence of carbon dioxide
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

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

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 Transitional metal complexes Carbonyls Nitrosyls Structural studies Rhenium chemistry
L.S. Theobald	Direct determination of alumina in chromite and chrome refractories Determination of Cr_2O_3 in chromite and chrome refractories Determination of total iron in chromite and chrome refractories

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

3. Chemistry (*continued*)

Inorganic (*continued*)

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	Kinetic and equilibrium behaviour of inorganic complexes
L. Pratt, D.Phil.	Nuclear magnetic resonance studies of organo-metallic compounds, metal hydrides, 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

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 Chemistry and reactivity of alicyclic glycols Derivatives of nitrogen mustards for cancer chemotherapy
J.A. Elvidge, Ph.D.	Conjugated macrocyles Cyanine dyes Imidines and derived heterocycles
L.M. Jackman, Ph.D.	Kinetics and thermochemistry of hydrogen transfer Nuclear magnetic resonance spectroscopy
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. (Head of Department)	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

3. Chemistry (*continued*)

Physical (*continued*):

Professor F.C. Tomkins, 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
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 membrane phenomena and to ionic crystals
with J. Walkley, Ph.D.	Intermolecular forces
G.J. Hills, Ph.D.	Temperature and pressure coefficients of ionic conductance Electrode processes in high temperature systems Thermodynamic studies of aqueous electrolytes Electrochemistry of fused salt systems
J.A. Barrie, Ph.D.	Diffusion and sorption of vapours and gases in polymer films Stress-strain properties of elastomers
L.V.C. Rees, Ph.D.	Self-diffusion in ionic crystals Heats of formation of and heats of ion exchange in zeolites Radiation damage in zeolitic crystals
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
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

4. Engineering, Chemical

Professor A.R. Ubbelohde, D.Sc., F.R.S.	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.	Transport properties and structure of liquids Thermodynamics of solutions
G. Munday, Ph.D.	Gaseous detonation
G.S. Parry, Ph.D.	Lattice vibrations and thermal expansion of crystals Transformations in crystals General crystallography Structure analysis by X-ray diffraction techniques
D.A. Young, Ph.D.	Thermal and electrical properties of graphite and its crystal compounds Recrystallization and annealing studies on graphite
H. Wilman, D.Sc., Ph.D.	Surface chemistry and physics Electron diffraction
H.I. Matthews, O.B.E., M.C.	Electron microscopy Electrodeposition Anodic oxidation Crystal growth in deposits; epitaxy Deformation of crystals Metal and other crystal physics Mechanical wear, friction and surface structure; lubrication Structure and other properties of fibres and plastics Corrosion of metals Structure of clays and layer-lattice minerals Molecular structure. Heat motion in crystals
Professor D. M. Newitt, F.R.S., S. Angus	Measurement of thermodynamic properties of steam
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
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
R.F. Strickland-Constable, D.Phil.	Rates of growth and evaporation of crystals from vapour and liquid Nucleation of crystals Reactions of gases with solids under electron bombardment Oxidation of carbon
P. Eisenklam, Ph.D.	Fluid mechanics of fluidized beds Two-phase flow through packed beds Flow of single particles
D.W.T. Rippin, Ph.D.	Mixing in chemical reactors Optimization of reactor performance

4. Engineering, Chemical *(continued)*

A.P. Shahbenderian, Ph.D.	Fluid flow and mass transfer in an annulus Economic optimization of industrial processes
Professor J.S. Rowlinson, D.Phil.	Measurements of the gas-liquid critical points in binary systems of simple gases Studies of phase separation and the thermodynamic properties of solutions of hydrocarbons in liquid methane Phase separation and fractionation in polymer solutions
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
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.	Formation of peroxides in combustion reactions Inhibition of oxidation processes Uses of radioactive tracers in combustion processes Pyrolysis of organic compounds Reactions of carbon at high temperatures Autoxidation in the liquid phase Heterogeneous catalysis of gaseous oxidation Radiation-induced oxidation of hydrocarbons
F.J. Weinberg, D.Sc., Ph.D.	Flame propagation and structure in laminar and turbulent gases and dust suspensions Physical properties of flames; flame optics, electrical properties, ignition criteria Mechanisms of smouldering under forced convection
A.G. Gaydon, D.Sc., Ph.D., F.R.S.	Spectroscopy, especially of flames and shock tubes Temperature measurements in shock tubes and flames
L.R. Barrett	Sintering and diffusion in refractories Dissolution of refractories by slags
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
E.W. Voice	Preparation and smelting of iron ores Theory and operation of Cowper stoves Calculations on all injection techniques in the blast furnace
R.P. Fraser, O.B.E.	Combustion of liquid fuel Supersonic flow through nozzles Atomization
N. Dombrowski, Ph.D.	Flow and disintegration of liquid sheets Combustion characteristics of atomized fuel High-speed photography
G.R. Hall	Applications of radioisotopes in chemical engineering processes Effects of gamma and alpha radiation on ion exchange resins. Thermal stability of resins Reactions of fission fragments in gaseous systems Incorporation of fission products in glass

4. Engineering, Chemical (*continued*)

G.R. Hall	Adsorption of iodine on metals Extraction chemistry of actinide elements
H.D. Evans, Ph.D.	Environmental aspects of health physics
F.L.D. Cloete	Dissolution of uranium reactor fuels
A.J. Swallow, D.Sc.	Radiation studies on acetylene and ethylene systems Radiation chemistry of aromatic compounds Chemical effects of radiation on sodium chloride crystals

5. Engineering, Civil

Concrete 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. J.R.D. Francis 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

5. Engineering, Civil (*continued*)

Fluid Mechanics and Hydraulics Engineering (*continued*)

	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

Public Health:

F.E. Bruce	The design and efficiency of rectangular and circular sedimentation tanks
G.T.J. Fox	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 and clays
A.W. Bishop, D.Sc. Ph.D.	Theoretical and experimental studies on the stability of earth dams and natural slopes
D.J. Henkel, Ph.D.	Computation of data on settlements of foundations
R.E. Gibson, Ph.D.	Theoretical and field studies of settlements of foundation embankments

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
L. Chitty (Miss)	Methods of fundamental design
A.R. Gent, Ph.D.	Stability of frames
Z.S. Makowski, Ph.D.	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	Studies in binaural perception, especially of simultaneous voices and moving sound sources
Professor A. Tustin	Binaural fusion of sounds
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

6. Engineering, Electrical (*continued*)

J. Roberts	Non-reciprocal slow-wave structures
	Tunable filters using ferrites
	Field patterns in wave guides containing resistive vanes and ferrites
	Analogue treatment of eddy current problems
Professor D. Gabor	Production of high temperature in an arc
	Flat television tube development
	Learning filters, predictors and recognizers
	Thermionic generators
	High power ion source
	Electron absorption and reflection on plasma-electrode interfaces
B. Adkins, D.Sc. with B.J. Prigmore	Feed-back methods for improving the stability of synchronous machines
P.H. Allen, Ph.D. J.J. Bates, Ph.D.	Asynchronous operation of synchronous machines and conditions for resynchronization
	Measurement and calculation of alternator impedance allowing for eddy current effects
	Electromagnetic phenomena involved in commutation in direct current machines
	A study of temperature rises in machines under conditions of varying load and speed
	Production of large current pulses by means of electromagnetic machines
	A study of the permanent-magnet synchronous motor
	Operation of induction motors supplied at variable frequency from rectifiers
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 aspects of random sampling
H.M. Howl	Study of extremum controllers
B.M. Sayers, Ph.D.	Mechanization of correlation analysis of random fluctuations by digital and analogue means
J.R. Barker, Ph.D.	Parameter estimation for physiological processes
	Brain models as a guide for self-organizing analogues
D.Q. Mayne	Network theory
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
J.C. Anderson, Ph.D.	Study of electrical, mechanical and magnetic properties of thin metallic films
E.L. Heasell, Ph.D.	Measurement of short life times in semi-conductors by high-frequency light modulation
	Study of the factors controlling tunnel diode behaviour
	Production of shallow metal contacts on germanium and silicon
	Investigation of junctions in intermetallic semi-conductors
P.M. Gundry, Ph.D.	Isotopic exchange at metal and semi-conductor surfaces

6. Engineering, Electrical (*continued*)

A.R. Boothroyd, Ph.D. with R.A. King, M.B. Das	Study of transistor properties at very high frequency and at high current level High frequency transistor oscillators and frequency converters High speed transistor switching circuits Active two-part theory and synthesis of wideband transistor amplifiers Parametric frequency multiplication and division 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
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 Operation of power systems with the aid of logical analysers Techniques for the economic operation of power systems Characteristics of power system load centres Control systems for rectifier-inverter sets Use of controlled rectifiers to provide a variable-speed commutatorless motor Experimental evaluation of the equivalent circuits of electrical machines Development of network facilities for micromachine systems

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, Ph.D.	Plastic deformation of metals in plane strain
R.D. Hoyle, Ph.D.	Theory of cold rolling with strip tension
P. Grootenhuis, Ph.D.	Experimental determination of the stresses in cold rolling
C.E. Turner, Ph.D.	Friction in metal-working processes
F. Ellis, Ph.D. A. Shelton, Ph.D.	Anisotropy and the Bauschinger effect in cold-worked metals
P. Benham, Ph.D.	Thermal and rotational stresses in turbine rotors
L.E. Culver P.J.B. Solomon	Computation of temperature distribution in axially symmetrical objects
A. Cameron, Ph.D.	Investigation of slip line fields for hot and cold rolling
R.M. Ogorkiewicz	Expanding of tubes in water tube boilers
R.T. Smith	Stresses and deflections in steam mains
S.A.V. Swanson, Ph.D.	Fatigue of metals at very high frequencies
J.G. Williams	Vibration of twisted cantilevers and turbine blades Photoplasticity 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

7. Engineering, Mechanical (*continued*)

Applied Mechanics (*continued*)

Professor H. Ford, D.Sc., Ph.D.	Fracture mechanism in aluminium alloys Impact properties of plastic sheet and film
J.M. Alexander, Ph.D.	Basic stress-strain properties of unreinforced plastics
R.D. Hoyle, Ph.D.	Symmetrically loaded plates and shells
P. Grootenhuis, Ph.D.	Heat balance for machining process
C.E. Turner, Ph.D.	Creep buckling of thermal reactor fuel elements
F. Ellis, Ph.D.	Studies in the mechanism of metal cutting
A. Shelton, Ph.D.	Oil whirl in fluid film bearings
P. Benham, Ph.D. L.E. Culver	Thin film lubrication applied to oil seals, gears and ball bearings
P.J.B. Solomon	Instability in journal bearings
A. Cameron, Ph.D.	Pitting of gear steels and bronzes
R.M. Ogorkiewicz R.T. Smith	Mechanism of running in of bearing metals and their seizure
S.A.V. Swanson, Ph.D.	Gear ripple
J.G. Williams	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
N.P.W. Moore	Effect of pre-flame oxidation products on ignition delay in compression-ignition engines Flame stabilization in high-speed flow Controlled combustion in compression-ignition engines Production of synthesis gas in an engine Slow oxidation reactions leading to knock in engines Pre-flame oxidation of benzene-air mixtures Rapid quenching of exhaust gases
Professor D.B. Spalding	One-dimensional unsteady compressible flow Turbulent flame study by electric analogue 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 The prediction of turbulent pre-mixed flame phenomena Radiative heat transfer Heat and mass transfer through boundary layers

7. Engineering, Mechanical (*continued*)

Nuclear Power:

P.J. Grant, Ph.D. C.G. James, Ph.D.	Experiments with subcritical natural uranium/graphite assemblies
D.J. McConalogue R.E. Strickland	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

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. D. J. Shearman	Stratigraphy and sedimentation of the Torridonian of Skye and neighbouring islands
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.	Structure of eastern and northern margin of the Dartmoor granite Hydrology of the Chalk in the eastern part of the Hampshire Basin Pre-Cambrian petrology in the Malvern Hills
J.L. Knill, Ph.D.	Sedimentary history of the Dalradian Series in S.W. Scotland and Donegal Rock mechanics Development of fabric in clays during consolidation
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
D.J. Shearman	Petrology and structure of the Devonian sediments of part of N. Devon Recent sediments of the Persian Gulf Recent sedimentation in the Wash
G. Evans, Ph.D.	Recent sedimentation in the Wash Recent sediments of the Persian Gulf
W. Skiba, Ph.D.	Geology of some basic intrusives in Somaliland Geology of the basement rocks (Wainimala Series) in Fiji Petrology of volcanic rocks from Pitcairn Island
J.R. Butler, Ph.D.	Geochemistry of the rare earths Geochemistry of Newer Granites, Nigeria
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

8. Geology (*continued*)

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
D.J. Carter	Distribution and palaeoecology of the Foraminifera of the Coralline Crag, E. Anglia The ecology and systematics of the Foraminifera of Christchurch Harbour, England, and in the Eocene 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
Geochemistry:	
Professor J.S. Webb, Ph.D. J.S. Tooms, Ph.D. A.L. Mather, Ph.D. R.E. Stanton	Principles and practice of geochemical prospecting and 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 Interpretation of electrical resistivity measurements Shallow seismic prospecting at 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; structure and mineralization of the Skiddaw Hills, Cumberland; lead-zinc deposits of Zawar, India; hematite deposits of E. Canada; gold mineralization of British Guiana
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 manganese deposits in Greece; lead mineralization at Greenside, Cumberland; platinum, chromite and vanadiferous magnetite in the Bushveld, S. Africa

8. Geology (*continued*)

Mining Geology (*continued*)

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

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 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
D.G. Burnett-Hall	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
G.G. Hall, Ph.D.	Quantum theory of atoms, molecules and solids
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
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

9. Mathematics (*continued*)

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
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
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
H.D. Sawyer	Solid-phase reaction of columbite and tantalite with sodium and potassium hydroxides

Physical:

Professor J.G. Ball	Metals in nuclear reactors
	Constitution of thorium alloys
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 semi-conductor crystals
	Formation of grain boundary cavities during creep
	Grain boundary sliding in zinc bicrystals

10. Metallurgy (*continued*)

Physical (*continued*)

F.A.A. Crane	Plastic deformation in mechanical working
M.S. Fisher, D.Sc.	Constitution, age hardening and electron microscopy of aluminium alloys
A.A. Johnson, Ph.D.	Radiation embrittlement and lattice defects in body-centred cubic metals Yield point phenomena and brittle fracture in molybdenum Effects of point defects on electrical properties of body-centred cubic transition metals Direct observation of lattice defects in molybdenum by transmission electron microscopy
J.S. Llewelyn Leach, Ph.D.	Corrosion mechanisms of the reactive metals, Al, U, Zr, etc. Properties of thin oxide films on metals Electrical resistivity of liquid metals and alloys Calorimetry by dissolution in liquid metal
C.W. Newey, Ph.D.	Mechanical properties of NaCl bicrystals Mechanical properties and defect structures of intermetallic 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 Growth of single crystals of high melting-point compounds Structure and mechanical properties of self-bonded ceramics
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

Professor P.A. Sheppard F.H. Ludlam, D.Sc. J.S.A. Green	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 in fluids and their application to atmospheric problems
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

11. Meteorology (*continued*)

Oceanography:

J.N. Hunt, Ph.D.	Gravity waves, ocean currents, and their relation to the dynamics of the atmosphere

12. 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

13. Mineral Technology

Professor M.G. Fleming, Ph.D.	Flotation characteristics of certain metal oxide minerals Factors influencing flotation rate Flotation conditioning in gaseous suspensions
H.N. Blyth	Improvements to shaking tables Continuous measurement of solids in flowing pulps
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 Beneficiation of chromite
J.A. Kitchener, D.Sc.	Surface chemistry of solids Forces in dispersion systems Interfacial viscosity Ion-exchange membranes
O. Mellgren, Sc.D.	Fatty acid flotation Heat of adsorption of collector on minerals
A.P. Prosser, Ph.D.	Ion adsorption on synthetic compound oxides Fundamental study of electrical double layer Kinetics of solvent extraction Properties of chrysocolla

14. Physics

Professor P.M.S. Blackett, F.R.S.	

Acoustics:

R.W.B. Stephens, Ph.D. G.G. Parfitt, Ph.D.	Vibrational physics and ultrasonics

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 The physical properties of water and ice Thunderstorm electricity

14. Physics (*continued*)

Cosmic Ray Physics:

Professor H. Elliot, Ph.D.	Cosmic ray physics
H.R. Allan, Ph.D.	Large 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.	Electron physics Electron optics
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 at low temperatures

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	Study of electronic methods for detecting elementary particles
J.P. Astbury, Ph.D.	Bubble chamber track analysis
D.M. Binnie, Ph.D.	Study of electronic methods for detecting elementary particles
I. Butterworth, Ph.D.	High-energy physics using bubble chambers
B.R. French, Ph.D.	Study of elementary particles using bubble chambers.

High Temperature Physics:

R. Latham, Ph.D.	High temperature plasma physics
A. Folkierski, Ph.D.	
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
M. Davison, D.Phil.	
L. Mandel, Ph.D.	Photon beams 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

14. Physics (*continued*)

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
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.	
T.W.B. Kibble, Ph.D.	
R.F. Streater, Ph.D.	

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

20 London University, King's College

1. Anatomy

Professor T. Nicol, M.D., D.Sc.	The effect of hormones and other substances on the reticulo-endothelial system as a defence against infection and tumour growth
D.L.J. Bilbey, T.D., Ph.D.	
L.M. Charles	
J.L. Cordingley	
D.G.W. Cooper	
R.M.H. McMinn, M.D., Ph.D	Cytology of wound healing
I.L. MacKinnon	Cyclic variations in the endocrine system with especial reference to the suprarenal gland

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.	Gas chromatography of amino-acids
H.K.F. Blau, Ph.D.	
N. Spencer, Ph.D.	Analysis of sugar alcohols in body fluids
M. Whittaker, Ph.D.	Human serum cholinesterase variants

3. Biophysics*

Professor J.T. Randall, D.Sc., F.R.S.	Many physical and other techniques are used to study the part played by proteins and nucleic acids in the development and functioning of cells and tissues. These include X-ray diffraction analysis, electron microscopy, interference microscopy, microspectrometry and fractionation procedures
R.E. Burge, Ph.D.	
J.D. Coombes, Ph.D.	
N.R. Silvester, Ph.D.	

4. Botany

Professor T.A. Bennet-Clark, Ph.D., F.R.S.	Chromatographic analysis of plant hormones in relation to growth and tropisms Change in cell wall composition with age of cells
M. Wilkins, Ph.D.	Endogenous rhythms in growth and metabolism
G. Metcalfe, Ph.D.	Ecology of nitrogen-fixing organisms
K.V. Symonds (Miss), Ph.D.	Bacterial decomposition of dichlorophenoxyacetic acid
J.F. Sutcliffe, Ph.D.	Ion uptake by tissues and tissue cultures
C. Cresswell	Nitrate assimilation: enzymes involved in algae

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

*Houses the Biophysics Research Unit of the M.R.C. The staff of the Unit includes Professor J.T. Randall, F.R.S. (Honorary Director), M.H.F. Wilkins, Ph.D., F.R.S., S.R. Pelc, Ph.D., E.J. Hanson (Miss), Ph.D., A.V.W. Brown (Mrs.), Ph.D., G.L. Brown, Ph.D., H.G. Davies, Ph.D., M. Spencer, Ph.D., B.M. Richards, Ph.D., J. Lowy, Ph.D., M.R. Watson, W. Fuller, Ph.D., S. Arnott, Ph.D., and J. Tooze. The Director of the Strangeways Laboratory, Cambridge, H.B. Fell (Miss), Ph.D., D.Sc., F.R.S., is Senior Biological Advisor to the Unit

5. Chemistry (*continued*)

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.	Complexes of non-transition elements
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	Free radical reactions

6. Engineering

Chemical:

S.B. Watkins (Director of Studies)	Absorption in scrubber towers Absorption of carbon monoxide in organo-metallic solvents
D.R. Morris, Ph.D.	Fluidization and fluidized beds Investigation of the mechanics of fluidization and the laws governing this phenomenon 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 elevated temperature and thermal stresses in reinforced concrete
Professor K.L. Nash	The shearing resistance of soil subjected to transient stresses. The swelling of clay in contact with free water
J.M. Zarek, Ph.D.	Biomechanics: application of metals to the human body, and kinesiology Measurement of the pulsating flow of gases
M.J. Kenn	Fluid mechanics: studies of air control of siphonic water flows Mechanics of vortex tube sand traps
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 Professor A.H.M. Arnold	Theoretical and experimental investigations of tooth flux pulsations and losses in alternators
W. Fraser	A study of certain polyphase oscillator circuits
G.H. Platt	U.H.F. transmitter circuits using solid state devices
E.M.S. Deeley, Ph.D.	Development of an analogue method of multiplication
N.S. Japolsky, D.Eng. E. M. Freeman	A study of certain magnetic amplifier circuits Development of a new analogue integrator

6. Engineering (*continued*)

Electrical (*continued*)

	Theoretical and experimental investigation of eddy current losses in single layer cylindrical coils
	Study of resistance-capacitance oscillators
	Applications of optimizing servomechanisms to optical systems
	Development of an immediate access store using a magnetic drum

Mechanical:

Professor L.J. Kastner	Gas flow in reciprocating engines; unsteady flow measurement
Professor H.E. Rose, Ph.D., D.Sc.	Studies in powder science
T.J. Williams, Ph.D.	Unsteady flow measurement; charging of engine cylinders
W.B. Gosney	Flow of refrigerant fluids
E.J. Powell	Ejector pump phenomena
A.A. Smith, Ph.D.	Liquid metal alloy systems

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
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
W.S. Pitcher, Ph.D.	Petrology, petrochemistry, stratigraphy and structure of the Dalradian and granitic rocks of N.W. Donegal
	Newer Granite ring complexes in N. Nigeria
	The Port Askaig Boulder Bed in Scotland and Ireland
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

8. Geology *(continued)*

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
D.B. Scott, D.Sc.	Algebraic geometry; combinatorial topology and correspondences
A. Fröhlich, Ph.D.	Abstract algebra and algebraic number fields; mathematical logic
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
J.A. Tyrrell	

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.	Macromolecular structure: X-ray, electron diffraction and light scattering
M.B. M'Ewen (Miss), Ph.D.	
C.D. Curling	

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.	Absorption and photoionization in the vacuum ultra-violet
W.F. Sherman, Ph.D.	

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

11. Physics (*continued*)

Theoretical (*continued*)

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.	The mechanics of breathing studied by electromyography of respiratory muscles
	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
R.L. Speirs, Ph.D.	Chemistry of teeth and dental caries susceptibility

13. Zoology

Professor J.F. Danielli, Ph.D., D.Sc., F.R.S.	Inheritance mechanisms
	Cell physiology
	Cancer
B. Dawes, D.Sc.	Parasitology
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.E. Hawkins (Miss) Ph.D.	Nucleo-cytoplasmic relationships in *Amoeba*
L. Wolpert, Ph.D.	Developmental physiology and morphogenesis
R.J. Cole, Ph.D.	Nucleocytoplasmic relations in *Amoeba*

21 London University, Queen Elizabeth College

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
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)	Experimental taxonomy of *Papaver rhoeas*
J.G. Vaughan, Ph.D.	Testa structure of *Brassica* spp.
	Anatomy of *Acrocomia* fruits
B.G. Gardiner, Ph.D.	Origins and affinities of palaeoniscid and holostean fishes
M. Black, Ph.D.	Physiology of seed germination and dormancy
A.E. Brafield	Respiration of intertidal polychaetes
	Oxygen in marine beaches
J.B. Heale	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 (a) organic perchlorates, (b) pyrans and related compounds Kinetics of acylation
G.W.H. Cheeseman, Ph.D.	Reactions of (a) organic nitrates, (b) quinoxalines and related compounds
F.G. Smith (Miss), Ph.D.	Kinetics of the thermal decomposition of organic compounds: determination of bond dissociation energies
A.J. Banister, Ph.D.	Metal chelate complexes
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.)	Mechanisms of chemical reactions

3. Mathematics

W.B. Bonnor, D.Sc. (Head of Department)	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
A.M. Copping (Miss)	Effect of vitamin B_6 deficiency Studies on growth in rats
T.B. Morgan	Factors affecting choice of diet Vitamin-sparing action of sorbitol
A.M. Brown (Miss)	Studies on diet and heart disease

6. Physics

T.J. Dillon (Miss), (Head of Department)	Photoelectricity and spectrophotometry
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
D.J. Hall (Miss)	Theory of elementary particles
M.T. Sprackling, Ph.D.	Plastic deformation of crystals

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)	Physiology of *Nepenthes*
B.L. De Boise (Miss)	Hyaluronidase and A.D.H.

22 London University, Queen Mary College

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
C. Bradbeer, Ph.D.	Microbial lipid metabolism
B. Frankland	Growth substances and seed dormancy

2. Chemistry

Professor K.W. Sykes	The structure and reactivity of inorganic complex ions in solution Carbon-gas reactions Metal-gas reactions Study of chemisorption by infra-red spectroscopy
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
Professor W.J. Hickinbottom	The mechanisms of oxidation of hydrocarbons Synthesis of highly branched paraffins Molecular rearrangements by free radical mechanisms Alkylation of aromatic systems by the thermal decomposition of alkyl esters of sulphonic acids Homolytic substitution in saturated systems
C.M. French (Miss), D.Sc.	Conductivity in, and electrodeposition from, solutions in organic solvents Stability constants and other physical properties of metal complexes of some chemical carcinogens and of some proteins Preparation and examination of some organic compounds of boron Kinetic and other measurements in enzyme-carcinogen systems
R.F. Garwood, Ph.D.	Synthesis of substances promoting dropwise condensation on metal surfaces
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 The Diels Alder reaction of substituted p-benzoquinones
F.A. Hart, Ph.D.	Co-ordination compounds

2. Chemistry (*continued*)

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 semi-conductors
D.S. Urch, Ph.D.	Chemistry of recoil atoms
E.W. Randall, Ph.D.	Electron spin resonance and nuclear spin resonance spectroscopy including nuclear magnetic double resonance
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

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.	Oscillating wings at supersonic speeds Stability of plate aerofoils at supersonic speeds Deformation of wings during flight Jet flap aerofoils
R.D. Milne	Aero-elastic problems of high-speed aircraft
L. Bernstein, Ph.D.	Shock attentuation 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 Erosion of concrete due to high velocity water flow
J. Allen, Ph.D.	Studies of vortex motion Effect of channel shape on critical Reynolds' number Turbulent flow in corrugated pipes Erosion of concrete due to high velocity water flow
A.W.T. Daniel, Ph.D.	Soil mechanics of granular materials Corrugations in roads
D. Gadd	Optical and mechanical properties of photoelastic materials

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

3. Engineering (*continued*)

Electrical (*continued*)

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
J.S. Seeley, Ph.D.	Investigation of the transmission properties of arrangements of dielectric layers Microwave measurements of the properties of ceramic materials in the Q and X bands at high temperature
M. Redwood, Ph.D.	Characteristics of high-frequency electromechanical 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:	No information
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
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
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 A study of central places and their services in the London area Urban geography of S.E. London Urban geography of the Cinque Ports Urban geography of individual towns—Croydon, Lincoln, Wolverton and New Delhi Urban geography of Norfolk and Sussex
E.M. Rawstron	Industrial location Industrial geography of Great Britain
A.F.A. Mutton (Miss), Ph.D.	Historical geography of Zürich, Geneva and Berne Human geography of Arctic Scandinavia
C.E. Everard	Geomorphology of W. Cornwall Geomorphology of Cyprus Marine abrasion on the Channel coast

4. Geography *(continued)*

J.A. Sheppard (Miss), Ph.D.	Aspects of the historical and settlement geography of E. Yorkshire
D.R. Harris	Plant geography of the Leeward Islands
M.E. Witherick	Urban geography Historical geography of Cornwall

5. Geology

J.F. Kirkaldy, D.Sc. (Head of Department)	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
J.T. Greensmith, Ph.D.	Sedimentary petrology of Oil Shale Group of the Lothians and Calciferous Sandstone Series of E. Fife
A.C. Bishop, Ph.D.	Petrology and structure of granites and minor intrusions of Jersey, Channel Islands Structural history of the Brest neighbourhood, Brittany
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. Hirsh	Theory of groups and modern algebra
I.C. Percival, Ph.D.	Atomic collisions and statistical mechanics
H.S. Allen, Ph.D. M. Tropper (Mrs.), Ph.D.	Theory of infinite matrices and allied topics
B.H. Chirgwin, Ph.D.	Wave mechanics
C. Plumpton, Ph.D.	Astrophysics and electromagnetism (cathodic protection)
A.J. Weir, Ph.D.	Algebra and algebraic geometry
K.W. Gruenberg, Ph.D.	Theory of groups
P.J. Higgins, Ph.D.	Theory of groups and universal algebra
S. Simons, Ph.D.	Theory of metals
J.E.C. Gliddon	Diffusion in the ionosphere

7. Physics

Professor G.O. Jones	Properties of solids and liquids at liquid helium and liquid hydrogen temperatures Superconductivity, superconducting instruments and submillimetre 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	Architectural acoustics
R. Heastie, Ph.D.	Solid-liquid phase equilibria at low temperatures
R.O. Davies, Ph.D.	Thermodynamics of relaxation phenomena

7. Physics (*continued*)

J.C. Burfoot, Ph.D.	Elements for digital electronic computers
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	X-ray crystallography
J.A. Bastin	Astrophysical measurements at sub-millimetre wavelengths

8. Zoology

Professor J.E. Smith, F.R.S.	Nervous anatomy and behaviour of invertebrates
Professor G.E. Newell	Behaviour of intertidal animals
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

23 London University, Royal Holloway College

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
R.G. Paxton	Physiology of growth in Hepaticae
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

2. Chemistry

Professor E.J. Bourne, Ph.D., D.Sc.	Chemistry of carbohydrates
	Enzymic syntheses of higher saccharides
	Mechanisms of acylation reactions
A.G. Foster, Ph.D.	Adsorption by porous solids
	New analytical methods
K. Singer, Ph.D.	Statistical mechanics
T.G. Bonner, Ph.D.	Cyclization reactions giving heterocyclic rings
	Action of Lewis acids on cyclic acetals and related compounds
	Nitration, denitration mechanisms and acidity functions in strong acids

2. Chemistry (*continued*)

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
H. Halberstam, Ph.D.	Theory of numbers
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

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

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
E.J. Binyon, Ph.D.	Ion transport in echinoderms
G.I. Twigg, Ph.D.	Ecology of mammals Hibernation in reptiles
J.C. Brown, Ph.D.	Neurology of mammals

24 London University, Royal Veterinary College

1. Anatomy

Professor J. McCunn	Applied anatomy Radiological anatomy
B. Bowes	Growth and histogenesis in angiosperms

1. Anatomy (*continued*)

R.F.S. Creed	Reproduction in *Vulpes*
F.S. Drury	Periosteum 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; studies on nocardiosis
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*

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
M.W.H. Bishop, Ph.D.	Physiology of egg and sperm
C. Finn	Physiology of reproduction Physiology of the foetus Endocrinology
A.E. Hawkins, Ph.D.	Animal calorimetry and activity
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.	The metabolism of fat with special reference to ketone bodies
M. Robinson (Miss)	Tissue culture and organ culture
B. Schofield (Miss), Ph.D.	Myometrial function and its endocrine control
R. Shack	The effect of mechanical stress upon the dielectric constant of nylon and natural rubber at centrimetric wavelengths
R. Shorthose	Physiology of reproduction and growth

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
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

25 London University, School of Pharmacy

1. Chemistry

Pharmaceutical:

Professor W.H. Linnell, D.Sc.	Analogues of emetine Local anaesthetics

1. Chemistry (*continued*)

Pharmaceutical (*continued*)

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:

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

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.	Factors affecting the growth of a sarcoma of human origin transplanted into rats
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 catecholamines
R. Cass (Miss), Ph.D.	Biochemical studies on tissue amines

26 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
M. Abercrombie, F.R.S.	Tissue culture
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, 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
A.S.G. Curtis, Ph.D.	Tissue culture; cytoplasmic grafting
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.	Physical chemistry of proteins with special reference to haemoglobins and ribonuclease

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
H.E. Huxley, M.B.E., Ph.D., F.R.S.	Ultrastructure of muscle and of subcellular particles
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
M.F. Mahoney (Miss), Ph.D.	Genetics and taxonomy of *Mucor* species
P.J. Newbould, Ph.D.	Ecology of beech woods
P.J. Syrett	Carbon and nitrogen metabolism of algae Photosynthesis
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

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
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
J. Lewis, Ph.D.	Co-ordination and magnetochemistry
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

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

8. Engineering, Chemical *(continued)*

Professor M.B. Donald	Statistical analysis of mixing solid particles Flange gasket design Still downcomer design Liquid-liquid extraction
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 Manufacture of co-enzyme A and glutathione Conversion of hydrocarbons to fatty acids 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

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

Photoelasticity:

C. Snell I.M. Allison, Ph.D.	Application of photoelastic methods of exploration to engineering problems, including high pressure cylinders, aircraft components, prestressed concrete, etc. Strain measurements in metals by stress optic 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 semi-conductors
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 H. Marriott	Simultaneous measurement of Hall effect and radiation pressure for a semi-conductor
W.K. Taylor, Ph.D. H.G. Effemey	Measurement of microwave Hall coefficients for semi-conductors
C.E. Gimson G.E. Kenshole	Investigation of a lumped-circuit travelling wave tube analogue
G.D. Sims, Ph.D. I.M. Stephenson, Ph.D.	Magneto-resistance and planar Hall effects in single crystal silicon
	Measurement of the noise figures of microwave mixers
	The design of wideband aerials
	Analysis of the spent beam characteristics of a two-cavity klystron
	Investigation of alternating flux conditions in a transformer core
	Investigation of effects of mechanical stress on magnetic properties of laminations
	Synthesis of self-organizing pattern recognition and control systems
	Investigation of waveguide slot aerials
	The properties of ferrites, photoconductor and semi-conductor 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

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
	Random vibration
	Matrix methods in vibration analysis
	Vibration of plates
	Basic studies of flutter phenomena
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
K.L. Jackson	Investigations of the vibration of flexible rotating shafts

11. Engineering, Mechanical *(continued)*

W.J.D. Jones, Ph.D.	Effect of surface alloying on the mechanical properties of metals
T.H. Lambert, Ph.D.	The correlation between elastic stress distribution and fatigue life
	Contact stresses
	The effects of non-linear valve characteristics on the performance of hydraulic servomechanisms
A.H. Makomaski, Ph.D.	The design and operation of shock tubes
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 effect of diluents
S.R. Montgomery, Sc.D.	Unsteady flow in pipes
T.H. Walker	The measurement of receptances

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.	Cytogenetics

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.	Agricultural geography of Britain
K.A. Sinnhuber, D.Phil	Historical geography of central Europe
H.C. Prince	Parkland in England
R.A. French	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	Historical geography of Wales during the Napoleonic wars
G.R. Ward	Population and resources of Fiji
E.C.F. Bird, Ph.D.	Coastal geography and conservation
D. Roden	Field systems

14. Geology

Professor S.E. Hollingworth	Permo-Triassic evaporites Pleistocene stratigraphy Structural geology in N. Norway Stratigraphy of the Old Red Sandstone of S. Ireland Geomorphological and structural studies in N. Chile Carboniferous Slate and Old Red Sandstone
T. Barnard, Ph.D.	Mesozoic microfaunas: their evolution and stratigraphical significance
M.K. Wells, Ph.D.	Studies of gabbro intrusions in Sierra Leone, W. Africa, and of metamorphic rocks and structures in N. Norway
A.J. Lloyd, Ph.D.	Foraminifera from the Kimmeridge Clay of N. France Stratigraphy and structure of part of the Neuchatellois Jura
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 north of England succession
R.W.R. Rutland, Ph.D.	Metamorphism, granite emplacement and structural geology in N. Norway Structural geology in N. Chile
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, S. Africa Platinum deposits of the Eastern Bushveld, S. Africa Opaque heavy minerals in sediments and igneous rocks

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, Ph.D.	
A.C. Stevenson	Hydrodynamics and elasticity
L.A. Wigglesworth	
D.H. Michael, 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
S.E. Dicker, M.D., Ph.D., D.Sc.	The metabolism of antidiuretic, vasopressor and oxytocic hormones in mammals and human beings
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
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 The application of photogrammetric principles to geographical studies

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
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 Space research
J.B. Hasted, Ph.D. H.B. Gilbody, Ph.D.	Experimental study of ion collision processes in gases
C. Dodd, Ph.D. C. Henderson, Ph.D.	Development of a heavy liquid bubble chamber for studying the path of ionizing particles
R.E. Jennings, Ph.D.	Experimental study of the scattering of high-energy electrons by nuclei and of Bremsstrahlung; spark chambers
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 at high energy
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

19. Physics (*continued*)

D.W.O. Heddle, Ph.D.	Spectroscopic studies of atomic collision phenomena Astronomical studies from rockets
H.S. Tomlinson	Design of a heavy liquid bubble chamber
F.R. Stannard, Ph.D.	Development of bubble chamber analysis methods

20. Physiology

Professor A.F. Huxley, F.R.S.	Physiology of nerve and muscle
Professor J.A.B. Gray	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
S.J. Hubbard, Ph.D.	Electrophysiology of muscle
O.C.J. Lippold	Neurophysiology
J.E. Pascoe	Properties of the spinal cord
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 play facilities. An investigation into the integration of personality
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.	Subliminal perception and the reticular activating system
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	Studies of the effects of drugs on motor skills
J.L. de C. Downer, Ph.D.	Functions of the cerebral cortex
R. Marriott	Reactions to merit rating systems in industry
Professor G.P. Mason, Ph.D.	Analysis of the configurational aspects of word forms
Professor A. Summerfield	Problems of learning and perception. Psychopharmacology

21. Psychology *(continued)*

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
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 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
P.C. Wason, Ph.D.	Reasoning. Negative information

22. Statistics

Professor M.S. Bartlett, F.R.S.	Statistical theory and methodology, especially the development of new methods and techniques for analysing statistical data (including non-parametric methods)
F.N. David (Miss), D.Sc.	
N.L. Johnson, Ph.D.	
N.W. Please	Probability theory, especially the theory of stochastic processes; applications in biology, engineering, industry, medicine and physics
D.E. Barton, Ph.D.	Combinatory analysis especially in relation to non-parametric statistical problems Mathematical work leading to computation of new tables of statistical functions

23. Zoology

Professor P.B. Medawar, C.B.E., F.R.S.	Transplantation immunity
L. Brent, Ph.D.	
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.	Triassic crocodiles and Mesozoic mammals
M. Whitear (Miss) Ph.D.	Proprioceptors in Crustacea
A. Comfort, Ph.D.	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.M. Smith	Genetics of patterns in *Drosophila* Ageing in *Drosophila*
A.D. Blest, D.Phil.	Behaviour and physiology of Lepidoptera
K. Vickerman	Electron microscopy of small amoebae Antigenic variation in trypanosomes
F.B. O'Connor, Ph.D.	Respiratory activity in the soil fauna
J. Dee (Miss), Ph.D.	Genetics of a myxomycete
R.C. Fisher, Ph.D.	Physiology of insect parasitism

27 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
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
J.J. Throssell, Ph.D.	Thermodynamics of associated solutions
A. Walton (Miss), Ph.D.	Sorption properties of silicates

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	Photoproduction of pions
P.V. March, Ph.D.	Elementary particle physics
B. Donovan, Ph.D.	Theoretical solid state physics Electrical, optical and magnetic properties of metals and semi-conductors
P.A. Rowlatt (Mrs.)	Theoretical elementary particle 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

28 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 in grazing Plant physiology and grass production
J.E. Duckworth, Ph.D.	Pig breeding and selection

Agricultural Zoology:

D.A. Ede, Ph.D.	Effects of avian tumour viruses and lethal genetic factors on embryogenesis in the chick Studies on developmental genetics in insects

1. Agriculture (*continued*)

Poultry Research:

A.H. Sykes, Ph.D.	Avian physiology
P. Hunton	Inheritance of hatchability

2. Botany

I.W. Selman, Ph.D.	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	Spotted wilt virus disease of 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, enhanced respiration rate Morphogenetic effects of rubidium Analytical studies in phyllotaxis
W.W. Schwabe, D.Sc.	Day-length, temperature and plant hormones in relation to flowering behaviour Photoperiodic effects on growth and dormancy of *Lunularia cruciata*

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
G.P. Askew M.A. Jones	Soil survey studies
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	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

*Houses the A.R.C. Unit for Research on Plant Growth Substances and Systemic Fungicides. The staff of the Unit includes Professor R.L. Wain, Ph.D., D.Sc., F.R.S. (Hon. Director), C.H. Fawcett, Ph.D., K. Rothwell, Ph.D., D.M. Spencer, Ph.D., F. Taylor, S.T.C. Wright, Ph.D., R.K. Atkin and G.A. Carter.

5. Hop Research

H.S. Darling, Ph.D. (Head of Department)	The incidence of the hop aphis, *Phorodon humuli*, and its control by systemic insecticides
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
F.H. Beard	The selection and development of clonal stocks of established commercial varieties of hops
F.C. Thompson	Cultural and manurial trials with hops 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.	Hop downy mildew, *Pseudoperonospora humuli*
I.H. Williams, Ph.D.	The propagation, growth and development of the hop plant in relation to environmental and cultural factors

6. Horticulture

Professor H.W. Miles	Horticultural entomology; insect ecology
E.H. Wilkinson, Ph.D.	Pomology and orchard management
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

29 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* Implantation of mammals 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 Hormonal effects on ground substance and muscle
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. 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
T.R. Preston	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
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
WEST LONDON HOSPITAL	
W.S.C. Copeman, O.B.E., M.D.	Assessment of pituitary 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)	Experimental and clinical studies of the pathology of diseases due to the yeast-like fungi, with particular reference to factors affecting immunity
R. Hurley	Experimental studies on auto-immunization
	Antibacterial effects of rubber and plastics

7. Obstetrics and Gynaecology

Professor N.F. Morris, M.D.	Investigation of the biochemistry of the placenta by the estimation of its enzyme content in normal and abnormal pregnancy
	Estimation of isocitric dehydrogenase in serum in cases of normal and abnormal pregnancy and labour
	Assessment of the suffering experienced during labour in primiparae and multiparae
	Evaluation of the use of suppositories in labour
	Investigation of the causes and results of early abortion
	The use of the Heyns decompression suit in labour
	Study of vascular reactivity during pregnancy and labour
	Assessment of placental function by studying the rate of transfer of I^{132} to the foetus *in utero*

8. Pathology

W.St.C. Symmers, M.D.	Clinico-pathological problems concerning the so-called collagen diseases, including polyarteritis nodosa, disseminated lupus erythematosus, thrombotic purpura, etc.
	Clinico-pathological problems concerning the lymphoreticular system
	The pathology of the deep-seated fungal infections in man
J.C. Sloper, M.D.	The mode of elaboration of posterior pituitary principle by hypothalamic neurones in the normal vertebrate
	The 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
	The distribution of various isotopes in the vertebrate brain and pituitary, both in the normal and in the stressed animal
	The effect of radiation on the hypothalamus and pituitary of rats
W.E.D. Evans, M.D.	Post-mortem changes in human tissues
	Morphological and other characteristics of human and animal hair
J.H. Shore, M.D.	Investigation of the morphology and histochemical reactions of keratin in tumours of the skin
	Investigations into causes of perinatal mortality
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

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.	Bainbridge reflex Adrenaline and the vasomotor system Adrenaline and salt retention Sodium and the staircase phenomenon
A.F. Lewis	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

30 London University, Guy's Hospital Medical School

1. Anaesthetics

P.J. Helliwell (Director)	
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
M.W. Potts	Investigation into the efficiency of antihistamine agents as topical analgesic solutions for use in the pharynx and larynx
B.R.P. Murray with S.R. Williams	Comparison of effects of atropine and scopolamine as premedicant agents
S.R. Williams	Investigation into closed circuit mechanical ventilation and bactericidal activity of soda lime in such a circuit

2. Anatomy

Professor R. Warwick	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
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. Landon	Electron microscopy of the growing edge of healing skin
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

2. Anatomy (*continued*)

P.L. Williams	Electron microscopy of fractionated homogenates of mammalian brain
	Growth patterns of mammalian nerves
E. Lowell Rees	Stereotactic problem of the human thalamus

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. Shore (Miss), Ph.D.	Electrophoretic analysis of normal and abnormal plasma and serum
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 Δ^{16}-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
J. Griffith, Ph.D.	Vertebrate palaeontology: Triassic fish
C. Patterson, Ph.D.	Vertebrate palaeontology: Cretaceous fishes

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
B.E.D. Cooke	Oral manifestations of dermatoses
	Tissue cultures of oral mucosa
Orthodontics:	
R.E. Rix	The effects of oro-muscular behaviour on the dento-alveolar structures
with W.J. Tulley	Cephalometric studies of the developing masticatory apparatus using the Broadbent-Bolton roentgeno-graphic cephalometer
W.J. Tulley	Cine-radiographic and electromyographic studies of tongue and lip behaviour
Preventive Dentistry:	
R.D. Emslie (Director)	A clinical trial of a toothpaste containing an enzyme inhibitor
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

7. Endocrinology

P.M.F. Bishop, D.M. (Head of Department)	Problems related to general endocrinology from a clinical point of view
J.A.P. Trafford	

8. Forensic Medicine

K. Simpson, M.D. (Head of Department)	Functional assessment of coronary deficiencies Survival of foetal haemoglobin
A. Grant, M.D.	Heredity in blood group systems
A.K. Mant, M.D.	Sperm evidence Bacteriology of cadaver
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
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
J.S. Cameron	Hepatic metabolism studied in man by retrojection techniques Radiation damage to insulin by labelling with I^{131}
T. Hanley, M.D.	Utilization of fatty acids by muscle: effects of hormones and exercise
B.L. Mallett	Studies of metabolic changes associated with temporary alterations of consciousness
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 calcium 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 Studies of cerebral blood flow using radioactive isotopes
V. Parsons, D.M.	Uses of Ca^{47} for clinical tests of Ca metabolism and parathyroid function

10. Microbiology

Bacteriology:	
Professor R. Knox, M.D. *M.R.C. staff	The mode of action of antituberculous drugs, especially isoniazid

10. Microbiology (*continued*)

Bacteriology (*continued*)

Professor R. Knox, M.D.	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. MacLean	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	Electrophoresis of the urine in albuminuria of pregnancy
	The detection of red cells of foetal origin in the mother using a fluorescent technique
A.S.F. Butcher	Investigation into the use of oral staphylococcal toxoid as a prophylactic measure in a maternity unit
	Prognosis of carcinoma of the ovary in relation to the extent of disease found at operation
	Investigation into the use of transbuccal pitocin as a method of induction of labour
E.P. Tatford	Investigation into the relationship between vaginal adenosis and primary adenocarcinoma of the vagina
	Investigation into the early diagnosis of Sheehan's syndrome

12. Paediatrics and Child Health

Professor P.E. Polani, M.D.	"Nuclear sexing" and chromosome studies in relation to: errors of sex development; mental deficiency; cerebral palsy; schizophrenia; congenital malformations
	Twinning in cerebral palsy
	Colour blindness studies
	Statistical investigations of congenital heart diseases from the aetiological view point
	Clinical studies on cerebral palsy
	Dermatoglyphics in congenital malformations and mongolism
	Investigation into the meaning of disturbed sex ratio in anencephaly
M.L.J. Abercrombie (Mrs.), Ph.D.	Oculo-motor disturbances in relation to perceptual disorders in brain-damaged children
E. Alberman (Mrs.)	Survey of birth histories of children with cerebral palsy
P.A. Gardiner, M.D.	Development and treatment of myopia in children
	Changes in corneal measurements in myopic children
	Survey of visual defects in physically handicapped children
	Visual defects and perceptual disorders in spastic children
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
M.C. Joseph, M.D.	Chromosomes in congenital heart disease
	Aetiological factors in congenital heart disease
	The facies in disease

12. Paediatrics and Child Health *(continued)*

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
R.C. MacKeith, 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 4 lb. at birth, and a study of their intelligence Prematurity. Anencephaly Mongolism in twins
R. Spector	Effects of anoxia on the central nervous system of immature animals Development of enzyme systems during the perinatal period

13. Pathology

Professor G. Payling Wright, D.M. with E.M.I. Berkinshaw-Smith, (Mrs.)	Studies on experimental demyelination
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 Studies on human and experimental atherosclerosis
S. Leibowitz	Antibody response to Forssman heterophile antigens in Forssman-positive animals
with ‡D. Bassett	Production of experimental allergic encephalitis by subcellular fractions of guinea-pig brain obtained by differential ultracentrifugation
J.B. Cavanagh	Culture studies of nervous tissue in relation to myelination studies on toxicology of organic phosphorus compounds
†V. MacDermott (Mrs.)	Pathological changes in nerve endings in skeletal muscle
Chemical:	
Professor R.H.S. Thompson, D.M. G.R. Webster, D.M.	Studies on lysophosphatides and their metabolism, with special reference to the pathogenesis of multiple sclerosis and other demyelinating diseases Studies on the phospholipases
G.R. Webster, D.M.	Studies on acetal phospholipids
†B. McArdle, M.D.	Metabolic studies of diseases of muscle A study of the levels of different phospholipids in the cerebro-spinal fluid in health and disease

* Imperial Cancer Research Fund
† M.R.C. staff
‡ Public Health Laboratory Service

13. Pathology (*continued*)

Chemical (*continued*)

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
R.J. Jarrett	Effect of drugs on growth Adrenergic mechanisms in the intestine

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. C.K. Battye E.H. Grant, Ph.D. M. Hill (Miss) B.R. Worsnop M.W. Aaron (Miss) P.G. Lale, Ph.D.	Electron spin resonance spectroscopy of free radicals produced in radiation chemical and biochemical processes Electron spin resonance spectroscopy of free radicals produced in materials of biological interest by means of ionizing and ultra-violet radiations Study of carcinogenic substances by electron spin resonance spectroscopy Construction and development of electron spin resonance spectroscopes operating at 300, 9000, and 37 000 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

16. Physiology

Professor W.R. Spurrell	Human gastric function
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 The control of movements of mastication Mechanism of sensory receptors in human dentine

16. Physiology (*continued*)

I. MacDonald, M.D., Ph.D.	The effects of diet upon liver structure The effects of diet upon growth and development of the eyes
P.S. Firth	Micturition: measurement of urethral pressures
G.M. Preston	The electrophysiology of peripheral nerves in health and disease

17. Surgery

H.J.B. Atkins, D.M. (Director)	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

18. Surgery, Thoracic

Sir Russell Brock	Research on all surgical aspects of cardiac disease
D.N. Ross	Research into arterial homografting and the problems of hypothermia and assisted and artificial circulation
P.J. Molloy	Research into problems of total body perfusion The fate of free pericardial intracardiac grafts
A.H.B. de Bono	Research into biochemical and physiological problems of deep hypothermia, and anastomosis of small vessels

31 London University Institute of Basic Medical Sciences

1. Anatomy

Professor G. Causey A. Barton M. Barton (Mrs.)	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.	Histochemical methods applied to histopathology
J. Chayen, D.Sc., Ph.D.	Histochemistry of lung cancer
Professor G.J. Cunningham, M.B.E., M.D. J. Chayen, D.Sc., Ph.D. L. Bitensky	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

2. Pathology (*continued*)

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	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
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. G.H. Sloane-Stanley, D.Phil.	Biochemistry of lipids
G.C.R. Morris	Electrolyte and salivary secretion
N. Ambache	Physiologically active lipid anions

32 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.	Toxicology and haematology of agents
C.L. Leese, Ph.D.	Actions of the alkylating agents:
J.H. Lister, Ph.D.	Chemical reactivity of alkylating agents
R. Wade, Ph.D.	Action of nitrogen mustards and other alkylating agents on nucleoprotein and proteins
J.L. Everett S.S. Brown, Ph.D. T.A. Connors, Ph.D. K.R. Harrap, Ph.D. A.B. Mauger, Ph.D.	

1. Cancer Research (*continued*)

CHESTER BEATTY RESEARCH INSTITUTE (*continued*)

L.A. Elson, D.Sc., Ph.D.	Further studies of the action of alkylating agents on purines, nucleic acids and nucleotides *in vitro* and *in vivo*
P.D. Lawley, Ph.D.	
G. Hems, Ph.D.	Action of alkylating agents on bacteriophage systems
A. Loveless, Ph.D.	Comparison of the physiological response to radiation and to radiomimetic agents
P. Brookes, Ph.D.	
Professor J.A.V. Butler, D.Sc., F.R.S.	Deoxyribonucleic acids and deoxyribonucleoproteins: Characterization of deoxyribonucleic acids
P. Alexander, Ph.D.	Cross-linking of deoxyribonucleic acids in nucleoproteins by alkylating agents
J.T. Lett, Ph.D.	
K.V. Shooter, Ph.D.	Action of deoxyribonuclease and proteolytic enzymes on deoxyribonucleoproteins
A.R. Crathorn, Ph.D.	
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, Ph.D.	DNpolymerases and binding of protein to DNA
E. Reid, D.Sc., Ph.D.	Ribonucleic acids:
	Fractionation of ribonucleic acids
	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.
Professor F. Bergel, D.Phil. Nat., D.Sc., F.R.S.	Pyridoxal phosphate-vanadium (pyrvanal) and cysteine metabolism
R.C. Bray, Ph.D.	Succinic dehydrogenase activity in precancerous livers and hepatoma of August rats, maintained on a 5% protein diet plus 0·06% 4-dimethylaminoazobenzene
L.A. Elson, D.Sc., Ph.D.	Substrate-induced enzyme adaptation in the developing chick embryo
J.B. Solomon, Ph.D.	
J.L. Everett	Trace elements
E.M.F. Roe (Miss) Ph.D.	Radiation effects: Effect of ultra-violet light on deoxyribonucleic acids
P. Alexander, Ph.D.	Cross-linking of deoxyribonucleic acids in nucleoproteins by ionizing radiations
D. Rosen, Ph.D.	
J.T. Lett, Ph.D.	Irradiation of deoxyribonucleic acids *in vivo*
L.D.G. Hamilton, Ph.D.	Irradiation of proteins and other substances with X- and α-rays
G. Hems, 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
	Influence of cholesterol on hydrocarbon carcinogenesis
F.J.C. Roe, D.M.	Studies of the susceptibility of newborn animals to carcinogenic stimuli

1. Cancer Research (*continued*)

CHESTER BEATTY RESEARCH INSTITUTE (*continued*)

I. Hieger, D.Sc., Ph.D.	Sarcomas induced by a carcinogen of steroid type
K.S. Kirby, 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.	
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
	The estimation of free and conjugated 3-hydroxyanthranilic acid using spectrofluorimetry
J.J. Roberts, Ph.D.	
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
	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.	Other aspects of tumour growth:
	Serum mucoprotein associated with tissue growth
	Tumour-stimulating effects of thiols and quinones
D.A. Darcy, D.Phil.	Tumour progression
L. Foulds, M.D.	
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

1. Cancer Research (*continued*)

CHESTER BEATTY RESEARCH INSTITUTE (*continued*)

E.M.F. Roe (Miss), Ph.D.	Microscopy: Interference microscopy of normal and tumour cells
R.L. Jones, Ph.D. A. Knowles, Ph.D.	Differential fluorescent staining of deoxyribonucleic acids/ribonucleic acids by acridine orange
E.H. Mercer, Ph.D.	Microscopical 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
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)	
M.W. Goldblatt, C.B.E., M.D., Ph.D.	
R.J. Goldacre, Ph.D.	Differentiation theory: An electronic model for morphogenesis

2. Physics

Professor W.V. Mayneord, C.B.E., D.Sc.	Studies related to the hazards of environmental radioactivity:
W. Anderson, Ph.D. R. Bentley, Ph.D.	Application of low-level α-counting techniques in studies of natural radioactivity in a wide range of biological materials, foods and other substances
I.G.F. Gilbert, Ph.D. C.A. Greatorex, Ph.D.	Chemical and α-counting methods of measuring activities of individual nuclides in bone and other tissues
C.R. Hill, Ph.D. D.M. Taylor, Ph.D.	Physicochemical studies of the binding of metal ions by tissue components
R.C. Turner, Ph.D.	Development of low background techniques for the measurement of fission products in foods and human tissues
	Investigation of fission products in the atmosphere and analysis of the radioactivity in human lung and lymph node tissues
	α and γ spectroscopy of nuclides in biological material
	Development and construction of 100-channel pulse height analysers for the identification of radioactive nuclides in environmental materials and human tissue

2. Physics (*continued*)

J.P.M. Bensted N.M. Blackett, Ph.D. Professor L.F. Lamerton, Ph.D. P.J. Roylance G.G. Steel, Ph.D.	Experimental biological and physiological investigations: Radiation response of bone of the growing rat with particular reference to bone tumour production following (i) internal administration of radioactive materials, (ii) localized external irradiation. Application of histological, radiographic and autoradiographic techniques Effects of protraction and of fractionation of radiation on the response of various tissues, particularly the blood-forming organs, the bone and the small intestine Studies of the life-span of blood cells in normal and irradiated animals Investigation of the excretion and turnover in the rat of the alkaline earth metals using Ca^{45}, Sr^{85} and Ba^{140} + La^{140}, and also of the trace element metabolism of zinc and cobalt
J.H.D. Ireland J.C. Jones K.W. Taylor, Ph.D. N.G. Trott, Ph.D.	Applications of physics to medical radiology: Development of diagnostic techniques using I^{131}, I^{132} and Ca^{47} Development of Ir^{192} grains for use in permanent implants Studies of distribution of radiation dose during various X-ray and radium treatment techniques Application of calorimetric methods in the measurement of absolute intensity and absorbed dose from X-ray and γ-ray beams Development of liquid scintillation counting equipment for measurement of H^3 and C^{14} in biological material Study of short-lived radioactive isotopes including C^{11} and K^{43} produced by X-rays from 30 MeV synchrotron Standardization of radioactive isotopes, including gas counting techniques for the measurement of S^{35} and C^{14} Application of ultrasonics to diagnostic problems

3. Radiotherapy

Professor D.W. Smithers, M.D.	Detailed clinico-pathological review 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.	Radioactive isotopes in the study of blood diseases and effects of radiation on patients
S.D. Lawler (Mrs.), M.D.	Antigens of malignant cells and serological reactions of cancer patients Isotope studies of homologous disease in rats
M.G. Rinsler, M.D.	Investigation of individual cell and tissue sensitivity to radiation and chemotherapy
K.B. Dawson	Radioactive calcium in the investigation of patients with osseous metastases
M.M. Gwyther (Miss)	Examination of the effects of radiation on connective tissue by physicochemical and isotopic methods

33 London University, Institute of Cardiology

1. Cardiology

P.H. Wood, O.B.E., M.D. (Director)	Congenital heart disease: anatomy, natural history, physiology, clinical and instrumental differential diagnosis,

1. Cardiology (*continued*)

D.E. Bedford, M.D. G.W. Hayward, M.D.	selection of cases for surgery, abnormalities of blood coagulation brought out by surgery, post-operative long-term results and respiratory physiology
W.W. Brigden, M.D. A.G. Leatham E.L. McDonald, M.D. R.W. Emanuel, D.M. T. Holmes Sellors, D.M. R.E.B. Hudson, M.D. P.J. Kerley, C.V.O., C.B.E., 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
B.G.B. Lucas	Cardiomyopathies: clinical presentation and various special phenomena
A.J.W. Beard, M.D.	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
	The anatomy and pathology of the conducting system of the human heart
	Pulmonary hypertension: clinical and physiological aspects
	Heart failure:diagnostic tests and therapeutic measures
	Hypertension: effects of various forms of hypotensive therapy

34 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	Red-cell metabolism in haemolytic anaemias
R. Sephton Smith	Humoral erythropoietic factors in anaemias of childhood
	Red-cell 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

3. Medicine (*continued*)

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
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	The maturation of the normal electroencephalogram in puppies fed on normal diets artificially and mother fed
B.E. Schlesinger, O.B.E., M.D.	Prognosis of ulcerative colitis
	Course and treatment of Still's disease
Sir Wilfred Sheldon, K.C.V.O., M.D.	Research into coeliac disease
A.H. Snaith	Method for the estimation of antidiuretic hormone in urine
	Radioactive method for the estimation of aldosterone in urine and blood applicable in small babies
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

4. Pathology

M. Bodian, M.D. (Head of Department)	The biology of vitamin B_{12} especially in relation to tumour chemotherapy
with C. Rigby	
S. Leibowitz	The pathology of megalo-ureters
B. Lake	The physiology and pathology of mucous and sweat glands in fibrocystic disease of the pancreas
N. Kobayashi	
G.H. Newns, M.D.	Neonatal hepatitis and biliary atresia
D. Danks	Genetic study of neonatal hepatitis and biliary atresia
A. Taylor (Miss)	Nuclear sexing of teratomata
J.A. Black, M.D.	Renal biopsies
N. Kobayashi	

4. Pathology (*continued*)

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
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

5. 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 Inequality of leg length
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

35 London University, Institute of Dental Surgery

1. Anaesthetics

V. Goldman	Investigation of methohexital "L 67", and halothane Effects of prolonged anaesthesias for dental procedures in children

2. Biochemistry

W.G. Armstrong	Biochemical and microbiological investigations on normal and diseased oral tissues Investigations into the nature of the changes occurring to the dentine matrix during caries, with particular reference to those responsible for the collagenase resistance of carious dentine

2. Biochemistry (*continued*)

W. G. Armstrong	Studies on the ultra-violet absorption and fluorescence of dentine Investigation into the nature of the carbohydrate components in carious dentine

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	Continuing the study of the relationship between variations of morphology and occlusion, now with particular reference to the establishment of habit patterns of activity
J.R.E. Mills	Studies in the dental occlusion of primitive mammals
E.K. Bond, (Miss) with staff of Department	A study of the relationship between variations in the soft tissue morphology and patterns of behaviour, and variations in speech patterns
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

5. Orthodontics (*continued*)

M.S.S. Gould	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
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

I.R.H. Kramer	Problems in oral histology and histopathology, including the experimental investigation of biological properties of materials
	The vascular architecture of the dental pulp
	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 high-pressure jet

7. Periodontology

W.A.S. Alldritt	Histological basis of gingival maturation
(Head of Department)	Correlation of healing following gingival surgery and the histopathology
	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

36 London University, Institute of Dermatology

1. Dermatology

Professor C.D. Calnan	Studies in delayed hypersensitivity to low molecular weight chemicals
	Survey of industrial dermatoses in an engineering factory
	Occupational dermatitis from epoxy resin systems
	Contact dermatitis from leather
	Contact dermatitis from clothing materials
	Photo-contact dermatitis from tetrachlorosalicylanilide

Professor C.D. Calnan with D Gilbert, Ph.D.	Metabolic control mechanisms in skin
F.R. Bettley, T.D., M.D.	Penicillin urticaria 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 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 Clinical trial using Virugon for treatment of herpes simplex
H. Haber, M.D.	Histopathological aspects of mycosis fungoides Foreign body granulomas in cellular naevi Histological aspect of certain verrucous naevi of the scalp
I.A. Magnus	Studies with powerful irradiation monochromator of erythema and pigmentation in normal skin and experimental animals Monochromatic photosensitivity tests on patients with photodermatoses and porphyrin 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 U.V.R.
I.A. Magnus with B.E. Johnson	Determination of action spectrum in skin carcinogenesis in animals with a monochromator Effect of monochromatic U.V.R. on the hair cycle in mice Role of phospholipids and tryptophan in U.V.R. erythema
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.	Infestation with *Demodex folliculorum* in normal individuals The anti-streptolysin results in some skin diseases
A.D. Porter, M.D.	Investigation of effects of light on human skin
B. Russell, M.D.	Food dyes as a possible cause of urticaria
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 moniliasis with an appraisal of the methods for the identification of *Candida albicans*
B.S. Verma	Studies on the keratin-invasive properties of various ringworm fungi Examination of the proteolytic enzymes of dermatophytes
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
K.V. Sanderson	Morphology, histopathology and histochemistry of basal-cell carcinoma

K. V. Sanderson	Effect of exposure to sunlight on the histopathology of epithelial neoplasms Experimental production of epithelial tumours in mice with arsenic as a co-carcinogen Histogenesis of epithelial tumours of rats produced by 2-amino-anthracene
S. Shuster	Endocrine control of skin structure and function Biological defects 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
G.C. Wells	Histochemistry of the skin with particular reference to enzyme systems

37 London University, Institute of Diseases of the Chest

1. Chest Diseases

J.G. Scadding, M.D.	Sarcoidosis, with special reference to aetiology The lungs in collagen diseases
F.J. Prime, M.D.	Disturbances in acid-base equilibrium in acute and chronic respiratory failure
J.R. Bignall, M.D.	Studies on the recovery of malignant cells from the blood in patients with bronchial carcinoma
R.W. Riddell, M.D.	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, M.D.	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 study of bronchial secretion of mucus
I.S. Longmuir	Studies on cellular respiration
J. Pepys	Investigation of common fungi, including *Aspergillus*, *Cladosporium*, *Penicillium*, *Candida*, and *Trichophyton* genera, for their relationship to hypersensitivity in man Study of immunological effects of organic dusts in man Study of antigenic fractions of the tubercle bacillus in man and animals Study of immunological changes in leprosy

38 London University, Institute of Laryngology and Otology

1. Anatomy

OTOLOGICAL INVESTIGATION UNIT

Professor F.C. Ormerod, M.D. D.F.N. Harrison, M.D. J.D. Pye A. Pye	The minute anatomy of the petrous bone including the internal ear 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

2. Audiology (*continued*)

Professor Fry, D.B. Ph.D.	Selection and use of hearing aids for partially and severely deaf infants and pre-school age children
L. Fisch, M.D.	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 F.C. Ormerod, M.D.	Long-term follow-up of carcinoma of upper air passages
K. McLay	Pathology and treatment of cancer of the pharynx
	Investigation of (i) perceptive deafness and (ii) vertigo of central and of peripheral origin
D.F.N. Harrison, M.D.	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. D.A. Osborn J. C. McAlpine	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 vitamin A on the isolated fowl embryo otocyst in tissue culture
	Quantitative electrophoresis on stabilized media
	The study of serum iron levels in relation to the Paterson-Kelly syndrome
	Isolation and structure of upper respiratory tract viruses
	Pathology of otosclerosis
	Pathology of epidermoid cholesteatoma
	Malignant granuloma of the nose
	Amyloid of the larynx and pharynx

OTOLOGICAL INVESTIGATION UNIT

Professor F.C. Ormerod, M.D.	The effect on the acoustic and static portions of the ear of ultrasonic waves
K. McLay	The effects of various chemical substances on the inner ear
D.F.N. Harrison, M.D. M. Flinn J.D. Pye	Experimental production of the lesions of the Paterson-Kelly syndrome in rabbits

5. Pathology (*continued*)

OTOLOGICAL INVESTIGATION UNIT (*continued*)

	Experimental production of post-cricoid neoplasms in rabbits

6. Physiology

OTOLOGICAL INVESTIGATION UNIT

Professor F.C. Ormerod, M.D. K. McLay	The variation in range and acuity of hearing under different conditions and localization of sound and echo-location
J.D. Pye R.W.B. Stephens, Ph.D. M. Flinn	Methods of examination of the organs of equilibration: optokinetic, caloric and rotatory
Professor F.C. Ormerod, M.D. K. McLay	Investigation of electric impulses in the eighth cranial nerve and the associated cerebral and cerebellar path-ways
D.F.N. Harrison, M.D. 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) R.S. Couch R.D. Hoare C.G. Whiteside	Cine-radiography by means of the image intensifier in the investigation of: The radiological significance of visualization of the cricopharyngeus 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-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

39 London University, Institute of Neurology

1. Neurology

Academic:

J. Marshall, M.D.	Inquiry into the nature of physiological tremor and its relationship to the abnormal movements seen in disease
D.A. Shaw	The role of anticoagulant therapy and fibrinolytic activity in cerebro-vascular disease
H. Schnieden, M.D.	Variations in total body water in epilepsy and migraine

1. Neurology (*continued*)

Clinical:

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
S.P. Meadows	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)
J. Hamilton Paterson, M.D. with W. McKissock, O.B.E.	Study and long-term follow up of patients with Parkinsonism treated surgically
Professor J.N. Cumings, M.D. Professor W. Blackwood R.T.C. Pratt, D.M.	Study of motor neurone disease. (It is hoped to establish a register of patients who will be investigated routinely from the aetiological, biochemical, pathological and genetic point of view)
R.E. Kelly, M.D.	Disorders of the lower motor neurone, neuromuscular junction and muscle

2. Neuro-Ophthalmology

T.K. Lyle, C.B.E., M.D.	Clinical research into the causes of, 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.	Ophthalmodynamometry

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
	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 in 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 ultra-sound
	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 concerning the surgical relief of epilepsy and disorder of the motor system
*P.W. Nathan, M.D.	Clinico-physiological studies concerning 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

*M.R.C. staff

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.	
J.D. Hood, D.Sc.	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
L. Citron	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
	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
G. Curzon, Ph.D.	Chemistry of caeruloplasmin
	Investigations in psychoses and neurological diseases of aromatic metabolism
B.P. Hughes, Ph.D.	Biochemical aspects of muscle disease with particular reference to muscular dystrophy
K.M. Jones	Investigation of the lipid composition of red and white cell stroma and envelopes in lipid diseases of the nervous system and in muscle disorders
N. Robinson, Ph.D.	Studies in the cytology of the nervous system

MAIDA VALE HOSPITAL

W.H. McMenemey, D.M.	Histopathology of the nervous system
H.C. Grant (Miss), M.D.	
R.O. Barnard	
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.,	Effects of interruptions of blood flow through the basilar artery in man
	A study of visual perception

7. Physiology (*continued*)

Applied, continued

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. (Head of Department) R.A. Hunter, M.D. K. Davison *M. Halliday E.A. Glithero V.G. Seal (Miss)	Psychotic states associated with epilepsy Follow-up study of patients subjected to leucotomy for the relief of tinnitus Radiological, pathological and longitudinal study of cerebral atrophy Metabolism and electrophysiological effects of antidepressant drugs; therapeutic trials of tranquillizing drugs Study of the form of cerebral evoked potentials in disorders of sensation of perceptual awareness
Professor O.L. Zangwill G. Ettlinger, Ph.D. E.K. Warrington (Mrs.), Ph.D. E.M. Sprayson (Miss) E. King (Mrs.)	Experimental studies of disabilities in visual perception associated with cerebral lesions Analysis of amnesic states Studies of language disorders and of intellectual defects in aphasia Experimental analysis of the effect of localized brain ablations on the behaviour of monkeys Studies of specific handicap in reading and related problems in children

40 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

ENDOCRINE LABORATORIES

I.F. Sommerville, M.D., Ph.D. (Director) with M.I. Stern K.M. Ferguson E.P. Giorgi (Miss) M.T. Pickett (Miss)	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 Application of such methods to the study of patients in the Endocrine and Fertility Clinics

*M.R.C. staff

2. Endocrinology and Fertility Studies *(continued)*

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 effect of 19-ethinyl-nortestosterone in the treatment of menstrual disorders
	The application of vaginal cytology in the diagnosis and treatment of menstrual disorders and cancer research
with Professor P.E. Polani, M.D.	The investigation of chromosomal anomalies

3. Obstetrics and Gynaecology

HAMMERSMITH HOSPITAL

E.J. Brown	Survey of twins: rest in hospital 30-34 weeks; induction at 38 weeks
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	Chorio-decidual blood flow
with Professor J.C.M. Browne	
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
G. O'Neill	Air urethrosphincterometry
G.S. Hall	Clinical comparison between panbritin and sulphonamides in the treatment of urinary infections
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
S.T. Trezise	Foetal cells in maternal circulation
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

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

T.L.T. Lewis with M. Sandler	Investigation into the effect of decarboxylase inhibitor in the treatment of toxaemia
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-mmunization in pregnancy Isolation of blood group substances Preparation of Rh antibodies in animals from human antigens
J. Murray, M.D. R.M. Calman	Studies on new antiseptics and antibiotics for midwifery Studies of blood coagulation of the newborn and the use of vitamin K in treatment Studies of fibrinogen levels in pregnancy and puerperium and development of a rapid method of estimating fibrinogen Urinary tract infection in women Relationship between cervical erosion and the bacteriology of the puerperal uterus and vagina
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
W. Payne	Studies on the use of ultra micromethods for the estimation of various substances in blood, using 10 or 20 microlitres; a study is being made of the changes in the blood of neonates during the first 48 hours of life in normal and abnormal cases

QUEEN CHARLOTTE'S MATERNITY HOSPITAL AND CHELSEA HOSPITAL FOR WOMEN

Professor J.H.M. Pinkerton, M.D. with E. C. Wood R.T. Booth M. Elstein	Urinary tract infection in women Oral diuretics in pregnancy Foetal distress Continuous foetal heart recording Physiology of uterine muscle Fluorescence cytology
P.M.F. Bishop, M.D. M. Murray (Miss) F. Osmond-Clarke (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.	Placental bed vascular changes in abnormal pregnancy

3. Obstetrics and Gynaecology (*continued*)

Professor J.H.M. Pinkerton, M.D. with E.P. Giorgi (Miss) M. Murray (Miss) F. Osmond-Clarke (Mrs.) I. F. Sommerville, M.D.	17-ketosteroid studies in oligomenorrhoea and hirsutes
Professor J.H.M. Pinkerton, M.D. R.M. Calman A.E. Claireaux, M.D.	Bacteriological studies on the healing of the puerperal cervix

4. Paediatrics and Child Health

HAMMERSMITH HOSPITAL

*J.P.M. Tizard	Electroencephalography in the newborn Control of oxygen consumption in young animals
*J.A. Davis	Response of young animals to acute anoxia and asphyxia

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

A.P. Norman, M.D.	Perceptive deafness and hyperbilirubinaemia X-radiation and incidence of mongolism Temperature changes during exchange transfusion Treatment and follow up in rhesus incompatibility

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
with R.M. Feroze, M.D.	A study of blood clotting and coagulation defects in dysfunctional uterine haemorrhage

41 London University, Institute of Ophthalmology

1. Glaucoma Research

J. Gloster, M.D., Ph.D. (Director)	Tonometry and tonography
A. Lister	Investigation into the aetiology of congenital glaucoma by means of serial stereophotography of normal and pathological filtration angles in infants
S.J.H. Miller, M.D.	The early diagnosis of glaucoma
E.S. Perkins, M.D.	The mechanism of glaucoma
A.G. Cross, M.D.	Visual fields in glaucoma
A.B. Leith, M.D.	Episcleral venous pressure
C.J. Gavey, M.D.	Possible constitutional factors in relation to glaucoma
R.B. Niven	A study of the peripheral vascular system of patients suffering from glaucoma
J.H. Dobree	A clinical study of the factors influencing the function of filtering blebs The study of the causation of sudden field loss following anti-glaucoma operations Studies on neovascularization at the disc and venous thrombosis associated with raised ocular tension

*At Nuffield Institute for Medical Research, Oxford

1. Glaucoma Research (*continued*)

W.S. Foulds, M.D.	The aetiology and course of the several types of chronic closed-angle glaucoma
W.E.S. Bain	Physiological variations in the intra-ocular pressure An investigation into the factors governing the amplitude of the intra-ocular pulse
A.C. Higgitt	The effect of mydriasis on the ocular tension in wide-angle normal and glaucomatous eyes
J.A.E. Primrose	The investigaton of the Priscol test in glaucoma The investigation of cases of glaucoma treated by peripheral iridectomy
J.D. Abrams	Follow up of results of surgery with and without Diamox Facility of outflow after iridectomy in the fellow eye
D.J. Lobascher	Consensual reactions of intra-ocular pressure
H. Saiduzzafar (Miss)	Effect of hydraemia on ocular rigidity
C. Maguire	Adrenal hormones and intra-ocular pressure
A. Barrada	Mechanism of the dark-room test

2. Neuro-Ophthalmology

T.K. Lyle, C.B.E., M.D. (Dean)	Clinical research into the causes of, and treatment of, ocular palsies The treatment of amblyopia ex anopsia A study of retrobulbar optic neuritis
S.P. Meadows M.D.	Prognosis of compression of the optic nerves by meningiomas and aneurysms
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
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
A.G. Cross, M.D.	Study of the arcuate scotoma The causes and treatment of uveitis, vasculitis and perivasculitis
E.S. Perkins, M.D., Ph.D.	The aetiology of uveitis Theoretical and practical investigations into tonometry and tonography
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
C.A.G. Cook, M.C., G.M.	Clinical and experimental research in diabetes
K.C. Wybar, M.D.	Cancer follow up, with particular reference to iris tumours An assessment of the implications of pleoptic methods
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

3. Ophthalmology (*continued*)

Clinical (*continued*)

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
C.G. Tulloh, M.D.	Investigation into the physiological changes which take place in the eye in retinal detachment
	Investigation into the effects of treatment in secondary glaucoma
C.M. Ruben	The estimation of aniseikonia and its investigation in cases of unilateral aphakia to determine the prognosis as regards binocular vision
	Dark adaptation in amblyopia
H. Hobbs	Ocular effects of chloroquine treatment
P. Hansell	A systematic appraisal of available retinal cameras
	New techniques in off-set lithography
	Photography of the angle
G.H. Howells	Investigations into the extension of orbital tumours into the accessory sinuses and vice versa
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

4. Pathology

Professor N. Ashton, D.Sc. (Director)	The morbid anatomy of simple glaucoma with histochemical studies of the normal and abnormal trabecular meshwork
	Pathology and pathogenesis of the vascular retinopathies
	Effect of oxygen on the retina of the rat and rabbit
D.R. Barry, M.D.	Tissue culture in relation to immune problems in ocular disease
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
F. Martin B.R. Jones J.M. Heaton	Immunological research on Sjögren's syndrome and diseases of the conjunctiva, cornea, sclera and uvea
B.R. Jones	Pathological investigations of virus infections of the eye, with particular reference to trachoma
I. Duguid	Nematode endophthalmitis
K.C. Wybar, M.D. J.M. Mallett	Cancer follow up of malignant melanoma of the uvea
G.W. Crock	A preliminary survey for a long-term study of the structure, function and pathology of extra-ocular muscles

5. Physiology

M.R.C. OPHTHALMIC RESEARCH UNIT

Sir Stewart Duke-Elder, G.C.V.O., M.D., F.R.S. (Director)	
E.S. Perkins, M.D.	Control of the intra-ocular pressure
J. Gloster, M.D., Ph.D.	Intra-ocular circulation in relation to ocular tension
D. Cole	The blood-aqueous barrier and the formation of the intra-ocular fluids

5. Physiology *(continued)*

D.M. Maurice, Ph.D.	The metabolism of the cornea
G.B. Arden, Ph.D.	The electrophysiology of the visual pathways
H.J.A. Dartnall, Ph.D.	Photobiology of visual processes
C.D.B. Bridges, Ph.D.	
P. Silver (Mrs.), Ph.D.	Visual sensitivities of animals
K. Tansley (Miss), D.Sc.	The microanatomy of the retina and optic nerve
D.P. Greaves	Physiological problems concerning intra-ocular pressure with particular reference to the influence of the autonomic nervous system
H. Saiduzzafar (Miss)	Factors influencing ocular rigidity
Physiological Optics:	
R.A. Weale, D.Sc., Ph.D	The physiology of vision

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
W.S. Foulds, M.D.	An investigation into the site of origin and fate of subretinal fluid in cases of retinal detachment
	An investigation of diabetic retinopathy with particular reference to dietary fat intake and composition

42 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
A. McPherson	Somatic-autonomic reflexes. Blood flow in bone
P. G. Walker, Ph.D.	Enzymes acting on mucopolysaccharides
J. Collins	Balance studies in metabolic bone disease
R. Heyworth, Ph.D.	Kinetic studies on glycosidases
D.H. Leaback, Ph.D.	Chemistry and biochemistry of amino-sugars
F.B. Anderson, Ph.D.	Chemistry and biochemistry of uronides
D. Pugh	Histochemical localization of hydrolytic enzymes
J.W. Woollen	Glycosidases in serum

1. Orthopaedics (*continued*)

A.B. Kinnier-Wilson	Follow-up studies of patients treated in respirators
R. McWilliam	Mechanics of breathing with respiratory obstruction
D. Dalrymple	Development of pneumatic splint motor
	Apparatus designed to help severe cripples
A. Bottomley	Use of weak muscles for electromyographic signalling
C.H. Lack and others	Role of plasmin in certain pathological processes
	Purification and action of staphylokinase
	Staphylococcal infection
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

43 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.	Intermediary metabolism; metabolism of cerebral tissues, especially in electrically excited conditions, and biochemistry of drugs acting on the central nervous system
D.B. Gammack, Ph.D.	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

2. Pathology

Neuropathology:

Professor P.M. Daniel, D.M., D.Sc.	General neuropathology
	The pituitary gland
	The hypothalamus
	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 malformations
	Diseases of muscles
J.A.N. Corsellis	Neuropathology of ageing
	Pathology of mental disorders

3. Physiology

Clinical Neurophysiology:

G.D. Dawson	Effects of modification of transmission in the sensory afferent pathway on the cortical responses to peripheral stimulation
M.V. Driver	Effects of convulsant drugs on cerebral electrical activity in epilepsy and mental disorder
E.W. Poole	Conduction velocity in the central nervous system in health and disease; the interrelation of neurophysiological events
J.H. Margerison	Cross-correlation studies between the E.E.G. and metabolic variations in the normal menstrual cycle, in depression and in epilepsy

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.R.G. Carrie J.L. Gibbons G.F.M. Russell, M.D.	Metabolic studies in mental disorder
R.H. Cawley, Ph.D. L. Stein (Mrs.), Ph.D.	Statistics of mental disorder
C. Rashbass, M.D.	Analysis of visual tracking behaviour
R.P. Michael	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.	Evaluation of drug effects
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
K. Cameron W. Warren, M.D.	Child psychiatry

M.R.C. PSYCHIATRIC GENETICS RESEARCH UNIT

E.T.O. Slater, M.D. (Director) V.A. Cowie (Mrs.), M.D. B. Harrison (Miss)	Genetics of mental disorder

4. Psychiatry (*continued*)

M.R.C. SOCIAL PSYCHIATRY RESEARCH UNIT

Professor Sir Aubrey Lewis, M.D. 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 E.M. Monck (Mrs.) C. Parkes	Social and psychological studies of chronic psychoses and mental defect
K. Rawnsley J.B. Loudon	Epidemiological studies of mental disorder

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

44 London University, Institute of Urology

1. Urology

J.D. Fergusson, M.D. (Director)	Prostatic cancer: statistical study of the result of endocrine-control 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
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

1. Urology (*continued*)

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
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
J.J. Stevenson, M.D.	Radiological studies with the image intensifier and X-ray television
	Assessment of new contrast media in urography
	Museum of X-ray films
B.M. Still (Miss), Ph.D.	Biochemical methodology
	Estimates of serum acid phosphatese 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
D.I. Williams, M.D.	Vesico-ureteric reflux as a cause of recurrent infection
	Paediatric urology

45 London University
King's College Hospital Medical School

1. Anaesthetics

No information

2. Cardiology

S. Oram, M.D. with J.P.H. Davies	Cardiac catheter studies in Friedreich's ataxia and allied neurological conditions
G.E. Sowton	Abnormalities of the RS-T phase of the electrocardiogram

2. Cardiology *(continued)*

with I. Weinbren G. Ross	Studies of complete heart block with a rapid ventricular rate
	Left heart catheterization with studies of the coronary circulation
	The effect of smoking on the electrocardiogram
	The effect of vitamin C on digitalis-induced electrocardiographic changes

3. Dental Studies

Professor R. Cocker M.A. Kettle	Relationship of cleft lip and palate to dental arch deformity
	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
R.A. Cawson with I. Curson	The effectiveness of some antiseptics on the mucous membrane of the mouth
R.A. Cawson	Distribution of bacteria on the oral mucous membrane and ability of injection needles to implant material from the epithelial surface
	Applications of exfoliative cytology in the mouth
	Histological studies on changes in the supporting tissues of the teeth in relation to age and systemic disease
	The oral changes in gargoylism
	Oral tuberculosis
J.R. Garrett	Salivary gland structure and function and its possible connection with oral disease

4. Dermatology

D.I. Williams	Use of vitamin A in skin disorders
	Griseofulvin in fungus infections
R.H. Marten	Chronic paronychia: clinical and bacteriological study
	Griseofulvin in fungus infections
	Chloroquine: experimental study using guinea-pigs
	Lupus erythematosus
E.S. Emslie (Miss)	Griseofulvin in fungus infections
	Baldness in women

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
R.H. Marten	Iron deficiency anaemia in European and West Indian infants

6. Medicine

C. Hoyle, M.D. (Director)	Sarcoidosis
with H. Smellie, M.D. R.P. Crick	Ocular sarcoidosis
N.J. Hamer, M.D.	Lung function in sarcoidosis and the effects of steroid treatment

6. Medicine (*continued*)

J. Anderson, M.D.	Calcium metabolism Intermediary metabolism in diabetes Sodium transport
D. Pyke, M.D.	Effects of steroids on glucose metabolism
N.J. Hamer, M.D.	Lung diffusion studies
I. Weinbren	Metabolic effects of secondary tumours in bone
R. Tomlinson	Sodium transport
V. Parsons	The epidemiology of sarcoidosis Excretion of phosphate by the kidney
H. Smellie, M.D.	Antibody responses in reticuloses
M.E.H, Turner- Warwick, (Mrs.) M.D.,	Bronchial artery patterns in chronic pulmonary disease
J.L. Livingstone, M.D. with R.S. Bruce Pearson, D.M. Professor C.H. Gray, M.D., D.Sc.	Value of long-term steroids in asthma Adrenal function in asthma
R.S. Bruce Pearson, D.M. with A.A. Mason L. Fry	Hypnosis in asthma: effect on symptoms and on skin reactions

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 gamma-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

9. Obstetrics and Gynaecology

Sir John Peel	Carbohydrate tolerance in patients suffering from carcinoma of the body of the uterus and non-malignant hyperplasia
I.H. Grant	Oxygen tension and haemoglobin changes in the blood of the newborn babies of diabetic mothers and controls
J.M. Brudenall	Determination of the clearance rate of injected radioactive sodium in the wall of the uterus of pregnant diabetic women as a method of determining uterine blood flow

10. Ophthalmology

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) drüsen of the optic nerve head
	Amblyopia ex anopsia: causation and treatment
R.P. Crick	Sarcoidosis and the eye
	Research in perimetric technique
	Operative technique under high magnifications
	Investigations into eye complications of lupus erythematosus
	Analysis of a series of cases of perivasculitis retinae

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
J. Bamforth, M.D. with M.K. Mason	An investigation into the problem of latent prostatic cancer
	The value of exfoliative cytology in the early diagnosis of gastric cancer
D.G. Rushton	Changes in the lungs in drowning and crush injury
M.E.A. Powell	An investigation into the methods of demonstrating cancer cells in the blood stream
	An investigation into the relative densities of blood cells
M.K. Mason	Investigation into the extent of the pyloric mucosa in gastrectomy specimens
A.C.B. Dean	
D.H. Tee	Fractionation of tissue proteins in cancer patients in an attempt to isolate cancer antigens and antibodies

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 C^{14}-labelled compounds
	Structure, stereochemistry and biosynthesis of porphyrins and bile pigments
M.J.H. Smith, Ph.D.	Mode of drug action
D.C. Nicholson, Ph.D.	Synthesis, structure and metabolism of porphyrins and bile pigments

13. Surgery

H.C. Edwards, C.B.E. (Director)	
S. Taylor	Autoradiographic study of human and rat thyroid I^{131} studies of human nodular goitre
	Production of experimental thyroid cancer in rats by radiation and low iodine diet
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
	Metabolism of Na.K. extra- and intra-cellular water following adrenalectomy or hypophysectomy in man
	The behaviour of human malignant cells in tissue culture

14. Urology

J.G. Yates-Bell	Polycystic kidneys
	Radioactive gold grains for bladder carcinoma
H. Rees	Plastic operations for hydronephrosis
A.R.C. Higham, T.D.	Enuresis

46 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
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.	The study of proteins, etc., by diffusion methods; the applications of the ultracentrifuge 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.B.E., M.V.O., M.D.	The techniques of freeze-drying plasma proteins Physical methods of sterilization of human plasma and plasma fractions
L. Vallet	
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 anti-human-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 fractions of sera

M.R.C. BLOOD GROUP RESEARCH UNIT

R.R. Race, Ph.D., F.R.S. R. Sanger (Miss), Ph.D.	Blood groups: searches for "new" blood group antigens; 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
	Application of tissue culture methods to the large-scale production of vaccinia virus
	Investigation of the accuracy of methods of titrating vaccinia virus and neutralizing antibody in sera
	Investigation of the relationship between circulating antibody and immunity to vaccinia virus infection
	Application of immuno-fluorescence to the rapid early diagnosis of smallpox
B.G.F. Weitz	Therapeutic sera
D.E. Dolby, Ph.D.	Study of the antigenic characteristics of the serum proteins of man and animals
	Interaction of toxins and antitoxins
	Study of the characters of fractions of antitoxic sera

5. Immunology (*continued*)

D. E. Dolby, Ph.D.	Studies on the feeding habits of blood-sucking insects of medical and veterinary importance
	The 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 capillary permeability in inflammation and other injury
E. Klieneberger-Nobel (Mrs.), Ph.D., D.Sc.	Pathogenic significance and antibody production of pleuropneumonia-like organisms and L-forms of bacteria
	Aetiology of non-gonoccocal urethritis

47 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	Electron microscopy: endocrines and placenta
Oral:	
R.W. Fearnhead	Fine structure and innervation of hard tissues
A. Boyde	Fine 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
C.W. Parr, Ph.D.	foetal tissues and the development of certain enzyme
P.J. Warren, Ph.D.	systems during foetal growth
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 cell-free transmission of the 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.
	Investigation of chemical carcinogenesis in mouse skin, forestomach, and bladder, in particular the study of the nature and function of tumour-initiating and tumour-promoting agents, the precancerous state, and the development of malignancy. Special attention has been given to the carcinogenic role of the citrus oils, and other substances of plant origin.
D.H. Adams, D.Phil.	Tumour-host relationships: the study of host metabolism in malignant disease, notably the effect of tumours on liver catalase and its relation to the normal maintenance of catalase activity

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

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 Electron microscopy 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	Electron microscopy and histochemistry of salivary glands
Conservative:	
Professor G.L. Slack, O.B.E., T.D. (Director)	Studies in the epidemiology and control of dental caries Dental disease in laboratory animals
N.L. Ward	The diagnosis of changes in the pulp tissue and the assessment of these changes on electrical and thermal methods The measurement of galvanic action in the mouth
E. Nicholls	Bacteriology of periodontal pockets
P.J. Holloway	Nutrition and its relationship to the composition of the teeth of laboratory animals
J.N. Swallow	The 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

6. Dental Studies (*continued*)

Conservative (*continued*)

J.S. Bullman	Investigation into the excretion of zinc in saliva and its effect on exposed oral tissues
	The anatomical structure of dentine with particular reference to the branching of dentinal tubicles

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	Rupture properties of acrylic resins
	Liquid absorption properties of acrylic resins
	Indentor problems: acrylic resins; dental amalgams
	Resilience properties of cartilage

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)	A follow up of patients having steroid therapy
	Treatment of rodent ulcers and radiodermatitis by dermabrasion
	Racial varieties in the incidence of dermatoses
H.M. Drummond	Isoniazid excretion in lupus vulgaris
A. Herxheimer	Evaluation of topical treatment in skin disease
	Cholinergic urticaria
	Disorders of sweating

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
D.G. Penington	Humoral regulation of erythropoiesis
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
J.R. Farthing	The antigenic structure and relationships of the viruses of trachoma and inclusion blennorrhoea

11. Neurology

R.A. Henson, D.M., M.D.	The carcinomatous neuromyopathies
	Clinical and pathological studies of diseases of muscle
	Electrophoretic studies on cerebro-spinal fluid proteins

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

16. Pathology *(continued)*

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

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

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
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
A. Howe, Ph.D.	Histochemical studies on the hypothalamus and pituitary gland
K.B. Roberts, D.Phil.	Electrophoretic and immunological studies on foetal and adult haemoglobins in rodents and in man
	Physiology of the thoracic duct lymphocyte

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	Use of hypothermia in perfusion for malignant disease
	Endocardiac pressures during angiocardiography in the dog
	Secretion of certain dyes by the canine liver
	Use of radioactive renograms in the diagnosis of unilateral hypertensive disease
W.M. Keynes	Studies in the body distribution of metabolites in renal and hepatic failure
	Metabolic studies in the causation of stones in the urinary tract
J.P. Blandy	Studies on uroepithelialization of intestinal segments in connection with diversion of urine
G.V. Shead	Studies on the effect of norethandrelone on ammonia metabolism by the liver
A.S. Mushin	Studies of blood volume and intestinal motility in dogs after introduction of hypertonic solutions into the duodenum

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
	Study of the results of treatment of early syphilis during the period 1946—56
	The clinical significance of non-syphilitic reactions to standard serological tests for syphilis
	Histology of the mucous membrane of the male urethra in health and disease
	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
	Evaluation of the rapid plasma reagin test as a screening procedure for the diagnosis of treponemal disease
	Study of acute salpingitis including assessment of the results of treatment
	Investigation and clinical assessment of complement fixation tests for syphilis, using antigens prepared from the Reiter strain of *Treponema*
	Diagnosis and treatment of monilial vaginitis
	Investigation of the causes of epididymo-orchitis with special reference to viral infections
	Venereal diseases in immigrants: sources of infection

48 London University
London School of Hygiene and Tropical Medicine

1. Biochemistry

Professor J.H. Birkinshaw, D.Sc.	Biochemistry of micro-organisms, particularly of fungi. Investigation of metabolic products of these micro-organisms, determination of their chemical structure, and synthesis. Investigation of antibiotic activity and other biological properties of these metabolic products
C.E. Stickings, Ph.D.	
R.J. Townsend	

2. Entomology

Professor D.S. Bertram Ph.D.	Virus transmission Electron microscopy of vectors
J.R. Busvine, D.Sc., Ph.D.	Laboratory studies on insecticides
B.R. Laurence, Ph.D.	Mosquito biology Filarial vectors
R.G. Bird	Electron microscope studies of pathogens
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.	Aromatic biosynthesis in bacteria Nutrition of *Haemophilus*
J.E. Cradock-Watson	Haemoglobin antigens
I.G. Murray	Aetiology of mycetoma
J.W.G. Smith	Prophylaxis of tetanus
E.C. Geraghty (Miss)	Bacteriophage
C.Y. Cheong	Arthropod-borne viruses
F. Begum (Miss)	

4. Nutrition

Human:

Professor B.S. Platt, C.M.G., Ph.D. W.R. Aykroyd, C.B.E., M.D., Sc.D. M.E. Cameron (Miss) B.H. Doell	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
J. Doughty (Mrs.) T.P. Eddy, C.B.E. C.R.C. Heard, D.Phil. M.D. Janes (Miss)	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
D.S. Miller A. Mittwoch (Miss) D. Morley, M.D.	The effects of malnutrition on ante- and post-natal development, especially of the skeletal and nervous systems in experimental animals
D.J. Naismith, Ph.D. P.R. Payne P.L. Pellett, Ph.D. R. Schwartz (Miss), Ph.D. B.T. Squires, O.B.E., D.M. R.J.C. Stewart	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
	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	Investigation into the occupations and social classes of patients with chronic bronchitis
	Clinical and environmental studies of textile workers
S.A. Roach	Environmental studies of textile workers (see above)
	Developments of instruments for sampling airborne dusts and methods of measuring dust exposures

6. Parasitology

Helminthology:

Professor J.J.C. Buckley, D.Sc.	Transmission and behaviour of schistosomes and other trematodes in experimental animals and their infectivity
P.L. LeRoux, D.Sc.	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:

Professor G.P. Crowden, O.B.E., T.D., D.Sc.	Muscular work and environment
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, environmental effects, and the work of an almoner in a children's hospital
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
M. Jefferys (Mrs.)	Problems of social classification in socio-medical enquiry
S.P.W. Chave	A survey of mental illness in a new town

8. Public Health and Preventive Medicine (*continued*)

R.M. Acheson, D.M. (with Professor W.J.E. Jessop, Department of Social Medicine, University of Dublin)	Studies of the health and activity of a group of men aged 65–85
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

Medical Statistics and Epidemiology:*

Professor D.D. Reid, M.D., D.Sc.	The development and application of statistical methods in medicine and its associated sciences, including research into the epidemiology and aetiology of disease
Professor P. Armitage, Ph.D.	The promotion and analysis of vital statistics
W.R.S. Doll, O.B.E., M.D., D.Sc.	The design and analysis of therapeutic trials of new drugs and other agents
J.T. Boyd A.S. Fairbairn	The design and analysis of field trials of prophylactic agents
J.O. Irwin, D.Sc., Sc.D. B.J. Kinsley (Miss)	The application of mathematical statistical techniques to the solution of laboratory problems
W.J. Martin, Ph.D., D.Sc.	The development of methods of biological assay
G.A. Rose, M.D. I. Sutherland, D.Phil. R. Tall (Miss)	Studies of the hazards to man of nuclear and allied radiations, air pollution and smoking

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

*Includes M.R.C. Statistical Research Unit: Director, W.R.S. Doll, O.B.E., M.D., D.Sc.

10. Tropical Hygiene (*continued*)

ROSS INSTITUTE (*continued*)

L.K. Goma	Insecticide resistance studies in mosquitoes: morphology and behaviour
B.B. Waddy, D.M.	Onchocerciasis
M.J. Colbourne	Epidemiology of insect-borne diseases

11. Tropical Medicine

Clinical:

Professor A.W. Woodruff, M.D.,Ph.D.	The therapeutic efficiency of various synthetic organic compounds in amoebic dysentery, filariasis and leprosy
S. Bell, M.D.	The therapeutic efficiency of various drugs in schistosomal and other helminthic infections
C.K. Thacker	Clinical manifestations in man of the epidemiology of *Toxocara canis* infections
	The immunological changes induced in man by schistosomal infections
	Ocular complications in onchocerciasis: their aetiology, course and treatment
	The course, prognosis and treatment of tropical sprue
	Iron metabolism under tropical conditions including the genesis of haemosiderosis so commonly encountered in the tropics
	Natural history of various haemoglobinopathies and the influence of the various substances on their clinical course

49 London University, Middlesex Hospital Medical School

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, 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
N.R. Ling	
W. Lawson	Synthetic hormone analogues
A.E. Kellie, Ph.D.	Steroid metabolism
E.R. Smith	
P. Cox (Miss)	
E. Gabb (Miss)	

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.)	
K.J. Ballard (Miss)	
P.W. Sadler, Ph.D.	Chemical pharmacology
A.K. Wallis	
A.L. Miller	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.	Chromatography of peptides
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

4. Medicine

Professor A. Kekwick	Metabolism of obesity Peripheral vascular disease
T. Chalmers	Endocrine control of electrolyte metabolism and renal function Studies on metabolism of isolated fat tissue
E.J.M. Campbell, Ph.D. M.D.	Pulmonary function in lung disease

5. Orthopaedics

No information

6. Otorhinolaryngology

C.P. Wilson, C.V.O.	Aetiology of diverticula of pharynx
J.P. Monkhouse	Pathology of otosclerosis
D. Ranger	Vasomotor responses of nasal mucosa

7. Pathology

BLAND-SUTTON INSTITUTE OF PATHOLOGY

Professor R.W. Scarff, C.B.E., F.R.S.E.	Histopathology of cancer
R.E. Thompson	Bacteriological research
A.C. Thackray, M.D.	Histopathology of cancer
A.D. Thomson, M.D.	
J.W. Stewart	Haematological research
Professor Sir Samuel Bedson, M.D., D.Sc., F.R.S.	Virus research in relation to tumours

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., D.Sc., Ph.D.	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 Mossbauer 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

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.
P.E. Bodkin
D.L. Phillips
T.S. Worthy, Ph.D.

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

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, W. Moffatt — An experimental investigation of functional facial palsy following parotidectomy
L.P. Le Quesne, J. Candy — Post-gastrectomy syndrome
M. Hobsley — The effects of operation on respiratory function
C. Howe — An experimental investigation of Mikulicz's disease
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
V. Marshall — Blood transfusion reactions

13. Surgery, Thoracic and Cardiac

T. Holmes Sellors, D.M. — Surgery of the heart
J. Belcher, D. Longmore — Perfusion techniques in cancer chemotherapy

50 London University
Postgraduate Medical School of London

1. Anaesthetics

H. Woodfield-Davies (Head of Department)	
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
J.F. Nunn, Ph.D.	Measurement of oxygen tension of blood by polarography
	Study of effects of resistance to breathing during anaesthesia
	Investigation of effects of graded concentrations of carbon dioxide in the anaesthetized dog

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

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 anti-rheumatic 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 of pharmacological effects of hypotensive drugs
	Studies on heart failure
C. Pallis, D.M.	Spinal cord circulation
	Treatment of epilepsy
	Clinical physiology of involuntary movements
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
	Praecordial pulsations in relation to haemodynamic problems
O.M. Wrong	Studies in electrolyte metabolism and renal function
A. Hollman, M.D.	Left heart catheterization and angiocardiography
	Electrocardiographic studies of congenital heart disease
	Prognostic studies of surgically treated cardiac patients
E.J.M. Campbell, M.D.	Mechanism of dyspnoea
	Control of breathing in disease
	Limitations of exercise tolerance in cardiorespiratory disease

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
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:

Professor E.J. King, Ph.D., D.Sc.	Experimental silicosis and pneumoconiosis
	Phosphatase; diagnostic enzymology; biochemical methods of analysis
I.D.P. Wootton, Ph.D.	Bile acid metabolism
	Metabolic disturbances in renal failure
	Automatic methods of chemical analysis
	Clinical chemistry
	Haemoglobin standardization
C.E. Dalgliesh, Ph.D.	Isotopic and nutritional studies of amino-acid metabolism and protein biosynthesis
	Excretory patterns as an index of biochemical status
G. Popjak, M.D.,F.R.S.	Enzymic mechanisms of cholesterol and fatty acid biosynthesis
	Tumour metabolism

*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*)

I. MacIntyre, Ph.D.	Measurement of total body composition
	Isotopic and flame photometric studies of magnesium metabolism
	Studies on mechanism of action of aldosterone
R.M. Haslam (Miss)	Metabolic balance during diuretic therapy
	Clinical chemistry
R.W. Dutton, Ph.D.	Biochemical studies of antibody formation
D.W. Moss	Characterization of phosphatase iso-enzymes
	Spectrofluorimetric methods of estimating enzyme activity
R.A. Dale	Correlation of enzyme activity and substrate concentration in tissues
	Enzyme activities in tumours

8. Physics

Medical:

E.H. Belcher, Ph.D.	Clinical applications of radioisotopes
	Liquid scintillation 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

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
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 I. Aird and others	The nature of the relationship between the ABO blood groups and cancer
	Experimental cancer of the stomach
	Surgical problems in obstructive jaundice
	Experimental hypertrophy of kidney
J. Calnan	Repair of experimental cleft palate
	Genetics of cleft palate
W.P. Cleland H.H. Bentall	Clinical application of the Melrose extra-corporeal heart/lung machine
M. Bishop (Miss) E. Lloyd-Jones (Mrs.)	Problems in intracardiac surgery
M. Bishop (Miss)	Clinico-pathological study of congenital heart disease
W.J. Dempster	Tissue and organ transplantation
W.J. Dempster R. Shackman	Kidney homografts in man
R.H. Franklin	Clinical research in oesophageal surgery
G.C. Knight	Spinal fixation by buried artificial prostheses
P. Martin	The physiology and diseases of the peripheral vessels
	Arterial homotransplantation
	Arterial prostheses

10. Surgery (*continued*)

D.G. Melrose	Perfusion methods for patients and organs
R. Shackman	The behaviour of the circulation under anaesthesia and at operation Ureteric transplants Electrolyte metabolism in surgical and urological patients Radioactive methods of measurement of cardiac output The artificial kidney in clinical application
N. Struthers	Physiology of the ureter Artificial ureter
S. Taylor	Studies of goitre and thyroid function with the use of radioactive iodine
J.I. Burn R.A. Sellwood	An investigation into the exfoliating properties of the cancer cell and the importance of the circulating cancer cell

51 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 kinetics
J.L. Scheuer (Mrs.), Ph.D.	Comparative innervation of the jaws and temporo-mandibular joint

2. Dental Studies

Children:

P.M.C. James	The frequency and nature of carbohydrate consumption and its relationship to dental caries experience A study of dental caries, gingivitis, calculus, oral hygiene, hypoplasia, mottling and stains on the teeth in high and low fluoride areas in England A serial study of the relationship between bone age, tooth development, and chronological age in orphanage children (Harpenden Growth Study)
G.B. Winter	Abscess formation in deciduous molar teeth

Conservative:

H.M. Pickard	Histological study of dentine Bonding of amalgam fillings
I. Curson	Effectiveness of antiseptics on the oral mucosa Staphylococcal infection of root canals Permeability of root dentine to penicillin
G.F. Kantorowicz	Investigation of the ingredients of mummifying pastes Enamel hypoplasia in dogs suffering from distemper
E.E.J. Kirk	Effects and fate of endodontic materials in the tissues

Prosthetics:

Professor A.O. Chick, Ph.D.	Relation between mandibular movements and the shape of teeth Permeability of enamel

3. Orthodontics

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

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

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

52 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

1. Anaesthetics (*continued*)

R.A. Green	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
with J.R. Napier	Factors affecting functional recovery after peripheral nerve injury in man
Emeritus-Professor M.F.L. Keene, D.Sc.	A study of nerve endings in human laryngeal and palatal muscle
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*
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
R.A.F. Bullerwell, Ph.D.	Polarographic analyses
F. Kurzer, Ph.D., D.Sc.	Chemistry of urea and thiadiazoles
B.E. Ryman (Miss), Ph.D.	Quantitative studies of oestrogenic substances in relation to behaviour in the cat
H. Baum, Ph.D.	Metabolism of catechol amines

4. Biology

A.M. Hughes (Mrs.), Ph.D.	Systematics and life histories of Acari with special reference to those associated with stored foods

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	Investigation on erythrasma, including culture of the recently isolated organism which has been shown to be responsible for the disease; study of the incidence of the condition in its various forms, particularly as it affects the groins and toe webs

7. Haematology

W.J.D. Fleming (jointly with Medical Unit)	Investigation of the anaemia of liver disease, with particular reference to the nature of the haemolytic element present
	Work on red cell metabolism and its disorders, particularly enzymic deficiencies
	Studies on the estimation of vitamin B_{12} in the bound and free forms in serum using radioactive cobalt

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 K.M. Barber (Miss)	Splanchnic circulation in liver disease
M.P. Wilkinson (Mrs.)	Albumin metabolism in disease
B.H. Billing (Miss), Ph.D.	Bile pigment metabolism
A.M. Dawson, M.D.	Mechanism of fat absorption from the intestine
H.K. Ibbertson	Evaluation of thyroid function
C.S. Pitcher	Erythrocyte metabolism
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	Lipid metabolism
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
	Application of fluorescent antibody techniques to the collagen diseases

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

9. Obstetrics and Gynaecology *(continued)*

L. Epsztejn (Miss)	Investigation into the possible relationship between length of gestation and nutritional and metabolic factors
P.R. Norris L. Epsztejn (Miss)	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

Fertility Studies:

M. Moore White (Miss), M.D.	Investigation into the effects of hydrotubation: The value of oral prednisone therapy: effects of the administration of whole gland ovarian products, i.e. ovaid, on infertile women
with P. Wade (Miss)	Treatment of a series of infertile women with failure of ovulation by pituitary irradiation

10. Paediatrics and Child Health

U. Shelley (Miss), M.D.	Long-term follow-up: 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
	Steroid-hormone activation of enzymes
	Serum myokinase and iso-enzymes of isocitric 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
	Virulence of *Staphylococcus pyogenes*
	Study of the haemagglutination test for viral hepatitis
	Attempts to infect tissue culture with *Treponema pallidum*
G.B.D. Scott, M.D.	Changes in the nervous system in liver disease
	Investigation of the coagulation mechanism and thrombotic disease
I.P. Beswick (Miss), M.D.	Studies on diabetic glomerulosclerosis
	Pathogenesis of diverticulosis of the colon

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 investigation of the determination of the position and strength of γ-ray sources situated in scattering medium
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
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 on the 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	Comparative anatomical studies and animal experimental work on reflux oesophagitis and hiatus hernia
	Work on the immediate effect of blood transfusion on blood volume
H.E. Hobbs	Ocular effects of chloroquine administered therapeutically
	Ocular effects of diabetes mellitus and their relation to cataract extraction
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 in 100 consecutive personal cases of indirect inguinal hernia
	Results of operation and 10-year follow up in a series of 100 personal cases of radical mastectomy for carcinoma of the breast

53 London University
St. Bartholomew's Hospital Medical College

1. Anaesthetics

F.T. Evans	
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	Investigation into the clinical value of positive-negative
I. Jackson	phase-controlled respiration during neurosurgical procedures
T.B. Boulton	Intra-ocular tension in general anaesthesia for ophthalmic surgery

2. Anatomy

Professor A.J.E. Cave, M.D., D.Sc.	Mammalian skin and glands
	Osteology of extant Rhinocerotidae
	Pneumatic osteolysis in mammalian cranium
	Renal anatomy of Cetacea
O.J. Lewis, M.D.	Morphology of crural flexor musculature
	Renal vascular arrangements
F.L.D. Steel	Investigation of long bone changes in increased gravitational fields
	Statistical methods for identification of biological material

3. Biochemistry

Professor A. Wormall, D.Sc., F.R.S.	Immunochemistry, mainly using isotopically labelled antigens and antibodies
	Cancer research: zinc and tumour tissues
	Chemotherapy: the fate of nitrogen mustards and the trypanocidal drug suramin after their injection into the animal body
	Radiobiology: the action of radiations on complement, antigens and enzymes
G.E. Francis, D.Sc.	Immunochemistry
	Chemotherapy

3. Biochemistry (*continued*)

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

4. Cardiology

G. Hayward, M.D. (Head of Department)	Use of nitrous oxide and krypton in diagnosis of left to right intracardiac shunts
D. Weitzman, M.D.	A study of the heart sounds after mitral valvotomy Relationship between ischaemic heart disease and hiatus hernia Follow-up of electrocardiograms and serum lipids in symptomless middle-aged men
M. Honey	Study of angina of effort with serial exercise tests Effects of lowering blood cholesterol levels in ischaemic heart disease Aetiology of acute benign pericarditis: virus studies and long-term follow-up Study of electrocardiogram in polymyositis Study of effects of tachycardia on the electrocardiogram
G.H. Apthorp with M. Henderson (Miss)	Method of measuring carbon monoxide in blood
J.C. Hoyle, M.D. H.C. Smellie (King's College Hospital)	Effect of corticosteroids on pulmonary function in sarcoidosis Effect of bilateral upper thoracic ganglionectomy in angina of effort
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 Respiratory function in mitral stenosis before and after mitral valvotomy Study of pulmonary capillary blood volume in left to right cardiac shunts

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 are continually being pursued on clinical matters ranging from lupus erythematosus to alopecia areata. 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
A.W. Spence, M.D. C.W.H. Havard, D.M.	The use of 2-methyl-1: 2-bis (3-pyridyl)-1-propanone as a test of pituitary function in man
C.W.H. Havard, D.M.	Effects of hyperthyroidism on muscular structure and function

7. Medicine (*continued*)

N.C. Oswald, M.D.	Investigation upon the benefits of short-term in-patient treatment of patients with chronic bronchitis during remissions
	Survey of viral antibodies in the serum of bronchitis during the winter of 1961-62
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, St. Bartholomew's Hospital 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.	The transport of amino-acids by the renal tubules
W.R. Cattell	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.	Neuralgic amyotrophy: a follow-up study
J.W. Aldren Turner, D.M. F. Lees, M.D.	Congenital myopathy: a follow-up study
	Cervical spondylosis: a follow-up study
J.R. Almeyda F. Lees, M.D.	Neurological complications in Ulrich'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
J. Andrew	Osteomata of the paranasal sinuses
	Tracheostomy in the management of the unconscious patient
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	The analysis of the results of treatment in 100 cases of carcinoma of the body of the uterus, 1948–52
J. Howkins, M.D.	The continued study of the surgical treatment of carcinoma of the cervix by synchronous combined abdomino-vaginal hysterocolpectomy
with D.K. Williams	A review of 1000 consecutive total abdominal hysterectomies by one operator
B. Measday	The incidence of gynaecological pathology in a well women's clinic
	The evaluation of Shirodkar's operation in the treatment of cervical incontinence
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
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

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
	Pigmented tumours arising in corneal epithelium
J.H. Dobree	A survey of the factors involved in the failure of fistula-forming operations for glaucoma
	The influence of hypotensive drugs on the retinal vessels
	Significance of colloid bodies in the fundus
	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

12. Orthopaedics

H.J. Burrows, M.D.	Cervical root pain
W.D. Coltart	Effects of calcaneal fracture
J.N. Aston	Prognosis in pes cavus
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. S. Mason, M.D.	On gastric digestion of the newborn
C.F. Harris, M.D. P.A. Manfield (Miss)	A study of placental weights and their relation to birth weights and subsequent development
C.F. Harris, M.D. S. Mason, M.D.	On the relationship between the Koratkow and the Flush methods of blood pressure recording in infants

15. Pathology

Professor J.W.S. Blacklock, M.D.	Lung cancer and its experimental production Mechanism of spread of tuberculosis in the body Effect of products of combustion on bacterial growth
Professor R.A. Shooter, M.D.	Spread of infection in hospital wards and out-patient departments
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
P.C. Jones	Urinary excretion of 3-methoxy-4-hydroxymandelic acid in health and disease
H. Lehmann, M.D. Sc.D.	Pseudocholinesterase Abnormal haemoglobins
A.M. Robinson (Mrs.) D.Sc.	Urinary ketosteroids in adrenal tumours Estimation and isolation of urinary steroid alcohols
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.
T.E. Banks, Ph.D.
E. Rollinson, Ph.D.
S. Lovell, Ph.D.
P.J. Lindop, Ph.D.
G.S. Innes
A.E. Bradshaw

Radiation research: effects of ionizing radiations on matter, particularly on living tissue
The use of a pulse-neutron source for the study of radiation effects in materials
Yield of secondary electrons from thin foils in a high-energy electron beam
Determination of lifetime of radicals produced by ionizing radiation
Detection of early radiation changes in proteins by means of electron spin resonance
Action of radiation on urease and other enzymes, complement and trypanosomes
Dose-rate effects in irradiated enzymes
Oxygen effect in the inactivation of enzymes
Effects of radiation on nucleic acids
Electron microscope studies of radiation effects in cells
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
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
Medical physics: clinical uses of radiations and radioactive isotopes
Monitoring and dosimetry of high energy X-ray and electron beams
Application of anoxia to radiotherapy
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
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
Study of pollution of the atmosphere with radioactivity

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. Ullman (Miss), Ph.D.	Renal function with special reference to water and electrolyte metabolism

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.	Glomus jugulare tumours of the temporal bone
	Radiology and the hormonal aspects of breast cancer
	Radiology in the diagnosis of retroperitoneal tumours
	Radiological changes in malignant gastric ulcer
	Complications of gastrectomy and partial gastrectomy
	Radiological features and differential diagnosis in Crohn's disease and ulcerative colitis
G. Simon	Principles of chest X-ray diagnosis
	Radiological changes in chronic bronchitis with emphysema
	Radiological appearances in recent trends in chronic bronchitis
	The peripheral pattern in the normal bronchogram and its relation to peripheral pulmonary anatomy
	Radiographic changes in alkaptonuric arthritis
	Pneumonia in hospital practice (radiology)
D.H. Trapnell with R.J.R. Cureton	The radiological diagnosis of laryngoceles
	Post-mortem radiography and gaseous fixation of the lung
G. Du Boulay	The radiological evidence of raised intracranial pressure in children
	Portal and splenic venography
	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

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.	Studies of ionization in heterogenous media at these ranges of MeV
R.J.M. Whittle	
G. 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
M.A. Birnstingl	Clinical and experimental study of pancreatography and the effect of pancreatic duct obstruction
	Study of experimentally produced hypertrophic pulmonary osteoarthropathy
	An investigation of digital artery disease
A.J. Edwards	Clinical and experimental study of fibrinolysin activity
	Experimental study of clot lysis
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
J.D. Griffiths with 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
	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
	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
P. Knipe L.J. Chalstrey	Extrahepatic portal obstruction: a clinical and radiological study, and assessment of the results of treatment
G. Gencsi, M.D.	Tertiary syphilitic hepatitis and its relationship to portal hypertension
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
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.	Partial resistance of gonococci to penicillin and streptomycin. Investigation of metronidazole (Flagyl) a new trichomonicidal drug continues

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

54 London University
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. Leatham	Application of coronary cine-angiography to human subjects
T. Pilkington A. 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. 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 cine-angiocardiography to heart sounds and pressure pulses
K. Jefferson	Left ventricular cine-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.	The syndromes caused by disturbance of blood flow in the basilar artery
J.H. Paterson, M.D.	The symptomatology of various cerebrovascular disorders including intracranial angiomas
F. Clifford Rose	Pathology of intramuscular nerve endings, using *in vivo* methylene blue
	The E.E.G. 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 *v.* 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 ultra-sound
	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. Paediatric and Child Health (*continued*)

C. Pinckney	Lung function studies in asthma
U. James (Miss)	Coxsackie virus infections in children
C.W. Kesson, M.D.	Actiology 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	Cine-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
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
C.B. Cameron	The steroids in their relation to aberrant cellular metabolism
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
	Protein conjugation studies
	The metal binding β-globulins
P. Callaghan	Tertiary structure of aberrant proteins
A. Carter (Mrs.)	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
T. Rees. Ph.D.	Comparative immunology at the amphibia-to-reptile step
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
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

8. Psychiatry

Professor D. Curran	Psychological aspects of Parkinsonism
P. Hays	
P. Richmond	Comparative trial of anti-depressive medications
A. Roberts	

9. Surgery

A.H.M. Siddons	Results of major surgical operations for pulmonary tuberculosis
	Association between thoracic disease and cerebral abscess
	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, M.D.	Blood flow in vascular disease and after therapy. Post-sympathectomy physiological investigations

55 London University
St. Mary's Hospital Medical School

1. Anatomy

Professor F. Goldby, M.D.	Analysis of fibre tracts, etc. in the reptilian spinal cord
A. d'A. Bellairs, D.Sc.	Morphogenesis of skeletal tissue in vertebrate embryos Placentation in reptiles
A.S. Breathnach, M.D.	Investigation of human cutaneous pigmentation
A.G.H. Menzies, M.D.	The cytology of the gastric mucosa
H.J. Gamble	Degeneration and regeneration in peripheral nerves

2. Biochemistry

Professor R.T. Williams, D.Sc., Ph.D.	The metabolism of drugs and toxic substances
J.N. Smith, Ph.D., D.Sc.	Comparative detoxication
D.V. Parke, Ph.D.	Applications of spectrofluorescence
D. Robinson, Ph.D.	
R.L. Smith, Ph.D.	

3. Biology

C.L. Foster, Ph.D. (Head of Department)	Histochemistry of pars intermedia of rabbit pituitary
A. Fisk, Ph.D.	Effect of $CaCl_2$ on development of fowl
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. Mollinson, 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

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
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

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

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.	The long-term effects of a short period of potassium deficiency
E. Neumark, M.D.	Aplastic anaemias and erythraemic myelosis
	Bone marrow pathology
	Cytology

9. Pathology (*continued*)

J. Guthrie	Testicular teratomas Experimental induction of testicular teratomas in birds Effects of sub-lethal anaphylactic shock on parenchymatous organs in mammals
E.C. Foot	Aspects of eosinophil function
A. Jacobs	Effects of iron deficiency and megaloblastic anaemia on tissues Factors in the aetiology of post-cricoid carcinoma

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 new analgesic drugs and other analgesic problems
with K.R. Butterwoth, Ph.D.	
M. Weinstock (Miss), Ph.D.	
C.M. Saunders (Miss)	Investigation of some clinical analgesic problems, including the control of withdrawal symptoms in addiction
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. de 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
J.A. Sirs, Ph.D.	Permeability of natural membranes to gases, with particular reference to the erythrocyte
H.W. Thomas, Ph.D.	The rheology of blood

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
D.A. Nixon, Ph.D.	Foetal inositol metabolism and renal function
H.G. Britton, Ph.D.	Carbohydrate metabolism of placenta and foetal liver
M.L. Jones (Mrs.)	Pancreatic vasculature and metabolism
D.P. Alexander (Miss)	Foetal renal efficiency and excretion

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
R.Y. Calne	Studies in the prevention of the rejection of renal homografts by drug therapy

56 London University
St. Thomas's Hospital Medical School

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 joint 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) P.S.B. Digby	The relationship between the output of carbon dioxide and sexual maturation in insects 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 coccal infection
R.F. Williams	Studies of the sensitivity of staphylococci to antibodies
J.C. Willan	*In vitro* resistance of staphylococci of different phage types
E.H. Letchner (Miss)	Studies on *Listerella* and anaerobic cocci
E. Raik (Miss)	Epidemiological staphylococcal infection and studies on antiseptics

6. Pathology

Professor R.C. Curran M.D.	Histochemistry of mucopolysaccharides Experimental silicosis Electron microscopical 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
J.A.M. Ager, M.D.	Study of haemoglobins

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, Ph.D.	Actions of reserpine and α-methyl dihydroxyphenylalanine

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.	
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

57 London University, University College Hospital Medical School

1. Clinical Research

M.R.C. LABORATORY

E.E. Pochin, C.B.E., M.D. (Director) E. Shalom T. Shimaoka, M.D. B. Thompson	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
C.F. Barnaby, Ph.D.	Properties of plastic phosphors for use as scintillation counters
E.N. Rowlands, M.D. D.A.W. Edwards, M.D. A. Johnson (Miss), M.D.	Gastrointestinal function in man, in health and disease

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
W.R. Trotter, D.M.	Thyroid diseases and auto-immune antibodies
D.R. Laurence, M.D.	Pharmacology of involuntary movement. Treatment of tetanus
E.J. Ross, Ph.D., M.D.	Aetiology of hypertension. Significance of aldosterone secretion in man
T.A.J. Prankerd, M.D.	Red cell abnormalities in haemolytic anaemia. Dynamics of red cell production and destruction
C.J. Dickinson, D.M.	Cerebral ischaemia; blood flow studies; 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, M.D. 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 deficiences

P. Hughesdon

Tumours of the ovaries
Chronic endometritis

6. Pathology (*continued*)

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
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	Hypothermia in animals
	Metabolism in human liver
	Blood flow in peripheral vascular disease
	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
	Ultra-sound 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
	Assessment of methods of artificial respiration

58 London University, Westminster Medical School

1. Microbiology

Bacteriology:

B.W. Lacey, M.D.	Antigenic constitution of *Bordetella pertussis* and related organisms
	Influence of environment on antigenic structure

2. Pathology

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

2. Pathology (*continued*)

Clinical:

Professor R.J.V. Pulvertaft, O.B.E., M.D.	The culture of malignant cells and of bone marrow The study of the effect of viruses on cells The use of tissue culture in the study of auto-immune diseases
A.D. Morgan, M.D.	The relation of coronary occlusion to atheroma of other arteries
I.M.P. Dawson, M.D.	Exfoliative cytology of malignant disease Distribution of enzymes and hormones in adrenal glands and effects of administered hormones A pathological and clinical study of ulcerative colitis A pathological and clinical study of lymphosarcoma of the bowel
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. The culture of bone marrow, with special reference to malignant diseases and leukaemia Study of bone marrow transplantation in the human
D.H. Mackenzie, M.D.	Review of fibroblastic tumours at Westminster Hospital Investigation of frozen section methods Comparison of lymph nodes in reactionary hyperplasia and follicular lymphoma
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
W.M. Edgar, M.D.	Exfoliative cytology in gynaecology Immunological investigation of ulcerative colitis
T.G. Jones	Study of serum vitamin B_{12} levels in various blood diseases

3. 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 the effect of X-rays upon it The effect of X-irradiation upon the uptake of P^{32} by the mouse tibia and knee joint and methods of modifying effect 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; calcium metabolism in bone tumours; 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

3. Physics (*continued*)

Medical (*continued*)

C.W. Wilson, Ph.D.	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

59 Manchester University

1. Anaesthetics

H.J. Brennan, M.D. (Director)	Development of automatic blood pressure recorder
	The inefficiency of controlled respiration
	Investigation of vagal apnoea
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
	Studies of respiratory minute volume under anaesthesia
W.K. Jones	Development of mechanical respirators
	Methods of hypothermia
	The place of fluothane in dental anaesthesia
M.W. Johnstone, M.D.	Mobile anaesthesia for major and minor surgery

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 neurons of the brain stem nuclei
	Studies of developmental anomalies
A.D. Dixon, Ph.D.	Innervation and development of oral structures
	Sex chromatin
	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

2. Anatomy (*continued*)

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 (Summer 1960)
C.E.P. Rosser	Excavations on the Roman fort of Castleshaw, Yorks.
THE MUSEUM	
T. Burton-Brown	Full report on excavations in the Shahriyar district of Persia 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 amplifiers
V.C. Reddish, Ph.D.	The galactic and extra-galactic radio emission, including measurements of the size of radio stars
C.H. Slater, Ph.D.	Investigations of the hydrogen line emission from the interstellar gas
J.G. Davies, Ph.D.	Radio echo investigation of meteors
H.P. Palmer, D.Phil.	Delineation of orbits and studies of the physical processes in the upper atmosphere
R.D. Davies, Ph.D.	Measurement of upper atmosphere winds by the observation of radio echoes from meteor trails
R.C. Jennison, Ph.D.	Radio echo studies of the aurora borealis
M.I. Large, Ph.D.	Radio echo studies of the moon and planets
R.G. Conway, Ph.D.	Satellite and space probe tracking

5. Audiology and Deaf Education

Professor Sir Alexander Ewing, Ph.D.	Ascertainment of deafness in early infancy and childhood
	Mental growth of children with impaired hearing
	Linguistic development of deaf children
	The beginnings of spoken language in deaf children
	Emotional and social development of deaf children
	Provision of secondary modern curriculum for senior deaf pupils
	Cerebral-palsied children with impaired hearing
	Integration of deaf children into hearing society
with K. Harrison, M.D.	A survey of children with impaired hearing in an English county
T.J. Watson, M.C., Ph.D.	Aetiology of deafness and its relation to speech discrimination

5. Audiology and Deaf Education (*continued*):

H.L. Owrid, Ph.D.	Intelligibility of speech in relation to types of hearing aid
D.C. Wollman	equipment and conditions under which they are used
	Diagnostic tests of reading ability for deaf children
	Use of hearing aids out of school by pupils with impaired hearing
Professor Sir Alexander Ewing, Ph.D.	Acoustic conditions in classrooms and schools for deaf and partially deâf children
with J.E.J. John	Design and performance of hearing aids
	An analysis of the speech of pupils in schools for the deaf
I.G. Taylor	Diagnosis of response to auditory impulses in multi-handicapped children
	Investigation of nervous systems of deaf children

6. Biochemistry

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

*W.M. Dale, M.D., D.Sc.	Experiments on the radiation sensitivity of bacteria as
J.V. Davies, Ph.D.	affected by variations in species and milieu, with
C. Russell, Ph.D.	especial reference to oxygen and nitric oxide
	Investigations on some of the factors which affect the accuracy and response of the ferrous sulphate dosimeter

7. Botany

Professor C.W. Wardlaw	Studies in morphogenesis by experimental methods
M.G. Calder, Ph.D.	Palaeobotany: fossil conifers
L.G.G. Warne, Ph.D.	Horticulture
K.J. Dormer, Ph.D.	Histology of the floret in Compositae
E.W. Simon, Ph.D.	Plant respiration and fermentation
	Structure and activity of mitochondria
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.	Shoot morphogenesis
	Endogenous rhythms
D.L. Smith, Ph.D.	Palaeobotany
	Morphogenesis
B. Truelove, Ph.D.	Respiration of plant tissues with special reference to organic acid metabolism

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

THE MUSEUM

J.W. Franks, Ph.D.	The flora of Andorra
	Pollen analysis of Quaternary and Tertiary sediments

*M.R.C. staff

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 F. Fairbrother, D.Sc. A. Thompson, Ph.D.	The chemistry of niobium and tantalum; the ageing of some inorganic hydrous oxides; co-ordination compounds of polyvalent metal halides
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

Physical:

Professor G. Gee, C.B.E., F.R.S. G. Allen, Ph.D. R.O. Colclough, Ph.D.	Studies in polymer science, including (i) thermodynamic properties of polymer solutions (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
H.A. Skinner, D.Phil.	Thermochemical studies on organo-metallic compounds 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

10. Dental Studies

Professor H. G. Radden	Implantation of various substances in bone
B.V. Janes	
E.H. Seeley	
J.R. Grundy	Inhalation hazards to the dental surgeon
S.D. Hatt	Dental problems in hill farm sheep
(with Rowett Research Institute)	Development of cementum and periodontal membrane
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
M. Hindle	Fibres of the periodontal membrane
G. Colman	Use of the oil sterilizer in work of testing of antiseptics used in oral surgery
E.P. Turner	Development and formation of cusps of human molar teeth

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
	A clinical evaluation of caries susceptibility tests
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 in the physical and mechanical properties of dental materials with special reference to dental polymers
W. Johnson	Investigation of stress distribution in full dentures
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.	The relation of properties to the incorporation of quantities of indium metal in dental materials
E.M. Bevan	Physical properties of impression compounds
H.J. Wilson, Ph.D.	An investigation into the physical properties of alginate materials

11. Engineering

Civil:

Professor M.R. Horne, Sc.D.	Plastic theory of structures; stability in elastic-plastic range; effect of strain-hardening; effect of low cycle fatigue
J.K. Alderman, Ph.D.	Settlement of foundations on glacial clays
	Geotechnical properties of glacial deposits

11. Engineering (*continued*)

Civil:

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
A.M. Neville, Ph.D.	Creep of concrete Shear failure of reinforced concrete and continuous prestressed beams
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

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	
E.M. Dunstan	
D.C. Jeffreys	
J.A. Turner	
R.A. Brooker	Application of electronic digital computers
C.M. Popplewell (Miss)	
R.B. Payne, Ph.D.	
D. Morris, Ph.D.	
D.J. Evans, Ph.D.	
R. Cooper, Ph.D.	Dielectric breakdown
T.E. Broadbent, Ph.D.	
E.R. Laithwaite, Ph.D.	Development of induction motors and linear synchronous machines
D. Tipping	
J.F. Eastham	
G.F. Nix	
C.N.W. Litting, Ph.D.	Electroluminescence
M.J. Somerville, Ph.D.	Non-linear servomechanisms and sampled-data systems
D. Atherton	
G.F. Turnbull	

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

11. Engineering (*continued*)

Mechanical: (*continued*)

P.G. Morgan	Air flow through screens
	Change of velocity profile of air flowing in ducts
	Flow in non-circular section ducts
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	Heat transfer and fluid mechanics problems in nuclear reactors
P.H. Price, Ph.D.	
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
	Measurement of the effect of boiling phenomena on reactor physics using a water moderated sub-critical assembly

12. Genetics

Cytogenetics:

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

S. Muldal	Effects of irradiation on spermatocytes
A.J. Bateman, D.Sc.	Studies in germ cells labelled with tritiated thymidine
C. Ockey	Early genetic lethals in mouse and man
J. Muskett (Mrs.)	Smear cytology
	Spontaneous aberration spectrum of human chromosomes: numerical and structural
	Use of chromosome deletions for localizing genes
	Partial trisomy
	Abnormalities in the sex chromosome constitution in man
	Leukaemia

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

G.D. Nicholls, Ph.D.	Geochemistry of sediments
I.M. Simpson, Ph.D.	Carboniferous stratigraphy and palaeoecology
F.M. Broadhurst, Ph.D.	Coal Measure Mollusca
J. Zussman, Ph.D.	Crystal structure of amphiboles and antigorite
R.A. Howie, Ph.D.	Geochemistry of charnockites and aplites; mineralogy
W.S. Mackenzie, Ph.D.	Experimental petrology, phase equilibria in the $KAlSiO_4$—$NaAlSiO_4$—SiO_2—H_2O system
R. Nicholson, Ph.D.	Structural geology of metamorphic rocks
J.F. Dewey, Ph.D.	Structural geology and sedimentation
THE MUSEUM	
D.E. Owen, Ph.D.	Systematic study of Silurian Bryozoa
R.M.C. Eagar, Ph.D.	Palaeoecological and stratigraphical work on the non-marine Lamellibranchia (Anthracosiidae and Myalinidae) of the British Pennine coalfields; studies in the palaeoecology of genera of these families in relation to other Carboniferous faunas
	Stratigraphical and systematic work on the marine and non-marine faunas of the Irish coalfields (mainly those in Leinster, Tipperary and Cork) and the correlation of British and Irish Coal Measures
J.W. Franks, Ph.D.	Pollen analysis of British Pleistocene and Tertiary deposits

15. Haematology

J.F. Wilkinson, Ph.D., M.D. (Director) M.C.G. Israels, M.D.	Research investigations are being carried out in general on haematological and endocrinological subjects, in particular on macrocytic anaemia, including pernicious anaemia, nutritional anaemias, steatorrhoea, macrocytic anaemia of pregnancy and refractory anaemias, the nature of the anti-anaemic stomach principle and the importance of folic acid, vitamin B_{12} and similar substances
	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. *In vitro* cultures of blood and bone marrow cells and determination of controlling factors, with particular reference to megaloblasts
	Porphyrin and haemoglobin formation and foetal haemoglobin: the errors of their metabolism in certain clinical conditions
	Endocrinological problems: investigations are mainly concerned with diseases of the pituitary, suprarenal glands, growth hormone and studies on obesity
	The morphology of blood cells

16. Mathematics

Applied:	
Professor F. Ursell	Applied mathematics
C.R. Illingworth	Fluid dynamics (all branches)
M.B. Glauert	
R.F. Chisnell, Ph.D.	
F.A. Goldsworthy, Ph.D.	

16. Mathematics (*continued*)

Applied (*continued*)

E.J. Watson	Fluid dynamics (all branches)
B.R. Morton, Ph.D.	
G.L. Camm, D.Phil.	Statistical dynamical astronomy
S. Levine, Ph.D.	Theory of colloids
E. Wild	Electromagnetic theory
C.B. Haselgrove, Ph.D.	Numerical analysis
D.R. Bland	Visco-elasticity
L.W. Morland	
W.D. Collins	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
N. Blackburn, Ph.D.	Group theory
P.M. Cohn, Ph.D.	
J.A. Green, Ph.D.	
W. Ledermann, Ph.D.	
M.G. Barratt, Ph.D.	Topology
R.O. Gandy. Ph.D.	Mathematical logic
D. Rutovitz, Ph.D.	Functional analysis

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
M.H. Roscoe (Miss), Ph.D.	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
K.M. Entwistle, Ph.D.	Variation of damping capacity during quench ageing in aluminium alloys Growth of solid solution single crystals both from the melt and by strain-anneal methods Investigation of magnetic and other amplitude-dependent contributions to the damping capacity of metals Decay of vacancies in quenched Al-rich alloys
G.M. Leak, Ph.D.	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	Analysis of metals and alloys Deposition of metals from vapour phase Reactions of halogens with metals

18. Metallurgy (*continued*)

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 H.B. Maitland, M.D.	Investigation of viruses
N.W. Preston, M.D.	Pertussis antigens in relation to immunity

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

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
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	The study of experimental and human granulosa cell tumours The relation between perinatal pneumonia and intra-partum infection The investigation of mesonephric tumours of female genitalia

23. Occupational Health

Professor R.E. Lane, C.B.E., M.D.	A study of antimony lung
I. Dingwall-Fordyce (Miss)	Survey studies of disease due to cotton dust
W.R. Lee	Studies of the after effects of electric shock
G. Atherley	Urinary changes in shift workers
M. Molyneux	Deafness in workers exposed to noise
	Diurnal variation in urinary lead excretion

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

D.Ll. Griffiths, M.B.E.	The evolution of foot defects
H. Thompson	The vascular pattern in bone tumours
J.R. Pearson	Pelvic injuries

26. Otolaryngology

Professor V.F. Lambert	Melanomata of the nasal passages
K. Harrison with Department of Education of the Deaf	Some causes of deafness in children
B. Brown (Miss)	Blood supply of the tympanic ossicles
D. Chadwick	Noise in industry
R.D. Stride	Investigation into non-organic deafness
	Study of external otitis
	Radiological investigation of the middle ear cleft

27. Paediatrics and Child Health

Professor W.F. Gaisford, M.D.	Studies with isoniazid-resistant and oral B.C.G.
	Neonatal immunization with single and multiple antigens
with *F.T. Perkins, Ph.D.	Attenuated poliomyelitis and measles vaccination
A.H.C. Walker	Haemolytic disease of the newborn: antenatal prediction and perinatal management
A. Holzel, M.D. with V. Schwarz	Mechanism of allergic reactions in childhood
	Lactose metabolism
	Aetiology of mucoviscidosis
G.V. Feldman with J.B. Hartley, M.D.	Radiological and clinical studies in postmaturity
G. Watson	Congenital heart disease
J.K. Steward	The Children's Tumour Registry
V. Schwarz, Ph.D. with A. Holzel, M.D. G.M. Komrower	Further studies in galactosaemia: biochemical, genetic and clinical
F. Cavanagh (Mrs.)	Deafness in childhood
M.I. Griffiths (Mrs.), M.D. with S. Guthrie (Mrs.), M.D.	Multiple puncture techniques for B.C.G. vaccination in infancy
	Cerebral palsy

*M.R.C. staff

27. Paediatrics and Child Health (*continued*)

A.N. Guthkelch, M.D.	Late results of surgical treatment of hydrocephalus and spina bifida
H.A. Haxton	Hypothermia and closure of atrial septal defects
A. Jolleys, M.D.	Sequelae of cleft palate
G.M. Komrower with W.I. Morris	Control of urinary infections in the first year of life Management of the "diabetic" baby
ProfessorW.F.Gaisford R.F. Jennison	Control of staphylococcal infections in the newborn

28. Pathology

Professor A.C.P. Campbell	Argentaffin and argyrophil cells
A.H. Gowenlock, Ph.D.	Biochemistry and chemical pathology of adrenocortical hormones
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

29. Pharmacology

Professor A. Macdonald, M.D.	Studies on analgesics and anaesthetics
T.H.B. Bedford, D.Sc.	Circulation of cerebro-spinal fluid and the effects thereon of antiseptics and antibiotics
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

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

*H. Jackson, Ph.D. A.W. Craig, Ph.D.	Actions of alkylating substances on proliferating cells
B.W. Fox, Ph.D. M. Partington (Miss), Ph.D.	Metabolic studies with isotope-labelled alkylating compounds
R.M.V. James B. Hemsworth	Diuretic effects of ethylenimines
L.G. Skinner P.J. O'Connor, Ph.D.	Correlation of protein hormone levels with clinical response: gonadotrophins; growth hormone; prolactin; effect of drugs used in hormone therapy of breast carcinoma on the pituitary hormone levels in experimental animals Isolation of a mammotrophic factor from human urine

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

*M.R.C. Staff

30. Pharmacy (*continued*)

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
	The germicidal activity of cationic germicides

31. Physics

Experimental:

Professor E.B. Paul, Ph.D.	Nuclear structure; nuclear reactions
J.O. Newton, Ph.D.	
A.J.F. Boyle, Ph.D.	Electromagnetic radiation from nuclei
D. St. P. Bunbury, Ph.D.	Nuelear spectroscopy; Coulomb excitation
J.M. Calvert, D.Phil.	
I.S. Grant, Ph.D.	
A.A. Jaffe, Ph.D.	
W.R. Philips, Ph.D.	
J.C. Lisle, Ph.D.	
F.H. Read, Ph.D.	
B. Dickinson	
L. Kay	
G. Nassibian	Linear accelerator for heavy ions
D. Broadbent	
Professor H.E. Hall Ph.D.	Low temperature physics; properties of liquid helium
E.B. Mendoza, Ph.D.	
D.J. Sandiford, Ph.D.	
H.J.J. Braddick, Ph.D.	Development and application of photoelectric spectrometers and interference filters; optical instrument design
J. Ring, Ph.D.	
J.F. James	
J.B. Birks, Ph.D.	Physics of organic molecules and crystals
N.J. Dunning	Scintillation counters and nuclear detectors; dielectrics
Professor P.R. Owen	Experimental fluid mechanics
N.H. Johannesen, Dr. Techn.	
H.K. Zienkiewicz	
J.H. Gerrard, Ph.D.	
T.H. Ellison, Ph.D.	
I.M. Hall, Ph.D.	

Medical:

CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE

C.W. Gilbert, Ph.D.	Studies with radioactive isotopes
J.P. Keene, Ph.D.	Whole-body irradiation syndromes
J. Law, Ph.D.	Radiation calorimetry
	Electron beam irradiation

M.R.C. BETATRON RESEARCH UNIT

D. Greene, Ph.D.	Studies in high-energy dosimetry
	Comparison of 4- and 20-MeV radiations: support of clinical studies

31. Physics (*continued*)

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. P. Roman, D.Phil. J. Bowcock, Ph.D. A. Herzenberg, Ph.D.	Quantum theory of fields and elementary particles; nuclear reactions and the structure of atomic nuclei; meson physics; statistical mechanics, theory of ionized gases; transport properties of metals and of liquids

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
	Experimental study of mind wandering
with P. Cooper	Experiments on credibility and subjective units of information
R.R. Skemp, Ph.D.	Eye movements
E.J. Dearnaley	Experimental study of mind wandering
F.E. MacNeill (Miss), Ph.D.	Range of sensory experience in personality development
	A new adult projective test series
C.E.M. Hansel	Visual perception and colour vision
J. Morris, Ph.D.	Executive selection techniques
	Education for family life
R.R. Skemp, Ph.D.	Reflective intelligence
	Psychological assessment of cerebral palsied children
	Psychological basis of learning mathematics
	Schematic learning
E.E. Rump	A study of blaming
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 with J.E. Leeson (Mrs.) R.J. Frankenberg, Ph.D.	Epidemiology of mental subnormality
	Selection for and working of a psychotherapeutic club
	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

36. Radiobiology

CHRISTIE HOSPITAL AND HOLT RADIUM RESEARCH INSTITUTE

†E. Paterson (Mrs.)	Whole-body irradiation of the Rhesus monkey
M.V. Haigh (Mrs.)	Bone marrow culture
D. Porteous	Plasma volume; red cell mass and survival
R. Schofield	Plasma cell hyperplasia in irradiated bone marrow
	Ante-natal X-irradiation in leukaemogenesis in the mouse
	X-irradiation damage and the surface properties of Ehrlich ascites tumour
	Transport of labelled protein from ascites tumours
	Calcium metabolism in Ehrlich ascites tumour cells

37. Radiotherapy

CHRISTIE HOSPITAL AND HOLT RADIUM RESEARCH INSTITUTE

Professor J.R.K. Paterson, C.B.E., M.C., M.D.	Clinical radiotherapy
	Series of clinical trials
	Development of isotope therapy (including therapy for hyper-thyroidism)
J.L. Dobbie	
E.C. Easson, M.D.	Megavoltage studies
H.C. Warrington	Development of techniques for malignant disease in children
R. Gibb	
M. Cole (Miss), M.D.	Chemotherapy of the reticuloses and malignant disease
R.C.S. Pointon	Hormone therapy and endocrine procedures for breast cancer
E. Sherrah-Davies	
K.E. Halnan, M.D.	
J.G. Stewart	

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
G.C. Wood, Ph.D.	Chemical and mechanical properties of collagen and other fibrous proteins

*Supported by the Nuffield Provincial Hospitals Trust
†M.R.C. staff

38. Rheumatism Research (*continued*)

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	
T. Lewis	
J.N. Darroch, Ph.D.	
M.B. Priestley, Ph.D.	
V.D. Barnett	

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
K. Bloor, M.D.	Relationship between occupation and arteriosclerosis Smoking in vascular disease Auto-immune reactions in vascular disease

41. Zoology

Professor H.G. Cannon, D.Sc., Sc.D., F.R.S.	Functional morphology of the Crustacea
Professor R. Dennell, D.Sc.	Arthropodan cuticle
J.G. Blower	Soil faunal studies; ecology and systematics of Myriapoda
E.J. Popham, Ph.D., D.Sc.	Biology of aquatic insects
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.	Morphology of Coleoptera
P.D. Gabbutt Ph.D.	Ecology of spiders and false scorpions Distribution of fleas on arctic mammals
R.R. Askew, Ph.D.	Biology and taxonomy of Chalcidoidea

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

60 Manchester College of Science and Technology

1. Biochemistry

Professor A.A. Eddy, D.Phil.	Cell structure and transport processes
K.J. Indge	Metabolism in micro-organisms
P. McIntosh (Miss)	

1. Biochemistry (*continued*)

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	Analysis of the incidence of insect and fungal attack on timber in the Mersey valley
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
S.M. Neale, D.Sc.	High-frequency dispersion of dielectric absorption in polyelectrolytes and in the double layer
A.F.H. Ward, Ph.D.	Rheology of systems containing polymers
G.J. Kakabadse, Dr.Ing.	Specificity of analytical reactions
	The chemistry of vanadium
	Persilicates
	Ferrous hydroxo complexes
	Rapid methods of organic microanalysis
R.B. Heslop	Peroxo compounds of phosphorus and sulphur
	Radiochemical studies of solubility
B.A. Pethica, Ph.D.	Contact potential and kinetic studies in ultra-high vacua in the system silver-caesium and tungsten-nitrogen
	Thermodynamics of the electrical double layer
	The heats of formation of the electrical double layer
	Surface potential studies of the specific binding of ions at charged monolayers
	Heats of wetting and adsorption of organic liquids to silica
	Infra-red properties of silica and silica-alumina
	Adsorption at the solid-liquid interface
	Surface chemistry of phosphatides and phosphates
	Surface properties of cancer cells in relation to metastasis
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

3. Chemistry (*continued*)

Inorganic and Physical (*continued*)

G.W.R. Bartindale, D.Phil.	Molecular structures by X-ray diffraction Electron microscopy
A.S. Dunn, Ph.D.	Kinetics of addition and condensation polymerization reactions Molecular weight distribution Emulsion polymerization
R.F. Simmons, Ph.D.	Kinetics of gas-phase decomposition reactions Mechanism of the extinction of flames by halogens Kinetics of combustion reactions
M.M. Crowder	Reactions of co-ordination compounds in solution
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
G.S. Heaton, Ph.D.	Kinetics and mechanism of reactions in solution
S. Smith, D.Phil.	Polymer chemistry Co-polymerization
P.J.T. Tait, Ph.D.	Kinetics of stereo-specific polymerization Co-polymerization
G.J. Leigh, Ph.D.	Non-transitional element complexes Mechanism of the reduction of titanium compounds
M.J. Newlands, Ph.D.	Silicon to metal bonds Silicon to metalloid bonds Transition element complexes Metal carbonyls
P.J. Robinson	Kinetics of gas-phase decomposition reactions

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 The chemical consequences of the association of molecules Cationic attack on alkanes
H.M.E. Steiner, Ph.D., D.Phil.	Oxidation of short-chain olefins in the liquid phase
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

3. Chemistry (*continued*)

Organic (*continued*)

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
P.C. Crofts, Ph.D.	Organic chemistry of phosphorus
	Chemistry of pyrophosphoryl chloride and related compounds
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
J.E. Davies, Ph.D.	Natural products
	Heterocyclic chemistry
R.E. Banks, Ph.D.	Fluorine chemistry
J.M. Birchall, Ph.D.	
H. Goldwhite, Ph.D.	Halogenated organic compounds
	Phosphorus compounds
R.S.W. Braithwaite, Ph.D.	Polycyclic cinnoline derivatives
	Tautomeric arylazo derivatives of cyclic ketones
D.W. Theobald, D.Phil.	Natural products
M.S. Gibson, D.Phil.	Natural products (alicyclic)
A.W. Murray	Natural products

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.	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
with A. Rushton	Heat transfer in sublimation
W.S. Norman, Ph.D.	Stability of liquid films in adsorption columns, distillation columns and on heated surfaces
	Distillation in packed columns
	Distribution studies in packed towers
	Operating characteristics of perforated plates and floating caps
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	Control of precipitated particle size
B. Gay, Ph.D.	Heat and mass transfer characteristics of gauze screens
	Local coefficients in heat exchangers
	Diffusion-controlled reactions on catalysts
	Frequency response determinations of flow distributions and physical structures
	Determination of diffusion in flow systems

4. Engineering (*continued*)

Chemical (*continued*)

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
D.G. Bagg	Polarographic studies with a rotating platinum electrode
H.J. Bray, Ph.D.	Study of the binary system Mg-Zr
with R. Rolls	Alloys in the system Al-Cd-Sn
	Scale formation on certain steels
R. Newall	Effect of Ti and Ni additions on malleable cast iron
P.E. Evans, Ph.D.	Structure-sensitive properties of some ceramic materials
	Continuous compaction of powdered materials
with G.A. Pickup	Studies of interstitial compounds prepared with a pure heat source
	Fundamental studies in sintering
K. Pearce	Graphitization of cast iron
W.J. Kitchingman, Ph.D.	X-ray studies of phase changes and order-disorder phenomena in alloys
with F.D. Bell	
R.J. Edwards	Investigation of certain binary and ternary uranium alloys
C. Handford	Etching metallic surfaces by controlled elemental attack

Electrical:

Professor E. Bradshaw, M.B.E., Ph.D.	Applications of flying-spot scanner
	Analogue computers for the solution of several mathematical and technological problems
C. Adamson	Commutation studies
N.M. Barratt	Network synthesis
N.N. Hancock	X-ray detection
E.N. Pickering, Ph.D.	High-voltage direct current studies; plant commutation; system protection and control
V.H. Attree	
J. Hindmarsh	
D.K. McCleery	Protective gear studies; semi-conductor relays; development of a generalized theory of protective relaying
B.D. Nellist	
J. Rawcliffe	Power system analysis and control problems
F.G. Heath	New forms of indicating instruments
G.R. Nicoll	Use of flexure pivots in electrical instruments
C.S. Gledhill	Two- and four-port networks as very high frequency filters
B. Horsley	Transistor devices
F. Walker	Chain codes
J.M. Nightingale, Ph.D.	Microwave discharges
E. Kuffel, Ph.D.	Microwave plasma studies
M.G. Hartley	Electromechanical filters
J.B. Knowles	
R.W. Whitehead	Helical aerials
F.R. Perry	Adaptive control
W.P. Baker	Digital control systems
R. Feinberg, Dr.Ing.	A.C. modulated control systems
P.L. Taylor	Breakdown mechanisms in liquid dielectrics
P. Mathews	Radio and television interference problems from high-voltage insulators
W.J. Gibbs, D.Sc.	

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
J.H. Lamble, D.Sc.	Study of extrusion of rod and sheet
G.S. Cantle, Ph.D.	Measurement of cutting forces during milling operations under various cutting conditions
E. Johnson	

4. Engineering (*continued*)

Mechanical (*continued*)

A.P. Hatton, Ph.D. G.R. Schiffer	Investigations into the wear of turning tools and milling cutters
J. Parker, Ph.D. J.K. Royle, Ph.D.	Use of different measuring systems for machine tool positioning and control
J. Kettlewell B.J. Fielding	Rigidity characteristics of welded machine tool structures by models and full scale experiments
M. Barash, Ph.D. J. Skorecki, Ph.D.	Servo problems in the positioning and control of machine tool slides
P.L.B. Oxley, Ph.D. H.J. Baker	Residual stresses and dimensional stability of welded machine tool structures
R. Kitching M. Vasudevan	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 F.W. Travis	Stresses, deflections and support reactions for flat plates subjected to uniformly varying hydrostatic loading and to rolling loads
G.H. Farnworth	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
	Stress distribution in an extrusion container
	A study of breaking discs
	Measurement of heat transfer coefficient on smooth and rough flat plates by velocity and temperature surveys in the boundary layer
	Use of computers in solving heat transfer with laminar and turbulent flow in ducts
	Velocity temperature and eddy diffusitivity variation in a smooth annulus
	Behaviour of metals under complex stress conditions beyond the elastic limit
	Non-linear damping of a hydraulic control
	Feedback control on hydrostatic film bearings
	Stiffness improvement in high gain electrohydraulic drives
	Selective non-linear effects for improving hydraulic control systems
	Mechanical properties of spark-eroded surfaces
	Erosion properties of high power sparks
	Study of a rolling process.
	Vibration of prime movers (diesel engines)
	Vibration of machine tools
	Investigation of the effect of different rates of strain-hardening on the machining process
	On the transition from a continuous chip to a discontinuous chip, and the influence on the geometrical and physical properties of the machined surface
	The influence of starting conditions on the steady cutting state
	Restricted tool chip contact cutting experiments: (i) at low speeds using photographic techniques (ii) at high speeds

4. Engineering (*continued*)

Mechanical (*continued*)

Shear angle analysis comparison of theory with experiment
Rate of wear and change in frictional forces in simple three point sliding contacts
Admission of a cutting fluid to the chip-tool contact region
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

Municipal:

Professor J.R.D. Francis	Generation of waves by wind on the sea; development of improved dredging equipment
E.L. Morgan	Effect of certain retarding additives on some properties of soil cement
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
D.S. Chisholm	Effects of additives on the workability of high-strength concrete
J.B. White	Flow in circular sedimentation tanks Yield-storage relationships for impounding reservoirs; bellmouth spillways
P. Coackley, Ph.D.	Biochemical oxidation of alkyl benzene sulphates; influence of nitrogen compounds in trade waste treatment Sludge dewatering: variables controlling sludge drying by evaporation
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

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	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
N.W. Williamson, Ph.D. J.F. Dooley J.L. Robinson	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
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
L.R. Shenton, D.Sc.	Finite difference calculus
	Applications of statistics
G.M. Bell, Ph.D.	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
W.M. Fairbairn, Ph.D.	Theoretical nuclear physics: co-operative systems
F. Foster, Ph.D.	Harmonic analysis
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

6. Mathematics (*continued*)

R.A. James	Theoretical astronomy
A. Davis, Ph.D.	Kinetic theory
S. Barnett	Linear programming
P.A. Wallington	Statistical theory of queries
G.F. Roach	Binary systems: theoretical astronomy
B.D. Sharp (Mrs.),Ph.D.	Hydrodynamics

7. 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 image formation
A. Hargreaves, Ph.D. E. Stanley, Ph.D.	Crystal structure determination
R. Diamond, Ph.D.	Electron diffraction
I.G. Edmunds, Ph.D.	X-ray diffraction studies of metals
H. Steeple, Ph.D.	Crystal structures at low temperatures
F. Fowweather, Ph.D.	Acoustics
M.M. Woolfson, D.Sc., Ph.D.	Crystal structure determination by direct methods Origin of solar system
J.E. Geake, Ph.D.	Instrumentation, particularly spectroscopy
J. Latham, Ph.D.	Thunderstorm electrification

8. Technology

Textile Chemistry and Paper Technology:

Professor R.H. Peters	Dyeing theory studies Studies in diffusion Reaction mechanism in cross-linked polymers
H.A. Turner	The fundamental processes of textile printing, with special reference to dye transfer and discharge processes Investigations on plant operation problems
F. Lyth Hudson, Ph.D.	Rheological 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 papermaking fibres Two-sided effects in paper Zeta potentials of fibres
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
W.G. Harland, Ph.D.	Application of network theory to the cross-linking of cellulose
G.J. Howard, Ph.D.	Cross-linking of polymers Solution properties of polymers
A. Johnson, Ph.D.	Chemistry of esters of leuco vat dyes Chemistry of diazo ethers Stability of metal chelate compounds Heats of dyeing reactions Reactions of cellulose with simple compounds
R. McGregor, Ph.D.	The mechanisms involved in the diffusion of dyestuffs in textile materials
R.I.C. Michie, Ph.D.	Studies of non-woven fabrics

8. Technology (*continued*)

Textile Chemistry and Paper Technology (*continued*)

T.P. Nevell	Reactions of cellulose
L.C. Spark, Ph.D.	Heats of dyeing reactions Colorimetric studies on dyeing and printing systems
L.A. Kirk	Hot surface drying rates Heat and mass transfer in fluidized beds
J.H. Young	Constituents of natural cellulosic fibrous raw materials and their reactions during the isolation of cellulose by industrial pulping processes 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

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

61 North Staffordshire University College *

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

* Became Keele University on 8th February, 1962

3. Communication

Professor D.M. MacKay, Ph.D.	Informational organization of the visual system 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 Devonshire
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.	British Palaeozoic fenestrate Bryoza
C.S. Exley, D.Phil.	Petrology and geochemistry of the Bodmin Moor Granite and its 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
J.L.M. Lambert	Structure and petrology of the Gramscatho Beds, Cornwall Structure of the Meneage Crush-Zone
T.P. Burnaby, Ph.D.	Multivariate distance functions: palaeontological applications with special reference to Coal Measure lamellibranchs
J.E. Thomas	Petrology and petrochemistry of the Tan-y-Grisiau Intrusion, N. Wales Investigation of rapid methods of chemical analysis of silicate and carbonate rocks Geochemical investigation of Lower Palaeozoic rocks of N. Wales and the biogeochemistry of associated plant groups Chemical studies of living freshwater molluscs Chemistry of natural waters in N. Wales Petrochemical investigations using rapid wet and spectrographic techniques
R.G. Park	Structural, petrological and geochemical investigations in the Lewisian rocks of Gairloch, Wester Ross Petrochemical investigations using rapid wet and spectrographic techniques

6. Mathematics

Professor D.S. Jones, M.B.E., D.Sc.	Electromagnetic theory
R.C. Smith, Ph.D.	Hydrodynamics
P. Smith, Ph.D.	
C.J. Shaddock	Topology
H. Liebeck	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.C. Lainé, Ph.D.	Electron resonance and maser studies at infra-red frequencies
D.E. Davies, Ph.D.	Surface effects both in the low pressure d.c. discharge in
G.A. Dawson	gases and in plasmas
	Transient effects in gaseous electronics
D.G. Holloway, Ph.D.	Physical properties of glass with special reference to the
D.M. Schlapp, Ph.D.	state of the surface
J.N. Hodgson, Ph.D.	The infra-red reflecting properties of metals
N.A. Surplice, Ph.D.	Electron and ion emission from solids

8. Psychology

A.H. Iliffe (Head of Department)	Predictive value of psychological tests for undergraduate performance
P. Halmos, Ph.D.	Analysis of ideological commitments in the counselling professions

62 Nottingham University

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

1. Agriculture (*continued*)

Agricultural Botany (*continued*)

M.M. Edwards (Miss), Ph.D.	The germination of seeds of charlock, *Sinapis arvensis*. L
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	General studies of pedogenesis. Studies in the nutrition of the Leguminosae
D.V.Crawford, Ph.D.	Biological aspects of podzolization
G. Norton, Ph.D. P.E. Cansfield	Studies in the nutrition and biochemistry of the Leguminosae
I.R. Cowan	Heat and moisture movement in soils. Processes of soil erosion
D. Lewis, Ph.D.	Ruminant physiology and digestion: metabolism in the rumen with particular reference to the digestion of protein and carbohydrate materials; metabolic disorders Digestive physiology and nutrition of pigs and poultry: metabolism and nutritive requirement of arginine in poultry; digestibility of fats; pigmentation of eggs; protein and energy relationships
E.R. Ling, Ph.D.	The chemical nature of the caseinate-phosphate complex of milk

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

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 soil-inhabiting mites (Acarina) and microarthropods The biological characterization of "humus forms" with particular reference to the animal component The oribatid mites associated with fruit trees
J.Y. Ritchie	Biological problems of Aphididae with particular reference to infestation and movement
W.N. Yule	Studies of the biological properties of pyrethrum formulations for use against pests of horticultural crops

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
A. Pettet, Ph.D.	Factor analysis and taxonomy: genetics of pollen polymorphism
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

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
	Mineral silicates
	Applications of radioactive tracers
	Studies of solvent extraction processes

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 semi-conductors
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
	X-ray studies of organic and inorganic complexes and hydrogen-bonded crystals

4. Engineering

Chemical:

Professor R. Edgeworth Johnstone with S. Hartland G.C. Coggan	Studies of scale-up factors in solvent extraction

4. Engineering (*continued*)

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
P.S. Pell, Ph.D.	The fatigue strength of bitumen and bituminous mixes Thermal stresses in reinforced concrete
D. Lenczner	The distribution of pressures under flexible footings Behaviour of granular materials in silos
F. Sherratt, Ph.D. with B. Mayfield	Fracture of extruded aluminium alloys Steering of vehicles in soft ground
R.W. Sparrow, Ph.D. with C. Tory	Cyclical shear of soils Stresses in layered systems
G. Cullingford	Motion resistance of a towed wheel Geophysical methods of site investigation

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 Heat transfer in rocket nozzles
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

4. Engineering (*continued*)

Mechanical (*continued*)

E. Markland, Ph.D.	Discharge for perforated pipes Performance of diffusers Mixing of jets Performance of hydraulic control valves Response of pneumatic control elements
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
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
A. Lichtarowicz, Ph.D.	Characteristics of hydraulic systems
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
J.P. Cole	Urban geography of Latin America
P.T. Wheeler	Economic and social development of the crofting 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 mineralogy of airborne dusts and their relationship to the aetiology of pneumoconiosis 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 The phase petrology of British Tertiary tholeiites
A.M. Honeyman	The stratigraphy and palaeontology of the Carboniferous Limestone of S. Wales
R.J. Firman, Ph.D.	Structure, stratigraphy, petrology and mineralization of Borrowdale Volcanic rocks in the Lake District 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
A.J. Rowell, Ph.D.	The Bala and Valentian rocks of the Lake District between Coniston and Ambleside Inarticulate brachiopods Lower Palaeozoic rhynchonelloid brachiopods
F.M. Taylor, Ph.D.	The morphology, ontogeny and taxonomy of the Avonian rugose corals of Derbyshire Carboniferous stylolites 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 Kragerö, 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

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 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.	Environmental effects on the establishment of vegetable seedlings

8. Horticulture *(continued)*

W.M. Dullforce (Miss)	The effects of transplanting on subsequent growth and development of plants in relation to environmental factors

9. Mathematics

Professor H.R. Pitt, Ph.D., F.R.S.	Fourier analysis and random function
Professor R. Hill, Sc.D., F.R.S	Theory of elasticity and plasticity
L.E. Prior	Involutions
G. Power, M.B.E., Ph.D.	Problems of fluid mechanics and electricity
M. Jackson (Miss), Ph.D.	Bilateral generalized hyper-geometric series
E.E. Jones, Ph.D.	Potential problems of two-dimensional aerodynamics
M.E. Noble, Ph.D.	Theory of functions
A. Rose, D.Sc.	Mathematical logic
J. Copping, Ph.D.	Summability
C.W.J. Granger, Ph.D.	Statistics
R.J. Knops, Ph.D.	Elasticity
A.L. Brown	Functional analysis
G.F. Paechter, D.Phil.	Homotopy theory
M.J. Sewell, Ph.D.	Continuous column theory
M.B. Pate	Homotopy theory
Theoretical Mechanics:	
J.E. Adkins, D.Sc.	Finite elastic deformations and continuum mechanics
A.J.M. Spencer, Ph.D.	Theory of plasticity 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
H.K. Lloyd, Ph.D.	Effect of tempering on the hardness of alloy steels case-hardened by nitrogen and other gaseous media
E. Holmes, Ph.D.	Fatigue properties of pressure welds Effect of minor additions in aluminium age-hardened alloys
R.B. Waterhouse, Ph.D.	Effect of hydrogen on the transformation characteristics of steels Fretting corrosion
P.A. Brook, Ph.D.	Adhesion of electrodeposits

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, Ph.D.	Hydrodynamics of suspensions Study of coal washing processes
L.H. Morris	The lighting of mines
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.	

Pharmaceutics:

H.A. Turner, Ph.D.	The pharmaceutics of quaternary ammonium compounds
W.B. Hugo, Ph.D.	The mode of action of antibacterial agents; bacterial metabolism
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:

D.C. Crossland, Ph.D. with R.E. Gilbert, Ph.D.	Distribution, nature and functional significance of pharmacologically active substances in the central nervous system
E.M. Crimley (Mrs.)	Relationship between electrical and chemical events in the central nervous system
I.H. Stockley	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 semi-conducting materials
G.D. Adam, Ph.D.	Magnetic resonance
W.F. Nash, Ph.D.	Penetrating cosmic radiation
J.H. Philips, M.C., Ph.D.	Properties of high coercivity magnetic materials
J.C. Matthews, Ph.D.	Semi-conductors 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
J.G. Booth, Ph.D.	Ferrimagnetism
F.W. Sheard	Lattice vibrations
D.E.G. Williams, Ph.D.	Low temperature physics
R.M. Bull	Penetrating cosmic radiation
W.S. Moore, Ph.D.	Electron spin resonance

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),	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

63 Oxford University

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.	Factors affecting seed germination and seedling diseases Control of diseases by chemical, physical and biological means; 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.	Photosynthesis; 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

1. Agriculture (*continued*)

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	Studies in the principles of phytotoxic action The physiology of growth substances The development of herbicides
C. Parker	
J.A. Sargent, Ph.D.	
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

Soil Science:

G.R. Clarke	Soil mapping from air photography
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	Use of air as vehicle for volatile anaesthetics: clinical observations on respiration, blood gases, pCO_2, etc.
H.G. Epstein, Ph.D.	Measurement of lung function and composition of respired gases in mechanically ventilated patients
J.V. Mitchell	
A. Crampton-Smith	Design of portable bellow respirators for use during anaesthesia
J. Parkhouse, M.D.	Study of appliances for endotracheal intubation

3. Anatomy

Human:

Professor Sir Wilfrid Le Gros Clark, M.D., D.Sc., LL.D, F.R.S.	Central nervous system Palaeontology of the Primates
A.G.M. Weddel, M.D., D.Sc.	Anatomy and physiology of cutaneous sensibility
E. Palmer (Mrs.)	
J.S. Weiner, Ph.D.	Physical anthropology
K.J. Collins, D.Phil.	Climatic adaptation; anatomy and physiology of sweat gland function
K. Foster	
D.F.B. Roberts, D.Phil.	Physical anthropology with particular reference to geographical and climatic factors
R. Barer	Biological application of new methods of microscopy, including electron microscopy and cell refractometry
P. Stoward	
S. Joseph	
G.A. Meek, Ph.D.	
D.A.T. Dick, D.Phil.	Cell permeability
M. Clegg (Mrs.), Ph.D.	Microbeam irradiation of local regions of single cells
T.P.S. Powell	Studies of the central nervous system with particular reference to the connections of the basal ganglia and hippocampus, and the phenomenon of transneuronal degeneration
W.M. Cowan, D.Phil.	
J. Carman	
G. Raisman	

3. Anatomy (*continued*)

Human (*continued*)

G.N.C. Crawford D.H. Elliott	Factors regulating the growth of voluntary muscle and tendon
S. Bradbury, D.Phil.	Histochemistry
K. Provins, D.Phil. C. Bell	Neuromuscular control at high and low temperatures
A.R. Lind, D.Phil. P. Humphreys	Effect of temperature on muscular activity
R. Hellon, D.Phil. G. Crockford	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
M.J. Aitken, D.Phil.	Neutron activation analysis of coins by γ-ray spectrometry Thermo-remanent magnetic dating of fired clays and pottery Detection of buried archaeological features using a proton magnetometer Analysis of ceramic glazes by β-ray back scattering Thermoluminescent dating of ceramics
E.E. Richards	Optical emission spectrography of metals and ceramics X-ray crystallography of ceramics

6. Astronomy

Professor D.E. Blackwell	The solar corona and zodiacal light
M.G. Adam (Miss), D.Phil.	Magnetic and velocity fields in sunspot regions
A.D. Petford, D.Phil.	Instrumental techniques

7. Biochemistry*

Professor Sir Hans Krebs, M.D., F.R.S.	Cell metabolism
C.W. Carter	Nutrition with special reference to metabolism in avitaminosis
Professor D.D. Woods, F.R.S. R.G. Tucker, D.Phil. J. Lascelles (Miss), D.Phil.	Nutrition and metabolism of micro-organisms

*Houses the M.R.C. Unit for Research in Cell Metabolism. The staff of the Unit includes Professor Sir Hans Krebs, F.R.S. (Honorary Director), Dr. K. Burton, Dr. J.T.Y. Chou, Dr. D.E. Griffiths, Dr. J.A. Grunau, Dr. D.E. Hughes, Dr. M. Lunt and Dr. J.R. Quayle.

7. Biochemistry (*continued*)

L.A. Stocken, D.Phil.	Radiation biochemistry
D.E. Hughes, Ph.D.	Structure and enzymology in micro-organisms and metabolism of vitamins in micro-organisms
D.E. Griffiths, Ph.D.	Oxidative phosphorylation
K. Burton, Ph.D.	Function and structure of nucleic acids
M.W. Whitehouse, D.Phil.	Steroid metabolism; chemistry and metabolism of animal polysaccharides
J.R. Quayle, Ph.D.	The metabolism of oxalate and C_1-compounds in micro-organisms
M.G. Ord (Miss), Ph.D.	Biochemical effects of X-radiation
D.S. Parsons, D.M.	Intestinal absorption; metabolism of intestinal mucosa; electrolyte metabolism of erythrocytes; problems of tissue swelling
R. Cecil, D.Phil.	Sulphur chemistry of amino-acids and proteins
P.W. Kent, D.Phil.	Biochemistry of fluoro- and amino-sugars
R.M. Acheson, D.Phil.	Urine constituents; metabolism and synthesis of heterocyclic compounds
R. Whittam, Ph.D.	Active transport and metabolism
A.R. Peacocke, D.Phil.	Nucleic acids, nucleoproteins and ionizing radiation
C.A. Pasternak, D.Phil.	Metabolism of amino-sugars and sulphated compounds
W. Bartley, Ph.D.	Biochemical and osmotic properties of isolated mitochondria
	Fatty acid composition of tissues

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
J. Becker	Methods of steroid analysis
M.W. Bradbury	Measurement of body fluids
G.P. Burn	Enzymic constitution of erythrocytes
M.P. Esnouf, D.Phil.	Biochemistry of blood coagulation
G. Higgins	Methods of steroid analysis
J. Liddell	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
	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
	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

9. Botany (*continued*)

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

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 radical reactions Investigations of mechanisms of oxidation
J.A. Barltrop, D.Phil.	Natural products Sulphur compounds Application of radioisotopes to the solution of chemical and biochemical problems
N. Polgar, D.Phil.	Constituents of the lipids of acid-fast bacilli
G.T. Young, Ph.D.	The chemical investigation of peptides and proteins
A.S. Bailey, D.Phil.	The chemistry of nitrogen heterocyclic compounds with special reference to alkaloids
T.G. Halsall, Ph.D.	Chemistry of isoprenoid compounds Chemistry of fused ring systems
M.C. Whiting, Ph.D.	Ultra-violet and infra-red spectra Organic chemistry of transition metals Chemistry of fused ring systems
B.R. Brown, D.Phil.	Investigations of the tannins Polynuclear heterocyclic systems Hydride-Lewis reductions
G.D. Meakins, D.Phil.	Studies in steroid chemistry Applications of spectroscopy in organic chemistry
R.O.C. Norman, D.Phil.	Correlation between structure and reactivity of organic molecules
G. Lowe, Ph.D.	Synthetical routes to cephalosporin C Photochemical reactions

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

10. Chemistry (*continued*)

Physical, Inorganic and Chemical Crystallography (*continued*)

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	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
R.H.P. Gasser, D.Phil.	Surface phenomena
E.B. Smith	Thermodynamics of imperfect gases and mixtures
F.M. Brewer, M.B.E.	Inorganic chemistry of rarer elements
L.A.K. Staveley	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 (Mrs.), F.R.S.	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 plasma, 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
C.J. Wood	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.	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
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
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 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
W.R. Day	Pathogenic conditions in the soil as determining root disease, the manner of growth in trees and in relation to the fungus flora of the main stem Parasitic and non-parasitic factors in relation to bark necrosis and canker development
E.W. Jones, Ph.D.	Ecology and silviculture of forest trees in Britain Tropical African forests
G.H. Thompson	Biological studies of woodwasps of the genus *Xiphydria;* insect succession in decaying wood
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 The influence of certain environmental factors, e.g., aeration and humus on the activity and growth of tree roots Water relations of the forest
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

14. Forestry (*continued*)

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
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	Colonial geography, with special interest in W. Indies Settlement in Sweden
N.C. Pollock	Southern Africa
D.I. Scargill	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
E.A. Vincent, Ph.D.	Chemical analysis of rocks and minerals Optical, chemical and magnetic studies of the opaque minerals in igneous rocks Determination of trace elements by neutron activation analysis
K.S. Sandford, D.Sc., D.Phil.	Geology of N. Africa: also North-East Land, Spitsbergen
W.S. McKerrow, D.Phil.	Lower Palaeozoic rocks of W. Ireland The brachiopods and the stratigraphy of the Great Oolite Series
G.M. Brown, D.Phil.	Layered intrusions of Rhum, Skaergaard and Bushveld Pyroxenes of igneous rocks
R.St.J. Lambert, Ph.D.	Problems of metamorphism in the Scottish Highlands Age determinations of rocks and minerals Studies on metamorphic rocks from the vicinity of Mount Everest The crystallography of prehnite
H.G. Reading, Ph.D.	Stratigraphy and structure of the Eo-Cambrian and Lower Palaeozoic of Finnmark, N. Norway Sedimentation in the Namurian of N. England Llandovery stratigraphy in the Welsh Borderland

16. Geology and Mineralogy (*continued*)

B.C.M. Butler, Ph.D.	Compositions of micas in metamorphic and igneous rocks X-ray fluorescence analysis Mineral identification
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
U.S. Haslam-Jones, D. Phil.	Real variable: differentiation
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
D.G. Kendall	Stochastic analysis (mathematical probability and related topics in functional analysis, measure theory, etc.)
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	Abstract algebra: valuation theory and its generalizations
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.	Wave mechanics
M.E. Rayner (Miss), D.Phil.	Diffusion
A.M. Arthurs	Operator theory and quantum mechanics
A.W. Ingleton	Algebraic topology and geometry
J.D. Murray	Magnetohydrodynamics; viscous flow theory
J.B. McLeod, D.Phil.	Eigenfunction expansions

17. Mathematics (*continued*)

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

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.	Cine-radiological 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 H. Hooton (Mrs.), D.Phil.	Experimental induction of toxaemia of pregnancy in sheep; myopathy in sheep (scrapie)
D.G. Wyatt, D.Phil.	The application of physical methods to biological problems; blood pressure and flow measurement and radiological techniques
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

18. Medicine (*continued*)

Clinical (*continued*)

S. Callender (Miss), M.D.	
G.H. Spray, D.Phil.	
S.C. Truelove, M.D.	Experimental, statistical and clinical studies in gastro-enterology
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 of very high melting point
	Constitution of iron alloys
	Constitution of gold alloys
	Constitution of austenite 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 high temperature properties of molybdenum alloys and compounds
	The effect of internal oxidation on the properties of some copper and nickel alloys
	Dispersion hardening in austenite stainless steels
	Recrystallization in aluminium-copper alloys
S.L. Altmann, Ph.D.	Theoretical investigations of the band structure of metal
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.	Biochemistry of the eye with particular reference to changes in cataract formation
R. van Heyningen (Mrs.), D.Phil.	
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
M.L.H. Lee	Blood supply of the carpal lunate Investigation, development and growth of membranous bone
K. Little (Miss)	Electron microscopy of hard tissues
W. Rigal	Tissue culture of epiphyseal cartilage
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
H.B.S. Kemp	Clinical and experimental study of the cardiopulmonary function in relation to the development of deformities of the thoracic spine

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 Colonic secretion
G.P. Gladstone	Pathogenicity of staphylococci
W.E. van Heyningen, Sc.D.	Mode of action of tetanus toxin
A.M. Woodin, Ph.D.	Properties of the two components of staphylococcal leucocidin
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.	Fate of grafts in rabbit ear chambers
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
J.L. Gowans, D.Phil.	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

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
E. Bülbring (Miss), M.D., F.R.S.	Electro-pharmacology of smooth muscle
J.M. Walker, D.M.	Hormones of the neurohypophysis
E.M. Vaughan-Williams, D.M.	Electropharmacology of heart muscle
H. Blaschko, M.D. Ph.D., F.R.S.	Biochemical pharmacology; amine metabolism
H.R. Ing, D.Phil., F.R.S.	Structure-action relationships of drugs which act on the autonomic nervous sytem

26. Physics

CLARENDON LABORATORY

Professor B. Bleaney, D.Phil., F.R.S. A.H. Cooke, D.Phil. K. Mendelssohn, Ph.D., F.R.S. N. Kurti, Ph.D., F.R.S. J. Wilks, D.Phil. R.W. Hill, D.Phil. F.N.H. Robinson, D.Phil. R. Berman, D.Phil. A.J. Croft, D.Phil. H.M. Rosenberg, D.Phil. J. Hatton, D.Phil. W.P. Wolf, D.Phil.	Low temperature physics: Liquid helium and the helium film; high pressure work especially solid helium; properties of semi-conductors; thermal expansion; thermal conductivity and heat transport; mechanical properties of metals, including fatigue; electrical conductivity and magnetic phenomena in metals and semi-conductors; the superconductive state; investigations at temperatures below $1^{\circ}K$; paramagnetism and relaxation effects; nuclear paramagnetism and induction; nuclear orientation and nuclear cooling; low temperature calorimetry; cryogenic techniques; ferromagnetism, ferrimagnetism, antiferromagnetism
J.H.E. Griffiths, D.Phil. D.M.S. Bagguley, D.Phil. B.V. Rollin, D.Phil. J. Owen, D.Phil. J.M. Baker, D.Phil. W. Hayes, D.Phil.	Short electromagnetic waves; paramagnetic and nuclear magnetic resonance phenomena; semi-conductors and cyclotron resonance; optical spectroscopy of the solid state
Professor D.H. Wilkinson, Ph.D., F.R.S. C.H. Collie D. Roaf, D.Phil. F.V. Price, D.Phil. J. Moffatt, D.Phil. K.I. Mayne, D.Phil. W.T. Davies, Ph.D. P.F.D. Shaw, D.Phil. M.A. Grace, D.Phil. D.F. Shaw, D.Phil. A.B. Clegg, Ph.D. M. Derrick, Ph.D. P.S. Fisher, Ph.D. W.S.C. Williams, Ph.D. N.W. Tanner, Ph.D. P.E. Hodgson, Ph.D. S. Lokanathan, Ph.D. J.H. Mulvey, Ph.D. C.M.P. Johnson, Ph.D. D. Radojicic, Ph.D.	Nuclear physics using Cockcroft-Walton type generators of 100, 500 and 1200 kV; 140 MeV electron synchrotron Experimental work on interactions and level schemes of light and very light nuclei, nuclear photodisintegration and elementary photon scattering and interaction processes; nucleon-nucleon and nucleon-nucleus studies using particles in the 100 MeV range from the cyclotron at A.E.R.E., Harwell, and the proton linear accelerator at the Rutherford Laboratory, Harwell, with electronic and bubble chamber techniques; studies of K-mesons, hyperons, hyperfragments, anti-protons and the primary cosmic radiation using nuclear emulsions and bubble chambers; mass spectrometric studies of He^3 and He^4 production; computer studies of nuclear reaction mechanisms
H.G. Kuhn, Ph.D., F.R.S. G.W. Series, D.Phil. G.K. Woodgate, D.Phil.	Interferometric spectroscopy; nuclear and radiation effects in atomic spectra; radio-frequency resonances in excited states; atomic beam resonance

26. Physics (*continued*)

CLARENDON LABORATORY (*continued*)

J.H. Sanders, D.Phil.	Precise measurements of fundamental constants; optical maser
A.W. Brewer, Ph.D.	Physics of the upper air
J.T. Houghton, D.Phil.	
Professor W.E. Lamb, Ph.D.	Quantum theory of elementary particles; theories of nuclear and atomic structure; theories of the solid state and collective phenomena
D. ter Haar, Ph.D.	
M.C.M. O'Brien (Miss), D.Phil.	
H. Davies, D.Phil.	
J.A. Spiers, D.Phil.	
R.J. Blin-Stoyle, D.Phil.	
R.J. Elliott, D.Phil.	
D.M. Brink, D.Phil.	
C.A. Caine, D.Phil.	
M.J. Kearsley (Miss), D.Phil.	
W.E. Parry, D.Phil.	
D.J. Roaf	
G. Barton, D.Phil.	
C. Kacser, D.Phil.	

27. Physiology

Professor Sir Lindor Brown, C.B.E., F.R.S.	Neurophysiology
R.J. Banister (Miss)	Circulatory physiology
S. Cooper (Miss), Ph.D.	Electrophysiology
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.	Electrophysiology
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.	
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.	Electrophysiology
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.	
R. Marshall with Chest Clinic	A controlled trial of the effect of corticosteroids on pulmonary function in patients with extensive pulmonary tuberculosis
R. Marshall	Variations in the diameter of small bronchi with changes in lung volume and intrathoracic pressures Experiments on the mechanics of breathing and their relationship to the work of respiration and the control of respiration
R. Marshall M. Dunnill R. Bosman Professor P.R. Allison, D.M.	Embolization of the pulmonary arteries by small blood clots and platelet agglutinates with observations of the effects on the cardiovascular and respiratory systems
R. Bosman M. Dunnill	Effect of pulmonary oedema on the development of pulmonary haemosiderosis in rats
G. Lee F. Stott J. Honour R. Bosman R. Marshall	Instantaneous measurement of pulmonary gas exchange using a body plethysmograph
C.U. Webster	Replacement of veins by venous grafts and plastic prostheses Conservative surgery of the colon in ulcerative colitis

31. Surgery (*continued*)

Professor P.R. Allison, D.M.	Surgery of vascular disease with special reference to coronary occlusion and the application of endarterectomy
A.J. Gunning	Open-heart surgery involving the use of the artificial circulation with and without hypothermia as an adjuvant
A.J. Gunning M. Wright	The 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
H. Aars	Study of the haemodynamics and blood changes in post-stenotic dilatation of arteries
Professor P.R. Allison, D.M.	Study of the effects of substances applied to the vein wall with a view to preventing rethrombosis following removal of a previously induced thrombus
M. 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:

BUREAU OF ANIMAL POPULATION

Professor Sir Alister Hardy, D.Sc., F.R.S.	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

33. Zoology (*continued*)

K. Paviour-Smith (Miss), D.Phil.	Animal communities in bracket fungi

EDWARD GREY INSTITUTE OF FIELD ORNITHOLOGY

D. Lack, Sc.D., F.R.S.	Migration studies by radar
R.E. Moreau	African ecology and Mediterranean migration
N.P. Ashmole	Biology of terns and moult
C.M. Perrins	Population ecology and breeding biology

Zoology and Comparative Anatomy:

Professor J.W.S. Pringle, Sc.D., M.B.E., F.R.S.	Insect flight; comparative physiology of nerve and muscle
J.R. Baker, D.Sc., F.R.S.	Cytology, cytochemistry, microtechnique, electron microscopy
E.B. Ford, D.Sc., F.R.S.	Genetic and evolutionary studies
H.K. Pusey	Amphibian phylogenetics
W. Holmes, D.Phil. F.R.S.	Comparative histology
A.E. Needham, D.Ss.	Regeneration; nitrogen metabolism; pigments of animals
N. Tinbergen, D.Phil.	Animal behaviour
A.J. Cain, D.Phil.	Taxonomy and evolutionary studies
P.C.J. Brunet, D.Phil.	Insect physiology and biochemical genetics
D. Nichols, D.Phil.	Evolution, ecology and histology of echinoderms
J.D. Currey	Functional histology of bone and field genetics of *Cepaea*
M.E. Varley (Mrs.), Ph.D.	Effects of temperature on fishes
H.B.D. Kettlewell	Genetic, ecological and evolutionary studies
J.M. Cullen, D.Phil.	Fish behaviour studies
N.G. Blurton Jones	Animal and child behaviour

64 Reading University

1. Agriculture

Professor A.N. Duckham, C.B.E.	Comparative agriculture Agricultural seasonality
R.S. Tayler	Irrigation of farm crops, water resources, effect on grass
P.M. Harris	species, utilization of irrigated grassland
J. Pearce, Ph.D. T. Lawrence	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 T.R. Morris	The effects of light on growth and reproductive performance of the fowl
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
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	A study of seasonal demand for farm labour under different patterns of farming
	Development, structure and economics of the poultry industry

1. Agriculture (*continued*)

J. Pearce, Ph.D.	A study of the yard and parlour layout in southern England
J. H. Dominy	Effect of farm layout, soil type and other physical factors on choice of system of farming
D. H. Lloyd	A study of "rates of working" for certain field operations
J. Pearce, Ph.D.	A study of the use of tractor force and fuel consumption under different patterns 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.	Mineral metabolism and egg shell formation
	Egg shell composition: physical properties and structural characteristics
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

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
	Coliform bacteria in dairy products
	Chemistry and bacteriology of cheese ripening

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	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	Stratigraphy, structure and sedimentology of the Torridonian of the Coigach peninsula and the area around Loch Torridon
	Sedimentology of the W. European Wealden
	Clay mineralogy of the Lower Cretaceous in W. Europe
	Depositional structures in the Lower Greensand
	Channel, braided and shoreface sediments
	Festoon bedding
	Application of trend-surface analysis to sedimentology
	Water supply problems in Kent, Sussex and Berkshire
Emeritus-Professor H.L. Hawkins, F.R.S.	Hydrology
	Fossil echinoids
J.R.L. Allen	Sedimentology of the Lower Old Red Sandstone of S. Wales and the Welsh Borderland, R 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
	Upper Palaeozoic and Tertiary tectonic structures in S. Britain

*Includes Sedimentology Research Laboratory

7. Geology (*continued*)

R. Goldring, Ph.D.	Stratigraphy and palaeontology of the Upper Devonian and Lower Carboniferous in N. Devon
	Lower Carboniferous trilobites of the S.W. Province
	Stratigraphical and sedimentological studies on the Carboniferous of W. Eire and the Rhaetic of the west of England
	Studies on Cretaceous echinoids, particuarly *Conulus*
A. Lees, Ph.D.	Sedimentology of Lower Carboniferous reef limestones of W. Europe and N. America, particularly those of Ireland
	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 Visean limestones of shelf, reef and basin facies in N. Staffordshire and S. Derbyshire
	Carbonate banks and their sediments
W.A.S. Sarjeant, Ph.D.	Palaeontology and palaeoecology of fossil microplankton, their stratigraphical applications in the Upper Mesozoic and uses as environmental indices throughout the geological column
T.C.F. Sibley	Gravity and magnetometer studies in S. England and Arran
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 Mohochany, Burma
	Radioactivity of British sedimentary rocks
P.S. Walder (Miss)	Mineralogy of the Tertiaries of the Isle of Wight
	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; convex bodies
E.C. Milner	Transfinite combinatorics
M.R. Osborne, Ph.D.	Mechanics of continua: numerical analysis
D.H. Parsons, Ph.D.	Differential equations
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

10. Microbiology (*continued*)

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. with G.V. Marr, Ph.D.	Absorption spectroscopy in near and far ultra-violet
D.H. Fender, Ph.D.	Vision with a stabilized image
Professor E.W.J. Mitchell, Ph.D. C.D. Clark, Ph.D. J.N. Lomer (Miss), D.Phil.	Irradiation damage of solids
S.D. Smith, Ph.D.	Absorption specta and Faraday effect in the infra-red
T.B. Rymer, Ph.D.	Electron scattering intensities
P.C. Banbury, Ph. D. with G.W. Green, Ph.D.	Surface properties of semi-conductors in ultra-high vacuum
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
H.K. Henisch, Ph.D.	Semi-conductors; electroluminescence
K. Robinson, Ph.D.	X-ray crystallography of intermetallic compounds
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 Variation in shell proportions in some freshwater gastropods
V. Fretter (Miss), D.Sc.	Functional morphology 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

13. Zoology (*continued*)

M.G. Hardy	The neurophysiological basis of lamellibranch behaviour
D. Bryce, Ph.D.	Systematics and population studies 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, D.Sc. (Head of Department)	Biochemical investigations of fat absorption and transport in the ruminant
R.W. Smith	Preparation and use of tritium-labelled substances
G.B. Braithwaite, Ph.D.	The metabolism of small molecules and pathways of glucose catabolism in various tissues of various species The metabloism of labelled oestrogens by animals and animal tissues Effect of oestrogens on the metabolism of various labelled substrates both *in vivo* and *in vitro* by various species

2. Chemistry

S.J. Rowland, Ph.D. (Head of Department)	Fundamental study of variations in milk composition Studies of milk phosphatase: heat inactivation, etc.
R. Aschaffenburg, Ph.D.	Milk proteins: their constitution and properties
I.H. Bath, Ph.D.	Food utilization by the dairy cow; rumen metabolism
R.L.J. Lyster, Ph.D.	Hypomagnesaemia in dairy cattle
J.A.F. Rook, Ph.D.	Calcium and magnesium metabolism in calves
R.H. Smith, Ph.D.	

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.	
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
W.G. Wearmouth, Ph.D.	Liaison: application in the dairy industry of recent scientific findings

* Director: Professor R. G. Baskett, O.B.E.

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	Ruminant digestion
J.H.B. Roy, Ph.D.	Factors influencing the growth and milk yield of dairy heifers
K.W.G. Shillam, Ph.D.	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.	
J.G. Franklin, Ph.D.	Disinfection of apparatus, utensils and plant used in dairying; management in relation to udder infection
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
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) Effects of heat treatment and processing on nutritive value and of feeding and management of cows on vitamin content of milk
M.E. Coates (Miss), Ph.D.	
J.E. Ford, Ph.D.	Methods, chemical, physical, biological and microbiological, of vitamin assay
M.E. Gregory (Miss), Ph.D.	Absorption and metabolism of vitamin B_{12}; vitamin B_{12}-like compounds
K.M. Henry (Miss), D.Sc.	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) F.A. Glover J.D.S. Goulden, Ph.D. L.W. Phipps J.H.P. Prentice	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 cheese-making; physical methods for measuring "body" of cheese
	Thermal properties of emulsions, especially milk and cream, including preparation and processing
	Electrical measurements on dairy products
	Mechanical properties of fats and butter: cohesive and adhesive properties of 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

10. Physiology

S.J. Folley, D.Sc., F.R.S. (Head of Department) P. Andrews, Ph.D.	Physiology of milk secretion: neural and hormonal factors and mechanisms concerned in mammary growth and in initiation and maintenance of lactation
A.T. Cowie, D.Sc.	Neuro-endocrine milk-ejection reflex
R.A. Gibbons, Ph.D.	Assay of prolactin
H. Gutfreund, Ph.D. G.S. Pope, D.Phil. J.S. Tindal, Ph.D.	Biosynthesis of main milk constituents in the living animal, in the perfused udder and in mammary tissue preparations
	Mechanism of action of mammary gland enzymes
	Sex hormones level in the blood of ruminants in relation to reproduction and lactation
	Biochemistry of cervical mucus with special reference to the control of fertility

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
	Blood supply of bone
J.R. Rintoul, M.D.	Comparative study of the peripheral vegetative nervous system
	Aetiological factors in infantile hypertrophic pyloric stenosis

2. Astronomy

Professor D.W.N. Stibbs	Photometry of galactic nebulosities and extra-galactic nebulae
	Stellar kinematics and galactic structure
	Theory of stellaf 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

4. Botany

Professor J.A. Macdonald, D.Sc.	The nuclei of fungi: life cycles of parasitic fungi
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.H.N. Spence, Ph.D.	Vegetation of serpentine, lochs and swamps in Scotland
D. Davidson, D.Phil.	Chromosome breakage: organization of apical meristems of roots

5. Chemistry

Professor J. Read, Sc.D., F.R.S.	Stereochemistry; chemistry of terpenes and camphors; essential oils; chemical and biochemical relationships in the genus *Eucalyptus;* alchemy and historical chemistry
F.D. Gunstone, Ph.D.	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

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 Lofoten Islands and of the Outer Hebrides

7. Geology (*continued*)

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
D.E. Rutherford, D.Sc.	Algebra
A.R. Mitchell, Ph.D. D.Sc.	Numerical analysis
D. Borwein, D.Sc.	Summability
J.R. Gray	Statistics
A. Read, Ph.D.	Functions of a complex variable
A.G. Mackie, Ph.D.	Partial differential equations of fluid dynamics
P.H.H. Fantham, D.Phil.	Algebraic topology
J.D. Lambert	Fluid dynamics
D.M.E. Foster (Miss), Ph.D.	Geometry of numbers
T.W. Parnaby, Ph.D.	Dimension theory
G.J. Makinson	Numerical analysis

9. Physics

Professor J.F. Allen, F.R.S.	Hydrodynamic properties of liquid helium
P.W.F. Gribbon, Ph.D.	Ionic mobility in liquid helium
D. Bijl. Ph.D.	Electron spin resonance of free radicals Spin lattice relaxation and other problems in the solid state
F.A. Rushworth, Ph.D.	Nuclear magnetic resonacne in molecular crystals

Theoretical:

Professor R.B. Dingle, Ph.D.	Problems in metals and semi-conductors Mathematical methods
C.G. Kuper, Ph.D.	Hydrodynamics of liquid helium Problems in solid state and plasma physics
B. Durney, Ph.D.	Problems in metals and semi-conductors

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.	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
J.D.B. MacDougall, M.D.	Tissue culture

2. Chemistry

Inorganic and Physical:

Professor A.D. Walsh	Absorption spectra in the vacuum ultra-violet; absorption spectra under high resolution in the near ultra-violet; emission spectra of chemiluminescence accompanying the combustion of many fuels
	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 D.E. Hoare, Ph.D.	The oxidation of methane
	Oxidation of ammonia and of phosphine
K.A. Holbrook, Ph.D.	A kinetic study of the thermal decomposition and reactions of some gaseous alkyl halides
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 K.A. Holbrook, 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 oxidation of gaseous hydrocarbons
	Theory of low pressure rates of unimolecular reactions
with J. Iball, D.Sc.	X-ray diffraction studies

2. Chemistry (*continued*)

Inorganic and Physical (*continued*)

C.R. Allen, Ph.D.	Inhibition of combustion reactions Ultra-violet spectra of polyatomic molecules
D.S. Weir, Ph.D.	Photochemical primary processes in simple aromatic ketones

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
I.A. Smith (Miss), D.Sc.	Stereochemical topics
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

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. J.D. McEwen	Epidemiology of dental disease and its correlation with causative factors
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

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 servomechanisms
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

Professor A.M. Macbeath, Ph.D.	Measure theory Discontinuous groups Automorphic functions
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
A.J. Cole, Ph.D.	Combinatorial analysis
I.T. Adamson, Ph.D.	Algebra and number theory
A.D. Sands, Ph.D.	Abelian groups

7. Medicine

Professor I.G.W. Hill, O.B.E. K.G. Lowe, M.D. D. Emslie-Smith, M.D. H. Watson P.G.C. Robertson	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

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 still-birth neonatal death and foetal deformity Problems of foetal anoxia Clinical and laboratory investigations in prematurity
M.G. Coyle	Urinary and blood steroid excretion in normal and abnormal pregnancy
M.C. Macnaughton	Clinical laboratory investigation in abortion and early pregnancy hormone metabolism
M. Greig (Miss)	Chemical studies of progesterone metabolism
M.C. Miller	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
R.D. Muckart	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	Fibrinous vasculosis Pulmonary hypertension Pathology of trophoblast Pathology of hypercalcaemia Myocardial damage Pregnancy anaemia Elliptocytosis Fibrinolysis

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

15. Pharmacology and Therapeutics (*continued*)

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.	
D.M.C. MacEwan, Ph.D.	Crystal structure of clays and minerals
D.M. Burns, Ph.D.	
W.G. Ferrier, Ph.D.	Structure of fibres
D.W. Young, Ph.D.	
H.R. Wilson, Ph.D.	Structure of biological molecules
G.F. Walton, D.Phil.	Physics of the upper atmosphere

17. Physiology

Professor G.H. Bell, M.D.	Physiology of bone growth
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. 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

19. Radiotherapy

W. Cameron Swanson	Carcinoma of breast
J.F. Riley	Mast cells in carcinogenesis

20. 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
	Studies on fat absorption

21. 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	Biology and control of tsetse and stored products insects

68 Sheffield University

1. Anatomy

Professor F. Davies	The conducting system of the vertebrate heart
B.F. Martin, M.D.	Histochemical studies of various tissues under normal and experimental conditions
T.S. King	The conducting system of hearts of Carnivora and Cetacea
P.F. Harris	Studies of fundamental aspects of haemopoiesis
W.J.C. Wilkinson	Metabolism of glycogen in the muscle and conducting system of the heart
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 fluorescence 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.	Response of the pulmonary vascular tree to infusions of various drugs Clinical trials of coronary vasodilator drugs Pulmonary function in congenital heart disease Prognosis in congenital heart disease Assessment of electrocardiographic evidence of myocardial hypertrophy and strain Assessment of blood loss 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

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.	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

5. Chemistry (*continued*)

Physical (*continued*)

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. Wedgwood (Miss)	Mandibular nerve section in dogs, pigs and rodents to study nerve degeneration in the teeth, with special reference to overlap of nerve fibres across the midline
	An investigation of growth and maturity of school children to study relationship between nutrition and incidence of dental disease

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

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, ultra-structure 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	A study of the stability and durability of porcelain jacket crowns

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
	Amino-acid excretion in eczema
	Follow-up study of cases of infantile eczema seen 10 years ago
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	Plasticity in wire drawing
	Photoelastic investigation of stress waves in solids
P. Freeman	Investigation of electrical methods for the measurement of lubricant film thicknesses
	Influence of operating conditions on the thermal equilibrium of a journal bearing
C.L. Kirk	Whirling of shafts with large rotors
E. Rose	Development of a precision pneumatic servo with power amplification

Civil:

Professor N.S. Boulton	Fatigue strength of steel under variable loads
	Elastic-plastic strength of tubular steel frames
	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
C. Osgerby	Lateral stability of plane frames
E.J. Sarginson	Storage and drawdown in sewers
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
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
	Crystal 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
P.N. Robson	A Doppler method of millimetre-wave generation
	Cyclotron wave amplifiers and harmonic generators
	Microwave propagation in plasma sheaths

8. Engineering (*continued*)

Electrical (*continued*)

R. Brown, Ph.D.	Air-gap space-harmonics 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 components Development of stayed thin-walled pressure vessels Mechanical design of metal cutting tools
E.P. Bernat	Mixing of supersonic and subsonic air flows Boundary layer separation and reattachment
G.C. Briggs	Turbo-blowing of oil engines Ignition systems
D.S. Dugdale, Ph.D.	Mechanics of metal cutting processes
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.	Journal and thrust bearing lubrications at high speeds Limiting conditions of hydrodynamic lubrication
L.G.M. Sparling	Slab metal rolling with particular reference to planetary mills
J.D. Stringer	High speed hydraulic valves Refrigeration
K.H. Sutherland	Study of mechanical lapping
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 The dangers of aspiration of therapeutic substances 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

11. Geography

Professor C.A. Fisher	Social, economic and political geography of S.E. Asia
A. Garnett (Miss), Ph.D.	Microclimatology of the S. Pennines Factors affecting the distribution of atmospheric pollution 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 Place names and natural vegetation in Cornwall
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 and N. Africa

11. Geography (*continued*)

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

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 Millstone Grits 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
	Petrological studies in the Ox Mountain migmatitic complex, Eire
P.E. Brown, Ph.D.	Tertiary igneous geology of the Mourne Mountains, Northern Ireland
	Petrological studies in the Lairg-Rogart area, Scotland
	Rift Valley geology, S.W. Tanganyika
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*)
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

12. Geology (*continued*)

H.J. Sullivan, Ph.D.	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
P. Chadwick, Ph.D.	Theoretical physics; mechanics of solids
H.D. Deas, Ph.D.	Quantum theory of molecules; crystallography
S. Wardle, Ph.D.	Numerical methods
S.C.R. Dennis, Ph.D.	The motion of viscous fluids past cylinders and a sphere; studies in numerical analysis
D.M. Burley, Ph.D.	Theoretical physics; statistical mechanics
R.C. Hewson-Browne, Ph.D.	Fluid mechanics

Pure:

Professor D.G. Northcott, Ph.D., F.R.S.	Algebraic foundations of geometry, ideal theory of commutative rings and homological algebra
A.F. Ruston, Ph.D.	Functional analysis
L. Mirsky, Ph.D.	Linear algebra and analytic theory of numbers
H. Burkill, Ph.D.	Non-absolutely integrable functions and almost periodicity
H.K. Farahat, Ph.D.	Theory of group representations

14. Medicine

Professor C.H. Stuart-Harris	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
R.S. Duff, M.D.	Studies on the peripheral circulation and on hypertension Studies of the pulmonary circulation in acquired and congenital heart disease
M.M. Platts (Miss)	Studies on gastric secretion Studies on renal function
J.J. Daly	Studies on pulmonary hypertension and on disorders of pulmonary function in chronic chest disease
J.R. Cox	Mechanism of control of secretion of aldosterone
G.A.B. Davies-Jones	Studies on pulmonary function in chronic bronchitis and emphysema
E. Jackson	Study of the effect of benzo-thiadiazide derivatives on peripheral blood flow

14. Medicine (*continued*)

UNITED SHEFFIELD HOSPITALS

H.F. West, M.D.	Corticosteroid metabolism in relation to rheumatoid disease
A.W.D. Leishman, D.M.	Clinical trials of new hypotensive agents
	Studies of absorption, excretion and distribution of C^{14}-labelled guanethidine

15. Metallurgy

Professor A.G. Quarrell, D.Sc., Ph.D. (Head of Department)	Fatigue of welds in high-tensile structural steels
	Effect of hydrogen on transformations in alloy steels
	Effect of creep deformation upon carbide transformations in alloy steels
	Intergranular fracture of cast low alloy steels containing aluminium
	Hydrogen embrittlement of ultra-high strength steels
	Nucleation and growth of graphite in steel
Professor R.W.K. Honeycombe, Ph.D.	Precipitation of carbides in alloy steels
	Deformation and fracture of alloy single crystals
	Intergranular fracture in steels
	The thermal cycling and deformation of zirconium
	Phase transformations in austenitic steels
B.A. Bilby, Ph.D.	Mechanical twinning and martensitic transformations
	Continuous distributions of dislocations
	Interactions of lattice singularities and dislocations
	Theory of fracture
H.T. Protheroe, Ph.D.	Removal of impurities from molten iron alloys under vacuum conditions
	Graphite in magnesium-treated cast irons
	Effect of mould materials upon the solidification of ingots
A.J. MacDougall	Heat treatment of high-carbon, high-chromium steels
J.H. Woodhead	Effect of small amounts of niobium on the yield behaviour of iron alloys
	Martensitic transformation curves in alloy steels
	Pearlite in alloy steels
	Tempering of carbon and alloy steels
	Effects of sulphur on the properties of steels
A.R. Entwisle, Ph.D.	Yield point phenomena in non-ferrous alloys
	Transformations in iron-nickel alloys
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.	Effect of sulphur on mechanical properties of steels
	Structural changes during high temperature deformation
	Recrystallization during creep
	Mechanical properties of zone-refined iron at elevated temperatures
C.W. Haworth, Ph.D.	Solidification of polyphase alloys
	Precipitation studies in copper alloys
	Lattice parameter measurements of hexagonal alloy phases
	Quantitative measurements using the electron probe X-ray microanalyser
J.M. West, Ph.D.	Stress in electrodeposited chromium
	Propagation of stress-corrosion cracks
	Modification of aluminium-silicon alloys
	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
V.J. Moran	Electron micrographic study of some glassy silicates

16. Microbiology

Professor S.R. Elsden, Ph.D.	The growth of bacteria in relation to the energy supply
B.A. Fry, Ph.D.	Bacteriophage and megacin
D.S. Hoare, Ph.D.	Metabolism of photosynthetic bacteria
J.L. Peel, Ph.D.	Mechanism of pyruvate breakdown and fatty acid synthesis by 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
Virology:	
D. Hobson	Virus studies of coryza and other acute respiratory infections The role of enteroviruses in minor exanthemas of childhood
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
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 Stress transmission in drill rods

18. Obstetrics and Gynaecology

Professor C.S. Russell	Management of urinary incontinence
C.J. Dewhurst	Hormone excretion in pregnancy
D.W. Warrell	Investigation of urinary incontinence Chromosomal abnormalities

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

19. Paediatrics and Child Health (*continued*)

J. Lorber, M.D.	Natural history and treatment of primary tuberculosis Different types of B.C.G. vaccine Aetiology of erythema nodosum Multiple puncture B.C.G. 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
T.F. McElligott, M.D.	Cartilage and osteoarthritis

21. Pharmacology and Therapeutics

Professor G.M. Wilson, M.D.	Iodine metabolism, and 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.	Antithyroid drugs Mechanisms in the development of goitre Metabolism of sulphonamides
J.D. Acland	Iodide transport Statistical methods in pharmacology
G.D. Broadhead, Ph.D.	Urinary iodide excretion Thyroidal iodine content

22. Physics

Professor W. Sucksmith, F.R.S.	Paramagnetic and ferromagnetic properties of metals and alloys
Professor R.A. Smith, F.R.S.	Physics of solids including semi-conductors
Professor N.H. March	Applications of quantum mechanics in molecular and solid state theory
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

22. Physics (*continued*)

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 High coercivity alloys

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
G.R. Hervey, Ph.D.	Control of appetite
H. Newey, Ph.D.	Intestinal absorption
R.J.C. Barry, Ph.D.	Electrical changes related to intestinal absorption
E.L. Jervis (Miss), Ph.D.	Absorption of amino-acids
J. Matthews	Absorption of ions
R.J. Levin	Effect of endocrines on absorption
T. Kershaw	Transport of ions; amino-acid metabolism
P.C. Clegg (Mrs.), Ph.D.	Endometrial lipids

24. Psychiatry

Professor E. Stengel, M.D.	Suicide and attempted suicide Psychogenic pain
W.L. Tonge, M.D.	Occupational adjustment and neurosis
F.A. Jenner, Ph.D.	Metabolic changes associated with periodic mental disorder
P. Hall	Change of domicile and neurosis
F.G. Spear	Psychogenic pain from the clinical and statistical point of view
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
I.C. Murphy	Reaction to pain in situations of stress

25. 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

26. Radiotherapy

G.W. Blomfield	Therapeutic use of radioactive colloids Investigations into blood dose in I^{131} therapy 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

27. Statistics

H. Ruben, Ph.D.	The spherical normal distribution Sequential sampling Stochastic processes
D.F. Kerridge	Foundations of statistical inference

28. 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

29. 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 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

29. Technology (*continued*)

Glass (*continued*)

T. Bates	Coloured glasses including applications of ligand field theory
M. Cable, Ph.D.	Fundamental processes of glass formation
J.O. Isard	Electrical conductivity and dieletric 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

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 in the system copper-oxide-silica

30. 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
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*
J.G. Phillips, Ph.D.	Comparative endocrinology
G.T.C. Stark	Ecology of estuarine Gammarids
D. Bellamy, D.Phil.	Comparative endocrinology

69 Southampton University

1. Biochemistry

K.A. Munday, Ph.D. (Head of Department)	Intermediate metabolism in invertebrates Effects of lyophilization on nutritive materials
G.A. Kerkut, Ph.D.	Characterization of neurohormones
R.B. Beechey, Ph.D.	Intermediate metabolism in Crustacea
A.N. Clements, Ph.D.	Intermediate metabolism in insects

2. Botany

Professor W.T. Williams, Ph.D., D.Sc.	Physiology of stomata; transpiration Growth phenomena, especially etiolation Statistical methods in ecology
G.R. Lane, Ph.D.	X-ray and radiomimetic effects in *Tradescantia* and *Vicia* Cytological and anatomical studies in etiolation 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 (in conjunction with the Forestry Commission); 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
T.C. Whitmore, Ph.D.	Tropical taxonomy and systematic morphology

3. Chemistry

Professor R.C. Cookson, Ph.D.	Natural products Reaction mechanisms Spectroscopy and photochemistry
I.G.M. Campbell (Miss), Ph.D.	Stereochemistry of organic compounds of phosphorus and arsenic
R.E. Parker, Ph.D.	Kinetics of nucleophilic organic reactions
G.W.A. Fowles, Ph.D.	Reactions in liquid ammonia Complex compounds of the transition elements
A.C. Riddiford, Ph.D.	Kinetics of electrode processes Contact angles
E. Cartmell	Raman spectroscopy
E.A.S. Cavell, Ph.D.	Kinetics of reactions in solution
H.M. Frey, Ph.D.	Kinetics of gaseous reactions
I.D.R. Stevens, Ph.D.	Metal carbonyls in organic synthesis
D.H. Kerridge, Ph.D.	Reactions in liquid metals and fused salts

4. Electronics

Professor E.E. Zepler, Ph.D.	Practical application of indium antimonide
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 converters Nuclear magnetic resonance in strongly magnetic materials The ammonia maser as a microwave spectrometer preamplifier The optical maser
S.W. Punnett	Barkhausen noise in ferrites. Investigation of transistorized circuits
B.H. Venning	Analogue computers applied to some aspects of helicopter design, and to packaging and impact problems
E.V. Vernon, Ph.D.	Elastic properties of single crystals of metals

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
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

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
L.G. Booth, Ph.D.	Wind tunnel studies on structures Timber structures

Electrical:

Professor L.G.A. Sims	The thermal properties of magnetic steel sheets
K.L. Morphew	A study of electrical discharges at very low gas pressures
B.M. Weedy, Ph.D.	Transient thermal behaviour of electrical apparatus
R.E. Steven Ph.D.	Synchronous machine performance
R. Yorke	Transient performance of the acoustical loudspeaker Electrical analogues of vibrating systems

5. Engineering (*continued*)

Electrical (*continued*)

K. Morgan	Semi-conductor devices
E.E. Ward, Ph.D.	Control of rotating machines by semi-conductors
B.A. Carré	Power system analysis

Mechanical:

Professor A.N. Black	Traffic studies
G.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

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

7. Geology

Professor F. Hodson	Carboniferous stratigraphy, particularly of Ireland Carboniferous goniatites "Dirt" bands in coal seams
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.P. Elliott, Ph.D.	
J. Heading, Ph.D.	
D. Schonland, Ph.D.	
R.J. Gribben, Ph.D.	
L. Marder, Ph.D.	
W.S. Hall	
T. Sprinks	

8. Mathematics (*continued*)

Computation:

P.A. Samet, Ph.D. (Director)	Numerical solution of differential equations and the tabulation of special functions
J.P. Cleave, Ph.D.	Logical structure of automata
J.B. Willis, Ph.D.	Calculations of the binding energies of light nuclei

Pure:

Professor E.T. Davies, D.Sc., Ph.D., D.Math.	Differential geometry
R.S. Clark, Ph.D.	
F. Brickell, Ph.D.	
A.W. Deicke, Ph.D.	
F. Rhodes, Ph.D.	
C.R. Maunder	Algebraic topology

9. Physics

Professor A.M. Taylor, Ph.D.	Metal optics; refractive indices in the ultra-violet
Professor G.W. Hutchinson, Ph.D.	High-energy particle physics; cosmic ray research in satellites and rockets
R.M. Benwell	
J.G. McEwen, Ph.D.	
D. Ramsden, Ph.D.	
S. Weintroub	Thermal, electrical and elastic properties of single crystals of metals and of liquid metals
K. Kellner, Ph.D.	Thermal conductivities of gases and vapours 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.	Surface physics in ultra-high vacuum with thermionic and
C.H.B. Mee, Ph.D.	photoelectric techniques
R.G. Scurlock, D.Phil.	Properties of solids below 1°K; nuclear magnetic resonance in ferromagnetics

10. Physiology

K.A. Munday, Ph.D. (Head of Department)	Endocrinology of the response to cold in vertebrates
	Physiology of respiratory pigments
G.A. Kerkut, Ph.D.	Physiology of the nervous system in relation to behaviour
	Isolation of neurohormones
A.N. Clements, Ph.D.	Hormonal systems in insects

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
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

70 University of Wales
University College of Wales, Aberystwyth

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:

Professor E.F. Nash	Agricultural economics (general) Competitive position of British agriculture
J.R.E. Phillips	Economics of the dairy industry
M.B. Jawetz	Input-output relationships in various types of farming Problems of farm size
D.H. Evans	Economic changes on a sample of Welsh farms over the last ten years Agriculture and economic development in southern Europe
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
P.G. James	Economics of forestry Economics of egg and table poultry production

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 J.B. Owen, Ph.D.	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

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 Measurement of frost-heaving of soils under various cultivation regimes The influence of various types of soil tilth on the germination and establishment of grasses and clovers The effects of soil tilth, water supply and level of N fertilizer on the N content of barley grain

1. Agriculture (*continued*)

Crop Husbandry (*continued*)

Measurement by test cropping and soil studies of the residual fertility following five different grass species
The control of weeds in kale by the use of pre-sowing herbicides
The productivity of mixed cultures of kale and swedes grown in different spatial arrangements
Use of herbicides and the sod seeder in the improvement of grassland; introduction of Brassicae 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

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. — Cyto-taxonomical 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
W.J. Orville-Thomas, Ph.D., D.Sc.	Infra-red absorption and dispersion; ultrasonics Molecular orbital and potential function calculations
A.H. Price, Ph.D.	Dielectric absorption
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 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
J.G. Thomas	Settlement patterns in upland Wales Demographic and language patterns in 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	Geographical aspects of industrial location in the United Kingdom
B.S. McCann	Geomorphological studies of the west coast of Scotland
B.T. Wood	Social geography of afforestation in 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
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

6. Geology (*continued*)

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
R.H. Rogers, Ph.D.	Aerodynamics
	Hydrodynamics
D.W. Beard	Magnetohydrodynamics
K. Walters, Ph.D.	Rheology
E.M. James (Mrs.)	Non-linear differential equations
M.J. Davies	Satellite dynamics

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.	Studies of the upper atmosphere
E.M. Job	
G.M. Brown	
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.	Experimental investigations on the propagation of stress waves in solids
D.H. Trevena, Ph.D.	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.	Cell biology, particularly problems of cellular adhesion, metastasis, and virus-induced carcinogenesis
with I. Cunningham (Miss)	Cell cultures in protein-free media
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. 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
L. Slay (Mrs.)	Problems of the ecology of birds
A. Joyner, Ph.D.	Aspects of neurophysiology, particularly of marine fauna

71 University of Wales
University College of Wales, Aberystwyth, Welsh Plant Breeding Station

1. Agronomy

	Grassland:
D.G. Miles	The reaction of different species to climatic conditions, manuring and management
Ll.I. Jones	
R. Hughes	The comparison of varieties in sward formation under different conditions of upland and lowland
A. Troughton, Ph.D.	
A.H. Charles	The interaction between the animal and the sward
A.G. Davies (Miss)	The evaluation of species and varieties for different purposes under various environmental conditions
J.M.M. Munro	Digestibility of herbage based on different varieties of herbage plants
	The management of grassland
	The influence of sward type and sward management on subsequent arable crops
	The improvement of hill pastures by manuring, re-seeding and controlled grazing
	The chemical destruction of hill swards as a preliminary to re-seeding
	The influence of covering seed with various fertilizers on germination and establishment
	Investigations regarding suitable technique for pasture experimentation
	Root studies of herbage plants
	Sociological studies regarding the establishment of herbage plants
	The effect of external factors on the behaviour of *Lolium perenne* at close spacings

2. Chemistry

G. ap Griffith, Ph.D. with D.I.H. Jones, Ph.D.	Study of chemical composition and *in vitro* digestibility of herbage species with special reference to the questions of heritability, seasonality and nutritional importance
	Study of the non-protein nitrogen fraction of pasture species, especially the mineral nitrogen fraction, its relation to the soluble carbohydrate fraction, and its nutritional significance

3. Cytology

Professor P.T. Thomas, Ph.D.	The cytology of grasses, clovers and cereals in relation to breeding
	The population cytology of *Dactylis* and *Anthoxanthum*
	The cytology and biosystematics of *Holcus*

4. Genetics

J.P. Cooper, Ph.D.	Genetics of production characters in herbage grasses
	Selection for physiological and biochemical differences in herbage grasses
P.B. Vose	Intraspecific variation in nutritional response and requirements in the herbage grasses
	The physiology of non-flowering varieties

5. Pathology

A.J.H. Carr, Ph.D. P.L. Catherall	Selection and breeding for resistance to clover rot (*Sclerotinia trifoliorum*), stem eelworm (*Ditylenchus dipsaci*) *Verticillium* wilt, black stem (*Ascochyta imperfecta*), and other diseases of herbage crops
	Pathology of herbage virus diseases
	Studies on clover nodulation

6. Plant Breeding

	Cereals, beans and brassicae:
J.D. Hayes	Study and development of breeding techniques for the improvement of cereal crops
T.D. Johnston	The production of new varieties of oats for varying levels of fertility and different purposes
H. Thomas	Breeding for disease resistance
	Cytogenetical studies of species interrelationships within the genus *Avena*
	The production of new varieties of spring wheat and spring barley
	Breeding work with field beans
	Breeding of improved strains of rape and kale
	Grass:
E.L. Breese, Ph.D.	Breeding of improved varieties of *Lolium*, *Dactylis*, *Phleum*, *Festuca*, *Agrostis* etc.
	Phenology of grasses and anthesis in relation to meteorological conditions
E.L. Breese	Study of breeding techniques
M. Hayward	Syngenetical studies in *Lolium*
	Quantitative inheritance in herbage grasses
M. Borrill, Ph.D.	Experimental taxonomy of herbage grasses, especially *Dactylis* and *Anthoxanthum*
	Developmental anatomy of various grasses
E.J. Lewis	Artificial intergenetic hybridization and induced polyploidy in *Lolium* and *Festuca*
with I. Davies	The synthesis of production characters of specialized varieties of *Lolium perenne* and *L.multiflorum* by interspecific hybridization
I. Davies	Techniques for the assessment of breeders' material
	Herbage legumes:
W.E. Davies	Potentiality studies, breeding, breeding techniques, genetics and agronomic studies in *Trifolium* and *Medicago*
A.M. Evans (Miss), Ph.D.	Interspecific hybridization and the induction of polyploid in *Trifolium* and *Medicago*
D.G. Jones	Investigation of nodulation problems in *Trifolium* spp.
	Inoculation trials and manurial treatments: *T.repens*
	Seed multiplication:
D.J. Griffiths, Ph.D.	The effect of technique on the seed yield, quality and growth form in grass and clover varieties
H.M. Roberts with J. Lewis	Multiplication of seeds of bred varieties of cereals, grasses and clovers, and investigation of the effect of environmental and other factors on the seed produced by bred varieties of grasses
J. Lewis	The 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

72 University of Wales
University College of North Wales, Bangor

1. Agriculture

Professor I.A.M. Lucas G.M. Davies, Ph.D. M.B. Alcock	Effect of spring defoliation on the growth of winter sown cereals
G.L. Williams	Selection for economic characters in mountain sheep kept under two environmental conditions Nutrition of hill ewe lambs Intensive fat lamb production
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

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 Dynamics of plant populations in model systems
D.W. Parry	Anatomical studies in the Gramineae with especial reference to opaline silica bodies
M.J. Mence (Miss)	The biology of root fungi
A.D. Bradshaw, Ph.D.	Population differentiation and hybridization in *Agrostis* species Evolution of populations of herbage plants adapted to different soil types. Natural hybridization in *Crataegus* The mineral nutrition of grass species studied by sand culture techniques
G.R. Sagar, D.Phil.	Movement of growth-regulating substances in plants Factors affecting the direction of root growth Experimental ecology with especial reference to the role of micro-environment in plant establishment

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

Soil Science:

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

2. Biochemistry

Agricultural:

Professor W.C. Evans, Ph.D.	Biochemistry of farm animals in health and disease Cattle: bracken poisoning Metabolism of aromatic compounds (herbicides, synthetic oestrogens, etc.) by soil micro-organisms
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

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 beams Parametric amplification
F.J. Hyde	Transistor measurements
D.W.F. James, Ph.D.	High-speed transistor switching
A.R. Owens	Apparatus for ionospheric measurement
G. Ratcliff	Control engineering
H.J. Roberts	Epitaxial crystal growth

6. Forestry

Professor E.C. Mobbs, O.B.E. T.H. Owen	Natural regeneration of exotic conifers Establishment and development of various species under conditions of exposure and high elevation
D. Kinloch G.K. Elliott	Structure and qualities of timber from conifer plantations in varying site conditions

6. Forestry (*continued*)

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 and growth of red algae Algal ecology and distribution
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

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. R.G. Eades, Ph.D. J.P. Llewellyn, Ph.D. A. Bradbury, Ph.D.	Nuclear magnetic resonance
S. Clough	Electron spin resonance
D.P. Morris, Ph.D.	X-ray and magnetic investigation of alloy systems
R.H. Tredgold, Ph.D.	Theory of many-body phenomena and semi-conductors
J.D. Hurd, Ph.D.	Conduction processes in dielectrics
P. Wright, Ph.D.	Kinetics of order-disorder transformations
S.W. Charles, Ph.D.	Infra-red spectroscopy

10. Zoology

*Professor F.W.R. Brambell, F.R.S.	Embryology, foetal physiology and immunology of mammals in relation to problems of sterility and prenatal mortality
†W.A. Hemmings	
†I.G. Morris, Ph.D.	
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	Molluscan histochemistry

73 University of Wales
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
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.	The biochemistry and enzymology of sulphuric acid esters and cognate structures, including the biochemistry of mucopolysaccharides, of connective tissues and of epithelia
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.	

*Honorary Director, A.R.C. Unit of Embryology
†A.R.C. Unit of Embryology

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 Acrobiology 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 sterilizing effects of γ-radiation
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
C.C. Tallack	Cytogenetics of natural populations Response of propagation mechanisms to selection

5. Chemistry

Professor A.G. Evans, D.Sc. E.D. Owen, 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
N.M. Cullinane, D.Sc.,	Study of the Fries rearrangement
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

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
W.H. Powell, Ph.D.	Noise problems in coal mines
J.G. Thomas, Ph.D.	Electronics applied to physiology

6. Engineering (*continued*)

Mechanical:

Professor S.P. Hutton, D.Eng.	Characteristics of parallel disc thrust bearings
	Cavitation and stability characteristics of centrifugal pumps handling various liquids
B.J. Brinkworth	Properties of thermal radiation in a scattering atmosphere
L.H. Butler, Ph.D.	Friction and surface effects during plastic deformation of metals
H.A. Slyper	Mechanical vibration of gas turbine blades
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.	Geology of the Old Red Sandstone and Carboniferous
J.W. Baker	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

Professor J.L.B. Cooper, D.Phil.	Fourier transforms; linear spaces
Professor P.T. Landsberg, Ph.D.	Statistical mechanics; theory of solids
R.M. Morris (Miss), Ph.D.	Theory of elasticity
N.J.S. Hughes, Ph.D.	Algebra
R.J. Chisholm, Ph.D.	Quantum field theory
	Statistical mechanics
J.F. Rigby, Ph.D.	Algebra
D.E. Edmunds, Ph.D.	Elasticity
G. Gould, Ph.D.	Linear spaces

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; mine supports
K.M. Brown	Mine dusts

10. Mining (*continued*)

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
J.M. Baxter-Brown	Gas emission from power-loaded faces and factors affecting the flow from methane drainage boreholes

11. Physics

Professor A.J.C. Wilson, Ph.D.	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	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. Jordon, 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
H.H. Williams, Ph.D.	Cestodes Parasitic helminths of marine fishes
M.F. Claridge, D.Phil.	Parasitic Hymenoptera

74 University of Wales, University College of Swansea

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	Experimental taxonomy of British species of *Melampyrum*
H. Öpik	Development of respiratory enzymes during germination

2. Chemistry

Professor C.H. Hassall, Ph.D.	Structural chemistry of naturally occurring organic compounds, in particular steroids, polypeptides, mould metabolites, chemical genetics
R.F. Curtis, Ph.D.	Natural products 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

3. Engineering

Chemical:

Professor J.F. Richardson, Ph.D.	Flow of pseudoplastic liquids in pipelines
	Extrusion of polymers
D.J. Gunn	Mixing of non-Newtonian fluids with high solids loading
J.C. Lee, Ph.D.	Gas absorption accompanied by chemical reaction in disperse systems
J.M. Smith	
W.J. Thomas, Ph.D.	Study of liquid-liquid dispersions
R.M. Wood, Ph.D.	Flow of gas-liquid mixtures through nozzles and packed beds
	Transient behaviour of large distillation columns
	Heat transfer in rotating disc exchanger
	Gas flow patterns in a fluidized bed
	Mass transfer between lean and dense phase in a fluidized bed
	Hydrodynamics of solid-liquid fluidized systems
	Heterogeneous catalytic oxidation of hydrocarbons
	Effects of impurities on oxidation of graphite

Civil:

Professor O.C. Zienkiewicz, Ph.D.	Analysis of arch dams
	Interface problems in elasticity and visco-elasticity
	Thermal stress analysis
K.C. Rockey, Ph.D.	Buckling of plate girders
	Brittle fracture
J.A. Sandover, Ph.D.	Generation of waves by wind
	Breaking of waves
	Stability of ground effect machines

3. Engineering (*continued*)

Civil (*continued*)

J.D. Davies	Reinforced concrete tanks Composite prestressed concrete beams
H.E. Evans, Ph.D.	Soil pressure gauges Foundation pressures
B.W. Preece	Steel trusses: repeated loading collapse Plaster models of structures
D.S. Mansell	Collapse of compression members

Electrical:

Professor W. Fishwick, Ph.D. R.S. Ramshaw	Control systems including non-linear servomechanisms, analogue computer studies and machine vibrations
H. Dickinson R.O. Dunmore	High-voltage measurements; behaviour of liquid dielectrics and glass under high field stress; power systems
J. MacCormack	Measurement of transistor parameters and transistor circuitry
H.W. Gosling	Measurement of magnetic fields by nuclear methods and applications
W.G. Townsend, Ph.D.	A study of avalanche and Zener breakdown in silicon rectifiers
V.J. Phillips, Ph.D.	Transistorized multi-channel communication systems Modulation techniques
S. Venkateswaran, Ph.D.	Active network theory

Mechanical:

Professor R.H. MacMillan	The application of adaptive control to industrial processes Continuously variable speed power transmission systems including techniques for regeneration Inertia systems for power transmission
T.C. Daniels	Density separation in fluidized beds Two-phase heat transfer from steam at critical conditions
T.H. Davies	Thermosyphon cooling of rotating machines
A.A. Nicol, Ph.D.	Effect of vapour velocity and surface roughness on condensation of steam in pipe lines
D.M. Christie	Belt gears for power transmission

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

4. Geography (*continued*)

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
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. Bloxham, 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

5. Geology (*continued*)

G. Kelling, Ph.D. with R.O. Muir	Sedimentation of basal Carboniferous rocks in E. Lothian
P.R. Hooper	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., Sc.D.	Flow of elastico-viscous liquids Deformation of visco-elastic solids
J.R. Jones, Ph.D.	Rheology
T.S. Walters	Atmospheric turbulence and diffusion
J. Wilkinson, Ph.D.	Three-dimensional viscous boundary layer theory

Pure:

Professor J.D. Weston, Ph.D., D.Sc.	Functional analysis
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

75 University of Wales
Welsh National School of Medicine, Cardiff

1. Anaesthetics

Professor W.W.Mushin	Anaesthesia in cardiac surgery Methods of relief of intractable pain Pharmacology of newer drugs
with W.W. Mapleson, Ph.D.	Theoretical and experimental study of gas flow in anaesthetic systems Dynamics of controlled respiration

2. Haematology

J.L. Withey	Assay of serum B_{12} level during pregnancy with particular reference to megaloblastic anaemia of pregnancy
with E.E. Payne	Serum B_{12} assay in patients receiving anticonvulsant therapy
J.H. Jones, M.D.	Identification of platelet antibodies in idiopathic thrombocytopenic purpura and certain secondary purpurae

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
S. Shuster, Ph.D.	Adrenal cortical hormones and renal function

ASTHMA AND ALLERGY RESEARCH UNIT

D.A. Williams, M.D.	Prevalence and aetiological factors in asthma
H.A. Hyde	Atmospheric pollen and spores in relation to allergic disease

4. Microbiology

R.B. Payne	Preparation of a hyaluronic and globulin complex and investigation of its immunological properties
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

4. Microbiology (*continued*)

Professor S. Thomson, M.D.	The bacteriology and mechanism of infantile gastro-enteritis
	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.	Investigation of a method of forecast of placental insufficiency by means of a hypoxic test
A.H. John	
J.G. Lawson, M.D.	Investigation of β-glucuronidase and α-mannosidase in
D.K. Watkins	vaginal fluid and mucosa

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
	Aetiology of bronchiectasis
O.P. Gray	Rheology studies
	Protein diet in prematures
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

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	The vascular patterns of the spinal cord in man
	The pathology of the spine
R.T. Hughes	Pulmonary changes in uraemia and heart failure
J.G. Leopold	Correlation of pathological lung changes with clinical 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

7. Pathology (*continued*)

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

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.	Antihistaminic and antiadrenergic 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, M.D.	Gastric secretory processes 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 Medicine

R.A.N. Hitchens, M.D.	Epidemiology of acute rheumatism Epidemiology of accidents
E. Lewis-Faning, D.Sc., Ph.D.	Epidemiology of bronchial asthma Problems of hospital needs Therapeutic trials in various clinical fields

10. Surgery

Professor L.C. Rogers, V.R.D., C.B.E.	Conduction in the spinal cord; the effects of cord compression and the nature and behaviour of certain spinal tumours; surgical treatment of spondylosis
with A.S. Aldis	Some problems of intestinal obstruction. The parathyroid glands
L.P. Thomas	Some problems relating to peripheral vascular disease and tissue transplantation
C. Langmaid	The treatment of intracranial aneurysms. Congenital spinal lesions
H.R.S. Harley	The nature and correction of congenital cardiac lesions Subphrenic abscess
R.A. Mogg	Congenital lesions in the genito-urinary tract
J.S.H. Wade, M.C.	Surgery of the thyroid gland
Sir Tudor Thomas	Corneal grafting

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

Research Work in Colleges of Technology

76 Battersea College of Technology

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
	Determination of the nature and stability of polyphosphate and other complex compounds by ion exchange methods
	Metal fluoride complexes in aqueous solution
C.E.A. Brownlow, Ph.D.	The complex orthophosphates of gallium and indium
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
R.J. Irving, Ph.D.	Ruthenium species in aqueous solution
	Nitrosyls and carbonyls of ruthenium and osmium
	Steel corrosion by water at high temperature
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.	Complex compounds of tervalent chromium
	Thermogravimetric and differential thermal analysis techniques

Organic :

M.H. Abraham Ph.D.	Mechanism of autoxidation of dialkyl zinc compounds
C.L. Arcus, Ph.D. D.Sc.	Preparation and kinetics of reaction of polymers
L.A. Cort, Ph.D.	Chemistry of 2, 3-dichloro-1, 4-dioxan
	S-alkyluronium salts in the synthesis of heterocyclic compounds
	Darzen's glycidic ester synthesis in the indan-1-one series
J. Kenyon, Ph.D., D.Sc., F.R.S.	The effect of alkoxy groups on the reactivity of carbinols
	Isomerization of optically active ethers
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
	Interaction of a α-halogenoacel halides and alcohols
N.M. Saville (Mrs), Ph.D.	The reaction of aromatic diazonium salts with α-amino acids, free and in proteins
T.J. Howard, Ph.D.	The products of acetylation of dialkyl substituted benzenes

Physical:

D.P. Benton, Ph.D.	Adsorption from electrolyte solutions by diamond, metal oxide and metal powders
	Influence of ionic material on droplet interaction in aqueous disperse aerosols
G.J. Buist, Ph.D.	The mechanism of oxidation of glycerol and pinacol by periodic acid

1. Chemistry (*continued*)

Physical (*continued*)

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 continuance variation method of studying complex formation between a metal ion and a protonated ligand
P. Howard, Ph.D.	Polymer-solvent interaction and the thermodynamic treatment of polymer solutions
W.H. Lee, Ph.D.	Ultrasonic velocities in aqueous solutions
	Determination of electron affinity of oxygen by thermodynamic studies
	High frequency titrimetry
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

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 and Civil:

W. Carnegie, Ph.D., (Head of Department)	Turbine and compressor blade vibration
	Vibration in milling machines
	Investigation of methods of measuring tool wear
	The dynamics stiffness of hydrostatic thrust bearing

2. Engineering (*continued*)

Mechanical and Civil (*continued*)

B.J. Zaczek, Ph.D.	Fuel additives to reduce gas turbine failing
	Development of an instrument for assessing the corrosive properties of flue gases
	Investigation of low temperature corrosion during combustion of residual fuel oil
	Heat transfer from flames
	Heat transfer in refractory generator
	Investigation of means of reduction of air pollution by the diesel engine exhaust
R.L. Wajda	The behaviour under shear of cement pastes and fresh mortars in a solational 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
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
J.W. Wielogorski	Propagation of pressure waves in pipes with bends
	Hydraulic jump in non-horizontal channels
S.R. House	Static and fatigue strength of lugs
	Progressive fatigue testing
	Reflection polariscope developments
	Hydraulic analogue for temperature-time distribution
	Creep of lead in contact with concrete
D.F. Murchison	Timber roof truss investigation

3. Mathematics

F.N. Arscott, Ph.D.	Non-linear integral equations
(Head of Department)	Solution of third-order difference equations by generalized continued fractions
	The coexistence problem of Hill's equation
	Orthogonality properties and integral equations for solutions of Hill's equation
	Approximations to lamé functions
J.H. Wilkinson, Ph.D.	Torsion and flexure-with-shear for a cylindrically
M. Davies, Ph.D.	aeolotropic elastic material
M.M. Clarke, Ph.D.	Curve fitting and functional optimization by the use of
F.D. Burgoyne	digital computers
W. Davidson, Ph.D.	Applications of relaxation methods to engineering problems
	Method of summation of slow-converging series
	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	Hydrogen embrittlement of high-tensile steels
(Head of Department)	High temperature oxidation of uranium and uranium-metal compounds
L.L. Shreir, Ph.D.	Electrodeposition on uranium from non-aqueous solutions
	Factors which cause stresses in electrodeposits
	The mechanism of addition-agent action in electrodeposition
	Anodic polarization of lead-platinum bielectrodes
	Anodic oxidation of titanium in formic acid solutions
	Passivity and activity of nickel during anodic polarization
	Solid-liquid metal reactions with particular reference to the protective nature of phases produced
	Constant pressure-differential gas apparatus for studying gas/solid reactions
A.P. Miodownik, Ph.D.	A study of the transformations occurring on tempering zirconium molybdenum alloys and the mechanical properties of the resultant structures
	A study of the order-disorder transformation and its effects on the morphology of eutectoid products in copper tin-nickel alloys
	A study of the electrical transport properties of zirconium containing interstitial alloying elements
	Yield point, strain-ageing phenomena and the interaction of internal friction peaks in niobium containing interstitial alloying elements
	A theoretical analysis of allotropic transformations as a particularly useful method of studying the relative stability of crystal structures
	A study of the variables affecting micro-hardness testing when using spherical indentors
B.L. Daniell, Ph.D.	A study of the capacity for deformation of isothermal transformation products in a range of commercial steels with a view to establishing the optimum conditions for the industrial patenting process
	The effects of manganese nickel, chromium and molybdenum on the continuous cooling characteristics and mechanical properties of low carbon steels
M.G. Bader	Mechanical properties of aluminium alloy plate to specification R.R.58
	Mechanical properties of aluminium alloy castings to specification D.T.D. 5008 and magnesium alloy casting to D.T.D. 748
	Metallographic aspects of fatigue damage in β brass
	Effect of cyclic stress on transformation of meta-stable β brass
	Mechanical properties and fatigue properties of R.R. 58 aluminium alloy plate
	Mechanical properties of castings in aluminium alloy D.T.D. 5008 and magnesium alloys D.T.D. 748 and D.T.D. 5025
	Relationship of fatigue and mechanical properties in age hardening and strain hardening aluminium alloys
	Cumulative damage in fatigue
D. Lewis, Ph.D.	Development of micro-focus X-ray tubes
	Crystal structure determination: diosegnin iodoacetate
M.F.C. Ladd	Crystal structure determination: euphenyl iodoacetate
	Lattice energies and associated thermodynamic properties of crystalline solids

5. Physics

L.R.B. Elton, D.Sc., (Head of Department)	High energy scattering. Structure of nuclei
D.L. Hurd	
D.F. Jackson (Miss)	
R.G. Harlow, Ph.D.	Attenuation of sound at low frequencies. Mechanical
K.W.H. Foulds, Ph.D.	properties of alloys by sonic techniques
Y. Klinger, Ph.D.	Electrical properties of ferroelectric materials
J.R. Blakey	Propagation of waves in wave guides
K.E. Puttick, Ph.D.	Mechanical properties and thermal and electrical con-
J.G. Rider, Ph.D.	ductivities of metals at room temperatures and at low temperatures
P. Charsley, Ph.D.	Densities of alloys. Mechanical twinning and martensitic
P.R. Diodge, Ph.D.	transformations
A.G. Crocker, Ph.D.	
I.J. Zucker, Ph.D.	
B.E. Stern (Miss)	Effect of radiation on leucocytes
R.J. Huck, Ph.D.	Viscosity and thermal conductivity of gas mixtures

77 Birmingham College of Advanced Technology

1. Chemistry

W.G. Parker, Ph.D. (Head of Department)	Pyrolyses in diffiusion flames (including a study with non-hydrocarbon fuels)
A.R. Cooper	Research on gas-fired furnace control
F.M. Page, Ph.D.	Determination of electron affinities of atoms and radicals
A.F. Gaines	
P.F. Onyon, Ph.D.	Molecular weight determinations of high polymers
	Mechanical degradation of styrene polymers
M.H. George, Ph.D.	Kinetics of the polymerization of styrene in various solvents
A. Holt, Ph.D.	Preparation and properties of carbohydrate sulphates
P.A. Ongley, Ph.D.	New synthesis of large ring diketones
A.W.P. Jarvie, Ph.D.	Syntheses and reactions of new organo-silicon compounds
V.S.K. Nair, Ph.D.	Studies of metal complexes in aqueous solution by precision potentiometry and other methods
	Structure of electrodeposits and the function of additives
A.W. Downs, Ph.D.	Factors determining the structure of nickel (II) complexes
J.D. Butler, Ph.D.	Catalytic oxidation of aromatic hydrocarbons
A.V. Golton, D.Phil.	Infra-red studies, including some of organo-boron compounds and of solvent effects

2. Engineering

Civil:	
G.M. Mills	Oscillations of large press foundations
Electrical:	
E. May (Head of Department)	
R. Cramp	Precision methods of measurement
	Novel instruments
B. Farasmand	Electrical breakdown of dielectrics
R.K.J. Ford	The temperature dependence of noise in semi-conductor 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 semi-conductor devices
	New instruments based on semi-conductors

2. Engineering *(continued)*

Electrical (continued)

D. Karo, D.Eng., Ph.D.	Magnetic flaw testing for ropes and tubes Magnetic annealing Electrolytic tank methods Novel induction instruments Modern materials in electrical engineering
M. Rae	Investigation of controller design by correlation methods
G.K. Steel	Optimizing control systems Non-linear sampled data 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 Use of electrical elements in hydraulic and pneumatic control systems

Mechanical:

A.C. Walshaw, Ph.D. (Head of Department)	
E. Downham, Ph.D.	Critical whirling speeds and natural vibrations of complex shaft-rotor systems
D.H. Sansome, Ph.D. R.F. Bowler	Metal deformation, particularly regarding rod and tube manufacture
B.H. Lewin, Ph.D.	Stress determination by photo-elastic methods
G. Boxer, Ph.D. B. McNaughton	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

3. Mathematics

N. Mullineux, Ph.D. (Head of Department)	
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

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. R.T. Derricott	The mechanical properties of polycrystalline aggregates
J.C. Wright, Ph.D. L.W. Crane	Metallurgy of deep drawing and pressing
J.C. Wright, Ph.D. J.C. Billington	Improvements in hematite ores for annealing whiteheart malleable iron
J.C. Wright, Ph.D. T.J. Pitt	Compatibility of nickel alloys with carbon dioxide for fast nuclear reactors
D.R. Andrews	Joining of dissimilar metals
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 A.E.J. Evans	Hardenability of hot die steels
K.A. Reynolds	Constitution of titanium alloys
D. Green	Deformation and recrystallization textures in silver alloys
V.N. Whittaker	Study of the character of the fatigue limit in light alloys

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

6. Physics

C.S. Bull, Ph.D.	Fluctuations in valves, semi-conductors and resistances (experimental)
	Theory of stationary and non-stationary fluctuations
	Entropy exchanges in fluctuating systems
C.S. Bull, Ph.D. R.K. Fitch	The total emission of oxide cathodes
R.K. Fitch	Contact potentials
G.L. Rogers, Ph.D.	Diffraction patterns arising from complicated objects
	Moire patterns applied to the control of machine tools
A.M. Short, Ph.D.	Decay of cosmic rays underground
G. Knott	Relativity
G.V. Ball	Dark adaptation
A.G. Sabell	Contact lenses

78 Borough Polytechnic

1. Engineering

Electrical:

V. Pereira-Mendoza (Head of Department)	
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
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

Mechanical:

J.F. Douglas (Head of Department)	Flow through segmental orifices
	Structural failure in dental plates
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

1. Engineering (*continued*)

Mechanical (*continued*)

G.E.D. Waller	A study of diesel injection systems
R.B. Brown	Causes and effects of cyclical variation in ignition timing on the performance of a dual-fuel oil engine

2. Mathematics

E.A. Baggott, Ph.D. (Head of Department)	
L.M. Clark	Design and development of a mechanical analogue computer
D.J. Memory	Design and development of an automatic control system for an electronic analogue computer
	Application of electronic analogue computer to linear and dynamic programming, and to problems in non-linear mechanics
D.J. Memory R.D. Parslow	Applications of the Z-transform to sampled data systems
R.D. Parslow	Plane complexes in five dimensions

3. Metallurgy

G. Isserlis (Head of Department)	Internal stresses in electrolytically deposited metals
B. Harocopos	Non-metallic inclusions in steels and in uranium

4. Physics

V. Pereira-Mendoza (Head of Department)	
A.J.L. Collinson	Mechanism of Geiger counters containing argon–xenon–oxygen–nitrogen
	Measurement of radon in the atmosphere
	Non-linearity of energy response of alkali halide phosphors
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 semi-conductor radiation detectors
T.L. Watkins	Measurement of first ionization coefficient in argon-xenon mixtures

5. Technology

Chemistry and Food:

S. Cotson, Ph.D. J.E. Procter	Inorganic polymers
D.B. Smith, Ph.D.	Lipids, sterols and emulsifying agents
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
P.F. Payne	Emulsifying agents in chocolate production
R.W.L. Goodwin A. Nicholson	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. Burnett, Ph.D.	History of dietary change

79 Bradford Institute of Technology

1. Biological Sciences

E. Lees, Ph.D. (Head of Department)	
J. Lewis, Ph.D.	Ecology and physiology of myriapods
E. Lees, Ph.D.	Parasitology of cold-blood vertebrates
D.M. Archer	
M. Merrett, Ph.D.	Metabolism of Xanthophyceae
	Regulation of respiration in virus-infested tissue

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.	
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
W.R.A.D. Moore, M.B.E., Ph.D.	Studies of association in polymer solutions
B.M. Tidswell, Ph.D.	
B.M. Tidswell, Ph.D.	Molecular weight distributions of polymers
R.P. Sheldon, Ph.D.	Studies of adhesion
R.P. Sheldon, Ph.D.	Crystallization of amorphous polymers
W.R.A.D. Moore, M.B.E., Ph.D.	
W.A. Straw	Studies of chemical degradation of acrylic fibres
F.L. Jagger	Metallography of stainless steels: effects of atmospheres 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
	Reactions of 0-substituted 2 : 5 diphenyl benzoquinones
N. Entwistle, Ph.D.	The Wohl-Auer reaction and phenazines
F. Franks, Ph.D.	Surface chemistry of colloidal electrolytes: hydrolysis equilibria of absorbed monolayers
	Oxidation and polymerization of long chain unsaturated fatty compounds
F. Franks, Ph.D. C.V. Wright	Thermodynamics of condensable vapours: vapour association in the water-pyridine system
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
G.J. Weston	Photo-induced isotopic exchange reactions
G.J. Weston E. Sherwin	Isotopic exchange reaction between free carbonate (C^{14}) and carbonate ethylene diammine cobaltic salts

2. Chemistry (*continued*)

G.J. Weston	Isotopic exchange reaction between free sulphate (S^{35}) and sulphate pentammine cobaltic nitrate
D. Robinson	Inorganic and analytical chemistry of the lower valency states of niobium
E. Coates	Spectrophotometric studies: thermodynamic properties of metal-dye complexes Spectrophotometric and other studies of chrome dyestuff-glycine systems in aqueous solutions

3. Engineering

Chemical:

C.W. Page (Head of Department) M. Ruhemann, Ph.D. D.K. Houtby	Examination of regenerator characteristics at 100°C
D.K. Houtby	Design of heat exchangers by digital computer methods
V.C. Marshall	Agitated cooling
D. Geldart	Calcination and hydration reactions in fluidized beds
C. Hanson, Ph.D.	Inorganic solvent contraction in mixer settler units Extraction of germanium from cutting sludge and vanadium from spent catalyst
J.R. Bourne, Ph.D.	Heat transfer characteristics of highly viscous fluids

Civil:

J. Jenkins (Head of Department)	
J. Jenkins W. Appleyard	Non-destructive testing of materials of construction, including utilization of ultrasonic and gamma-ray emission apparatus and geophysical methods
M. Holmes, Ph.D.	Stresses in tubular structures and frames including prestressed tubular structures Load distribution in grid frameworks Connections in steelwork using friction joints Model analysis applied to space frames Beam-column connections in precast concrete Plastic collapse of beam grillages with end restraint
M. Holmes, Ph.D. R. Butterfield	Stiffening effects of infill and cladding in building frames
R. Butterfield	Arch effects in slabs and beams
L.C.M. Baff	History of 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	Stresses in knees of reinforced concrete structures Ultimate load for portal frames with floors
M. Holmes, Ph.D.	Behaviour of floor and deck systems in plastic range
M. Holmes, Ph.D. A.W. Astill	Behaviour of flat arches under load
R. Green	The engineering significance of plant ecology
W. Appleyard J. Jenkins F.S. Hudson	Timber structures with particular reference to laminated products
F.S. Hudson	Thermal effects in heterogeneous cladding of buildings
A.W. Astill	Asymmetrically loaded columns in reinforced concrete
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
	Construction of a transformer with effective turns-ratio controlled by Hall effect
A.R. Bailey	Synthesis of transfer functions in control systems
E.C. Bell	Development of an impulsive noise-limiter for television systems
E.C. Bell R.V. Leedham	Development of a novel type of digital phase-meter
R.V. Leedham	Semi-conductor circuit techniques
S. Simmons	Behaviour of induction motors with square-wave input
B. Fozard	Measurement of small magnetic fields

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.H. Wood	Characteristics and applications of turbo supercharges
J. Wells	Hard-particle impregnation of sliding surfaces
A. Baker	Investigation of valve spring surging

4. Mathematics

J.G. Freeman, Ph.D. (Head of Department)	Some reductions of maps (4 colour conjecture). Elaboration of theory of tensile properties of re-generated cellulose
C. Mack	Statistics applied to industrial problems
	Statistical problems
C. Mack	Textile problems
S.W. Smethurst 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
H.H. Johnson	Minimization procedures for problems requiring solution in integers. Application to the optimization of programmes on digital computers
	Development of techniques for minimum time data processing suitable for digital computers with multi-level storage
P. Jarratt	Investigation of techniques for evaluating Bessel functions on a digital computer
	The numerical integration of ordinary differential equations
J. Hawkins (Miss)	Rising of dust in coal mines
	The mechanical properties of card-webs and non-woven fabrics

4. Mathematics (*continued*)

S.W. Smethurst	Applications of analogue computers
	Generation of functions in connection with an analogue computer
	Sliding of soils
M.L. Chambers	Interval estimation with many parameters

5. Pharmacy

Pharmaceutical Chemistry:

J.M. Rowson, Ph.D. (Head of Department)	
P.H.B. Ingle H. Taylor, Ph.D.	Synthesis of imidazole derivatives of potential pharmacological value
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.) C.G. Butler	Investigation of the redox properties of medicinal substances by polarographic and coulometric methods
C.G. Butler	Investigation of the redox properties of metal complexes

Pharmaceutics, General:

A.G. Wood (Miss)	Particle size analysis
	Improvement of formulations of water-in-oil emulsions
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 surface-active compounds with particular reference to emulsification

Pharmaceutics, Microbiology:

D. Wiseman	Mode of action of antibacterial compounds

Pharmacognosy:

K.R. Fell, Ph.D. H. Taylor Ph.D.	Phytochemical studies in leaves of the genus *Rubus*, sp. R. *idaeus* and R. *molluccanus*
S. Ellis (Miss) K.R. Fell, Ph.D.	Anatomical and phytochemical studies on leaves of the genus *Podophyllum*
J. Peck (Miss) K.R. Fell, Ph.D.	Pharmacognostical studies in the Boraginaceae

Pharmacology:

H.A. Perkin	An X-ray crystallographic study of the structure of the sympathomimetic amines
R. Hicks	An investigation into the effects of corticosteroids on experimental allergic conditions
	An investigation of some potential carcinogenic agents
	An investigation of the pharmacological activity of certain extracts of leaves of the genus *Rubus*
G.D. Leach, Ph.D.	A study of drugs affecting the smooth muscle responses of the gut
	The measurement of 5-hydroxytryptamine and other substances released from the gut
	The effect of drugs on the rate of release of transmitter substances from the isolated gut

6. Physics

D.L. Smare, Ph.D. (Head of Department)	
H.D. Bush, Ph.D.	Investigation of the magnetization cycle employing the Barkhausen effect
H.D. Bush, Ph.D. G. Brown, Ph.D.	Correlation of theoretical calculations and experimental data for natural uranium/graphite reactor lattices
G. Brown, Ph.D. A. Aspinall S. Warren	Measurement of properties of excited states in nuclei of medium atomic weight
G. Brown, Ph.D. A. Aspinall S. Warren	Measurements of the cross sections for (p,n), (p,2n) and (p,α) reactions
R. Steadman J.M. Taylor	X-ray crystallographic investigations of thermal changes in layer silicates and of the structure of complex intermediate phases in binary and ternary transition metal alloys
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
L.D. Pickwell L.A.F. Stockley	The investigation of the phenomen of retinal 'slip'

7. Textiles

F. Happey, Ph.D. (Head of Department)	Physical and physicochemical studies of fibre formation in natural and synthetic polumers
	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
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
R.G. Oversby F. Bramma F. Farnell 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
	Angora rabbit hair processing
	Comparison of processing Turkey Mohair by conventional and modern methods
	Comparative efficiency of worsted carding machines
D. Wilson H. Needham	A study of worsted drafting
F. Happey, Ph.D. R.G. Oversby F. Farnell	New uses for British wools
F. Bramma S. McNaughton	Study of lappet weaving

7. Textiles (*continued*)

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
D. Wilson H. Helliwell	New methods of fibre and yarn preparation and ramie manufacture
W. Parkin	The study of the factors which effect the blending of textile fibres

80 Brighton Technical College

1. Chemistry

E.G. Cowley, Ph.D. (Head of Department)	Dielectric polarization and dipole moments
R.W. Harwood	The dipole moments of compounds structurally related to chloroform
H.V. Ansell	Investigation of the kinetics of electron transfer between metallic ions in different valence states by radiochemical methods
I.R.L. Barker	The effects of configuration and other special influences upon the reactivity of hydroxylic compounds
J.D. Donald	Investigation of o-phenylenediamine salts of the first transitional metal halo-complexes and of the reaction products of various diamines with copper II sulphate
W.J. Popiel, Ph.D.	Physicochemical study, including electrophoretic migration, of sugars and other polyhydroxy compounds as anionic complexes, and the investigation by use of radioactive tracers of mechanisms of conversion
P.W. Poulter	Studies of heterocyclic compounds
R.G. Barr	Preliminary investigations of the use of additives in promoting dropwise condensation, and the examination of boiling film coefficients of organic solvents.

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

Mechanical:

A.J. Till (Head of Department)	
H.J. Smith	The leakage of refrigerant through thin passages in relation to slip past compressor pistons

3. Physics

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 semi-conducting compounds
M. White, Ph.D.	An investigation by microradiography techniques of the structure of aluminium-tin alloys
	The design and construction of an X-ray contact micro-radiography 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)

4. Pharmacy

J.C. Parkinson, 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
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 benz-pyridothiazoles
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	Anatomical studies in the genus *Digitalis*

81 Bristol College of Science and Technology

1. Biology

R.W. Bolland, Ph.D. (Head of Department)	
M.W. Hardisty	Biology of lampreys with particular emphasis on sex
B.J.R. Taylor, Ph.D.	differentiation
B.J.R. Taylor, Ph.D.	Neurophysiology of insects
T.D.H. Catchpool	An investigation of the occurence of indole auxins in *Phycomyces blutesleeanus* and their role in the phototropic response of Sporangiophores
L. Jacobs, Ph.D.	Biochemical aspects of protein breakdown in micro-
D.W. Duthie, Ph.D.	organisms

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.	Cobalt chemistry, especially analytical aspects, through a study of cobalt (iii) cabanato complex. The problem of primary standards

2. Chemistry (*continued*)

J.N. Andrews, Ph.D.	Analysis by radiochemical techniques, especially activation analysis
L. Carlton (Miss)	Determination of various structures using X-ray method, in particular *p*-bromnitroso benzene
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
H.L. Williams	Condensation products of phenols and ketones
P.F. Tiley, Ph.D.	Purification of volatile liquids by moving bed chromatography
G.R. Fitch	Development of relevant theory
P.F. Tiley, Ph.D.	Measurement of high vapour pressures and critical constants
L.L. Leveson	Preparation and study of the dissociation constants of fluorinated aromatic carboxylic acids

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

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 date 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)

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)	Guided weapons and space vehicles. Performance and problems
D.C. Wicks	Problems in boundary layer and heat transfer theory
F.B. Ellerby	Properties of square matrices over a pseudo-field
D.J. Bell	Determination of the maximum range of a boost-glide vehicle
J.C. Jones	Investigation of methods of microwave communication
R.A. Ballinger, Ph.D.	Interaction of hydrogen and helium

5. Pharmacy

D.A. Norton (Head of Department)	Containers for eye drops: survey of manufacturers and users; deficiencies in properties of 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
J.H.S. Foster	Fundamental studies in bacteriostasis and fungistasis allied to formulation of ophthalmological preparations
L.M. Atherden, Ph.D.	Steroid biochemistry: progesterone, cortisol and inhibition studies
D.A. Hancox	Studies in cell metabolism using Warburg techniques with special reference to testing toxicity of drugs
D.W. Shaw	Investigation of anatomical characters of *Ryania* spp.
T.M. Jefferies	*Rauwolfia oxyphylla*: a possible adulterant of *R. vomitaria* and *R. serpentaria* (the commercial varieties)

6. Physics

S.H. Aycliffe, Ph.D. (Head of Department)	
W.C. Clark, Ph.D.	Optical properties of titanium dioxide pigments
	Surface properties of metallic oxides
F.A. Underwood, Ph.D.	Structure of klockmannite and covellite
	Structures of certain minerals and organic compounds
	Metal textures
A. Gerrard	Construction and application of diffractometer
P.C. Roberts	Electrical breakdown in ionized liquids
J.B. Rowcroft, (Miss)	Structural effects in solids on exposure to nuclear radiations

82 Brixton School of Building

1. Building Studies

Architecture and Surveying:

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)

2. Engineering

Building and Structural:

A.N. Goddard (Head of Department)	
E.R.E. Catchpole	Resistance of welded beam-column connections to repeated loading

83 Brunel College of Technology

1. 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.	Inorganic gas chromatography
D.H. England	Development of amperometric titrimetry

1. Chemistry (*continued*)

P.H. Gore, Ph.D.	Studies of the reactivity of polycyclic systems
T.E. Green	Methods of high frequency titrimetry and coulometric titrimetry
G.J.L. Griffin	Frictional properties of plastics materials
D.F.C. Morris	Determination of trace elements by neutron-activation analysis. Studies of metal-ion complexes in solution
L.P. McHatton	Synthesis of vinyl carbinols
S. Thorburn	Gas chromatography in the study of lipid constitution and specific organic reactions
C.F. Bell	Studies of metal complexes
F.G.R. Gimblett	Catalytic polymerization of phosphonitrilic chloride
J. Grundy	Synthesis and structure of chemotherapeutic agents
D.A.L. Hope, Ph.D.	Complexes in electrolytic solution
K.A.K. Lott, Ph.D.	Induced oxidation of organic compounds
D.B. Parker	The properties and structure of polybenzyl and related polymers
G.L. Reed	Raman and γ-ray spectroscopy
G.M. Saul	Investigation of sodium complexes
C.J.G. Shaw, Ph.D.	Stereochemistry of diol systems
A.J.B. Spaull, Ph.D.	Thermodynamics of adsorption at liquid-air interface
D.N. Waters	Infra-red and Raman spectroscopy in study of organic molecules and inorganic complexes
R.W. Winter	Kinetics of the polycondensation of benzyl chloride

Biochemistry:

D. Walker, Ph.D.	A study of the effect of sulphated polysaccharides on serum lipoproteins

Biology:

A.T.G. Ford	Biological effects of dietary fats
M.L.R. Pettersson, Ph.D.	Studies on cell organism and environment
F.G.B. Jones	Physiology of fungi with particular reference to fruiting
T.G. Onions, Ph.D.	The biology of insect pests of stored products
J. Dore, Ph.D.	The nature of plant growth with special reference to regeneration phenomena
J. Douglas	Interaction of microbiological cells with weak acids, especially sulphurous acid
A.J. Lacey, Ph.D.	Growth studies in sporelings of larger brown algae *Bifurcaria*

Metallurgy:

R.J. Maitland, Ph.D.	Growth rate of spheroidal graphite cast irons
J.K. Critchley, Ph.D.	Oxidation resistance of metals
J.I. Buckley	Transformation in silver-zinc alloys
B.L. Davies	Oxidation of sintered iron-powders

2. 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
H.E. Coles	Stability analysis of re-heat turbo alternators
R.D. Nimmo	Semi-conductor inverter analysis and applications

2. Engineering (*continued*)

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

3. 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	Stochastic approach to problems in chromatography
J.A. Murphy	Solutions of the diffusion equation for a dissolving sphere
A. Huitson, Ph.D.	Application of the 803 digital computer to statistical problems

4. Psychology

R.A.F. Harcourt (Head of Department)	
M. Jahoda (Miss), Ph.D.	The development of students attitudes to work during the first three periods of their Diploma in Technology Courses
L.F. Thomas	Subjective judgement in inspection and quality control
L.R. Thomas	The aquisition of skill in process control
R. Borger A.Hughes	The learning of concepts with negative and positive information
A.E.M. Seaborne	Judgement in conditions of conflicting stimuli: social influences on decision making

5. Physics

C.A. Hogarth, Ph.D. (Head of Department)	Crystal growing. Physical properties of semi-conductors
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 semi-conductors
R.H. Creamer	Electrical properties of liquid metals
R.V. Sharman, Ph.D.	Studies of vibrating systems
G.O. Walker	Propagation of ultrasonic waves in silicon
E.J. Wheeler	Defects in aluminium by X-ray methods
T.F.J. Quinn	Field theory
G.R. Blackwell	Crystal growing

84 Chelsea College of Science and Technology

1. Botany

C.J.A. Berkerley (Acting Head of Department)	Biology of *Digitalis purpurea*: seed development
E.R. Turner, Ph.D.	Respiratory pathways in *Pisum sativum*
S.R. Chant, Ph.D.	The host range and properties of cowpea mosaic viruses The psysiology 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 transport across the intestinal mucosa *in vitro*, (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 phosphate, (ii) the mechanism of hydrolysis of some chelated arsenic compounds
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

2. Chemistry (*continued*)

Physical and Biophysical (*continued*)

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 Eocene deposits in the Isle of Wight
	The sedimentology of the Middle Jurassic deposits in the Scarborough district
	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
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. Wave guides
J.B. Tatchell, Ph. D.	Summability
L. Varnavides, Ph.D.	Theory of numbers. Antisymmetric Markoff forms

5. Pharmacology

M.F. Lockett (Miss), M.D., Ph.D. (Head of Department)	
E.I. Short (Miss), Ph.D.	The metabolism and toxicity of drugs used in the treatment of tuberculosis
	Anti-fungal agents

6. 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
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
N.J. Harper, Ph.D.	Structure-activity relationships of pharmacologically active compounds
	Synthetic and configurational studies with pharmacologically active compounds
	The stereochemistry of addition to ketones
	Stereochemical studies of certain central nervous depressant drugs
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
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

6. Pharmacy (*continued*)

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

7. Physics

W.H. George, Ph.D. (Head of Department)	
K.W. Keohane, Ph.D.	Biophysical investigations of cell membranes Bio-electric phenomena in mitotic cells
W.H. George, Ph.D. C. Dodd (Miss)	Electro-acoustic techniques applied to sound analyses in the audio-frequency range (music, speech, and noise)
L.W. Kite	Ultrasonic propagation in liquids
H.G. Leventhall	Transient response of filters and other analysing systems; electro-acoustics
R.S. Longhurst, Ph.D.	Diffraction patterns and images with partially coherent light
J.E. Houldin, Ph.D.	Capacitance of space-change limited diodes
A.R.F. Plummer	Surface phenomena on semi-conductors
E.L. James, Ph.D.	Effect of stress waves on physical properties of solids
W.G.B. Britton, Ph.D.	Charge production by inhomogeneous stresses in alkali halide crystals
G.M. Horton	Calculations of magnetic properties of the Heisenberg model of ferromagnetic substances
R.S. Longhurst, Ph.D.	Measurement of thin films of dielectrics on metals
C.H. Smith	X-ray analysis of crystals having a liquid crystal phase

8. Physiology

M.F. Locket (Miss), M.D. Ph.D. (Head of Department)	Neurohormones: the action of the sympathetic nervous system; the cause, prevention and treatment of arterial disease Renal physiology and endocrinology: modifications of kidney function which may result from glandular disturbance Nutrition: preservation of foodstuffs and the effect of food preservatives on normal metabolic processes Studies concerned with irritants in tobacco smoke, with the control of blood flow through abdominal viscera and lungs, and with the relationship between chemical structure and pharmacological action

9. Zoology

C.J.A. Berkeley (Acting Head of Department)	
E.M. Brown (Miss), Ph.D.	Studies on parasitic dinoflagellates (Syndinidae) of marine planktonic organisms; protozoal studies in connection with sewage disposal
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*

85 The College of Aeronautics, Cranfield

1. Aerodynamics

Aerofoil Characteristics:

Wing Commander C.G.B. McClure, D.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

Aerodynamics and Fluid Mechanics:

Professor J.A.J. Bennett, D.Sc., Ph.D. (Head of Department of Aerodynamics)	
G.M. Lilley	Aerodynamic noise
G.M. Lilley T.H. Hodgson	Pressure fluctuations in turbulent shear flows
G.M. Lilley A.J. Alexander	Low speed characteristics of a low aspect ratio wing with edge blowing
G.M. Lilley T.N. Stevenson	Characteristics of turbulent boundary layers with injection
G.M. Lilley J.R. Busing J.F. Clarke, Ph.D. J.W. Cleaver	Flow of dissociated gases at high speeds
G.M. Lilley A.H. Craven, Ph.D.	Base pressure on bodies with rearward facing jets

Data recording:

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

4. Engineering (*continued*)

Aircraft (*continued*)

D.J. Johns A.Rothwell	Thermal stress effects in cylindrical shell and multi-web box structures; investigations to include buckling, diffusion problems and practical design considerations to minimize the stresses Theoretical investigations into supersonic flutter of cylindrical shells
D. Howe	Investigation of the dynamic and landing characteristics of a slender delta wing supersonic airliner using both model and theoretical techniques

Electrical:

Professor G.A. Whitfield (Head of Department)	
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.N. Lord	Surface currents on conducting sheets at ultra-high and microwave frequencies

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)	The development of high precision gear grinding machines for the production of highly stressed gears The development of very high precision grinding techniques for both external and internal cylindrical surfaces
W.T. Singleton	Application of ergonomics to machine tool design
J. Cherry	The development of optimum metal cutting conditions for specified materials

5. Metallurgy

Metal Physics:

Professor A.J. Kennedy, Ph.D. (Head of Department of Materials) J.W. Mair	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

5. Metallurgy *(continued)*

Metal Physics (continued)

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	The anisotropy of mechanical properties in (i) glassy polymers oriented by drawing and (ii) resin-glass-fibre laminates with various geometrical arrangements of glassfibres The classical theory of elasticity for anisotropic bodies is being generalized to include linear visco-elastic effects through the concept of a complex modulus
D.W. Saunders, Ph.D.	An experimental investigation of the elastic properties of various rubber-like materials in a general, pure, homogeneous, finite strain. Experiments on stress-birefringence relations in rubber are being used to elucidate how the elastic properties are related to chain stiffness

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

86 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

87 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 durane
W. Woodside	Chromatographic fractionation of waxes
H.S. Blair	Stereochemistry of stilbene-forming condensations

2. Physics

O.M. White, Ph.D. (Head of Department)	Flicker effects in the electron emmission from tungsten
F.J.H. Dibdin	Applications of radioactive materials
W. Fleck	Voltage current relationships in transistors and in transmission lines

88 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:

C.G. Ferguson (Head of Department)	
G. Robertson, Ph.D.	Stresses in short circular cylinders subjected to internal fluid pressure photoelasticity 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 analysis
J.B. Main	The radial leakage at the exit of steam turbine nozzles and the affect of axial clearance on this leakage

89 Glamorgan College of Technology

1. Chemistry

L.H. Thomas (Head of Department) R. Meatyard	Molecular association and hydrogen-bond enthalpies in the pure liquid state
L.H. Thomas T. Vlismas R.F. Morgan	Chemical properties of aryl orthoborates

90 Heriot-Watt College, Edinburgh

1. Brewing and Applied Biochemistry

Professor I.A. Preece, Ph.D., D.Sc. (Head of Department)	Enzymolysis of phytic acid: seperation and characterization of cereal enzymes concerned in this change and establishment of their relation to other cereal phosphatases
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 regulator 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
I. Campbell, Ph.D.	Morphology of bacteria in relation to virulence

2. Building Studies

N.C. Sidwell, Ph.D. (Head of Department)	Measurement of thermal conductivity of new walling materials
J.V. Valentine	Investigation of fungal decay of African woods

3. Chemistry

Professor F. Bell, Ph.D., D.Sc. (Head of Department)	The reactions of diamino-and dihydroxy-napthalenes
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.	The gas chromatography of shale bases and steroids
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

4. Engineering

Chemical:

Professor P.H. Calderbank, Ph.D. (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
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. MacCleod, 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)

Mechanical and Civil:

Professor W.G. Green, Ph.D. (Head of Department)	
H.F. Black	The dynamics of whirling and its suppression by automatic control: application of output feed-back with the object of counteracting vibrations and whirling

5. Mathematics

Professor R. Smart (Head of Department)	
T. Scott	Algebraic geometry

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)	
R.J. McBride	The reactions of albumin with acids of high molecular weight
B.G. Townsend	The pituitary-gonad relationship in *Xenopus laevis*

8. Physics

W.H.J. Childs, D.Sc., Ph.D. (Head of Department)	Some investigations on single crystals of metals using a continuously recording "push-pull" machine
S.W. Peat, Ph.D.	
J.F. Marshall	

91 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	Fluorescent indicators in volumetric analysis
J.G. Washington	Ion exchange in the study of complexes
G. Hallas, Ph.D.	Steric effects in di- and tri-arylmethane dyes
F. Jordinson	Tests for colour vision
R. Lockwood	
G. Ozog	Reaction between o-hydroxy aldehydes and diphenyl ethylenes

2. Engineering

Mechanical:

J.D. Walker (Head of Department)	Investigation into power circulating testing techniques on power transmission drives
J.P. Cole	High temperature bearing materials in CO_2 environment
R.I. Newsome	Effect of sliding velocity on fatigue life of bronze discs Design of special purpose fatigue-testing machine

3. Textiles

H.S. Bell (Head of Department)	Sett of woollen and worsted cloths
J. Mahony	Colour systems
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
C.V. Gregg	Reflection of light from fibre blends

92 Kingston-upon-Thames 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

93 Leicester College of Technology and Commerce

1. Biology

Pharmacology:

E.J.B. Bish, Ph.D. (Head of Department)	
R.S.H. Finney	Anti-inflammatory activity of extracts of liquorish
M. J. Davis, Ph.D.	Investigation of local anaesthetic activity on various compounds

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)
K.W. Morcom, Ph.D.	Measurements of heats of mixing of substituted pyridines with benzene and with carbon tetrachloride
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.	Symetrical 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

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)

94 Liverpool College of Technology

1. Biology

K.S.W. Sing, Ph.D. (Head of Department)	
D.C. Pickering	Uptake of radio elements by plants
G. Anderson (Mrs.)	Genetics of *Caprinus lagopus;* protein assay using *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
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 1, 6-dienes
G.G. Jayson, Ph.D.	Radiochemistry and radiation chemistry of systems of biological importance
R.J. Newcombe	High-speed cinematography of the dropping mercury electrode
J.M. Wilson	Dissociation constants of sterically hindered organic acids
G.G.J. Boswell, Ph.D.	High frequency titration techniques
A.R. Denaro, Ph.D.	Glow discharge electrolysis
T.C. Owen, Ph.D.	Radiation protective sulphur compounds; pinacol reductions and rearrangements
R.M.W. Rickett, Ph.D.	Potential antimetabolites

3. Engineering

Electrical:

E.G. Lamb (Head of Department)	
K.R. Jones	Coupled data control systems
D.Kingham	Micro-wave techniques
C. Pomfret	Field-pulsation losses in electrical machines

Mechanical, Marine and Production:

R.F. McMahon, Ph.D. (Head of Department)	Design of structures to withstand earthquakes
J.O. Williams	Strains in reinforced concrete plates caused by impact
A.E. Swinnerton	Investigation of distributor characteristics of a petrol engine
E. Walshaw	Investigation of plastic injection moulding variables
H.N. Linton	Mechanical mixing of viscous fluids
V.A. Hallett	Investigation of heat transfer in rectangular ducts
D. MacDonald	Investigation of modified Stokes Law for micro-drops
J.S. FitzPatrick	Air flow around a rotating fan

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

6. Physics

J.F. Shearer, Ph.D. (Head of Department)	
D.W. Parking, Ph.D.	Investigations into cosmic dust
W. Hunter	
R. Thorburn, Ph.D.	Ionization and dissociation of molecules by electron impact

95 Loughborough College of Technology

1. Chemistry

Industrial:

R.F. Philips, Ph.D. (Head of Department)	Properties of non-aqueous solutions of inorganic materials
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
	Transformations in aluminium bronzes
J.B. Lee, Ph.D.	Sugar derivatives of potential physiological activity
	Plant extractives
	New organic reagents
J.W. Lewis, D.Phil.	Heteroenoid systems: synthesis of long-chain aliphatic compounds
J.V. McLaren, Ph.D.	Physicochemical properties of polyelectrolytes
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.	A study of azo dyes and associated compounds and their reactions with metals
	A study of pyridine and related compounds
	Studies of methods of subtractive polarography including new electrode systems
A.N. Strachan, Ph.D.	Reactions of free radicals

2. Engineering

Aeronautical and Automobile:

K.L.C. Legg (Head of Department)	
K.B. Ayres	Temperature effects in stiffened box beam and shell structures
A.B. Greene	The determination of friction losses in compression ignition engines
D.W. Kew	The limitation of compressor performance due to flow instability
F.G. Maccabee	The influence of free-stream turbulence on the convective heat transfer rate from surfaces
P.W. Sharman	Approximate methods for stress and small deflection analysis of plates of arbitrary planform, loading and support conditions

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 performance of new types of packing materials in a cooling tower 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.	The control behaviour of small plate type distillation columns
W.F. Calus	The boiling of mixtures of iso-propyl alcohol and water

Civil:

J.F. Peck (Head of Department)	Investigation of flow conditions in a cross-flow pump, using water as fluid
W.S. Moffat	Application of seepage models to stability of sand slopes and dewatering problems Permeability of sands and of varying grain sizes at different temperatures

Electrical:

H. Buckingham, Ph.D. (Head of Department)	
B. Currie D. Longley	Study of field transient problems
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 bandwith A new type of strain gauge
J.M. Richards	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

2. Engineering (*continued*)

Mechanical:

B. Downs (Head of Department)	
P.H. Broadhurst, Ph.D.	Theory and design of cyclone separators
R.K. Turton	Flow characteristics in slurry cyclone manifolds
T.P. Priestley	Investigation of time lags in braking servomechanisms
R. Holmes	Vibration of shafts on oil film bearings
W.F. Glasspoole	Stability of artificially generated velocity profiles in two dimensional channels
M.R. Leeson	Heat transfer in reciprocating parts
J. Dent	Effects of radiation heat transfer in entrance area on overall coefficient for ducts

3. History and Philosophy of Science

A.M. Duncan (Senior Lecturer)	History of chemical theory, especially in the 17th and 18th centuries

4. Human Biological Sciences

Applied Physiology:

J.A. Jeffery (Senior Lecturer)	Physiological aspects of work (investigation of the physiological responses of man to control intervals of work and rest)
P.M.R. Jones	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)	Anthropometric and physiological studies of seating in connection with the design of motor vehicle seats
P.T. Stone N.S. Kirk J. Ward (Mrs.)	Anthropometric and physiological studies of seating in connection with the design of office and domestic furniture
W.F. Floyd, Ph.D. E. Edwards, Ph.D.	Physiological and psychological studies of keyboard operating, motor vehicle controls, machine-tool controls and displays
J. Stone (Mrs.)	Studies of noise in factories and effects upon hearing
B.L. Chapman	Physical investigations into new techniques for constructing printed circuits from electronically stored data (cybernetics)

5. Mathematics

H.H. Johnson (Director)	Optimization procedures in the rearrangement of permutation arrays subject to integral time access factors

96 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

1. Engineering (*continued*)

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

97 National College of Food Technology

1. Engineering

Food, and Processing:

R.A.P. Wertheim (Senior Lecturer)	The effect of pre-treatment and freezing on the properties of liquid whole egg
	The structure of egg yolk with reference to the development of new egg products
J.G. Brennan	The bactericidal effects of homogenizers

2. Food Science

D. Pearson (Senior Lecturer)	Chemical methods for assessing the spoilage of meat
M. Spencer	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
K.E. Carling	The effect of synthetic growth substances on plant constituents, especially protein
J.T. Worgan	The detection and separation of cereal amylases
R.H. Skinner	The development of a method of dewpoint measurement based on the Peltier effect

98 National College of Rubber Technology

1. Technology

Polymers:

G.N. Welding	Precision osmometry of high polymer solutions
J Glazer, Ph D.	Reaction of sulphur monochloride with olefins
	Reactions of monolayers of olefins
	Sulphonamide-formaldehyde resins
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
R.J. Ceresa, Ph.D.	Mechanico-chemical rupture of bonds in high polymers by vapour phase swelling, freeze-thawing, and high frequency techniques
	The mechanico-chemical interaction of shellac and its constituent fractions with natural rubber
	Graft polymerization by chemical transfer to low molecular weight polymers
D.C. Blackley, Ph.D.	Polymerization of isoprene initiated by lithium alkyls
G.N. Welding D.A. Smith	Kinetics of cross-linking in the accelerated sulphur vulcanization of natural rubber

99 National Foundry College

1. Metallurgy

J.B. McIntyre	The effects of melting conditions upon the structure and properties of blackheart malleable cast iron

100 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
	The effects of temperature on the alkaline pre-treatment of calfskin
	Possible uses of Kraft lignin from Pakistan in the leather industry
	Analytical methods for estimating reactive lubricants and water repellents in leather
	Effect of process variables on the stratigraphic distribution of chromium in leather
	Analysis of mineral tanned leathers
J.F. Shillito	The elasticity of wet leather in relation to its hxdro-thermal stability

101 Northampton College of Advanced Technology

1. Chemistry

Applied:

D.J. Alner Ph.D. (Head of Department)	A study of complex formation involving metallic ions and alkanolamines
A.G. Smeeth	Electrodeposit ion of nickel from complex solutions
	Precise measurements of the pH values of buffer solutions employing cells with free diffusion
M. Goodgame (Mrs.), D.Phil.	The thermal decomposition of nickel salts of organic acids
K.W. Allen	A study of gas hydrates
R.F. Greenwood	The physical chemistry of hydrogen bonding molecules in solution
C. Heitler	Ebulliometric studies
K.C. Bass, Ph.D.	A study of organo-mercurials
P.A. Claret	Thermal rearrangement of N-substituted pyridinium salts
E.B. Elliott	Thermal etching of platinum
J.W. Coakham, Ph.D.	Rolling of metals
I.J. Smalley	A study of the bonding of mould materials

2. Engineering

Aeronautical:

G.A. Tokaty, D.Eng. (Head of Department)	Magnus effect on multi-stage rockets
	Theory of trajectories of multi-stage rockets
M.J. Cohen, Ph.D.	Design of integral axi-symmetric high-speed nozzles
	Aerodynamic characteristics of tapered swept wings at sub-critical Mach numbers

2. Engineering (*continued*)

Aeronautical (*continued*)

E.L. Houghton	On the temperature control of a supersonic wind tunnel In a continuous suck-down tunnel the compressor exhaust is used to transfer specific quantities of heat to the intake in order to control working-section flow characteristics
G.N. Sage	Some considerations in the optimization of the structural design of re-entry nose cones
A. Scibor-Rylski	Some ionized and rarified gas effects on the drag of a sphere moving with orbital velocity

Civil and Mechanical:

J.C. Oakden (Head of Department)	
J.C. Levy, Ph.D.	Effect of stress gradiant on fatigue strength 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 Model laws for a concrete mixer
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 19-storey 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 Transient performance of synchronous machines
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	Transient analysis of power networks
P.F. Soper, Ph.D. W. Chellingsworth	Transient performance of d.c. machines
P.F. Soper, Ph.D. A. Barder	Magnetic fluxes in multi-core transformers
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
H. House, Ph.D. J.S. Young	Sampled data servo systems

2. Engineering (*continued*)

Electrical (*continued*)

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
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

Production, Technology and Control:

G.M.E. Williams (Head of Department)	
L. Finkelstein	A telemetering instrument for measuring electrical power, voltage and current in coal mines Non-destructive testing of steel wire ropes

3. Mathematics

A. Geary (Head of Department)	
A.W. Gillies, Ph.D.	Non-linear vibration Electrical networks Sub-harmonic resonance
B. Girling	The two-point boundary value problem of non-linear differential equations (analogue approach)
R.E. Scraton	Solution of a partial differential equation Calculation of attenuation of wave filters
R. Jordinson	Design of a wind tunnel contraction Flow in a jet normal to the wind
A.C. Butcher	More detailed analysis of elastic theory of rotors with relation to bursting
M. Clutton-Brock	A "maximum probability" estimator Monte Carlo on the analogue computer
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
R.A. Newland R.C. Sterling	Integral transforms
S.W. Twine	The analysis of time series The reduced form method
W.J. Robinson, Ph.D.	Solution of a problem in general relativity based on a metric with cylindrical symmetry
I.I. Berenblut	Ageing properties of insulating oils
G.A. Garreau, Ph.D.	Programmes for "Pegasus" computer
J.N. Banks	Computing of values in connection with research on the effects of friction on the compaction of solids

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
C.H. Bedwell	The measurement of intra-ocular pressure
R.M. Case	Aspects of phenomenal regression

4. Ophthalmic Optics (*continued*)

E.F. Fincham	Monocular diplopia
R.J. Fletcher	Measurement of surface curves of small radius Effects of tinted contact lenses on visual acuity
M. Freeman	An electrophysical analogue of the visual system
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
J. Stone (Miss)	Measurement of peripheral corneal curvature
D.F. Wagstaff	Objective measurement of amplitude of accommodation
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. Padham, Ph.D.	Subjective brightness after images
J.E. Caffyn	Mechanical and electrical properties of single crystals of ionic solids; also optical absorption due to impurities and colour centres at low temperatures
T.L. Goodfellow, (Ph.D.	

102 Northern Polytechnic

1. Biology

W. Gerrard, D.Sc. (Head of Department)	
A. Terry (Mrs), Ph.D.	The development of a cestode in the intermediate host
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 of 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
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 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

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
C.F. Gardiner	Theory of infinite Abelian groups

4. Physics

M.E. Pillow (Miss), Ph.D. (Head of Department)	Investigation of excitation of nitrogen within and outside an electron beam Approximations to calculated band intensities
J.C. Barton, Ph.D.	60 track recording on magnetic tape. Multi-channel logarithmic pulse height analyser Amplitude distribution of noise pulses from photo-multipliers Influence of impurities on the scintillation efficiency of gases Design of very large scintillation counters 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
H.J. Mead	Transistor distributed amplifiers
J.L. Redding, Ph.D.	Electromagnetic interactions of μ-mesons
E.B.M. Steers, Ph.D.	Infra-red atomic spectrum (of thorium)

103 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 Chironomidae 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

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)	Investigations into possibility of manufacturing bricks from fly-ash (sponsored research) Research on salt glazed pipes (sponsored research)
W. Gilbert	
W. Gilbert	Properties of bricks made from slate dust Properties of refractories made with high calcium alumina cement
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
S.W. Ratcliffe	Use of Ca-silicate waste from phosphorous furnaces in ceramic tiles bodies
R. Griffiths	Use of aluminium phosphate as a bonding material in refractories
C. Radford	Estimation of carbon in clays

104 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.	Studies in synthesis and properties of nitrogen containing heterocyclic compounds
T.A. Elliot, Ph.D.	Dynamic aspects of surface chemistry. Infra-red investigation of protein degradation
D. Harrison, Ph.D. R.M. Anderson, Ph.D.	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
K. Rose	Acoustic analysis by the applications of large-scale ripple tank apparatus, and their practical use with regard to auditoria, etc.
J. Brown	The analysis of flat-plates by means of the moiré fringe technique

Electrical:

S.R. Smaridge (Head of Department)	
S.J. Cotton	Transient distortion of frequency modulated signals
C.C. Christodoulou	Speed control of induction machines Transient torque measurement
H. Barber	Construction of a network analyser

Mechanical:

C.T. Butler (Head of Department)	
S.G. Baker, Ph.D.	Study of the creep properties of a soft-soldered annular joint subjected to torsional load and the effect of varying the tin-lead ratio of the solder
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	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 relationship between chatter phenomena, forced vibration and cutting forces for various cutting parameters, in horizontal milling
J. Robertson J. Covell T.R. Simes	Determination of optimum cutting conditions for high duty steels and the relationship between tool life and cutting conditions 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	Development of an electrical analogue method of solving Poisson's equation with special reference to torsional stress distribution, and involving the use of resistance paper of appropriate shape 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. Mining

J.R. Ashton (Head of Department)	
S.W. Barry L.A. Chamberd	Utilization of small coal and coal dust
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 J.H. Ball	Practical application of surveying techniques in the determination of latitude and azimuth by solar and stellar observations
F.A. Shephers J.H. Ball	Application of the theory of errors to surveying techniques with particular reference to linear measurement
N.J. Horrell	Study of spores in the coal measures
P. Hopkins	Sedimentary petrology of the Permo-Trias in the Nottingham area

5. 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

6. Physics

A. Middleton, Ph,D, (Head of Department)	
B.H. Kaye	The physical behaviour of powders, techniques of particle size analysis and the physical properties of powder aggregates
N.P.R. Sherry, Ph.D.	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

105 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

Mechanical:

J. Anderson (Head of Department)	
D.D. Forbes	Photo-elastic investigation of taper shrink fits

106 Plymouth and Devonport Technical College

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 Formation of metal-ceramic seals Particle size 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
T.H. Bouncer	Response of uniform sectional beams and wires to periodic disturbance, with reference to methods of excitation, load application and end fixing conditions

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*

107 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

3. Chemistry

C.W. Hyde (Head of Department)	
K.M. Johnston, Ph.D.	Chemistry of predacious fungi

4. Engineering

Civil and Mechanical:

B. Fergusson, Ph.D. (Head of Department)	Effects of contact deformation on the accuracy of comparator probes
R. Gohar	
W.N.C. Moore	Expansion of gas in a liquid stream Refrigeration compressor performances at increased speed
M.A. Wahhab	Evaluation of burning velocities by Schlieren method
J.A. Percival	Analysis of bond stress in reinforced concrete
W.F. Milligan	Treatment of construction joints in concrete work
T. Hunt	Accelerated curing of lean-dry concrete
D. Kinch	An investigation into the structural possibilites of sandwich fibreglass construction
V. John R. Hanley	Investigation into the physical properties of the E.N. series steels

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 Relix 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 vaccum techniques
K.J. Close	Investigation of mechanical-type vacuum gauge Investigation of ion impact with metal surfaces using ultra-high vacuum techniques

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, Coellenterata and Polyzoa
R.W. Webster	Economic entomology

108 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

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
N. Bailey	Oxy-anions of transitional metals

3. Engineering

Electrical:

T.McGreevy (Head of Department)	
R.H. Dadd	On-off relay serve 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
H. Hindle	The performance of compensated sampled-data control systems
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.)
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

4. Mathematics

R. Parker, Ph.D. (Head of Department)	
P.S. Haskell, M.B.E.	The enumerative geometry of triangle systems

5. 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.	

5. Pharmacy *(continued)*

P.J. Russell F. Perks, Ph.D.	Conformation studies of local anaesthetics
W.W. Binns F. Perks, Ph.D.	Chemical investigation of *Lithospermum officinale*
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

6. 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

109 Rugby College of Engineering Technology

1. Chemistry

J.S. Wignall, Ph.D. (Head of Department)	Studies of zirconium and hafnium compounds
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	Wave guides 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

3. Engineering (*continued*)

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
T.J. Williams	Discharge coefficients at elevated temperatures
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)	
D.A.T. Wallace	Non-linear differential equations
L. Haller	Stability of systems analysed by the second method of Lyapunov
J.L. Peake	Evaluation of the damage function in graphite
B. Davies	Asymptotic solutions for linear ordinary differential equations depending upon a large parameter
J. Jordan	Use of conducting techniques in the analysis of metal salts in solution
J.J. Kiely	Application of group theory to molecular and crystal structure
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
K. Angus, D.Phil.	Thermoelectric effects in compound semi-conductors
J. Blackshaw	Production and properties of thin ferromagnetic films

110 Salford Royal College of Advanced Technology

1. Chemistry

G.R. Ramage, Ph.D., D.Sc. (Head of Department)	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

1. Chemistry *(continued)*

L.S. Bark	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
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
	Reactions with diazomethane
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
	The role of chelating agents in the initiation of polymerization
J. Clark, Ph.D.	Syntheses, degradations and physical properties of pyrimidines, pteridines and purines
A. Davies	Biochemistry and histochemistry of chaetae formation in *Arenicola marina* with particular reference to amino acid metabolism transaminase systems and polyphenols
N.R. Harris, Ph.D.	The surface properties of hydrolysed titania
	The influence of water pre-adsorbent on alumina, on gas adsorption, and adsorption from solution, and a correlation with the chromatographic properties of the alumina
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 triturated water into analcite
	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	Chemotactic behaviour of archegoniate antherozoids
	Microbes attacking wool and felt
B.F. Gray, Ph.D. R. Whitehead	Second order perturbation theory of helium-like ions
B.F. Gray, Ph.D.	Use of projection operators in perturbation theory
R. Lawson, Ph.D.	Structure and development of the vertebrae in the amphibia with special reference to intra-vertebra cartilage

1. Chemistry *(continued)*

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
W.E. Sharples	Following rates of decomposition of N-nitroso acyl arylamines by means of gas chromatography
A.W. Somerville, Ph.D.	Reaction of diazomethane with heterocyclic N-oxides

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 plastic mixtures
S. Raymond W. Gemmell	Shear strength and other properties of pulverized fuel ash; pore pressure measurement techniques
R. Eckersley	Hydraulic losses in sewerage systems
F.L. Thomas G. Rhodes	Meteorological aspects of atmospheric pollution
S. Raymond	Traffic generation studies

Electrical

J.H. Calderwood, Ph.D. (Head of Department)	Operational research Dielectric research
W.H. Heyes	Electric breakdown in solid dielectrics
A.R. Cownie	Investigation of factors which affect human reaction to situations involving risk
R.G. Bennett	Relaxation in liquid dielectrics
G.L. Gooberman, Ph.D.	Ultrasonic absorption in polymer solutions
B. Stuttard A.R. Hayes	Novel Hall effect devices
G.H. Tomlinson	The design and optimization of certain networks

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

2. Engineering (*continued*)

Mechanical (*continued*)

G. Boothroyd	A study of the temperature field in the orthogonal cutting process
	Friction between tool and work material in metal cutting
	Development of transient method for the simultaneous determination of thermal conductivity and diffusivity of commercial steels at elevated temperature
B. Fogg	Combined drawing and ironing of cylindrical cups
	Pressure lubrication in the re-drawing process
H. Portnoy, Ph.D.	Theoretical investigations in linearized supersonic flow
W.N. Aplin	An investigation into the thermal resistance occuring at the interface of metals in contact carrying a common heat flux
G. Roberts	Investigation into effect of gas mixtures on thermal conductivity
F.A. Shepherd	Heat transfer, in the presence of forced and natural convection between vertical co-axial circular cylinders

3. Mathematics

E. Kerr, Ph.D. (Head of Department)	Numerical analysis
R.A. Sack, Ph.D.	Statistical mechanics of polymers and crystals
	Numerical and perturbation methods in quantum mechanics
	Numerical integration
S.T.R. Hancock	Investigation of a sixth degree diophantine equation
M.R. Scott	Investigation of numerical solution of network problems arising in the simulation of field problems
N.T. Bloomer, Ph.D.	Statistical investigation of metal fatigue. Use of an analogue computer for the solution of equations
E. Crosby	Use of an analogue computer
N.S. Heaps	Forced oscillations of water and vertical diffusion of heat in stratified lakes
B.V. Landau	Theory of textile drafting. Statistics of runs of success
L.C. Carpenter	Computer simulation of industrial systems
R. Collins	Investigations into Bernal's model for liquid structure
T.J. Gaskell	Investigation into the design of simple but efficient methods for industrial quality control
J.S. Lowndes, Ph.D.	Integral transforms, their properties and applications
E. Huntley	Aeroelastic response of slender aircraft to turbulence
F. Walkden, Ph.D.	Hypersonic flow past blunt bodies
B.A.L. Hart	
J.E. Sellars	
G.A. Wilson	Accurate methods for calculating losses in high-voltage transformers
A. Wragg	Variation of molecular weight distribution during polymerization
B.A. Moore	Relaxation methods for 3-dimensional potential problems with curved interfaces
A. Brooks (Miss)	Nuffield research project on the use and application of mathematics in electrical engineering
A.W. Lee	
H.B. Ramsay	

111 Scottish Woollen Technical College

1. Technology

Textile:

J.G. Martindale, Ph.D. (Principal)	The structure and properties of woollen yarns
B. Hogley	

112 Sir John Cass College

1. Botany

J.K. Spearing, Ph.D. (Head of Department)	Cytochemistry and vital staining of selected Cyanophyceae The autecology and physiology of *Asteromyces cruciatus* Cytology of various Zingiberaceae
M. Brandon-Bravo	Nucleic acids of Cyanophyceae Physicochemical and biological aspects of hydroseral development
P.M. Joy (Mrs.), Ph.D.	Cytology of reproductive structures of *Rhizopus* and *Monascus*. Ecological studies on algae in four reservoirs at Tring, Herts.

2. Chemistry

A.J. Lindsey, D.Sc. (Head of Department)	Intermediate products in the combustion of hydrocarbon diffusion flames Partial combustion products in tobacco smoke Air pollution studies Neutron activation analysis Migration studies of cereal proteins. (In collaboration with the Baking Industries Research Association)
D.W. Wilson	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 with reference to inhibition of cancer Optical rotatory dispersion studies
F.H. Kendall, Ph.D.	Kinetic studies involving tritium exchange Synthesis of labelled indole-acetic acid and application to plant physiology
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
P.G. Farrell	Electronic spectra and structure of carbonium ions Charge transfer spectra
U. Eisner (Miss), Ph.D.	Studies of porphyrin reduction products Determination of structure of a new heterocyclic ring system

2. Chemistry (*continued*)

U. Eisner (Miss), Ph.D. H. Williams	Mechanism and kinetics of dihydropyridine rearrangements
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 Studies on neutron irradiated sulphur Synthesis of labelled benzoic acid and study of exchange reactions

3. Geology

B.S. Smith (Acting Head of Department)	
R.R. Skelhorn, Ph.D.	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 Acid-basic vein relationships in N.E. Guernsey, Channel Islands The thermal decomposition of the amphiboles with special reference to South African crocidolites and amosites
J.D.S. MacDougall	Sedimentation structures within the Weald Clay
T.I. Kilenyi	The evolution and ecology of Kimmeridge ostracods
S.W. Morel, Ph.D.	Geological mapping and petrological studies of 20 sq. miles of volcanic and sedimentary rocks, Parakkisha, Cyprus
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

4. Mathematics

B. Spain, Ph.D. (Head of Department)	Equicofactor matrices Equivalence of Christoffel symbols
M.G. Smith	Transport equation 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

5. Metallurgy

B.S. Smith (Acting Head of Department)	
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	An investigation of the suitability of moulding sands for the lining of ladles
R.P. Green	Investigation of non-metallic inclusions in steel by radiotracer techniques

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
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)

113 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) B. Archer	Investigation of the behaviour of a compound rectangular weir

Electrical:

A.H. Langley, Ph.D. (Head of Department)	
E.A. Freeman, Ph.D.	The effect of cascaded non-linear elements on the stability of automatic control systems 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

2. Engineering (*continued*)

Mechanical:

D. Tagg (Head of Department)	
G. Alderson	Investigation of crankshaft deflections
F. Bennison	An investigation of discharge coefficients for branched manifold systems
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

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. Chitchong-Thingee	Waves in elastic solids

6. 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-inflamatory agents in anaphylaxis
D.G. Wibberley, Ph.D.	Oxidative and reductive cyclization
R.T. Coutts, Ph.D.	Chemistry of the isatogens
M. Hooper, Ph.D.	Aminoguaiacol derivatives
D.G. Wibberley, Ph.D.	Halogenomethyl pyridines
D.R. Bragg	Pyridylacetic esters
J. Lewis, Ph.D.	Sterols related to ergosterol
J. Lewis, Ph.D.	Structure activity relationships in griseofulvin type of antibiotic
J.A. Vickers	
B.P. Jackson (Miss), (Ph.D.	Chemistry and anatomy of *Uncaria Gambier*
	Anatomy of roots of certain species of *Datura*

7. 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

114 Welsh College of Advanced Technology

1. Chemistry

A.H. Henson (Head of Department)	
B. Ellis	Vulcanization of rubber
P.J.F. Griffiths	
G.D. Lovelock, Ph.D.	
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
J.D.R. Thomas	Soiling of fabrics
G.D. Lovelock, Ph.D.	Molecular flexibility
J. Lewis, Ph.D.	Epoxide of aldehyde copolymers
A.H. James (Mrs.)	Study of Epicocci

2. Engineering

R.W. Steed, Ph.D. (Head of Department)	
W.S. Down	Metering of pulsating flow of compressible fluids
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
J.G. Beese	Heat transfer and thermal stresses in steel billets
L. France	Stability of water-bearing sand at tunnel face

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. Mathematics

N.D. Hayes, Ph.D. (Head of Department)	Application of digital computing to engineering problems

4. Geography

J.E. Cule (Head of Department of Commerce)	
T.M. Hodges	Research into occupational structure of Welsh manufacturing industry
T. Boyce	
B.P. Davies	
H. Hancocks	History of tinplate industry in Llanelly

5. Pharmacy

R.V. Lloyd (Head of Department)	
P.J. Nicholls, Ph.D.	Cotton dust and other plant dusts in relation to byssinosis
R. Hughes, Ph.D.	Pharmacology and biochemistry of glutarimides
V. Askam, Ph.D.	Macrocyclic compounds related to steroid hormones
D. Bailey	
V. Askam, Ph.D.	The synthesis of hydroxylated sulphones and other antibacterials
M. Barr	
H.J. Smith, Ph.D.	Synthetic studies of rotenoids
D.J. Ringshaw	
H. Williams	Action of bases on chloroform
M. Davies	Synthesis of 2 : 2-dimethylchromenes which may have physiological activity
E. Brierley	Estimation of the biologically active constituents of derris
I.H. Harrison	Conductivity of emulsions
M. Barnett	Reproducibility of size in ball-milling
R.J. Gilbert	Effect of moisture on the stability of dental fillings
	Solubilizing properties of liquorice
K.C. James	Mechanism of decarbonylation and similar reactions
I. Thomas, Ph.D.	Physicochemical studies with phosphatide sols
M. Rees	Some physical properties of testosterone esters
A.D. Russell, Ph.D.	Use of gradient plate technique for assessing antibacterial agents
	Studies on the action of penicillins
T. Turner	The comparative histology of nux vomica and its adulterants
J.M. Davies	
T. Turner	Histological and phytochemical studies of members of the family Euphorbiaceae

6. Physics

J.R. Bristow, Ph.D. (Head of Department)	Electron microscopy : dislocations in layer structures and decomposition dues to the electron beam
B.L. Rees	
B. Thomas	Radiation damage in magnesium oxide
T.W. Roberts	Effect of fatigue on elastic constants and electrical resistance
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

115 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

2. Physics

A.E. Bate, Ph.D. (Head of Department)	Factors governing the velocity of sound in air Surface tension of liquids by a modified capillary method
J. Bor	Measurement of the optical properties of evaporated films of metals and semi-conductors in visible and ultra-violet light, including the noble metals, silicon, germanium and ferrites Investigation of oxidation and reduction phenomena and aging of surfaces by polarized light technique The piezo-electric properties of single crystals of tellurium
L.D. Brown	Investigation of coupling and mode of action between air column and transverse mouth of an organ pipe

116 Woolwich Polytechnic

1. Biology

C.S. Wood-Baker, Ph.D. (Lecturer-in-Charge)	Variation in *Dactynotus* (D.) *obscutus* (Koch) (Hem. Aphidoidea) Variation in *Dactynotus* (D.) *hypochoreidis* 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 Physical properties and chemical constitution Researches in analytical chemistry
A.I. Vogel, D.Sc. G.H. Jeffrey, Ph.D.	Modern preparative methods in organic chemistry
C.W.N. Cumper, Ph.D.	Dipole moments and chemical constitution Studies on surface chemistry Microwave measurements in chemistry
S.R. Landor, Ph.D.	Studies in acetylenic chemistry Studies on allenes
J. Bassett	Complexometric titrations. Potentiometric titrations
D.J. Morantz, Ph.D.	Studies on trapped radicals Kinetics of transients in photoexcited chlorophyll and transition metal complexes Studies in 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.	Studies on amino acids and peptides Reduced pyridines ring systems
L. Blight	Studies in surface chemistry

2. Chemistry (*continued*)

J.T. Chamberlain, Ph.D.	Interaction of phenols with alkyl nitrites
H.A. Glastonbury	Studies in polarography
P.D. Landor (Mrs.), Ph.D.	Study of allenic antibiotics
B. Demetriou	Studies in allene chemistry
D.W. Andrews	Physical properties and chemical constitution
G.B. Arrowsmith	
A.A. Foxton	
D.J. Bullock	Dipole moments and chemical constitution
J.F. Read	
A. Melnikoff	Applications of microwave measurements in chemistry
G.B. White	Studies in light emission from excited molecules
A.J. Wright	Studies on luminescence
M.A. Sterne	Studies of free radicals in inorganic glasses
D.J. Ball	Allene systems involving large membered rings
P.F. Whiter	Biologically active allenic compounds
D.J.D. Evans	Optically active allenic compounds
A.N. Patel	Allenic halides
D.K. Black	Natural products involving allene systems
A.W. Miller	Studies of amino acids and peptides
E.S. Pepper	Allenic antibiotics
D.J. Laws	Synthetical uses of carbenes
G.B. Leton	Thermogravimetric analysis
C.S.L. Baker	Synthetical uses of acetylenic halides

3. Engineering

Civil, Mechanical and Production:

H. Heywood, D.Sc., Ph.D. (Principal)	Incidence of solar radiation on surfaces at various attitudes
J. Walker (Head of Department)	
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. Brurne	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
M.W.R. Capps	Collection, ground storage and recovery of solar energy

Electrical:

J.F. Freeman (Head of Department)	
D. Griffiths	Studies of sub-transients
S. Robinson	Flux leakage fields of low value
K. Pandya	Harmonics in rectifier-capacitor circuits
J.L. Stefani	Application of matrices
G.F. Freeman	Relaxation studies

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
C. Baxter	Aerodynamics of a rocket
A. Graham	Network synthesis by numerical means
D.J. Fyfe	Numerical solution of ordinary differential equations

5. Physics and Telecommunications

H. Smith, Ph.D. (Head of Department)	Measurement of velocity of sound in gases and the principal specific heats of gases
M.A. Clarke	
G.N. Davis	
L.Lisgarten	
K.B. Reed	Problems in the measurement of electrical noise
R.A. Giblin	
K.G. Warren	
T.D. Beynon	Neutron flux in UR238 in electrons

Name Index

Aaron, M.W. (Miss), 30–15
Aars, H., 63–31
Abbas, T.M., 4–15
Abbott, A.J., 4–1
Abbott, D.L., 4–1
Abbs, E.T., 13–23
Abel, E.W., 4–6
Abercrombie, M., 26–1
Abercrombie, M.L.J. (Mrs.), 30–12
Ablett, J.J.L., 13–2
Abraham, E.P., 63–24
Abraham, M.H., 76–1
Abraham, R.J., 15–6
Abram, J., 116–4
Abrams, J.D., 41–1
Abrams, J.T., 5–27
Abrams, L.D., 3–27
Acheson, R.M., 48–8
Acheson, R.M., 63–7
Ackner, B., 43–4
Ackroyd, J.F., 55–6
Acland, J.D., 68–21
Adair, G.S., 5–24
Adam, G.D., 62–13
Adam, H.M., 8–25
Adam, K.M.G. (Mrs.), 8–35
Adam, M.G. (Miss), 63–6
Adams, A.R.D., 16–2
Adams, C.P., 2–7
Adams, C.W.M., 30–13
Adams, D.H., 47–3
Adams, E., 106–4
Adams, J.F., 59–16
Adams, J.H., 10–22
Adams, R.W., 60–4
Adams, W.S., 3–20
Adamson, C., 60–4
Adamson, I.T., 67–6
Adderson, E., 79–5
Addison, Prof. C.C., 62–3
Addison, W.E., 62–3
Adie, R.J., 3–12
Adkins, B., 19–6
Adkins, C.J., 5–23
Adkins, J.E., 62–9
Adler, J., 19–9
Adrian, Lord, 5–24
Adrian, R.H., 5–24
Agar, J.N., 5–9
Ager, D.V., 19–8
Ager, J.A.M., 56–6
Agrell, S.O., 5–20
Ahmad, K., 10–23
Ainslie, D., 41–3
Ainsworth, R.W., 5–21
Ainsworth, S., 68–2
Aird, Prof. I., 50–10
Airth, G.R., 4–18
Aitchison, Prof. J., 10–8
Aitchison, J., 10–16
Aitken, A., 62–14
Aitken, Prof. A.C., 8–16
Aitken, F. (Miss), 10–25
Aitken, J.T., 26–1
Aitken, M.J., 63–5
Aitken, R.N.C., 10–29
Aked, A., 11–3
Akers, A., 81–3
Akester, A.R., 5–2
Alberman, E. (Mrs.), 30–12
Alcock, C.B., 19–10
Alcock, L., 73–2
Alcock, M.B., 72–1
Alderman, J.K., 59–11
Alderson, G., 113–2
Alderson, T., 5–12
Aldis, A.S., 75–10
Aldred, A.S., 15–8
Alergant, C.D., 15–31
Alexander, A.G., 57–2
Alexander, A.J., 85–1
Alexander, D.P. (Miss), 55–12
Alexander, F., 8–34
Alexander, G.L., 4–28
Alexander, J.M., 19–7
Alexander, P., 32–1
Alexander, R.M., 72–10
Alexander, W. 62–4
Alexander, W.A., 11–2
Alexander, W.D., 10–17
Alfrey, G.F., 3–23
Allan, D., 15–32
Allan, D.N., 7–7
Allan, H.R., 19–14
Allan, J.H., 68–6
Allan, T., 11–3
Allanson, G., 28–4
Allanson, Prof. J.T., 3–9
Allcock, G.R., 15–24
Alldritt, W.A.S., 35–7
Allen, C.R., 67–2
Allen, Prof. C.W., 26–2
Allen, D.M., 64–1
Allen, Prof. D.N.de G., 68–13
Allen, F.L., 115–1
Allen, Prof. F.M.B., 2–15
Allen, G., 59–9
Allen, G.R., 63–1
Allen, H.G., 69–5
Allen, H.S., 22–6
Allen, I. (Miss), 2–16
Allen, Prof. J., 1–6
Allen, J., 22–3
Allen, J.A., 7–31
Allen, Prof. J.F., 66–9
Allen, J.R.L., 64–7
Allen, K.W., 101–1
Allen, Prof. P., 64–7

Allen, P.E., 3–6
Allen, P.H., 19–6
Allen, Prof. T.P., 2–8
Allison, I.M., 26–9
Allison, J., 68–8
Allison, Prof. P.R., 63–31
Allnatt, A.R., 59–9
Allred, H., 47–6
Allsopp, A., 59–7
Allsopp, Prof. C.B., 30–15
Allwood, M.J., 56–9
Almeyda, J.R., 53–8
Alner, D.J., 101–1
Alstead, Prof. S., 10–23
Altmann, S.L., 63–19
Alvin, K.L., 19–2
Alyanak, A., 3–9
Ambache, N., 31–4
Ambrose, E.J., 32–1
Ames, D.E., 84–2
Amini, E., 3–9
Amoroso, Prof. E.C., 24–6
Ancill, R.J., 75–8
Anderson, A.B., 53–15
Anderson, C.K., 13–33
Anderson, D.J., 30–16
Anderson D.M.W., 8–7
Anderson, Prof. E.W., 59–33
Anderson, F.B., 42–1
Anderson, G. (Mrs.), 94–1
Anderson, G.H., 19–4
Anderson, G.S., 7–16, 7–20
Anderson, H.G., 67–6
Anderson, J., 45–6
Anderson, J., 105–2
Anderson, J.A., 4–1
Anderson, J.C., 19–6
Anderson, Prof. J.G.C., 73–7
Anderson, J.N., 67–3
Anderson, J.R., 10–22
Anderson, M. (Miss), 2–22
Anderson, M.R. (Miss), 13–22
Anderson, R.M., 104–2
Anderson, R.S., 10–29
Anderson, T., 10–15
Anderson, W., 32–2
Anderson, W.N., 13–22
Andrade, Prof. E.N.da C., 19–10
Andrew, B.L., 67–17
Andrew, C., 4–8
Andrew, Prof. E.R., 72–9
Andrew, J., 53–9
Andrew, J.D., 7–20
Andrews, D.R., 77–4
Andrews, D.W., 116–2
Andrews, J.N., 81–2
Andrews, P., 65–10
Andrews, P.T., 15–24
Andrews, W.H.H., 55–10
Angus, K., 109–6
Angus, N.S., 12–4
Angus, S., 19–4
Angus, W.R., 72–4
Annand, W.J.D., 59–11
Anning, S.T., 13–9
Annis, D., 15–30
Ansbacher, F., 1–18
Ansell, G.B., 3–25
Ansell, H.V., 80–1
Ansell, M.F., 22–2
Anson, W.W., 7–10
Anthony, H.M. (Mrs.), 13–22
Antill, A.G., 63–1
Apley, J., 4–18
Aplin, W.N., 110–2
Apostolakis, A., 6–6
Appleby, E.C., 24–5
Appleby, R.M., 73–7
Appleton, A.S., 15–16
Appleton, J.H., 12–3
Appleton, J.P., 69–5
Appleyard, W., 79–3
Apthorp, G.H., 53–4
Archbold, J.W., 26–16
Archer, B., 113–2
Archer, B.V., 85–7
Archer, D.M., 79–1
Arcus, C.L., 76–1
Arden, G.B., 41–5
Ardran, G.M., 63–18
Argent, B.B., 68–15
Argue, A.N., 5–5
Argyle, M., 63–28
Argyris, Prof. J.H., 19–1
Arkley, J.E. (Miss), 48–8
Armitage, A., 26–15
Armitage, J.V., 6–5
Armitage, Prof. P., 48–9
Armstrong, C.N., 7–13
Armstrong, D.A.J. (Miss), 49–8
Armstrong, W.D., 5–11
Armstrong, W.G., 35–2
Arnall, L., 15–32
Arneil, G.C., 10–21
Arney, S.E., 73–4
Arnold, Prof. A.H.M., 20–6
Arnold, Prof. R.N., 8–10
Arnott, Prof. W.M., 3–14
Arrowsmith, G.B., 116–2
Arscott, F.M., 76–3
Arthur, D.R., 20–13
Arthur, G.H., 24–7
Arthur, P.D., 10–10
Arthurs, A.M., 63–17
Artis, M.J., 63–30
Aschaffenburg, R., 65–2
Ash, R., 19–3
Ashby, K.R., 6–8
Ashdown, R.R., 4–29
Asher, H., 3–24
Ashford, C.A., 4–4
Ashley, G.T., 59–2
Ashmead, J., 5–23

Ashmole, N.P., 63–33
Ashmore, A., 22–7
Ashmore, P.G., 5–9
Ashton, C.H. (Mrs.), 49–8
Ashton, E.H., 3–2
Ashton, F., 3–27
Ashton, F., 6–6
Ashton, J.R., 104–4
Ashton, K.S.R., 103–1
Ashton, Prof. N., 41–4
Ashton, W.M., 70–2
Ashwell, D.G., 73–6
Ashworth, R., 15–8
Askam, V., 114–5
Askew, G.P., 28–3
Askew, R.R., 59–41
Aspinall, A., 79–6
Aspinall, D., 59–11
Aspinall, G.O., 8–7
Asprey, Prof. G.F., 73–4
Asquith, R.S., 79–2
Asscher, A.W., 47–9
Astarabadi, T., 8–27
Astbury, J.P., 19–14
Astill, A.W., 79–3
Astley, R., 3–21
Aston, J.N., 53–12
Atassi, Z., 3–6
Atha, J., 95–4
Atherden, L.M., 81–5
Atherley, G., 59–23
Atherton, D., 59–11
Atherton, M.P., 15–11
Atherton, N.M., 68–5
Atiyah, M.F., 63–17
Atkin, A.O.L., 6–5
Atkin, R.K., 28–3
Atkins, B., 3–21
Atkins, H.J.B., 30–17
Atkinson, A. (Miss), 68–6
Atkinson, B., 19–3
Atkinson, Prof. F.S., 68–17
Atkinson, R., 113–6
Atkinson, Prof. R.J.C., 73–2
Attree, V.H., 60–4
Attridge, J., 18–9
Attwood, E.M., 3–19
Atwell, J.D., 13–30
Aubrey, J.E., 114–6
Audley, R.J., 26–21
Audus, Prof. L.J., 17–1
Auerbach, C. (Miss), 8–13
Augustin, R. (Mrs.), 16–1
Auld, W., 10–28
Aumonier, F.J., 53–18
Auret, B.J. (Mrs.), 2–6
Austin, A.T., 13–7
Austin, C.R., 5–24
Austin, M.C., 19–9
Axford, R.F.E., 72–2
Axon, H.J., 59–18
Aycliffe, S.H., 81–6
Ayers, K.B., 95–2
Aykroyd, W.R., 48–4
Aylett, B.J., 27–2
Aylwin, J.A., 13–31
Aynsley, E.E., 7–6
Ayres, D.C., 112–2
Ayres, P., 49–9
Ayscough, P.B., 13–7
Azad, R., 96–1
Azzopardi, J., 50–7

Babbage, D.W., 5–17
Babington Smith, B., 63–28
Babister, A.W., 10–10
Bach, S.J., 4–4, 4–22
Bache, B.W., 5–1
Backett, Prof. E.M., 1–22
Backhouse, K.M., 29–1
Bacon, M.F., 18–2
Bacon, R.G.R., 2–6
Bacsich, P., 10–2
Badcock, R.M. (Miss), 61–1
Baddeley, G., 60–3
Baddiley, Prof. J., 7–6
Baden-Powell, D.F.W., 63–16
Badenoch, J., 63–18
Bader, M.G., 76–4
Baff, L.C.M., 79–3
Bagg, D.G., 60–4
Baggott, E.A., 78–2
Bagguley, D.M.S., 63–26
Bagratuni, L., 63–7
Bagshawe, K.D., 29–3 29–5
Bailey, A. (Miss), 5–23
Bailey, A.R., 19–10
Bailey, A.R., 79–3
Bailey, A.S., 63–10
Bailey, D., 110–1
Bailey, D., 114–5
Bailey, D.E., 81–4
Bailey, K., 5–6
Bailey, N., 108–2
Bailey, N.T.J., 63–8
Bailey, P.H., 93–2
Bain, A.D., 8–24
Bain, E.G., 93–4
Bain, W.E.S., 41–1
Bain, W.H., 10–28
Baines, B.H., 59–11
Baines, G.H., 3–27
Baird, Prof. Sir D., 1–14
Baird, J., 8–30
Baird, J.R.C., 10–23
Baker, A., 79–3
Baker, Prof. A.L.L., 19–5
Baker, C., 6–7
Baker, C.S.L., 116–2
Baker, H.J., 60–4
Baker, I.N., 19–9
Baker, Prof. Sir J., 5–11
Baker, J.A., 80–4

Baker, J.B.E., 29–9
Baker, J.G., 4–21
Baker, J.M., 63–26
Baker, J.R., 48–6
Baker, J.R., 63–33
Baker, J.W., 73–7
Baker, R.W.R., 30–13
Baker, S.G., 104–3
Baker, V., 4–1
Baker, Prof. W., 4–4, 4–6
Baker, W.P., 60–4
Bakhtar, F., 3–9
Balch, C.C., 65–6
Balchin, Prof. W.G.V., 74–4
Baldock, G.R., 15–14
Baldwin, C.T., 114–2
Baldwin, Prof. E., 26–3
Baldwin, J.E., 5–23
Baldwin, R.R., 12–2
Balfour, W.E., 5–24
Ball, D.J., 116–2
Ball, G.R., 50–3
Ball, G.V., 77–6
Ball, J., 59–38
Ball, Prof. J.G., 19–10
Ball, J.H., 104–4
Ball, J.N., 15–33
Ball, J.T., 79–7
Ball, K., 15–8
Ball, P.W., 14–2, 15–4
Ballantine, R.I.W., 35–5, 53–1
Ballard, Prof. C.F., 54–6
Ballard, K.J. (Miss), 49–2
Ballentyne, D.W.G., 12–6
Ballinger, R.A., 81–4
Balme, R.H., 47–9
Bamforth, J., 45–12
Banbury, G.H., 6–1
Banbury, P.C., 64–11
Bancroft, G., 109–3
Band, D., 8–32
Banister, A.J., 21–2
Banister, R.J. (Miss), 63–27
Banks, Prof. A.I., 5–16
Banks, E.K.C. (Miss), 26–21
Banks, J.N., 101–3
Banks, P.J., 5–11
Banks, R.E., 60–3
Banks, T.E., 53–17
Bannister, A., 110–2
Bannister, Prof. F.K., 3–9
Bannister, J.L., 73–6
Banthorpe, D.V., 26–7
Banyard, K.E., 14–8
Barash, M., 60–4
Barber, B., 47–19
Barber, H., 104–3
Barber, K.M. (Miss), 52–8
Barber, M. (Miss), 50–6
Barbour, R.F., 4–23
Barclay, J.A., 3–24
Barcroft, Prof. H., 56–9
Barden, L., 15–8
Barden, P., 8–34
Barder, A., 101–2
Barer, G.R. (Mrs.), 63–18
Barer, R., 63–3
Barford, N.C., 19–14
Bark, L.S., 110–1
Barker, A.N., 13–1
Barker, C.C., 12–2
Barker, C.C.H., 72–8
Barker, Prof. D., 6–8
Barker, D.C., 8–35
Barker, G.R., 59–9
Barker, I.R.L., 80–1
Barker, J., 5–8
Barker, J.R., 19–6
Barker, L., 13–32
Barker, M.G., 5–1
Barker, P.E., 3–9
Barker, P.S., 16–1
Barker, S.A., 3–6
Barkhan, P., 55–4
Barlow, A.J., 10–10
Barlow, E.D., 56–4
Barlow, H.B., 5–24
Barlow, Prof. H.E.M., 26–10
Barlow, R.B., 8–25
Barlow, T.E., 7–3
Barltrop, J.A., 63–10
Barnaby, C.F., 57–1
Barnard, A.E., 20–13
Barnard, C.S., 5–1
Barnard, Prof. G.A., 19–9
Barnard, J.A., 26–8
Barnard, P.W.C., 84–2
Barnard, R.O., 39–5
Barnard, T., 26–14
Barnes, F.A., 62–6
Barnes, G.E., 84–9
Barnes, M.M., 15–3
Barnes, V.C., 60–2
Barnett, C.H., 56–1
Barnett, M., 114–5
Barnett, S., 60–6
Barnett, S.A., 10–30
Barnett, V.D., 59–39
Baron, D.N., 52–11
Barr, A.D.S., 8–10
Barr, M., 114–5
Barr, R.G., 80–1
Barr, W., 10–19
Barr, W.A., 8–30
Barrada, A., 41–1
Barrard, B. (Mrs.), 107–6
Barratt, M.G., 59–16
Barratt, N.M., 60–4
Barrault, M.R., 15–8
Barrer, Prof. R.M., 19–3
Barrett, A.M., 5–21
Barrett, G.C., 9–5
Barrett, H.A.J., 83–2
Barrett, I.M. (Miss), 5–18

Barrett, L.R., 19–4
Barrett, W., 13–14
Barrie, J.A., 19–3
Barrington, Prof. E.J.W., 62–14
Barritt, D.W., 4–13
Barron, D.W., 2–2
Barron, T.H.K., 4–6
Barrow, H., 15–8
Barrow, P. (Mrs.), 49–2
Barrow, R.F., 63–10
Barry, D.R., 41–4
Barry, J.M., 63–1
Barry, R.G., 69–6
Barry, R.J.C., 68–23
Barry, S.W., 104–4
Barry, W.J., 102–2
Bartindale, G.W.R., 60–3
Bartlett, C.C., 11–5
Bartlett, Prof. M.S., 26–22
Bartley, A.J., 7–9
Bartley, D.D., 13–6
Bartley, E.O. (Miss), 2–13
Bartley, W., 63–7
Barton, A., 31–1
Barton, D.E., 26–22
Barton, Prof. D.H.R., 19–3
Barton, G., 63–26
Barton, J.C., 102–4
Barton, J.W., 4–6
Barton, M. (Mrs.), 31–1
Barton, M.E. (Miss), 7–20
Barwell, Prof. C.F., 47–10
Barwick, D.D., 7–13, 7–25
Bass, K.C., 101–1
Bassett, D., 30–13
Bassett, J., 116–2
Bassindale, R., 4–30
Bastin, J.A., 22–7
Bastock, M., 8–35
Batchelor, G.K., 5–17
Batchelor, J.R., 30–13
Bate, A.E., 115–2
Bateman, A.J., 59–12
Bates, C.A., 62–13
Bates, D.E.B., 70–6
Bates, Prof. D.R., 2–11
Bates, J.A.V., 39–3
Bates, J.F., 59–10
Bates, J.J., 19–6
Bates, Prof. L.F., 62–13
Bates, T., 68–29
Bateson, F.R.C., 77–5
Bath, I.H., 65–2
Bathurst, R.G.C., 15–11
Batt, R.A.L., 15–32
Batten, E.H., 4–22
Battersby, A.R., 4–4, 4–6
Battey, M.H., 7–11
Batting, F.M., 64–1
Battye, C.K., 30–15
Baum, H., 52–3
Bawn, Prof. C.E.H., 15–6
Baxendale, J.H., 59–9
Baxter, C., 116–4
Baxter, E.F., 6–5
Baxter, E.W., 30–4
Baxter, V.T., 4–2
Baxter-Brown, J.M., 73–10
Bayley, F.J., 7–9
Bayliss, L.E., 26–20
Bayne, S., 66–3
Beagrie, G.S., 8–8
Beale, G.H., 8–13
Beament, J.W.L., 5–28
Beamish, P. (Mrs.), 7–25
Bean, H.S., 84–6
Beanland, J.E., 108–3
Beard, A.J.W., 33–1
Beard, D.W., 70–7
Beard, F.H., 28–5
Bearn, J.G., 49–1
Beattie, Prof. C.P., 68–16
Beattie, I.R., 20–5
Beattie, I.S., 8–34
Beattie, J., 53–10
Beattie, J.H.M., 63–4
Beatty, R.A., 8–13
Beaumont, G.P., 9–8
Beaumont, H.M. (Miss), 3–2
Beaver, Prof. S.H., 61–4
Beavon, R.V., 17–4
Beck, A.H., 5–11
Beck, E. (Mrs.), 43–2
Beck, J.S., 10–22
Beck, W.H., 7–6
Becker, J., 63–7
Beckett, A.H., 84–6
Beckett, E.B. (Miss), 15–12
Beckett, P.H.T., 63–1
Beckett, W.H., 63–1
Beckinsale, R.P., 63–15
Bedford, D.E., 33–1
Bedford, T.H.B., 59–29
Bedson, H., 15–17
Bedson, Prof. Sir S., 49–7
Bedwell, C.H., 101–4
Beech, F.W., 4–1
Beech, J., 68–15
Beechey, R.B., 69–1
Beeley, P.R., 13–16
Beer, A., 5–5
Beer, R.J.S., 15–6
Beese, J.G., 114–2
Beet, A.E., 68–29
Beevers, C.A., 8–7
Begbie, G.H., 8–27
Begg, C.M.M., 1–26
Begg, T.L., 15–28
Begum, F. (Miss), 48–3
Behrman, S., 41–2
Beighton, E., 13–5
Belcher, E.H., 50–3, 50–8
Belcher, J., 49–13
Belcher, R., 3–6

Bell, C., 63–3
Bell, C.F., 83–1
Bell, D.J., 81–4
Bell, E.A., 20–2
Bell, E.C., 79–3
Bell, F., 34–3
Bell, Prof. F., 90–3
Bell, F.D., 60–4
Bell, F.R., 24–6
Bell, Prof. G.H., 67–17
Bell, G.M., 60–6
Bell, H.B., 11–6
Bell, H.S., 91–3
Bell, J., 10–7
Bell, J. (Miss), 26–12
Bell, J.W., 13–32
Bell, L.G.E., 20–13
Bell, P.M.G., 53–16
Bell, P.R., 26–6
Bell, R., 60–4
Bell, R.A. (Miss), 10–28
Bell, R.L., 19–10
Bell, R.P., 63–10
Bell, S., 48–11
Bell, T.M., 1–13
Bell, W.B., 7–9
Bellairs, A.d'A., 55–1
Bellairs, R. (Mrs.), 26–1
Bellamy, D., 68–30
Bellamy, D.J., 6–1
Bellamy, Prof. E.H., 27–4
Bellis, D.M., 59–30
Beloff, J.R., 2–20
Belsey, R., 4–28
Belshé, J.C., 5–13
Belton, J.W., 13–7
Belyavin, Prof. G., 57–4
Bendall, D.S., 5–6
Bengough, W.I., 11–10
Benham, P., 19–7
Benjamin, M.I.W. (Miss), 64–4
Benjamin, T.B., 5–11
Bennet, J.A., 67–4
Bennet-Clark, Prof. T.A., 20–4
Bennett, E.W., 13–10
Bennett, G.H.J., 3–15
Bennett, Prof. J.A.J., 85–1
Bennett, R., 8–22
Bennett, R.C., 13–30
Bennett, R.G., 110–2
Bennett, W.D.G., 85–5
Bennette, J.G., 49–2
Bennison, F., 113–2
Bennison, G.M., 3–12
Benson, A.C., 15–5
Benson, F., 3–9
Benson, F.A., 68–8
Benson, G.K., 15–32
Benson, R.S., 15–8
Benson-Evans, K. (Miss), 73–4
Bensted, J.P.M., 32–2
Bentall, H.H., 50–10
Bentley, J.F.R., 10–28
Bentley, L.E. (Miss), 17–1
Bentley, P.J., 4–20
Bentley, R., 32–2
Benton, D.P., 76–1
Benwell, R.M., 69–9
Berenblut, I.I., 101–3
Beresford, J.C., 60–5
Beresford-Jones, W.P., 24–5
Bergel, Prof. F., 32–1
Berger, R.J., 8–28
Berkeley, C.J.A., 84–1, 84–9
Berkinshaw-Smith, E.M.I. (Mrs.), 30–13
Berman, R., 63–26
Bernal, Prof. J.D., 18–6
Bernat, E.P., 68–8
Bernstein, L., 22–3
Berridge, N.J., 65–7
Berrie, A.M.M., 10–6
Berry, D.C., 4–7
Berry, R.J., 26–12
Berry, W.R., 13–16
Bertram, Prof. D.S., 48–2
Best, R., 28–4
Beswick, F.B., 59–32
Beswick, F.W., 73–12
Beswick, I.P. (Miss), 52–11
Bethell, D., 15–6
Bethell, D.E., 67–2
Bett, K.E., 19–4
Bettess, F., 113–2
Bettley, F.R., 36–1
Betts, A.O., 5–27
Bevan, E.A., 63–9
Bevan, E.M., 59–10
Bevan, S.C., 83–1
Beveridge, Prof. W.I.B., 5–27
Beverley, J.K.A., 68–16
Bevington, J., 3–6
Bewley, A.D., 96–1
Beynon, T.D., 116–5
Beynon, V.H., 9–1
Beynon, Prof. W.J.G., 70–8
Bialokoz, J.E., 63–11
Bichard, M., 7–1
Biddle, F., 57–4
Bidgood, D.E.T., 73–7
Biel, S.N., 84–4
Biggart, Prof. J.H., 2–14, 2–16
Biggs, J., 12–2
Biggs, W.D., 5–11
Bignall, J.R., 37–1
Bignell, V.F., 101–2
Bijl, D., 66–9
Bilbey, D.L.J., 20–1
Bilby, B.A., 68–15
Billett, H., 26–11
Billewicz, W.Z., 1–14
Billimoria, J.D., 58–2
Billing, B.H. (Miss), 52–8
Billing, E. (Miss), 64–10
Billington, J.C., 77–4

Bingle, J.P., 13–15
Binks, J.H., 1–5
Binks, R., 4–6
Binnie, A.M., 5–11
Binnie, D.M., 19–14
Binns, W.W., 108–5
Binyon, E.J., 23–5
Birbeck, M.S.C., 32–1
Birch, Prof. A.J., 59–9
Birchall, J.M., 60–3
Bird, C.L., 13–7
Bird, C.W., 21–2
Bird, E.C.F., 26–13
Bird, I.F., 19–2
Bird, J.H., 20–7
Bird, R.G., 48–2
Birkinshaw, Prof. J.H., 48–1
Birks, J.B., 59–31
Birmingham, A.T., 20–10
Birnstingl, M.A., 53–23
Bish, E.J.B., 93–1
Bish, G.M., 60–4
Bishop, A. (Miss), 5–7
Bishop, A.C., 22–5
Bishop, A.W., 19–5
Bishop, C., 30–1
Bishop, E., 9–5
Bishop, G.B., 15–8
Bishop, J.M., 3–14
Bishop, M. (Miss), 50–10
Bishop, M.W.H., 24–6
Bishop, P.M.F., 30–7, 40–2, 40–3
Bishop, Prof. R.E.D., 26–11
Bishop, W.W., 10–14
Bissett, K.A., 3–3
Bitensky, L., 31–2
Black, Prof. A.N., 69–5
Black, C.J., 13–1
Black, Prof. D.A.K., 59–17
Black, D.K., 116–2
Black, G.W., 2–2
Black, G.W., 13–20
Black, H.F., 90–4
Black, J., 81–3
Black, J.A., 34–3, 34–4
Black, J.D., 8–24
Black, J.I.M., 7–19
Black, K.O., 53–11
Black, M., 5–15
Black, M., 21–1
Black, P.J., 3–23
Black, T.J., 2–8
Black, W.J.M., 7–1
Black, W.W., 5–15
Blackadder, D.A., 5–11
Blackburn, F., 7–1
Blackburn, G.M., 5–9
Blackburn, N., 59–16
Blackburn, W.H., 13–32
Blackett, N.M., 32–2
Blackett, Prof. P.M.S., 19–14
Blackith, R.E., 19–15
Blackler, M.C.H. (Miss), 66–4
Blackley, D.C., 98–1
Blacklock, Prof. J.W.S., 53–15
Blackman, Prof. G.E., 63–1
Blackman, Prof. M., 19–14
Blackman, P.F., 19–6
Blackman, S., 51–6
Blackshaw, J., 109–6
Blackwell, Prof. D.E., 63–6
Blackwell, G.R., 83–5
Blackwood, H.J.J., 51–1
Blackwood, Prof. W., 39–1, 39–5
Blader, F.B., 3–9
Bladon, P., 11–2
Blagg, C.R., 13–15
Blain, J.A., 11–7
Blainey, J.D., 3–22
Blair, E.L., 7–24
Blair, H.S., 2–23, 87–1
Blair, R., 1–1
Blake, E.C. (Miss), 10–25
Blake, G.C., 35–4
Blake, J.G., 7–1
Blake, P.G., 73–5
Blakebrough, N., 3–9
Blakey, J.R., 76–5
Bland, D.R., 59–16
Blandamer, M.J., 14–3
Blandy, J.P., 47–20
Blank, C.E., 68–10
Blaschko, H., 63–25
Blau, H.K.F., 20–2
Bleaney, Prof. B., 63–26
Blest, A.D., 26–23
Blight, L., 116–2
Blight, R., 13–22
Blin-Stoyle, R.J., 63–26
Blitz, J., 83–5
Blomfield, G.W., 68–26
Bloom, A.L., 75–7
Bloomer, N. T, 62–4
Bloomer, N.T., 110–3
Bloor, K., 59–40
Blower, J.G., 59–41
Bloxam, T.W., 74–5
Blundell, C.R.K., 73–7
Blundell, D.J., 3–12
Blundell, P.H., 68–13
Blurton, K.F., 108–2
Blyth, F.G.H., 19–8
Blyth, H.N., 19–13
Blyth, W., 8–6
Board, C., 5–14
Boatman, D.J., 12–1
Boaz, T.G., 13–1
Boddie, Prof. G.F., 8–34
Bodian, M., 34–4
Bodkin, P.E., 49–11
Bodman, R.I., 44–1
Bodmer, A.R., 59–31
Bodmer, W.F., 5–12
Bodsworth, C., 15–16

Bohm, Prof. D., 18–6
Boissard, J.M. (Miss), 5–21
Bolam, T.R., 8–7
Bolland, R.W., 81–1, 81–2
Bolton, A., 15–8
Bolton, C. (Miss), 16–2
Bolton, H.C., 7–23
Bomford, G., 63–11
Bond, A.M. (Miss), 17–7
Bond, E.K. (Miss), 35–5
Bond, G., 10–6
Bond, G.C., 12–2
Bond, T.E.T., 4–11
Bondi, Prof. H., 20–9
Bone, D.S., 116–4
Bones, J.A., 4–8
Boney, A.D., 106–2
Bonham-Carter, R.E., 34–3
Bonner, T.G., 23–2
Bonnett, R., 22–2
Bonnor, W.B., 21–3
Bonsall, Prof. F.F., 7–12
Bonser, G.M. (Mrs.), 13–22
Boon, T.H., 7–13
Booth, A., 68–3
Booth, A.D., 18–6
Booth, C.C., 50–5
Booth, F., 15–14
Booth, H., 62–3
Booth, J.G., 62–13
Booth, J.M. (Miss), 32–1
Booth, K.H.V. (Mrs.), 18–6
Booth, L.G., 69–5
Booth, R.T., 40–3
Booth, T.G., 79–5
Boothroyd, A.R., 19–6
Boothroyd, B., 15–12
Boothroyd, G., 110–2
Boothroyd, R.G., 3–9
Bor, J., 115–2
Boratynski, K., 19–15
Borger, R., 83–4
Born, Prof. G.V.R., 31–3
Borrell, P., 61–2
Borrie, P.F., 41–3, 53–6
Borrill, M., 71–6
Borwein, D., 66–8
Bosanquet, L.S., 26–16
Bosman, R., 63–31
Boss, J.M.N., 4–22
Boswell, G.G.J., 94–2
Boswell, J.G., 68–3
Boswell, R.P., 4–8
Bothwell, P.W., 4–25
Bott, M.H.P., 6–4
Bott, R.W., 14–3
Bott, T.R., 3–9
Botterill, J.S.M., 3–9
Bottle, R.T., 79–2
Bottomley, A., 42–1
Bould, C., 4–1
Boulter, D., 15–4
Boulton, Prof. N.S., 68–8
Boulton, T.B., 53–1
Bouncer, T.H., 106–3
Bourne, D.E., 68–13
Bourne, Prof. E.J., 23–2
Bourne, G.L., 53–10
Bourne, J.R., 79–3
Bourne, R., 109–3
Bowcock, J., 59–31
Bowden, B.S., 7–9
Bowden, F.P., 5–23
Bowden, J., 10–30
Bowden, Prof. K.F., 15–19
Bowden, Prof. R.E.M., 52–2
Bowen, Prof. E.G., 70–5
Bowen, E.J., 63–10
Bowen, N.A., 14–7
Bowen, R., 53–1
Bowen, T.J., 13–4
Bowen-Jones, H., 6–3
Bower, B.D., 3–21
Bower, E.A., 5–24
Bower, M.M. (Miss), 15–10
Bowers, A.B., 15–13
Bowes, B., 24–1
Bowes, D.R., 10–14
Bowie, J.H., 8–18
Bowler, R.F., 77–2
Bowman, W.C., 25–4
Bown, M.G., 5–20
Bowsher, D., 15–2
Bowyer, L.R. (Miss), 4–24
Bowyer, T.L., 94–5
Box, J.A., 93–4
Boxer, G., 77–2
Boyce, T., 114–4
Boycott, B.B., 26–23
Boyd, A.E.W., 8–1
Boyd, Prof. A.M., 59–40
Boyd, D.H.A., 10–23
Boyd, G.I., 13–3
Boyd, G.S., 8–4
Boyd, G. V., 115–1
Boyd, H., 10–29
Boyd, I.A., 10–25
Boyd, Prof. J.D., 5–2
Boyd, J.F., 10–22
Boyd, J.T., 48–9
Boyd, R.L.F., 26–19
Boyde, A., 47–1
Boyer, R.H., 15–14
Boyes, Prof. J., 8–8
Boyland, Prof. E., 32–1
Boyle, A.J.F., 59–31
Boys, S.F., 5–9
Brachi, D.P., 12–3
Bradbeer, C., 22–1
Bradbeer, J.W., 70–3
Bradburn, M. (Miss), 23–3
Bradbury, A., 72–9
Bradbury, M.W., 63–7
Bradbury, S., 63–3

Braddick, H.J.J., 59–31
Braden, M., 47–6
Bradford, Prof. E.W., 4–7
Bradley, D., 13–10
Bradley, D.E., 8–35
Bradley, D.J., 19–14
Bradley, J.E.S., 49–9
Bradley, J.N., 15–6
Bradley, P.B., 3–25
Bradley, R.S., 13–7
Bradley, Prof. W., 13–7
Bradshaw, A.D., 72–1
Bradshaw, A.E., 53–17
Bradshaw, A.R., 8–8
Bradshaw, A.V., 19–10
Bradshaw, Prof. D.B., 13–28
Bradshaw, Prof. E., 60–4
Bradshaw, L.R.A., 13–22
Bradshaw, R., 4–10
Brafield, A.E., 21–1
Bragg, D.R., 113–6
Brailsford, Prof. F., 26–10
Brain, F.H., 30–5
Brain, R., 26–9
Brain, R., 30–9
Brain, R.T., 34–3
Braithwaite, F., 7–29
Braithwaite, G.D., 65–1
Braithwaite, J.L., 15–2
Braithwaite, R.S.W., 60–3
Brambell, Prof, F.W.R., 72–10
Bramma, F., 79–7
Brand, J.C.D., 10–7
Brandon, S., 7–25
Brandon-Bravo, M., 112–1
Bransden, B.H., 10–24
Bransom, S.H., 3–9
Branwood, A.W., 1–16
Brass, W., 1–24
Braude, R., 65–3
Bray, H.G., 3–24
Bray, H.J., 60–4
Bray, J.W., 19–12
Bray, K.N.C., 69–5
Bray, P.T., 75–6
Bray, R.C., 32–1
Bray, R.O., 73–6
Brayshaw, G.H., 7–1
Brayshaw, G.S., 13–10
Brearley, A., 91–3
Brearley, R., 15–30
Breathnach, A.S., 55–1
Brebner, J.N., 9–10
Breese, E.L., 71–6
Bremner, P.M., 62–1
Brennan, D., 15–6
Brennan, H.J., 59–1
Brennan, J.G., 74–6
Brennan, J.G., 97–1
Brenner, S., 5–23
Brenner, S. (Miss), 15–14
Brent, L., 26–23
Brereton, T., 3–17
Brett, D.W., 10–6
Brettle, R., 68–5
Brewer, A.W., 63–26
Brewer, D.B., 3–22
Brewer, F.M., 63–10
Brewer, H.F., 53–15
Brewin, E.G., 56–10
Brewington, C.B., 104–3
Brewster, D.J., 16–1
Brice, W.C., 59–13
Brickell, F., 69–8
Bridge, I.C., 11–3
Bridge, P.S., 5–27
Bridger, M., 93–3
Bridges, C.D.B., 41–5
Bridges, E.M., 74–4
Bridges, J.B., 2–3
Brierley, E., 114–5
Brierley, J.B., 43–2
Brigden, W.W., 33–1, 47–4
Briggs, B.H., 5–23
Briggs, D., 5–8
Briggs, E.M. (Miss), 2–13
Briggs, G.C., 68–8
Brighton, A.G., 5–15
Briglmen, V.A. (Miss), 14–8
Brimacombe, J.S., 3–6
Brindle, A., 59–41
Brindley, G.S., 5–24
Brindley, P.B., 92–1
Brink, D.M., 63–26
Brinkhurst, R.O., 15–33
Brinkley, D.M. (Mrs.), 5–26
Brinkworth, B.J., 73–6
Briscoe, P.A., 13–7
Bristow, J.R., 114–6
Britch, A.L., 15–5
Britton, D., 63–13
Britton, Prof. D.K., 62–1
Britton, H.G., 55–12
Britton, J.L., 10–16
Britton, W.G.B., 84–7
Broadbank, R.W.C., 93–2
Broadbent, D., 59–31
Broadbent, D.E., 5–25
Broadbent, T.E., 59–11
Broadhead, E., 13–35
Broadhead, G.D., 68–21
Broadhurst, F.M., 59–14
Broadhurst, P., 43–5
Broadhurst, P.H., 95–2
Brock, G., 3–9
Brock, L.G., 7–29
Brock, Sir R., 30–18
Brockington, Prof. C.F., 59–35
Brocklehurst, B., 68–5
Brocklehurst, Prof. R.J., 4–22
Brocklehurst, W.E., 8–25
Brogan, T.D., 55–7
Bromley, D.B., 15–27
Bromley, R.H., 93–3

Brook, A.J., 8–6
Brook, G., 13–32
Brook, N., 13–18
Brook, P.A., 62–10
Brook, P.R., 13–7
Brooke, B.N., 3–27
Brooker, R.A., 59–11
Brookes, A.J., 5–1
Brookes, A.M.P., 5–11
Brookes, B.C., 26–10
Brookes, P., 32–1
Brooks, A. (Miss), 110–3
Brooks, A.W., 4–7
Brooks, E., 15–10
Brooks, R.V., 56–6
Brooksbank, B.W.L., 30–3
Broster, W.H., 65–6
Brothers, B.G., 15–8
Brotherston, Prof. J.H.F., 8–30
Brotton, D.M., 60–4
Brough, Prof. J., 73–14
Brough, M.C. (Mrs.), 73–14
Broughton, W.B., 112–7
Brown, A., 8–20
Brown, A.E., 7–23
Brown, A.F., 8–26
Brown, A.L., 62–9
Brown, A.M. (Miss), 21–5
Brown, B., 110–4
Brown, B. (Miss), 59–26
Brown, B.R., 63–10
Brown, C.A., 4–16
Brown, D.A., 53–16
Brown, D.G., 13–26
Brown, D.H., 11–2
Brown, D.H., 78–1
Brown, D.M., 5–9
Brown, E.G., 74–1
Brown, E.H., 19–5
Brown, E.H., 26–13
Brown, E.J., 40–3
Brown, E.M. (Miss), 84–9
Brown, F., 52–15
Brown, G., 79–6
Brown, G.M., 63–16
Brown, G.M., 70–8
Brown, G.M., 116–1
Brown, G.W., 43–4
Brown, J., 18–7
Brown, J., 26–10
Brown, J., 104–3
Brown, J.C., 23–5
Brown, J.J., 55–6
Brown, J.K., 3–6
Brown, J.R., 62–11
Brown, K.M., 73–10
Brown, Sir L., 63–27
Brown, L.D., 115–2
Brown, L.M., 8–16
Brown, P.E., 68–12
Brown, P.E., 68–25
Brown, P.S., 1–14
Brown, Prof. R., 8–6
Brown, R., 15–14
Brown, R., 68–8
Brown, R.B., 78–1
Brown, Prof. R.H., 59–4
Brown, R.H.J., 5–28
Brown, S.S., 32–1
Brown, W., 72–1
Brown, W.A.B., 2–7
Brown, W.B., 8–7
Brown, W.O., 2–1
Browne, B.C., 5–13
Browne, Prof. J.C.M., 40–3
Browne, M.T., 21–6
Browne, Prof. R.C., 7–17
Browne, R.M., 3–7
Brown-Grant, K., 3–24
Brownlee, Prof. G., 20–10
Brownlow, C.E.A., 76–1
Bruce, F.E., 19–5
Bruce, Prof. F.M., 11–3
Bruce, Prof. J., 8–32
Bruce, L.G., 10–8
Bruck, Prof. H.A., 8–3
Bruck, P., 12–2
Bruck, W.H., 109–3
Bruckshaw, Prof. J.M., 19–8
Brudenell, J. M., 45–9
Bruges, E.A., 10–10
Brumfitt, W., 55–7
Brunet, P.C.J., 63–33
Brurne, A.G., 116–3
Brust, J. (Miss), 13–35
Bryan, E.R., 59–11
Bryant, F.J., 12–6
Bryant, G., 35–5
Bryant, T.H.E., 49–9
Bryce, D., 64–13
Bryce, W.A.J., 1–5
Bryce-Smith, D., 64–3
Buchanan, A.A., 55–6
Buchanan, G.L., 10–7
Buchanan, J.B., 7–31
Buchanan, J.G., 7–6
Buchanan, R.H., 2–9
Buchanan, T.J., 1–18
Buchanan, W., 104–4
Buck, G.F., 3–9
Buck, K.R., 90–3
Buck, L.J., 26–21
Buckell, M. (Miss), 54–5
Buckingham, A.D., 63–10
Buckingham, H., 95–2
Buckle, A.L.J., 30–9
Buckley, J.I., 83–1
Buckley, Prof. J.J.C., 48–6
Budd, R.T., 65–5
Budden, K.G., 5–23
Bugg, D.V., 5–23
Buist, G.J., 76–1
Bülbring, E. (Miss), 63–25
Bull, C.S., 77–6

Bull, Prof. G.M., 2–12
Bull, H.O., 7–31
Bull, J.P., 3–22
Bull, M.K., 69–5
Bull, M.M., 5–2
Bull, R.M., 62–13
Bullard, Sir E., 5–13
Bullen, G.J., 18–6
Buller, A.J., 20–12
Bullerwell, R.A.F., 52–3
Bullman, J.S., 47–6
Bullock, D.J., 116–2
Bullock, E., 62–3
Bullock, Prof. K., 59–30
Bullough, R.K., 60–6
Bullough, Prof. W.S., 18–9
Bulman, Prof. O.M.B., 5–15
Bulmer, D., 59–2
Bulmer, M.G., 63–8
Bulock, J.D., 59–9
Bunbury, D. St.P., 59–31
Bunday, B., 94–4
Bunn, D., 13–7
Bunting, Prof. A.H., 64–1
Bunting, B.T., 18–3
Bunting, E.S., 63–1
Bunton, C.A., 26–7
Burbidge, R.F., 4–8
Burch, C.R., 4–21
Burch, P.R.J., 13–24
Burcham, Prof. W.E., 3–23
Burdon, J., 3–6
Burdon, R., 10–5
Burdon-Jones, C., 72–7
Burfoot, J.C., 22–7
Burge, E.J., 20–11
Burge, R.E., 20–3
Burges, Prof. N.A., 15–4
Burgess, A.R., 26–8
Burgess, D.A., 4–12
Burgess, D.C.J., 2–11
Burgess, R.A., 60–2
Burgoyne, F.D., 76–3
Burgoyne, J.H., 19–4
Burhop, Prof. E.H.S., 26–19
Burke, D.C., 1–3
Burke, J., 15–16
Burkhardt, G.D.H., 3–23
Burkill, H., 68–13
Burkill, J.C., 5–17
Burkin, A.R., 19–10
Burley, D.M., 68–13
Burn, G.P., 63–7
Burn, J.I., 50–10
Burnaby, T.P., 61–5
Burnett, Prof. G.M., 1–5
Burnett, J., 78–5
Burnett, Prof. J.H., 7–5
Burnett, W., 10–28
Burnett-Hall, D.G., 19–9
Burney, C.A., 59–3
Burns, D., 1–4
Burns, D.M., 67–16
Burns, T.H.S., 30–1
Burns, Prof. W., 29–10
Burridge, K.O.L., 63–13
Burrill, Prof. L.C., 7–9
Burroughs, L.F., 4–1
Burrows, B.B.B., 3–17
Burrows, E.M. (Mrs.), 15–4
Burrows, H.J., 53–12
Bursill, A.E., 1–21
Burstall, Prof. A.F., 7–9
Burston, W.R., 15–7
Burt, D.R.R., 66–12
Burton, G.W., 4–2
Burton, Prof. H., 21–2
Burton, H., 65–5
Burton, K., 63–7
Burton, W.K., 10–24
Burton-Brown, T., 59–3
Burtt, E.T., 7–31
Burwell, R.G., 13–3
Busbridge, I.W. (Miss), 63–17
Bush, H.D., 79–6
Bush, Prof. I.E., 3–24
Busing, J.R., 85–1
Buston, H.W., 19–2
Busvine, J.R., 48–2
Butcher, A.C., 101–3
Butcher, A.S.F., 30–11
Butcher, K.L., 13–10
Butcher, N.E., 64–7
Butement, F.D.S., 15–6
Butler, B.C.M., 63–16
Butler, Prof. C.C., 19–14
Butler, C.G., 79–5
Butler, C.T., 104–3
Butler, G.M. (Miss), 3–5
Butler, Prof. J.A.V., 32–1
Butler, J.B., 13–1
Butler, J.D., 77–1
Butler, J.R., 19–8
Butler, L., 54–7
Butler, L.H., 73–6
Butler, M.C.R., 15–14
Butler, O.I., 68–8
Butler, P.M., 23–5
Butler, R., 60–6
Butler, R.D., 59–7
Butt, A., 3–19
Butt, A.J. (Miss), 63–13
Butt, D.K., 18–6
Butt, V.S., 63–9
Butt, W.R., 3–8
Butterfield, R., 79–3
Butterfield, Prof. W.J.H., 30–9
Butterworth, I., 19–14
Butterworth, J., 60–5
Butterworth, K.R., 55–10
Buttle, Prof. G.A.H., 25–4
Buxton, A., 15–32
Buxton, R. St.J., 4–22
Bye, G.C., 94–2

Byrde, R.J.W., 4–1
Byrom, F.B., 43–2
Bywater, Prof. T.L., 13–1
Bywaters, Prof. E.G.L., 50–5

Cable, M., 68–29
Caborn, J.M., 8–12
Cadogan, J.I.G., 20–5
Caesar, A.A.L., 5–14
Caffyn, J.E., 101–5
Cahn, R.W., 3–15
Cain, A.J., 63–33
Cain, R.B., 7–5
Cain, T.H., 10–10
Caine, C.A., 63–26
Caird, J.B., 10–13
Cairnie, A.B., 1–19
Cairns-Smith, A.G., 10–7
Calder, D.A., 103–2
Calder, M.G., 59–7
Calderbank, Prof. P.H., 8–10, 90–4
Calderwood, J.H., 110–2
Caldin, E.F., 13–7
Caldwell, Prof. J., 9–3
Caldwell, P.C., 4–4, 4–30
Calladine, C.R., 5–11
Callaghan, P., 54–7
Callaghan, P., 75–7
Callan, Prof. H.G., 66–12
Callear, A.B., 5–9
Callely, A.G., 73–4
Callender, S. (Miss), 63–18
Callingham, B.A., 25–4
Callomon, J.H., 26–7
Calma, I., 15–25
Calman, R.M., 40–3
Calnan, Prof. C.D., 36–1
Calnan, J., 50–10
Calne, R.Y., 55–13
Calvert, D., 66–5
Calvert, E.L., 2–1
Calvert, J., 2–23
Calvert, J.M., 59–31
Calvert, N.G., 15–8
Calus, W.F., 95–2
Cambrook, J.D., 53–5
Cameron, A., 19–7
Cameron, A.H., 3–21, 3–22
Cameron, A.J.V., 10–17
Cameron, C.B., 54–7
Cameron, D., 8–30
Cameron, D.W., 5–9
Cameron, E., 55–3
Cameron, G.G., 66–5
Cameron, H., 109–3
Cameron, J.R., 8–32
Cameron, J.S., 30–9
Cameron, K., 43–4
Cameron, K., 44–1
Cameron, M.E. (Miss), 48–4
Cameron, Prof. Sir R., 57–6
Cameron, R.M., 10–10
Camm, G.L., 59–16
Campbell, Prof. A.C.P., 59–28
Campbell, A.J.D., 10–29
Campbell, A.M.G., 4–13
Campbell, D., 10–28
Campbell, D.R. (Mrs.), 3–22
Campbell, E.D.R., 34–3, 38–3
Campbell, E.J.M., 49–4, 50–5
Campbell, E.M.J. (Mrs.), 18–3
Campbell, F.W., 5–24
Campbell, H.H., 90–7
Campbell, H.J., 43–3
Campbell, I., 90–1
Campbell, I.G., 59–9
Campbell, I.G.M. (Miss), 69–3
Campbell, J., 10–8
Campbell, J.A., 8–35
Campbell, J.D., 63–11
Campbell, J.R., 10–29
Campbell, K.C., 10–7
Campbell, N., 8–7
Campbell, P.N., 49–2
Campbell, R.C., 5–1
Campbell, R.S.F., 10–29
Campbell, S.L. (Miss), 2–15
Campion, M. (Miss), 61–1
Campling, R.C., 65–6
Candlin, D.J., 8–26
Candy, J., 49–12
Cane V. (Miss), 5–17
Canning, E.U. (Miss), 19–15
Cannon, Prof. H.G., 59–41
Canny, M.J.P., 5–8
Cansfield, P.E., 62–1
Cantle, G.S., 60–4
Capon, B., 18–2
Cappell, Prof. D.F., 10–22
Capper, W.M., 4–28
Capps, M.W.R., 116–3
Card, W.I., 8–17
Cardell, B.S., 45–12
Cardew, M.H., 3–9
Carey, F.M. (Miss), 10–23
Carey, G.C.R., 2–21
Carless, J.E., 84–6
Carling, K.E., 97–2
Carlisle, C.H., 18–6
Carlton, L. (Miss), 81–2
Carlyle, A., 4–22
Carman, J., 63–3
Carmichael, A., 10–8
Carmichael, I.S.E., 19–8
Carnegie, W., 76–2
Carnie, J., 60–1
Carpenter, D.L., 73–9, 73–13
Carpenter, E.M., 7–1
Carpenter, K.J., 5–1
Carpenter, L.C., 110–3
Carpenter, R.G., 5–16
Carr, A.J., 1–16
Carr, A.J.H., 71–5
Carr, Prof. D.J., 2–5

Carr, J.G., 4–1
Carr, S.G.M. (Mrs.), 2–5
Carré, B.A., 69–5
Carré, I.J., 2–15
Carrie, J.R.G., 43–4
Carrington, A., 5–9
Carroll, R., 15–22
Carruthers, T.G., 13–32
Carruthers, W., 9–4
Carson, A.S., 13–7
Carson, T.R., 66–2
Carstairs, Prof. G.M., 8–28
Carstairs, K., 54–7
Carter, A. (Mrs.), 54–7
Carter, A.H., 103–1
Carter, C.W., 63–7
Carter, D.J., 19–8
Carter, G., 15–8
Carter, G.A., 28–3
Carter, Prof. G.W., 13–10
Carter, H., 70–5
Carter, J. (Miss), 59–13
Carter, J.W., 3–9
Carter, N.A., 86–1
Carter, P.W., 70–3
Carter, R.W., 7–12
Carter, S.B. (Miss), 4–22
Carter, S.J., 93–4
Carthy, J.D., 22–8
Cartmell, E., 69–3
Carton, D.S., 85–7
Cartwright, E.J. (Miss), 10–28
Cartwright, M.L. (Miss), 5–17
Cartwright, N.J., 3–3
Cartwright, P.M. (Miss), 64–1
Case R.A.M., 32–1
Case, R.M., 101–4
Cass, F.H., 13–10
Cass, R. (Miss), 25–4
Cassell, A.C., 19–5
Cassells-Smith, A.J., 7–13
Cassels, Prof. J.M., 15–24
Cassels, J.W.S., 5–17
Casselton, P.J., 18–1
Cassie, Prof. W.F., 7–9
Cast, J., 94–2
Castillejo L., 3–23
Catcheside, Prof. D.G., 3–16
Catchpole, E.R.E., 82–2
Catchpole, J.R., 13–32
Catchpool, T.D.H., 81–1
Cater, D.B., 5–26
Catherall, P.L., 71–5
Cattell, W.R., 53–7
Catto, M.E., 10–22
Catton, W.T., 7–24
Cauna, N., 7–3
Caunt, A. (Miss), 15–17
Causey, Prof. G., 31–1
Cavanagh, F. (Mrs.), 59–27
Cavanagh, J.B., 30–13
Cavanagh, P., 18–7
Cave, Prof. A.J.E., 53–2
Cavell, E.A.S., 69–3
Cawley, R.H., 43–4
Cawson, R.A., 45–3
Cawthorne, T.E., 45–11
Cayton, H.R., 4–14
Cecil, R., 63–7
Ceresa, R.J., 98–1
Chackett, K.F., 3–23
Chadwick, A., 13–35
Chadwick, D., 59–26
Chadwick, P., 68–13
Chalk, L., 63–14
Challenger, J.H., 4–2
Challinor, S.W., 3–4
Challis, L.J., 62–13
Chalmers, D.G., 5–21
Chalmers, J., 8–22
Chalmers, J.A., 6–6
Chalmers, J.N.M., 3–14
Chalmers, R.A., 1–5
Chalmers, T., 49–4
Chaloner, W.G., 26–6
Chalstrey, L.J., 53–23
Chamberlain, J.T., 116–2
Chamberlain, N.H., 13–32
Chamberlain, R., 2–1
Chambers, E.G., 5–25
Chambers, L.A., 104–4
Chambers, Ll.G., 72–8
Chambers, M.L., 79–4
Chambers, R.D., 6–2
Chambers, R.G., 4–21
Champion, Prof. F.C., 20–11
Champion, J.V., 112–6
Chan, A.S.L., 19–1
Chanarin, I., 55–4
Chance, M.R.A., 3–4
Chandler, D.C., 109–3
Chandler, T.J., 26–13
Chant, S.R., 84–1
Chaplin, T.K., 3–9
Chapman, B.L., 95–4
Chapman, F.W., 20–11
Chapman, Prof. G., 21–1
Chapman, H.R. (Miss), 65–4
Chapman, J.A., 59–38
Chapman, J.C., 19–5
Chapman, Prof. N.B., 12–2
Chapman, R.F., 18–9
Chappell, J.B., 5–6
Chard, F. de la C., 4–8
Charles, A.H., 71–1
Charles, A.O.T., 3–22
Charles, H.P., 64–10
Charles, J.A., 5–19
Charles, L.M., 20–1
Charles, S.W., 72–9
Charlton, D., 84–4
Charlton, T.M., 5–11
Charsley, P., 76–5
Chater, A.O., 14–2

Chater, E.H., 70–3
Chattaway, F.W., 13–4
Chatterjee, A.C., 15–30
Chatterton, J., 62–1
Chave, S.P.W., 48–8
Chayen, J., 31–2
Chayen, R., 26–8
Cheers, F., 59–11
Cheeseman, E.A., 2–21
Cheeseman, G.C., 65–7
Cheeseman, G.W.H., 21–2
Cheesman, D.F., 17–7
Cheetham, G.E., 116–3
Cheetham, H.D., 15–22
Chellingsworth, W., 101–2
Cheong, C.Y., 48–3
Cherrett, J.M., 72–1
Cherry, Prof. E.C., 19–6
Cherry, J., 85–4
Chesney, J., 44–1
Chester, G.V., 3–23
Chester, W., 4–12
Chesters, Prof. C.G.C., 62–2
Chetham, J.R., 76–2
Chick, Prof. A.O., 51–2
Childs, E.C., 5–1
Childs, W.H.J., 90–8
Chilton, J.P., 5–19
Chilver, Prof. A.H., 26–9
Chinner, G.A., 5–20
Chinnery, M.J. (Mrs.), 13–33
Chippindale, P., 110–4
Chirgwin, B.H., 22–6
Chisholm, A.W.J., 110–2
Chisholm, D.S., 60–4
Chisholm, M., 17–3
Chisholm, R.J., 73–8
Chisnell, R.F., 59–16
Chitchong-Thingee, J., 113–4
Chitty, L. (Miss), 19–5
Chorley, R.J., 5–14
Chown, S. (Mrs.), 17–8
Christian, J.W., 63–19
Christie, A.O., 72–7
Christie, D.M., 74–3
Christie, I.F., 8–10
Christie, M.I. (Miss), 63–10
Christison, J.N., (Mrs.), 67–8
Christodoulides, S.P., 26–9
Christodoulou, C.C., 104–3
Chronowicz, A., 13–10
Chu, H.P., 5–27
Chubb, J.C., 15–33
Church, R.E., 68–7
Churchill, D.M., 5–8
Citron, L., 39–4
Claireaux, A.E., 40–3
Clapham, Prof. A.R., 68–3
Clar, E., 10–7
Claret, P.A., 101–1
Claridge, M.F., 73–14
Clark, C., 63–1
Clark, C.D., 64–11
Clark, C.G., 1–25
Clark, E.R., 13–23
Clark, F., 7–13
Clark, G.L., 17–5
Clark, H., 10–8
Clark, H.H. (Mrs.), 7–1
Clark, J., 110–1
Clark, Prof. J.G.D., 5–4
Clark, J.L., 113–7
Clark, L.M., 78–2
Clark, M.M., 76–3
Clark, N.S., 1–15
Clark, P.L., 104–3
Clark, R.B., 4–30
Clark, R.S., 69–8
Clark, V.M., 5–9
Clark, W.A., 7–5
Clark, W.C., 81–6
Clark, Prof. Sir W. le G., 63–3
Clarke, B.C., 8–35
Clarke, C.A., 15–15
Clarke, E.G.C., 24–3
Clarke, E.W., 2–18
Clarke, G.B., 13–1
Clarke, G.M., 4–1
Clarke, G.R., 63–1
Clarke, H.G., 3–18, 3–24
Clarke, J., 68–6
Clarke, J.F., 85–1
Clarke, J.I., 6–3
Clarke, J.K., 2–13
Clarke, J.R., 63–1
Clarke, J.W., 2–3
Clarke, K., 12–2
Clarke, K.U., 62–14
Clarke, M. (Mrs.), 4–1
Clarke, M.A., 116–5
Clarke, P.A., 108–5
Clarke, P.H. (Mrs.), 26–3
Clarke, P.R.F., 68–24
Clarke, S.D., 68–28
Clarke, S.K.R. (Miss), 4–14
Clarkson, B.L., 69–5
Clarkson, M.J., 16–1
Clarricoats, P.J.B., 2–8
Clayson, D.B., 13–22
Clayton, B.E., 34–4
Clayton, E.S., 28–4
Clayton, G.A., 8–13
Clayton, R.M. (Mrs.), 8–13
Clayton, Y.M. (Miss), 36–1
Cleave, J.P., 69–8
Cleaver, J.W., 85–1
Clegg, A.B., 63–26
Clegg, E.J., 15–2
Clegg, G.T., 60–4
Clegg, M. (Mrs.), 63–3
Clegg, M.K. (Miss), 11–4
Clegg, P.C. (Mrs.), 68–23
Cleland, W.P., 50–10
Clements, A.N., 69–1, 69–10

Clemmow, P.C., 5–23
Clerkin, P., 2–1
Cleverdon, C.W., 85–3
Clifford, T.N., 13–13
Cloete, F.L.D., 19–4
Close, K.J., 107–5
Clough, P.A., 65–3
Clough, S., 72–9
Clow, M. (Mrs.), 8–30
Clowes, F.A.L., 63–9
Cluley, J.C., 3–9
Clunie, J.G., 19–9
Clutterbuck, E.K., 76–2
Clutton-Brock, J., 4–2
Clutton-Brock, M., 101–3
Clymo, R.S., 27–1
Coackley, P., 60–4
Coakham, J.W., 101–1
Coales, J.F., 5–11
Coates, E., 79–2
Coates, Prof. G.E., 6–2
Coates, Prof. R.C., 62–4
Coates, M.E., 65–8
Cobb, W.A., 39–6
Cobbe, A.P. (Miss), 63–17
Cobbold, A.F., 56–9
Cochran, W., 5–23
Cochrane, Prof. A.L., 75–11
Cochrane, I., 11–3
Cochrane, W., 56–8
Cockayne, B., 3–15
Cockcroft, Prof. W.H., 12–5
Cocker, Prof. R., 45–3
Cockett, F.B., 56–10
Cocking, E.C.D., 62–2
Cockrell, D.J., 14–4
Cockroft, A.L.,10–24
Cocquerel, M.A.T., 76–2
Codd, I., 13–16
Coe, J.S., 20–5
Coe, K., 9–7
Coe, P.L., 3–6
Coggan, G.C., 62–4
Coghlan, M., 34–3
Cohen, A., 57–4
Cohen, B.L., 10–12
Cohen, D., 61–2
Cohen, D.E., 3–13
Cohen, E., 19–13
Cohen, H., 5–11
Cohen, H.M., 3–21
Cohen, J., 3–28
Cohen, Prof. J., 59–34
Cohen, L., 69–8
Cohen, M., 2–11
Cohen, M.J., 101–2
Cohen of Birkenhead Prof. Lord, 15–15
Cohen, R.D., 47–9
Cohen, S., 55–5
Cohn, P., 32–1
Cohn, P.M., 59–16
Colbourne, M.J., 48–10
Colclough, R.O., 59–9
Cole, A.I., 104–7
Cole, A.J., 67–6
Cole, A.S. (Miss), 4–22
Cole, B.N., 3–9
Cole, D., 41–5
Cole, H.M. (Miss), 9–1
Cole, J.F.I., 11–9
Cole, J.P., 62–6
Cole, J.P., 91–2
Cole, M. (Miss), 59–37
Cole, M.M. (Miss), 61–4
Cole, R.J., 20–13
Colegrave, R.K., 84–4
Coleman, A.M. (Miss), 20–7
Coleman, D.J., 54–1
Coleman, E.N., 10–21
Coleridge, J.C.G., 52–14
Coles, B.L. (Miss), 52–14
Coles, B.R., 19–14
Coles, D.R., 4–13
Coles, H.E., 83–2
Coles, J.M., 5–4
Coley-Smith, J.R., 28–5
Colhoun, Prof. J., 59–7
Collar, Prof. A.R., 4–8
Collie, C.H., 63–26
Collier, L.H., 46–6
Collinge, B., 15–24
Collinge, C.N., 13–10
Collins, Prof. D.H., 68–20
Collins, J., 42–1
Collins, J.C., 60–4
Collins, J.H., 10–10
Collins, K.J., 63–3
Collins, M. (Miss), 8–29
Collins, P.M., 18–2
Collins, R., 26–11
Collins, R., 110–3
Collins, W.D., 59–16
Collinson, A.J.L., 78–4
Collinson, D.W., 7–23
Collinson, E., 13–7
Collis, J.L., 3–27
Colman, G., 59–10
Colman, J.S., 15–13
Coltart, W.D., 53–12
Comfort, A., 26–23
Comline, R.S., 5–24
Common, R., 2–9
Comrie, A.M., 11–8
Conn, Prof. G.K.T., 9–2, 9–9
Conn, Prof. J.F.C., 10–10
Connell, W.D., 62–2
Connolly, J.H., 2–13
Connolly, R., 16–1
Connolly, R.C., 53–9
Connors, T.A., 32–1
Conolly, A.P. (Miss), 14–2
Conran, M.B., 3–3
Constable, F.L., 7–15
Constable, R.L., 1–24

Convery, H., 70–6
Conway, E. (Mrs.), 10–6
Conway, R.G., 59–4
Conzen, M.R.G., 7–10
Cook, A.M., 25–2
Cook, A.R., 15–4
Cook, C.A.G., 41–3
Cook, C.D.K., 15–4
Cook, G.B., 13–14
Cook, H.F., 49–9
Cook, I.T., 12–5
Cook, J.W., 9–4
Cook, L.M., 14–10
Cook, R.P., 67–17
Cook, V., 114–2
Cook, W.F., 63–18
Cook, W.R., 24–7
Cooke, A.H., 63–26
Cooke, B.A., 3–24
Cooke, B.E.D., 30–6
Cooke, C., 17–6
Cooke, R.G., 18–5
Cooke, W.T., 3–14
Cookson, J. (Miss), 8–29
Cookson, Prof. R.C., 69–3
Coombe, D.E., 5–8
Coomber, S.E., 19–8
Coombes, J.D., 20–3
Coombs, R.R.A., 5–21
Coope, G.R., 3–12
Cooper, A.H., 11–6
Cooper, A.R., 77–1
Cooper, B.S., 62–7
Cooper, D.C., 3–9
Cooper, D.G.W., 20–1
Cooper, D.W., 7–9
Cooper, E.A., 7–2
Cooper, E.R.A. (Miss), 59–2
Cooper, F.C., 62–12
Cooper, J. (Miss), 48–8
Cooper, Prof. J.L.B., 73–8
Cooper, J.P., 71–4
Cooper, J.S., 4–7
Cooper, Prof. K.E., 4–14
Cooper, M.G., 5–11
Cooper, Prof. M.M., 7–1
Cooper, P., 59–34
Cooper, R., 2–11
Cooper, R., 59–11
Cooper, R.E., 26–7
Cooper, S. (Miss), 63–27
Cope, C.L., 50–5
Cope, Prof. F.W., 61–5
Cope, J.C.W., 74–5
Copeman, W.S.C., 29–3
Copp, J.L., 67–2
Copping, A.M. (Miss), 21–5
Copping, J., 62–9
Coppock, J.T., 26–13
Copson, Prof. E.T., 66–8
Corbett, M.E. (Miss), 3–7
Corby, C.H., 7–21
Cordingley, J.L., 20–1
Corke, A.T.K., 4–1
Corlett, E.N., 3–9
Cormack, R.M., 1–24
Corner, B. (Miss), 4–18
Corner, E.J.H., 5–8
Corner, W.D., 6–6
Cornfield, A.H., 19–3
Cornwell, H.J.C., 10–29
Cornwell, R.L., 15–32
Corry, J.S., 10–10
Corsellis, J.A.N., 43–2
Cort, L.A., 76–1
Cory, B.J., 19–6
Cosgrove, M.E., 69–7
Cossar, J., 8–16
Cosslett, V.E., 5–23
Cotchin, E., 24–5
Cotson, S., 78–5
Cott, H.B., 5–28
Cotton, L.T., 45–13
Cotton, S.J., 104–3
Cottrell, Prof. A.H., 5–19
Cottrell, Prof. T.L., 8–7
Couch, R.S., 38–7
Coull, A., 1–6
Coull, J.R., 1–8
Coulson, Prof. C.A., 63–17
Coulson, J.C., 6–8
Coulson, Prof. J.M., 7–9
Coulson, W.F., 49–2
Coult, D.A., 15–4
Couper, A., 4–4, 4–6
Coupland, Prof. R.E., 67–1
Court, G.R., 3–23
Court, Prof. S.D.M., 7–20, 48–8
Cousens, J.E., 8–12
Cousens, S.H., 74–4
Cousins, C.M. (Miss), 65–7
Cousins, J.E., 9–9
Coutts, J.A., 101–2
Coutts, J.R.H., 1–23
Coutts, R.T., 113–6
Covell, J., 104–3
Covington, A.K., 7–6
Cowan, G.A., 53–5
Cowan, I.R., 62–1
Cowan, W.M., 63–3
Cowell, D.B., 94–5
Cowell, P., 7–1
Cowen, P., 63–29
Cowey, C.B., 65–1
Cowey, J.B., 10–30
Cowie, A.T., 65–10
Cowie, J.W., 4–10
Cowie, V.A. (Mrs.), 43–4
Cowie, W.J.G., 4–1
Cowley, E.G., 80–1,80–4
Cowley, M.D., 5–11
Cowling, Prof. T.G., 13–14
Cownie, A.R., 110–2
Cox, A.G., 68–28

Cox, B.C., 114-1
Cox, B.S., 15-9
Cox, C.B., 20-13
Cox, Prof. D.R., 18-8
Cox, F.E.G., 20-13
Cox, F.W., 2-23
Cox, J.R., 68-14
Cox, K.G., 13-13
Cox, P. (Miss), 49-2
Cox, P.J.N., 55-8
Coxon, R.V., 63-27
Coyle, M.G., 67-9
Crabb, H.S.M., 4-7
Crabbe, J.G.S., 52-16
Crabbe, W.A., 7-18
Crabtree, N.L., 3-20, 3-21
Cradock-Watson, J.E., 48-3
Cragg, B.G., 26-1
Craggs, Prof. J.D., 15-8
Craggs, Prof. J.W., 13-14
Craig, A.W., 59-29
Craig, Prof. D.P., 26-7
Craig, G.Y., 8-15
Craig, Prof. J., 1-15
Craig, J.O., 10-21
Craig, Prof. W.S., 13-21
Craigmyle, M.B.L., 73-1
Cramb, M., 13-9
Cramp, R., 77-2
Crampton-Smith, A., 63-2
Crane, F.A.A., 19-10
Crane, L.W., 77-4
Crane, W.A.J., 68-20
Crane, W.C., 3-14
Crangle, J., 68-22
Crank, J., 83-3
Cranston, W.I., 63-18
Crathorn, A.R., 32-1
Craven, A.H., 85-1
Crawford, A. (Miss), 15-27
Crawford, D.V., 62-1
Crawford, G.N.C., 63-3
Crawford, J.V., 47-12
Crawford, N., 3-27
Crawford, Prof. T., 54-7
Crawford, T.B.B., 8-25
Crawhall, J.C., 53-7
Crawshaw, A., 94-2
Creak, E.M. (Miss), 34-3
Creamer, B., 56-4
Creamer, R.H., 83-5
Creaser, E.H., 3-16
Cree, I.C., 29-3
Creed, R.F.S., 24-1
Creer, K.M., 7-23
Creese, R., 55-12
Creeth, J.M., 46-2
Cresswell, C., 20-4
Crews, S.J., 3-22
Crichlow, T.V.L., 38-7
Crichton, M.I., 64-13
Crick, F.H.C., 5-23
Crick, R.P., 45-6, 45-10
Crimley, E.M. (Mrs.), 62-12
Crisp, D.J., 72-7
Critchley, J.K., 83-1
Critchley, M., 39-1, 45-8
Crock, G.W., 41-4
Crocker, A.G., 76-5
Crockford, G., 63-3
Croft, A.J., 63-26
Crofton, H.D., 4-30
Crofton, Prof. J.W., 8-33
Crofts, P.C., 60-3
Croghan, P.C., 8-5
Crombie, L., 20-5
Crompton, D., 54-5
Crompton, M.R., 54-7
Cromwell, B.T., 12-1
Crook, E.M., 26-3
Crooke, A.C., 3-8, 3-14, 3-19
Crooke, M., 1-7
Crooks, J., 1-17
Crooks, P., 8-1
Crooks, W.M., 3-9
Crosbie, G., 10-5
Crosby, E., 110-3
Crosby, J.L., 6-1
Cross, A.G., 41-1, 41-3
Cross, B.A., 5-2
Cross, K.W., 3-26
Cross, Prof. K.W., 47-18
Cross, W.G., 35-7
Crossland, Prof. B., 2-8
Crossland, D.C., 62-12
Crossley, Prof. E.L., 64-4
Crossley, J.C., 14-5
Crossman, E., 63-28
Crotty, R.D., 70-1
Crowden, Prof. G.P., 48-7
Crowder, M.M., 60-3
Crowe, L.K. (Miss), 63-9
Crowe, Prof. P.R., 59-13
Crowley, J.D., 52-16
Crowley, N.F.T. (Miss), 52-11
Crowne, C.W., 112-2
Crowson, R.A., 10-30
Cruft, H.J., 8-4
Cruickshank, A.H., 15-22
Cruickshank, A.J.B., 4-6
Cruickshank, A.J.O., 67-4
Cruickshank, A.R.I., 8-35
Cruickshank, B., 10-22
Cruickshank, C.N.D., 3-22
Cruickshank, D.W.J., 13-7
Cruickshank, J.C., 2-9
Cruickshank, J.G., 5-21
Cruickshank, Prof. R., 8-18
Cruickshank, W.J., 18-9
Crumpton, M.J., 55-5
Crundwell, A.C., 10-6
Cule, J.E., 114-4
Cullen, Prof. A.L., 68-8
Cullen, J.M., 63-33

Cullimore, M.S.G., 4–8
Cullinane, N.M., 73–5
Cullingford, C., 62–4
Cullis, C.F., 19–4
Cullwick, Prof. E.G., 67–4
Culver, L.E., 19–7
Cumings, Prof. J.N., 39–1, 39–5
Cumming, G., 3–14
Cumming, J.D., 3–24
Cummings, R.H., 10–14
Cummins, C.S., 47–10
Cummins, W.A., 62–7
Cumper, C.W.N., 116–2
Cundall, R.B., 62–3
Cunliffe, A., 12–6
Cunliffe, Prof. A.C., 45–7
Cunnell, G.J., 27–1
Cunningham, A.D.P., 5–11
Cunningham, D.J.C., 63–27
Cunningham, F.J., 3–8
Cunningham, Prof. G.J., 31–2
Cunningham, I. (Miss), 70–9
Cunningham, J.M.M., 8–1
Cureton, R.J.R., 53–15, 53–20
Curle, S.N., 69–5
Curling, C.D., 20–11
Currall, A.E., 68–12
Curran, Prof. D., 54–8
Curran, Prof. R.C., 56–6
Currey, J.D., 63–33
Currie, B., 95–2
Currie, E.D. (Miss), 10–14
Curry, C., 13–24
Curson, I., 45–3, 51–2
Curtis, A.S.G., 26–1
Curtis, C.A., 60–4
Curtis, C.D., 68–12
Curtis, L.F., 4–9
Curtis, R.F., 74–2
Curwen, M.P., 53–22
Curzen, P.C., 40–3
Curzon, G., 39–5
Cusack, N.E., 18–6
Cusick, F., 1–4
Cusick, G.E., 60–8
Cuthbert, W.A., 65–7
Cuthbertson, Prof. J.W., 62–10
Cutter, E.G., 59–7
Cutteridge, O.P.D., 14–4
Czekalowski, J.W., 13–17
Czerkawski, J.W., 13–15

d'Abreu, Prof. A.L., 3–21, 3–27
Dacie, Prof. J.V., 50–4
Dadd, A.H., 19–2
Dadd, R.H., 108–3
Dagley, P., 15–24
Dagley, S., 13–4
Dainton, Prof. F.S., 13–7
Dainty, J., 8–5
Daisley, K.W., 65–1
Dalby, A., 60–1
Dalby, D.H., 19–2
Dale, R.A., 50–7
Dale, W.M., 59–6
Dales, R.P., 17–9
Dalgarno, Prof. A., 2–11
Dalgliesh, C.E., 50–7
Dalley, J., 13–1
Dalrymple, D., 42–1
Dalton, D.C., 13–1
Dalton, G.A., 4–17
Dalton, R.G., 10–29
Daly, I. de B., 63–27
Daly, J.J., 68–14
Daly, Prof. M. de B., 53–18
Dalziel, J.A.W., 84–2
Dalziel, K., 68–2
Danby, C.J., 63–10
Danckwerts, Prof. P.V., 5–11
Dando, J., 78–5
Dane, D.S., 2–13
Daniel, A.W.T., 22–3
Daniel, G.E., 5–4
Daniel, Prof. P.M., 43–2
Danielian, A., 20–11
Daniell, B.L., 76–4
Danielli, Prof. J.F., 20–13
Daniels, A.R., 81–3
Daniels, Prof. H.E., 3–13
Daniels, T.C., 74–3
Danks, D., 34–4
Darbre, A., 20–2
Darby, Prof. H.C., 26–13
Darbyshire, O., 7–23
Darcy, D.A., 32–1
Darling, Prof. A.I., 4–7
Darling, H.S., 28–5
Darlington, Prof. C.D., 63–9
Darlington, D., 3–2
Darlow, G., 17–7
Darroch, J.N., 59–39
Dartnall, H.J.A., 41–5
Das, M.B., 19–6
Datta, N. (Mrs.), 50–6
Datta, S.P., 26–3
Dauncey, T., 75–7
Davenport, Prof. H., 5–17
Davenport, H.E., 4–1
Davey, J.B., 101–4
Davey, M.J. (Miss), 4–1
David, F.N. (Miss), 26–22
David, J.S.E., 4–29
David, W.A.L., 5–28
Davidson, Prof. C.F., 66–7
Davidson, D., 66–4
Davidson, G., 48–10
Davidson, I.M.T., 14–3
Davidson, J.F., 5–11
Davidson, Prof. J.N., 10–5
Davidson, L.A.G., 3–14
Davidson, P.M., 74–8
Davidson, S., 1–18
Davidson, W., 76–3

Davidson, Prof. W.M., 45–5
Davies, A., 110–1
Davies, A. (Mrs.), 70–1
Davies, Prof. A., 9–6
Davies, A.G., 26–7
Davies, A.G. (Miss), 71–1
Davies, A.J.S., 32–1
Davies, B., 109–4
Davies, B.H., 70–2
Davies, B.L., 83–1
Davies, B.P., 114–4
Davies, C.W., 76–1
Davies, D.E., 61–7
Davies, D.E., 74–7
Davies, D.E.N., 3–9
Davies, D.I., 13–7
Davies, D.L., 43–4
Davies, Prof. D.R., 72–8
Davies, Prof. D.V., 56–1
Davies, E.T., 9–1
Davies, Prof. E.T., 69–8
Davies, Prof. F., 68–1
Davies, G.D.D., 9–1
Davies, G.M., 72–1
Davies, H., 63–26
Davies, H.E.F., 73–12
Davies, H.J., 69–8
Davies, H.R.J., 74–4
Davies, I., 71–6
Davies, J., 54–2
Davies, J.B.M., 15–28
Davies, J.D., 74–3
Davies, J.E., 60–3
Davies, J.G., 59–4
Davies, J.M., 114–5
Davies, J.M. (Miss), 32–1
Davies, J.P.H., 45–2
Davies, Prof. J.T., 3–9
Davies, J.V., 59–6
Davies, J.W.L., 3–22
Davies, L., 6–8
Davies, M., 76–3
Davies, M., 114–5
Davies, M.E., 3–5
Davies, M.E. (Miss), 8–34
Davies, M.G., 15–24
Davies, M.J., 70–7
Davies, M.M., 70–4
Davies, P.O.A.L., 69–5
Davies, P.W., 74–7
Davies, R., 5–6
Davies, R.D., 5–11
Davies, R.D., 59–4
Davies, R.G., 19–15
Davies, R.I., 72–1
Davies, R.O., 14–7
Davies, R.O., 22–7
Davies, R.R., 55–7
Davies, S.R., 8–10
Davies, T.H., 74–3
Davies, Prof. T.V., 70–7
Davies, W., 73–6
Davies, W.E., 71–6
Davies, W.T., 63–26
Davies-Jones, G.A.B., 68–14
Davis, A., 7–11
Davis, A., 60–6
Davis, B.T., 3–22
Davis, D.G., 26–19
Davis, G.H.G., 3–3
Davis, G.N., 116–5
Davis, J.A., 40–4
Davis, J.C., 15–22
Davis, J.F., 18–3
Davis, K., 52–16
Davis, M.J., 93–1
Davis, P.G., 81–3
Davis, P.H., 8–6
Davis, P.R., 52–2
Davis, P.W., 1–7
Davis, R., 64–12
Davis, S., 52–17
Davis, W., 32–1
Davison, A.N., 30–3
Davison, K., 39–7
Davison, M., 19–14
Davson, H., 26–20
Dawes, B., 20–13
Dawes, E.A., 10–5
Dawes, G.S., 63–18
Dawes, J.D.K., 7–19
Dawkins, C.J.M., 52–1
Dawkins, M.J., 63–18
Dawkins, P., 49–2
Daws, P.P., 13–27
Dawson, A.M., 52–8
Dawson, E., 13–1
Dawson, G.A., 61–7
Dawson, G.D., 43–3
Dawson, I.M., 10–7
Dawson, I.M.P., 58–2
Dawson, J.B., 13–24, 13–33
Dawson, K.B., 32–3
Dawson, M. (Miss), 11–8
Dawson-Edwards, P., 3–27
Day, W.R., 63–14
Daymond, S.D., 15–14
Daysh, Prof. G.H.J., 7–10
Dean, A.C.B., 45–12
Dean, B.M., 53–7
Dean, F.M., 15–6
Dean, K.J., 92–3
Dean, P.J., 20–11
Dean, Prof. W.R., 26–16
Dearden, W.H., 4–8
Dearman, W.R., 7–11
Dearnaley, E.J., 59–34
Deas, H.D., 68–13
de Boer, G., 12–3
de Boise, B.L. (Miss), 21–7
de Bono, A.H.B., 30–18
Deckker, B.E.L., 10–10
Dee, J. (Miss), 26–23
Dee, Prof. P.I., 10–24

Deeley, E.M.S., 20–6
Deer, Prof. W.A., 5–20
Deicke, A.W., 69–8
de Kock, L.L. (Mrs.), 1–26
de la Mare, Prof. P.B.D., 17–2
Delany, M.J., 69–11
Delf, B.W., 73–11
Dell, C.C., 13–18
del Rio Lozano, I., 55–10
Demetriou, B., 116–2
Demetsopoullos, I.C., 78–4
de Monchaux, C. (Miss), 26–21
Dempster, D.G., 1–1
Dempster, J.P., 19–15
Dempster, W.J., 50–10
Denaro, A.R., 94–2
De Navasquez, S.J., 30–13
Denbigh, Prof. K.G., 19–4
Dennell, Prof. R., 59–41
Dennis, K.J., 1–14
Dennis, S.C.R., 68–13
Dennison, J.P., 74–7
Dennison, W.M., 10–28
Dent, Prof. C.E., 57–3
Dent, J., 95–2
Dent, K. (Miss), 7–1
Dent, K.W., 62–1
Deol, M.S., 26–12
Derrick, M., 63–26
Derricott, R.T., 77–4
Derrington, M.G., 59–11
Derry, L.W., 76–4
Deubert, A. (Miss), 49–9
Deuchar, E.M. (Miss), 26–1
Devonshire, A.F., 4–21
Dewar, A.D., 8–27
Dewar, H.A., 7–13
de Wardener, Prof. H.E., 29–3, 29–5
Dewdney, J.C., 6–3
Dewey, J.F., 59–14
Dewhirst, D.W., 5–5
Dew-Hughes, D., 5–19
Dewhurst, C.J., 68–18
Dewsberry, R., 73–11
Dexter, D., 54–7
Diamond, D., 10–13
Diamond, Prof. J., 59–11
Diamond, R., 60–7
Dibdin, F.J.H., 87–2
Dick, D.A.T., 63–3
Dick, Prof. G.W.A., 2–13
Dick, H.M. (Mrs.), 67–8
Dick, Prof. J., 67–4
Dick, M.W., 10–6
Dickens, Prof. F., 49–2
Dicker, S.E., 26–17
Dickerson, J.W.T., 5–18
Dickinson, B., 59–31
Dickinson, C.J., 57–3
Dickinson, G.C., 13–12
Dickinson, H., 74–3
Dickinson, P.H., 7–29
Dickinson, Prof. R.E., 13–12
Dickinson, S., 5–1
Dickson, A.D., 1–2
Dickson, J.A., 2–22
Dickson, J.H., 5–8
Diengdoh, J.V., 31–2
Digby, P.S.B., 56–3
Dillon, T.J. (Miss), 21–6
Dils, R.R., 3–4
Dilworth, R., 60–2
Dimbleby, G.W., 63–14
Dimsdale, H. (Mrs.), 39–2
Dineley, J.L., 7–9
Dingle, Prof. R.B., 66–9
Dingwall-Fordyce, I. (Miss), 59–23
Dinsdale, T., 59–1
Dippy, J.F.J., 84–2
Dirac, Prof. P.A.M., 5–17
Ditchburn, Prof. R.W., 64–11
Dix, M.R. (Miss), 39–4
Dix, N.J., 84–1
Dixon, A.D., 59–2
Dixon, A.F.G., 10–30
Dixon, C.J., 19–8
Dixon, D., 10–24
Dixon, D.A., 8–8
Dixon, H.B.F., 5–6
Dixon, H.G., 40–3
Dixon, K.C., 5–21
Dixon, M., 5–6
Dixon, N.F., 26–21
Dixon, P.A., 18–1
Dixon, P.S., 15–4
Dixon, R.N., 68–5
Dixon, S.L., 15–8
Dixon-Lewis, G., 13–32
Dobbie, B.M.W. (Mrs.), 3–19
Dobbie, J.L., 59–37
Dobbing, J., 47–18
Dobbs, C.G., 72–3, 72–6
Dobbs, R.H., 47–15
Dobree, J.H., 41–1, 53–11
Dobson, R.M., 10–30
Dodd, C., 26–19
Dodd, C. (Miss), 84–7
Dodd, F.H., 65–3
Dodd, Prof. J.M., 13–35
Dodds, Prof. Sir C., 49–2
Dodds, J.G., 8–6
Dodge, J.D., 18–1
Dodgson, K.S., 73–3
Dodson, M.H., 63–16
Doell, B.H., 48–4
Doidge, P.R., 76–5
Doig, A., 8–17
Dolby, D.E., 46–5
Dolby, J.M. (Mrs.), 46–5
Doll, W.R.S., 48–9
Dollar, A.T.J., 18–4
Dollimore, D., 110–1
Dollimore, J., 110–4
Domb, Prof. C., 20–11

Dombrowski, N., 19–4
Dominy, J.N., 64–1
Donald, Prof. I., 10–19
Donald, J.D., 80–1
Donald, Prof. K.W., 8–17
Donald, Prof. M.B., 26–8
Donald, R.A., 15–24
Donaldson, A.A., 8–20
Donaldson, I.S., 60–4
Donaldson, J.D., 84–2
Donaldson, M. (Miss), 8–29
Donaldson, P., 5–24
Donaldson, R., 10–10
Donbrow, M., 84–6
Doniach, Prof. I., 47–16
Donkin, R.A., 3–11
Donovan, B., 27–4
Donovan, B.T., 43–3
Donovan, D.T., 4–10
Dooley, J.F., 60–4
Dore, J., 83–1
Dorf, R.C., 8–10
Dorman, H.J., 2–23
Dormandy, K.M. (Mrs.), 34–2
Dormer, K.J., 59–7
Dornhorst, Prof. A.C., 54–3
Dott, Prof. N.M., 8–20
Dougherty, J.P., 5–17
Doughty, J. (Mrs.), 48–4
Dougill, J.W., 19–5
Douglas, A., 11–3
Douglas, A.A., 67–10
Douglas, A.S., 10–17
Douglas, Prof. D.M., 67–20
Douglas, H.W., 15–6
Douglas, J., 83–1
Douglas, J.F., 78–1
Douglas, J.W.B., 8–30
Douglas, M. (Miss), 8–31
Douglas, Prof. R.W., 68–29
Douglas, S.W., 5–27
Douglas, T.A., 10–29
Douglas, T.J., 101–2
Douthwaite, R.M., 13–16
Dow, C., 2–1
Dowker, C.H., 18–5
Dowker, Y.N. (Mrs.), 19–9
Dowling, B.L., 4–3
Down, W.S., 114–2
Downer, J.L. de C., 26–1, 26–21
Downham, E., 77–2
Downie, Prof. A.W., 15–17
Downie, C., 68–12
Downie, D.B., 11–6
Downie, G., 1–9
Downman, Prof. C.B.B., 52–14
Downs, A.W., 77–1
Downs, B., 95–2
Downton, D., 52–17
Downton, H.F., 14–7
Dowrick, G.J., 28–2
Dowson, D., 13–10
Doyle, M.D.C., 15–8
Doyle, W.P., 8–7
Drabble, F., 15–8
Drabble, J.R., 9–9
Drake, D.G., 15–14
Drake, T.T., 108–3
Dransfield, J.W., 15–32
Draper, A., 109–3
Draper, M.H., 8–27
Drazin, P.G., 4–12
Drennan, D.S.H., 64–1
Drever, H.I., 66–7
Drever, Prof. J., 8–29
Drever, R.W.P., 10–24
Drew, Prof. G.C., 26–21
Drillien, C.M., 8–23
Driscoll, E.M., 15–10
Driver, M.V., 43–3
Drummond, H.M., 47–7
Drury, Sir A., 5–21
Drury, F.S., 24–1
Drysdale, R.B., 3–16
D'Silva, J.L., 20–12
Du Boulay, G., 53–20
Dubowitz, V., 68–19
Duckham, Prof. A.N., 64–1
Duckworth, J.E., 28–1
Duckworth, R., 47–6
Duckworth, R.A., 101–2
Duckworth, R.B., 11–4
Duddington, C.L., 107–2
Dudley, B.R., 62–4
Dudley, H.A.F., 1–25
Dudley, Prof. N.A., 3–9
Duff, P.M.D., 8–15
Duff, R.S., 68–14
Duffin, W.J., 12–6
Dugdale, D.S., 68–8
Duggan, M.M. (Mrs.), 10–28
Duguid, I., 41–4
Duguid, J.P., 8–18
Duguid, W.P., 10–22
Duke, H.N., 49–10
Duke-Elder, Sir S., 41–5
Dukes, C.E., 32–1
Duller, G.A., 9–8
Dullforce, W.M. (Miss), 62–8
Dumbell, K.R., 15–17
Dummer, M.H., 70–1
Duncan, A.M., 95–3
Duncan, Prof. A.S., 75–5
Duncan, C.J., 15–33
Duncan, E.H.L. (Miss), 4–25
Duncan, Prof. J.P., 68–8
Duncan, J.S., 59–13
Duncan, L.J.P., 8–25
Duncanson, A., 1–18
Dundee, J.W., 2–2
Dunford, W.J., 9–1
Dungworth, D.L., 4–29
Dunham, Prof. K.C., 6–4
Dunlop, Prof. Sir D., 8–25

Dunlop, G.M. (Miss), 17–4
Dunmore, J.H., 85–4
Dunmore, R.O., 74–3
Dunn, A.M., 10–29
Dunn, A.S., 60–3
Dunn, T.M., 26–7
Dunnage, J.E.A., 84–4
Dunnet, G.M., 1–26
Dunnill, M., 63–31
Dunning, K.W. (Mrs.), 4–6
Dunning, N.J., 59–31
Dunning, W.J., 4–6
Dunsmore, H.S. (Miss), 10–7
Dunstan, E.M., 59–11
Dunstan, W.J.T., 102–4
Dunstone, G.H., 7–29
Dunwoody, N.T., 2–11
Du Plessis, N., 7–12
Durney, B., 66–9
Durnford, J., 15–8
Durnin, J.V.G.A., 10–25
Durrani, N.A., 13–5
Durrant, A., 70–1
Durward, Prof. A., 13–3
Dury, G.H., 18–3
Duthie, D.W., 81–1
Duthie, H.L., 13–30
Duthie, J.J.R., 8–17
Duthie, O.M., 59–24
Duthie, T., 3–9
Dutton, A.C., 50–6
Dutton, G.J., 67–17
Dutton, J., 74–8
Dutton, R.W., 50–7
Duval, D.M. (Miss), 112–7
Du Val P., 26–16
Dwight, J.B., 5–11
Dyce, D.M., 24–1
Dyer, A., 110–1
Dyke, S.C., 3–22
Dyke, S.F., 81–2
Dykes, A.R., 11–3
Dykes, P. de K., 5–11
Dykes, P.W., 3–22
Dyson, E., 79–7

Eaborn, C., 14–3
Eades, R.G., 72–9
Eades, S., 4–18
Eady, E.T., 19–11
Eagar, R.M.C., 59–14
Eales, A.J., 81–3
Eames, W.P., 112–4
Earl, C.J., 41–2
Earland, C., 79–7
Earls, J.C., 1–6
Earnshaw, A., 76–1
Eason, G., 11–5
Easson, E.C., 59–37
East, Prof. W.G., 18–3
Easterbrook, E.J., 112–5
Eastham, J.F., 59–11
Easthope, C.E., 70–7
Eastwood, W., 68–8
Easty, D.M. (Mrs.), 32–1
Easty, G.C., 32–1
Eayrs, Prof. J.T., 3–2
Ebling, F.J., 68–30
Ebsworth, E.A.V., 5–9
Eccles, J.D., 2–7
Eckersley, R., 110–2
Eckstein, P., 3–2
Eddy, Prof. A.A., 60–1
Eddy, T.P., 48–4
Ede, D.A., 28–1
Edelman, J., 19–2
Edels, H., 15–8
Eden, R.J., 5–17
Edeson, J.F.B., 16–1
Edgar, W.M., 58–2
Edge, W.L., 8–16
Edmond, P., 8–32
Edmonds, J.M., 63–16
Edmunds, D.E., 73–8
Edmunds, J.G., 60–7
Edmundson, J.K., 15–30
Edwards, A., 19–5
Edwards, A.J., 53–23
Edwards, A.R., 2–1
Edwards, C.H., 104–7
Edwards, D.A., 7–12
Edwards, D.A.W., 57–1
Edwards, D.B., 7–9
Edwards, D.B.G., 59–11
Edwards, D.H., 70–8
Edwards, D.N., 15–24
Edwards, E., 15–30
Edwards, E., 95–4
Edwards, F.J., 59–11
Edwards, F.R., 15–30
Edwards, G.B., 15–32
Edwards, G.J., 101–2
Edwards, H.C., 45–13
Edwards, J.H., 3–26
Edwards, Prof. K.C., 62–6
Edwards, M.M. (Miss), 62–1
Edwards, N.A., 13–33
Edwards, P.St.J., 110–1
Edwards, R.A., 8–1
Edwards, R.J., 60–4
Edwards, R.L., 3–19
Edwards, R.L., 79–2
Edwards, R.S., 70–1
Edwards, R.W.H., 34–4
Edwards, S.F., 59–31
Edwardson, T.E., 63–14
Effemey, H.G., 26–10
Egerton, G.S., 60–8
Egerton, M.E. (Miss), 52–9
Eggleston, Prof. H.G., 17–5
Eggleton, M.G. (Mrs.), 26–20
Eglinton, G., 10–7
Ehrenberg, W., 18–6
Eisenklam, P., 19–4

Eisenschitz, Prof. R.K., 22–7
Eisner, U. (Miss), 112–2
Ekins, R.P., 49–9
Elcock, E.W., 1–18
Elder, H.M., 11–10
Elek, Prof. S.D., 54–7
Eley, Prof. D.D., 62–3
Elithorn, A., 39–7, 52 15
Elkins, T.H., 20–7
Ellenby, C., 7–31
Ellerby, F.B., 81–4
Elliot, Prof. H., 19–14
Elliott, C.G., 10–6
Elliott, D.H., 63–3
Elliott, F.B., 101–1
Elliott, F.J., 8–34
Elliott, G.K., 72–6
Elliott, J.P., 69–8
Elliott, N.R., 8–14
Elliott, R., 59–18
Elliott, R.B., 62–7
Elliott, R.C., 53–16
Elliott, R.J., 63–26
Elliott, R.L., 79–2
Elliott, S.D., 5–27
Elliott, T.A., 104–2
Elliott, W., 7–13
Ellis, A.W., 84–2
Ellis, B., 114–1
Ellis, F., 7–29
Ellis, F., 19–7
Ellis, G., 53–1
Ellis, H.A., 3–22
Ellis, J.R., 26–12
Ellis, Prof. J.R., 86–1
Ellis, R.E., 49–9
Ellis, R.W., 7–17
Ellis, Prof. R.W.B., 8–23
Ellis, S. (Miss), 79–5
Ellis, Prof. S.R.M., 3–9
Ellis, T., 15–16
Ellison, A.J., 22–3
Ellison, T.H., 59–31
Ellison, Prof. W., 70–1
Ellwood, Prof. E.C., 11–6
Elmes, P.C., 2–12
Elmore, D.T., 2–4
Elmslie, E.S. (Miss), 45–4
Elphick, M.J., 7–12
Elsden, Prof. S.R., 68–16
Elsmore, B., 5–23
Elson, L.A., 32–1
Elstein, M., 40–3
Elton, C.S., 63–33
Elton, L.R.B., 76–5
Elvery, R.H., 26–9
Elvidge, J.A., 19–3
Elwell, B., 108–6
Elwell, R.W.D., 20–8
Elworthy, P.H., 11–8
Emanuel, R.W., 33–1
Embleton, C., 17–3
Embrey, M.P., 63–21
Emeleus, C.H., 6–4
Emeleus, Prof. H.J., 5–9
Emeleus, Prof. K.G., 2–17
Emerson, A., 7–9
Emery, E.R.J., 29–3
Emery, F.V., 63–15
Emery, V.J., 3–23
Emslie, Prof. J.W., 10–29
Emslie, R.D., 30–6
Emslie-Smith, A.H., 7–15
Emslie-Smith, D., 67–7
Emslie-Smith, M. (Mrs.), 7–15
England, D.H., 83–1
English, M.P. (Miss), 4–14
Entwisle, A.R., 68–15
Entwistle, K.M., 59–18
Entwistle, N., 79–2
Epstein, H.G., 63–2
Epsztejn, L. (Miss), 52–9
Erasmus, D.A., 73–14
Ernst, Z.L., 76–1
Erskine, D.S.C., 8–1
Eshelby, J.D., 3–15
Esnouf, M.P., 63–7
'Espinasse, Prof. P.G., 12–7
Espiner, H.J., 4–28
Essery, I.T.S., 3–9
Estermann, T., 26–16
Etherington, D., 102–1
Etherington, I.M.H., 8–16
Etherington, J. (Mrs.), 102–1
Ettlinger, G., 39–7
Evans, A.E.J., 77–4
Evans, Prof. A.G., 73–5
Evans, A.M., 14–6
Evans, A.M. (Miss), 71–6
Evans, B.L., 64–11
Evans, C., 109–3
Evans, D.A., 7–12
Evans, D.F., 19–3
Evans, Prof. D.G., 48–3
Evans, D.H., 70–1
Evans, D.H.L., 26–1
Evans, D.J., 3–15
Evans, D.J., 59–11
Evans, D.J.D., 116–2
Evans, Prof. E.E., 2–9
Evans, E.T.R., 5–27
Evans, F., 7–31
Evans, F.C., 92–3
Evans, F.T., 53–1
Evans, G., 19–8
Evans, G.C., 5–8
Evans, G.J., 109–3
Evans, G.R., 8–26
Evans, H.D., 19–4
Evans, H.E., 74–3
Evans, I.A. (Mrs.), 72–2
Evans, J.H., 23–1
Evans, J.R., 114–1
Evans, M.E.G., 59–41

Evans, M.H., 56–9
Evans, P.A., 82–1
Evans, P.E., 60–4
Evans, P.J., 3–21
Evans, R.A., 72–2
Evans, R.C., 5–20
Evans, R.E., 5–1
Evans, R.G., 61–1
Evans, Prof. R.H., 13–10
Evans, T., 64–11
Evans, T., 73–13
Evans, W.A.L., 73–14
Evans, W.C., 62–12
Evans, Prof. W.C., 72–2
Evans, Prof. W.D., 62–7
Evans, W.E., 29–3
Evans, W.L.D., 29–8
Evans, W.H., 15–24
Evans-Pritchard, Prof. E.E., 63–4
Eve, J., 7–12
Everard, C.E., 22–4
Everard, C.O.R., 107–6
Evered, D.F., 84–2
Everett, Prof. D.H., 4–6
Everett, J.L., 32–1
Ewbank, R., 15–32
Ewer, Prof. T.K., 4–29
Ewing, Prof. Sir A., 59–5
Ewing, A.E., 8–35
Ewins, J., 101–5
Exley, C.S., 61–5
Exley, K.A., 13–23
Eyre, S.R., 13–12
Eysenck, Prof. H.J., 43–5
Eysenck, S.B.G., 43–5

Faber, T.E., 5–23
Fabian, D.J., 11–6
Fahmy, M.J. (Mrs.), 32–1
Fahmy, O.G., 32–1
Fail, H., 7–1
Fairbairn, A.S., 48–9
Fairbairn, Prof. J.W., 25–3
Fairbairn, L.A., 15–19
Fairbairn, W.A., 8–12
Fairbairn, W.M., 60–6
Fairbrother, Prof. F., 59–9
Fairbrother, H., 19–9
Fairhurst, H., 10–13
Fairley, E.S., 11–3
Fairweather, D.V.I., 7–16
Falconer, C.W.A., 8–32
Falconer, D.S., 8–13
Falloon, S.W.H.W., 5–26
Fantham, P.H.H., 66–8
Farago, M.E. (Mrs.), 17–2
Farago, P.S., 8–26
Farahat, H.K., 68–13
Farasmand, B., 77–2
Farlie, D.J., 19–9
Farmer, B.H., 5–14
Farmer, Prof. E.D., 15–7
Farmer, N., 7–11
Farnell, F., 79–7
Farnworth, G.H., 60–4
Farquhar, H.G., 15–21
Farquhar, J.W., 8–23
Farr, J.P.G., 3–15
Farr, R.F., 3–18
Farrell, J.H., 7–7
Farrell, P.G., 112–2
Farthing, C.P., 45–7
Farthing, J.R., 47–10
Farvis, Prof. W.E.J., 8–10
Fatt, P., 26–5
Faulkner, E.A., 64–11
Faulkner, T.E., 67–6
Faulks, P.J., 1–4
Fawcett, C.H., 28–3
Fawcett, J.S., 47–2
Feakins, D., 18–2
Fearnhead, R.W., 47–1, 47–6
Feather, M. (Mrs.), 79–5
Feather, Prof. N., 8–26
Feinberg, R., 60–4
Fekete, E.B., 4–1
Feldman, G.V., 59–27
Felix-Davies, D., 3–22
Fell, K.R., 79–5
Fells, I., 68–29
Feltham, P.A., 13–16
Fender, D.H., 64–11
Fenton, J.C.B., 7–21
Ferguson, C.G., 88–2
Ferguson, F.R., 59–20
Ferguson, G.S., 8–34
Ferguson, H.H., 66–11
Ferguson, H.W., 15–7
Ferguson, K.M., 40–2
Ferguson, T.B., 68–8
Ferguson, W., 11–3
Fergusson, B., 107–4
Fergusson, J.D., 44–1
Feroze, R.M., 40–5
Ferraro, Prof. V.C.A., 22–6
Ferreira, H.P., 40–5
Ferrier, R.J., 18–2
Ferrier, W.G., 67–16
Ferry, N., 113–1
Fessler, H. 62–4
Few, J.D., 29–8
Fiddes, F.S., 8–11
Field, E.J., 7–21
Field, E.O., 32–3
Fielden, Prof. F., 11–1
Fielding, B.J., 60–4
Fields, M. (Mrs.), 13–30
Figgis, B.N., 26–7
Fildes, Sir P., 63–24
Finan, P.I.A., 68–5
Finar, I.L., 102–2
Finch, A., 23–2
Finch, J.T., 18–6
Fincham, E.F., 101–4

Findlay, I.A., 2–7
Finean, J.B., 3–4
Finkelstein, L., 101–2
Finlay, M.S., 26–15
Finlayson, D.M., 1–18
Finlayson, J.P., 10–23
Finlayson, L.H., 3–28
Finn, C., 24–6
Finney, D.J., 1–24
Finney, R.S.H., 93–1
Firman, R.J., 62–7
Firth, A., 113–6
Firth, P.S., 30–16
Fisch, L., 38–2
Fish, F., 11–8
Fish, F.J., 8–28
Fish, S.F., 47–6
Fishel, B., 27–3
Fisher, A.W.F., 59–2
Fisher, Prof. C.A., 68–11
Fisher, E.W., 10–29
Fisher, L.R., 65–1
Fisher, M.E., 20–11
Fisher, M.S., 19–10
Fisher, P.S., 63–26
Fisher, Prof. R.B., 8–4
Fisher, R.C., 26–23
Fisher, Prof. W.B., 6–3
Fisher, W.F.C., 104–3
Fishwick, Prof. W., 74–3
Fisk, A., 55–3
Fisk, P.R., 1–24
Fison, L.G., 41–6
Fitch, F.J., 18–4
Fitch, G.R., 81–2
Fitch, R.K., 77–6
Fitton, W., 110–2
Fitzpatrick, E.A., 1–23
Fitzpatrick, G., 7–25
Fitzpatrick, J.S., 94–3
Fitzpatrick, R.J., 4–20
Fitzsimmons, B.W., 18–2
Fitzsimons, J.T., 5–24
Flack, F.C., 9–9
Flavell, G., 47–21
Fleck, A., 10–5
Fleck, W., 87–2
Fleischmann, M., 7–6
Fleming, L.B., 7–29
Fleming, Prof. M.G., 19–13
Fleming, R., 25–1
Fleming, W.J.D., 52–7
Fletcher, A., 15–14
Fletcher, C.M., 50–5
Fletcher, G.G.T., 35–5
Fletcher, J.P., 4–7
Fletcher, K.A., 16–2
Fletcher, M. (Miss), 10–5
Fletcher, R.F., 3–14
Fletcher, R.J., 101–4
Fletcher, T.J., 112–4
Flett, T.M., 15–14
Flinn, D., 15–11
Flinn, M., 38–5, 38–6
Flint, F.O. (Miss), 13–32
Flint, W.L., 77–2
Flockhart, B.D., 2–6
Flood, A., 4–23
Flood, A.E., 28–3
Flood, C.M., 30–11
Floodgate, G.D., 72–7
Florentin, J.J., 19–6
Florey, Prof. Sir H., 63–24
Flower, J.W., 4–8
Flowers, Prof. B.H., 59–31
Floyd, W.F., 95–4
Floyer, M.A., 47–9
Flute, P.T., 45–5
Flynn, F., 11–3
Flynn, F.V., 57–6
Fogg, B., 110–2
Fogg, Prof. G.E., 27–1
Fogg, W., 70–5
Folkes, B.F., 4–4, 4–5
Folkierski, A., 19–14
Follett, E.A.C., 13–5
Folley, R.R.W., 28–4
Folley, S.J., 65–10
Fong, W., 4–8
Foord, T.R., 10–10
Foot, A.S., 65–3
Foot, E.C., 55–9
Foote, A.V., 8–32
Forbes, C.L., 5–15
Forbes, D.D., 105–2
Forbes, E.J., 3–6
Forbes, G., 68–9
Forbes, L.S., 16–1
Forbes, O.C., 3–4
Forbes, T.J., 2–1
Forbes, W., 10–25
Ford, A.T.G., 83–1
Ford, E.B., 63–33
Ford, E.H.R., 5–2
Ford, Prof. H., 19–7
Ford, I.H., 4–10
Ford, J.B., 72–1
Ford, J.E., 65–8
Ford, O.E., 94–2
Ford, R.K.J., 77–2
Ford, T.D., 14–6
Ford, V.C.R., 2–9
Ford, W.F., 68–29
Forde-Johnston, J., 59–3
Forfar, J.O., 8–23
Forman, L., 36–1
Formston, Prof. C., 24–7
Forrest, A.P.M., 10–28
Forrest, D.W., 17–8
Forrest, J.E., 22–8
Forrester, A.C., 10–28
Forrester, T.M., 1–17
Forshall, I. (Miss), 15–30
Forster, M.G. (Miss), 7–24

Forsyth, C.C. (Miss), 67–13
Forsyth, J.R.L., 2–13
Fortes, Prof. M., 5–3
Fortune, P. (Miss), 70–9
Fortune, R.F., 5–3
Forty, A.J., 4–21
Forwell, G.D., 8–30
Foss, B.M., 18–7
Foster, A.B., 3–6
Foster, A.G., 23–2
Foster, C.L., 55–3
Foster, D., 81–3
Foster, D.M.E. (Miss), 66–8
Foster, E.W., 26–2
Foster, F., 60–6
Foster, J.H.S., 81–5
Foster, K., 3–9
Foster, K., 63–3
Foster, P.J., 68–29
Foster, R., 67–2
Foster, R.H., 101–2
Fothergill, C.A., 19–8
Fothergill, J.E., 1–3
Fothergill, P.G., 7–5
Fottrell, P., 10–5
Foulds, K.W.H., 76–5
Foulds, L., 32–1
Foulds, W.S., 41–1, 41–6
Foulkes, H.O., 74–6
Fountain, J.R., 13–15
Fourman, L.P.R., 75–3
Fowden, L., 26–6
Fowler, F.J., 13–12
Fowler, G.N., 4–21
Fowler, H.W., 93–4
Fowler, P.H., 4–21
Fowler, V.W., 4–11
Fowles, G.W.A., 69–3
Fowweather, F., 60–7
Fox, B., 29–8
Fox, B.W., 59–29
Fox, D.J., 59–13
Fox, E.C., 3–7
Fox, E.N., 5–11
Fox, G.T.J., 19–5
Fox, J.A., 13–10
Fox, J.W., 26–19
Fox, N., 7–12
Fox, R.W., 108–5
Fox, S., 64–1
Foxon, Prof. G.E.H., 30–4
Foxton, A.A., 116–2
Foyle, R.J., 69–5
Fozard, B., 79–3
Fraenkel, L.E., 19–9
Frame, J., 66–1
France, G., 10–28
France, L., 114–2
Franchi, L.L., 3–2
Francis, A.E., 44–1
Francis, A.V., (Mrs.), 52–15
Francis, E.T.B., 68–30
Francis, G.E., 53–3
Francis, H.H., 15–18
Francis, J.R.D., 19–5
Francis, Prof. J.R.D., 60–4
Francis, P.G., 12–2
Francis, W. (Mrs.), 15–18
Franglen, G., 54–7
Frank, Prof. F.C., 4–21
Frank, S.G.F., 15–24
Frankel, H., 63–1
Frankenberg, R.J., 59–35
Frankl, E.K., 5–11
Frankland, A.W., 55–7
Frankland, B., 22–1
Franklin, D.W., 79–3
Franklin, J.G., 65–7
Franklin, R.E., 63–11
Franklin, R.H., 50–10
Franks, A.S.T., 35–5
Franks, F., 79–2
Franks, J.W., 59–7, 59–14
Fraser, A., 10–30
Fraser, A.H.H., 1–1
Fraser, D.B., 53–10
Fraser, E.D. (Miss), 1–21
Fraser, G., 8–34
Fraser, I., 4–18
Fraser, J.G., 11–5
Fraser, K.B., 10–18
Fraser, M.S., 1–15
Fraser, Prof. R., 50–5
Fraser, R.P., 19–4
Fraser, W., 20–6
Fraser, W.E., 1–9
Frazer, Prof. A.C., 3–4
Frazer, M.J., 102–2
Frazer, S.C., 8–7
Frazer, Prof. W., 11–3
Freeman, E.A., 113–2
Freeman, E.M., 20–6
Freeman, G.F., 116–3
Freeman, I.P., 3–4
Freeman, J.F., 116–3
Freeman, J.G., 79–4
Freeman, M., 101–4
Freeman, P., 68–8
Freeman, R.B., 26–23
Freeman, R.F.H., 22–8
Freeman, T.W., 59–13
Freeston, D.H., 109–3
Frei, E. (Miss), 13–6
Fremlin, J.H., 3–23
French, B.R., 19–14
French, C.M. (Miss), 22–2
French, J.E., 63–24
French, J.M., 3–14
French, M.J., 5–11
French, R.A., 26–13
French, W.J., 22–5
Freris, L.L., 19–6
Freshwater, D.C., 95–2
Fretter, V. (Miss), 64–13

Freundlich, H.F., 4–27
Frey, A.E., 4–9
Frey, H.M., 69–3
Friedlander, F.G., 5–17
Friedman, S., 48–10
Friedmann, I., 38–5
Friend, G.F., 8–35
Friend, J., 12–1
Friend, P.F., 5–15
Frisch, Prof. O.R., 5–23
Froggatt, P., 2–21
Fröhlich, A., 20–9
Fröhlich, Prof. H., 15–24
Frood, A.M., 64–6
Frost, L.C., 4–4, 4–5
Frost, R.C., 24–7
Fry, B.A., 68–16
Fry, Prof. D.B., 38–2
Fry, L., 45–6
Fry, R.M., 5–21
Fulford, G., 29–3
Fuller, A.T., 5–11
Fuller, G.J. (Miss), 62–6
Fuller, K.W., 63–9
Fullerton, B., 7–10
Fullerton, Prof. H.W., 1–12
Fulton, Prof. F., 48–3
Fulton, W.F.M., 10–23
Furbank, R., 30–8
Fyfe, D.J., 116–4

Gabb, E. (Mrs.), 49–2
Gabbutt, P.D., 59–41
Gabor, Prof. D., 19–6
Gadd, D., 22–3
Gahan, P.B., 31–2
Gaines, A.F., 77–1
Gairns, F.W., 10–25
Gaisford, Prof. W.F., 59–27
Gale, D.J., 3–10
Gale, Prof. E.F., 5–6
Galloway, R.W., 15–29
Galloway, W.H., 1–15
Galton, D.A.G., 32–1
Galwey, A.K., 2–6
Gamble, H.J., 55–1
Gambling, W.A., 69–4
Gammack, D.B., 43–1
Gandy, R.O., 59–16
Gardiner, B.G., 21–1
Gardiner, C.F., 102–3
Gardiner, I.C., 10–5
Gardiner, J.E., 31–3
Gardiner, J.H., 68–6
Gardiner, P.A., 30–12
Gardiner, P.C. (Miss), 21–1
Gardner, D.L., 8–24
Gardner, F.V. (Miss), 52–5
Gardner, R.G., 11–10
Gardner, W.G.A., 108–3
Garlick, Prof. G.F.J., 12–6
Garnett, A. (Miss), 68–11
Garnham, Prof. P.C.C., 48–6
Garratt, C.J., 30–9
Garraway, J.L., 28–3
Garreau, G.A., 101–3
Garrett, C.H., 60–2
Garrett, J.R. 45–3
Garrett, P.A., 3–12
Garrett, S.D., 5–8
Garry, Prof. R.C., 10–23, 10–25
Garside, J.E., 13–32
Garside, R.F., 7–25
Garstang, R.H., 26–2
Garton, W.R.S., 19–14
Garven, H.S.D., 10–25
Garvie, E.I. (Miss), 65–7
Garwood, R.D., 73–9
Garwood, R.F., 22–2
Gashus, O.K., 10–10
Gaskell, T.J., 110–3
Gaskin, A.R.J., 13–13
Gass, I.G., 13–13
Gasser, R.P.H., 63–10
Gatland, H.B., 85–4
Gauld, D.T., 1–26
Gaunt, P., 68–22
Gaunt, W.A., 23–5
Gavey, C.J., 41–1
Gavin, Prof. M.R., 72–5
Gavrilescu, K. (Mrs.), 39–5
Gay, B., 60–4
Gay, J.L., 19–2
Gay, P., 5–20
Gaydon, A.G., 19–4
Gaydon, F.A., 4–8
Gaze, R.M., 8–27
Geake, J.E., 60–7
Geary, A., 101–3
Geddes, A., 8–14
Geddes, A., 10–16
Geddes, A.E.M., 1–18
Geddes, I.C., 15–1
Geddes, J.D., 7–9
Geddes, M., 8–8
Gee, D.J., 13–11
Gee, Prof. G., 59–9
Geldart, D., 79–3
Gell, Prof. P.G.H., 3–22
Gellatly, J.B.M., 8–34
Gelman, J.E., (Mrs.), 1–19
Gemmell, Prof. A.R., 61–1
Gemmell, W., 110–2
Gencsi, G., 53–23
Genge, J., 76–1
Gent, A.R., 19–5
Gent, W.L.G., 30–3
Gentles, J.C., 10–4
George, E.A., 5–8
George, F.H., 4–24
George, M.H., 77–1
George, Prof. T.N., 10–14
George, W.H., 84–7
Geraghty, E.C. (Miss), 48–3

German, D.M., 114–2
German, W.L., 103–3
Gerrard, A., 81–6
Gerrard, H.N., 94–5
Gerrard, J.H., 59–31
Gerrard, W., 102–1, 102–2, 102–3
Ghadially, F.N., 68–20
Gibb, A., 67–4
Gibb, A.G., 67–12
Gibb, J.A.C., 64–1
Gibb, R., 59–37
Gibb, W., 11–10
Gibbens, T.C.N., 43–4
Gibbings, J.C., 15–8
Gibbon, N., 15–30
Gibbons, J.L., 43–4
Gibbons, R.A., 65–10
Gibbs, D.F., 4–21
Gibbs, E.F., 4–8
Gibbs, F.W., 26–15
Gibbs, W.J., 60–4
Gibby, C.W., 6 2
Giblin, R.A., 116–5
Gibson, J.B., 2–16
Gibson, J.B., 5–12
Gibson, J.E., 59–11
Gibson, Prof. J.G., 2–19
Gibson, K.D., 55–9
Gibson, M.D. (Miss), 4–25
Gibson, M.S., 60–3
Gibson, N.H.E., 13–1
Gibson, Prof. Q.H., 68–2
Gibson, R.E., 19–5
Gibson, T., 8–1
Gibson, W.M., 4–21
Gifford, D.R., 8–12
Gilbert, C., 7–12
Gilbert, C.W., 59–31
Gilbert, D., 36–1
Gilbert, Prof. E.W., 63–15
Gilbert, G.A., 3–6
Gilbert, I.G.F., 32–2
Gilbert, R.E., 62–12
Gilbert, R.J., 114–5
Gilbert, W., 103–3
Gilbody, H.B., 26–19
Gilchrist, B.M., (Miss), 17–9
Gilchrist, J.D., 7–14
Gilchrist, J.M., 2–8
Gilchrist, W.G., 102–3
Giles, C.H., 11–10
Giles, R., 10–24
Gill, S.S., 60–4
Gill, T.P., 1–18
Gill, Prof. W.D., 19–8
Gillbe, T.N., 78–1
Gilles, D.C., 10–16
Gillespie, I.E., 68–28
Gillespie, J.A., 54–9
Gillespie, J.S., 10–25
Gillespie, W.A., 4–14
Gilliatt, R.W., 39–6
Gillies, A.W., 101–3
Gillies, N.E., 49–3
Gillies, R.R., 8–18
Gillingham, F.J., 8–20
Gilmore, M.M. (Mrs.), 8–30
Gilmour, D.G., 5–1
Gilmour, H., 3–9
Gilmour, J.S.L., 5–8
Gimblett, F.G.R., 83–1
Gimingham, C.H., 1–4
Gimson, G.E., 26–10
Ginsborg, B.L., 8–25
Ginsburg, L.B., 3–9
Ginsburg, M., 4–20
Giorgi, E.P. (Miss), 40–2, 40–3
Girdler, R., 6–4
Girdwood, R.H., 8–17
Girling, B., 101–3
Gladstone, G.P., 63–24
Glaister, Prof. J., 10–11
Glanville, J.N., 13–29
Glascock, R.F., 65–1
Glass, A., 3–2
Glass, H.I., 10–28
Glasscock, R., 2–9
Glasson, D.R., 106–2
Glasspoole, W.F., 95–2
Glastonbury, H.A., 116 2
Glauert, M.B., 59–16
Glazer, J., 98–1
Gledhill, C.S., 60–4
Glen, J.W., 3–23
Glenister, T.W., 29–1
Glenn, A.L., 25–1
Glentworth, P., 13–7
Gliddon, J.E.C., 22–6
Glitheroe, E.A., 39–7
Glock, G.E. (Miss.), 49–2
Glockling, B. (Mrs.), 7–25
Glockling, F., 6–2
Gloster, J., 41–1, 41–5
Glover, E.J., 7–9
Glover, F.A., 65–9
Glover, J., 15–3
Glover, S.G., 3–15
Glover, T.D., 15–32
Glover, W.E., 2–18
Glynn, A.A., 55–7
Glynn, H., 108–5
Glynn, I.M., 5–24
Goadby, P., 113–6
Goddard, A.N., 82–2
Goddard, J., 112–6
Godden, A.K., 101–2
Godden, W.G., 2–8
Godfrey, D.E.R., 116–4
Godsell, T.E., 4–1
Godward, M.B.E. (Miss), 22–1
Godwin, Prof. H., 5–8
Godwin, H.J., 74–6
Gohar, R., 107–4
Gold, S.C., 36–1

Gold, V., 20–5
Goldacre, R.J., 32–1
Goldberg, A., 10–17
Goldberg, D.M., 10–5
Goldblatt, M.W., 32–1
Goldby, Prof. F., 55–1
Goldfarb, L.J.B., 59–31
Goldie, A.W., 7–12
Goldie, W., 13–21
Goldman, V., 35–1
Goldring, R., 64–7
Goldsack, S.J., 19–14
Goldsmith, K.L.G., 46–4
Goldsmith, M.W., 1–19
Goldstone, J., 5–17
Goldsworthy, F.A., 59–16
Goldwhite, H., 60–3
Goligher, Prof. J.C., 13–30
Golton, A.V., 77–1
Goma, L.K., 48–10
Gooberman, G.L., 110–2
Gooch, R., 43–5
Good, W., 11–2
Good, W., 79–5
Goodall, A.L., 10–28
Gooddy, W., 39–1
Goodfellow, T.L., 101–5
Goodgame, M. (Mrs.), 101–1
Goodhart, C.B., 5–28
Goodland, G.A.J., 66–3
Goodman, A., 77–3
Goodman, G.T., 74–1
Goodridge, F., 7–9
Goodridge, J.C., 14–5
Goodspeed, J., 78–5
Goodstein, Prof. R.L., 14–7
Goodway, K.M., 61–1
Goodwin, J.F., 50–5
Goodwin, R.F.W., 5–27
Goodwin, R.W.L., 78–5
Goodwin, T.H., 10–7
Goodwin, Prof. T.W., 70–2
Goody, A.J., 116–4
Goody, J.R., 5–3
Goodyear, F.H., 103–1
Goodyear, J., 12–6
Gordon, A.N., 19–9
Gordon, C.A. (Miss), 10–28
Gordon, G., 63–27
Gordon, I.E., 9–10
Gordon, M., 19–3
Gordon, W.A., 63–14
Gordon, W.A.M., 2–1
Gore, P.H., 83–1
Gorrill, R.H., 30–10
Gosling, H.W., 74–3
Gosney, W.B., 20–6
Goto, H.E., 19–15
Gotto, R.V., 2–24
Goudie, G.O., 8–10
Goudie, R.B., 10–22
Gough, Prof. J., 75–7
Goulcher, R.W., 76–2
Gould, G., 73–8
Gould, M.S.S., 35–5
Gould R.P., 49–1
Goulden, J.D.S., 65–9
Govan, A.D.T., 10–19
Gowans, J.L., 63–24
Gowenlock, A.H., 59–28
Gowenlock, B.G., 3–6
Grace, M.A., 63–26
Gracey, J.F., 2–1
Graham, A., 116–4
Graham, Prof. A., 64–13
Graham, A.G., 10–28
Graham, C., 3–19
Graham, D., 6–7
Graham, G.N., 13–5
Graham, G.R., 34–3, 34–5
Graham, J.D.P., 75–8
Graham, J.K.L., 3–17
Graham, M.W.R. de V., 63–12
Graham, P.A., 59–24
Graham, S.H., 70–4
Graham-Boyce, I., 72–1
Grahame, T., 8–34
Granger, C.W.J., 62–9
Granger, G.W., 43–5
Grant, A., 30–8
Grant, D., 73–11
Grant, E.H., 30–15
Grant, H.C. (Miss), 39–5
Grant, I.H., 45–9
Grant, I.S., 59–31
Grant, J.C., 10–28
Grant, P.J., 19–7
Grant, P.T., 1–3
Grant, R.T., 30–9
Grassam, N.S., 69–5
Grassie, J.C., 1–6
Grassie, N., 10–7
Graty, T.C., 3–7
Graves, A.M., 4–9
Gravett, K.A.H., 63–17
Gray, B.F., 110–1
Gray, Prof. C., 15–1
Gray, Prof. C.H., 45–6, 45–12
Gray, E.G., 26–1
Gray, G.M., 46–1
Gray, G.W., 12–2
Gray, Prof. Sir J., 5–28
Gray, Prof. J.A.B., 26–20
Gray, J.E., 7–3
Gray, J.G., 3–27
Gray, J.R., 66–8
Gray, O.P., 75–6
Gray, P., 13–7
Gray, R.C., 2–2
Gray, T.R.G., 15–4
Graymore, C.N., 41–4
Greatorex, C.A., 32–2
Greatorex, J.C., 24–4
Greaves, D.P., 41–5

Greaves, R.I.N., 5–21
Green, Prof. A.E., 7–12
Green, B., 32–1
Green, C., 15–3
Green, Prof. C.A., 7–15
Green, D., 77–4
Green, D.A., 24–2
Green, D.M., 67–8
Green, G.W., 64–11
Green, H.L.H.H., 5–2
Green, Prof. H.N., 13–22
Green, J., 17–9
Green, J.A., 59–16
Green, J.H., 49–10
Green, J.R., 15–14
Green, J.S.A., 19–11
Green, L.L., 15–24
Green, M. (Miss), 3–1
Green, M.L.H., 5–9
Green, N.M., 55–9
Green, R., 79–3
Green, R.A., 5–2
Green, R.A., 52–1
Green, R.P., 112–5
Green, R.T., 26–21
Green, S.H., 3–2
Green, T.E., 83–1
Green, W.A., 62–9
Green, Prof. W.G., 90–4
Greenbaum, A.L., 26–3
Greene, A.B., 95–2
Greene, D., 59–31
Greene, S.W., 3–5
Greenfield, Prof. A.D.M., 2–18
Greenhalgh, J.F.D., 8–1
Greenham, W.L., 4–14
Greenland, B.J., 10–10
Greenough, A.P., 74–7
Greenshields, R.N., 3–4
Greensmith, J.T., 22–5
Greenway, C.V., 5–22
Greenwood, A.D., 19–2
Greenwood, C.T., 8–7
Greenwood, D.A., 18–5
Greenwood, Prof. N.N., 7–6
Greenwood, R.F., 101–1
Greer, H.L.H., 2–14
Greer, J.R., 10–25
Gregg, C.V., 91–3
Gregg, S.J., 9–5
Gregory, A.H., 59–34
Gregory, M.E., 65–8
Gregory, Prof. R.A., 15–25
Gregory, R.L., 5–25
Gregory, R.W., 5–11
Gregory, S., 15–10
Gregory, W.C., 13–13
Greig, D., 13–24
Greig, Prof. J., 20–6
Greig, K., 2–14
Greig, M. (Miss), 67–9
Greig, W.A., 10–29
Greig-Smith, P., 72–3
Grensted, P.E.W., 5–11
Gresham, G.A., 5–21
Gresson, Prof. R.A.R., 2–24
Gresswell, R.K., 15–10
Grew, K.E., 9–9
Gribben, R.J., 69–8
Gribbon, P.W.F., 66–9
Gridley, J.H., 107–4
Grierson, A., 19–12
Grieve, J., 67–20
Griew, S., 4–24
Griffin, G.J.L., 83–1
Griffin, J.W., 108–1, 108–2
Griffin, L.R., 74–8
Griffith, G. ap, 71–2
Griffith, H.D., 1–18
Griffith, J., 30–4
Griffith, T.C., 26–19
Griffiths, D., 116–3
Griffiths, D.E., 63–7
Griffiths, D.H., 3–12
Griffiths, D.J., 71–6, 72–3
Griffiths, D.Ll., 59–25
Griffiths, E., 70–1
Griffiths, G., 114–2
Griffiths, H.B., 3–13
Griffiths, H.W., 8–32
Griffiths, I., 18–9
Griffiths, J.D., 53–23
Griffiths, J.H.E., 63–26
Griffiths, J.W.R., 3–9
Griffiths, L.G., 11–9
Griffiths, M.I. (Mrs.), 59–27
Griffiths, P.J.F., 114–1
Griffiths, R., 103–3
Griffiths, V.S., 76–1
Grigson, C.W.B., 5–11
Grimbleby, F.H., 64–3
Grimley, T.B., 15–6
Grimshaw, M.E. (Miss), 5–17
Grimstone, A.V., 5–28
Grindlay, M., 10–29
Grindley, G.C., 5–25
Grisbrook, H., 3–9
Groom, A.C., 55–11
Groom, G.E. (Miss), 74–4
Grootenhuis, P., 19–7
Grosberg, Prof. P., 13–32
Grout, R.J., 62–12
Grove, A.T., 5–13
Grove, D.M. (Miss), 22–2
Groves, G.V., 26–19
Grubb, P.J., 5–8
Gruenberg, K.W., 22–6
Grundon, M.F., 2–6
Grundy, H.F., 5–22
Grundy, J., 83–1
Grundy, J.A., 79–5
Grundy, J.R., 3–7, 59–10
Grüneberg, Prof. H., 26–12
Grunsell, Prof. C.S.G., 4–29

Gugan, D., 4–21
Guggenheim, Prof. E.A., 64–3
Guggenheimer, K.M., 10–24
Guild, W.J., 8–1
Guile, A.E., 13–10
Guillery, R.W., 26–1
Gullick, F.R., 63–15
Gundry, P.M., 19–6
Gunn, C., 93–4
Gunn, D.J., 74–3
Gunn, Prof. J.C., 10–24
Gunning, A.J., 63–31
Gunning, B.E.S., 2–5
Gunstone, F.D., 66–5
Gurney, Prof. H.C.H., 73–6
Gurney, I.D.C., 7–23
Gurr, M., 2–8
Gutfreund, H., 65–10
Guthkelch, A.N., 59–27
Guthrie, D.M., 14–10
Guthrie, J., 55–9
Guthrie, R.D., 14–3
Guthrie, S. (Mrs.), 59–27
Guttridge, J., 5–9
Guz, A., 29–5
Gwyther, M.M. (Miss), 32–3

Haber, H., 36–1
Hackett, P., 62–11
Haddow, Prof. A., 32–1
Hadley, G., 1–4
Haggett, P., 5–14
Haggis, G.H., 8–27
Hague, N.G.M., 19–15
Haigh, A.L., 3–24
Haigh, D., 104–7
Haigh, G., 68–1
Haigh, M.V. (Mrs.), 59–36
Haines, D.J., 4–8
Haines, M.G., 19–14
Haines, R.M., 40–5
Hainsworth, D., 13–11
Haire, M. (Mrs.), 2–13
Hajdu, N., 54–6
Halberstam, H., 23–3
Hale, B., 4–27
Hale, G., 54–2
Hale, L.J., 8–35
Hale, R.W., 2–1
Hale, V.W.D., 12–5
Haley, K.B., 3–9
Hall, A., 20–8
Hall, A.N., 60–1
Hall, A.P., 67–4
Hall, D., 113–1
Hall, D.A., 13–15
Hall, D.C., 67–3
Hall, D.J. (Miss), 21–6
Hall, D.M. (Miss), 17–2
Hall, D.N., 92–3
Hall, E.G., 15–30
Hall, E.T., 63–5
Hall, G.G., 19–9
Hall, G.R., 19–4
Hall, G.S., 40–3
Hall, Prof. H.E., 59–31
Hall, H.S., 65–5
Hall, I.M., 59–31
Hall, J.M., 30–1
Hall, K. (Miss), 3–24
Hall Prof. K.R.L., 4–24
Hall, L.W., 5–27
Hall, Prof. P., 5–17
Hall, P., 68–24
Hall, P.G., 18–3
Hall, R.E., 69–11
Hall, S.B., 15–26
Hall, S.H., 19–8
Hall, Prof. W.B., 59–11
Hall, W.S., 69–8
Hallam, A., 8–15
Hallam, H.E., 74–2
Hallas, G., 91–1
Hallas, H.L., 91–3
Haller, L., 109–4
Hallett, Prof. G.E.M., 7–7
Hallett, V.A., 94–3
Halley, J.B.W., 3–22
Halliday, G., 10–29
Halliday, G., 14–2
Halliday, M., 39–7
Halling, J., 15–8
Halliwell, A.R., 15–8
Hallpike, C.S., 39–4
Hallsworth, Prof. E.G., 62–1
Hally, A.D., 10–2
Halmos, P., 61–8
Halnan, K.E., 59–37
Halsall, T.G., 63–10
Halstead, C.A., 10–13
Hamer, D., 2–23, 87–1
Hamer, N.J., 45–6
Hamerton, J.L., 30–12
Hamilton, A.G., 56–3
Hamilton, E.I., 63–16
Hamilton, G.F., 1–2
Hamilton, Prof. J., 26–19
Hamilton, J.M., 10–29
Hamilton, L.D.G., 32–1
Hamilton, M., 13–26
Hamilton, P., 1–8
Hamilton, Prof. W.J., 29–1
Hamley, E.J., 3–24
Hamlyn, L.H., 26–1
Hammersley, J.M., 63–17, 63–30
Hammerton, J.L., 70–1
Hammond, J., 5–1
Hammond, P., 5–11
Hampson, Prof. E.L., 68–6
Hampson, H., 1–6
Hampson, N.A., 95–1
Hanbury, W.J., 53–15
Hancock, D.A., 81–5
Hancock, D.M., 2–22

Hancock, G.J., 22–3
Hancock, J.M., 20–8
Hancock, N.N., 60–4
Hancock, P., 10–10
Hancock, S.T.R., 110–3
Hancocks, H., 114–4
Hancox, N.M., 15–12
Handford, C., 60–4
Handley, R.S., 49–12
Handley, W.R.C., 63–14
Hankey, G.T., 47–6, 53–5
Hankinson, J., 7–29
Hanley, F., 5–1
Hanley, H.G., 44–1
Hanley, R., 107–4
Hanley, T., 30–9
Hannay, J.W., 19–2
Hannell, F.G., 4–9
Hansel, C.E.M., 59–34
Hansell, P., 41–3
Hanson, C., 79–3
Happey, F., 79–7
Happold, Prof. F.C., 13–4
Harberd, D.J., 13–1
Harbord, R.P., 13–2
Harcourt, R.A.F., 83–4
Hardaker, P., 112–5
Hardie, A.M., 1–6
Hardie, D., 7–14
Hardie, W.G., 3–12
Harding, A., 81–3
Harding, Prof. D.W., 17–8
Harding, R.D., 93–2
Hardisty, M.W., 81–1
Hardisty, R.M., 34–2
Hardman, R., 62–12
Hardwick, J.D., 19–5
Hardwick, Prof. J.L., 59–10
Hardwick, S.W., 52–15
Hardwicke, J., 3–22
Hardy, Prof. Sir A., 63–33
Hardy, J.R., 64–6
Hardy, M.G., 64–13
Hare, A., 72–8
Hare, Prof. R., 56–5
Hargreaves, A., 60–7
Hargreaves, J.A., 59–10
Hargreaves, M.K., 21–2
Hargreaves, P., 35–3
Hargreaves, T., 13–22
Harker, H., 7–6
Harker, J.E. (Miss), 5–28
Harkins, J., 8–1
Harkness, M.L.R. (Mrs.), 26–20
Harkness, R.D., 26–20
Harland, W.B., 5–15
Harland, W.G., 60–8
Harley, H.R.S., 75–10
Harley, J.B., 15–10
Harley, J.L. (Miss), 32–1
Harley, J.L., 63–1
Harley, J.M.G., 2–14
Harley-Mason, J., 5–9
Harlow, R.G., 76–5
Harocopos, B., 78–3
Harper, Prof. A.A., 7–22, 7–24
Harper, A.M., 10–28
Harper, Prof. D., 60–2
Harper, E.M., 10–29
Harper, J.C., 15–11
Harper, Prof. J.L., 72–1
Harper, M., 7–25
Harper, N.J., 84–6
Harper, P.C., 8–1
Harper, R., 13–27
Harper, R.A.K., 52–20
Harrap, K.R., 32–1
Harries, E.H.L., 3–24
Harriman, D.G.F., 13–22
Harris, A., 12–3
Harris, C.C., 13–18
Harris, C.F., 53–14
Harris, D.J., 68–8
Harris, D.R., 22–4
Harris, E.A., 8–25
Harris, E.J., 26–5
Harris, F.T.C., 49–3
Harris, G.P., 64–8
Harris, G.S., 10–7
Harris, Prof. G.W., 43–3
Harris, Prof. H., 20–2
Harris, H.S.L., 5–11
Harris, Prof. J.E., 4–30
Harris, J.H., 113–7
Harris, J.I., 81–5
Harris, J.W.S., 47–1
Harris, M., 77–5
Harris, M.J., 59–11
Harris, M.M. (Mrs.), 17–2
Harris, M.R., 110–1
Harris, N. (Mrs.), 26–21
Harris, N.D., 84–6
Harris, P., 8–20
Harris, P.C., 3–14
Harris, P.F., 68–1
Harris, P.G., 13–13
Harris, P.M., 64–1
Harris, R., 4–18
Harris, R., 15–15
Harris, R. (Miss), 2–9
Harris, Prof. T.M., 64–2
Harrison, A.R., 44–1
Harrison, A.W., 80–3
Harrison, B. (Miss), 43–4
Harrison, Prof. C.V., 50–7
Harrison, D., 5–11
Harrison, D., 68–8
Harrison, D., 104–2
Harrison, Prof. D.C., 2–4
Harrison, D.F.N., 38–1, 38–4, 38–5, 38–6
Harrison, G.A., 15–2
Harrison, I.H., 114–5
Harrison, J.A., 15–8
Harrison, J.E., 9–1

Harrison, J.V., 63–16
Harrison, K., 59–5, 59–26
Harrison, P.M. (Mrs.), 68–2
Harrison, Prof. R.G., 15–2
Harrison, Prof. R.J., 47–1
Harrison, T.J., 2–3
Harrold, C.E., 3–5
Harrop, A.E., 24–2
Harrop, R., 7–12
Harry, W.T., 66–7
Hart, B.A L., 110–3
Hart, E.P., 113–1
Hart, F.A., 22–2
Hart, M.G., 2–5
Hart-Mercer, J., 7–21
Hartfall, Prof. S.J., 13–15
Hartland, S., 62–4
Hartles, R.L., 15–7
Hartley, J., 13–13
Hartley, J.B., 59–27
Hartley, M.G., 60–4
Hartley, R.D., 3–17
Hartshorne, J.N., 59–7
Harvey, C.C. (Mrs.), 9–11
Harvey, D.G., 24–5
Harvey, J.G., 72–7
Harvey, J.M., 11–3
Harvey, Prof. L.A., 9–11
Harvey, P.W., 8–32
Harvey, R., 73–4
Harvey, S.H., 14–3
Harwood, R.W., 80–1
Harwood, T.A., 60–2
Haselden, Prof. G.G., 13–10
Haselgrove, C.B., 59–16
Haskell, P.S., 108–4
Haslam, E., 68–5
Haslam, R.M. (Miss), 50–7
Haslam-Jones, U.S., 63–17
Haslewood, Prof. G.A.D., 30–3
Hassall, Prof. C.H., 74–2
Hassall, K.A., 64–3
Hassan, G., 116–3
Hassett, N.J., 95–2
Hasted, J.B., 26–19
Haswell, M., 63–1
Haszeldine, Prof. R.N., 60–3
Hathaway, B.J., 12–2
Hatt, G.W., 108–3
Hatt, S.D., 59–10
Hatton, A.P., 60–4
Hatton, J., 63–26
Havard, C.W.H., 53–7
Hawes, J.T., 3–9
Hawes, R.S.J., 9–11
Hawgood, J., 6–5
Hawker, L.E. (Miss), 4–5
Hawkes, I., 68–17
Hawkes, Prof. J.G., 3–5
Hawkey, C.M. (Miss), 54–7
Hawkins, A.E., 24–6
Hawkins, A.T., 116–3
Hawkins, C.F., 3–14
Hawkins, Prof. H.L., 64–7
Hawkins, J. (Miss), 79–4
Hawkins, J.D., 53–3
Hawkins, S.E. (Miss), 20–13
Haworth, C.W., 68–15
Haworth, Prof. R.D., 68–5
Hawthorn, Prof. J., 11–4
Hawthorn, V., 10–29
Hawthorne, J N., 3–4
Hawthorne, Prof. W.R., 5–11
Haxton, H.A., 59–27
Hay, G.A., 13–24
Hay, Prof. J.D., 15–21
Haydon, D.A., 5–10
Haye, K.R., 3–22
Hayes, A.R., 110–2
Hayes, J.D., 71–6
Hayes, M.H.B., 3–6
Hayes, N.D., 114–3
Hayes, P., 2–1
Hayes, S.F., 8–1
Hayes, W., 63–26
Hayes, W.P., 95–1
Hayhoe, F.G.J., 5–18
Hayman, Prof. W.K., 19–9
Haynes, F., 107–6
Haynes, J.R., 70–6
Haynes, R., 95–1
Haynes, S., 13–8
Hays, P., 54–8
Hayton-Williams, D.S., 63–32
Hayward, A.F., 10–2
Hayward, A.H., 24–5
Hayward, G., 53–4
Hayward, G.W., 33–1
Hayward, J., 74–1
Hayward, J.L., 30–17
Hayward, M., 71–6
Haywood, C.A., 14–8
Haywood, R.W., 5–11
Hazlewood, A.D., 63–30
Hazlehurst, J., 59–4
Head, K.W., 8–34
Head, M.R., 5–11
Heading, J., 69–8
Headridge, J.B., 68–5
Heaf, P.J.D., 57–7
Heal, H.G., 2–6
Heald, L.J., 22–8
Heale, J.B., 21–1
Healey, E.G., 17–9
Heaps, N.S., 110–3
Heard, B.E., 50–7
Heard, C.R.C., 48–4
Heard, D. (Mrs.), 5–26
Hearle, J.W.S., 60–8
Hearne, K.R., 15–8
Hearnshaw, G. (Mrs.), 16–1
Hearnshaw, Prof. L.S., 15–27
Heasell, E.L., 19–6
Heastie, R., 22–7

Heath, A.R., 80–3
Heath, D.A., 3–22
Heath, F.G., 60–4
Heath, Prof. O.V.S., 64–8
Heathcote, N.H. de V., 26–15
Heathfield, K.W.G., 53–8
Heatley, N.G., 63–24
Heaton, F.W., 13–33
Heaton, G.S., 60–3
Heaton, J.M., 41–4
Heavens, O.S., 23–4
Hebborn, J.E., 27–3
Heddle, D.W.O., 26–19
Heddle, R.G., 8–1
Hedges, A.J., 4–14
Hedgley, E.J., 18–2
Hedley, A.B., 68–29
Heginbotham, W. B., 62-4
Heilbronn, Prof. H.A., 4–12
Heim, A. (Miss), 5–25
Hein, H. (Miss), 10–29
Heine, V., 5–23
Heitler, C., 101–1
Hellawell, A., 63–19
Heller, H., 8–7
Heller, Prof. H., 4–20
Hellier, F.F., 13–9
Helliwell, H., 79–7
Helliwell, J.B., 11–5
Helliwell, P.J., 30–1
Hellon, R., 63–3
Helmer, C.H., 69–5
Helsby, C.R., 15–30
Hemingway, Prof. A., 13–25
Hemingway, Prof. J.E., 7–11
Hemingway, J.T., 67–17
Hemingway, R.G., 10–29
Hemming, F.W., 15–3
Hemmings, W.A., 72–10
Hemp, Prof. W.S., 85–4
Hemphill, R.E., 4–23
Hems, G., 32–1
Hemsworth, B., 59–29
Henbest, Prof. H.B., 2–6
Henchman, M., 13–7
Henderson, B., 3–15
Henderson, C., 26–19
Henderson, H.C.K., 18–3
Henderson, H.J.R., 74–4
Henderson, J.C. de C., 19–5
Henderson, J.G., 1–20
Henderson, J.G., 3–9
Henderson, Prof. J.L., 67–13
Henderson, M. (Miss), 53–4
Hendry, Prof. A.W., 15–5
Hendry, D.P., 6–7
Hendry, E.B., 10–5
Hendry, L.S. (Mrs.), 6–7
Hendry, R., 11–3
Henisch, H.K., 64–11
Henkel, D.J., 19–5
Henry, K.M. (Miss), 65–8
Henry, N.F.M., 5–20
Henson, A.H., 114–1
Henson, H., 13–35
Henson, R.A., 47–11
Henstock, R., 2–11
Hepburn, F., 13–24
Hepner, W.A., 19–9
Heppleston, Prof. A.G., 7–21
Herbert, I. V., 72–1
Herbert, J.B.M., 59–9
Herbertson, B.M., 5–21
Herdan, G., 4–25
Hermann, K. (Miss), 8–20
Hermelin, B. (Mrs.), 43–4
Heron, A., 15–27
Herringshaw, J.F., 19–3
Herriott, J.B.D., 8–1
Hersov, L., 39–7
Herszberg, J., 9–8, 18–5
Hervey, G.R., 68–23
Herxheimer, A., 47–7, 47–17
Herzenberg, A., 59–31
Heslop, R.B., 60–3
Heslop-Harrison, G., 7–1
Heslop-Harrison, Prof. J., 3–5
Heslop-Harrison, Y. (Mrs.), 3–5
Hesp, T., 60–2
Hetherington, R.R., 15–26
Heward, J.F., 78–1
Hewer, H.R., 19–15
Hewer, Prof. T.F., 4–19
Hewett, L.J., 4–1
Hewish, A., 5–23
Hewish, T.R., 101–2
Hewitt, D., 63–29
Hewitt, E.J., 4–1
Hewitt, H.B., 58–2
Hewitt, W., 56–1
Hewlett, A.B., 45–11
Hewson-Browne, R.C., 68–13
Hey, Prof. D.H., 20–5
Hey, R.W., 5–15
Heydecker, W., 62–8
Heydeman, M.T., 64–10
Heyes, J.K., 8–6
Heyes, W.H., 110–2
Heylen, A.E.D., 13–10
Heylings, R.T., 13–8
Heyman, J., 5–11
Heymann, F.F., 26–19
Heywood, H., 116–3
Heywood, P., 8–16
Heywood, V.H., 15–4
Heyworth, R., 42–1
Hibbard, B.M., 15–18
Hibberd, Prof. G., 10–10
Hick, W.E., 5–25
Hickinbottom, Prof. W.J., 22–2
Hickling, A., 15–6
Hickman, J., 5–27
Hicks, R., 79–5
Hickson, D.C., 77–2

Hieger, I., 32–1
Hierons, C.D., 7–18
Higgins, G., 63–7
Higgins, G.T., 15–16
Higgins, H., 79–3
Higgins, P.J., 22–6
Higginson, G.R., 13–10
Higginson, G.S., 2–17
Higginson, W.C.E., 59–9
Higgitt, A.C., 41–1
Higgs, E.S., 5–4
Higgs, P.W., 8–26
Higham, A.R.C., 44–1, 45–14
Highnam, K.C., 68–30
Higman, Prof. G., 63–17
Hignett, P.G., 10–29
Hiley, B.J., 18–6
Hill, A.R., 10–30
Hill, Prof. A.V., 26–20
Hill, C.R., 32–2
Hill, D.K., 50–3
Hill, D.R.J., 78–5
Hill, D.W., 53–11
Hill, E.C., 73–4
Hill, Prof. I.G.W., 67–7
Hill, J.R., 47–18
Hill, Prof. K.R., 52–11
Hill, M. (Miss), 30–15
Hill, M.N., 5–13
Hill, N.E. (Miss), 17–6
Hill, R., 5–6
Hill, Prof. R., 62–9
Hill, R.D., 30–9
Hill, R.M., 7–23
Hill, R.W., 63–26
Hill, T.A., 28–2
Hill-Cottingham, D.G., 4–1
Hillas, A.M., 13–24
Hills, A.W.D., 19–10
Hills, G.J., 19–3
Hilson, G.R.F., 54–7
Hilton, E.L. (Mrs.), 17–7
Hilton, Prof. P.J., 3–13
Hinde, R.A., 5–28
Hindle, H., 108–3
Hindle, M., 59–10
Hindmarsh, J., 60–4
Hindmarsh, Prof. W.R., 7–23
Hinds, S.W., 48–8
Hine, R., 73–11
Hingorani, N.G., 95–2
Hinshelwood, Prof. Sir C., 63–10
Hinsley, Prof. F.B., 62–11
Hinton, H.E., 4–30
Hirsch, G.P., 63–1
Hirsch, J., 18–6
Hirsch, Prof. K.A., 22–6
Hirsch, P.B., 5–23
Hirst, Prof. E.L., 8–7
Hirst, D.M., 6–4
Hitchens, R.A.N., 75–9
Hitchin, Prof. A.D., 67–3
Hoar, T.P., 5–19
Hoare, D.E., 67–2
Hoare, D.S., 68–16
Hoare, F.E., 13–24
Hoare, R.D., 38–7
Hobart, J., 72–1
Hobbiger, F., 49–8
Hobbis, E.W., 4–1
Hobbs, F.D., 3–9
Hobbs, H., 41–3
Hobbs, H.E., 39–2, 52–17
Hobby, B.M., 63–12
Hobday, T.L., 15–28
Hobsley, M., 49–12
Hobson, Prof. A.D., 7–31
Hobson, B.M., 8–30
Hobson, D., 68–16
Hobson, G.D., 19–8
Hobson, J.D., 3–6
Hobson, P. (Mrs.), 59–10
Hochberg, S., 19–9
Hockenhull, B.S., 85–5
Hockley, A.R., 69–11
Hodge, Prof. Sir W., 5–17
Hodges, D.J., 2–1
Hodges, D.J., 62–11
Hodges, J.R., 52–12
Hodges, T.M., 114–4
Hodgkin, Prof. A.L., 5–24
Hodgkin, Prof. D.M., 63–10
Hodgkinson, A., 13–33
Hodgson, B., 60–1
Hodgson, D.R., 13–1
Hodgson, G.L., 63–1
Hodgson, J.N., 61–7
Hodgson, P.E., 63–26
Hodgson, T.H., 85–1
Hodson, A.L., 13–24
Hodson, Prof. F., 69–7
Hodson, Prof. J.J., 68–6
Hodson, N.P. (Mrs.), 24–1
Hodson, P.C., 109–3
Hoenig, J., 59–33
Hoffman, G.R., 59–11
Hofmann, T., 68–2
Hogarth, C.A., 83–5
Hogg, D.R., 1–5
Hogg, W.R., 10–24
Hogley, B., 111–1
Holbourn, A.H.S., 1–18
Holbrook, K.A., 67–2
Holden, J.H.W., 7–1
Holder, Prof. D.W., 63–11
Holding, A.F. Lec., 84–2
Holding, D.H., 13–27
Holgate, N., 10–14
Holker, J.S.E., 15–6
Holland, C.H., 17–4
Holland, D.G., 63–30
Holland, H., 43–5
Hollick, F.S.J., 5–28
Holliday, A.K., 15–6

Holliday, F.G.T., 1–26
Holliday, P., 12–1
Holliday, R., 13–1
Hollier, R.H., 3–9
Hollingsworth, M.A., 4–8
Hollingsworth, M.J., 53–25
Hollingsworth, S. (Mrs.), 52–15
Hollingsworth, Prof. S.E., 26–14
Hollman, A., 50–5
Holloway, D.G., 61–7
Holloway, P.J., 47–6
Holman, R.A., 75–4
Holme, D.W., 2–1
Holmes, B.E. (Mrs.), 5–26
Holmes, E., 62–10
Holmes, F., 72–4
Holmes, J.C., 8–1
Holmes, J.L., 8–7
Holmes, J.M., 40–3
Holmes, J.R., 4–29
Holmes, K.C., 18–6
Holmes, M., 10–25
Holmes, M., 13–10
Holmes, M., 79–3
Holmes, R., 15–24
Holmes, R., 95–2
Holmes, R.L., 3–2
Holmes, Prof. W., 28–1
Holmes, W., 63–33
Holness, H., 60–4
Holt, A., 77–1
Holt, A.G.J., 7–9
Holt, G., 60–3
Holt, J.R., 15–24
Holt, K.S., 68–19
Holt, P.F., 64–3
Holt, S.B. (Mrs.), 26–12
Holt, S.J., 49–2
Holton, F., 24–6
Holton, J.B., 13–22
Holton, P. (Mrs.), 55–12
Holwill, F.J.W., 19–8
Holzel, A., 59–27
Honey, M., 53–4
Honeycombe, Prof. R.W.K., 68–15
Honeyman, A.M., 62–7
Honour, J., 63–31
Hood, B. (Miss), 3–24
Hood, J.D., 39–4
Hoodless, I.M., 10–7
Hoole, R.B., 3–17
Hooley, C., 4–12
Hooper, M., 113–6
Hooper, M.D., 28–2
Hooper, P.R., 74–5
Hooton, H. (Mrs.), 63–18
Hope, D.A.L., 83–1
Hope, L.J., 92–2
Hope-Simpson, J.F., 4–5
Hope-Taylor, B., 5–4
Hopewell, J.P., 52–17
Hopgood, A.M., 66–7
Hopkin, G.B., 8–8
Hopkins, A.D., 77–4
Hopkins, B.J., 69–9
Hopkins, C.A., 10–30
Hopkins, H.H., 19–14
Hopkins, M.R., 74–8
Hopkins, P., 104–4
Hopkins, W., 6–4
Hopkinson, E., 91–3
Hopper, Prof. F.E., 13–8
Hoppett, I.M. (Miss), 49–9
Hopton, J.W., 3–16
Hopwood, D.A., 10–12
Hora, F.B., 64–2
Horler, A.R., 7–13
Horlock, Prof. J.H., 15–8
Horn, G., 5–2
Horne, J.L., 2–8
Horne, Prof. M.R., 59–11
Hornung, G., 13–13
Horrell, N.J., 104–4
Horrex, C., 66–5
Horridge, G.A., 66–12
Horrocks, G., 15–14
Horsley, B., 60–4
Horton, G.M., 84–7
Horwood, J.M. (Mrs.), 14–2
Hosking, Z.D. (Miss), 65–11
Hoskins, J.M., 68–16
Hough, J.S., 3–4
Hough, L., 4–4, 4–6
Houghton, B.J., 55–9
Houghton, E.L., 101–2
Houghton, J.T., 63–26
Houghton, R.P., 73–5
Houldin, J.E., 84–7
House, H., 101–2
House, J.W., 7–10
House, M.R., 6–4
House, S.R., 76–2
Houston, Prof. J., 2–1
Houston, J.M., 63–15
Houtby, D.K., 79–3
Hovell, J.H., 51–7
Howard, B., 10–29
Howard, G.J., 60–8
Howard, I.P., 6–7
Howard, J.G., 8–32
Howard, P., 76–1
Howard, T.J., 76–1
Howarth, F., 5–22
Howarth, Prof. L., 4–12
Howatson, A.M., 68–8
Howe, A., 47–18
Howe, C., 49–12
Howe, D., 85–4
Howe, Prof. G.L., 7–7
Howe, G.M., 70–5
Howell, J.B.L., 59–17
Howell, J.M., 15–32
Howell, J.S., 3–22
Howell, M.B., 54–7

Howell, R.A., 7–7
Howell, R.T.A., 83–2
Howell, S., 110–2
Howells, G.H., 41–3
Howells, R.G., 73–11
Howie, A.J., 11–5
Howie, Prof. J.W., 10–4
Howie, R.A., 59–14
Howie, R.C., 90–3
Howkins, J., 52–9, 53–10
Howl, H.M., 19–6
Howlett, K.E., 17–2
Howson, D.P., 3–9
Hoyle, A.C., 63–14
Hoyle, C., 45–6
Hoyle, Prof. F., 5–17
Hoyle, J.B., 65–5
Hoyle, J.C., 53–4
Hoyle, R.D., 19–7
Hsu, T.C., 8–10
Hu, G. C.Y., 3–9
Hubbard, S.J., 26–20
Hubble, Prof. D.V., 3–21
Hübscher, G., 3–4
Huby, R., 15–24
Huck, R.J., 76–5
Hudson, F.L., 60–8
Hudson, F.P., 15–21
Hudson, F.S., 79–3
Hudson, G., 4–3
Hudson, H.J., 5–8
Hudson, J., 3–9
Hudson, J.D., 5–15
Hudson, Prof. J.P., 62–8
Hudson, J.R., 41–6
Hudson, R.E.B., 33–1
Huggard, E.R., 72–6
Huggett, Prof. A. St. G., 55–12
Hugh, A.E., 13–29
Hughes, A., 75–8
Hughes, A., 83–4
Hughes, A.F.W., 5–2
Hughes, A.M. (Mrs.), 52–4
Hughes, B.P., 39–5
Hughes, D., 13–24
Hughes, D.E., 63–7
Hughes, Prof. D.L., 15–32
Hughes, E. (Miss), 34–5
Hughes, Prof. E.B., 3–18
Hughes, Prof. E.D., 26–7
Hughes, E.J., 3–15
Hughes, G., 15–6
Hughes, G.M., 5–28
Hughes, H., 73–1
Hughes, I.S., 10–24
Hughes, J.B., 72–8
Hughes, J.W., 73–11
Hughes, B.A. (Miss), 24–5
Hughes, N.A., 7–6
Hughes, N.F., 5–15
Hughes, N.J.S., 73–8
Hughes, P., 15–19
Hughes, R., 71–1
Hughes, R., 114–5
Hughes, R.E., 114–1
Hughes, R.T., 75–7
Hughes, S.R.C., 84–2
Hughes, T.E., 18–9
Hughes, W.A., 8–1
Hughes, W.H., 55–7
Hughesdon, P., 57–6
Hugo, W.B., 62–12
Huitson, A., 83–3
Hulett, J.R., 13–10
Hull, D., 15–16
Hull, R., 28–2
Hullin, R.P., 13–4
Hulme, R., 20–5
Hulse, C., 68–29
Hum, D.M., 19–9
Humble, J.G., 58–2
Hume-Rothery, Prof. W., 63–19
Humphrey-Davies, Prof. M.W., 22–3
Humphreys, P., 63–3
Humphries, D.W., 68–12
Humphrys, G., 74–4
Hunt, A.H., 53–23
Hunt, A.J., 68–11
Hunt, J.B., 69–5
Hunt, J.N., 19–11
Hunt, J.N., 30–16
Hunt, K.E., 63–1
Hunt, T., 107–4
Hunter, A.R., 59–1, 59–21, 59–29
Hunter, F., 7–1
Hunter, I.M.L., 8–29
Hunter, J., 10–16
Hunter, J.A., 90–3
Hunter, Prof. L., 14–3
Hunter, R.A., 39–7
Hunter, Prof. R.B., 67–15
Hunter, W., 94–6
Hunter, W.B., 8–10
Hunter, W.R., 10–30
Huntley, E., 110–3
Hunton, P., 28–1
Hurd, D.L., 76–5
Hurd, J.D., 72–9
Hurd, R., 19–2
Hurley, R., 29–6
Hurst, G., 68–17
Hurst, M., 15–4
Hurwitz, H.M.B., 18–7
Husain, A., 16–1
Husain, B.M.C., 15–10
Husband, W.H., 3–9
Hush, N.S., 4–6
Hutchinson, Prof. G.W., 69–9
Hutchinson, Prof. Sir J., 5–1
Hutchinson, S.A., 10–6
Hutchinson, W.C.A., 6–6
Hutchison, H.E., 10–22
Hutchison, H.P., 5–11
Hutchison, J.G.P., 10–4

Hutchison, Prof. J.H., 10–21
Hutchison, J.S.M., 56–6
Hutchison, W.C., 10–5
Hutten, E.H., 23–4
Hutton, P.H., 8–34
Hutton, Prof. S.P., 73–6
Huxley, Prof. A.F., 26–20
Huxley, H.E., 26–5
Hyde, A.J., 11–2
Hyde, C.W., 107–1, 107–2, 107–3, 107–6
Hyde, D., 85–1
Hyde, F.J., 72–5
Hyde, H.A., 75–3
Hykin, D.H.W., 78–1
Hyndman, D.E., 85–4
Hynes, H.B.N., 15–33
Hytten, F.E., 1–14

Iball, J., 67–2
Ibbertson, H.K., 52–8
Ibbotson, A., 7–1
Idle, D.B., 3–5
Iggo, A., 8–27
Ikin, E.W. (Miss), 46–4
Iles, E.J., 59–41
Iliffe, A.H., 61–8
Illingworth, Prof. Sir C., 10–28
Illingworth, C.R., 59–16
Illingworth, Prof. R.S., 68–19
Illsley, R., 1–14
Imrie, J.A., 10–11
Ince, F.E. (Miss), 17–9
Indge, K.J., 60–1
Ing, H.R., 63–25
Ingersent, K.A., 62–1
Ingham, A.E., 5–17
Ingle, P.H.B., 79–5
Ingleton, A.W., 63–17
Inglis, J.McN., 3–1
Inglis, Prof. J.S.S., 10–29
Ingold, Prof. Sir C., 26–7
Ingold, Prof. C.T., 18–1
Ingram, C.G., 66–10
Ingram, Prof. D.J.E., 61–7
Ingram, I.M., 10–26
Ingram, J.M.A. (Miss), 28–3
Ingram, Prof. J.T., 7–8
Ingram, P.L., 24–5
Ingram, T.T.S., 8–23
Innes, A., 3–21
Innes, G., 1–20
Innes, G., 53–21
Innes, G.S., 53–17
Ireland, J., 10–8
Ireland, J.H.D., 32–2
Irons, E.J., 22–7
Irvine, D.E.G., 102–1
Irvine, Prof. W.T., 55–13
Irving, F.G., 19–1
Irving, Prof. H.M.N.H., 13–7
Irving, Prof. J., 11–9
Irving, R.J., 76–1
Irwin, D., 7–25
Irwin, J.O., 48–9
Irwin, M.C., 15–14
Irwin, R.S., 2–1
Isaac, I., 74–1
Isaac, P.C.G., 7–9
Isard, J.O., 68–29
Isles, G.L., 13–32
Israel, M.S., 31–2
Israels, M.C.G., 59–15
Isserlis, G., 78–3
Ives, D.J.G., 18–2
Ives, K.J., 26–9
Ivimey-Cook, R.B., 9–3
Ivin, K.J., 13–7
Ivins, Prof. J.D., 62–1

Jack, H., 67–6
Jack, W., 10–24
Jackman, L.M., 19–3
Jackson, A.A., 28–6
Jackson, A.D.M., 47–15
Jackson, A.H., 15–6
Jackson, B.P. (Miss), 113–6
Jackson, C., 7–6
Jackson, D., 13–8
Jackson, D.C., 13–29
Jackson, D.F. (Miss), 76–5
Jackson, E., 68–14
Jackson, E.F., 63–30
Jackson, E.G., 13–32
Jackson, F.L., 45–7
Jackson, G.A.D., 72–3
Jackson, G.T., 104–5
Jackson, H., 39–3
Jackson, H., 59–29
Jackson, I., 53–1
Jackson, J.D., 59–11
Jackson, J.E., 5–13, 5–14
Jackson, J.H., 24–1
Jackson, J.M., 67–6
Jackson, K.L., 26–11
Jackson, L.H., 72–10
Jackson, M. (Miss), 62–9
Jackson, N., 67–4
Jackson, R., 8–10, 90–4
Jackson, T.A.S., 15–14
Jackson, Prof. Sir W., 19–6
Jacob, L., 11–9
Jacobs, A., 55–9
Jacobs, J., 75–6
Jacobs, L., 81–1
Jacobs, N. (Mrs.), 13–24
Jacobs, P.W.M., 19–3
Jacobs, S.E., 19–2
Jacobs, S.I., 13–17, 13–24
Jacobsen, M., 8–27
Jacoby, F., 73–1
Jaeger, L.G., 5–11
Jaffe, A.A., 59–31
Jaffe, W.P., 4–29
Jagger, F.L., 79–2

Jagger, J.G., 79–3
Jahn, Prof. H.A., 69–8
Jahoda, G., 10–27
Jahoda, M. (Miss), 83–4
Jakeways, R., 9–9
James, A.H., 75–3
James, A.H. (Mrs.), 114–1
James, A.M., 84–2
James, A.N., 15–24
James, B.L., 74–9
James, C.G., 19–7
James, D.B., 70–1
James, D.W., 26–1
James, D.W.F., 72–5
James, E.L., 84–7
James, E.M. (Mrs.), 70–7
James, G.S., 13–14
James, I.M., 63–17
James, J.A., 4–17
James, J.F., 59–31
James, Prof. J.I.P., 8–22
James, K.C., 114–5
James, P., 34–5
James, P.G., 5–1, 70–1
James, P.M.C., 51–2
James, R.A., 60–6
James, R.M.V., 59–29
James, S. (Mrs.), 3–24
James, U. (Miss), 54–6
James, V.H T., 55–9
James, Prof. W.O., 19–2
James, W.R.L., 75–7
Jameson, R.F., 67–2
Jamieson, G.R., 105–1
Jane, Prof. F.W., 23–1
Janes, B.V., 59–10
Janes, M.D. (Miss), 48–4
Japolsky, N.S., 20–6
Jardine, P., 4–16
Jardine, W.G., 10–14
Jarratt, P., 79–4
Jarrett, A., 57–6
Jarrett, J.H., 2–11
Jarrett, M.G., 73–2
Jarrett, R.J., 30–14
Jarrett, W.F.H., 10–29
Jarumilinta, R. (Mrs), 16–2
Jarvie, A.W.P., 77–1
Jaswon, M.A., 19–9
Jawetz, M.B., 70–1
Jayne-Williams, D.J., 65–7
Jayson, G.G., 94–2
Jeacock, M.K. (Miss), 29–3
Jebb, A., 101–2
Jeffcoate, Prof. T.N.A., 15–18
Jefferies, T.M., 81–5
Jefferson, G.T., 73–14
Jefferson, K., 54–2
Jefferson, P., 104–1
Jeffery, B.J., 116–3
Jeffery, G.H., 116–2
Jeffery, J.A., 95–4
Jeffery, J.W., 18–6
Jefferys, M. (Mrs.), 48–8
Jeffree, G.M. (Miss), 4–19
Jeffrey, A.G., 13–1
Jeffrey, M.R., 59–38
Jeffrey, R.R., 4–1
Jeffreys, D.C., 59–11
Jeffreys, G.V., 3–9
Jeffreys, J.A.D., 11–2
Jelliffe, A.M., 49–11
Jelonek, Z.Z., 11–3
Jenkin, P.M. (Miss), 4–30
Jenkins, D., 1–26
Jenkins, D.R., 5–9
Jenkins, G.M., 19–9
Jenkins, G.N., 7–24
Jenkins, J., 79–3
Jenkins, J.D., 7–9
Jenkins, N.K., 28–3
Jenkins, W.M., 20–6
Jenkinson, D.H., 26–17
Jenner, F.A., 68–24
Jennett, W.B., 59–21
Jennings, A., 59–11
Jennings, A.R., 5–27
Jennings, D., 47–9
Jennings, D.H., 13–6
Jennings, F.W., 10–29
Jennings, J.B., 13–35
Jennings, J.C.E., 18–6
Jennings, K.R., 68–5
Jennings, M.A. (Hon. Mrs.), 63–24
Jennings, R.E., 26–19
Jennings, S., 10–29
Jennison, R.C., 59–4
Jennison, R.F., 59–27
Jenson, V.G., 3–9
Jepson, J.B., 49–2
Jerrard, H.G., 69–9
Jervis, E.L. (Miss), 68–23
Jessop, Prof. W.J.E., 48–8
Jevons, F.R., 59–9
Jeynes, M.H., 3–3
Jiggins, A.J., 78–4
Jinks, J.L., 3–10
Job, E.M., 70–8
Joekes, A.M., 44–1
Johannesen, N.H., 59–31
John, A.H., 75–5
John, B., 3–10
John, J.E.J., 59–5
John, V., 107–4
Johns, D.J., 85–4
Johns, E.M., 9–6
Johnson, A., 57–1
Johnson, A., 60–8
Johnson, A.A., 19–10
Johnson, Prof. A.W., 62–3
Johnson, B.E., 36–1
Johnson, B.K., 19–14
Johnson, B.L.C., 3–11
Johnson, C.M.P., 63–26

Johnson, Prof. D.C., 13–10
Johnson, D.J., 13–32
Johnson, E., 60–4
Johnson, E. (Miss), 64–13
Johnson, F.R., 47–1
Johnson, G.A.L., 6–4
Johnson, G.R.A., 7–6
Johnson, H. (Mrs.), 6–4
Johnson, H.D., 52–17
Johnson, H.H., 79–4
Johnson, H.H., 95–5
Johnson, J.H., 26–13
Johnson, M.C., 3–23
Johnson, M.R.W., 8–15
Johnson, N.L., 26–22
Johnson, P., 3–4
Johnson, P., 5–10
Johnson, R.C., 77–2
Johnson, R.H., 59–13
Johnson, R.L., 13–13
Johnson, R.M., 97–2
Johnson, R.P., 5–11
Johnson, R.T., 59–21
Johnson, W., 59–10
Johnson, Prof. W., 60–4
Johnston, A.R., 2–17
Johnston, I.D.A., 2–22
Johnston, J.H., 15–30
Johnston, K.M., 107–3
Johnston, R.J., 8–5
Johnston, T.D., 71–6
Johnston, W., 88–1
Johnstone, Prof. A.S., 13–29
Johnstone, K.I., 13–17
Johnstone, M.W., 59–1
Johnstone, R.A.W., 9–4
Johnstone, Prof. R.E., 62–4
Jolleys, A., 59–27
Jolliffe, G.O., 84–6
Jolly, G.J., 1–24
Jonckheere, A.R., 26–21
Jones, A., 53–21
Jones, A.M., 59–8
Jones, A.P., 13–1
Jones, A.S., 3–6
Jones, A.W., 7–9
Jones, Prof. B., 70–9
Jones, B.M.G., 22–1
Jones, B.R., 41–3, 41–4
Jones, C.V., 15–8
Jones, C.W., 19–9
Jones, D., 52–15
Jones, D.A., 1–18
Jones, D.A., 3–10
Jones, D.A., 11–9
Jones, D.G., 20–8
Jones, D.G., 71–6
Jones, D.G., 74–5
Jones, D.I.H., 71–2
Jones, D.N., 68–5
Jones, Prof. D.S., 61–6
Jones, D.W., 3–15
Jones, D.W., 79–2
Jones, E.E., 62–9
Jones, Prof. E.R.H., 63–10
Jones, E.W., 63–14
Jones, F., 13–7
Jones, F., 107–6
Jones, F.G.B., 83–1
Jones, Prof., F.L., 74–8
Jones, G., 61–2
Jones, G.E., 62–1
Jones, G.I., 5–3
Jones, Prof. G.O., 22–7
Jones, G.R.J., 13–12
Jones, G.R.N., 31–2
Jones, G.T., 63–1
Jones, Prof. H., 19–9
Jones, H.E.H., 49–2
Jones, Prof. I.C., 68–30
Jones, I.E., 3–11
Jones, I.O., 10–10
Jones, J.C., 32–2
Jones, J.C., 81–4
Jones, J.D., 68–30
Jones, J.G.W., 28–1
Jones, J.H., 75–2
Jones, J.J., 29–10
Jones, J.K., 64–1
Jones, J.M., 7–11
Jones, J.P., 69–5
Jones, J.R., 74–6
Jones, J.R.E., 70–9
Jones, J.W., 15–33
Jones, K.A., 2–10
Jones, K.M., 14–1
Jones, K.M., 39–5
Jones, K.R., 94–3
Jones, Ll.I., 71–1
Jones, Prof. M., 7–1
Jones, M.A., 28–3
Jones, M.L. (Mrs.), 55–12
Jones, M.N., 12–6
Jones, N.C.H., 55–4
Jones, N.G.B., 63–33
Jones, N.S., 15–13
Jones, P.C.T., 32–1
Jones, P.M.R., 95–4
Jones, P.O., 53–15
Jones, R., 8–14
Jones, R.A.Y., 68–5
Jones, R.B., 62–1
Jones, R.F.M., 53–13
Jones, R.H., 3–9
Jones, R.L., 32–1
Jones, R.M., 3–10
Jones, R.P.N., 5–11
Jones, R.S., 10–29
Jones, R.S., 15–21
Jones, Prof. R.V., 1–18
Jones, T.B., 14–8
Jones T.G., 58–2
Jones, W.C., 72–10
Jones, W.D., 70–1

Jones, W.E., 72–7
Jones, W.J.D., 26–11
Jones, W.K., 59–1
Jones, W.M., 70–8
Jordan, F.T.W., 15–32
Jordan, J., 109–4
Jordan, J.W., 2–1
Jordan, R.C., 73–12
Jordinson, F., 91–1
Jordinson, R., 101–3
Joseph, J., 30–2
Joseph, M.C., 30–12
Joseph, S., 63–3
Jowett, A., 13–18
Joy, J.L., 5–1
Joy, K., 19–2
Joy, P.M. (Mrs.), 112–1
Joyce, C.R.B., 47–17
Joyner, A., 70–9
Joysey, K.A., 5–28
Jull, J.W., 13–22
Juniper, A.J., 107–6
Juniper, B.E., 63–9

Kacser, C., 63–26
Kacser, H., 8–13
Kahn, F.D., 59–4
Kain, J.M. (Miss), 15–13
Kaiser, T.R., 68–22
Kakabadse, G.J., 60–3
Kaliszer, H., 3–9
Kalmus, H., 26–12
Kamel, H., 19–1
Kantorowicz, G.F., 51–2
Kapeller-Adler, R. (Mrs.), 8–7
Kaplan, C., 46–5
Karn, M.N., (Miss), 26–12
Karo, D., 77–2
Kastner, Prof. L.J., 20–6
Katritzky, A.R., 5–9
Katz, A., 29–3
Katz, Prof. B., 26–5
Kay, Prof. A.W., 68–28
Kay, D., 63–24
Kay, D.W., 7–25
Kay, H.F., 4–21
Kay, L., 3–9, 3–18
Kay, L., 59–31
Kay, L.W., 7–7
Kay, R.H., 63–27
Kaye, A., 85–6
Kaye, B.H., 104–6
Kaye, M.A.G., 68–2
Kaye, R.C., 13–23
Kearns, Prof. H.G.H., 4–1
Kearsley, M.J. (Miss), 63–17, 63–26
Keates, J.S., 10–13
Keates, P.G., 13–29
Keddie, R.M., 64–10
Keele, Prof. C.A., 49–8
Keeler, R., 7–24
Keen, H., 30–9
Keen, P., 24–6
Keene, J.P., 59–31
Keene, Prof. M.F.L., 52–2
Keidan, S.E., 15–21
Keilin, Prof. D., 5–7
Keilin, J. (Miss), 5–27
Keiller, S.T.W., 104–3
Keir, G.H. (Miss), 26–21
Keir, H.M., 10–5
Kekwick, Prof. A., 49–4
Kekwick, R.A., 46–2
Kekwick, R.G.O., 3–4
Kellar, Prof. R.J., 8–21
Kellaway, T.D., 5–21
Keller, A., 4–21
Kellermann, E.W., 13–24
Kellgren, H.A. (Miss), 52–8
Kellgren, Prof. J.H., 59–38
Kellie, A.E., 49–2
Kelling, F.H., 10–10
Kelling, G., 74–5
Kellner, C. (Mrs.), 19–14
Kellner, K., 69–9
Kelly, A., 5–19
Kelly, P.G., 13–5
Kelly, P.M., 13–16
Kelly, R.E., 39–1
Kelman, G.R., 3–24
Kelsey, C.H. (Miss), 5–20
Kelsey, S., 19–1
Kelus, A., 3–22
Kelvin, R.P., 26–21
Kemball, Prof. C., 2–6
Kember, N.F., 52–13
Kemeny, L.G., 22–3
Kemmer, Prof. N., 8–26
Kemp, H.B.S., 63–23
Kemp, K.O., 26–9
Kemp, L.A.W., 47–19
Kemp, N.H., 54–7
Kemp, P.H., 26–9
Kemp, R.F.O., 74–9
Kemp, W., 90–3
Kenchington, W., 13–5
Kendal, L.P., 59–32
Kendall, D.G., 63–17
Kendall, F.H., 112–2
Kendall, P.C., 17–5
Kendall, P.H., 30–12
Kendall, W.J., 91–3
Kendrew, J.C., 5–23
Kenedi, R.M., 11–3
Kenn, M.J., 20–6
Kenna, J.C., 59–33
Kennair, J.T., 7–9
Kennaugh, J.H., 59–41
Kennedy, A., 15–22
Keenedy, A.C., 10–17
Kennedy, Prof. A.J., 85–2, 85–5, 85–6
Kennedy, G.C., 5–18
Kennedy, G.D.C., 10–8
Kennedy, J., 2–22

Kennedy, J.S., 5–28
Kennedy, J.S., 10–8, 10–22
Kennedy, P.J., 8–26
Kennedy, R., 11–6
Kennedy, Prof. W.Q., 13–13
Kenner, Prof. G.W., 15–6
Kennett, S.J., 15–16
Kenney, C.N., 5–11
Kenny, A.J., 13–4
Kenny, B., 68–8
Kenshole, G.E., 26–10
Kent, A.K., 62–14
Kent, P.W., 63–7
Kenworthy, J.M. (Miss), 15–10
Kenyon, J., 76–1
Kenyon, J.R., 55–13
Keogh, C., 47–14
Keogh, F.R., 74–6
Keohane, K.W., 84–7
Kerkut, G.A., 69–1, 69–10
Kerley, P.J., 33–1
Kerly, M.L. (Miss), 26–3
Kermack, K.A., 26–23
Kermack, Prof. W.O., 1–3
Kerney, M.P., 19–8
Kerr, D.N.S., 7–13
Kerr, E., 110–3
Kerr, I.S., 19–3
Kerr, J.A., 70–4
Kerr, J.E. (Miss), 23–1
Kerr, L.W., 2–17
Kerr, M.O. (Mrs.), 39-7, 52–15
Kerr, T., 13–35
Kerr, W.F.K., 2–8
Kerr, W.R., 2–1
Kerridge, D., 5–6
Kerridge, D.F., 68–27
Kerridge, D.H., 69–3
Kershaw, K.A., 19–2
Kershaw, T., 68–23
Kershaw, Prof. W.E., 16–1
Kershaw, W.J.S., 5–1
Kessel, L., 29–3
Kessel, W.I.N., 8–28
Kesson, C.W., 54–6
Kestelman, H., 26–16
Kettle, M.A., 45–3
Kettle, S.F.A., 68–5
Kettlewell, H.B.D., 63–33
Kettlewell, J., 60–4
Kew, D.W., 95–2
Key, B.J., 3–25
Keynes, W.M., 47–20
Keys, A.J., 19–2
Keyser, J.W., 75–7
Khairy, M. (Miss), 26–21
Khosla, T., 1–24
Kiang, T., 26–2
Kibble, T.W.B., 19–14
Kidd, C., 13–25
Kidd, C.B., 8–28
Kidd, G., 15–25
Kidd, M., 39–5
Kidder, D.E., 4–29
Kiely, J.J., 109–4
Kiernander, B., 34–3, 38–3
Kieser, M.E. (Miss), 4–1
Kilburn, Prof. T., 59–11
Kilby, B.A., 13–4
Kilenyi, T.I., 112–3
Kilham, J.K., 13–32
Kille, R.A., 8–35
Killey, Prof. H.C., 35–8
Kilmister, C.W., 20–9
Kiloh, L.G., 7–25
Kilpatrick, R., 68–21
Kilpatrick, S.J., 1–22, 1–24
Kinch, D., 107–4
King, A.J., 47–22
King, A.R., 3–25
King, A.S., 4–29
King, Prof. A.S., 15–32
King, Prof. B.C., 17–4
King, C.A.M. (Miss), 62–6
King, E. (Mrs.), 39–7
King, Prof. E.J., 50–7
King, G.C., 84–1
King, G.J.W., 15–8
King, H.J., 13–18
King, H.K., 15–3
King, J., 8–2
King, J.O.L., 15–32
King, Prof. J.W.H., 22–3
King, M.B., 3–9
King, P.E., 74–9
King, P.J., 60–4
King, R.A., 19–6
King, R.C., 53–11
King, R.F., 3–12
King, T.J., 62–3
King, T.S., 68–1
Kingham, D., 94–3
Kingsbury, A.W.G., 63–16
Kingsbury, K.J., 55–13
Kingsley-Pillers, E.M. (Miss), 5–26
Kingston, A.E., 15–14
Kinloch, D., 72–6
Kinmonth, Prof. J.B., 56–10
Kinnier-Wilson, A.B., 42–1
Kinsley, B.J. (Miss), 48–9
Kipling, J.J., 12–2
Kipping, F.B., 5–9
Kirby, D., 13–14
Kirby, E.J.M., 5–1
Kirby, G.W., 19–3
Kirby, K.S., 32–1
Kirby, R.P., 8–14
Kirk, A., 15–14
Kirk, C.L., 68–8
Kirk, E.E.J., 51–2
Kirk, G., 84–6
Kirk, L.A., 60–8
Kirk, N. (Miss), 70–6
Kirk, N.S., 95–4

Kirk, W., 14–5
Kirkaldy, J.F., 22–5
Kirkby, E., 7–1
Kirkland, I., 11–3
Kirkman, J.R., 113–7
Kiss, A.E., 112–6
Kitamura, M., 59–4
Kitchener, J.A., 19–13
Kitching, J.A., 4–30
Kitching, R., 60–4
Kitchingman, W.J., 60–4
Kite, L.W., 84–7
Klawe, J.J., 8–14
Klein, G., 9–8
Klemperer, O., 19–14
Klieneberger-Nobel, E. (Mrs.), 46–7
Klinger, Y., 76–5
Klopper, A., 1–14
Klug, A., 18–6
Klyne, Prof. W., 27–2
Kneebone, G.T., 17–5
Knifton, A., 15–23
Knight, A.J., 14–7
Knight, Prof. B.C.J.G., 64–10
Knight, G.C., 24–7
Knight, G.C., 50–10
Knight, J.J., 45–11
Knight, Prof. R., 1–21
Knight-Jones, Prof. E.W., 74–9
Knill, J.L., 19–8
Knipe, P., 53–23
Knops, R.J., 62–9
Knott, G., 77–6
Knowelden, Prof. J., 68–25
Knowles, A., 32–1
Knowles, C.C., 15–7
Knowles, Sir F., 3–2
Knowles, J.B., 60–4
Knowles, K.G.J.C., 63–30
Knowles, K.R., 116–3
Knox, E.G., 7–20
Knox, Prof. J.A.C., 21–7
Knox, J.H., 8–7
Knox, M.A., 8–1
Knox, Prof. R., 30–10
Knox, R.S., 8–28
Knox, S.J., 2–19
Kobayashi, N., 34–4
Koblenzer, P.J., 34–3
Koenigsberger, Prof. F., 60–4
Kohnstam, G., 6–2
Kok, D'A. 5–18
Kolbuszewski, Prof. J., 3–9
Koller, Prof. P.C., 32–1
Komrower, G.M., 59–27
Kon, S.K., 65–1, 65–8
Kondic, V., 3–15
Kopal, Prof. Z., 59–4
Kornberg, Prof. H.L., 14–1
Korner, A., 5–6
Kosterlitz, H.W., 1–19
Kovari, T., 19–9
Kramer, I.R.H., 35–6
Krebs, Prof. Sir H., 63–7
Krohn, Prof. P.L., 3–2
Kronheimer, E.H., 18–5
Kruszynski, J., 15–12
Kuffel, E., 60–4
Kuhn, H.G., 63–26
Kulka, D. (Miss), 3–4
Kuper, C.G., 66–9
Kurth, O.E.W.R., 6–5
Kurti, N., 63–26
Kurzer, F., 52–3
Kushlick, A., 59–35
Kuttner, B., 3–13
Kyle, K., 2–22
Kyles, J., 8–26
Kynch, Prof. G.J., 60–6

Lacey, A.J., 83–1
Lacey, B.W., 58–1
Lacey, D., 53–4
Lacey, W.S., 72–3
Lack, C.H., 42–1
Lack, D., 63–33
Lacy, D., 53–25
Lacy, E.D., 3–12
Ladd, M.F.C., 76–4
Laidlaw, J., 8–20
Lainé, D.C., 61–7
Laing, E.W., 10–24
Laing, Prof. J.A., 24–2
Laird, A.M., 11–3
Laithwaite, E.R., 59–11
Lake, B., 34–4
Lake, H.J., 7–24
Lake, N.C., 29–3
Lakowski, R., 8–29
Lale, P.G., 30–15
Lamb, E.G., 94–3
Lamb, Prof. J., 10–10
Lamb, J.F., 10–25
Lamb, Prof. W.E., 63–26
Lamb, W.G.P., 112–6
Lambert, J.D., 63–10
Lambert, J.D., 66–8
Lambert, J.L.M., 61–5
Lambert, J.M. (Miss), 69–2
Lambert, R. St. J., 63–16
Lambert, T.H., 26–11
Lambert, Prof. V.F., 59–26
Lamberton, A.H., 68–5
Lambie, A.T. (Miss), 8–25
Lamble, J.H., 60–4
Lamerton, Prof. L.F., 32–2
Lamming, G.E., 62–1
Lamont, Prof. H.G., 2–1
Lampkin, H., 101–3
Lancaster, P.R., 79–3
Lance, J. (Miss), 12–7
Landau, B.V., 110–3
Landbeck, R., 49–9
Landells, J.W., 47–16

Landgrebe, Prof. F.W., 75–8
Landon, D., 30–2
Landor, P.D. (Mrs.), 116–2
Landor, S.R., 116–2
Landsberg, Prof. P.T., 73–8
Lane, G.R., 69–2
Lane, Prof. R.E., 59–23
Lang, A.R., 4–21
Langdon, J., 108–3
Langford, M., 73–11
Langlands, R.C., 10–10
Langley, A.H., 113–2
Langley, F.A., 59–22
Langley, J.A., 9–1
Langmaid, C., 75–10
Langton, N.H., 98–1
Langworth, E.P., 13–15
Lanigan, M., 59–11
Lannigan, R., 3–22
Lappert, M.F., 60–3
Lappin, M.A., 7–11
Lapwood, E.R., 5–17
Large, D.C., 64–6
Large, M.I., 59–4
Larkworthy, L.F., 76–1
Larmour, T.A., 2–1
Larnach, W.J., 4–8
Larwood, G., 5–15
Lascelles, C.F., 7–25
Lascelles, J. (Miss), 63–7
Laser, H., 5–7
Lassman, L.P., 7–25
Last, Prof. R.J., 31–1
Last, S.L., 47–7
Latham, J., 60–7
Latham, L.R. (Miss), 12–3
Latham, R., 19–14
Lathbury, A. (Miss), 12–3
Lathe, Prof. G.H., 13–22
Latner, A.L., 7–21
La Touche, C.J.P., 13–9, 13–17
Lauder, I.M., 10–29
Laughlin, R., 7–1
Laughton, N. (Miss), 3–3
Laurence, B.R., 48–2
Laurence, D.J.R., 32–1
Laurence, D.R., 26–17, 57–3
Laurence, E.B., (Mrs.), 18–9
Laurence, K.M., 75–6
Laurie, Prof. M.V., 63–14
Laverack, M.S., 66–12
Law, J., 59–31
Law, K. (Miss), 26–3
Lawler, S.D. (Mrs.), 26–12, 32–3
Lawley, L.E., 92–3
Lawley, P.D., 32–1
Lawlor, M.M. (Miss), 17–8
Lawn, A.M., 24–6
Lawn, L., 5–18
Lawrence, A.S.C., 68–5
Lawrence, J.C., 3–22
Lawrence, J.S., 59–38
Lawrence, M.J., 3–10
Lawrence, T., 64–1
Lawrenson, P.J., 13–10
Lawrie, T.D.V., 10–17, 10–29
Lawrie, W., 11–2
Laws, D.J., 116–2
Laws, J.O., 13–22
Laws, J.W., 50–9
Lawson, Prof. A., 52–3
Lawson, D.D., 10–29
Lawson, G.J., 3–17
Lawson, J.G., 75–5
Lawson, J.W.H., 10–30
Lawson, R., 110–1
Lawson, T.V., 4–8
Lawson, W., 49–2
Lawton, Prof. F.E., 15–7
Lawton, R., 15–10
Layton, J.M., 3–9
Layton, W., 113–3
Layzell, C.R.R. (Miss), 12–3
Lazenby, A., 5–1
Leaback, D.H., 42–1
Leach, E.H., 63–27
Leach, E.R., 5–3
Leach, G.D., 79–5
Leach, M. (Miss), 4–1
Lead, W.L., 104–7
Leadbeater, B.R., 109–4
Leadbeater, G., 104–1
Leadbetter, A.J., 4–6
Leaf, G., 10–5
Leah, A.S., 13–10
Leak, G.M., 59–18
Leake, B.E., 4–10
Learmonth, A.T.A., 15–10
Leat, W.M.F., 5–1
Leatham, A.G., 33–1, 54–2, 54–6
Leathard, F., 7–9
Leathart, G.L., 7–17
Leaver, D., 8–7
Le Bas, M.J., 14–6
Le Bouvier, G.L., 10–12
Leck, I.M., 3–26
Leck, J.H., 15–8
Leckie, F.A., 5–11
Lederis, K., 4–20
Ledermann, W., 59–16
Ledger, A.J., 15–14
Ledingham, I.M., 10–28
Ledingham, J.M., 47–9
Ledlie, E.M. (Mrs.), 32–3
Ledsome, J.R., 13–25
Ledwith, A., 15–6
Lee, A.W., 110–3
Lee, B.T.O., 2–5
Lee, E.W., 68–22
Lee, G. De J., 63–18, 63–31
Lee, H.M. (Mrs.), 2–5
Lee, J., 29–10
Lee, J., 60–3
Lee, J.B., 95–1

Lee, J.C., 74–3
Lee, J.H., 35–3
Lee, M.L.H., 63–23
Lee, M.R., 63–18
Lee, P.A., 80–3
Lee, Prof. S.G.M., 14–9
Lee, W.H., 76–1
Lee, W.R., 59–23
Leech, J., 10–16
Leech, J.W., 22–7
Leech, R.M. (Miss), 19–2
Leedale, G.F., 13–6
Leedham, R.V., 79–3
Leek, R., 95–2
Leeming, F.A., 13–12
Lees, A., 64–7
Lees, A.D., 5–28
Lees, D.G., 92–2
Lees, E., 79–1
Lees, F., 53–8
Lees, G., 3–9
Lees, J.L., 70–1
Leese, C.L., 32–1
Leeson, J.E. (Mrs.), 59–35
Leeson, M.R., 95–2
Lefebvre, Prof. A.H., 85–4, 85–7
Legg, K.L.C., 95–2
Legge, D., 26–21
Lehman, M.L., 68–6
Lehmann, H., 53–15, 53–23
Lehmann, J., 3–6
Lehrle, R., 3–6
Leibowitz, S., 30–13, 34–4
Leigh, A.D., 43–4
Leigh, A.G., 41–3
Leigh, G.J., 60–3
Leigh, L., 78–1
Leighton, B.C., 45–3
Leishman, A.W.D., 68–14
Leishman, R., 10–20
Leisten, J.H.A., 68–5
Leitch, A., 4–23
Leith, A.B., 41–1
Leithead, C.S., 16–2
Lemon, G.G., 73–7
Lempert, S.M. (Mrs.), 59–35
Lenczner, D., 62–4
Lendrum, Prof. A.C., 67–14
Lenihan, J.M.A., 10–8
Lenman, J.A.R., 67–7
Lennard, J.H., 8–1
Lennon, Prof. G.G., 4–15, 4–18
Lennon, G.W., 15–19
Lennon, J.J., 15–8
Lennox, B., 10–22
Leopold, J.G., 75–7
Le Quesne, L.P., 49–12
Le Roux, P.L., 48–6
Leslie, I., 2–4
Leslie, P.H., 63–33
Lesslie, M.S. (Miss), 17–2
Lessof, M.H., 30–12
Letchner, E.H. (Miss), 56–5
Leton, G.B., 116–2
Lett, J.T., 32–1
Lev, M., 65–7
Levell, M., 13–22
Leventhall, H.G., 84–7
Lever, Prof. J.D., 73–1
Leveson, L.L., 81–2
Levin, R.J., 68–23
Levine, S., 59–16
Levison, M., 18–6
Levitt, J.K., 79–3
Levy, J.C., 101–2
Levy, J.F., 19–2
Levy, K. (Miss), 8–30
Lewin, B.H., 77–2
Lewin, G.F., 83–5
Lewis, Prof. Sir A., 43–4
Lewis, A.F., 29–10
Lewis, B.G., 62–1
Lewis, C.A., 53–3
Lewis, C.T., 19–15
Lewis, D., 76–4
Lewis, Prof. D., 26–6
Lewis, D., 62–1
Lewis, E.J., 71–6
Lewis, F., 4–18
Lewis, F.A., 2–6
Lewis, G.M., 10–24
Lewis, G.M., 13–21
Lewis, G.M., 68–11
Lewis, G.P., 10–23
Lewis, I.E. (Miss), 73–11
Lewis, J., 26–7
Lewis, J., 70–1
Lewis, J., 71–6
Lewis, J., 79–1
Lewis, J., 113–6
Lewis, J., 114–1
Lewis, J.J., 10–23
Lewis, J.R., 13–35
Lewis, J.T., 63–17
Lewis, J.W., 95–1
Lewis, K.R., 63–9
Lewis, O.J., 53–2
Lewis, P.R., 5–2
Lewis, S.M., 50–4
Lewis, T., 59–39
Lewis, T.J., 22–3
Lewis, T.L.T., 30–11, 40–3
Lewis, T.T., 73–6
Lewis, V., 83–2
Lewis-Faning, E., 75–9
Leytham, G.W.H., 15–27
Leyton, G., 3–22
Leyton, L., 63–14
Lichtarowicz, A., 62–4
Liddell, J., 63–7
Liebeck, H., 61–6
Lienhardt, R.G., 63–4
Liggett, J., 7–25
Lightfoot, E., 13–10, 63–11

Lightwood, R.C., 55–8
Lilley, B.A., 13–22
Lilley, G.M., 85–1
Lilley, M.D. (Miss), 7–13
Lilly, L.J. (Miss), 49–3
Lind, A.R., 63–3
Linden, C.N., 74–6
Linden, R.J., 13–25
Lindop, N., 92–1
Lindop, P.J., 53–17
Lindsay, D.D., 1–18
Lindsay, F.E.F. (Mrs.), 10–29
Lindsay, J.A., 10–10
Lindsey, A.J., 112–2
Line, C., 65–3
Linehan, Prof. P.A., 2–1
Linfoot, E.H., 5–5
Ling, E.R., 62–1
Ling, N.R., 49–2
Ling, R.S.M., 8–22
Lingard, R.G., 84–6
Linge, J., 7–9
Linn, I.J., 9–11
Linnell, Prof. W.H., 25–1
Linnett, J.W., 63–10
Linton, A.H., 4–14
Linton, Prof. D.L., 3–11
Linton, H.N., 94–3
Lion, J. (Mrs.), 7–17
Lippold, O.C.J., 26–20
Lipson, Prof. H., 60–7
Lisgarten, L., 116–5
Lisgarten, N.D., 19–14
Lisle, J.C., 59–31
Lisowski, F.P., 3–2
Lissman, H.W., 5–28
Lister, A., 41–1, 47–13
Lister, H., 7–10
Lister, J., 34–5
Lister, J.H., 32–1
Lister, U.M. (Miss), 13–19
Litting, C.N.W., 59–11
Little, E. (Miss), 7–29
Little, E.M., 3–19
Little, J.C., 13–26
Little, K. (Miss), 63–23
Little, V.I., 17–6
Littlefield, T.A., 7–23
Littlefield, W.H., 7–7
Littler, T.S., 45–11
Littlewood, A.B., 7–6
Littlewood, Prof. D.E., 72–8
Littlewood, J.M., 13–21
Littlewood, K., 68–29
Littlewort, M.C.G., 5–27
Liversedge, L.A., 59–20
Livesey, J.L., 59–11
Livesley, R.K., 5–11
Livett, B., 108–5
Livingston, R., 31–1
Livingstone, J.L., 45–6
Livingstone, M., 10–10
Livingstone, R., 91–1
Llewellyn, J., 3–28
Llewellyn, J.P., 72–9
Llewellyn, P.M., 4–21
Llewelyn-Leach, J.S., 19–10
Lloyd, A. (Mrs.), 8–23
Lloyd, A.G., 73–3
Lloyd, A.J., 26–14
Lloyd, B. (Miss), 11–7
Lloyd, B.B., 63–27
Lloyd, D.H., 4–8
Lloyd, D.H., 64–1
Lloyd, D.M.G., 66–5
Lloyd, E.H., 19–9
Lloyd, H.K., 62–10
Lloyd, J.K. (Miss), 3–21
Lloyd, J.L., 80–3
Lloyd, O.C., 4–19
Lloyd, P.F., 72–4
Lloyd, R.V., 114–5
Lloyd-Jones, C.P., 4–1
Lloyd-Jones, E. (Mrs.), 50–10
Löb, M.H., 13–14
Lobascher, D.J., 41–1
Lobascher, M., 52–15
Lockett, M.F. (Miss), 3–24
Lockett, M.F. (Miss), 84–5, 84–8
Lockey, J., 113–2
Lockhart, Prof. R.D., 1–2
Lockwood, R., 91–1
Lodge, G.A., 62–1
Lofts, B., 53–25
Logan, A., 8–32
Logan, C., 2–1
Logan, N., 62–3
Logan, R., 8–35
Logan, R.F.L., 59–35
Logue, V., 39–3
Lokanathan, S., 63–26
Lomer, J.N. (Miss), 64–11
Lominski, I.R.W., 10–4
Long, C., 31–4
Long, D.A., 74–2
Long, H.A. (Miss), 26–21
Long, J.V.P., 5–20
Long, L.E., 63–16
Long, L.H., 9–5
Long, R., 3–9
Long, V.D., 19–4
Long, W.H., 13–1
Longhurst, R.S., 84–7
Longley, D., 95–2
Longmore, D., 49–13
Longmuir, I.S., 37–1
Longuet-Higgins, Prof. H.C., 5–9
Longworth, W.R., 113–1
Lonsdale, Prof. Dame K., 26–7
Lorber, J., 68–19
Lord, P., 13–22
Lord, P., 110–4
Lord, R.D., 11–5
Lord, R.F., 7–1

Lord, R.N., 85-4
Lothian, G.F., 9-9
Lott, K.A.K., 83-1
Loudon, J.B., 43-4
Loudon, J.D., 10-7
Loughman, B.C., 63-1
Love, A.H.G., 2-18
Love, L.G., 68-12
Love, S.H.S., 2-2
Lovel, Prof. R.W., 7-7
Loveless, A., 32-1
Lovell, Prof. Sir B., 59-4
Lovell, D., 56-6
Lovell, Prof. R., 24-5
Lovell, S., 53-17
Lovelock, G.D., 114-1
Lovering, W.F., 76-2
Lovis, J., 13-6
Low, W.K., 109-3
Lowbury, E.J.L., 3-22
Lowdon, Prof. A.G.R., 7-29
Lowe, C.R., 3-26
Lowe, G., 63-10
Lowe, J., 2-1
Lowe, K.G., 67-7
Lowe, P.A., 110-1
Lowenstein, Prof. O.E., 3-28
Lowes, F.J., 7-23
Lowings, P.H., 5-1
Lowndes, J.S., 110-3
Lowthian, B.W., 110-4
Loxham, Prof. J., 85-4
Lubbock, J.K., 5-11
Lucas, B.G.B., 33-1, 34-5, 57-7
Lucas, G.R., 64-6
Lucas, Prof. I.A.M., 72-1
Lucas, J., 15-8
Lucas, J.W., 94-2
Lucas, Prof. R.B., 51-4
Lucas, R.L., 63-1
Luckwill, L.C., 4-1
Ludlam, A.E., 84-4
Ludlam, F.H., 19-11
Ludlow, N.G.T., 3-17
Lukes, T., 101-5
Lumsden, Prof. C.E., 13-22
Lundy, H., 8-34
Lunt, D.A. (Miss), 10-8
Luntz, M.H., 63-22
Lusis, O., 68-30
Lutwak-Mann, C. (Mrs.), 5-7
Luxton, H.W.B., 9-1
Lyle, S.J., 6-2
Lyle, T.K., 39-2, 41-2, 45-10
Lynch, D.B., 113-2
Lynch, G.W., 8-28
Lynch, P., 15-30
Lynn, J.W., 15-8
Lynn, N., 15-14
Lynn, R., 9-10
Lyon, A.G., 73-4
Lyster, R.L.J., 65-2
Lythgoe, Prof. B., 13-7
Lyttleton, R.A., 5-17

Mabbitt, L.A., 65-7
McAdam, Prof. R., 8-19, 90-6
Macafee, C.A.J., 2-14
Macafee, Prof. C.H.G., 2-14
McAleenan, F., 2-16
McAllister, J.S.V., 2-1
McAlpine, J.C., 38-5
McArdle, B., 30-13
McArdle, L., 2-2
MacArthur, J., 13-5
MacArthur, J.G., 10-23
MacBeath, Prof. A.M., 67-6
McBride, J., 10-19
McBride, J.M.W., 2-8
McBride, R.J., 90-7
McBroom, H.L., 11-3
McBurney, C., 5-4
Maccabee, F.G., 95-2
McCall, B., 54-2
McCallion, H., 62-4
MacCallum, F.O., 63-24
McCallum, H.M. (Miss), 10-22
McCallum, R.I., 7-17
McCance, Prof. R.A., 5-18
McCann, B.S., 70-5
McCann, J.A., 15-20
McCarroll, R., 2-11
McCarthy, K., 15-17, 15-21
McChesney, M., 15-8
McCleery, D.K., 60-4
McClelland, S.E., 80-3
McCloy, D., 2-8
McClure, Wing Commander C.G.B., 85-1
Maccoll, A., 26-7
McCombie, C.W., 1-18
McConaghy, S., 2-1
McConalogue, D.J., 19-7
McConnell, J.D.C., 5-20
McConnell, J.D.M., 105-1
McConnell, R.B., 15-15
McConnell, W.B., 2-19
McCorkindale, N.J., 10-7
MacCormack, J., 74-3
McCracken, J., 10-29
McCrea, M.R., 4-29
McCrea, Prof. W.H., 23-3
McCready, C.C., 63-1
McCreary, C.W.R., 2-1
McCrorie, J.W., 67-3
MacCulloch, W.T., 59-10
McCunn, Prof. J., 24-1
McCusker, H.B., 10-29
McDermott, N. (Mrs.) 62-1
MacDermott, V. (Mrs.), 30-13
Macdonald, Prof. A., 1-13
MacDonald, A. (Miss), 3-6
MacDonald, Prof. A., 59-29
McDonald, A.D. (Mrs.), 30-12

MacDonald, A.M., 10–21, 10–22
MacDonald, B.B., 11–10
MacDonald, D., 94–3
McDonald, D.A., 53–18
McDonald, E.L., 33–1
Macdonald, Prof. G., 48–10
MacDonald, I., 30–16
Macdonald, I.G., 9–8
Macdonald, Prof. J.A., 66–4
Macdonald, J.E., 60–5
McDonald, J.R.A., 60–2
McDonald, L., 47–4
McDonald, P., 8–1
Macdonald, P., 83–3
McDonald, R., 7–25
Macdonald, R.R., 13–19
Macdonald, W.W., 16–1
McDonough, M.W., 46–6
MacDougall, A.J., 68–15
McDougall, I.R.M., 13–10
MacDougall, J.D.B., 67–1
MacDougall, J.D.S., 112–3
McDowell, D.M., 2–8
McDowell, M.R.C., 23–3
McElligott, T.F., 68–20
McEntegart, M.G., 1–13
MacEwan, D.M.C., 67–16
McEwan, T., 10–17
McEwen, J.D., 67–3
McEwen, J.G., 69–9
M'Ewen, M.B., (Miss), 20–11
McEwen, P., 2–20
Macfadyen, A., 74–9
Macfadyen, K.A., 3–23
MacFarlane, A.G.J., 22–3
McFarlane, J., 13–18
Macfarlane, M.G. (Miss), 46–1
Macfarlane, R.G., 63–24
McFarlane, W., 10–24
Macfarlane, W.V., 7–30
McFerren, J.B., 2–13
McGee, Prof. J.D., 19–14
McGeown, M.G. (Miss), 2–12
McGhie, J.F., 84–2
McGirr, Prof. E.M., 10–17
McGlashan, M.L., 64–3
McGrath, I.A., 68–29
McGrath, W.D., 2–6
McGreevy, T., 108–3
MacGregor, Prof. A.B., 3–7
Macgregor, Prof. A.G., 1–17
MacGregor, A.J., 13–8
MacGregor, A.R., 8–8
MacGregor, A.R., 66–7
McGregor, D.D., 11–5
Macgregor, D.R., 8–14
McGregor, I.R., 88–1
MacGregor, J., 10–17
McGregor, J.D., 8–24
MacGregor, J.J., 63–14
McGregor, R., 60–8
MacGregor, W.G., 40–3
McGuckin, F., 7–19
McHardy, J.W., 8–1
McHatton, L.P., 83–1
McHugh, M.F., 2–20
McHugh, W.D., 67–3
McHutchison, W.B., 11–3
McIlwain, Prof. H., 43–1
McInally, M., 21–6
McIntosh, D.H., 8–26
McIntosh, P. (Miss), 60–1
Macintosh, Prof. Sir R., 63–2
McIntyre, H., 59–10
MacIntyre, I., 50–7
McIntyre, J.B., 99–1
McIntyre, Prof. W.I.M., 10–29
McIver, E.J., 5–20
MacIver, K.M. (Miss), 66–6
Mack, Prof. A.O., 7–7
Mack, C., 79–4
Mackay, A.L., 18–6
Mackay, D., 13–23
McKay, D., 62–4
MacKay, Prof. D.M., 61–3
McKay, E., 1–15
McKay, J., 109–3
MacKay, K.M., 62–3
Mackay, M.E. (Miss), 46–4
McKean, D.C., 1–5
MacKeith, R.C., 30–12
McKendrick, C.S., 16–2
Mackenna, B.R., 10–25
McKenna, J., 68–5
MacKenna, R.M.B., 53–6
Mackenzie, A.C., 10–10
McKenzie, A.S.V., 11–9
Mackenzie, D.H., 58–2
MacKenzie, D.W.R., 2–13
MacKenzie, E.C., 3–23
McKenzie, J., 1–2
McKenzie, J. (Mrs.), 2–7
MacKenzie, K.A., 8–21
MacKenzie, R.M., 8–29
Mackenzie, W.S., 59–14
McKeown, F. (Miss), 2–16
McKeown, Prof. T., 3–26
McKerrow, W.S., 63–16
Mackey, R.D., 13–10
Mackey, Prof. W.A., 10–28
Mackie, A., 90–3
Mackie, A.G., 66–8
McKie, Prof. D., 26–15
McKie, D., 5–20
Mackie, W.W., 10–10
McKinlay, D.G., 11–3
MacKinnon, I.L., 20–1
Mackinnon, L., 13–24
MacKinnon, P.C.B. (Mrs.), 52–2
Mackintosh, J.M. (Miss), 3–26
McKissock, W., 39–1, 39–3, 54–5
Mackle, H., 2–6
Maclagan, M.J., 52–12
Maclagan, Prof. N.F., 58–2

McLaren, A. (Miss), 8–13
McLaren, A.S., 11–9
MacLaren, D.M., 30–10
McLaren, Prof. H.C., 3–19
MacLaren, J.F.T., 11–3
McLaren, J.V., 95–1
McLaughlin, E., 19–4
McLay, K., 38–4, 38–5, 38–6
MacLean, A., 11–1
McLean, A.C., 10–14
McLean, J., 11–2
McLean, J.S., 105–1
MacLean, K.S., 30–9
McLean, P. (Miss), 49–2
Maclean, T.S.M., 3–9
MacLellan, Prof. G.D.S., 10–10
McLelland, J., 8–20, 8–31
MacLeod, A.M. (Miss), 90–1
MacLeod, C., 52–17
MacLeod, I., 7–21
McLeod, J.B., 63–17
McLeod, J.M., 11–6
Macleod, M., 1–12
MacLeod, N., 8–10, 90–4
MacLusky, D.S., 7–1
MacMahon, D., 8–29
McMahon, R.F., 94–3
McMenemey, W.H., 39–5
McMichael, Prof. J., 50–5
MacMillan, D., 3–21
McMillan, D.R., 7–7
Macmillan, E.W., 15–2
MacMillan, Prof. R.H., 74–3
McMinn, R.M.H., 20–1
McMinn, S.J., 60–4
MacNab, G.H., 34–5
McNair, T.J., 8–32
McNally, D., 26–2
McNaught, A.B. (Miss), 10–25
McNaughton, B., 77–2
Macnaughton, M.C., 67–9
McNaughton, S., 79–7
McNaull, J., 11–3
McNeil, C.K., 10–8, 10–28
McNeil, R.S., 67–15
MacNeill, F.E. (Miss), 59–34
McNeill, I.C., 10–7
McNeill, I.F., 7–29
McNeill, J., 10–24
McNeill, J., 15–4
McNeill, W.M., 1–7
McNicol, G.P., 10–17
McNicoll, W., 67–4
McOmie, J.F.W., 4–6
McPhee, I.W., 15–30
MacPherson, A., 8–14
MacPherson, A., 42–1
MacPherson, A.I.S., 8–32
McPherson, E.A., 8–34
Macpherson, H.T., 8–7
McQuillan, Prof. A.D., 3–15
McQuillen, K., 5–6
McQuillin, F.J., 7–6
McQuillin, L.A., 22–3
Macrae, J.C., 13–32
MacSween, D.R., 105–1
McSwiney, R.R., 56–6
McTaggart, H.S., 8–34
McVeigh, J.C., 78–1
McVey, P.J., 76–2
McWeeny, R., 61–2
McWhirter, Prof. R., 8–31
McWilliam, R., 42–1
Maddock, A.G., 5–9
Maddy, A.H., 8–35
Madeley, J.D., 110–1
Madge, M.A.P. (Miss), 23–1
Maegraith, Prof. B.G., 16–2
Magee, R.J., 2–6
Magnus, Prof. H.A., 45–12
Magnus, I.A., 36–1
Maguire, C., 41–1
Mahler, Prof. K., 59–16
Mahler, R.F., 30–9
Mahon, J. (Miss), 19–15
Mahoney, M.F. (Miss), 26–6
Mahony, J., 91–3
Main, A., 7–1
Main, J.B., 88–2
Main, J.H.P., 8–8
Mair, Prof. A., 67–18
Mair, I., 54–1
Mair, J.W., 85–5
Mair, Prof. W.A., 5–11
Mair, W.G.P., 39–5
Maitland, B.J. (Miss), 15–14
Maitland, Prof. H.B., 59–19
Maitland, P., 5–9
Maitland, R.J., 83–1
Maizels, Prof. M., 57–6
Majer, J.R., 3–6
Major, J.V., 6–6
Makey, A.R., 29–3
Makings, P., 74–9
Makinson, G.J., 66–8
Makomaski, A.H., 26–11
Makowski, Z.S., 19–5
Malcolm, B.R., 8–5
Malcolm, D.C., 8–12
Malcolm, Prof. J.L., 1–19
Male, A.T., 3–15
Maling, D.H., 74–4
Maliphant, R., 26–21
Mallett, B.L., 30–9
Mallett, J.M., 41–4
Malone, J.P., 2–1
Maloney, A.F.J., 8–20, 8–24
Malpress, F.H., 2–4
Maltbaek, J.C., 3–9
Mandel, L., 19–14
Mandelstam, Prof. S., 3–23
Mandl, A.M. (Miss), 3–2
Mandl, F., 59–31
Manfield, P.A. (Miss), 53–14

Manley, B. (Miss), 3–28
Manley, Prof. G., 17–3
Mann, B. (Miss), 70–1
Mann, C.J.H., 1–22
Mann, F.G., 5–9
Mann, J., 104–3
Mann, K.H., 64–13
Mann, T., 5–7
Mann, T.R.R., 5–27
Manners, D.J., 8–7
Manners, G., 74–4
Manners, J.G., 69–2
Manners, M.J., 4–29
Manning, A.W.G., 8–35
Manning, M.J. (Miss), 12–7
Manning, P., 15–5
Mansbridge, J.N., 8–8, 8–30
Mansell, D.S., 74–3
Mansfield, R., 17–6
Mansfield, W.K., 22–3
Manson, D., 32–1
Manson, J.D., 51–4
Manson, J.M., 8–1
Mant, A.K., 30–8
Manton, B.G., 19–5
Manton, Prof. I., 13–6
Manuel, A.J., 13–24
Mapleson, W.W., 75–1
Mapother, H.R., 4–1
March, Prof. N.H., 68–22
March, P.V., 27–4
Marchant, J. (Miss), 3–22
Marchant, R.H., 24–6
Marder, L., 69–8
Margerison, D., 15–6
Margerison, J.H., 43–3
Maries, D.J., 77–2
Marioni, P., 15–25
Marjoram, B., 7–25
Markillie, R.E.D., 13–26
Markland, E., 62–4
Marks, J., 75–11
Marks, R.E., 76–1
Marley, E., 43–4
Marples, D.L., 5–11
Marr, G.V., 64–11
Marr, T.G., 8–34
Marrable, A.W., 4–29
Marrack, Prof. J.R., 5–21
Marrian, D.H., 5–26
Marrian, V.J., (Miss), 4–18
Marriott, H., 26–10
Marriott, R., 26–21
Mars, P., 7–9
Marsden, A., 15–30
Marsden, A.M., 62–4
Marsden, P.L., 13–24
Marsh, A.A., 13–1
Marsh, H., 7–6
Marsh, N. (Mrs.), 16–2
Marsh, R.W., 4–1
Marshall, A., 10–28
Marshall, A.H.E., 47–16
Marshall, D.L., 115–1
Marshall, D.R., 72–4
Marshall, J., 39–1
Marshall, J.F., 90–8
Marshall, J.H., 48–3
Marshall, K., 79–5
Marshall, M. (Miss), 63–15
Marshall, P.B., 67–15
Marshall, R., 53–4, 63–31
Marshall, V., 49–12
Marshall, V.C., 79–3
Marshall, Prof. W.T., 10–10
Marsland, E.A., 3–7
Marston, M.E. (Miss), 62–8
Marstrand, J.M., 4–12
Martelli, G., 3–23
Marten, R.H., 45–4, 45–5
Martin, A.F., 63–15
Martin, B.F., 68–1
Martin, D.G.E., 15–24
Martin, D.H., 22–7
Martin, F., 41–4
Martin, F.M., 8–30
Martin, F.P. (Mrs.), 79–5
Martin, G.R., 6–2
Martin, I. (Mrs.), 43–5
Martin, J.T., 4–1
Martin, J.W., 63–19
Martin, K.F., 114–2
Martin, M. (Miss), 72–3
Martin, Prof. N.H., 54–7
Martin, P., 50–10
Martin, R.P., 63–1
Martin, R.V., 19–2
Martin, W.B., 10–29
Martin, W.J., 48–9
Martindale, J.G., 111–1
Martindale, L., 13–33
Masefield, G.B., 63–1
Mason, A.A., 45–6
Mason, Prof. B.J., 19–14
Mason, D.F.J., 53–16
Mason, G.A., 7–29
Mason, Prof. G.P., 26–21
Mason, I.L., 8–13
Mason, M.K., 45–12
Mason, P., 15–24
Mason, R., 19–3
Mason, R.G., 19–8
Mason, S., 53–14
Mason, S.F., 9–5
Massey, B.S., 26–11
Massey, Prof. Sir H., 26–19
Massey, V., 68–2
Masson, A.F., 53–9
Masterton, J.B., 7–7
Mather, A.L., 19–8
Mather, Prof. K., 3–10
Mathews, P., 60–4
Mathias, A.P., 26–3
Mathieson, A.R., 13–32

Mathieson, D.W., 25–1
Mathieson, E., 14–8
Mathieson, M.C. (Miss), 13–1
Mathieson, R., 59–11
Mathison, G.E., 62–2
Mathur, S.B., 92–2
Matthew, G.D., 1–6
Matthew, G.D., 8–21
Matthews, Prof. Sir B., 5–24
Matthews, B.F., 1–19
Matthews, D.N., 34–5
Matthews, Prof. E., 59–10
Matthews, H.I., 19–4
Matthews, J., 68–23
Matthews, J.C., 62–13
Matthews, J.E., 11–3
Matthews, P.B.C., 63–27
Matthews, Prof. P.T., 19–14
Matthews, S.C., 4–10
Matty, A.J., 67–15
Maude, A.D., 70–8
Mauger, A.B., 32–1
Mauldon, J.G., 63–17
Maule, H.G., 48–8
Maull, D.J., 5–11
Maunder, A.H., 63–1
Maunder, C.R., 69–8
Maunder, Prof. L., 7–9
Maurice, D.M., 41–5
Mautner, A., 19–9
Maw, N., 113–2
Mawson, S.R., 45–11
Maxted, E.B., 4–6
Maxwell, D., 7–14
Maxwell, I.S., 68–11
May, E., 77–2
May, J.R., 37–1
May, L.H.H., 5–16
Maycock, W. D'A., 46–4
Mayes, P.A., 24–6
Mayfield, B., 62–4
Mayhew, Y.R., 4–8
Mayne, D.Q., 19–6
Mayne, J.E.O., 5–19
Mayne, K.I., 63–26
Mayneord, Prof. W.V., 32–2
Mayr-Harting, A. (Mrs.), 4–14
Mead, D.J., 69–5
Mead, H.J., 102–4
Mead, Prof. W.R., 26–13
Meadow, P.M. (Miss), 26–3
Meadow, S.P., 41–2
Meadows, A.J., 66–2
Meadows, B.J., 77–4
Meadows, R.G., 107–4
Meadows, S.P., 39–1
Meads, R.E., 9–9
Meakin, J.D., 7–14
Meakins, G.D., 63–10
Meares, P., 1–5
Measday, B., 53–10
Meatyard, R., 89–1
Medawar, Prof. P.B., 26–23
Medd, R.D., 68–6
Medvei, V.C., 53–7
Mee, C.H.B., 69–9
Meek, E.S., 4–19
Meek, G.A., 63–3
Meek, Prof. J.M., 15–8
Megaw, H. (Miss), 5–23
Meggy, A.B., 105–1, 106–2
Mehdi, M.R., 18–5
Meinhard, H.H., 7–4
Mellgren, O., 19–13
Mellor, P.B., 15–8
Mellor, R.E.H., 1–8
Melnikoff, A., 116–2
Melrose, D.G., 50–10
Meltzer, B., 8–10
Melville, C., 59–30
Melville, T.H., 15–7
Melvin, H.M., 8–10
Memory, D.J., 78–2
Mence, M.J. (Miss), 72–1
Mendelssohn, K., 63–26
Mendoza, E.B., 59–31
Menzies, A.G.H., 55–1
Menzies, R., 1–13
Mer, C.L., 19–2
Mercer, A.M., 2–11
Mercer, D.M.A., 69–9
Mercer, E.H., 32–1
Mercer, E.I., 70–2
Merchant, Prof. W., 60–4
Mercier, R., 4–21
Mercy, E.L.P., 8–15
Meredith, Prof. G.P., 13–27
Meredith, Prof. R., 11–10
Merivale, W.H.H., 30–13
Merlen, R.H.A., 24–1
Merrett, J.D., 2–21
Merrett, M., 79–1
Merrison, Prof. A.W., 15–24
Merskey, H., 68–24
Merton, P.A., 5–24
Message, P.J., 15–14
Messervy, Prof. A., 4–29
Mestel, L., 5–17
Metcalf, J.R., 68–17
Metcalf, W.K., 4–3
Metcalfe, G., 20–4
Meyer, M.L., 68–8
Meyler, D.S. (Miss), 70–7
Meynell, E.W. (Mrs.), 55–7
Meynell, G.G., 46–6
Michael, D.H., 26–16
Michael, R.P., 43–4
Michaelson, S., 19–9
Michie, D., 8–32
Michie, R.I.C., 60–8
Michna, S.W., 10–29
Middlemiss, F.A., 22–5
Middlemiss, J.H., 4–26
Middleton, A., 104–6

Middleton, G., 7–13
Middleton, G.E., 5–11
Midgley, D., 79–3
Midgley, G. (Miss), 36–1
Mier, P.D., 36–1
Miledi, R., 26–5
Miles, Prof. A.A., 46–7
Miles, Prof. A.E.W., 47–6
Miles, D.G., 71–1
Miles, Prof. H.W., 28–6
Miles, M. (Mrs.), 28–6
Millar, I.T., 61–2
Millar, Prof. W.M., 1–20
Millard, A., 13–5
Milledge, H.J. (Mrs.), 26–7
Millen, D.J., 26–7
Millen, J.W., 5–2
Miller, A., 3–9
Miller, Prof. A.A., 64–6
Miller, A.E. (Miss), 10–30
Miller, A.L., 49–2
Miller, A.W., 116–2
Miller, C., 10–28
Miller, D., 7–16
Miller, D.H., 15–26
Miller, D.S., 48–4
Miller, F.J.W., 7–20, 48–8
Miller, G.R., 1–26
Miller, H.D., 18–8
Miller, H.G., 7–13, 7–15
Miller, J., 59–10
Miller, J.C.P., 5–17
Miller, J.F.A.P., 32–1
Miller, J.R., 59–9
Miller, M.C., 67–9
Miller, N.S., 10–10
Miller, Prof. R., 10–13
Miller, S.J.H., 39–2, 41–1
Miller, T.G., 61–5
Milligan, W.F., 107–4
Millington, P.F., 3–4
Millman, A.P., 19–8
Millott, Prof. N., 17–9
Mills, A.R., 8–30
Mills, B., 3–9
Mills, B.E., 103–1
Mills, G.L., 49–2
Mills, G.M., 77–2
Mills, I.H., 56–4
Mills, I.M., 64–3
Mills, J.N., 59–32
Mills, J.R.E., 35–5
Mills, O.S., 59–9
Mills, W.E. (Miss), 7–13
Millward, R., 14–5
Milne, A., 7–1
Milne, J.A., 10–9, 10–22
Milne, J.G., 4–21
Milne, R.D., 22–3
Milne, R.G., 63–9
Milner, D.R., 3–15
Milner, E.C., 64–9
Milthorpe, Prof. F.L., 62–1
Minnis, J.W., 8–4
Minshall, E., 81–2
Minton, P., 19–5
Miodownik, A.P., 76–4
Mir, B., 10–23
Mirsky, L., 68–13
Miskin, E.A., 26–18
Miskin, L.G., 3–9
Missen, G.A.K., 30–13
Missen, J.I., 101–5
Mitchel, N.C., 2–9
Mitchell, A.R., 66–8
Mitchell, Prof. E.W.J., 64–11
Mitchell, Prof. G.A.G., 59–2
Mitchell, G.F.C., 4–1
Mitchell, G.M., 75–8
Mitchell, G.P., 8–22
Mitchell, J.B. (Miss), 5–14
Mitchell, J.R.A., 63–18
Mitchell, Prof. J.S., 5–26
Mitchell, J.V., 63–2
Mitchell, K.G., 65–3
Mitchell, P.D., 8–35
Mitchell, R.G., 67–13
Mitchell, S.C., 13–32
Mitchell, S.T.R.S., 10–7
Mitchell, T.J., 11–10
Mitcheson, Prof. J.C., 19–12
Mitchison, D.A., 50–6
Mitchison, J.M., 8–35
Mitchison, N.A., 8–35
Mittwoch, A. (Miss), 48–4
Mittwoch, U. (Miss), 26–12
Mobbs, Prof. E.C., 72–6
Moelwyn-Hughes, E.A., 5–9
Moffat, D.B., 73–1
Moffat, W.S., 95–2
Moffatt, H.K., 5–17
Moffatt, J., 63–26
Moffatt, P.M., 41–6
Moffatt, W., 49–12
Moffett, A.J., 3–20
Mogey, G.A., 13–23
Mogg, R.A., 75–10
Mohtadi, F.M., 3–9
Moir, C.M., 11–3
Moir, Prof. J.C., 63–21
Moiseiwitsch, B.L., 2–11
Moiseley, H.A., 10–13
Moles, R.G., 15–26
Mollin, D.L., 50–4
Mollison, P.L., 55–4
Molloy, P.J., 30–18
Moltschaniwskyj, G., 104–3
Molyneux, L., 7–23
Molyneux, M., 59–23
Monck, E.M. (Mrs.), 43–4
Moncrieff, Prof. A.A., 34–3
Mongar, J.L., 26–17
Monk, C.B., 70–4
Monk, D., 8–16

Monkhouse, Prof. F.J., 69–6
Monkhouse, J.P., 49–6
Monk-Jones, M.E. (Mrs.), 52–13
Monnington, D. (Miss), 26–21
Monro, A.K., 36–1
Monro, P.A.G., 5–2
Montague, P., 59–11
Montgomery, Prof. G.L., 8–24
Montgomery, N. (Mrs.), 3–5
Montgomery, R.D., 5–18
Montgomery, S.R., 26–11
Moodie, E.W., 8–34
Moodie, R.B., 9–5
Moody, D.E., 13–24
Moody, J. (Miss), 14–10
Moon, Prof. H.P., 14–10
Moon, Prof. P.B., 3–23
Mooney, E.F., 102–2
Moorbath, S., 63–16
Moore, B.A., 110–3
Moore, D., 69–7
Moore, D.M., 14–2
Moore, D.W., 4–12
Moore, F.W., 3–3
Moore, J., 2–2
Moore, J.A.M. (Miss), 52–9
Moore, J.H., 65–8
Moore, L., 63–1
Moore, Prof. L.R., 68–12
Moore, M.J., 15–24
Moore, N.P.W., 19–7
Moore, R.E., 52–14
Moore, W.N.C., 107–4
Moore, W.R.A.D., 79–2
Moore, W.S., 62–13
Moran, S., 10–16
Moran, V.J., 68–15
Morant, M.J., 6–6
Morantz, D.J., 116–2
Morcom, K.W., 93–2
Moreau, R.E., 63–33
Morel, S.W., 112–3
Morgan, A.D., 58–2
Morgan, C.G., 74–8
Morgan, C.N., 53–23
Morgan, D.B., 3–4
Morgan, D.G., 5–1
Morgan, D.H., 12–1
Morgan, E. (Miss), 10–29
Morgan, E.L., 60–4
Morgan, K., 3–6
Morgan, K., 69–5
Morgan, K.E., 64–1
Morgan, M.A., 4–9
Morgan, N.G., 4–1
Morgan, P.G., 59–11
Morgan, R.F., 89–1
Morgan, T.B., 21–5
Morgan, W.B., 3–11
Morgan, Prof. W.T.J., 46–1
Morgans, W.M., 78–5
Morice, Prof. P.B., 69–5
Morison, R.A.H., 13–15
Morland, L.W., 59–16
Morley, D., 48–4
Morley, M.E. (Miss), 7–20
Morley, P., 84–4
Morphew, K.L., 69–5
Morrant, G.A., 35–3
Morris, A.O., 70–7
Morris, B., 62–14
Morris, Prof. C.J.O.R., 47–2
Morris, D., 59–11
Morris, D.F.C., 83–1
Morris, D.G.O., 19–6
Morris, D.P., 72–9
Morris, D.R., 20–6
Morris, E., 11–1
Morris, Prof. E.O., 11–7
Morris, E.W.T., 56–1
Morris, G.C.R., 31–4
Morris, I.G., 72–10
Morris, J., 59–34
Morris, J.G., 14–1
Morris, L.H., 62–11
Morris, Prof. N.F., 29–3, 29–7
Morris, P.G.D., 8–34
Morris, R., 62–14
Morris, R.M. (Miss), 73–8
Morris, S.T., 9–1
Morris, T.R., 64–1
Morris, W.I., 59–27
Morris, Prof. W.I.C., 59–22
Morris, W.J., 101–2
Morrison, D., 10–10
Morrison, G.A., 13–7
Morrison, G.A., 70–4
Morrison, Prof. J., 2–1
Morrison, Prof. J.L.M., 4–8
Morrison, L.C., 114–6
Morrison, R.B., 10–4
Morrison, R.B., 92–3
Morrison, T.J., 88–1
Morrissey, S.M. (Miss), 21–7
Mortimer, C.T., 61–2
Mortimer, K.V., 4–7
Mortimer, T.J., 84–9
Morton, B.R., 59–16
Morton, Prof. F., 60–4
Morton, H.B., 39–6
Morton, J.K., 18–1
Morton, N., 106–3
Morton, Prof. R.A., 15–3
Morton, R.D., 62–7
Morton, Prof. W.E., 60–8
Morton, W.R.M., 2–3
Morton, W.T., 10–24
Moseley, F., 3–12
Moser, W., 1–5
Moss, B.L. (Miss), 7–5
Moss, D.W., 50–7
Mott, J.C. (Miss), 63–18
Mott, J.L., 8–16
Mott, Prof. N.F., 5–23

Motz, H., 63–11
Mounfield, P.R., 70–5
Mounsey, J.P.D., 50–5
Mountjoy, A.B., 17–3
Mourant, A.E., 46–4
Mowat, J., 67–12
Mowbray, J.F., 55–6
Mowbray, R.M., 10–26
Moyle, J.M. (Miss), 8–35
Mrosovsky, N., 26–21
Muckart, R.D., 67–11
Muggleton, L.M., 8–10
Muir, A.R., 8–2
Muir, C., 66–12
Muir, H. (Miss), 55–6
Muir, I.D., 5–20
Muir, R.O., 74–5
Muir, R.O., 84–3
Muir, T.C., 10–23
Muir, W.W., 11–5
Muirhead, W.H.R.F., 15–24
Muldal, S., 59–12
Mulholland, H.P., 9–8
Mulley, B.A., 84–6
Mulligan, W., 10–29
Mullin, J.W., 26–8
Mullineux, N., 77–3
Mulvey, J.H., 63–26
Mumford, F.R., 93–2
Mumford, J.M., 15–7
Munday, G., 19–4
Munday, K.A., 69–1, 69–10
Munden, D.L., 13–32
Munn, R.J., 4–6
Munn, W.D., 10–16
Munro, A.F., 10–29
Munro, D.C., 13–7
Munro, D.S., 68–21
Munro, H.N., 10–5
Munro, J., 10–28
Munro, J., 19–5
Munro, J.M.M., 71–1
Munro, M., 1–9
Munton, R., 104–3
Murchison, D.E., 76–2
Murchison, D.G., 7–11
Murdoch, J.C., 65–3
Murdoch, J.D., 40–3
Murgatroyd, Prof. W., 22–3
Murphy, I.C., 68–24
Murphy, J.A., 83–3
Murphy, P.W., 62–1
Murray, A.W., 60–3
Murray, B.R.P., 30–1
Murray, D.R.P., 19–15
Murray, I.G., 48–3
Murray, I.P.C., 10–17
Murray, J., 40–3
Murray, J.D., 63–17
Murray, J.G., 2–1
Murray, J.G., 45–13
Murray, J.S., 1–7
Murray, M. (Miss), 40–3
Murray, M.T., 15–19
Murray, R.W., 3–28
Murray, S. (Miss), 7–20
Murray, S.M., 7–21
Murrell, J.N., 68–5
Murrell, K.F.H., 4–24
Murtagh, B.L.S., 3–1
Musgrave, O.C., 1–5
Musgrave, Prof. W.K.R., 6–2
Mushin, A.S., 47–20
Mushin, Prof. W.W., 75–1
Muskett, Prof. A.E., 2–1
Muskett, J. (Mrs.), 59–12
Mussett, E.A., 101–4
Mutch, W.E.S., 8–12
Mutton, A.F.A. (Miss), 22–4
Myers, A., 13–24
Myers, A., 69–2
Myers, J.O., 13–18
Myerscough, P.R., 8–21
Mykura, H., 10–24
Myles, T.J.M., 2–14

Nagington, J., 5–21
Nagy, H. (Mrs.), 10–2
Nagy, L.N., 10–29
Nair, S. (Miss), 16–1
Nair, V.S.K., 77–1
Nairn, A.E.M., 7–23
Nairn, R.C., 1–16
Naismith, D.J., 48–4
Nancollas, G.H., 10–7
Nanjappa, S., 10–23
Napier, J.R., 52–2
Nash, D.F.E., 53–23
Nash, Prof. E.F., 70–1
Nash, Prof. K.L., 20–6
Nash, M.J., 8–1
Nash, W.F., 62–13
Nash-Williams, C. St. J.A., 1–11
Nasmyth, P.A., 55–10
Nassibian, G., 59–31
Nathan, P.W., 39–3
Naughton, J., 8–20
Naylon, J., 61–4
Naylor, Prof. A.H., 2–8
Naylor, E., 74–9
Naylor, E.J., 59–24
Naylor, G.R.E., 5–21
Naylor, P.F.D., 56–4
Naylor, V.D., 116–3
Neal, P.A., 15–32
Neal, P.B., 68–8
Neale, A.V., 4–18
Neale, F.E., 22–7
Neale, J.W., 12–4
Neale, S.M., 60–3
Neave, F.K., 65–7
Nechvatal, A., 67–2
Nedderman, R.M., 5–11
Needham, A.E., 63–33

Needham, D.M. (Mrs.), 5–6
Needham, G., 60–4
Needham, H., 79–7
Needham, R., 63–4
Negus, Sir V., 38–7
Neil, Prof. E., 49–10
Neil, M.W., 47–2
Neill, D.J., 30–6
Neill, R.M., 1–26
Neilson, D.G., 67–2
Neligan, G.A., 7–20
Nellist, B.D., 60–4
Nelson, A., 8–6
Nelson, G.A., 13–23
Nelson, H.M., 10–10
Nelson, S.M., 2–6
Nery, R., 32–1
Neuberger, Prof. A., 55–9
Neumann, H. (Mrs.), 60–6
Neumark, E., 55–9
Neve, R.A., 28–5
Nevell, T.P., 60–8
Neves, R., 68–12
Neville, A.M., 59–11
Neville, J., 15–21
Newall, J., 8–31
Newall, J.A., 3–18
Newall, R., 60–4
Newbould, P.J., 26–6
Newby, H.V., 22–1
Newcombe, R.J., 94–2
Newell, D.J., 7–17
Newell, Prof. G.E., 22–8
Newey, H., 68–23
Newey, C.W., 19–10
Newing, R.A., 72–8
Newitt, Prof. D.M., 19–4
Newland, R.A., 101–3
Newland, R.M., 3–9
Newlands, M.J., 60–3
Newman, E.I., 70–3
Newman, K., 19–5
Newman, Prof. M.H.A., 59–16
Newman, P.P., 13–25
Newns, A.C., 110–4
Newns, G.H., 34–3, 34–4
Newns, H.C., 15–24
Newns, W.F., 15–14
Newsome, J.P., 62–4
Newsome, R.I., 91–2
Newth, Prof. D.R., 49–3
Newth, J.A., 19–14
Newton, A.A. (Mrs.), 5–6
Newton, B.A., 5–6
Newton, G.G.F., 63–24
Newton, J.O., 59–31
Newton, P., 59–7
Nichol, A.W., 9–2, 9–9
Nicholas, D.J.D., 4–1
Nicholls, D., 15–6
Nicholls, E., 47–6
Nicholls, G.D., 59–14
Nicholls, J.G., 63–27
Nicholls, P.J., 114–5
Nichols, D., 63–33
Nichols, Prof. J.E., 70–1
Nicholson, A., 78–5
Nicholson, D.C., 45–12
Nicholson, D.E., 13–17
Nicholson, H., 5–11
Nicholson, R., 59–14
Nicholson, R.B., 5–19
Nickless, G., 4–6
Nicol, A.A., 74–3
Nicol, C.S., 53–24
Nicol, Prof. T., 20–1
Nicoll, G.R., 60–4
Niddrie, D.L., 59–13
Niedergerke, R., 26–5
Nightingale, A., 56–8
Nightingale, J.M., 60–4
Nimmo, R.D., 83–2
Nisbet, R.D., 24–1
Nisbet, S.K., 10–10
Nissim, J.A., 30–14
Niven, R.B., 41–1
Nix, G.F., 59–11
Nixon, D.A., 55–12
Nixon, G.S., 10–8, 10–29
Nixon, H.H., 34–5
Nixon, P., 13–31
Nixon, W.C., 5–11
Nixon, Prof. W.C.W., 57–5
Nobbs, K.W., 85–7
Noble, B., 11–5
Noble, H.W., 10–8, 10–29
Noble, M.E., 62–9
Nockolds, S.R., 5–20
Nolan, B., 8–32
Noltie, H.R., 13–25
Nonhebel, D.K., 11–2
Nonweiler, Prof. T.R.F., 10–10
Norbury, J.F., 15–8
Nordin, B.E.C., 10–17
Norman, A.P., 34–3, 40–4
Norman, J.N., 10–28
Norman, R.O.C., 63–10
Norman, W.S., 60–4
Norris, A.D., 12–2
Norris, F.W., 3–4
Norris, J.R., 10–4
Norris, P.R., 52–9
Norrish, Prof. R.G.W., 5–9
Norster, E.R., 85–7
North, A.M., 15–6
North, G., 59–13
Northcote, D.H., 5–6
Northcott, Prof. D.G., 68–13
Northfield, D.W.C., 47–12
Norton, D.A., 81–5
Norton, G., 62–1
Noton, A.R.M., 62–4
Nowell, N.W., 12–7
Nowell, P.T., 15–23

Nowosielski-Slepowron, B.J.A., 67–21
Nunn, A.J., 93–2
Nunn, J.F., 50–1
Nursten, H.E., 13–32
Nutbourne, D.M. (Miss), 5–18
Nutkins, M.A.E. (Mrs.), 102–3
Nutt, C.W., 3–9
Nutt, M.E. (Miss), 3–24
Nuttall, H., 4–8
Nutting, Prof. J., 13–16
Nyburg, S.C., 61–2
Nye, J.F., 4–21
Nye, P.H., 63–1
Nyholm, Prof. R.S., 26–7
Nyland, P.J., 78–1

Oakden, J.C., 101–2
Oakland, D.J., 3–27
Oakley, Prof. C.L., 13–17
Oatley, Prof. C.W., 5–11
Obeng, L.E. (Mrs.), 16–1
O'Brien, J.R.P., 63–7
O'Brien, M.C.M. (Miss), 63–26
Ockey, C., 59–12
O'Connell, J.E.A., 53–9
O'Connor, F.B., 26–23
O'Connor, N., 43–4
O'Connor, P.J., 59–29
O'Connor, W.J., 13–25
O'Dell, Prof. A.C., 1–8
O'Donnell, T., 19–5
Offord, Prof. A.C., 18–5
Offord, E.C., 24–2
Ogden, J., 113–4
Ogilvie, A.G., 7–13
Ogilvie, R.F., 8–24
Ogorkiewicz, R.M., 19–7
Ogston, W.M., 1–6
O'Hara, M.J., 8–15
Oldfield, F., 14–5
Oldfield, J.V., 8–10
Oldfield, Prof. R.C., 63–28
Oldham, G., 95–1
Oldham, J.N., 24–5
Oldham, K.B., 7–6
Oldroyd, Prof. J.G., 74–6
Oliver, D.R., 3–9
Oliver, F.H., 113–6
Oliver, J., 74–4
Oliver, J.O., 36–1
Oliver, P.T.P., 13–5
Oliver, R.W.A., 110–1
Ollerton E, 62–4
Ollis, W.D., 4–6
O'Neill, G., 40–3
O'Neill, Prof. H., 74–7
Ongley, P.A., 77–1
Onions, T.G., 83–1
Onions, W.J., 13–32
Onuaguluchi, G., 10–23
Onyon, P.F., 77–1
Opik, H., 74–1
Oppé, T.E., 55–8
Oppenheimer, D.R., 63–24
Oram, S., 45–2
Ord, N.G. (Miss), 63–7
Orgel, L.E., 5–9
Orkin, P.A., 1–26
Orkney, Prof. J.C., 11–3
Ormerod, Prof. F.C., 38–1, 38–4, 38–5, 38–6
Ormerod, W.E., 48–6
Orr, J. (Miss), 34–5
Orr, J., 10–10
Orr, Prof. J.W., 3–22
Orville-Thomas, W.J., 70–4
Osborn, D.A., 38–5
Osborne, A.D., 4–29
Osborne, Prof. J., 3–7
Osborne, M.R., 64–9
Osborne, R.H., 62–6
Osborne, W.C., 96–1
Osgerby, C., 68–8
O'Shea, J.D., 24–5
Osmaston, F.C., 63–14
Osmond, D.G., 4–3
Osmond-Clarke, F. (Mrs.), 40–3
Osselton, J.W., 7–25
O'Sullivan, D.G., 49–2
O'Sullivan, J.G., 10–29
O'Sullivan, W.J., 40–3
Oswald, I., 8–28
Oswald, N.C., 53–7
Ottaway, Prof. C.W., 4–29
Ottaway, J.H., 8–4
Ottewill, R.H., 5–10
Oubridge, J.O.V., 94–2
Ovenden, M.W., 10–3
Overend, Prof. W.G., 18–2
Oversby, R.G., 79–7
Overton, K.H., 10–7
Owen, A.R.G., 5–12
Owen, B.S., 7–9
Owen, D.E., 59–14
Owen, E.D., 73–5
Owen, G., 10–30
Owen, H., 64–1
Owen, I.L., 24–1
Owen, J., 63–26
Owen, J.B., 70–1
Owen, Prof. J.B.B., 15–8
Owen, J.J.T., 15–12
Owen, K., 44–1
Owen, L.N., 5–27
Owen, Prof. L.N., 19–3
Owen, M. (Mrs.), 63–18
Owen, M.J., 62–4
Owen, Prof. P.R., 59–31
Owen, R.W., 13–35
Owen, S.G., 7–13
Owen, S.J.T., 62–4
Owen, T.C., 94–2
Owen, T.H., 72–6
Owen, T.R., 74–5

Owen, Prof. W.S., 15–16
Owens, A.R., 72–5
Owrid, H.L., 59–5
Oxford, J.T.B., 5–11
Oxley, P.L.B., 60–4
Oxtoby, E., 91–3
Ozog, G., 91–1

Pacey, D.J., 83–5
Pack, Prof. D.C., 11–5
Paddock, N.L., 59–9
Padgham, C.A., 101–5
Padley, P.J., 5–9
Paechter, G.F., 62–9
Page, A.B.P., 19–15
Page, C.W., 79–3
Page, E.S., 7–12
Page, F.M., 77–1
Page, R.W., 69–5
Paget, E., 63–15
Pain, H.J., 19–14
Pain, R.H., 55–5
Paintin, D.B., 1–14
Palfrey, A.J., 56–1
Palin, A.G., 4–16
Pallett, J.E., 50–3
Pallis, C., 50–5
Palmer, A.C., 5–27
Palmer, C.H.R., 93–4
Palmer, D.R., 92–1
Palmer, E. (Mrs.), 63–3
Palmer, H.P., 59–4
Palmer, J., 13–12
Palmer, J.R., 85–4
Palmer, K.N.V., 1–12
Palmer, R.B.J. (Mrs.), 52–13
Palmer, W.B., 13–10
Pampliglione, G., 34–3
Panchen, A.L., 7–31
Pandya, K., 116–3
Pannell, F.N., 60–4
Pantelouris, E.M., 2–24
Pantin, Prof. C.F.A., 5–28
Pantony, D.A., 19–10
Parbrook, H.D., 15–24
Parfitt, G.D., 62–3
Parfitt, G.G., 19–14
Parish, D.J., 3–22
Park, D., 13–22
Park, D., 59–7
Park, J.G., 19–14
Park, R., 4–8
Park, R.G., 61–5
Park, R.W.A., 64–10
Parke, D.V., 55–2
Parke, S., 68–29
Parker, A.B., 15–8
Parker, C., 63–1
Parker, C.D., 35–5
Parker, D.B., 83–1
Parker, J., 60–4
Parker, K.D., 13–5
Parker, R., 108–4, 108–6
Parker, R.A., 55–9
Parker, R.E., 2–5
Parker, R.E., 69–3
Parker, W., 10–7
Parker, W.G., 77–1
Parkes, Prof. A.S., 5–24
Parkes, C., 43–4
Parkes, Prof. E.W., 14–4
Parkhouse, J., 63–2
Parkin, D., 68–24
Parkin, D.W., 94–6
Parkin, S.J., 101–5
Parkin, W., 79–7
Parkins, R.N., 7–14
Parkinson, D., 15–4
Parkinson, J.C., 80–4
Parks, P.C., 69–5
Parnaby, T.W., 66–8
Parr, C.W., 47–2
Parr, M.J., 110–1
Parrington, F.R., 5–28
Parry, D.A., 5–28
Parry, D.W., 72–1
Parry, G., 15–24
Parry, G.S., 19–4
Parry, H.B., 63–18
Parry, J.H., 7–23
Parry, J.S.C., 4–8
Parry, M., 64–6
Parry, W., 3–13
Parry, W.E., 63–26
Parry, W.H., 15–28
Parslow, R.D., 78–2
Parsonage, N.G., 19–3
Parsons, C.G., 3–21
Parsons, D., 4–21
Parsons, D.H., 64–9
Parsons, D.S., 63–7
Parsons, F.M., 13–33
Parsons, H.W., 12–5
Parsons, J.J., 21–6
Parsons, J.W., 1–23
Parsons, M. (Mrs.), 13–22
Parsons, P.A., 5–12
Parsons, R., 4–6
Parsons, V., 30–9, 45–6
Partington, M. (Miss), 59–29
Parton, Prof. J.E., 62–4
Partridge, B.M. (Miss), 45–7
Partridge, Prof. M.W., 62–12
Pascoe, J.E., 26–20
Pascoe, K.J., 5–11
Pask, Prof. E.A., 7–2
Passey, Prof. R.D., 32–1
Passmore, R., 8–27
Pasternak, C.A., 63–7
Patchett, G.N., 79–3
Pate, J.S., 2–5
Pate, M.B., 62–9
Patel, A.N., 116–2
Pateman, J.A., 5–12

Paterson, A.R., 4–12
Paterson, D.A., 105–1
Paterson, E. (Mrs.). 59–36
Paterson, G., 20–10
Paterson, J.H., 39–1, 54–4
Paterson, J.H., 66–6
Paterson, J.L., 11–8
Paterson, Prof. J.R.K., 59–37
Paterson, M.W., 10–20
Patey, D.H., 49–12
Pathak, C.L., 10–25
Patmore, J.A., 15–10
Paton, A.M., 1–13
Paton, J., 8–26
Paton, Prof. W.D.M., 63–25
Patrick, A.D., 34–4
Patrick, C.R., 3–6
Patrick, R.S., 10–22
Patten, T.D., 8–10
Patterson, C., 30–4
Patterson, D., 13–7
Patterson, E.L., 59–2
Patterson, E.M., 1–11
Patterson, Prof. J., 29–2, 29–8
Patterson, J.T., 2–1
Patterson, T.J.S., 63–32
Pattinson, K.E., 113–7
Patton, I. (Mrs.), 44–1
Paul, Prof. E.B., 59–31
Paul, J., 10–5
Paul, R.J.A., 85–4
Pauling, P., 26–7
Pauson, Prof. P.L., 11–2
Pautard, F.G.E., 13–5
Paver, H., 8–34
Paviour-Smith, K. (Miss), 63–33
Paxton, R.G., 23–1
Payne, C.G., 62–1
Payne, D.J., 5–11
Payne, D.S., 10–7
Payne, E.E., 75–2, 75–7
Payne, J.P., 50–1
Payne, P., 7–1
Payne, P.F., 78–5
Payne, P.R., 48–4
Payne, R.B., 59–11
Payne, R.B., 75–4
Payne, W., 40–3
Payne, W.W., 34–3
Payton, B.W., 53–16
Peach, S.M., 109–1
Peacock, D.B., 4–14
Peacock, J.H., 4–28
Peacock, N., 11–10
Peacock, R.D., 3–6
Peacock, T.E., 20–5
Peacocke, A.R., 63–7
Peake, D.J., 80–2
Peake, J.L., 109–4
Peaker, F.W., 3–6
Peaker, K., 59–11
Pearce, G.W., 7–13, 7–21
Pearce, J., 64–1
Pearce, K., 60–4
Pearce, P.J., 10–29
Pearce, R.P., 67–6
Pearse, A.G.E., 50–7
Pearse, R.W.B., 19–14
Pearson, C.H., 13–32
Pearson, D., 97–2
Pearson, D.T., 7–13
Pearson, G.M., 7–9
Pearson, H., 4–29
Pearson, J.G., 8–31
Pearson, J.K.L., 2–1
Pearson, J.R., 59–25
Pearson, J.R.A., 5–11
Pearson, M.C., 62–2
Pearson, R.C.M., 7–26
Pearson, R.G., 15–33
Pearson, R.S.B., 45–6
Peart, Prof. W.S., 55–6
Pease, P.E. (Miss), 3–3
Peat, Prof. S., 72–4
Peat, S.W., 90–8
Peck, J. (Miss), 79–5
Peck, J.F., 95–2
Pecket, R.C., 59–7
Peel, A.J., 12–1
Peel, Sir J., 45–9
Peel, J.L., 68–16
Peel, Prof. R.F., 4–9
Peeling, E.R.A., 14–3
Peet, E.W., 63–32
Pegg, G.F., 28–2
Pegum, J.S., 47–7
Peierls, Prof. R.E., 3–23
Pelham, R.A., 69–6
Pell, P.S., 62–4
Pell-Walpole, W.T., 3–15
Pellett, P.L., 48–4
Pemberton, J., 2–21
Pender, J.T., 11–3
Penington, D.G., 47–9
Penman, J., 54–1
Penman, W.J., 54–5
Penniman, T.K., 63–13
Pennington, R.J., 7–13, 7–21
Pennington, Prof. W.B., 70–7
Penny, L.F., 12–4
Penny, R.H., 4–29
Penny, W., 10–29
Pennybacker, J.B., 63–20
Penrose, Prof. L.S., 26–12
Penrose, O., 19–9
Pentland, N., 80–3
Pepper, E.S., 116–2
Pepys, J., 37–1
Percival, E.E. (Mrs.), 8–7
Percival, Prof. G.H., 8–9
Percival, I.C., 22–6
Percival, J.A., 107–4
Percival, M.S. (Mrs.), 73–4
Percy, Lord R., 7–31

Pereira-Mendoza, V., 78–1, 78–4
Peristiany, J.G., 63–4
Perkin, H.A., 79–5
Perkins, D.H., 4–21
Perkins, D.J., 54–7
Perkins, E.S., 41–1, 41–3, 41–5
Perkins, F.T., 59–27
Perkins, M.J., 20–5
Perkins, P.G., 68–5
Perks, F., 108–5
Perrin, R.M.S., 5–1
Perrins, C.M., 63–33
Perrott, E.P. (Mrs.), 61–1
Perry, Prof. C.B., 4–13
Perry, F.R., 60–4
Perry, K.M.A., 47–5
Perry, M.A., 85–1
Perry, M.G., 68–29
Perry, R.L., 21–3
Perry, Prof. S.V., 3–4
Perry, Prof. W.L.M., 8–25
Perutz, M.F., 5–23
Petch, Prof. N.J., 7–14
Peters, A., 8–2
Peters, A.T., 13–7
Peters, Prof. B.G., 19–15
Peters, D., 23–2
Peters, G.H., 63–1
Peters, L., 13–32
Peters, Sir R., 5–6
Peters, Prof. R.H., 60–8
Peters, R.S., 18–7
Petersen, G.M., 74–6
Peterson, Prof. J.M., 73–12
Petford, A.D., 63–6
Pethica, B.A., 60–3
Petrie, G., 10–13
Pettersson, M.L.R., 83–1
Pettet, A., 62–2
Pettit, L.D., 13–7
Peyman, M.A., 29–3
Phelps, C.F., 4–4, 4–22
Phemister, Prof. T.C., 1–9
Philip, U.A. (Miss), 7–31
Philipson, G.N., 7–31
Phillips, C.G., 63–27
Phillips, C.I., 4–16
Phillips, C.S.G., 63–10
Phillips, D.E.H., 44–1
Phillips, D.J., 76–1
Phillips, D.L., 49–11
Phillips, D.M., 32–1
Phillips, F.C., 4–10
Phillips, G.O., 73–5
Phillips, H.T., 4–25
Phillips, J., 92–1
Phillips, J.E., 8–34
Phillips, J.G., 68–30
Phillips, J.H., 62–13
Phillips, J.R.E., 70–1
Phillips, O.M., 5–17
Phillips, R., 6–4
Phillips, R.F., 95–1
Phillips, R.J., 78–5
Phillips, V.J., 74–3
Phillips, W.J., 70–6
Phillips, W.R., 59–31
Phillipson, J., 6–8
Phipps, L.W., 65–9
Phizackerley, P.J.R., 63–7
Piasecki, M.A.J., 12–4
Pickard, D.L.M., 78–1
Pickard, H.M., 51–2
Picken, D.J., 109–3
Picken, L.E.R., 5–28
Pickering, D.C., 94–1
Pickering, E.C., 10–29
Pickering, E.N., 14–4, 60–4
Pickering, Prof. Sir G., 63–18
Pickersgill, M.J. (Miss), 14–9
Pickett, M.T. (Miss), 40–2
Pickford, L.M. (Miss), 8–27
Pickford, Prof. R.W., 10–27
Pickles, M. (Miss), 63–24
Pickles, V.R., 68–23
Pickup, G.A., 60–4
Pickwell, L.D., 79–6
Picton, D.C.A., 35–5, 57–2
Piercy, M.F., 39–7, 52–15
Pigott, C.D., 5–8, 68–3
Pike, M.C., 1–24
Pilcher, Prof. R.S., 57–7
Pilkington, T., 54–2, 54–3
Pillidge, A.G., 108–3
Pillow, M.E. (Miss), 102–4
Pilowsky, I., 68–24
Pincherle, L., 17–6
Pinckney, C., 54–6
Pinder, A.R., 73–5
Pink, R.C., 2–6
Pinkard, F.W., 3–6
Pinkerton, Prof. J.H.M., 40–3
Pinsent, H.G., 84–4
Pippard, Prof. A.B., 5–23
Pirani, F.A.E., 20–9
Pirenne, M.H., 63–27
Pirie, A. (Mrs.), 63–22
Pirie, E., 11–3
Pirie, H., 10–29
Pirrie, R., 10–17
Pirt, S.J., 21–4
Pitcher, C.S., 52–8
Pitcher, W.S., 20–8
Pitman, K., 116–4
Pitman, M.G., 5–8
Pitt, C.J.W., 63–14
Pitt, G.A.J., 15–3
Pitt, Prof. H.R., 62–9
Pitt, T.J., 77–4
Pittaway, G.S., 3–9
Pittman, R.W., 18–2
Pitts, J.D., 10–5
Plack, P.A., 65–1
Plaskett, L.G., 8–4

Platt, Prof. B.S., 34–3, 48–4
Platt, G.H., 20–6
Platt, J., 73–10
Platt, Prof. Sir R., 59–17
Platts, M.M. (Miss), 68–14
Please, N.W., 26–22
Plesch, P.H., 61–2
Pleydell-Pearce, I.W., 4–24
Plummer, A.R.F., 84–7
Plumpton, C., 22–6
Plunkett, B.E., 18–1
Pochin, E.E., 57–1
Pocock, D.F., 63–4
Poë, A.J., 19–3
Poel, L.W., 3–5
Pointon, R.C.S., 59–37
Polani, Prof. P.E., 30–12, 40–2
Polgar, N., 63–10
Polkinghorne, J.C., 5–17
Pollard, A., 4–1
Pollard, F.H., 4–6
Poller, R.C., 21–2
Pollock, D., 10–23
Pollock, N.C., 63–15
Polson, Prof. C.J., 13–11
Pomeroy, R.W., 5–1
Pomfret, C., 94–3
Pond, J., 30–2
Pontecorvo, Prof. G., 10–12
Pontin, A.J., 17–9
Pontin, R.M. (Mrs.), 17–9
Ponting, F.W., 1–11
Poole, D.F.G., 4–7
Poole, E.W., 43–3
Poole, H.G., 26–7
Poole, J.C.F., 63–24
Poole, T.B., 70–9
Poots, G., 4–8
Pope, G.S., 65–10
Pope, M.I., 108–2
Popert, A.J., 59–38
Popham, E.J., 59–41
Popiel, W.J., 80–1
Popjak, G., 50–7
Popplewell, C.M. (Miss), 59–11
Portal, R.W., 54–2
Portalski, S., 76–2
Porte, A.L., 10–7
Porteous, D., 59–36
Porteous, I.R., 15–14
Porteous, J.R., 7–7
Porteous, J.W., 1–3
Porter, A.D., 36–1
Porter, B., 7–9
Porter, C.R., 3–9
Porter, Prof. G., 68–5
Porter, Prof. H.K., 19–2
Porter, I.A., 7–15
Porter, J.W.G., 65–8
Porter, K.A., 55–9
Porter, K.E., 3–9
Porter, M.W. (Miss), 63–16
Porter, R., 63–27
Porter, Prof. R.R., 55–5
Portman, N.A., 9–9
Portnoy, H., 110–2
Post, F., 43–4
Postlethwaite, R., 1–13
Potter, H.S.A., 1–11
Potter, J.M., 59–21, 63–20
Potter, R.D., 73–10
Potts, Prof. E.L.J., 7–9
Potts, M.W., 30–1
Potts, W.L.J., 13–18
Potts, W.T.W., 3–28
Poulter, P.W., 80–1
Pounds, K.A., 14–8
Pover, W.F.R., 3–4
Powell, Prof. C.F., 4–21
Powell, D.B., 112–2
Powell, D.W., 10–14
Powell, E.J., 20–6
Powell, F.C., 5–17
Powell, G.M. (Miss), 73–3
Powell, H.A., 7–4
Powell, H.M., 63–10
Powell, J.B.L., 4–12
Powell, J.R., 78–5
Powell, M.E.A., 45–12
Powell, R.G., 63–1
Powell, T.P.S., 63–3
Powell, W.H., 73–6, 73–10
Power, E.A., 26–16
Power, G., 62–9
Powles, J.G., 22–7
Poxon, D.W., 95–1
Poynton, F.Y., 101–5
Praill, P.F.G., 21–2
Prankerd, T.A.J., 57–3
Prasad, A.N., 15–8
Pratt, C.W.M., 5–2
Pratt, J.N., 3–15
Pratt, L., 19–3
Pratt, O.E., 43–2
Pratt, P.L., 19–10
Pratt, R.T.C., 39–1, 39–7
Prebble, E.E., 15–31
Prebble, J., 17–7
Preece, B.W., 74–3
Preece, Prof. I.A., 90–1
Prentice, J.E., 20–8
Prentice, J.E., 112–3
Prentice, J.H.P., 65–9
Prentis, J.M., 5–11
Prescott, A.J., 81–3
Preshaw, R.M., 8–32
Press, E.M. (Miss), 55–5
Preston, Prof. G.D., 67–16
Preston, G.M., 30–16
Preston, J., 2–10
Preston, Prof. J.H., 15–8
Preston, N.W., 59–19
Preston, Prof. R.D., 13–6
Preston, T.R., 29–3

Price, A.H., 70–4
Price, Prof. A.T., 9–8
Price, C.H.G., 4–19
Price, E.K., 24–4
Price, F.V., 63–26
Price, H.L., 13–14
Price, P.H., 59–11
Price, Prof. W.C., 20–11
Price-Evans, D.A., 15–15
Prichard, M.M.L. (Miss), 63–18
Pridham, J.B., 23–2
Pridie, K.H., 4–28
Priestley, L.P., 93–2
Priestley, M.B., 59–39
Priestley, T.P., 95–2
Prigmore, B.J., 19–6
Prime, F.J., 37–1
Primrose, E.J.F., 14–7
Primrose, J.A.E., 41–1
Prince, H.C., 26–13
Prince, R.H., 5–9
Pringle, A.K., 1–9
Pringle, G.E., 13–7
Pringle, J. (Miss), 7–1
Pringle, Prof. J.W.S., 63–33
Prior, L.E., 62–9
Pritchard, G.G., 9–3
Pritchard, H.O., 59–9
Pritchard, J., 22–2
Pritchard, Prof. J.J., 2–3
Pritchard, N.M., 1–4
Pritchard, R.A., 103–1
Probert, S.D., 114–6
Proctor, G.R., 11–2
Proctor, J.E., 78–5
Proctor, M.C.F., 9–3
Proger, L.W., 31–2
Prophet, Prof. A.S., 57–2
Prosser, A.P., 19–13
Prothero, R.M., 15–10
Protheroe, H.T., 68–15
Proud, J.R., 13–1
Proudfoot, K.G., 2–1
Proudfoot, V.B., 6–3
Proudlove, J.A., 15–8
Proudman, I., 5–17
Provins, K., 63–3
Prowse, W.A., 6–6
Prue, D. (Mrs.), 64–8
Prue, J.E., 64–3
Prunty, Prof. F.T.G., 56–6
Pryce, Prof. D.M., 55–9
Pryce, Prof. M.H.L., 4–21
Pryde, Prof. J., 73–3
Pryde, J.A., 112–6
Pryor, M.G.M., 5–28
Pugh, A., 62–4
Pugh, D., 42–1
Pugh, G.J.F., 62–2
Pugh, J.C., 20–7
Pugh, Prof. L.P., 5–27
Pugh, M. (Miss), 41–3
Pugh, P.D.S., 5–27
Pugh, R.C.B., 44–1
Pugsley, Prof. Sir A., 4–8
Pullar, P., 10–22
Pullin, A.D.E., 2–6
Pullman, W.A., 109–3
Pulvertaft, Prof. R.J.V., 58–2
Pumphrey, Prof. R.J., 15–33
Punnett, S.W., 69–4
Purnell, J.H., 5–9
Pursall, B.R., 68–17
Pursey, D.L., 10–24
Purton, M.J., 13–33
Purves, D., 8–1
Purves, M.J., 5–18
Pusey, H.K., 63–33
Puttick, K.E., 76–5
Pye, A., 38–1
Pye, J.D., 38–1, 38–5, 38–6
Pye, Prof. N., 14–5
Pye, R.G.W., 78–5
Pyke, D., 45–6
Pym, D.L.A., 18–7
Pyrah, Prof. L.N., 13–33

Quarrell, Prof. A.G., 68–15
Quayle, J.R., 63–7
Quenby, J.J., 19–14
Quibell, T., 59–9
Quick, M.C., 4–8
Quilliam, Prof. J.P., 53–16
Quilliam, T.A., 26–1
Quinn, P.J.G., 7–25
Quinn, T.F.J., 83–5
Qvist, G., 52–16

Rabin, B.R., 26–3
Rabley, D.R.S., 106–3
Race, R.R., 46–4
Rack, J., 5–21
Radden, Prof. H.G., 59–10
Radford, A.F., 114–2
Radford, C., 103–3
Radford, P., 4–29
Rado, Prof. R., 64–9
Radojicic, D., 63–26
Rae, M., 77–2
Raeburn, Prof. J.R., 1–1
Raik, E. (Miss), 56–5
Railly, J.W., 3–9
Raimes, S., 19–9
Rains, Prof. A.J.H., 29–3, 29–11
Raisman, G., 63–3
Rajput, A.M., 77–3
Rake, B.A. (Miss), 4–1
Ramachandran, C.P., 16–1
Ramage, G.R., 110–1
Ramage, J.B. (Miss), 112–6
Ramsay, D.M., 67–5
Ramsay, H.B., 110–3

Ramsay, J.A., 5–28
Ramsay, J.G., 19–8
Ramsay, S.G., 6–7
Ramsay, W.N.M., 8–4
Ramsden, D., 69–9
Ramsey, N., 29–3
Ramshaw, R.S., 74–3
Ramwell, P., 3–24
Rand, M.J., 25–4
Randall, B.A.O., 7–11
Randall, E.W., 22–2
Randall, Prof. J.T., 20–3
Randell, A.G., 108–6
Randell, G.A., 18–7
Randle, P.J., 5–6
Randles, J.E.B., 3–6
Ranger, D., 49–6
Ranger, I., 49–12
Rankin, G.L.S., 30–11
Rankin, J.E.F., 2–1
Rankin, Prof. R.A., 10–16
Rannie, Prof. I., 7–7
Ranson, S.L., 7–5
Raper, A.B., 4–18
Raper, F.P., 13–33
Raper, G.F., 13–32
Raper, R., 7–6
Raphael, Prof. R.A., 10–7
Rashbass, C., 43–4
Rast, N., 15–11
Ratcliff, G.A., 5–11
Ratcliffe, G., 72–5
Ratcliffe, S.W., 103–3
Rathbone, L., 30–13
Raven, A.M., 2–1
Ravenhill, W., 9–6
Rawcliffe, Prof. G.H., 4–8
Rawcliffe, J., 60–4
Rawling, J.R., 3–17
Rawlings, R., 73–9
Rawlins, E.A., 80–4
Rawlinson, K., 15–30
Rawnsley, K., 43–4
Rawson, D.O. (Mrs.), 21–1
Rawson, M.D., 13–29
Rawstron, E.M., 22–4
Ray, B., 12–6
Raymond, S., 110–2
Raymont, Prof. J.E.G., 69–11
Rayner, C.B., 15–14
Rayner, D.H. (Miss), 13–13
Rayner, F., 15–14
Rayner, M.E. (Miss), 63–17
Raynor, Prof. G.V., 3–15
Rayski, C., 8–35
Read, A., 66–8
Read, A.E., 4–13
Read, F.H., 59–31
Read, G., 9–5
Read, Prof. H.H., 19–8
Read, Prof. J., 66–5
Read, J.F., 116–2
Reading, H.G., 63–16
Ream, N., 76–2
Record, R.G., 3–26
Reddaway, J.L., 5–11
Redding, J.L., 102–4
Reddish, V.C., 59–4
Redfearn, E.R., 15–3
Redfern, J.P., 76–1
Redish, K.A., 3–23
Redman, Prof. R.O., 5–5
Redshaw, Prof. S.C., 3–9
Redwood, M., 22–3
Reece, A.R., 7–1
Reed, A., 82–1
Reed, C.E., 12–6
Reed, G.F., 59–33
Reed, G.L., 83–1
Reed, G.W., 13–24
Reed, J.F., 113–4
Reed, J.W., 23–3
Reed, K.B., 116–5
Reed, P. (Mrs.), 13–22
Reed, R., 13–32
Reed, R.I., 10–7
Reed, S.E. (Miss), 47–10
Rees, B.L., 114–6
Rees, C.W., 20–5
Rees, Prof. D., 9–8
Rees, D.A., 8–7
Rees, E. (Mrs.), 15–31
Rees, E.D., 108–3
Rees, E.L., 30–2
Rees, F.G. (Miss), 70–9
Rees, G.J., 15–1
Rees, H., 45–14
Rees, H., 70–1
Rees, K.R., 57–6
Rees, L.V.C., 19–3
Rees, M., 114–5
Rees, T., 54–7
Rees, W.L., 43–4, 53–19
Rees, W.R., 10–1
Reese, A.J.M., 31–2
Reese, C.B., 5–9
Reeve, E.C.R., 8–13
Reeve, J.E., 20–9
Reeves, C.M., 13–14
Reeves, J.W. (Miss), 17–8
Reeves, S.W.G., 108–3
Reid, Prof. D.D., 48–9
Reid, D.H., 66–5
Reid, E., 32–1
Reid, I.G., 28–4
Reid, J.A. (Mrs.), 79–1
Reid, J.M., 10–24
Reid, L.M. (Miss), 37–1
Reid, R.E.H., 2–10
Reid, R.L., 1–21
Reifenberg, R.E., 4–12
Reiter, B., 65–7
Reiter, H., 7–12
Reith, W.S., 49–9

Renshaw, A.E., 94–4
Rentoul E., 10–11
Renwick, J.H., 10–12
Reuter, Prof. G.E.H., 6–5
Revans, Prof. R.W., 60–5
Revell, S.H., 32–1
Revesz, T., 9–6
Reynolds, G.F., 95–1
Reynolds, K.A., 77–4
Reynoldson, T.B., 72–10
Rhaney, K., 67–13
Rhoden, H.G., 5–11
Rhodes, F., 69–8
Rhodes, Prof. F.H.T., 74–5
Rhodes, G., 110–2
Rhodes, P., 13–24
Ribbands, C.R., 5–1
Ribbons, B.W., 10–6
Ribbons, D.W., 10–5
Rice, C.G., 45–11
Rice, R.J., 14–5
Rich, W.J.C., 4–3
Richards, D.A. 70–8
Richards, E.E., 63–5
Richards, Prof. E.J., 69–5
Richards, F.F., 55–9
Richards, F.J., 28–2
Richards, J., 114–2
Richards, J.C.S., 1–18
Richards, J.D., 80–2
Richards, J.M., 95–2
Richards, J.P., 84–6
Richards, J.P.G., 73–11
Richards, Prof. O.W., 19–15
Richards, Prof. P.W., 72–3
Richards, R.E., 63–10
Richards, T.G., 15–25
Richards, T. Ll., 77–4
Richardson, A., 13–10
Richardson, A., 54–5
Richardson, A.T., 34–3, 52–8
Richardson, B.D., 3–9
Richardson, Prof. F.D., 19–10
Richardson, Prof. H.O.W., 17–6
Richardson, I.M., 1–22
Richardson, J.A., 7–5
Richardson, J.B., 20–8
Richardson, Prof. J.F., 74–3
Richardson, J.W., 15–30
Riches, P., 54–1
Richey, J.E., 67–5
Richmond, J., 8–17
Richmond, P., 54–8
Rickard, B.J., 30–4
Rickard, R.C., 9–1
Rickards, R.W., 59–9
Rickayzen, G., 15–24
Rickett, R.M.W., 94–2
Ricketts, C.R., 3–22
Ricketts, T.R., 13–22
Rickham, P.P., 15–30
Ridd, J.H., 26–7
Riddell, A.G., 59–40
Riddell, R.W., 36–1, 37–1
Riddell, Prof. W.J.B., 10–20
Riddiford, A.C., 69–3
Riddiford, L., 3–23
Rider, J.G., 76–5
Ridges, A.P. (Mrs.), 16–1
Ridgman, W.J., 5–1
Ridgway, K., 26–8
Ridgway, R.M., 93–4
Riding, J.R., 15–1
Ridley, C.M. (Miss), 47–7
Ridley, F., 41–3
Ridley, H., 41–6
Ridley, N., 59–18
Rifkind, B.M., 10–29
Rigal, W., 63–23
Rigby, C., 34–4
Rigby, G.J., 59–30
Rigby, J.E. (Miss), 21–1
Rigby, J.F., 73–8
Rigby, W., 13–7
Riley, J.F., 67–19
Riley, J.P., 15–19
Riley, N., 6–5
Rimington, Prof. C., 57–6
Ring, J., 59–31
Ringrose, J.R., 5–17
Ringshaw, D.J., 114–5
Rinsler, M.G., 32–3
Rintoul, J.R., 66–1
Rippin, D.W.T., 19–4
Rishbeth, J., 5–8
Ritchie, Prof. A.E., 66–3, 66–10
Ritchie, C.C., 83–3
Ritchie, G.M., 57–2
Ritchie, H.D., 47–20
Ritchie, H.E., 15–32
Ritchie, J.Y., 62–1
Ritchie, M., 8–7
Ritchie, N.S., 10–29
Ritchie, Prof. P.D., 11–10
Ritson, F.J.U., 7–9
Rix, R.E., 30–6
Roach, G.F., 60–6
Roach, S.A., 48–5
Roaf, D., 63–26
Robb, I., 110–2
Robb, Prof. J.C., 3–6
Robb, R.A., 10–16
Robb, S.M. (Miss), 9–3
Robbins, A.R., 63–11
Robb-Smith, A.H.T., 63–24
Roberts, A., 54–8
Roberts, A., 60–5
Roberts, A., 68–17
Roberts, Prof. A.L., 13–32
Roberts, A.P., 2–11
Roberts, B., 18–4
Roberts, D.F.B., 63–3
Roberts, D.V., 15–25
Roberts, D.W.T., 40–5

Roberts, E.A., 62–4
Roberts, E.R., 19–3
Roberts, G., 110–2
Roberts, G.F., 5–21
Roberts, G.L., 34–5
Roberts, Prof. G.L., 68–6
Roberts, G.R., 109–2
Roberts, G.T., 12–5
Roberts, H.J., 72–5
Roberts, H.M., 71–6
Roberts, J., 19–6
Roberts, J.A.F., 34–1
Roberts, J.B., 15–23
Roberts, J.B., 28–5
Roberts, J.C., 62–3
Roberts, Prof. J.E., 49–9
Roberts, J.J., 32–1
Roberts, J.M., 13–26
Roberts, J.P., 13–32
Roberts, J.R., 15–21
Roberts, K.B., 47–18
Roberts, K.D., 3–21
Roberts, M.B., 1–17
Roberts, M.W., 2–6
Roberts, N.P., 101–2
Roberts, P.C., 81–6
Roberts, T.D.M., 10–25
Roberts, T.W., 114–6
Roberts, W.T., 3–15
Robertson, A., 8–13
Robertson, Prof. A., 8–34
Robertson, A.J., 15–29, 16–2
Robertson, A.J.B., 20–5
Robertson, A.P., 10–16
Robertson, C.J., 8–14
Robertson, D., 13–22
Robertson, F.W., 8–13
Robertson, G., 88–2
Robertson, H.A., 1–3
Robertson, I.S., 8–34
Robertson, I.S., 12–6
Robertson, J., 104–3
Robertson, J.D., 10–30
Robertson, J.H., 13–7
Robertson, J.I.S., 55–6
Robertson, Prof. J.M., 10–7
Robertson, M.M., 1–11
Robertson, Prof. N.F., 12–1
Robertson, P.G.C., 67–7
Robertson, S., 15–14
Robins, A.B., 32–1
Robinson, A.E. (Miss), 84–6
Robinson, A.H.W., 14–5
Robinson, A.M. (Mrs.), 53–15
Robinson, D., 55–2
Robinson, D., 63–30
Robinson, D., 79–2
Robinson, D.S., 63–24
Robinson, E. (Mrs.), 13–6
Robinson, F.D., 5–11
Robinson, F.N.H., 63–26
Robinson, G.B., 3–4
Robinson, G.W.S., 69–6
Robinson, H.Y., 7–9
Robinson, J.E., 26–14
Robinson, J.L., 60–4
Robinson, J.O., 53–23
Robinson, K., 64–11
Robinson, K.L., 2–1
Robinson, M., 39–5
Robinson, M. (Miss), 24–6
Robinson, M.J.T., 15–6
Robinson, P.D., 63–17
Robinson, P.J., 60–3
Robinson, P.L. (Miss), 26–23
Robinson, S., 116–3
Robinson, W.J., 101–3
Robson, A., 7–13
Robson, D.A., 7–11
Robson, E.A. (Miss), 5–28
Robson, E.B. (Miss), 26–12
Robson, J.D., 8–10
Robson, J.G., 5–24
Robson, Prof. J.M., 30–14
Robson, J.S., 8–25
Robson, M.K. (Mrs.), 8–24
Robson, P.N., 7–18, 7–27
Robson, P.N., 68–8
Robson, S., 7–1
Robson, W., 7–9
Rochester, Prof. G.D., 6–6
Rockey, K.C., 74–3
Roddie, I.C., 2–18
Roden, D., 26–13
Rodger, Prof. A., 18–7
Rodger, R.S., 2–20
Rodger, Prof. T.F., 10–26
Rodgers, H.B., 59–13
Rodgers, Prof. H.W., 2–22
Rodnight, R., 43–1
Roe, E.M.F., (Miss), 32–1
Roe, F.J.C., 32–1
Roe, J.W., 68–25
Roger, R., 67–2
Rogers, A.F., 4–22
Rogers, A.R., 80–4
Rogers, A.W., 3–2
Rogers, Prof. C.A., 26–16
Rogers, D., 19–3
Rogers, G.F.C., 4–8
Rogers, G.L., 77–6
Rogers, H., 109–3
Rogers, K.B., 3–21
Rogers, Prof. L.C., 75–10
Rogers, M.H., 4–12
Rogers, N., 3–6
Rogers, R.H., 70–7
Rogers, S.R. (Miss), 21–1
Rogosinski, H.P., 3–13
Rohan-Williams, E., 40–3
Rohrbach, J.A., 24–4
Roitt, I., 49–2
Rolfe, E.A., 62–5
Rollason, Prof. E.C., 3–15

Rollin, B.V., 63–26
Rollinson, E., 53–17
Rolls, R., 60–4
Rolph, P.M., 3–23
Roman, P., 59–31
Romanes, Prof. G.J., 8–2
Rondle, C.J.M., 15–17
Rook, J.A.F., 65–2
Rooum, J.M., 79–6
Roper, Prof. J.A., 68–10
Roscoe, K.H., 5–11
Roscoe, M.H. (Miss), 59–17
Roscoe, R., 7–23
Rose, A., 62–9
Rose, A.H., 7–15
Rose, C.F.M., 49–2
Rose, E., 68–8
Rose, F., 17–1
Rose, F.A., 73–3
Rose, F.C., 54–4
Rose, G.A., 13–15
Rose, G.A., 48–9
Rose, G.N., 64–7
Rose, Prof. H.E., 20–6
Rose, J.S., 47–6
Rose, K., 104–3
Rose, M.E. (Mrs.), 5–27
Rosemeyer, M.A., 18–6
Rosen, D., 32–1
Rosenberg, H.M., 63–26
Rosenblat, S., 20–9
Rosenbrock, H.H., 5–11
Rosenhead, Prof. L., 15–14
Rosenheim, Prof. M.L., 57–3
Ross, Prof. A.D., 20–6
Ross, C.A., 47–2
Ross, D.N., 30–18
Ross, E.J., 57–3
Ross, F.G.M., 4–26
Ross, G., 45–2
Ross, J.A., 8–32, 15–29
Ross, J.C., 15–30
Ross, J.R.W. (Miss), 29–1
Ross, M.A.S. (Miss), 8–26
Ross, R.A., 11–2
Ross, S., 84–2
Ross, T.K., 60–4
Ross, W., 10–10
Ross, W.A., 84–2
Ross, W.C.J., 32–1
Ross, W.M., 7–27
Rosser, C.E.P., 59–3
Rosser, W.G.V., 9–9
Rossiter, J.R., 15–19
Rossotti, F.J.C., 63–10
Rotblat, Prof. J., 53–17
Roth, Prof. K.F., 26–16
Roth, L., 19–9
Roth, Prof. M., 7–25
Rothschild, Lord, 5–28
Rothstein, E., 13–7
Rothwell, A., 85–4
Rothwell, J., 64–4
Rothwell, K., 28–3
Rothwell, P., 3–23
Rothwell, P., 59–10
Roughton, Prof. F.J.W., 5–10
Round, F.E., 4–5
Rowbotham, G.F., 7–29
Rowcroft, J.B. (Miss), 81–6
Rowe, C.E., 3–24
Rowe, D.S., 3–22
Rowe, G.W., 3–15
Rowe, P.W., 59–11
Rowell, A.J., 62–7
Rowell, N.R., 13–9
Rowell, P.M., 62–13
Rowland, S.J., 65–2
Rowlands, E.N., 57–1
Rowlands, J.R., 104–1, 104–2, 104–5
Rowlands, S., 55–11
Rowlatt, P.A. (Mrs.), 27–4
Rowles, S.L., 3–7
Rowley, G.D., 64–1
Rowlinson, Prof. J.S., 19–4
Rowsell, E.V., 60–1
Rowson, J.M., 79–5
Rowson, K.E.K., 47–3
Roy, A.E., 10–3
Roy, J.H.B., 65–6
Roy, J.R., 7–25
Roylance, P.J., 32–2
Roylance, T.F., 62–4
Royle, J.K., 60–4
Rozelaar, A.J.W., 3–17
Ruben, C.M., 41–3
Ruben, H., 68–27
Rudall, B.H., 109–4
Rudall, K.M., 13–5
Rudham, R., 62–3
Rudwick, M.J.S., 5–15
Ruhemann, M., 79–3
Rump, E.E., 59–34
Runcie, K.V., 8–1
Runcorn, Prof. S.K., 7–23
Runham, N.W., 72–10
Rusby, N.L., 47–5
Ruse, Prof. H.S., 13–14
Rushbrooke, Prof. G.S., 7–23
Rushforth, J.M., 67–6
Rushton, A., 60–4
Rushton, D.G., 45–12
Rushton, Prof. M.A., 30–6
Rushton, W.A.H., 5–24
Rushworth, F.A., 66–9
Ruskell, G., 101–4
Russell, A.D., 114–5
Russell, B., 36–1
Russell, B.F., 47–7
Russell, C., 59–6
Russell, Prof. C.S., 68–18
Russell, G., 15–13
Russell, G.F.M., 43–4
Russell, I.S., 26–21

Russell, J., 19–2
Russell, Prof. J.K., 7–16
Russell, P.C., 14–8
Russell, P.J., 108–5
Russell, Prof. R.L., 7–9
Russell, R.R., 63–18
Ruston, A.F., 68–13
Rutherford, A.A., 1–24
Rutherford, D.E., 66–8
Rutherford, P.P., 28–3
Rutherglen, J.G., 10–24
Rutland, R.W.R., 26–14
Rutovitz, D., 59–16
Rutter, A.J., 19–2
Rutter, J.W., 15–14
Ryan, W.D., 2–8
Rydon, Prof. H.N., 9–5
Rydzewski, J.R., 69–5
Rylance, F., 113–3
Ryle, A.P., 8–4
Ryle, Prof. M., 5–23
Ryley, D.J., 15–8
Ryman, B.E. (Miss), 52–3
Rymer, T.B. 64–11
Rzoska, J., 112–7

Sabell, A.G., 77–6
Sack, R.A., 110–3
Sadler, P.W., 49–2
Saffman, P.G., 20–9
Sagar, G.R., 72–1
Sagarra, A., 60–4
Sage, G.N., 101–2
Sage, M., 14–10
Saiduzzafar, H. (Miss), 41–1, 41–5
Sainsbury, D.W.B., 5–27
St. Clair, M.B. (Mrs.), 10–26
Salam, Prof. A., 19–14
Salaman, M.H., 47–3
Saleh, S.M. (Miss), 30–13
Salmon, J.E., 76–1
Salt, G., 5–28
Salt, H.B., 3–21
Salzen, E.A., 15–33
Samet, P.A., 69–8
Samman, P.D., 36–1
Sammons, H.G., 3–4
Samols, E., 52–8
Sampford, M.R., 1–24
Sampson, P. (Miss), 3–27
Sander, K.F., 5–11
Sanders, A.G., 63–24
Sanders, J.H., 63–26
Sanderson, A.R. (Miss), 67–21
Sanderson, K.V., 36–1
Sanderson, P.H., 55–6
Sandford, K.S., 63–16
Sandifer, P., 39–1
Sandiford, D.J.,59–31
Sandison, A.T., 10–22
Sandison, E.E. (Miss), 27–5
Sandler, M., 40–3
Sándor, E., 22–7
Sandover, J.A., 74–3
Sands, A.D., 67–6
Sanford, J., 10–29
Sanger, R. (Miss), 46–4
Sankaran, S., 12–5
Sansome, D.H., 77–2
Sara, H.J., 69–5
Sargent, J.A., 63–1
Sargent, J.R., 49–2
Sargent, R.W.H., 19–4
Sargent, W.C.L. (Miss), 17–5
Sarginson, E.J., 68–8
Sarjeant, W.A.S., 64–7
Sarkany, I., 52–6
Satchell, D.P.N., 20–5
Satchell, R.S. (Mrs.), 21–2
Saul, G.M., 83–1
Saul, S., 78–1
Saunders, B.C., 5–9
Saunders, C.M. (Miss), 55–10
Saunders, D.S., 8–35
Saunders, D.W., 85–6
Saunders, J.A., 7–24
Saunders, L., 25–1
Saunders, Prof. O.A., 19–7
Saunsbury, P., 2–7
Savage, R.J.G., 4–10
Savidge, J.P., 70–3
Savigear, R.A.G., 68–11
Savill, D.L., 8–22
Saville, N.M. (Mrs.), 76–1
Sawistowski, H., 19–4
Sawyer, H.D., 19–10
Saxe, R.F., 22–3
Saxton, J.E., 13–7
Sayers, B.M., 19–6
Sayers, Prof. J., 3–23
Scadding, J.G., 37–1
Scales, J.T., 42–1
Scandrett, F.J., 8–21
Scane, J.G., 108–6
Scarborough, Prof. H., 75–3
Scarff, Prof. R.W., 49–7
Scargill, D.I., 63–15
Schachter, M., 26–20
Schade, R.O.K., 7–13, 7–21
Scheinmann, F., 110–1
Scheuer, J.L. (Mrs.), 51–1
Schiffer, G.R., 60–4
Schild, G.C., 68–16
Schild, Prof. H.O., 26–17
Schilling, Prof. R.S.F., 48–5
Schlapp, D.M., 61–7
Schlapp, Prof. W., 59–32
Schlesinger, B.E., 34–3
Schneider, E.E., 7–23
Schneider, R., 3–4
Schnieden, H., 39–1
Schofield, A.N., 5–11
Schofield, B., 7–24
Schofield, B. (Miss), 24–6

Schofield, J.A., 74–2
Schofield, K., 9–5
Schofield, R., 59–36
Schofield, T.T., 53–5
Scholes, G., 7–6
Scholes, P.M. (Miss), 21–4
Scholtz, J., 13–32
Schonland, D., 69–8
Schultz, D.L., 63–11
Schulz, T. (Miss), 63–30
Schwabe, W.W., 28–2
Schwartz, R. (Miss), 48–4
Schwarz, D., 47–6
Schwarz, J.C.P., 8–7
Schwarz, V., 59–27, 59–28
Schwarzacher, W., 2–10
Schwarzenberger, R.L.E., 15–14
Scibor-Rylski, A., 101–2
Scoins, H.I., 7–12
Scoon, J.H., 5–20
Scopes, P.M. (Mrs.), 27–2
Scorer, R.S., 19–9
Scothorne, Prof. R.J., 7–3
Scott, A., 2–24
Scott, A.I., 10–7
Scott, Prof. A.W., 11–3
Scott, D.B., 20–9
Scott, D.R., 96–1
Scott, F.B., 3–9
Scott, G.B.D., 52–11
Scott, G.D., 10–6
Scott, J.E.S., 7–29
Scott, J.F., 63–8
Scott, J.H., 2–3
Scott, J.M.C., 5–23
Scott, Prof. J.S., 13–19
Scott, K.A., 8–25
Scott, M.G.A.D., 24–1
Scott, M.J. (Miss), 1–19
Scott, M.R., 110–3
Scott, O. (Mrs.), 15–21
Scott, P.D., 43–4
Scott, P.P. (Mrs.), 52–14
Scott, R., 8–5
Scott, R., 8–30
Scott, R., 64–4
Scott, T., 90–5
Scott, T.A., 13–4
Scott-Blair, G.W., 65–9
Scowen, E.F., 53–7
Scratcherd, T., 7–24
Scraton, R.E., 101–3
Screaton, G.R., 8–26
Scully, D.B., 60–4
Scurlock, R.G., 69–9
Seaborne, A.E.M., 83–4
Seager, A.F., 18–4
Seakins, J.W.T., 34–4
Seal, V.G. (Miss), 39–7
Seaman, A., 62–1
Sear, R., 47–19
Searl, J.W., 101–3
Searle, C.E., 3–22
Seaton, D.A., 8–25
Seaton, D.R., 16–2
Seaton, M.J., 26–19
Seddon, H.J., 42–1
Seed, J., 5–26
Seeds, W.E., 13–5
Seeley, E.H., 59–10
Seeley, J.S., 22–3
Sefton, C.H., 116–4
Segrove, F., 68–30
Sellars, J.E., 110–3
Sellors, T.H., 33–1, 49–13
Sellwood, D.G.J., 92–2
Sellwood, R.A., 50–10
Selman, G.G., 8–13
Selman, I.W., 28–2
Selwood, E.B., 9–7
Semeonoff, B., 8–29
Semple, Prof. A.B., 15–28
Semple, Prof. J.G., 20–9
Semple, S.J.G., 56–4
Sen Gupta, P.C., 4–15
Senior, W.S., 62–1
Sergean, R. 26–21
Series, G.W., 63–26
Seth, Prof. G., 2–20
Severn, R.T., 4–8
Seward, G.R., 47–6
Sewell, G.L., 15–14
Sewell, M.J., 62–9
Seyd, E.L., 59–41
Seymour, E.F.W., 13–24
Seymour, R.C., 4–6
Shack, R., 24–6
Shackleton, Prof. R.M., 15–11
Shackman, R., 50–10
Shaddock, C.J., 61–6
Shahbenderian, A.P., 19–4
Shail, R., 15–14
Shalders, E.G., 116–4
Shaldon, C., 4–28
Shaldon, S., 52–8
Shalom, E., 57–1
Shanks, R.A., 10–21
Shanks, R.G., 2–18
Shanks, W., 47–19
Shapiro, M.B., 43–5
Shapland, C.D., 41–6
Sharma, P.L., 55–10
Sharman, B.C., 17–1
Sharman, P.W., 95–2
Sharman, R.V., 83–5
Sharp, A., 63–24
Sharp, B.D. (Mrs.), 60–6
Sharp, D.W.A., 11–2
Sharp, G., 1–20
Sharp, G.R., 10–28
Sharp, J.A., 13–3
Sharp, J.I., 7–10
Sharp, L.K., 25–1
Sharp, W., 11–2

Sharpe, A.G., 5-9
Sharpe, J.W., 11-9
Sharpe, M.E. (Miss), 65-7
Sharpey-Schafer, Prof. E.P. 56-4
Sharples, W.E., 110-1
Sharratt, M., 3-4
Shattock, P.M.F. (Miss), 64-10
Shaw, B.D., 62-3
Shaw, B.L., 13-7
Shaw, C.J.G., 83-1
Shaw, D.A., 39-1
Shaw, D.F., 15-6
Shaw, D.F., 63-26
Shaw, D.W., 81-5
Shaw, G., 79-2
Shaw, J., 7-31
Shaw, J.A.M., 11-8
Shaw, J.C.S., 5-11
Shaw, J.G., 3-7
Shaw, P.F.D., 63-26
Shaw, R., 12-5
Shaw, R., 15-8
Shaw, R.A., 18-2
Shaw, S., 29-3, 29-4
Shawe, D.J. (Mrs), 83-2
Shead, G.V., 47-20
Sheard, F.W., 62-13
Shearer, H.M.M., 6-2
Shearer, J.F., 94-4, 94-6
Shearman, D.J., 19-8
Shearman, E.D.R., 3-9
Sheddick, V.G., 7-4
Sheehan, Prof. H.L., 15-22
Sheen, P.A.D., 104-4
Sheiham, A., 47-6
Sheldon, R.P., 79-2
Sheldon, Sir W., 34-3
Shelford, P.H., 69-7
Shellard, E.J., 84-6
Shelley, U. (Miss), 52-10
Shelton, A., 19-7
Shelton, G., 69-11
Shelton, R.A.J., 59-18
Shemilt, H.J., 2-1
Shenton, L.R., 60-6
Shephard, G.C., 3-13
Shepherd, D.M., 67-15
Shepherd, F.A., 104-4
Shepherd, F.A., 110-2
Shepherd, J.W., 1-21
Shepherd, M., 43-4
Shepherd, R.D., 26-21
Shepherd, W., 67-8
Shepherd, Prof. W.M., 4-8
Shepherdson, J.C., 4-12
Sheppard, E.M. (Miss), 73-14
Sheppard, J.A. (Miss), 22-4
Sheppard, J.S., 19-12
Sheppard, N., 5-9
Sheppard, Prof. P.A., 19-11
Sheppard, P.M., 15-9
Sheppard, R.C., 15-6
Shepperd, J.A.H., 60-6
Shercliff, J.A., 5-11
Sheridan, J., 3-6
Sheridan, M., 79-6
Sherlock, Prof. S., 52-8
Sherman, W.F., 20-11
Sherrah-Davies, E., 59-37
Sherratt, F., 62-4
Sherratt, H.S.A., 3-4
Sherry, N.P.R., 104-6
Sherwin, E., 79-2
Sherwood, J.N., 11-2
Shields, J., 43-4
Shields, R., 10-28
Shiells, K.A.G., 10-14
Shillaker, B., 11-2
Shillam, K.W.G., 65-6
Shillingford, J., 50-5
Shillito, J.F., 100-1
Shimaoka, T., 57-1
Shimmin, S.B.N. (Miss), 26-21
Shipp, G.C., 83-2
Shire, E.S., 5-23
Shirley, J., 7-11
Shivas, A.A., 8-24
Shoenberg, D., 5-23
Shooter, E.M., 26-3
Shooter, K.V., 32-1
Shooter, Prof. R.A., 53-14, 53-15
Shore, A. (Miss), 30-3
Shore, J.H., 29-8
Short, A.M., 77-6
Short, D.W., 10-28
Short, E.I. (Miss), 84-5
Short, J.R.T., 1-26
Short, P., 7-9
Short, R.V., 5-27
Shorter, A.H., 9-6
Shorter, J., 12-2
Shorthose, R., 24-6
Shotton, Prof. E., 25-2
Shotton, Prof. F.W., 3-12
Shovelton, D.S., 3-7
Shrier, L.L., 76-4
Shrewsbury, Prof. J.F.D., 3-3
Shuster, S., 36-1
Shuster, S., 75-3
Shute, C.C.D., 5-2
Shutrick, H.B., 60-6
Shuttleworth, A.C., 15-32
Shuttleworth, R., 13-16
Sibbons, J.L.H., 68-11
Sibley, T.C.F., 64-7
Sidaway, A.D. (Miss), 3-7
Siddall, R.G., 68-29
Siddons, A.H.M., 54-9
Siddons, H., 54-2
Sidwell, E.H., 2-8
Sidwell, N.C., 90-2
Sikorski, J., 13-32
Sillitto, R.M., 8-26
Silver, I.A., 5-2

Silver, M. (Mrs.), 5–24
Silver, P. (Mrs.), 41–5
Silver, P.H.S., 49–1
Silvester, N.R., 20–3
Silvey, S.D., 59–39
Sim, G.A., 10–7
Sim, M., 3–19
Simes, T.R., 104–3
Simkin, J.L., 1–3
Simkiss, K., 22–8
Simmons, D.A.R., 67–8
Simmons, R.F., 60–3
Simmons, S., 79–3
Simms, D.J., 10–16
Simon, E.W., 59–7
Simon, G., 53–20
Simon-Reuss, I. (Mrs.), 5–26
Simons, H.A.B., 52–13
Simons, J.P., 3–6
Simons, S., 22–6
Simpson, A., 18–4
Simpson, B., 74–5
Simpson, E.S., 15–10
Simpson, H.E., 7–7
Simpson, I.G., 13–1
Simpson, I.M., 59–14
Simpson, J.A., 8–17
Simpson, J.R., 7–9
Simpson, J.W., 60–2
Simpson, K., 8–1
Simpson, K., 30–8
Simpson, Prof. S., 9–7
Sims, A.P., 4–4, 4–5
Sims, G.D., 26–10
Sims, Prof. L.G.A., 69–5
Sims, P., 32–1
Sims, R.T., 5–2
Sims, W., 51–4
Sinclair, Prof. J. 73–10
Sinclair, K.B., 70–1
Sinclair, R., 8–35
Sinclair, W., 8–35
Sinclair-Gieben, A.H.C., 1–20
Sing, K.S.W., 94–1, 94–2
Singer, Prof. A.R.E., 74–7
Singer, B.R., 64–12
Singer, K., 23–2
Singer, N., 102–2
Singleton, A.G., 15–25, 15–32
Singleton, W.T., 85–4
Sinnhuber, K.A., 26–13
Sircus, W., 8–17
Sirlin, J.L., 8–13
Sirs, J.A., 55–11
Sissons, H.A., 42–1
Sissons, J.B., 8–14
Skelhorn, R.R., 112–3
Skellon, T.D., 83–1
Skemp, R.R., 59–34
Skempton, Prof. A.W., 19–5
Skerrett, E.J., 4–1
Skertchly, A., 13–32
Skiba, W., 19–8
Skinner, H.A., 59–9
Skinner, L.G., 59–29
Skinner, R.H., 97–2
Skirrow, G., 15–6
Skirrow, M.B., 16–2
Sklaroff, S.A., 8–30
Skone, J.F., 4–25
Skorecki, J., 60–4
Slack, Prof. G.L., 47–6
Slack, H.D., 10–30
Sladden, C.R., 3–28
Slaney, G., 3–27
Slater, A., 114–2
Slater, C.H., 59–4
Slater, E.T.O., 39–7, 43–4
Slater, I.G., 77–4
Slater, Prof. N.B., 12–5
Slater, R.A.C., 78–1
Slater, T.F., 57–6
Slay, L. (Mrs.), 70–9
Slebarski, T.B., 66–2
Sledge, W.A., 13–6
Sleigh, M.A., 9–11
Sleight, P.E., 80–2
Slesser, C.G.M., 11–10
Slinn, D.J., 15–13
Slizynski, B., 8–13
Sloane, R.H. 2–17
Sloane-Stanley, G.H., 31–4
Slome, Prof. D., 31–4
Sloper, J.C., 29–3, 29–8
Sluckin, W.S., 14–9
Slyper, H.A., 73–6
Smailes, Prof. A.E., 22–4
Small, E.J., 83–2
Small, Prof. J., 10–10
Small, R.J., 69–6
Small, R.W.H., 3–6
Smalley, I.J., 101–1
Smallman, R.E., 3–15
Smare, D.L., 79–6
Smaridge, S.R., 104–3
Smart, E.W. (Miss), 5–7
Smart, Prof. G.A., 7–13
Smart, J., 5–28
Smart, P., 63–11
Smart, P.J.G., 53–23
Smart, Prof. R. 90–5
Smart, R.G.S., 116–3
Smeaton, W.A., 26–15
Smee, D.K. (Miss), 17–3
Smeeth, A.G., 101–1
Smellie, H.C., 45–6, 53–4
Smellie, R.M.S., 10–5
Smethurst, S.W., 79–4
Smillie, I.S., 67–11
Smith, A.A., 20–6
Smith, A.D., 49–2
Smith, A.G., 2–5
Smith, Prof. A.G., 62–4
Smith, A.J., 26–14

Smith, A.J., 68–5
Smith, A.J.E., 74–1
Smith, A.M., 8–1
Smith, A.N., 8–32
Smith, B.C., 18–2
Smith, B.D., 4–1
Smith, B.H., 3–1
Smith, B.S., 4–8
Smith, B.S., 112–3, 112–5
Smith, B.V., 84–2
Smith, B.V.K., 54–7
Smith, C.A.B., 26–4
Smith, C.E.G., 48–3
Smith, C.G., 63–15
Smith, C.G., 102–2
Smith, C.H., 84–7
Smith, C.L., 5–26
Smith, C.L., 15–33
Smith, C.T., 5–14
Smith, D. (Mrs.), 63–1
Smith, D., 85–2
Smith, D., 98–1
Smith, D.A., 3–16
Smith, D.B., 78–5
Smith, D.C., 59–10
Smith, D.C., 63–1
Smith, D.C.C., 59–9
Smith, D.H., 9–8
Smith, D.I., 4–9
Smith, D.L., 59–7
Smith, D.T., 19–8
Smith, E.B. (Mrs.), 49–2
Smith, E.B., 63–10
Smith, E.R., 49–2
Smith, E.V., 109–6
Smith, F.G., 5–23
Smith, F.G. (Miss), 21–2
Smith, Prof. F.V., 6–7
Smith, G., 10–28, 10–29
Smith, G.C., 5–19
Smith, G.F., 13–7
Smith, G.F., 59–9
Smith, G.H., 5–6
Smith, H., 10–8, 10–11
Smith, H., 116–5
Smith, H.J., 80–2
Smith, H.J., 114–5
Smith, H.J. (Mrs.), 10–29
Smith, I., 49–2
Smith, I.A. (Miss), 67–2
Smith, I.R., 3–9
Smith, J.A., 29–3
Smith, J.A.S., 13–7
Smith, J.C., 63–10
Smith, J.D., 14–3
Smith, Prof. J.E., 22–8
Smith, J.E., 24–5
Smith, J.F., 57–6
Smith, J.H., 1–1
Smith, J.M., 26–23
Smith, J.M., 74–3
Smith, J.N., 55–2
Smith, J.P., 59–28
Smith, J.P., 68–6
Smith, J.R., 41–3
Smith, J.T., 30–10
Smith, J.W., 17–2
Smith, J.W., 66–1
Smith, J.W.G., 48–3
Smith, K.C.A., 5–23
Smith, K.F., 5–23
Smith, K.S., 29–3
Smith, K.V.H., 69–5
Smith, M.C. (Miss), 39–3
Smith, M.G., 112–4
Smith M.J.H., 45–12
Smith M.S. (Miss), 28–3
Smith, N.H.P., 60–3
Smith, P., 61–6
Smith, P.A., 13–32
Smith, P.L., 60–5
Smith, P.W.G., 116–2
Smith, R., 54–9
Smith, R.A., 6–3
Smith, Prof. R.A., 6–5
Smith, R.A., 68–22
Smith, R.B.L., 60–4
Smith, R.C., 61–6
Smith, R.C., 69–4
Smith, R.G., 1–6
Smith, R.H., 65–2
Smith, R.L., 55–2
Smith, R.N., 4–29
Smith, R.S., 34–2
Smith, R.T., 19–7
Smith, R.W., 3–15
Smith, R.W., 65–1
Smith, S., 5–28
Smith, S., 60–3
Smith, S.D., 64–11
Smith, S.E., 56–7
Smith, T., 1–18
Smith, T.D., 72–4
Smith, V., 106–4
Smith, W., 7–1
Smith, W.E., 84–3
Smith, W.G., 113–6
Smith, W.T., 3–22
Smitham, J.H., 40–1
Smithells, R.W., 15–21
Smithers, Prof. D.W., 32–3
Smithies, D.R., 13–7
Smithies, F., 5–17
Smithson, F., 72–1
Smylie, H.G., 1–13
Smyrl, J.L., 11–5
Smyth, C.N., 57–7
Smyth, Prof. D.H., 68–23
Smyth, G.E., 59–20
Smyth, M.J., 8–3
Smythe, C.N., 101–5
Smythies, J.R., 8–28
Snaith, A.H., 34–3
Snaydon, R.W., 64–1

Sneddon, I.B., 68–7
Sneddon, Prof. I.N., 10–16
Sneeden, R.P.A., 10–7
Snell, C., 26–9
Snell, R.S., 7–3
Snelling, M.D. (Miss), 49–11
Snelling, N.J., 63–16
Snow, D., 64–1
Snowden, D.C., 13–32
Solari, M.E. (Mrs.), 84–4
Solomon, J.B., 32–1
Solomon, P.J.B., 19–7
Soltys, M.A., 5–27
Somers, E., 4–1
Somerville, A.W., 110–1
Somerville, M.J., 59–11
Sommerville, A.H. (Mrs.), 1–4
Sommerville, I.F., 40–2, 40–3
Sommerville, T., 67–8
Sondheimer, Prof. E.H., 27–3
Sonn, J.I., 116–4
Soothill, J.F., 3–22
Soper, M.H.R., 63–1
Soper, P.F., 101–2
Soulsby, E.J.L., 5–27
South, A., 7–1
Southern, H.N., 63–33
Southgate, D.A.T., 5–18
Southwold, M., 5–3
Southwood, T.R.E., 19–15
Sowerby, L., 4–8
Sowter, S.A. (Miss), 24–3
Sowton, G.E., 45–2
Spain, B., 112–4
Spalding, Prof. D.B., 19–7
Spanner, D.C., 17–1
Spark, L.C., 60–8
Sparkes, Prof. S.R., 19–5
Sparks, B.W., 5–14
Sparling, L.G.M., 68–8
Sparrow, R.W., 62–4
Spaull, A.J.B., 83–1
Speakman, Prof. J.B., 13–32
Speakman, J.C., 10–7
Speakman, P.T., 13–32
Spear, F.G., 68–24
Spear, W.E., 14–8
Spearing, J.K., 112–1, 112–7
Spector, R., 30–12
Spector, W.G., 57–6
Speed, D.E. (Miss), 32–1
Speed, J.G., 8–34
Speirs, R.L., 20–12
Spelman, M.S., 15–26
Spence, A.W., 53–7
Spence, D.H.N., 66–4
Spence, L.F., 78–1
Spencer, A.G., 53–7
Spencer, A.J.M., 62–9
Spencer, A.T., 3–22
Spencer, C.P., 72–7
Spencer, D.M., 28–3
Spencer, E., 60–4
Spencer, H., 56–6
Spencer, M., 97–2
Spencer, N., 20–2
Spiers, Prof. F.W., 13–24
Spiers, J.A., 63–26
Spikins, D.J., 95–2
Spiro, M., 19–3
Spooner, J.B., 92–2
Sporne, K.R., 5–8
Sprackling, M.T., 21–6
Spragg, P., 3–6
Spratling, F.R., 5–27
Spray, G.H., 63–18
Sprayson, E.M. (Miss), 39–7
Spriggs, A.I., 63–24
Spriggs, P.H., 59–18
Springall, Prof. H.D., 61–2
Springford, M., 12–6
Sprinks, T., 69–8
Sprinz, R., 68–6
Sprunt, J.G., 67–15
Spurrell, Prof. W.R., 30–16
Squire, Prof. H.B., 19–1
Squire, Prof. J.R., 3–22
Squires, B.T., 48–4
Squires G.L., 5–23
Stabler, G.V., 11–3
Stacey, Prof. M., 3–6
Stacey, Prof. R.S., 56–7
Stack, M.V., 4–7
Staddon, B.W., 73–14
Stadler, H.P., 7–6
Stafford, J.L., 54–2, 54–7
Stafford, W.L. (Miss), 30–9
Stainsby, G., 13–32
Stainthorp, F.P., 60–4
Stalker, A.L., 1–16
Stalker, G.C., 116–4
Stallard, H.B., 41–6, 53–11
Stallworthy, J.A., 63–21
Stammers, Prof. F.A.R., 3–27
Stamp, Prof. Lord, 50–6
Stanbury, F.A. (Miss), 106–1
Stanbury, S.W., 59–17
Standfast, A.F.B., 46–5
Standley, K.J., 62–13
Stanger, J.K., 7–18
Stanier, M. (Miss), 5–18
Staniland, A.C., 9–10
Stanley, E., 60–7
Stanley, G.K. (Miss), 27–3
Stanley, M.J., 8–14
Stannard, F.R., 26–19
Stansfeld, A.G., 53–15
Stansfield, F., 31–1
Stanton, R.E., 19–8
Stanton, W., 7–25
Stanworth, A., 59–24
Stanworth, D.R., 3–22
Stark, C., 8–22
Stark, G.T.C., 68–30

Stark, V.J.M., 15–28
Start, P.L., 68–29
Staveley, L.A.K., 63–10
Steadman, R., 79–6
Stebbings, J., 59–11
Stedman, E., 8–4
Stedman, G., 74–2
Stedman, M.B., 3–11
Steed, R.W., 114–2
Steedman, H.F., 10–30
Steel, F.L.D., 53–2
Steel, G.G., 32–2
Steel, G.H., 7–7
Steel, G.K., 77–2
Steel, J., 7–17
Steel, Prof. R.W., 15–10
Steen, S.W.P., 5–17
Steeple, H., 60–7
Steers, E.B.M., 102–4
Steers, H.G. (Mrs.), 5–14
Steers, Prof. J.A., 5–14
Stefani, J.L., 116–3
Stein, E. (Mrs.), 84–4
Stein, L. (Mrs.), 43–4
Stein, M., 62–5
Stein, Z. (Miss), 59–35
Steinberg, H. (Miss), 26–17
Steiner, H.M.E., 60–3
Steiner, R.E., 50–9
Stengel, Prof. E., 68–24
Stenlake, Prof. J.B., 11–8
Stepec, W.A., 19–12
Stephen, W.I., 3–6
Stephens, Prof. A.V., 2–8
Stephens, D.B., 84–4
Stephens, N., 2–9
Stephens, R., 3–6
Stephens, R.R., 35–3
Stephens, R.W.B., 19–14
Stephens, R.W.B., 38–6
Stephens, W.G.S., 66–10
Stephenson, G., 19–9
Stephenson, I.M., 26–10
Stephenson, J.M., 13–10
Stephenson, R.P., 8–25
Sterling, R.C., 101–3
Stern, B.E. (Miss), 76–5
Stern, H., 54–7
Stern, M.I., 40–2
Sterne, M.A., 116–2
Steven, D.H., 5–2
Steven, Prof. H.M., 1–7
Steven, R.E., 69–5
Stevens, B., 68–5
Stevens, C.B., 13–7
Stevens, I.D.R., 69–3
Stevens, Prof. K.W.H., 62–13
Stevens, L., 34–5
Stevens, T.S., 68–5
Stevenson, A.C., 26–16
Stevenson, J.J., 44–1
Stevenson, R.W.H., 1–18
Stevenson, T.N., 85–1
Steward, E.G., 101–5
Steward, J.K., 59–27
Steward, M.J., 85–5
Stewardson, Prof. E.A., 14–8
Stewart, A.L., 2–11
Stewart, A.M., 63–29
Stewart, A.W.K., 10–10
Stewart, C.P., 8–7
Stewart, D.J., 2–1
Stewart, D.S., 12–7
Stewart, D.T., 10–24
Stewart, E.T., 67–2
Stewart, Prof. F.H., 8–15
Stewart, H.C., 55–10
Stewart, H.J. (Miss), 10–28
Stewart, J. (Miss), 10–5
Stewart, J.G., 59–37
Stewart, J.W., 49–7
Stewart, J.W.B., 2–1
Stewart, R.H., 2–1
Stewart, R.J.C., 48–4
Stewart, V.I., 70–2
Stewart, W.D.P., 62–2
Stewart, W.K., 67–7
Stewartson, Prof. K., 6–5
Stibbs, Prof. D.W.N., 66–2
Stickings, C.E., 48–1
Stickland, L.H., 13–22
Stiddard, M.B.H., 12–2
Still, B.M. (Miss), 44–1
Stirling, C.J.M., 2–6
Stirling, J., 1–4
Stock, D.I., 76–1
Stock, J.A., 32–1
Stock, R., 94–2
Stocken, L.A., 63–7
Stocker, B.A.D., 46–6
Stockley, I.H., 62–12
Stockley, L.A.F., 79–6
Stockwell, R.A., 56–1
Stoddart, J.L., 71–6
Stoker, Prof. M.G.P., 10–18
Stokes, A.R., 20–11
Stokes, E.J. (Mrs.), 57–6
Stokoe, W.M., 8–34
Stoller, J.L., 10–28
Stollery, J.L., 19–1
Stone, D.J., 9–8
Stone, F., 10–26
Stone, F.H., 10–21
Stone, F.S., 4–6
Stone, J. (Miss), 101–4
Stone, J. (Mrs.), 95–4
Stone, M., 9–7
Stone, P.T., 95–4
Stone, S.L., 73–12
Stoner, Prof. E.C., 13–24
Stops, D.W., 101–5
Storer, R., 15–7
Storey, I.D.E., 8–7
Story, P., 53–15

Stothers, F. (Mrs.), 10–23
Stott, D.H., 10–27
Stott, F., 63–31
Stott, K.G., 4–1
Stoward, P., 63–3
Stoy, Prof. P.J., 2–7
Strachan, A.N., 95–1
Strachan, C., 1–18
Strachan, I., 3–12
Straker, D., 15–27
Strang, R.S., 3–20
Strange, P., 62–4
Strangeways, D.H. (Miss), 2–18
Stratton, J., 24–4
Stratton, K. (Mrs.), 52–16
Straw, A., 68–11
Straw, W.A., 79–2
Strawbridge, W.G., 75–4
Streater, R.F., 19–14
Street, Prof. H.E., 74–1
Street, H.V., 8–11
Stretch, R.G.A., 2–20
Strich, S.J., 43–2
Strickland, R.E., 19–7
Strickland-Constable, R.F., 19–4
Stride, R.D., 59–26
Stringer, A., 4–1
Stringer, E.T., 3–11
Stringer, J., 15–16
Stringer, J.D., 68–8
Strong, J.A., 8–17
Struthers, N., 50–10
Stuart, A.E., 8–24
Stuart, J.G., 2–8
Stuart, N., 102–2
Stuart-Harris, Prof. C.H., 68–14
Stubbles, J.R., 59–18
Studzinski, G., 10–22
Stumpfl, E.F., 26–14
Sturrock, F.G., 5–1
Sturt, B.A., 17–4
Stuttard, B., 110–2
Style, Prof. D.W.G., 20–5
Sucksmith, Prof. W., 68–22
Sudd, J.H., 12–7
Suddaby, A., 112–6
Suffolk, S.F., 65–5
Sugden, T.M., 5–9
Sullivan, F.M., 30–14
Sullivan, H.J., 68–12
Sullivan, T.J., 56–7
Sullivan, W.J.O., 40–3
Summerfield, Prof. A., 18–7, 26–21
Summers, G.H.R., 74–2
Summerscales, J., 13–22
Summersgill, G.B., 67–3
Sumner, F.H., 59–11
Sunderland, E., 6–3
Surplice, N.A., 61–7
Sury, R.J., 3–9
Suschitzky, H., 110–1
Susser, M., 59–35
Sutcliffe, F.K., 13–7
Sutcliffe, H., 4–8
Sutcliffe, J.F., 20–4
Sutcliffe, L.H., 15–6
Sutcliffe, P., 13–10
Sutcliffe, W.J., 15–8
Sutherland, A.B. (Miss), 8–32
Sutherland, E. (Miss), 10–5
Sutherland, H.B., 10–10
Sutherland, I., 48–9
Sutherland, I.O., 4–6
Sutherland, J.K., 19–3
Sutherland, K.H., 68–8
Sutherland, R., 13–28
Sutherland, S., 63–28
Sutherland, S.D., 59–2
Sutor, D.J., 18–6
Sutton, D., 19–12
Sutton, E.P., 5–11
Sutton, H.C., 8–26
Sutton, Prof. J., 19–8
Sutton, L.E., 63–10
Sutton, M.F. (Miss), 84–9
Sutton, P., 57–6
Swain, R.H.A., 8–18
Swale, J., 29–2
Swallow, A.J., 19–4
Swallow, J.N., 47–6
Swan, G.A., 7–6
Swan, W.G.A., 7–30
Swann, D.A., 13–1
Swann, Prof. M.M., 8–35
Swann, S.A. 62–4
Swannell, J., 104–3
Swanson, S.A.V., 19–7
Swanson, W.C., 67–19
Sweet, Prof. P.A., 10–3
Sweeting, M.M. (Miss), 63–15
Swift, J.D., 102–4
Swift, N. (Mrs.), 52–15
Swinbanks, D.B., 11–3
Swinburne, K., 13–15
Swinburne, T.R., 2–1
Swinnerton, A.E., 94–3
Swinnerton-Dyer, H.P.F., 5–17
Swinney, J., 7–29
Swinton, F.L., 11–2
Swyer, G.I.M., 57–5
Sykes, A.H., 28–1
Sykes, D., 15–30
Sykes, J., 68–2
Sykes, J.D., 28–4
Sykes, J.T., 28–6
Sykes, Prof. K.W., 22–2
Sykes, M.F., 20–11
Sykes, M.K., 50–1
Sykes, P., 5–9
Sykes, R.F.R., 68–29
Sykes, R.L., 100–1
Sylvester, D. (Miss), 59–13
Sylvester-Bradley, Prof. P.C., 14–6
Syme, A.C., 11–2

Symes, D.G., 12–3
Symington, Prof. T., 10–22
Symmers, W. St. C., 29–8
Symmons, S. (Miss), 1–26
Symonds, K.V. (Miss), 20–4
Symons, J.R., 1–21
Symons, L.J., 2–9
Symons, Prof. M.C.R., 14–3
Symons, N.B.B., 67–3
Syrett, P.J., 26–6
Szafran, J., 9–10
Szigeti, B., 15–24
Szur, I., 36–1

Tabor, D., 5–23
Tadayon, R., 10–29
Tagg, D., 113–2
Tailby, S.R., 76–2
Tait, E.A., 1–9
Tait, G.B., 60–4
Tait, P.J.T., 60–3
Talbot, A., 19–9
Talboys, E.C., 101–2
Tall, R. (Miss), 48–9
Tallack, C.C., 73–4
Tallentire, A., 59–30
Tallis, J.H., 59–7
Talman, F.A.J., 80–4
Tambini, D., 109–5
Tanner, J.M., 34–3
Tanner, L.H., 13–10
Tanner, N.W., 63–26
Tanner, P.H., 10–10
Tanner, R.K. (Miss), 54–7
Tanner, T., 69–5
Tansey, A.W., 7–1
Tansley, K. (Miss), 41–5
Tappin, J.W., 49–9
Tarr, S.A.J., 9–3
Tarrant, A.W.S., 76–1
Tarzi, A., 76–2
Tatchell, A.R., 116–2
Tatchell, J.B., 84–4
Tate, A.P.K., 69–5
Tate, P., 5–7
Tatford, E.P., 30–11
Tatlow, Prof. J.C., 3–6
Taunt, D.R., 5–17
Tavener, L.E., 69–6
Tavener-Smith, R., 2–10
Taverner, D., 13–15
Tavernor, W.D., 24–7
Tayler, A.B., 63–17
Tayler, R.J., 5–17
Tayler, R.S., 64–1
Taylor, A. (Miss), 34–4
Taylor, A.E.R. (Miss), 21–1
Taylor, Prof. A.M., 69–9
Taylor, A.W., 8–34
Taylor, B.J., 110–2
Taylor, B.J.R., 81–1
Taylor, C.A., 60–7
Taylor, C.J., 8–12
Taylor, C.W., 3–22
Taylor, D., 8–7
Taylor, D.B.C., 5–11
Taylor, D.E.M., 8–27
Taylor, D.M., 32–2, 53–23
Taylor, D.W., 1–19
Taylor, F., 7–9
Taylor, F., 28–3
Taylor, F.K., 43–4
Taylor, F.M., 62–7
Taylor, Sir G., 5–23
Taylor, G.A., 1–6
Taylor, Prof. G.W., 53–23
Taylor, H., 79–5
Taylor, H.F.W., 1–5
Taylor, I.G., 59–5
Taylor, J., 11–6
Taylor, J., 73–10
Taylor, J.A., 8–34
Taylor, J.A., 70–5
Taylor, J.C., 2–1
Taylor, J.C., 5–17
Taylor, J.D. (Mrs.), 1–20
Taylor, Prof. J.H., 20–8
Taylor, J.H., 66–10
Taylor, J.L., 73–9
Taylor, J.M., 79–6
Taylor, J.S., 60–8
Taylor, K.B., 4–19
Taylor, K.N.R., 6–6
Taylor, K.W., 32–2
Taylor, M.D. (Miss), 7–20
Taylor, N.F., 81–2
Taylor, P.L., 60–4
Taylor, S., 45–13, 50–10
Taylor, S.H., 8–17
Taylor, S.J., 3–13
Taylor, S.J., 27–3
Taylor, T.K.F., 63–23
Taylor, W., 7–24
Taylor, W.H., 5–23
Taylor, W.K., 26–1, 26–10
Taylor, W.L., 10–10
Taylor-Russell, A.J., 19–1
Teale, F.W.J., 3–4
Teale, R., 103–2
Tebb, G., 90–1
Tebble, R.S., 68–22
Tedder, J.M., 68–5
Tedford, D.J., 11–3
Tee, D.H., 45–12
Tegart, W.J.M., 68–15
Tella, T., 16–2
Tempest, W., 15–24
Temple, Prof. G., 63–17
Temple, J.T., 18–4
Temple, L.J., 15–30
ten Bruggen Cate, H., 59–10
Tennent, R.M., 13–24
ter Haar, D., 63–26
Terrill, R.M., 15–14

Terry, A. (Mrs.), 102–1
Thacker, C.K., 48–11
Thackray, A.C., 49–7
Thaller, V., 63–10
Theobald, D.W., 60–3
Theobald, L.S., 19–3
Thew, M.T., 69–5
Thickett, H.W., 101–5
Thiel, C.C., 65–5
Thin, C., 8–34
Thirlwell, J.B., 101–2
Thirsk, H.R., 7–6
Thoday, Prof. J.M., 5–12
Thom, A.S., 10–10
Thom, H. (Mrs.), 1–15
Thomas, A.J., 72–2
Thomas, B., 7–1
Thomas, D., 114–6
Thomas, D., 26–13
Thomas, D.L., 19–10
Thomas, D.R., 7–5
Thomas, F.L., 110–2
Thomas, G., 19–8
Thomas, G.A., 30–2
Thomas, G.H., 3–2
Thomas, G.M. (Mrs.), 13–22
Thomas, H., 71–6
Thomas, H.W., 55–11
Thomas, I., 114–5
Thomas, I.E., 3–9
Thomas, J., 59–30
Thomas, J.D.R., 114–1
Thomas, J.E., 61–5
Thomas, J.G. (Miss), 23–5
Thomas, J.G., 70–5
Thomas, J.G., 73–6
Thomas, J.H., 73–5
Thomas, J.M., 72–4
Thomas, J.O., 5–23
Thomas, K., 19–1
Thomas, K.A., 74–8
Thomas, L.F., 3–6
Thomas, L.F., 83–4
Thomas, L.F. (Miss), 45–5
Thomas, L.H., 89–1
Thomas, L.P., 75–10
Thomas, L.R., 83–4
Thomas, M.P., 59–41
Thomas, Prof. P.T., 70–1, 71–3
Thomas, Sir T., 75–10
Thomas, T.L., 19–12
Thomas, W.D.E., 4–1
Thomas, W.F., 73–6
Thomas, W.G., 3–17
Thomas, W.J., 74–3
Thomas, W.J., 76–2
Thomlinson, J.R., 15–32
Thompson, A., 7–1
Thompson, A., 59–9
Thompson, A.R., 60–3
Thompson, B., 57–1
Thompson, B.J., 13–24
Thompson, E.C., 63–17
Thompson, Prof. E.H., 26–18
Thompson, F.C., 28–5
Thompson, G.H., 63–14
Thompson, G.R., 10–4
Thompson, G.S., 15–15
Thompson, H., 59–25
Thompson, H.W., 63–10
Thompson, I.B., 13–12
Thompson, J., 8–23
Thompson, J.H.C., 63–17
Thompson, J.W., 31–3
Thompson, N., 4–21
Thompson, R.B., 7–13
Thompson, R.E., 49–7
Thompson, Prof. R.H.S., 30–13
Thompson, S.Y., 65–8
Thompson, T.E., 73–14
Thompson, V.C., 47–21
Thompson-Hancock, P.E., 52–8, 52–16
Thomsett, L.R., 24–4
Thomson, A.D., 49–7
Thomson, A.M., 1–14
Thomson, A.P.D., 3–2
Thomson, Prof. A.S.T., 11–3
Thomson, J.A., 10–17
Thomson, J.H., 59–4
Thomson, J.W.W., 8–32
Thomson, M.L., 48–7
Thomson, N.W., 77–4
Thomson, R., 6–7
Thomson, R.H., 1–5
Thomson, R.Y., 10–5
Thomson, Prof. S., 75–4
Thomson, S.J., 10–7
Thomson, T.J., 10–23
Thomson, W.B., 55–6
Thomson, W.H.S., 10–5
Thorburn, R., 94–6
Thorburn, S., 83–1
Thorley, N., 7–23
Thorn, M.B., 56–2
Thorne, Lady A., 19–14
Thorne, J.A.C., 77–2
Thorne, N., 73–5
Thornley, R.H., 60–4
Thornton, J.D., 7–9
Thorp, J.S., 6–6
Thorpe, E., 108–5
Thorpe, H., 3–11
Thorpe, W.H., 5–28
Thorpe, W.V., 3–24
Thory, R.G., 85–1
Thould, A.K., 53–7
Thouless, D.J., 5–17
Threadgold, L.T., 2–24
Threlfall, B.D., 5–11
Threlfall, R.J., 19–2
Thring, Prof. M.W., 68–29
Throsby, P.W., 19–1
Throssell, J.J., 27–2
Thrush, B.A., 5–9
Thumwood, R.F., 22–3
Thurgar, C.J.L., 7–27

Thurman, D.A., 15–4
Thwaites, Prof. B., 69–8
Tibbs, J., 67–17
Tidman, M.K., 4–3
Tidswell, B.M., 79–2
Tiffen, R.W., 18–5
Tiley, P.F., 81–2
Till, A.J., 80–2
Till, K., 34–5, 54–5
Tillett, J.G., 17–2
Timberlake, C.F., 4–1
Timbury, G.C., 10–26
Timmis, G.M., 32–1
Timmons, C.J., 62–3
Tims, S.R., 20–9
Tinbergen, N., 63–33
Tinckler, L.F., 15–30
Tindal, J.S., 65–10
Tindall, V.R., 15–18
Tingey, R.A., 115–1
Tinkler, J., 4–8
Tinning, R., 8–22
Tinsley, J., 1–23
Tipper, C.F.H., 15–6
Tipping, D., 59–11
Titchen, D.A., 5–24
Titchmarsh, Prof. E.C., 63–17
Tittensor, E., 91–1
Tivy, J. (Miss), 10–13
Tizard, J., 43–4
Tizard, J.P.M., 34–3, 40–4
Tobe, M.L., 26–7
Tobias, Prof. S.A., 3–9
Tocher, F.L., 1–9
Tod, H., 8–1
Todd, Prof. Sir A., 5–9
Todd, J.A., 5–17
Todd, J.D., 63–11
Todd, J.R., 2–1
Todd, R.M., 15–21
Todd, R.S., 15–30
Tokaty, G.A., 101–2
Tolansky, Prof. S., 23–4
Tolley, K.J., 92–2
Tomkeieff, Prof. S.I., 7–11
Tomlin, D.H., 64–11
Tomlin, H.R., 3–7
Tomlin, N., 7–9
Tomlinson, B.E., 7–30
Tomlinson, G.H., 110–2
Tomlinson, H.S., 26–19
Tomlinson, J.D.W., 47–1
Tomlinson, J.W., 19–10
Tomlinson, M.L. (Miss), 63–10
Tomlinson, R., 45–6
Tompkins, Prof. F.C., 19–3
Tompsett, D., 31–1
Tompsett, S.L., 8–7
Toms, H.M.K., 19–8
Tonge, B.L., 106–2
Tonge, C.H., 7–3
Tonge, W.L., 68–24
Tonks, R.S., 75–8
Tooms, J.S., 19–8
Toothill, J. (Miss), 65–8
Topley, E. (Miss), 3–22
Topping, P.M. (Mrs.), 23–1
Topple, E.L., 78–1
Torbe, I., 69–5
Torr, J.B.D., 59–2
Torrance, R.W., 63–27
Tory, C., 62–4
Tottenham, C.E., 5–28
Tottenham, H., 69–5
Tottle, Prof. C.R., 59–18
Tovey, F.I., 15–30
Towers, B., 5–2
Towers, K.G., 13–34
Towers, T.A., 104–5
Townend, P.P., 13–32
Townsend, A.A., 5–23
Townsend, B.G., 90–7
Townsend, R.J., 48–1
Townsend, W.G., 74–3
Townsend, W.N., 13–1
Townsin, R.L., 7–9
Tozer, C.F., 84–3
Tozer, D.C., 7–23
Tracy, H.J., 15–25
Trafford, J.A.P., 30–7
Trapnell, D.H., 53–20
Travis, F.W., 60–4
Treadwell, E. (Mrs.), 43–5
Trease, Prof. G.E., 62–12
Tredgold, R.H., 72–9
Treherne, J.E., 5–28
Treip, C.S., 5–21
Treisman, M., 63–28
Tremlett, W.E., 10–14
Trench, C.A.H., 7–15
Trengrouse, G.H., 3–9
Trenwith, A.B., 7–6
Trevena, D.H., 70–8
Trevor, J.C., 5–3
Trew, V.C.G. (Miss), 17–2
Trezise, S.T., 40–3
Tribbeck, R.A., 103–1
Tribe, H.T., 5–1
Trigg, C.F., 73–6
Trippett, S., 13–7
Tristram, G.R., 66–3
Tristram, H., 26–6
Tropper, H., 22–3
Tropper, M. (Mrs.), 22–6
Trotman-Dickenson, Prof. A.F., 70–4
Trott, N.G., 32–2, 53–23
Trotter, M.D., 3–22
Trotter, W.R., 57–3
Troughton, A., 71–1
Trounce, J.R., 30–9
Truelove, B., 59–7
Truelove, S.C., 63–18
Trueman, E.R., 12–7
Trueta, Prof. J., 63–23
Truslove, G.M. (Miss), 26–12
Truter, E.V., 13–32

Truter, M.R. (Mrs.), 13–7
Tubbs, P.K., 5–6
Tuck, D.G., 62–3
Tucker, E.V., 22–5
Tucker, Prof. D.G., 3–9
Tucker, R.G., 63–7
Tudball, N., 73–3
Tudhope, G.R., 68–21
Tudhope, R.G., 11–3
Tudway, R.C., 4–16, 4–27
Tuffrey, M.A. (Mrs.), 30–13
Tuft, P.H., 8–35
Tulley, K.R., 109–3
Tulley, W.J., 30–6
Tulloh, C.G., 41–3
Tumarkin, A., 15–30
Tunbridge, Prof. R.E., 13–15
Tunnicliffe, H.E., 5–24
Tuplin, Prof. W.A., 68–8
Tupper, B., 9–8
Turcan, J.R., 3–9
Turk, D.C., 7–15
Turnbull, A., 47–8
Turnbull, A.C., 1–14
Turnbull, G.F., 59–11
Turnbull, L.P., 17–1
Turner, C.E., 19–7
Turner, D.C., 17–4
Turner, D.W., 19–3
Turner, E.A., 3–18
Turner, E.P., 59–10
Turner, E.R., 84–1
Turner, G. (Miss), 1–13
Turner, G.C., 13–17
Turner, H.A., 60–8
Turner, H.A., 62–12
Turner, J.A., 59–11
Turner, J.C.R., 5–11
Turner, J.E., 7–9
Turner, J.S., 13–13
Turner, J.W.A., 53–8
Turner, M. (Mrs.), 62–2
Turner, M.D., 52–8
Turner, P.B., 80–4
Turner, R.C., 32–2
Turner, R.W.D., 8–17
Turner, S.C., 108–1
Turner, T., 114–5
Turner-Warwick, M.E.H. (Mrs.), 45–6, 52–8
Turner-Warwick, R.T., 44–1
Turrell, A.J.W., 68–6
Turton, B.J., 61–4
Turton, J.S., 1–6
Turton, R.K., 95–2
Turvey, J.R., 72–4
Tustin, Prof. A., 19–6
Tutin, Prof. T.G., 14–2
Tutin, W. (Mrs.), 14–2
Tweedie, M.C.K., 15–14
Twiddy, N.D., 19–14
Twigg, F.L., 109–3
Twigg, G.I., 23–5
Twine, S.W., 101–3
Tylecote, R.F., 7–14
Tyler, Prof. C., 64–3
Tyler, J.K., 3–6
Tyrrall, E., 2–23, 87–1
Tyrrell, H.J.V., 68–5
Tyrrell, J.A., 20–9

Ubbelohde, Prof. A.R., 19–4
Ullman, E.A. (Miss), 53–18
Underwood, E.A., 26–15
Underwood, F.A., 81–6
Underwood, G., 68–29
Urch, D.S., 22–2
Urich, H., 47–16
Urquhart, G.M., 10–29
Urry, S.A., 83–2
Ursell, Prof. F., 59–16
Ursell, H.D., 13–14
Utting, J.E., 15–1

Vail, J.R., 13–13
Valatin, J.G., 3–23
Valderrama, J.A.F., 63–23
Valentine, Prof. D.H., 6–1
Valentine, J.V., 90–2
Valentine, M., 4–23
Vallance-Owen, J., 7–13
Vallet, L., 46–4
van der Burg, M.G.J., 15–14
van Emden, H.F., 64–8
van Heyningen, R. (Mrs.), 63–22
van Heyningen, W.E., 63–24
van Horn, E.A. (Miss), 4–14
van Miert, P.J., 7–18, 7–27
van Petten G.R., 10–23
van Rest, E.D., 5–11
van Zyl, C.P., 3–23
Vandome, P., 63–30
Vane, J.R., 31–3
Varley, Prof. G.C., 63–12
Varley, M.E. (Mrs.), 63–33
Varma, M.G.R., 48–2
Varnavides, L., 84–4
Vasudevan, M., 60–4
Vaughan, Dame, J., 63–18
Vaughan, J.G., 21–1
Vaughan, L.C., 24–7
Vaughan, R.C., 76–2
Vaughan-Williams, E.M., 63–25
Veall, N., 30–9
Venables, P., 43–4
Venanzi, L.M., 63–10
Veness, T. (Miss), 18–7
Venkataratnam, A., 16–1
Venkateswaran, S., 74–3
Venning, B.H., 69–4
Verblunsky, Prof. S., 2–11
Vere, D.W., 47–9
Verel, D., 68–4
Verma, B.S., 36–1
Vermes, P., 18–5
Vernon, C.A., 26–7

Vernon, E.V., 69–4
Vernon, Prof. M.D., 64–12
Vickerman, K., 26–23
Vickers, J.A., 113–6
Vickers, T., 5–24
Vince, M. (Miss), 5–25
Vincent, E.A., 63–16
Vincent, Prof. J.J., 60–8
Vinen, W.F., 5–23
Vint, F., 2–16
Vipond, H.J., 62–12
Vlismas, T., 89–1
Vogel, A.I., 116–2
Vogt, M. (Miss), 8–25
Voice, E.W., 19–4
Vollans, E.C. (Miss), 17–3
Vollum, R.L., 63–24
von Kluber, H., 5–5
von Knorring, O., 13–13
Vose, P.B., 71–4
Vowles, D., 63–28

Wachtel, E., 40–3
Waddington, Prof. C.H., 8–13
Waddington, C.J., 4–21
Waddington, T.C., 5–9
Waddy, B.B., 48–10
Wade, A.B., 51–5
Wade, A.P., 15–22
Wade, D., 8–32
Wade, E.G., 59–8
Wade, J.S.H., 75–10
Wade, K., 6–2
Wade, Prof. C.L., 2–12
Wade, P. (Miss), 52–8, 52–9, 52–16
Wade, R., 32–1
Wadsworth, R.M., 64–2
Wadsworth, W.J., 8–15
Wager, J.H., 3–23
Wager, Prof. L.R., 63–16
Wagner, A., 19–9
Wagner, R.H., 68–12
Wagstaff, D.F., 101–4
Wahhab, M.A., 107–4
Waight, E.S., 19–3
Wain, E.A., 59–10
Wain, Prof. R.L., 28–3
Wajda, R.L., 76–2
Walburn, P.J., 79–3
Walder, D.N., 7–27, 7–29
Walder, P.S. (Miss), 64–7
Waldron, N.M., 84–2
Waley, S.G., 63–22
Walkden, F., 110–3
Walker, A.D., 7–11
Walker, Prof. A.G., 15–14
Walker, A.H.C., 59–22, 59–27
Walker, A.I.T., 8–34
Walker, A.M., 5–17
Walker, A.S., 38–2
Walker, C.P., 15–8
Walker, D., 83–1
Walker, D.A., 22–1
Walker, D.G., 3–4
Walker, D.G., 51–7
Walker, F., 4–9
Walker, F., 60–4
Walker, F., 67–5
Walker, F.C., 7–29
Walker, G., 7–9
Walker, G.O., 83–5
Walker, G.P.L., 19–8
Walker, J., 3–23
Walker, J., 26–21
Walker, J., 84–6
Walker, J., 116–3
Walker, Prof. J., 67–9
Walker, J.D., 91–2
Walker, J.M., 63–25
Walker, M.B. (Miss), 5–24
Walker, P.G., 42–1
Walker, P.H., 13–10
Walker, P.M.B., 8–35
Walker, R., 108–3
Walker, R.G., 5–27
Walker, Prof. R.M., 4–28
Walker, R.W., 12–2
Walker, S., 4–18
Walker, S., 15–9
Walker, S., 93–2
Walker, S. (Miss), 4–25
Walker, T.G., 7–5
Walker, T.H., 26–11
Walker, W., 7–16, 7–20
Walker, W.C., 13–15
Walker, W.F., 67–20
Walker, W.L., 4–23
Walkley, J., 19–3
Wall, C.T.C., 5–17
Wall, R., 8–7
Wallace, A.B., 8–32
Wallace, D.A.T., 109–4
Wallace, D.B., 5–1
Wallace, D.M., 44–1
Wallace, F.J., 2–8
Wallace, G.K., 64–12
Wallace, M.E. (Miss), 5–12
Waller, G.E.D., 78–1
Walley, C.A., 7–9
Wallington, J.E., 12–5
Wallington, P.A., 60–6
Wallis, A.K., 49–2
Wallis, C.F., 91–1
Wallis, C.P., 8–8
Walls, Prof. E.W., 49–1
Walls, W.K.J., 13–3
Wallwork, K.L., 14–5
Wallwork, S.C., 62–3
Walmsley, Prof. R., 66–1
Walmsley, V.G., 74–5
Waloff, N. (Miss), 19–15
Walsh, A., 101–5
Walsh, Prof. A.D., 67–2
Walsh, D., 63–11
Walsh, E.G., 8–20, 8–27
Walsh, G.R., 79–4

Walsh, L.S., 54–1, 54–5
Walshaw, A.C., 77–2
Walshaw, C.D., 5–23
Walshaw, E., 94–3
Walshe, J.M., 5–18
Walster, G.E., 106–4
Walter, J.B., 31–2
Walters, K., 70–7
Walters, S.M., 5–8
Walters, T.S., 74–6
Walters, W.A.W., 40–3
Walther, D.P., 51–3
Walton, A. (Miss), 27–2
Walton, A.D., 61–4
Walton, D.G., 59–11
Walton, E.K., 8–15
Walton, G.F., 67–16
Walton, J., 101–4
Walton, Prof. J., 10–6
Walton, J.G., 7–7
Walton, J.N., 7–13
Walton, J.W., 7–25
Walton, K., 1–8
Walton, K.W., 3–22
Walton, Prof. W.S., 48–8
Wangermann, E. (Miss), 14–2
Wanstall, P.J., 22–1
Warboys, I.B., 70–1
Warbrick, J.G., 10–2
Warburg, E.F., 63–9
Warburton, Prof. G.B., 62–4
Ward, A.F.H., 60–3
Ward, Prof. A.G., 13–32
Ward, A.J., 5–17
Ward, E.E., 69–5
Ward, E.R., 93–2
Ward, G.R., 26–13
Ward, J., 77–2
Ward, J. (Mrs.), 95–4
Ward, J.T., 2–22
Ward, N.L., 47–6
Ward, R.C., 12–3
Ward, R.W.G., 109–3
Ward, Prof. S.G., 3–17
Ward, W.A.H., 4–23
Wardlaw, Prof. C.W., 59–7
Wardle, S., 68–13
Ware, G.C., 4–14
Wareing, Prof. P.F., 70–3
Warhurst, E., 59–9
Warley, T.K., 62–1
Warne, L.G.G., 59–7
Warner, F.J., 11–5
Warrell, D.W., 68–18
Warren, Prof. F.L., 47–2
Warren, F.W.G., 19–9
Warren, K., 14–5
Warren, K.D., 73–5
Warren, K.G., 116–5
Warren, M.D., 48–8
Warren, P.J., 47–2
Warren, P.K.G., 4–23
Warren, S., 79–6
Warren, W., 43–4
Warrington, D.H., 68–15
Warrington, E.K. (Mrs.), 39–7
Warrington, H.C., 59–37
Warwick, G.P., 32–1
Warwick, G.T., 3–11
Warwick, Prof. R., 30–2
Warwick, T., 8–35
Washington, J.G., 91–1
Wason, P.C., 26–21
Wassermann, Prof. A., 26–7
Waterhouse, A., 79–3
Waterhouse, F.L., 67–21
Waterhouse, J.A.H., 3–26
Waterhouse, J.P., 47–6
Waterhouse, R.B., 62–10
Waters, D.N., 83–1
Waters, E.T., 73–12
Waters, H., 15–8
Waters, R.S., 9–6
Waters, W.A., 63–10
Waterson, A.P., 5–21
Waterston, D.J., 34–5
Watkin, E.E., 70–9
Watkins, Prof. A.G., 75–6
Watkins, D.K., 75–5
Watkins, J.F., 63–24
Watkins, S.B., 20–6
Watkins, T.L., 78–4
Watkins, W.M. (Miss), 46–1
Watkinson, J.D., 59–9
Watson, A., 1–26
Watson, A.J., 5–25
Watson, A.J., 7–21
Watson, D., 13–31
Watson, Prof. D.M.S., 26–23
Watson, E., 70–5
Watson, E., 76–2
Watson, E.J., 59–16
Watson, E.V., 64–2
Watson, G., 59–27
Watson, G.L., 26–16
Watson, G.M. (Miss), 62–12
Watson, H., 67–7
Watson, J., 95–2
Watson, J. (Miss), 19–8
Watson, J.H., 72–1
Watson, Prof. J.W., 8–14
Watson, K.M. (Mrs.), 67–2
Watson, P. (Miss), 6–1
Watson, P.D., 63–17
Watson, P.J., 108–5
Watson, Prof. S.J., 8–1
Watson, T.J., 59–5
Watson, W.C., 10–17
Watson, W.S., 8–20
Watt, C.S., 2–17
Watt, D.M., 8–8
Watt, J., 15–22
Watt, J.F., 10–14
Watt, J.M., 15–14
Watts, C., 10–5
Watts, G.T., 3–27

Watts, R.W.E., 53–7
Way, M.J., 19–15
Waye, B.E., 103–3
Wayne, Prof. E.J., 10–17
Waynforth, H.B., 49–2
Weale, F.E., 53–23
Weale, K.E., 19–4
Weale, R.A., 41–5
Wearmouth, W.G., 65–4
Weatherall, Prof. M., 47–17
Weatherell, J.A., 13–8
Weatherley, Prof. P.E., 1–4
Weaver, A.D., 10–29
Weaver, B.M.Q. (Miss), 4–29
Weaver, C., 11–9
Weaving, A., 3–24
Webb, E.C., 5–6
Webb, F.C., 26–8
Webb, Prof. J.E., 27–5
Webb, Prof. J.S., 19–8
Webb, M.J., 63–15
Webb, R.A., 4–1
Webb, R.W., 96–1
Webber, J., 3–6
Webber, N.B., 69–5
Weber, G., 68–2
Webster, C.U., 63–31
Webster, D.E., 12–2
Webster, G.R., 30–13
Webster, J., 68–3
Webster, J.T., 11–3
Webster, R.G., 13–26
Webster, R.W., 107–6
Weddell, A.G.M., 63–3
Wedgwood, M.M. (Miss), 68–6
Weedon, Prof. B.C.L., 22–2
Weedon, D.S., 10–14
Weedy, B.M., 69–5
Weekes, K., 9–2, 9–9
Weeks, D.C., 66–4
Weeks, W.G.R., 7–1
Weidmann, S.M., 13–8
Weidmann, U., 18–9
Weigel, H., 23–2
Weinberg, F.J., 19–4
Weinbren, I., 45–2, 45–6
Weinbren, K., 47–16
Weiner, J.S., 63–3
Weiner, W., 3–22
Weinmann, A., 14–7
Weinstock, M. (Miss), 55–10
Weintroub, S., 69–9
Weipers, M. (Mrs.), 10–29
Weipers, Prof. W.L., 10–29
Weir, A.J., 10–27
Weir, A.J., 22–6
Weir, D.G., 11–5
Weir, D.S., 67–2
Weir, J.A., 66–7
Weir, R.D., 1–22
Weiskrantz, L., 5–25
Weiss, Prof. J.J., 7–6
Weitz, B.G.F., 46–5
Weitzman, D., 53–4
Welbourn, D.B., 5–11
Welbourn, Prof. R.B., 2–22
Welch, A.J.E., 19–3
Welch, B.L., 13–14
Welding, G.N., 98–1
Welford, A.T., 5–25
Welford, W.T., 19–14
Wellicome, J.F., 7–9
Wells, Prof. C.A., 15–30
Wells, C.F., 3–6
Wells, F.R., 63–32
Wells, G.C., 36–1
Wells, Prof. G.P., 26–23
Wells, J., 79–3
Wells, J.B.J., 18–9
Wells, M.J., 5–28
Wells, M.K., 26–14
Wells, P.B., 12–2
Welsby, V.G., 3–9
Werth, I. (Miss), 13–35
Wertheim, R.A.P., 97–1
Wesley, A., 13–6
West, D.R.F., 19–10
West, G.B., 25–4
West, H.F., 68–14
West, J.M., 68–15
West, R.G., 5–8
West, T.S., 3–6
Westcott, Prof. J.H., 19–6
Western, Prof. J.H., 13–1
Westmacott, I. (Miss), 4–18
Westoll, Prof. T.S., 7–11
Weston, G.J., 79–2
Weston, Prof. J.D., 74–6
Weston, M., 6–2
Westwood, J.V., 112–2
Wetherill, G.B., 18–8
Weyman, J. (Miss), 7–7
Whaler, B.C., 21–7
Whalley, Prof. W.B., 25–1
Wheeler, B.E.J., 19–2
Wheeler, C.B., 19–14
Wheeler, D.J., 5–17
Wheeler, E.J., 83–5
Wheeler, P.T., 62–6
Whelan, M.J., 5–23
Whelan, W.J., 46–1
Whetham, E.H. (Miss), 5–1
Whetnall, E. (Miss), 38–2
Whewell, Prof. C.S., 13–32
Whichelow, M.J. (Miss), 30–9
Whimster, I.W., 56–6
Whitaker, J.H.M., 14–6
Whitaker, P.H., 15–29
Whitby, L.G., 5–6
White, A.J., 1–11
White, Prof. C.M., 19–5
White, D., 13–32
White, D., 54–7
White, D.C., 12–7
White, D.J., 3–9
White, D.J.B., 26–6

White, E., 15–33
White, Prof. E.G., 15–32
White, F., 63–14
White, G.B., 116–2
White, Prof. J., 68–29
White, J.B., 60–4
White, J.C., 40–3, 50–4
White, J.G., 2–19
White, K., 3–24
White, M., 80–3
White, M.M. (Miss), 52–9
White, O.M., 87–2
White, P., 64–9
White, R., 11–3
White, R.F.M., 112–2
White, R.G., 47–10, 47–16
Whitear, M. (Miss), 26–23
Whitehead, B., 15–5
Whitehead, D.C., 28–3
Whitehead, D.S., 5–11
Whitehead, F.H., 19–2
Whitehead, F.I.H., 3–7
Whitehead, J.K., 49–9
Whitehead, L.G., 22–3
Whitehead, M., 63–31
Whitehead, R., 110–1
Whitehead, R.W., 60–4
Whitehouse, H.L.K., 5–8
Whitehouse, M.W., 63–7
Whitehurst, J.S., 9–5
Whiteley, H.J., 75–7
Whiter, P.F., 116–2
Whiteside, C.G., 38–7
Whitfield, A.G.W., 3–14
Whitfield, E.V., 14–7
Whitfield, Prof. G.A., 85–4
Whitfield, I.C., 3–24
Whitfield, J.W., 26–21
Whitham, G.H., 3–6
Whiting, G.C., 4–1
Whiting, H.P., 4–30
Whiting, M.C., 63–10
Whitmore, R.L., 62–11
Whitmore, T.C., 69–2
Whitney, J.C., 8–34
Whitrow, G.J., 19–9
Whittaker, D., 15–8
Whittaker, M., 20–2
Whittaker, R., 94–5
Whittaker, V.N., 77–4
Whittam, R., 63–7
Whittard, Prof. W.F., 4–10
Whitteridge, Prof. D., 8–27
Whittingham Prof. C.P., 22–1
Whittington, B., 13–1
Whittington, R.B., 15–8
Whittington, W.J., 62–1
Whittle, E., 73–5
Whittle, Prof. P., 59–39
Whittle, R.J.M., 53–21
Whittlestone, P., 5–27
Whittow, J.B., 64–6
Whitworth, T., 6–4
Whyte, A.G.D., 1–2
Whyte, F., 10–14
Whyte, M.B.H. (Miss), 13–26
Wibberley, D.G., 113–6
Wibberley, G.P., 28–4
Wicks, D.C., 81–4
Widdas, Prof. W.F., 17–7
Widdicombe, J.G., 63–27
Widdis, F.C., 101–2
Widdowson, E.M. (Miss), 5–18
Wiegold, J., 60–6
Wielogorski, J.W., 76–2
Wiggins, H.S., 52–8
Wigglesworth, J., 57–6
Wigglesworth, L.A., 26–16
Wigglesworth, Prof. V.B., 5–28
Wightman, W.P.D., 1–10
Wignall, J.S., 109–1, 109–2, 109–4, 109–5, 109–6
Wigoder, S.B. (Miss), 7–27
Wilby, C.B., 68–8
Wilcock, W.L., 19–14
Wilcockson, W.H., 68–12
Wilcox, J.B., 104–3
Wild, A., 64–3
Wild, D.G., 13–4
Wild, E., 59–16
Wild, F., 5–18
Wilde, W.K., 103–1
Wildy, P., 10–18
Wilkes, M.V., 5–17
Wilkie, D., 26–6
Wilkie, D.R., 26–20
Wilkie, J.S., 26–15
Wilkie, K.C.B., 1–5
Wilkie, T.F., 63–32
Wilkins, D.A., 3–5
Wilkins, J.M. (Miss), 49–2
Wilkins, M., 20–4
Wilkins, R.G., 68–5
Wilkinson, Prof. A.W., 34–5
Wilkinson, Prof. D.H., 63–26
Wilkinson, E., 1–6
Wilkinson, E.H., 28–6
Wilkinson, Prof. G., 19–3
Wilkinson, G.R., 20–11
Wilkinson, Prof. H.R., 12–3
Wilkinson, J., 9–3
Wilkinson, J., 74–6
Wilkinson, J., 110–1
Wilkinson, J.E., 13–15
Wilkinson, J.F., 8–18
Wilkinson, J.F., 59–15
Wilkinson, J.H., 58–2
Wilkinson, J.H., 76–3
Wilkinson, J.S., 24–5
Wilkinson, M., 29–3
Wilkinson, M.I.P. (Miss), 52–8
Wilkinson, M.P. (Mrs.), 52–8
Wilkinson, P., 68–12
Wilkinson, P.C., 47–10
Wilkinson, R.H., 63–7
Wilkinson, W.J.C., 68–1

Wilks, J., 1–15
Wilks, J., 63–26
Wilks, S., 113–7
Willan, J.C., 56–5
Willcox, J.S., 13–1
Willett, F.J., 5–11
Willett, R., 43–5
Willetts, A.K., 104–2
Williams, Prof. A., 2–10
Williams, A., 59–11
Williams, A.H., 4–1
Williams, A.J.S., 70–4
Williams, A.W., 8–24
Williams, B.J., 103–1
Williams, C.G., 109–3
Williams, C.J.H., 3–9
Williams, Prof. D., 19–8
Williams, D., 39–6, 54–4
Williams, D.A., 75–3
Williams, D.E.G., 62–13
Williams, D.G., 10–16
Williams, D.I., 34–5, 44–1
Williams, D.I., 45–4
Williams, D.K., 53–10
Williams, Prof. E., 73–6
Williams, E.D., 47–16
Williams, E.J., 8–5
Williams, E.S., 49–9
Williams, Prof. F.C., 59–11
Williams, F.T., 68–17
Williams, G., 2–24
Williams, G., 59–28
Williams, G., 64–13
Williams, G.H., 18–2
Williams, G.L., 63–1
Williams, G.L., 72–1
Williams, G.M.E., 101–2
Williams, H., 112–2
Williams, H., 114–5
Williams, H.H., 73–14
Williams, H.L., 24–2
Williams, H.L., 81–2
Williams, I.C., 12–7
Williams, I.G., 53–21
Williams, I.H., 28–5
Williams, J., 9–8
Williams, J.A., 3–27
Williams, J.C., 19–7
Williams, J.O., 94–3
Williams, J.S., 81–3
Williams, K., 32–1
Williams, K.L., 49–12
Williams, L.H., 116–1
Williams, M.A. (Mrs.), 73–4
Williams, N.R., 18–2
Williams, P.L., 30–2
Williams, R., 114–1
Williams, Prof. R.E.O., 55–7
Williams, R.F., 56–5
Williams, R.J., 9–5
Williams, R.J.P., 63–10
Williams, R.R., 4–1
Williams, Prof. R.T., 55–2
Williams, S., 10–6
Williams, S.R., 30–1
Williams, T.D., 4–22
Williams, T.E.H., 7–9
Williams, T.H., 59–2
Williams, T.J., 20–6
Williams, T.J., 109–3
Williams, T.R., 16–1
Williams, T.R.G., 69–5
Williams, Prof. W., 7–1
Williams, W.D., 11–8
Williams, W.E., 15–14
Williams, W.J., 81–2
Williams, W.M., 61–4
Williams, W.S.C., 63–26
Williams, Prof. W.T., 69–2
Williams, W.W., 5–14
Williamson, D.I., 15–13
Williamson, E.M. (Miss), 6–6
Williamson, J.H., 5–17
Williamson, N.W., 60–4
Williamson, R.H., 92–1
Williamson, R.L., 67–4
Willimott, S.G., 6–3
Willis, A.J., 4–5
Willis, A.T., 13–17
Willis, E.H., 5–8
Willis, J., 2–16
Willis, J.B., 69–8
Willis, M.R., 62–3
Willis, R.J., 2–1
Willmer, E.N., 5–24
Willmore, A.P., 26–19
Willmore, T.J., 15–14
Willmott, J.C., 15–24
Wills, E.D., 53–3
Wills, R.F., 3–9
Wilman, H., 19–4
Wilmers, M. (Miss), 45–11
Wilmshurst, T.H., 69–4
Wilshire, B., 74–7
Wilson, Prof. A., 15–23
Wilson, A.A., 5–27
Wilson, A.B., 20–10
Wilson, A.H., 13–26
Wilson, Prof. A.J.C., 73–11
Wilson, A.M., 4–3
Wilson, C., 87–1
Wilson, Prof. C., 47–9
Wilson, C.D.V., 15–11
Wilson, Prof. C.L., 2–6
Wilson, C.P., 49–6
Wilson, C.W., 58–3
Wilson, C.W.M., 15–23
Wilson, D., 4–1
Wilson, D., 79–7
Wilson, D., 90–4
Wilson, D.H., 6–5
Wilson, D.M., 8–10
Wilson, D.V., 3–15
Wilson, D.V., 79–2
Wilson, D.W., 112–2
Wilson, E.A. (Miss), 10–25

Wilson, E.V.B., 2-1
Wilson, G., 19-8
Wilson, G.A., 110-3
Wilson, Prof. G.M., 68-21
Wilson, H., 15-23
Wilson, H.E.C., 10-21
Wilson, H.E., 47-6
Wilson, H.J., 59-10
Wilson, H.R., 67-16
Wilson, I.M. (Miss), 70-3
Wilson, J., 11-1
Wilson, J.E., 14-8
Wilson, Prof. J.G., 13-24
Wilson, J.M., 94-2
Wilson, J.P., 61-3
Wilson, J.R., 3-15
Wilson, K., 18-1
Wilson, K.B., 77-2
Wilson, M.J.G., 19-4
Wilson, P.A.G., 8-35
Wilson, R.L., 19-14
Wilson, S.S., 63-11
Wilson, Prof. W.C., 1-25
Wilton, B., 5-1
Wiltshaw, E. (Miss), 32-1
Windeyer, Prof. Sir B., 49-11
Wing, J. K., 43-4
Winner, H.I., 29-3, 29-6
Winsten, C.B., 19-9
Winter, G.B., 51-2
Winter, R.W., 83-1
Winter, T., 7-1
Wise, B., 63-11
Wiseman, D., 79-5
Wiseman, G., 68-23
Wishart, D.M.G., 3-13
Witherick, M.E., 22-4
Withers, R.F.J., 49-3
Withey, J.L., 75-2, 75-7
Witts, Prof. L.J., 63-18
Wofinden, Prof. R.C., 4-25
Wohlfarth, E.P., 19-9
Wolf, J., 13-1
Wolf, P.O., 19-5
Wolf, W.P., 63-26
Wolfendale, A.W., 6-6
Wolfenden, K., 13-14
Wolff, B.W. (Miss), 30-17
Wolff, O.H., 3-21
Wollman, D.C., 59-5
Wolpert, L., 20-13
Wolstencroft, J.H., 3-25
Womersley, R.A., 2-12
Wong, H.Y., 10-10
Woo, D.M., 68-8
Wood, Prof. A., 70-6
Wood, A.G. (Miss), 79-5
Wood, B.S.B., 3-21
Wood, B.T., 70-5
Wood, C.H., 48-5
Wood, C.J., 63-11
Wood, D.N., 13-13
Wood, Prof. D.R., 13-23
Wood, D.W., 6-8
Wood, E.A.M., 13-26
Wood, E.C., 40-3
Wood, G.C., 59-38
Wood, H.C.S., 11-2
Wood, J.H., 79-3
Wood, J.L., 19-3
Wood, M.D., 5-11
Wood, P.D., 64-6
Wood, P.H., 33-1
Wood, P.J., 7-23
Wood, R.K.S., 19-2
Wood, R.M., 74-3
Wood, S.R., 3-22
Wood, W.G., 19-7
Wood, W.S., 11-3
Wood-Baker, C.S., 116-1
Woodbine, M., 62-1
Woodcock, A.S., 15-18
Woodcock, D., 4-1
Woodell, S.R.J., 63-9
Woodfield-Davies, H., 50-1
Woodgate, G.K., 63-26
Woodhead, H.B., 59-30
Woodhead, J.H., 68-15
Woodhead, N., 72-3
Woodhouse, D.L., 3-22
Woodin, A.M., 63-24
Wooding, E.R., 70-8
Woodmansey, A., 13-15
Woodrow, J.C., 15-15
Woodrow, R.A., 76-2
Woodruff, Prof. A.W., 48-11
Woodruff, Prof. M.F.A., 8-32
Woods, Prof. D.D., 63-7
Woods, G. (Mrs)., 4-18, 4-23
Woods, H.J., 13-32
Woods, J., 6-6
Woods, L.C., 63-11
Woods, W.A., 15-8
Woodside, W., 87-1
Woodward, I. (Miss), 2-6
Woodward, J.B., 3-23
Woodward, J.W., 3-1
Woodward, L.A., 63-10
Woodward, P., 4-6
Wooldridge, Prof. S.W., 20-7
Wooler, G.H., 13-31
Woolf, B., 8-13
Woolfson, M.M., 60-7
Woollam, D.H.M., 5-2
Woollen, J.W., 42-1
Woolley, J.C., 62-13
Wootton, H.J., 13-10
Wootton, I.D.P., 50-7
Wootton, L.M., 107-1
Wootton, R.J., 9-11
Worgan, J.T., 97-2
Wormald, J.R., 15-24
Wormall, Prof. A., 53-3
Wormell, R.L., 3-6
Wormell, T.W., 5-23
Worrall, I.J., 66-5

Worrall, W.E., 13–32
Worsley, L.M. (Miss), 49–2
Worsnop, B.R., 30–15
Worthy, T.S., 49–11
Wragg, A., 110–3
Wragg, S.R., 4–1
Wraith, A.E., 7–14
Wray, G.R., 60–8
Wren, M.J. (Miss), 13–1
Wright, A., 62–4
Wright, A.D., 2–10
Wright, A.F., 10–14
Wright, A.I., 4–29
Wright, A.J., 116–2
Wright, C.E., 2–1
Wright, C.V., 79–2
Wright, Prof. D.A., 6–6
Wright, D.E., 7–24
Wright, E.A., 55–9
Wright, E.H., 3–9
Wright, E.M. (Miss), 13–1
Wright, Prof. E.M., 1–11
Wright, G.H., 5–2
Wright, G.H., 17–7
Wright, Prof. G.P., 30–13
Wright, G.T., 3–9
Wright, J., 7–9
Wright, J., 15–2
Wright, J.C., 77–4
Wright, Prof. J.G., 15–32
Wright, J.W., 60–5
Wright, M., 63–31
Wright, M.S. (Miss), 8–30
Wright, P., 72–9
Wright, P.G., 67–2
Wright, P.H., 30–13
Wright, S.T.C., 28–3
Wright, T., 3–15
Wright, V., 13–15
Wright, Prof. W.D., 19–14
Wrighton, R.F., 3–26
Wrigley, E.A., 5–14
Wrong, O.M., 50–5
Wroth, C.P., 5–11
Wyard, S.J., 30–15
Wyatt, A.P., 53–23
Wyatt, D.G., 63–18
Wyatt, P.A.H., 68–5
Wybar, K.C., 41–3, 41–4
Wyburn, Prof. G.M., 10–2
Wyke, B.D., 31–4
Wyke, M. (Mrs.), 39–7
Wylie, J.A.H., 32–1
Wylie, T.S., 11–9
Wyllie, G.A.P., 10–24
Wynn, C.H., 59–38
Wynn, V., 55–13
Wynne, A.J., 13–1
Wynne, C.G., 19–14
Wynne, N.A., 7–22
Wynne-Edwards, Prof. V.C., 1–26
Wynne-Jones, Prof. W.F.K., 7–6
Wyvill, P.L., 102–2
Yapp, W.B., 3–28
Yardley, H.J., 3–22
Yarwood, J., 107–5
Yates, B., 79–6
Yates, B. (Miss), 110–4
Yates, B.G. (Miss), 23–3
Yates, E.M., 20–7
Yates, P.O., 59–21, 59–28
Yates, R.A., 70–5
Yates-Bell, J.G., 45–14
Yeats, J.J., 4–29
Yemm, Prof. E.W., 4–4, 4–5
Yeo, P.F., 5–8
Yeoman, M.M., 8–6
Yettram, A.L., 13–10
Yoffe, A.D., 5–23
Yoffey, Prof. J.M., 4–3
Yonge, Prof. C.M., 10–30
Yorke, R., 69–5
Youell, R.F., 13–24
Young, A., 10–2
Young, A., 15–14
Young, Prof. A.D., 22–3
Young, A.J., 13–26
Young, B.A., 47–1
Young, D.A., 19–4
Young, D.S., 13–2
Young, D.W., 67–16
Young, E.G., 5–1
Young, Prof. F.G., 5–6
Young, G.T., 63–10
Young, J.C., 70–4
Young, J.H., 60–8
Young, J.S., 101–2
Young, Prof. J.S., 1–16
Young, Prof. J.Z., 26–1
Young, Prof. L., 56–2
Young, M.R. (Miss), 62–14
Younger, A., 85–5
Yu, C.W., 19–5
Yudkin, Prof. J., 21–5
Yuill, S.A. (Miss), 10–25
Yule, W.N., 62–1
Zaczek, B.J., 76–2
Zaimis, Prof. E., 52–12
Zaini, M.A., 16–1
Zangwill, Prof. O.L., 5–25, 39–7
Zarek, J.M., 20–6
Zaremba, S.K., 74–6
Zarzycki, J.M., 78–4
Zatman, L.J., 64–10
Zeeman, E.C., 5–17
Zepler, Prof. E.E., 69–4
Zienau, S., 26–19
Zienkiewicz, H.K., 59–31
Zienkiewicz, Prof. O.C., 74–3
Zilva, J.F. (Miss), 58–2
Ziman, J.M., 5–23
Zinnemann, K., 13–17
Zoob, M., 29–3
Zucker, I.J., 76–5
Zuckerman, Prof. Sir S., 3–2
Zussman, J., 59–14

Index of Subject Headings used in the Text*

Aerodynamics, 85, *see also* aeronautics, aerodynamics
  aerofoil characteristics, 85
  data recording, 85
  fluid mechanics, 85, *see also* engineering, fluid mechanics
Aeronautics, 19, *see also* engineering, aeronautics, etc.
  aerodynamics, 19
  structures, 19
Agriculture, 1, 2, 4, 5, 7 to 10, 13, 28, 62 to 64, 70, 72
  agricultural botany, 2, 7, 8, 10, 13, 62, 64, 70, 72
  agricultural chemistry, 2, 7, 8, 10, 13, 62, 72, *see also* chemistry, agricultural
  agricultural economics, 2, 4, 7, 9, 13, 62 to 64, 70
  agricultural engineering, 7
  agricultural entomology, 7
  agricultural and forest zoology, 72
  agricultural microbiology, 2, 8, 13, 62
  agricultural zoology, 2, 8, 10, 13, 28, 62
  agronomy, 63, 71
  animal health, 70
  animal husbandry, 2, 70, *see also* veterinary studies, animal husbandry
  comparative pathology of animals, 2
  crop husbandry, 2, 70
  dairying, 70
  mycology and plant pathology, 2, *see also* botany, mycology, plant pathology
  plant genetics and plant breeding, 2
  poultry research, 28
  soil science, 63, 72
Anaesthetics, 2 to 4, 7, 13, 15, 30, 35, 45, 50, 52 to 54, 59, 63, 75
Anatomy, 1 to 5, 7, 8, 10, 13, 15, 20, 26, 29, 30, 31, 38, 47, 49, 51 to 53, 55, 56, 59, 63, 66 to 68, 73
  human, 63
  oral, 47, 51
Anthropology, 5, 7, 63
  social, 63
Archaeology, 5, 59, 63, 73
Architecture, *see* building studies, architecture and surveying
Astronomy, 5, 8 to 10, 26, 59, 63, 66
  astrophysics, 5
  radioastronomy, 59
Audiology, 38, 59
Bacteriology, *see* microbiology, bacteriology
Biochemistry, 1 to 5, 8, 10, 13 to 15, 20, 26, 29, 30, 35, 43, 46 to 50, 52, 53, 55, 56, 59, 60, 63, 65, 66, 68 to 70, 72, 73, 83, 84, 90, 107, *see also* botany, biochemistry; chemistry, biological
  agricultural, 1, 70, 72
  brewing and applied, 90
  clinical, 10, 63
  experimental, 47
  medical, 3
  radiobiochemistry, 65
Biological sciences, 79
Biology, 5, 21, 30, 49, 52, 55, 56, 61, 79, 81, 93, 94, 102, 104, 106, 108, 116
Biometry, 26, 63
Biomolecular structure, 13
Biophysics, 8, 20, 26, 46, 50
Botany, 1 to 10, 12 to 15, 17 to 20, 22, 23, 26 to 28, 59, 62 to 64, 66, 68 to 70, 72 to 74, 84, 107, 112, *see also* agriculture, agricultural botany, etc.
  biochemistry, 19
  cryptogamic, 59
  ecology, 19
  microbiology, bacteriology, 19
  mycology, 19
  plant pathology, 19, 71
  plant physiology, 19, 28
  plant technology, 19
  taxonomy, 19
Building studies, 11, 15, 60, 82, 90
  architecture and surveying, 82
Cancer research, 9, 32, 47, *see also* pathology, cancer research
Cardiology, 33, 45, 47, 52 to 54, 59, 68
Chemistry, 1 to 15, 17 to 28, 30, 52, 59 to 74, 76, 77, 79 to 81, 83 to 85, 87 to 95, 101 to 110, 112 to 116
  agricultural, 19, *see also* agriculture, agricultural chemistry
  analytical, 3, 103
  applied, 101, 103
  bacterial, 3
  biological, 3, 83, 103
  biophysical, 84
  chemical crystallography, 63, 109
  chemical spectroscopy, 5, 76
  clinical, 8

* 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

Chemistry (*continued*)
colour chemistry and dyeing, 13
industrial, 95
inorganic, 1 to 5, 7, 8, 10, 11, 13, 15, 18, 19, 59, 60, 62, 63, 67, 68, 76, 84
metallurgy, 83
organic, 1 to 5, 7, 8, 10, 11, 13, 15, 18, 19, 59, 60, 62, 63, 67, 68, 84, 85, 103
pharmaceutical, 25, 62
physical, 1 to 5, 7, 8, 10, 11, 13, 15, 18, 19, 59, 60, 62, 63, 67, 68, 76, 84, 103
physiological, 64
radiation, 7
radiochemistry, 6, 93, 103
structural, 13
theoretical, 5
Chest diseases, 8, 37, 47, 75
Clinical research, 29, 40, 57
Colloid science, 5
Communication, 61
Cytology, 71
Dairy husbandry, 65
Dairy products, 65
Dairying, 64, 65, *see also* agriculture, dairying
Deaf education, 59
Dental studies, 2 to 4, 7, 8, 10, 13, 15, 30, 35, 45, 47, 51, 53, 57, 59, 67, 68
children, 35, 51
clinical surgery, 3
conservative, 35, 47, 51
medicine, 4
oral anatomy and histology, 68
orthodontics, 30, 35, 47, 51, 68
pathology, 3, 35, 51, 68
periodontology, 35, 51
preventive dentistry, 30, 59
prosthetics, 3, 30, 35, 47, 51, 59, 68
surgery, 4, 35, 51, 68
Dermatology, 7, 8, 10, 13, 36, 45, 47, 52, 53, 68
Documentation, 85
information retrieval, 85
Economics, 28, 64, *see also* agriculture, agricultural economics
Electronics, 69, *see also* engineering, electronic
Endocrinology, 3, 30, 40
clinical, 3
fertility studies, 40
Engineering, 1 to 5, 7, 8, 10, 11, 13 to 15, 19, 20, 22, 26, 59, 60, 62, 63, 65, 67 to 69, 72 to 74, 76 to 83, 85, 86, 88, 90 to 92, 94 to 97, 101, 104 to 110, 113, 114, 116
aeronautical, 2, 4, 5, 22, 69, 81, 95, 101
aeronautics and fluid mechanics, 10
aircraft, 85
applied mechanics, 5, 19, 68
applied thermodynamics, 5

Engineering (*continued*)
astronautical, 69
automobile, 86, 95
building, 80, 82, 104, 110
chemical, 3, 5, 7, 8, 11, 13, 19, 20, 26, 60, 62, 74, 76, 79, 90, 95
civil, 2 to 4, 7, 8, 10, 11, 13, 15, 19, 20, 22, 26, 59, 62, 67 to 69, 73, 74, 76, 77, 79, 80, 90, 95, 101, 104, 107, 108, 110, 113, 116
coastal engineering, 26
concrete technology and structures, 19, 26
control, 5, 101
electrical, 2 to 5, 7, 8, 10, 11, 13, 15, 19, 20, 22, 26, 59, 60, 62, 67 to 69, 73, 74, 76 to 79, 81, 83, 85, 94, 95, 101, 104, 107 to 110, 113, 114, 116
electronic, 72, 83
engineering hydrology, 19
fan, 96
fluid mechanics, 5, 15, 19
food, and processing, 97
heat transfer and combustion, 19
heating and ventilation, 96
highways, 19
hydraulic engineering, 19
hydromechanics, *see* fluid mechanics
industrial management, 5
marine, 7, 94
mechanical, 2 to 4, 7, 8, 10, 11, 13, 15, 19, 20, 22, 26, 59, 60, 62, 67 to 69, 73, 74, 76 to 80, 83, 85, 88, 90, 91, 94, 95, 101, 104 to 110, 113, 116
mechanics and mechanism, 10
metallurgy, 81
mining, 7, 10
municipal, 60
naval architecture, 7, 10, 11, 113
nuclear, 22, 59
nuclear power, 19
photoelasticity, 26
production, 3, 85, 94, 101, 116
public health, 19, 26
refrigeration, 96
soil mechanics, 5, 19
structural, 19, 60, 82
structure and materials, 5
technology, 101
theoretical mechanics, 4, *see also* mathematics, theoretical mechanics
traffic, 26
Entomology, 16, 48, 63, *see also* agriculture, agricultural entomology; zoology, entomology
Ethnology and prehistory, 63
Feeding and metabolism, 65
Food science, 11, 62, 97
Forensic medicine, 8, 10, 13, 30, 68

Forestry, 1, 8, 63, 72
Genetics, 3, 5, 8, 10, 15, 26, 34, 46, 59, 68, 71
  animal, 8
  cytogenetics, 59
  human, 26, 46
Geodesy and geophysics, 5, *see also* geology, geophysics; mathematics, geophysics
Geography, 1 to 10, 12 to 15, 17, 18, 20, 22, 26, 59, 61 to 64, 66, 68 to 70, 74, 114
Geology, 1 to 10, 12 to 15, 17 to 20, 22, 26, 59, 61 to 64, 66 to 70, 73, 74, 84, 112, 113
  geochemistry, 19
  geophysics, 19
  mining, 19
  oil, 19
Glaucoma research, 41
Haematology, 29, 34, 45, 46, 50, 52, 55, 59, 75
Histology, 15, 69
History and philosophy of science, 1, 26, 95
Hop research, 28
Horticulture, 4, 28, 62, 64
Human biological sciences, 95, *see also* biological sciences
  applied physiology, 95
  ergonomics (and cybernetics), 95
Human ecology, 5
Immunology, 46, 55
Industrial administration, 60
Infectious diseases, 10
Marine biology, 15, 72
Mathematics, 1 to 15, 17 to 23, 26, 27, 59, 60 to 64, 66 to 70, 72 to 74, 76 to 79, 81, 83, 84, 90, 93 to 95, 101, 102, 108 to 110, 112 to 114, 116
  applied, 2, 4, 5, 7, 9, 15, 59, 68, to 70, 72, 74
  computation, 7, 10, 13, 69
  engineering, 2
  geophysics, 2
  pure, 2, 4, 5, 7, 9, 15, 59, 68 to 70, 72, 74
  statistics, 5, 7
  theoretical mechanics, 62, *see also* engineering, theoretical mechanics
Medicine, 1 to 5, 7, 8, 10, 13, 15, 29, 30, 34, 38, 45, 47, 49, 50, 52 to 57, 59, 63, 67, 68, 75
  clinical, 2, 13, 63
  experimental, 5, 30
  medical physics, 13, *see also* physics, medical physics
  physical medicine, 38
Metallurgy, 3, 5, 7, 11, 13, 15, 19, 59, 62, 63, 68, 73, 74, 76 to 78, 85, 99, 104, 109, 112, *see also* chemistry, metallurgy; engineering, metallurgy
  chemical, 19
  industrial, 3
  metal physics, 85
  process engineering, 19
  physical, 3, 19
Meteorology, 19
  dynamical meteorology and climatology,19
  oceanography, 19
Microbiology, 1 to 4, 7, 8, 10, 11, 13, 15, 21, 29, 30, 35, 45 to 48, 50, 55, 56 to 59, 64, 65, 67, 68, 75, *see also* agriculture, agricultural microbiology; botany, microbiology; pharmaceutics, microbiology; veterinary studies, microbiology
  applied, 11,
  bacteriology, 1 to 4, 7, 8, 10, 13, 15, 29, 30, 35, 45, 47, 50, 55 to 59, 65, 67, 68
  chemical, 65
  mycology, 2
  virology, 2, 10, 46, 68
Mineral technology, 19
Mineralogy, 1, 5, 63
Mining, 3, 8, 13, 19, 62, 68, 73, 90, 104, *see also* engineering, mining; geology, mining
Neurology, 8, 39, 45, 47, 53, 54, 59
  academic, 39
  clinical, 39
  surgical, 8
Neuro-ophthalmology, 39, 41
Neurosurgery, 3, 39, 47, 53, 54, 59, 63
Nutrition, 21, 48, 65
  human, 48
Obstetrics and gynaecology, 1 to 4, 7, 8, 10, 13, 15, 29, 30, 40, 45, 52, 53, 57, 59, 63, 67, 68, 75
  fertility studies, 40, 52
Occupational health, 7, 48, 59
  industrial, 7
Oceanography, 15, *see also* meteorology, oceanography
Ophthalmic optics, 101
Ophthalmology, 4, 10, 13, 15, 41, 45, 47, 53, 59, 63, 67
  clinical, 41
Orthopaedics, 7, 8, 42, 49, 53, 59, 63, 67
Otolaryngology, 3, 38, 53, 59
Otology, 38, 39, 45
Otorhinolaryngology, 4, 7, 38, 47, 49, 67
  clinical, 38
Paediatrics and child health, 1 to 4, 7, 8, 10, 13, 15, 30, 34, 40, 47, 52, 53 to 55, 59, 67, 68, 75

Parasitology, 5, 16, 48
helminthology, 48
protozoology, 48
Pathology, 1 to 5, 7, 8, 10, 13, 15, 29 to 31, 34, 38 to 41, 43, 45 to 47, 49 to 59, 63, 67, 68, 75
cancer research, 13
chemical, 7, 13, 29, 30, 34, 39, 45, 50, 55, 56 to 58
clinical, 30, 57, 58
experimental, 3, 13, 46
histopathology, 47
neuropathology, 43
Pharmaceutics, 25, 62, 79
engineering, 25
microbiology, 25, 79
physical pharmacy, 25
Pharmacognosy, 25, 62, 79
Pharmacology and therapeutics, 1, 4, 5, 7, 8, 10, 13, 15, 20, 25, 26, 29 to 31, 47, 49, 52, 53, 55, 56, 59, 62, 63, 67, 68, 75, 79, 84, 93, 108
experimental, 10
Pharmacy, 11, 25, 59, 62, 77, 79 to 81, 84, 90, 93, 94, 106, 108, 113, 114
pharmaceutical chemistry, 62, 79
Photogrammetry and surveying, 26
Physics, 1 to 15, 17 to 23, 26, 27, 30, 32, 49, 50, 52, 55, 56, 58 to 70, 72 to 74, 76 to 81, 83 to 85, 87, 90, 92, 94, 101 to 104, 107 to 110, 112 to 116
absorption spectroscopy, 20
acoustics, 19
applied, 6
atmospherics, 20
cloud physics, 19
cosmic ray physics, 19
crystallography, 18
electron physics, 3, 19
experimental, 15, 59
high-energy nuclear, 19
high temperature, 19
instrument technology, 19
mathematical, 3, 8
medical, 13, 50, 58, 59, *see also* medicine, medical physics
nuclear medicine, 49
nuclear and solid state physics, 20
numerical automation, 18
polymer, 85
radiation, 53
rock magnetism, 19
spectroscopy, 19
technical optics, 19
telecommunications, 116
theoretical, 5, 7, 15, 19, 20, 59, 66
Physiology, 1 to 5, 7, 8, 10, 13, 15, 17, 20, 21, 26, 29 to 31, 38, 39, 41, 43, 47 to 49, 52, 53, 55, 56, 59, 63, 65, 66 to 69, 73, 84
applied, 39, 48, 95
Physiology (*continued*)
clinical neurophysiology, 43
neuroendocrinology, 43
physiological optics, 41
Plant breeding, 71, *see also* agriculture, plant genetics and plant breeding
Psychiatry, 1 to 4, 7, 8, 10, 13, 15, 39, 43, 52 to 54, 59, 68
experimental, 3
Psychology, 1, 2, 4, 5, 6, 8 to 10, 13 to 15, 17, 18, 26, 43, 59, 61, 63, 64, 66, 83
experimental, 63
occupational, 18
Public health and preventive medicine, 7, 13, 48, 68
Public health and social medicine, 1, 2, 4, 8, 15, 59, 63, 67
Radiobiology, 59
Radiodiagnosis, 4, 13, 15, 38, 50, 51, 53
Radiotherapy, 4, 5, 7, 8, 32, 47, 49, 52, 53, 59, 67, 68
Rheumatism research, 59
Social medicine, 3, 75, *see also* public health and preventive medicine; public health and social medicine
Soil science, 1, *see also* agriculture, soil science
Statistics, 1, 7, 18, 26, 48, 53, 59, 63, 65, 68, *see also* mathematics, statistics
epidemiology, 48
mathematical, 7, 59
medical, 48, 53
Surgery, 1 to 4, 7, 8, 10, 13, 15, 29, 30, 34, 35, 41, 45, 47, 49, 50 to 57, 59, 63, 67, 68, 75
cardiac, 49
clinical, 8
oral, 35, 51
plastic, 63
thoracic, 13, 30, 47, 49
Technology, 2, 11, 13, 60, 68, 73, 78, 79, 85, 91, 98, 100, 103, 104, 111, *see also* engineering, technology
ceramics, 13, 103
chemical, 2, 11, 78
food, 13, 78
fuel, 13, 68, 73, 85
gas engineering, 13
glass, 68
leather, 13, 100
polymers, 98
refractories, 68
textile, 2, 11, 13, 60, 79, 91, 104, 111
textile chemistry and paper technology, 60
Tropical hygiene, 48
Tropical medicine, 16, 48
clinical, 48
Tuberculosis and chest diseases, 8, 37, 47, 75

Urology, 13, 44, 45
Venereology, 7, 15, 47, 53
Veterinary studies, 4, 5, 8, 10, 13, 15, 24
  anatomy, 4, 5, 8, 15, 24
  animal husbandry, 4, 10, 15, 24, *see also* agriculture, animal husbandry
  clinical studies, 5, 15
  hygiene, 8, 24
  medicine, 4, 8, 24
  microbiology and poultry diseases, 8
  pathology, 5, 8, 10, 15, 24
  pharmacology, 8
  physiology, 8, 24
Veterinary studies (*continued*)
  preventive medicine, 8, 10, 15
  surgery, 4, 24
Zoology, 1 to 10, 12 to 15, 17 to 20, 22, 23, 26, 27, 53, 59, 62 to 64, 66 to 70, 72 to 74, 84, 107, 112, *see also* agriculture, agricultural zoology
  animal behaviour, 5
  comparative anatomy, 53, 63
  comparative physiology, 3
  entomology, 5, 19
  field studies, 63
  natural history, 1, 66

Subject Index

Abdomen,
  decompression in labour, 40–3
  radiology in children, 54–6
  tumours, 10–19
Abilities, assessment, 5–25
Abnormalities, congenital, *see also under individual organs*, 1–2, 3–26, 15–21, 30–12, 43–2, 49–1, 54–6, 59–2, 63–32
  aetiology, 4–15, 15–30, 67–9
  genetic factors, 30–12
Abomasum, 24–7
Abortion, 29–7, 52–14, 59–33, 67–9
Abscesses, dental, 51–2
Absenteeism, 2–21
Absorption, 3–15, 5–11, 7–9, 25–2, 70–4, 81–2, 90–4, 93–2, 101–3, 101–5, 110–2
  chemical engineering, 20–6, 74–3
  from small intestine, 8–4, 63–7
  intestinal, 68–23
  sound, 13–10
Acanthocephala, 8–35
Acari, 52–4
Acarina, 18–9, 62–1, 104–1
Accidents,
  causes, 3–22, 15–28
  epidemiology, 1–22, 59–35, 75–9
  home, 15–28
  in childhood, 59–35
  injuries in, 8–30
  proneness, 6–7
  psychology, 26–21
  road, 67–18
  motor cycle, 4–25
Accommodation, visual, 101–4
Acenaphthene, 13–7
Acetabularia, 8–35
Acetals, sugar, 80–4
Acetic acid, 110–1, 112–2
Aceto-acetates, metabolism, 30–9
Acetoin, 13–4
Acetyl methyl carbinol, 13–26
Acetyl promazine, 53–19
Acetylation, 76–1
Acetylcholine, 3–14
  metabolism, 62–12
Acetylenes, 4–6, 10–7, 12–2, 19–4, 20–5, 22–2, 63–10, 116–2
Achilles tendon, jerk, 7–13
Acid base balance, 8–25, 50–1, 56–10
Acid base equilibria, 37–1
  chemistry, 4–6
Acidosis, hyperchloraemic, prevention, 55–13
Acids,
  strong, 60–3
  unsaturated, 15–3
Acoustics, *see also electro-acoustics, sound*, 7–23, 15–24, 60–7, 69–5, 69–9, 76–5, 104–5, 115–2, 116–5
  architectural, 22–7
  psychological, 3–9
  underwater, 3–9
Acrocomia, 21–1
Acromegaly, thyroid physiology in, 53–7
Acrylic implants, in anterior chamber of eye, 4–16
Acrylic resins, use in dentistry, 3–7, 7–7, 47–3
ACTH, *see* corticotrophin
Actinobacillosis, 8–34
Actinomyces, 35–4
  israeli, 1–3
Actinomycetes, 3–3
  oral, 15–7
Actinomycin D, 15–21
Acylation, 21–2, 23–2
Adaptation,
  environmental, 8–13, 14–10, 19–2, 62–14, 66–4
  psychology, 10–27, 63–28
  to heat and cold, 3–28
Addition compounds, 62–3
Adenine, 3–4
Adenitis, mesenteric, 10–28
Adenohypophysis, 52–12
Adenoidectomy, effects, 67–12
Adenoids, viral flora, 31–2
Adenoma, 54–4, 54–5
Adenoviruses, 10–28, 38–05
Adhesion, 79–2
Adie's syndrome, 41–2
Adiposity, *see also* obesity, 3–21
Adoption, 48–8
Adrenal cortex, diseases, 2–22
  function, 8–25
  in newborn, 67–13
  steroids, 15–21, 45–6, 53–4
Adrenal gland,
  anatomy and morphology, 15–2
  biochemistry, 10–5
  degenerative changes, 29–8
  disorders, 29–2, 34–3, 59–15
  function, 5–22
    in asthma, 45–6
    in children, 34–4
  in malignancy, 29–5
  insufficiency, 15–18, 29–3
  physiology, 8–21, 10–28, 20–1
  tumours, 53–15
Adrenal hormones, *see also* cortisone, 4–20, 5–6, 16–2, 34–3, 56–6, 58–2, 59–28, 68–21, 75–3, 75–8
  effect on water and electrolyte metabolism, 10–28
Adrenal steroids, 41–1, 45–12, 50–5

Adrenalectomy, 45–13
  for breast cancer, 30–9
  urinary steroids after, 30–17
Adrenaline, 29–10
  metabolism, 40–3
Adrenergic mechanisms, 30–14
Adrenocorticotrophin, *see also* corticotrophin, 10–22, 56–6, 75–8
Adreno-genital syndrome, 10–22
Adsorption, 2–6, 3–9, 4–6, 6–2, 7–14, 11–2, 11–10, 12–2, 13–18, 13–32, 19–3, 19–4, 19–13, 22–2, 23–2, 60–3, 60–4, 76–1, 83–1, 94–2, 103–1, 108–2, 110–1
Aerials, 3–9, 26–10, 60–4, 68–8
  microwave, 83–2
Aerodynamics, 2–8, 3–9, 4–8, 10–10, 13–14, 19–1, 22–3, 59–11, 62–9, 68–29, 69–5, 69–8, 70–7, 79–4, 81–3, 116–4
Aerofoils, 85–1
Aerosols, 76–1
Aesthetics,
  experimental, 10–27
  psychological aspects, 17–8
Afforestation, 2–5, 72–6
Africa
  agriculture, 28–4
  anthropology, 7–4, 63–4
  ethnology, 63–13
  flora, 18–1
  forests, 63–14
  geography, 1–8, 3–11, 5–14, 6–3, 9–6, 10–13, 15–10, 63–15, 64–6, 66–6, 68–11, 74–4
  geology, 8–15, 13–13, 15–11, 17–4, 19–8, 63–16, 68–12
  malnutrition in, 41–6
After-images, 101–5
Age,
  influence on body reaction, 75–7
  relation to health and activity, 48–8
Age hardening, metals, 19–10
Aged,
  care of, 1–22
  creative potentials, 4–23
  electroencephalogram in, 4–23
  mental aspects, 2–19, 43–4
  mental disorders, 7–25
  pathology, 2–16
  socio-medical survey, *see also* geriatrics, 7–25, 59–35, 68–25
Ageing,
  biology, 1–26, 3–2, 4–24, 26–23, 66–12
  connective tissue changes, 13–15
  effects on skin, 36–1
  metallurgy, 3–15, 11–6, 59–18
  neuropathology, 43–2
  occupational aspects, 15–27
  psychology, 5–25, 9–10, 15–27, 17–5
Aggregates, 77–4
Aggressiveness, psychology, 63–28
Agriculture,
  history, 13–1, 17–3
  primitive, 63–1
Agriolimax, 7–1
Agropyron, 7–1
Agrostis, 7–1
Agrostis, 7–1, 71–6, 72–1
Air, *see also* atmosphere,
  biology, 73–4
  night glow, 9–2
Aircraft,
  components, 92–2
  control, 2–8
  high lift, 5–11
  range, 81–4
  structures, aerodynamics, 10–10, 19–1, 22–2, 85–4
  undercarriages, 4–8
Albumin, 90–7
  metabolism, 52–8
  serum, 55–5
Albuminuria, 4–15, 30–11
Alchemy, 66–5
Alcoholism, 15–26
Alcohols,
  aromatic, 80–4
  iso-propyl, 95–2
  metabolism, 15–3, 59–32
  steroid urinary, 53–15
Aldehydes, 91–1
  autoxidation, 84–6
  co-polymers, 114–1
Aldolase, 15–21
Aldosterone, 34–3, 50–7, 57–3, 68–14
  antagonists, 7–13
Alethopteris, 68–12
Algae, 4–5, 5–8, 7–5, 8–5, 8–7, 9–11, 13–6, 15–4, 15–13, 17–1, 18–1, 20–4, 22–1, 23–1, 26–6, 27–1, 62–2, 64–10, 66–4, 72–3, 72–7, 73–4, 74–1, 83–1, 102–1, 106–2, 112–1
  culture, 15–4
  fossil, 6–4
Algebra, 1–11, 2–11, 3–13, 5–17, 8–16, 9–8, 10–16, 15–14, 20–9, 22–6, 63–17, 66–8, 68–13, 72–8, 73–8
Alginates,
  physical properties, 59–10
  use in dentistry, 59–10
Alicyclic compounds, 15–6, 19–3, 66–5
Alimentary tract, 84–9
  anaemia, 68–28
  congenital anomalies, 10–28
  disorders, 63–18
    adenoviruses and, 10–28
    iron metabolism, 47–8, 53–13
  electron microscopy, 10–2
  flora, 65–8
  functional anatomy, 24–1
  innervation, 10–25
  motility, 8–17

Alimentary tract (*continued*)
peripheral vascular reflexes, 8–32
physiology, 2–22, 4–18, 63–18
radio-telemetering, 8–17, 68–28
radiology, 50–9
soluble material of, 4–22
Alkaloids, 2–6, 3–6, 4–4, 5–9, 7–6, 11–2, 12–1, 24–3, 25–3, 59–9, 62–12, 63–10, 68–5
Alkanes, 60–3
Alkyl alkanesulphonates, 32–1
Alkyl sulphonic acids, 59–29
Alkylation, 21–2, 22–2, 32–1, 54–7, 59–29, 92–1
Alkyls, metal, 9–5
Allenes, 63–10, 116–62
Allergens, 3–22, 47–7, 55–7, 62–2
Allergic disorders, 55–7
Allergy, 3–20, 3–22, 75–3, 79–5
in children, 59–27
nasal aetiology, 4–17
respiratory, 45–6
Alloys, *see also individual metals*, 3–15, 5–19, 7–14, 11–6, 15–16, 20–6, 23–4, 60–4, 62–10, 63–19, 68–15, 68–22, 72–9, 73–9, 74–7, 76–4, 77–4, 85–5
aluminium, 3–15, 10–10, 19–7, 59–18, 62–4, 63–19, 73–9, 76–4, 80–3, 110–4
chromium, *see also* alloys, dental, 68–15
dental,
casting, 2–7
chromium-cobalt, 3–7
hensler alloys, 68–22
iron, *see also* steels, 15–16
silver, 15–16
zirconium, 7–14
Allylestrinol, 53–10
Allylidene, 78–5
Almoners, in childrens' hospital, 48–8
Alopecia, 45–4, 53–6
Alternaria longipes, 19–2
Alumina, 13–32, 110–1
in refractories, 19–3
Aluminium, 5–19, 83–5
alloys, 19–10
chloride, 60–3
hydrides, 72–4
industrial hazards, 59–23
metallurgy, 7–14, 62–10
Amalgam,
dental, 35–3
mercury hazards, 10–8
Amanita muscaria, 13–23
Amaurosis fugax, aetiology, 15–20
Amblyopia, 59–24
dark adaptation in, 41–3
ex anopsia, 39–2, 41–3, 45–10
treatment, 41–2
tobacco, 67–10
Amblyopia (*continued*)
and vitamin B12, 15–20
treatment, 15–20
Amelogenesis imperfecta, 4–7
Amenorrhoea, 53–10
America,
Central, land use, 59–13
ethnology, 63–13
geography, 8–14, 9–6, 64–6, 68–11,
Latin, geography, 62–6
Amidines, 67–2
Amines, 84–6, 116–2
aromatic, carcinogenic, 13–22
aryl, 110–1, 116–2
metabolism, 40–3, 49–2, 52–3, 52–8, 63–25
pressor, 4–18, 67–1
sympathomimetic, 8–25, 31–3, 43–4, 52–12, 55–10, 79–5, 84–6
tissue biochemistry, 25–4
Amino-acids, 2–23, 3–4, 4–5, 5–1, 7–1, 11–4, 20–2, 32–1, 34–5, 48–4, 54–7, 57–3, 63–7, 74–2, 105–1, 116–2
antagonists, 32–1
biosynthesis, 4–4
in blood plasma, 30–9
metabolic disorders, 3–22
metabolism, 8–17, 15–4, 49–9, 24–6, 50–7, 60–1, 68–23
in mental defectives, 4–23, 13–22
renal transport, 53–7
transport, 84–2
urinary, 57–3
Aminoaciduria, *see also* cystinosis *and* cystinuria, 8–23
2-amino-anthracene, 36–1
Amino-anthraquinones, 60–8
Amino-chlorambucil, 32–1, 49–11
4-amino-2:3-dimethyldiphenyl, 32–1
Aminoguaiacol, 113–5
Amino-sugars, 42–1
o-Aminothiols, 93–2
Ammonia,
blood, 7–21
liquid, 69–3
metabolism, by liver, 47–20
oxidation, 67–2
Ammonites, 4–10, 14–6, 20–8
Ammonium, quaternary compounds, 62–12
Amnesia, 39–7
Amnion, 53–10
Amniotic fluid, 1–14, 13–19, 59–22
Amoeba, 20–13
Amoebae, 8–35, 26–23
Amoebiasis, 48–11
Amoebic infections, 5–7
Amosites, 112–3
Amphetamine,
addiction, 7–25
injurious effects, 2–19

Amphibia, 5–28, 13–35, 15–33, 49–3, 63–33, 110–1
fossil, 7–31, 26–23
Amphiboles, 4–10, 19–8, 59–14, 112–3 113–3
Amphipoda, 15–33, 70–9
Amplifiers, 19–6, 20–6, 59–4, 68 8, 69–4, 72–5, 83–2, 102–4
Amylases, 19–2, 97–2
Amyloidosis, *see under organ affected*
Amyotrophy, 53–8,
Anaemia, 53–17, 63–18, 68–21
aplastic, 10–17, 55–9, 59–15
blood platelet changes, 53–15
diagnosis, 93–4
haemolytic, 10–17, 45–5, 50–4, 53–15, 57–3, 59–15
erythrocyte metabolism, 34–2
of newborn, 75–6
hypochromic, 59–15
immunology, 30–12
in childhood, 34–2
erythrocytes, 34–2
in infants, 45–5
in pregnancy, 1–14, 53–10, 67–14, 75–2
iron deficiency, 45–5
iron metabolism, 45–5
macrocytic, 59–15
megaloblastic, 50–4, 50–9, 55–4, 55–9, 75–2
nutritional, 59–15
of alimentary tract, 68–28
of liver disease, 52–7
pernicious, 59–15
treatment, 7–13
traumatic, 3–22
Anaerobes, *see* bacteria, anaerobic,
Anaesthesia, *see also under various anaesthetics*
application of electroencephalography to, 4–2
dental, 13–2
in children, 35–1
effects, 15–1
electroencephalogram in, 15–1
gas flow in, 75–1
hypotensive, 44–1
in cardiac surgery, 3–1
in children, 15–1, 35–1
in neurosurgery, 3–1, 59–1
in urology, 44–1
local, 13–8
mobile, 59–1
morbidity, 15–1
premedication, 2–2
prolonged, 35–1
veterinary, 4–29, 5–27, 10–29, 15–32, 24–7
Anaesthetics, *see also under names of agents*, 35–1, 59–29, 75–1
air mixtures, 63–2
Anaesthetics (*continued*)
apparatus, 63–2
effects,
on liver, 31–2
on uterus, 57–5
inhalational, 50–1
non-explosive, 30–1
intravenous, 2–2, 15–1, 50–1
local, 13–2, 15–1, 15–7, 25–1, 35–3, 59–30, 93–1, 108–5
Analcite, 110–1
Analgesics, 55–10, 59–29, 84–6
use in control of withdrawal symptoms, 55–10
Analogues, hydraulic, 76–2
Analysis,
chemical, 3–6, 8–7, 9–5, 11–2, 11–8, 18–2, 50–7, 59–18, 60–3, 63–10, 63–16, 68–5, 68–29, 76–1, 93–2, 95–1, 103–1, 110–1, 116–2,
of plant material, 71–2
potentiometric, 116–2
gravimetric, 112–2
mathematical, 2–11, 4–12, 5–17, 6–5, 7–12, 8–16, 10–16, 12–5, 13–14, 15–14, 17–5, 18–5, 19–9, 21–3, 23–3, 26–21, 27–3, 59–16, 60–6, 62–9, 64–9, 66–8, 67–6, 68–13, 74–6, 76–3, 110–3, 113–4
minerals, 9–7, 63–16
pharmaceutical, 80–4, 94–5
polarographic, 52–3
rocks, 9–7, 13–13, 63–16
spectrographic, 13–24
statistical, 8–16, 19–9, 26–22
structural, 7–9, 13–10, 15–5, 19–1, 19–5, 68–13, 69–5
thermogravimetric, 116–2
Anaphylactic shock, 55–9, 73–12
Anaphylaxis, 26–17, 31–2, 45–7, 113–5
Anatomy,
applied, 24–1
comparative, 3–2, 7–31, 23–5, 31–1, 52–2, 66–12
morbid, 3–22
plant, 18–1, 63–9, 84–6
prehistoric man, 59–2, 73–1
surgical, 13–3
techniques, 31–1
veterinary, 24–1
Andorra, flora, 59–7
Androgens, 45–12
Androsten-3α-ol, 30–3
Anencephaly, 30–12
Aneurysms, intercranial, 39–3, 41–2, 53–9, 54–5, 59–21, 75–10
Angina, 53–4
Angiocardiography, 47–4, 50–5
endocardiac pressures, 47–20
respiratory effects, 30–1
Angiography, of brain, 67–7

Angioma, intracranial, 3–22, 54–4, 63–20
Angiosperms, 2–5, 3–5, 5–8, 6–1, 10–6, 19–2, 22–1, 24–1, 28–2, 59–7
Animal husbandry, 5–1, 13–34
Animals, production, history, 5–4
Anionotropic systems, 19–3
Aniseikonia, in unilateral aphakia, 41–3
Anisotropy, 3–12, 19–7, 59–18
Annealing, magnetic, 77–2
Annelida, 4–30, 66–12
Anobiidae, 21–1
Ano-rectal region, anatomy, 10–28
Anostraca, 17–9
Anoxia, *see also* brain, anoxia, 7–29, 40–4, 53–17, 55–9
  effect on blood formation, 4–3
  effect on central nervous system, 30–12
  effect on the brain, 2–18, 10–28, 43–2, 63–7
  foetal, 67–9, 67–13
  of newborn, cerebral changes, 75–6
    late results, 1–15
Antarctica,
  geology, 74–5
  geomorphology, 3–11, 7–10
Anthelmintics, 8–34
Antherozoids, 110–1
Anthocoridae, 10–30
Anthocyanins, 59–7
Anthomyiidae, 28–6
Anthoxanthum. *see also* sweet vernal grass, 71–3, 71–6
Anthracene, 84–6
  derivatives in purgatives, 25–3
Anthracosidae, 59–14
Anthraquinones, 13–7, 112–2
Anthrax, 15–28
Anthropology, 1–2, 5–3, 7–4, 63–3
  physical, 3–2
  social, 5–3, 63–4, 2–9
Anthropometry, 5–3, 13–3, 30–2, 34–3, 95–4
Antiadrenergic drugs, 75–8
Antibacterials, *see* bactericides
Antibiotic activity, 48–1
Antibiotics, *see also* bactericides, sterilization, bacterial *and under individual products*, 4–14, 11–2, 19–2, 24–6, 59–29, 65–7, 68–2, 77–5, 79–5, 113–5, 116–2
  in dentistry, 7–7
  in midwifery, 40–3
  in nature, 4–6, 10–6
  resistance, 50–6, 55–7
  sensitivity to, 47–7
Antibodies, 3–22, 8–25, 10–22, 13–17, 45–7, 46–4, 46–7, 47–10, 53–15, 55–5, 56–5, 57–3, 67–8, 75–2, 75–4
  fluorescent, 1–3, 52–8
  formation, 29–3, 50–7
Antibodies (*continued*)
  in bronchitis, 53–7
  in cancer, 45–12
  in reticuloses, 45–6
  in thyroid disease, 7–13
  response to antigens, 30–13
Anticholinergic drugs, 7–13
Anticoagulants, 1–14, 3–14, 7–29, 33–1, 39–1, 52–5, 54–2, 54–7, 67–15
Anti-depressant drugs, 7–25, 39–7, 53–19, 54–8
Antidiuretic hormone, 29–10, 34–3
Anti-emetics, 2–2
Antifolics, cancer chemotherapy, 32–1
Antigen-antibody, 10–22
Antigens, 10–22, 5–1, 8–13, 8–25, 10–22, 32–3, 46–1, 46–2, 46–4, 46–5, 48–3, 55–5, 58–1, 59–19, 59–27
  Forssman, heterophile, 30–13
  grass pollen, 84–6
  in blood and tissue, 3–22
  in cancer, 45–12
Antigorite, 59–14
Antihistamines, 30–1, 75–8
Antihormones, 52–3
Antimalarial drugs, 16–2, 36–1, 41–3
Anti-neutrino, 113–6
Antimony, halides, 10–7
Antipurines, 32–1
Antirrhinum, 5–12
Antiseptics, 4–14, 19–2, 59–29, 59–30
  in midwifery, 40–3
  oral, 45–3, 51–2
Antisera, 46–5
Antispasmodic agents, 8–32, 13–29
Antitoxins, 46–5
Ants, 12–7, 17–9
Anuria, 15–30
Anus,
  function after surgery, 13–30
  imperforate, 34–5
  innervation, 13–30
  structure, 13–30, 34–5, 49–1
Anxiety, 7–25, 10–26, 13–26, 52–15
Aortic valves, *see* heart, valves,
Aortitis, syphilitic, 7–30
Aphakia, 41–3
Aphasia, 39–7
  developmental, 8–23
Aphididae, 5–9, 5–28, 10–30, 28–5, 62–1, 112–7
Aphidoidea, 116–1
Aphis fabae, 5–1
Aplites, 59–14
Apnoea, post-operative, 15–1
  vagal, 59–1
Apoferritin, 68–2
Apomixis, 28–2
Appendicitis, 10–28
Appetite, 68–23
Aproteinaemia, 54–7
Aquaplaning, 4–8

Aqueous humour, 41–5
Arabis, 22–1
Archaeology, 59–3, 63–13
  prehistoric, 2–9, 3–12, 5–4, 59–3, 63–13, 73–2
Arches, structural engineering, 13–10, 79–3
Arcs, electric, 11–3, 13–10, 15–8, 19–6, 22–3
Arenicola marina, 10–1
Argentaffin cells, 59–28
Argentina, flora, 10–6
Arginase, 4–22
Arginine, 62–1
Argon, 78–4
Argyrophil cells, 59–28
Arion, 7–1, 68–30
Arousal mechanisms, 10–26
Arrhythmias, treatment, 7–22
Arsenic,
  and skin cancer, 47–7
  compounds, 84–2
  halides, 10–7
  organic compounds, 5–9, 21–2, 69–3
Art, psychotic, 10–27
Arterial diseases, *see also*, arteries, diseases, *and* vascular diseases, 8–4, 84–8
Arteries,
  blood flow, *see also* blood vessels, 53–18
  carotid,
    blood flow, 15–20
    stenosis, 15–20
  closing pressure, 56–10
  diseases, 3–27, 8–24, 53–15, 54–7, 63–24, 63–31
  elasticity, 29–3
  grafting, 7–29, 8–32, 30–18, 50–10, 54–5, 55–13, 56–10, 67–20
  injuries, 5–21
  intima, 1–16, 54–7
  intracranial, spasm, 53–20
  mesenteric, 53–23
  necrosis, 53–15
  occlusion, 63–18
  physiology, 20–12
  plastic prostheses, 55–13, 56–10
  prostheses, 50–10
    experimental, 3–27
  reconstruction, 55–13
  regulating mechanisms, 73–1
  structure, 5–21, 55–6
    in hypertension, 49–8
  surgery, 3–27, 7–29, 54–5, 55–13, 63–31
  vertebral, birth injuries, 59–21
Arterioles, necrosis, 63–18
Arteriosclerosis, 8–4, 59–40
Arteriovenous anastomosis, 45–13
Arteritis, 15–20, 30–13, 68–26
Arthritis, 47–16
  alkaptonuric radiology, 53–20
  colitic, 13–15
  psoriatic, 13–15
  rheumatoid, 3–22, 8–17, 8–22, 13–15, 29–3, 50–5
    and hyperuricaemia, 13–15
    and mental stress, 13–15
    and pituitary gland, 29–3
    treatment, 13–15
  somatic aspects, 13–15
  treatment, 13–15
Arthropoda, 13–1, 23–5, 59–41, 64–13, 66–12, 72–1
Artichokes, 19–2
Arum, 13–6
Ascites, 8–32, 59–36
  tumour,
    cells, 32–1, 59–36
    Ehrlich's, 59–36
Ascochyta, 71–5
Ascomycetes, 18–1, 23–1, 62–2, 70–3
Ascorbic acid, 8–7, 72–3
Asellus, 14–10
Ash, fuel,
  effect on soil, 13–1
  for concrete, 110–2
Ashgillian, 2–10, 18–4, 66–7
Asia,
  ethnology, 63–13
  geography, 3–11, 6–3, 68–11
  Minor, geography, 6–3
  South East, anthropology, 5–3, 63–4
Aspergilli, virulence, 36–1
Aspergillosis, 24–5
Aspergillus, 5–12
Asphyxia, 40–4
Aspiration, asphyxia due to, 68–9
Asplenium trichomanes, 13–6
Assay, biological, 1–3, 1–24, 3–4, 4–1, 8–25, 21–4, 48–9, 49–2, 49–9, 65–7, 65–10, 81–5, 84–6, 93–4
Asteromyces cruciatus, 112–1
Asthma, 45–6, 75–3, 75–7
  bronchial, epidemiology, 75–9
  in children, 15–21
  lung function, 54–6
  psychiatric aspects, 53–19
  treatment, 34–3
Astrometry, 66–2
Astronomy, 60–6
  dynamical, 15–14
  geodetic, 63–11
  statistical, 59–16
Astrophysics, 5–17, 13–14, 19–9, 19–14, 20–9, 21–3, 22–6, 22–7, 23–3, 26–19, 66–2, 72–8
Asymptotic expansions, 66–8
Atheroma, 55–13, 58–2, 59–21, 63–18, 67–17

Atherosclerosis, 5–21, 10–17, 30–13, 59–21, 63–24
  poultry, 10–29
Athletes' foot, 4–25
Atmosphere, 9–9, 95–2
  deposition from, 6–3
  electricity, 5–23, 6–6, 8–26, 19–14, 20–11, 60–7
  movement, 3–11, 13–14, 19–11, 59–4, 67–16, 68–22, 70–8, 72–8
  physics, 26–19
  pollution, 11–10, 68–11
    relation to lung disease, 32–1
    relation to respiratory disease, 2–21
  spectroscopy, 19–11
  turbulence, 19–11, 74–6
Atmospherics, 9–2, 20–11
Atomic physics, theoretical problems, 22–7
Atomization, liquids, 3–9, 19–4, 85–7
Atropa, alkaloids, 25–3
Atropine, premedication, 30–1
Attention, psychology, 63–28
Audiometry, 45–11
Auditoria, 104–3
Auger processes, 26–19
Aurora, 2–11, 8–26, 59–4
Austenite, 3–15, 63–19, 68–15
Australasia, geomorphology, 15–10
Australia, geography, 59–13, 63–15
Autecology, *see also* ecology, 10–6, 19–2, 68–3
  Eriophorum, 74–1
  grasses, 68–3
  marine algae, 66–4
Autism, infantile, 10–21, 10–26
Auto-immunity, *see* immunity
Automata, 10–16, 69–8
Automatic control, *see also* control mechanisms *and* servomechanisms, 3–9, 7–9, 10–10, 13–10, 77–2, 78–2, 79–3, 84–6, 113–2
Automation, 5–25, 18–7, 64–1
Automobiles, *see* motor vehicles
Autoradiography, 3–2, 8–35,
  clinical, 5–26
  of gingival epithelium, 8–8
  techniques, 32–2
Autoxidation, *see also* oxidation, 83–1, 84–6
Avena, 7–1, 71–6
Aviation, psychology, 59–34
Avitaminosis, *see* vitamins, deficiencies
Avonian, 62–7
Axons, electron microscopy, 30–2
Aza-indene, 110–1
Azeotropes, 13–10, 26–8
Azides, 19–3
Azimuth determination, 19–12
Aziridines, 67–2
Azobenzene, 60–8
Azores, 22–8

Bacillaceae, 10–4
Bacilli, 59–30
  aerobic, spore-bearing, 13–1
Bacilluria, 1–13
Bacillus proteus, 75–4
Bacteria,
  acid-fast, 54–7, 75–4
  anaerobic, 56–5, 68–16, 75–4
  antibacterial agents, 4–14, 25–2, 62–12
  chemistry, 8–18, 47–10, 70–4, 110–1, 114–1
  cold-resistant, 7–15
  colony formation, 13–24
  damaged, viability, 84–6
  effect of physical conditions, 4–14
  effects of ionizing radiations, 25–2, 59–6, 59–30
  electron microscopy, 3–3
  freeze-drying, 5–21
  genetics, 46–6
  growth, 53–15
  heat-resistant, 10–4, 13–1, 13–17
  in sewage beds, 7–9
  infections, 46–6
  localization, experimental animals, 30–10
  marine, 72–7
  metabolism, 62–12
  morphology, 4–14, 90–1
  respiration, 75–4
  surfaces, 84–2
  taxonomy, 3–3
  variation, 7–15, 54–7, 55–7
Bactericides, *see also* antibiotics, sterilization, bacterial, 25–2, 84–6, 97–1, 106–4, 114–5
  antagonists, 25–2
Bacteriostasis, 81–5
Bacteriophage, 3–16, 4–14, 8–35, 9–12, 25–2, 32–1, 48–3, 55–7, 56–5, 63–24, 64–10, 65–7, 68–16
Bainite, 15–16
Baldness, *see* alopecia,
Ballistocardiography, 10–17
Banach algebra, 84–4
Barbiturates, 2–2, 52–1
Barium sulphate, 81–5, 110–1
Barkhausen effect, 69–4, 79–6
Barley, 70–1, 71–6, 90–1
Barnacles, 27–5
Basalt, 2–10, 3–12, 67–5
Basidiomycetes, 10–6, 74–9
Basilar artery, 39–6
  disease, 54–4
Bathonian, 4–10
Bauschinger effect, 19–7
B.C.G. vaccines and vaccination, 59–27, 68–19
Beaches, 2–8, 2–24, 3–12, 5–14, 21–1, 26–9, 62–6, 63–16

Beams, 2–8, 10–10, 13–10, 59–11, 74–3, 79–3, 104–3, 106–3
molecular, 5–23
Beans, 63–1, 71–6
Bearings, 11–3, 19–7, 62–4, 68–8, 69–5, 73–6, 76–2, 91–2, 106–3, 110–2
Beef,
economics of production, 4–1, 8–1
production, 64–1, 70–1
quality, 5–1
Bees, 5–1
Behaviour, 9–10, 10–19, 18–7, 43–4, 53–19, 68–19
animals, 2–20, 4–24, 5–25, 5–28, 7–31, 10–30, 15–33, 17–5, 17–9, 18–7, 18–9, 22–8, 26–21, 63–12, 63–28, 63–33, 64–12, 64–13, 70–9, 72–1, 72–7, 74–9
criminal, 52–15
disorders, 39–7
effect of drugs on, 4–23
effect of cerebral ablations, 5–25
effect of drugs, 3–25, 5–25, 26–21
endocrinology, 52–14
groups, 5–11
physiology, 69–10
Belgium, palaeobotany, 19–2
Bell's palsy, 45–11
Benzene,
nitro-derivatives, 81–2
T-butyl, 90–3
Benzidine, 79–5
Benzimidozoles, 110–1
Benzoic acid, 112–2
Benzopyrene, 32–1
Benzpyridothiazoles, 80–4
Benzo-thiadiazide, 68–14
Benzyl chloride, 83–1
Bereavement, psychiatry, 52–15
Beryllium, 63–16, 73–9
Beta rays, 8–26, 9–9, 15–24, 18–6, 20–11
Bifurcaria, 83–1
Bile,
acid, metabolism, 50–7
chromatography, 10–28
duct,
atresia, 34–4
cirrhosis, 57–6
function, 10–28
pigments, 45–12, 52–8
products, 30–3
Biliary system,
diseases, 46–10
surgery, 8–32
Bilirubin, 13–22
Bioclimatology, 70–5
Biogeography, 15–33
Biological material, identification, 53–2
Biological response, environmental factors, 3–4
Biometry, 1–24, 3–2, 4–1, 5–1, 19–15, 26–4, 26–12, 65–11
Biometry (*continued*)
plant, 1–4
Biophysics, 6–1, 8–13, 20–3, 26–5, 26–20, 62–5, 65–9, 72–10
Biostatistics, 2–21
Biosynthesis, 2–6, 3–4, 4–4, 5–9, 8–4, 10–5, 12–1, 15–3, 15–4, 19–3, 48–3, 49–2, 59–9, 63–1, 65–10, 68–5, 70–2
Biotin, 7–15, 55–9
Birds, 3–28, 13–35, 15–33, 63–28, 63–33, 70–9
cage, diseases, 15–32
diseases, 24–5
parasites, 66–12
photoperiodicity, 2–24
physiology, 28–1
respiration, 5–2, 15–32
respiratory diseases, 5–27
respiratory tract, 4–29
sea, 6–8
wild, pathology and diseases, 5–27, 12–7
Birth, injuries, 57–6, 68–19
Bismuth, 10–7
Bladder,
artificial, 13–33
calculus, 13–33
cancer, 8–32, 32–1, 47–19
prophylaxis, 44–1
carcinoma, 8–31, 45–14
cine-cystoscopy, 44–1
dilation, 44–1
disturbances, in pregnancy, 15–18
effect of surgery, 8–32, 53–23
injuries, 63–21
neck obstruction, 13–33
paraplegic, 15–30, 53–23
replacement, 7–29
tumours, 44–1
radium treatment, 44–1
Blades, fan, 92–2
Blame, psychology, 59–34
Blastocysts, 29–1
Blennorrhoea virus, 46–6, 47–10
Blindness,
and dreaming, 8–28
in cattle, 24–7
temporary, aetiology, 15–20
Blood,
cancer, cells in, 10–22
cells, *see also* eosinophiles, erythrocytes, leucocytes, 4–3, 5–18, 32–2, 45–12, 59–15
foetal, 40–3
hyperplasia, 59–36
radioisotope, studies, 4–3
changes, in puerperium, 15–18
chemistry, 5–27, 7–1, 30–3, 46–1, 60–1
ammonia, 7–21
circulation, 5–2, 8–17, 10–29, 15–25, 50–5

Blood (*continued*)
extracorporeal, 7–25, 7–29
in anaesthesia, 50–10
in man, 2–18
in pregnancy, 8–21
in surgery, 50–10
indicator dilution studies, 8–17
intra-cranial 54–4
intra-ocular, 41–5
measurement, 30–9
microcirculatory studies, 1–16
peripheral, 63–18, 68–14
placental, 2–18
portal, 4–28, 53–23
pulmonary, 49–10, 50–5, 53–18, 53–23, 59–8, 63–18, 63–31, 68–14, 84–8
effects of disease, 75–7
effects of drugs, 68–4
reflex control, 49–10, 53–18
coagulation, 1–25, 2–13, 5–18, 8–21, 31–3, 40–5, 46–2, 52–5, 52–11, 53–23, 54–7, 55–4, 55–13, 63–7, 63–24, 65–9, 73–12
disorders, 33–1
in infant, 34–2
in newborn, 40–3
dialysis, 67–7
disorders, 10–17, 10–22, 32–3, 34–2, 48–10, 54–7, 59–15
in children, 2–15
iron metabolism, 47–8
radioisotope study, 32–3
relation to pharyngeal tumours, 38–4
spleen in, 5–18
flow, 3–14, 3–24, 8–21, 50–5, 53–18, 54–9, 84–8, 56–4, 57–3, 67–7
measurement, 29–3, 50–5, 63–18
in paediatrics, 13–21
formation, 4–3, 68–1
gas exchange apparatus, 57–7
grouping, 46–4
groups, 5–27, 10–22, 40–3, 46–1, 55–4
and cancer, 50–10
and infectious disease, 15–15
forensic aspects, 68–9
heredity, 30–8, 46–4
haemagglutinins, 46–4
in newborn, 40–3, 45–9
maternal, foetal cells in, 40–3
microchemistry, 40–3
oxygen tension, 50–1
pigments, *see also* haemoglobin, 2–4, 58–2
plasma, *see* plasma
platelets, 29–3, 29–4, 46–4, 63–24
pressure, in newborn, 7–20
measurement, 7–2, 30–1, 53–14, 59–1, 63–18
radioisotope studies, 5–21, 32–3
sedimentation rate, 7–30
Blood (*continued*)
transfusion, 3–6, 3–22, 46–4, 52–17
exchange, 2–15, 4–18, 40–4
reactions, 49–12
wastage, prevention, 53–15
uric acid, in rheumatoid arthritis, 13–15
vessels, *see also* arteries, capillaries, veins
anastomosis, 30–18
anatomy, 5–2
cine-angiocardiography, 3–21
comparative anatomy, 8–34
degeneration, 2–16
development, 29–11, 73–1
diseases, 54–9, 59–40, 63–18, 63–31
effects of nerves and hormones, 56–9
effects of radiation, 47–9
innervation, 52–14
musculature, 8–27, 50–1
perfusion, 53–23
peripheral, 54–3
diabetogenic disease, 4–13
diseases, 10–22, 49–4, 50–10, 57–7, 59–40, 75–10
effects of cyclopropane, 2–2
permeability, 24–7, 46–7
physiology, 8–27, 63–27
pulmonary, 50–7
receptors, 13–25
spastic disorders, 4–28
substitutes, 8–32, 63–31
surgery, *see also*, arteries, surgery, 5–27, 63–31, 67–20
viscosity, 29–3, 41–2
volume, 7–29, 8–25, 10–29, 15–1, 52–17, 53–15
post-operative, 15–30, 47–20
Blow-flies, 8–35, 56–3
Body,
composition, 58–3, 68–21
measurement, 50–7
fluids, 10–5, 10–30, 30–3, 43–1, 58–3, 59–17, 63–7
in pregnancy, 8–21
post-operative, 15–30
thiotepa in, 8–32
heat, 2–18
temperature,
during surgery, 15–30
in health and disease, 3–14
water, 5–24, 58–3
control, 2–12
in newborn, 34–5
in pregnancy, 40–3
Bogs, 2–5, 15–10, 61–1, 66–4, 69–2
Boilers, 10–10, 11–3, 19–7
Bonding,
metals and ceramics, 13–32
metals and rubber, 102–2

Bonds, chemical, 2–6, 4–6, 11–10, 13–7, 14–3, 19–4, 21–2, 60–3, 66–5, 73–5
Bone,
absorption, 15–12
ageing, 13–8
alveolar, healing, 13–8
anatomy, 59–2, 66–1
anorganic implantation, 35–6, 35–7
blood supply, 7–3, 42–1, 63–23, 66–1
composition, 42–1
diseases, 5–27, 10–17, 59–38, 67–11
genetic aspects, 8–22
metabolic, 42–1, 59–17
facial,
fractures, 35–8
growth, effect of surgery, 35–8
fractures, 53–12
grafts, 51–7, 63–32, 67–11
growth, 2–3, 2–7, 5–2, 8–2, 8–22, 30–15, 42–1, 51–2, 53–2, 59–2, 63–23, 67–17
heterotopic formation, 2–3
histochemistry, in arthritis, 47–16
histology, nutritional aspects, 15–7
implantation of substances in, 59–10
in young adults, 34–3
marrow, 3–24, 4–3, 55–9, 58–2, 58–3, 72–2
cells, 5–18
culture, 59–36
dyscrasias, 54–7
effects of irradiation, 4–3, 49–11, 59–36
histology, 68–1
radiation effects, 59–36
transplants, 29–11, 49–11, 58–2
volume, 4–3
metabolism, 1–19, 4–29, 50–5, 63–18
metastases in, 32–3
microradiography, 58–3
minerals, 13–8, 13–24
organic fractions, 15–7
pathology, 4–29, 68–20
petrous, 38–1
physical properties, 66–1
physiology, 42–1
prosthetic replacement, 42–1, 53–12
repair, 2–3
substitutes, 63–32
temporal, 38–1
tumours, 4–19, 7–29, 10–22, 45–6, 53–9, 59–25
microradiography, 58–3
uptake of radioactive isotopes, 42–1
Bones, anatomy, 63–33
Boraginaceae, 79–5
Borates, 89–1
Bordetella pertussis, 58–1
Borides, 19–10
Borneo, geology, 6–4
Boron, 1–5, 2–6, 7–6, 9–5, 12–2, 18–2, 22–2, 23–2, 60–3, 62–1, 102–2, 115–1
compounds, organic chemistry, 115–1
Borrowdale Volcanic Rocks, 62–7
Botany, history, 70–3
Botrytis, 19–2
Boundary layer flow, 2–8, 4–8, 5–11, 10–10, 13–10, 14–4, 15–8, 22–3, 59–11, 60–4, 63–17, 68–8, 69–5, 74–6, 77–2, 81–4, 84–4, 85–1
Boundary value problems, 10–16, 11–5
Brachial plexus, paralysis, 42–1
Brachiopoda, fossil, 2–10, 4–10, 5–15, 10–14, 14–6, 19–8, 62–7, 63–16, 74–5
Brachystegia, 63–14
Brackets, engineering, 3–9
Braconidae, 63–12
Brain,
abscess, 54–9
anoxia, 2–18, 7–29, 10–28, 43–2, 63–7
in newborn, 75–6
arteritis, 15–20
atrophy, 8–23, 39–7
biochemistry, 3–4, 10–23, 39–5, 43–1, 43–2, 30–3
blood supply, 7–29, 10–28, 30–9, 54–4, 59–21, 63–20
angiography, 67–7
cells, effect of drugs, 3–25
chemosurgery, 54–5
compression, 59–21
convulsant drugs, response, 43–3
degenerative disease, in childhood, 8–23
electron microscopy, 30–2, 39–5
electrophysiology, 8–28, 31–4
embryology, 13–3
function, effect of drugs, 3–25, 10–23
haemorrhage, 8–20, 39–3, 54–5
histoelectronic investigation, 26–1
histology, 59–2
homogenates, electron microscopy, 30–2
hypertrophy, 39–3
hypothermia, 7–29
injury, 43–2, 59–21
in children, psychopathology, 10–26
ischaemia, 53–9, 57–3
isotopes in, 29–8
lesions, 5–25, 8–20, 39–1, 39–7, 45–8
caused by ultrasonic waves, 30–2
psychological aspects, 39–7
metabolism, 13–22, 63–7
morphology, 13–3
motor cortex, neonatal development, 4–22
occipital lobe, 39–1, 45–8
oedema, 39–5
parietal lobe, 39–1, 45–8,
physiology, 39–1, 39–3, 43–3
comparative, 3–18

Brain (*continued*)
proteins, 39–5
shift effects, 59–21
stem, nuclei, 59–2
surgery, 8–20, 39–3, 54–5
effects, 39–7
leucotomy, 39–7, 53–9
temporal lobectomy, 3–18
tumours, 8–20, 8–31, 39–3, 39–5, 54–4, 54–5
chromosome studies, 8–20
vascular disease, 4–28, 39–1, 39–3, 53–20, 54–7, 63–20
visual and postural mechanisms, 8–27
Brassica, 21–1
Brassicae, 8–1, 59–7, 70–1
Brazil, geography, 5–14
Breast,
cancer, 7–27, 10–22, 10–28, 30–17
and hormones, 8–17
endocrine effects, 8–32, 10–28, 30–9, 53–20, 59–37
metabolism, 2–22
radiology, 53–20
carcinoma, 3–22, 8–31, 10–28, 49–11, 52–17, 67–19
chemotherapy, 59–29
endocrine effects, 4–27, 59–29
diseases, *see also* breast cancer and carcinoma, 30–17
pathology, 3–22, 10–22
surgery, 52–17
Breathing apparatus, 57–7
Bremsstrahlung, 26–19
Brewing, 90–1
Bricks, 103–3
Bridges, 3–9, 4–8, 7–9, 60–4
British Guiana, geology, 4–10, 19–8
Brittleness, metals, 5–19
Bromination, 73–5
Bronchi,
anatomy, 8–32
carcinoma, 8–31, 37–1, 54–9
constriction, 29–10
effect of lung volume changes, 63–31
innervation, 59–2
malignant diseases, 37–1
radiography, 53–20
Bronchial disease, statistics, 4–25
Bronchial secretion,
mucoproteins, 50–4
viscosity, 1–12
Bronchial tree, 37–1
Bronchiectasis, 1–15, 13–17, 75–6
Bronchitis, 7–13, 13–17, 37–1
chronic, 15–1, 48–5, 50–5, 50–7, 53–20, 67–8, 67–18, 68–14
experimental, 2–12
viral antibodies, 53–7
Browning reaction, 97–2
Brucella, 10–29
Brucellosis, 2–1, 8–34, 10–29
Bryophyta, 1–4, 1–5, 3–5, 5–8, 9–3, 10–6, 17–1, 22–1, 59–7, 61–1, 64–2, 72–3, 73–4, 107–6
Bryozoa, fossil, 2–10, 59–14, 61–5
Bubble chamber, 5–23, 10–24, 15–24, 19–14, 26–19, 63–26
Buffer solutions, 101–1
Building, climatic effects, 15–5, 60–2
Buildings,
college, 82–1
multi-storey, 101–2
Buoys, design, 11–3
Burma, geology, 64–7
Burns, 3–22, 15–30, 73–14
anaemia, 3–22
in children, 34–5
mortality, 3–22
Bushveld Igneous Complex, 13–13
Busulphan, 32–1
Butane diol, 13–4
Byssinosis, 48–5, 59–23, 67–18, 75–7

Cables,
aeronautical engineering, 4–8
electrical engineering, 68–17
Cadaver, bacteriology, 30–8
Caddis flies, 64–13
Cadmium, 60–4
Caeruloplasmin, 39–5
Caesium, 60–3, 93–2
radioactive, 7–27
Cafesterol, 68–5
Calcaneus, fractures, 53–12
Calcarisporium, 6–1
Calciferous Sandstone Series, 3–12, 22–5, 84–3
Calcification, *see also* teeth, calcification, 13–8, 22–8, 23–8
Calcite, 73–4
Calcium,
carbonate, 95–2
chloride, physiological effects, 55–3
ions, uptake by cell membranes, 30–9
metabolism, 2–12, 3–4, 10–17, 13–15, 13–33, 34–5, 45–6, 47–9, 52–14, 55–6, 57–3, 59–36, 67–20, 75–3
clinical tests, 30–9
oxide, 13–32
phosphate, 3–7
radioactive, 32–3
silicate, utilization of wastes, 103–3
sulphide, 11–6
Calculus,
dental, 3–7, 51–2, 51–5, 57–2
renal, 2–12, 3–3, 13–33, 44–1
urinary, 10–29, 13–33, 15–30, 15–32, 44–1
crystallography, 13–33
metabolic studies, 47–20
Caledonian, 10–14, 73–7
Caledonides, 4–10, 73–7

California,
geology, 74–5
historical geography, 3–11, 62–6
Calliphora, 56–3
Calliphoridae, 10–30
Callitriche intermedia, 70–3
Calluna, 1–4, 7–1
Calorimetry, 4–6, 13–10, 19–3, 24–6, 26–3, 32–2, 59–9, 61–2, 63–26
radiation, 59–31
Calves, diseases, 24–5
Calymene, 7–11
Cambrian, 4–10, 63–16, 74–5
Cameras,
piezoelectric, ultrasonic, 101–5
retinal, 41–3
X-ray, 80–3
Cams, 78–1
Canada,
economic geography, 74–4
geology, 4–10, 14–6, 19–8
geomorphology, 4–9
regional geography, 64–6
urban geography, 8–14
Cancer, *see also* carcinoma, teratoma, tumours *and under organ affected*
and diabetes mellitus, 4–25
antigens and antibodies, 32–3, 45–12
aromatic amines, 13–22
biochemical changes, 58–2
biochemistry, 3–22, 13–22, 49–2
carbohydrate metabolism, 10–23
cells, 32–1, 45–13, 50–10, 58–2
antigens, 32–3
in blood, 10–22, 45–12
nucleic acids and nucleoproteins in, 4–19
surface properties, 60–3
chemotherapy, 3–22, 4–28, 5–18, 8–32, 10–22, 10–28, 15–21, 15–30, 29–5, 32–1, 38–4, 49–11, 49–13, 53–3, 53–7, 53–22, 54–7, 57–7, 59–29, 59–37, 68–28
piperazine compounds, 8–32
diagnosis, 5–27, 40–5, 45–12, 57–7, 58–2
cytological, 3–19
psycho-social investigation of delaying factors, 1–20
due to radiation, 53–17, 55–9
electron microscopy in, 38–5
endocrinology, 13–22, 32–1, 53–7
epidemiology, 1–22
experimental, 68–20
histogenesis, 3–22
histopathology, 49–7
immunological theory, 13–22
immunology, 32–1
in children, 10–28, 59–27, 59–37, 63–29
in tropics, 68–25
in women, prognosis, 40–3
Cancer (*continued*)
morphogenesis, 32–1
occupational, 32–1
ocular, 41–3
post-cricoid, 38–4
psychiatric aspects, 13–28, 15–26
serology, 32–3
statistics, 63–29
and demography, 32–1
treatment, 3–19, 5–27, 8–31, 8–32, 49–11, 53–21, 59–37
surgery, 53–23
Candida,
albicans, 36–1
infections in diabetes, 13–9
Cantilevers, 19–7
Capacitance, 84–7
Capillaries,
fragility, 75–3
permeability, 46–7
Caprinus lagopus, 94–1
Carbanions, 9–5
Carbazoles, 63–10
Carbene, 60–3, 116–2
Carbides, 11–2, 20–6
Carbinols, 76–1
Carbocaine, 15–1
Carbohydrates,
biochemistry, 4–4
chemistry, 3–6, 4–6, 7–6, 8–7, 18–2, 23–2, 63–7, 66–3, 68–5, 72–4, 73–5
egg albumin, 55–9
electrophoretic separation, 3–21
enzymic degradation, 3–4
enzymic synthesis, 23–2
metabolism, 10–29, 20–2, 55–12, 66–3, 73–12
in cancer, 10–23
plants, 63–9
relation to caries, 35–2, 51–2
tolerance, 45–9
Carbon, 4–6, 7–6, 19–4, 22–2, 103–3
assimilation, 5–8
blacks, 102–2
dioxide,
fixation by roots, 3–5
ions, effect on leucocytes, 29–3
inhalation effects, 50–1
tension, 3–14
fluorine compounds, 5–6
monoxide,
absorption, 20–6
in blood, 53–4
poisoning, 10–28, 10–29
Carbonates, sedimentation, 15–11
Carboniferous, 2–10, 3–12, 7–11, 10–14, 13–13, 14–6, 17–4, 19–8, 20–8, 26–6, 59–14, 61–5, 62–7, 64–7, 68–12, 69–7, 73–7, 74–5

Carboniferous Limestone, 5-15, 7-11, 13-13, 15-11, 20-8, 26-14, 61-5, 62-7, 74-5
Carboniferous Slate, 26-14
Carbonium ions, 9-5, 14-3, 73-5, 112-2
Carbonization, 7-6, 12-2
Carbonyls, 1-5, 19-3, 21-2, 22-2, 60-3, 68-5, 69-3, 76-1
Carboxylic acids, 2-23, 76-1, 84-6
  aromatic, 81-2
Carcinogenesis, 3-22, 5-26, 13-22, 15-22, 32-1, 32-2, 49-9, 62-12, 67-19
  experimental, 10-22, 70-9
Carcinogens, 9-3, 10-22, 47-3
  chemistry, 3-22, 22-2, 30-15, 32-1, 106-2
  susceptibility of newborn, 32-1
Carcinoid syndrome, 55-6
Carcinoma, *see also under organ affected*, 3-19, 20-13, 30-17
  basal cell, 36-1
  chemotherapy, 10-22, 30-9
  metastatic, radiotherapy, 8-31
  post-cricoid, 55-9
Carcinomatosis, 52-11
Cardia, achalasia, 30-9
Carding, worsted, 79-7
Cardiorespiratory function, 3-14, 8-32
  pathology, 3-22, 29-5, 63-23
Cardiospasm, 8-32, 38-7
Cardiovascular disorders, 4-29, 8-34, 47-4, 52-11
  diet, 29-3
  radiology, 47-4
Cardiovascular surgery, 10-28
Cardiovascular system, 10-28
  in animals, 5-27, 10-29
  measurements, 13-24
  physiology, 8-27, 53-18
  reflexes, 53-18
Carex, 27-1
Caribbean area, vegetation, 73-4
Caries, dental, 3-7, 7-7, 7-24, 8-8, 8-30, 10-8, 35-2, 35-4, 47-6, 59-10, 68-6
  aetiology, 20-12, 51-2
  and heart defects, 7-7
  and nutrition, 68-6
  bacteriology, 51-4
  epidemiology, 13-8
  experimental, 3-7, 15-7
  in infant and child, 35-3
  incidence, 7-7, 51-5
  pathology, 4-7
  relation to blood groups, 10-8
  secondary dentine, 3-7
  treatment, 59-10
Carotenoid protein complexes, 17-7
Carotenoids, 12-1, 17-7, 22-2, 70-2
Carotid body, 53-18
Cars, *see* motor vehicles
Cartilage, 47-6, 68-20,
  epiphyseal, 63-23
  histochemistry, 47-16, 56-1
Cartography, 3-11, 8-14, 9-6, 10-13, 12-3, 14-4, 15-10, 15-14, 69-6, 74-4, 79-4
Casein, 65-7, 65-9
Casting, metallurgy, 13-16, 77-4, 112-5
Castle's intrinsic factor, 7-21, 63-24
Cat,
  dermatology, 24-4
  growth and development, 52-14
  nutrition, 24-1
  otology, 24-4
  physiology, of reproduction, 24-1, 52-3
  urology, 24-7
Catalase, 47-3
Catalysis, 2-6, 4-6, 5-7, 7-6, 8-7, 11-2, 12-2, 13-7, 13-32, 15-6, 19-3, 19-4, 20-5, 60-3, 60-4, 61-2, 62-3, 63-10, 64-3, 73-5, 74-3, 90-4, 94-2
Catalysts, poisons, 4-6
Cataract,
  formation, 63-22
  surgery, 52-17
Catechol amines, 1-17, 10-23, 25-4, 30-14
  urinary, 15-23
Catechols, 53-15
Cathodes, *see* electrodes
Cattle, 7-1, 70-1
  blindness, 24-7
  blood chemistry, 5-27
  breeding, 8-13
  dairy, 7-1, 28-1
  endocarditis, 5-27
  haematology, 24-4
  housing, 8-1
  mineral levels in, 4-29
  nutrition, 65-6
  surgery, 15-32
Caves, 3-11, 73-4
Cavitation, 5-11, 7-9, 10-10, 19-5, 59-11, 73-6
Celery, 19-2
Cell, electric, 18-2
Cells,
  culture, 81-5
  ions in, 10-25
  division, 8-6, 8-35, 18-9, 30-12, 67-17, 68-26, 84-7
  growth, 8-6, 8-35, 56-3
  injury, 5-21
  irradiation, 63-3
  micro-incineration, 10-2
  permeability, 63-3
  physiology, *see also* cytology, 3-28, 4-22, 5-24, 8-5, 8-35, 10-4, 15-30, 30-9
  preservation, at low temperature, 5-21

Cells (*continued*)
respiration, 24–6, 37–1
structure, 8–5, 19–2, 60–1, 63–9, 84–7
wall, 5–6, 7–6, 12–2, 13–6, 18–1, 20–4, 26–3, 26–5, 69–2
Cellulose, 2–23, 11–10, 60–8, 79–2, 79–4, 79–7, 81–2, 104–7
Cement, 1–5, 76–2, 103–3
Cementum, development, 59–10
Cemetery, Roman, York, 30–2
Cenomanian, 20–8, 84–3
Cepaea, 63–33
Cephalochordata, 27–5
Cephalometry, 30–6, 63–21
Cephalopoda, 5–28, 10–14, 26–23
Cephalosporin, 63–10
Ceramics, 7–14, 19–10, 22–3, 60–4, 77–2, 103–3
ancient, 13–32
bonding, with metals, 7–7, 13–32
dating, 63–5, 73–2
in dentistry, physical properties, 7–7, 35–3
spectrometry, 63–5
Ceraphrontidae, 110–1
Cereals, 17–1, 19–2, 62–1, 63–1, 70–2, 71–3, 71–6, 72–1,
enzymes, 90–1, 97–2
Cerebral cortex,
electrophysiology, 31–4
physiology, 4–22, 26–21
Cerebral palsy, 3–21, 4–18, 8–23, 29–3, 30–12, 34–3, 59–27, 59–34, 67–13, 68–19
and deafness, 59–5
chromosome studies, 30–12
effect of muscle relaxants on muscle performance, 4–23
electroencephalogram in, 4–23
motor disability, 30–12
relation to birth injuries, 59–21
treatment, 59–20
Cerebro-spinal fluid, 5–2, 5–22, 8–20, 15–2, 39–5, 59–2, 59–29
analysis, 30–13
phospholipids, 30–13
physiology, 26–20
proteins, 47–11
Cerebro-vascular disease, 54–5, 59–20, 59–21
Cerenkov radiation, 63–11
Cermets, 13–16, 13–32, 68–29
Cestoda, 10–30, 11–7, 16–1, 21–1, 73–14, 102–1
Cetacea, renal anatomy, 53–2
Ceylon, flora, 13–6
Chabazite, 110–1
Chad Republic, geology, 4–10
Chaetognatha, 15–13
Chalcidoidea, 63–12, 59–41
Chalk,
mineralogy, 5–1
soils, 5–1
stratigraphy, 19–8, 22–5
Channel Islands, geology, 22–5
Channel tunnel, 19–8
Charcoal, active, 12–2
Charnockites, 59–14
Cheese, 64–4, 65–4, 65–5, 65–7, 65–9, 70–1
Cheilosis, angular, 68–6
Chelates, 11–2, 13–7, 18–6, 60–8, 73–5, 84–2, 90–3, 110–1
Chelating agents, 7–22
Chelation, 21–2, 26–3
Chemical reaction kinetics, 2–4, 5–11, 12–5, 19–4, 63–10, 69–3, 74–2
bacteria, 70–4
combustion, 5–9, 60–3
crystallization, 3–15, 11–2, 15–16
dealkylation, 3–9
decomposition, 21–2, 60–3, 66–5, 67–2
dehydrogenation, 3–9
electrode processes, 4–6, 69–3
enzymes, 1–3, 26–3, 26–7, 65–9, 68–2
gas-solid, 72–4
gaseous phase, 8–7, 13–7, 14–3, 15–6, 22–2, 60–3, 62–3, 66–5, 67–2, 68–5, 69–3, 70–4, 73–5
graphitization, 15–16
hydrogenation, 12–2, 14–3
in arc welding, 3–15
mechanisms, 2–6, 3–6, 4–6, 6–2, 7–6, 12–2, 13–7, 14–3, 15–6, 17–2, 18–2, 19–3, 21–2, 22–2, 23–2, 26–3, 26–7, 59–9, 60–3, 60–8, 63–10, 67–2, 69–3, 73–5
multivalent ions, 17–2
oxidation, 2–6, 3–6, 12–2, 15–6, 59–9, 63–10
photochemical, 20–5
polymerization, 1–5, 2–23, 3–6, 5–9, 10–7, 11–10, 13–7, 15–6, 59–9, 60–3, 60–8, 62–3
rates, 2–11, 17–2
solutions, 5–10, 6–2, 7–6, 12–2, 13–7, 19–3, 19–10, 20–5, 62–3, 69–3
solvent extraction, 19–13
thermal decomposition, 9–5
Chemiluminescence, 67–2
Chemistry, clinical, 50–7
Chemoreceptors,
alimentary, 30–16
stimulation, 1–19
Chemotherapy, *see also as subheading under the various diseases, etc.*
drugs *and individual drugs by name*, 5–7, 5–9, 11–2, 13–22, 30–10, 53–3, 83–1
Cherts, 84–3

Chest,
disorders, *see also individual organs*, 54–9, 75–11
injury, cardiorespiratory function, 8–32
radiography, 53–20
Chick, embryology, 55–3
Child psychology, 8–29, 10–27, 26–21, 68–19
Childbirth, *see also* birth injuries
oxytocin and, 4–20
psychological disorders, 3–19
Children,
blood disorders, 2–15
brain injury, psychopathology, 10–26
cancer, 10–28
deafness, 38–2, 59–5
development, 1–21, 2–20, 4–24, 8–23, 17–8, 68–19
skeletal, 63–29
diseases,
epidemiological and genetic aspects, 7–20
in N.E. Scotland, 1–15
metabolic balance, 34–4
educationally sub-normal, 13–26
effect of environment, 10–27, 48–8
electroencephalography, 4–23, 7–25
endocrine disorders, 3–21
handicapped, 7–16, 68–19
dental disease, 47–6
psychological assessment, 15–26
visual defects, 30–12
health and growth, 8–30, 48–8, 59–35
hospitalization, 10–21
metabolic disorders, 3–21, 34–4, 55–8
neurological disorders, 3–21, 15–21
pathology, 10–22
psychiatric social problems, 4–18
psychiatry, 43–4
psychosomatic syndromes, 4–18
respiratory function, 7–20
sick, home care, 55–8
tuberculous, 7–20
Chile, geology, 26–14
Chirocephalus, 69–11
Chironomidae, 64–13, 69–11, 72–1, 103–1
Chiroptera, 15–33, 73–1
Chlorambucil, 32–1, 49–11
Chlorination, 13–7
Chlorobutyl, 110–4
Chloroform, 80–1, 114–5
Chlorophyceae, 23–1
Chlorophylls, 55–9, 116–2
Chlorophyta, 15–4
Chloroplasts, 19–2
Chloroquine, 45–4, 52–17
Chloroquinone, 41–3
Chlorpromazine, 53–19
Chocolate, 78–5
Cholangiography, 10–28
operative, 56–10
transcutaneous, 3–27
Cholangitis, 3–27
Cholesteatoma, 38–5, 38–7
Cholesteatosis, 3–20
Cholesterol, 8–4, 32–1, 53–4, 67–17
biosynthesis, 50–7
metabolism, 8–4
Cholinesterase, 7–3, 20–2, 30–9
Chorio-carcinoma, 13–19
Chorion, 40–3, 53–10
Choroid plexus, papilloma, 75–6
Christoffel symbols, 112–4
Chroman, 63–10, 91–1
Chromatin, sex, 7–3, 30–12, 59–2
Chromatography, 2–6, 3–9, 4–6, 5–9, 13–32, 19–10, 24–3, 26–8, 49–2, 66–3, 83–3, 84–6, 95–1
gas, 7–6, 8–7, 13–7, 20–2, 30–13, 68–17, 83–1, 84–2, 102–2, 105–1 115–1
moving bed, 81–2
pharmaceutical applications, 59–30
Chromatophores, animal, 9–11, 17–9
Chrome ores, 6–4, 19–3, 19–8, 19–13
Chromium, alloys, 90–3
complexes, 112–2
compounds, 76–1
radioactive, 8–17
medical use, 34–2
steels, 5–19, 68–15
tannage, 100–1
Chromones, 110–1, 114–5
Chromosomes, 3–10, 7–3, 15–9, 45–5, 59–2, 59–12, 63–9, 66–4, 66–12, 68–10, 70–1
abnormalities, 8–32, 10–22, 68–18
analysis, 2–3
autoradiography, 30–12
in infants and children, 4–18
in retinoblastoma, 41–6, 53–11
sex, 7–13, 30–12, 40–2, 59–12
Chronic disease, epidemiology, 1–22
Chronometers, 60–4
Chrysochromulina, 13–6
Chrysocolla, 19–13
Chymotrypsin, 2–7, 32–1
Chytridiaceae, 13–1
Cider, 4–1
Cilia, 9–11
Cine-angiocardiography, 3–21, 67–7
Cine-angiography, 54–6
Cine-cystoscopy, 44–1
Cine-radiography, 5–2
of joint movements, 30–2
technique, 4–26, 63–18
Cinematography, 94–2
Cinnoline, 60–3, 84–2
Circuits,
digital, 109–3
electrical, 62–4, 78–1

Circuits (*continued*)
printed, 95–4
Circulation, *see also* blood circulation and blood pressure, 30–4, 55–11
microcirculatory studies, 1–16
portal, 4–28
Cirripedes, 4–30, 72–7
Cirsium, 13–6
Citrus oils, as carcinogens, 47–3
Citrus wastage, 19–2
Claddings, buildings, 60–2, 79–3
Cladophora, 106–1
Clathrate compounds, 19–3
Claudication, 45–14
Clays, 3–9, 13–32, 19–3, 19–4, 19–5, 19–8, 20–6, 26–14, 59–11, 64–3, 64–7, 67–16, 76–2, 103–1, 103–3, 106–2
Cleaning, by ultrasonics, 110–4
Cleat, in coal, 8–15
Cleft palate, *see* palate, cleft,
Cliffs, 70–6
Climate, fluctuations, 4–9, 17–3
Climates, physiology of adaptation to, 63–3
Climatology, *see also* bioclimatology *and* microclimatology, 2–9, 3–11, 4–9, 6–3, 7–10, 7–23, 8–12, 8–14, 14–4, 15–10, 17–3, 26–13, 59–13, 61–4, 63–15, 64–6, 68–11, 74–4
Clinical trials, design, 5–26
Clones, 13–1
Closterium, 84–1
Clostridia, 13–17
Clostridium botulinum, 13–17
Clothing, causing dermatitis, 36–1
Cloud chambers, 8–26, 10–24
Clouds, meteorology, 8–26, 19–11, 19–14
Clover, 70–1, 71–3
Clutches, magnetic, 114–2
Coagulase, 2–13
Coal,
carbonization, 68–29
chemistry, 3–17, 7–11, 13–32, 62–11, 73–9, 78–5
cleaning, 3–17, 13–18, 62–11
compacted, 110–1
Measures, 3–12, 6–4, 59–14, 61–5, 62–11, 68–12, 74–5, 104–4
mining, 7–9, 13–18, 68–17, 69–7
petrography, 3–17, 7–11, 62–7, 68–29
petrology, 7–9, 68–12, 73–13
Coalfields, geology, 59–14, 74–5
Coasts, 1–8, 2–9, 5–14, 12–3, 15–8, 15–10, 22–4, 26–13, 62–6, 64–6, 70–6, 74–4, 74–5
Coatings, ceramic, 81–3
Cobalt,
alloys, 90–3
chemistry, 81–2
Cobalt, (*continued.*)
radioactive, 7–27, 25–2, 30–15
in haematology, 52–7
Coccidiosis, 16–1
Coccoidea, 19–15
Cochlea, 38–6
disorders, 39–4
function, 29–10
Cockroach, 8–35
Coelenterata, 5–28, 21–1, 66–12, 106–6
Coeliac disease, 3–4, 3–21, 34–3
Coelopa frigida, 7–31
Co-enzymes, 4–22, 7–6, 26–8
Coercivity, magnetic, 62–13
Coins, analysis, 63–5
Coking, 7–6, 68–29
Cold,
and energy expenditure, 4–22
endocrine relations, 69–10
haemagglutination, 54–6
-rolling, 19–7, 62–4
vertebrate response, 69–10
Coleoptera, 5–28, 10–30, 21–1, 59–41
Colicines, 4–14, 7–15, 46–6, 67–8
Colitis, ulcerative, 3–27, 7–21, 7–29, 8–32, 13–30, 34–3, 53–23, 58–2
diagnosis, 53–20
pathogenesis, 3–27
surgery, 63–31
Collagen, 3–22, 59–38, 67–20
diseases, 15–15, 29–8, 37–1, 52–8, 63–7
immunology, 10–22
Collagenase, action on dentine, 35–2
Collembola, 19–15
Colles' fracture, 7–18
Collision processes, 3–23, 15–8, 19–4, 22–6, 26–19
Colloids, *see also* gels, sols, 2–6, 5–10, 7–6, 8–7, 15–6, 30–4, 59–16, 60–6 62–3
radioactive therapy with, 68–26
Colon,
blood supply, 53–23.
carcinoma, 53–23
cytology, 3–27
diverticulosis, 52–8, 52–11
irradiation, 55–13
lymphatics, 53–23
purging, 13–29
secretion, 63–24
sigmoid, 52–8
Colonies, nutrition in, 48–4
Colonization, agricultural, 14–5
Coloration, animals, 5–28
Colorimetry, 60–8
Colour centals, 102–4
Colour filters, 60–3
Colour systems, textiles, 91–3
Colour vision, 10–27, 15–27, 19–14, 79–6, 91–1

Columbite, 19–10
Columns, engineering, 79–3, 82–2
Coma, hepatic, 52–8, 59–40
Combinatorics, 64–9
Combing, textiles, 79–7
Combustion, 8–10, 13–10, 13–32, 19–3, 19–4, 26–11, 59–9, 59–11, 60–3, 60–4, 68–29, 85–7, 107–4
  gaseous fuels, 3–9, 19–7, 67–2, 68–29
  spontaneous, 68–17
Common lands, 69–6
Communication,
  disorders, in childhood, 7–20
  psychological aspects, 5–25, 6–7, 26–21
Communications,
  geography, 12–3
  insects, 12–7
Commutation, 19–6, 60–4, 109–3
Complement, 3–22
  fixation, 47–22
Complex salts, 5–9, 9–5, 17–2, 22–2, 60–3, 62–3, 63–10, 68–5, 69–3, 79–1
Complex variables, 20–9, 23–3, 66–8
Complexes,
  metal, 83–1, 101–1
  metal-dye, 79–2
  molecular, 112–2
Compositae, 59–7
Composts, horticultural, 19–3
Compressors, 85–4, 95–2, 109–3
Computation, 68–13, 69–8, 81–3
Computers, 3–9, 5–17, 85–4, 101–3, 101–5, 109–4
  analogue, 7–9, 15–8, 19–6, 20–6, 60–4, 62–4, 68–8, 69–4, 74–3, 78–2, 79–4, 81–3, 83–3, 101–3, 110–3, 112–6, 113–2, 116–4
  applications, 3–23, 10–10, 11–5, 15–8, 19–6, 19–9, 26–9, 59–11, 60–4, 69–4
    commercial, 7–12
    in agriculture, 60–5
    in chemistry, 19–7, 5–9, 59–9
    in engineering, 68–8
    in geophysics, 9–9
    in naval architecture, 7–9
    in physics, 13–24, 18–6, 50–8
    in pure mathematics, 10–16
    in shipbuilding, 7–9
    in structural engineering, 5–11, 15–5, 60–4
    in surveying, 26–18
    in traffic analysis, 13–10
    in X-ray analysis, 13–7
    to heat transfer problems, 60–4
    to study of evolution, 6–1
    to transport, 60–5
  design, 5–17, 15–14, 18–6
Computers (*continued*)
  digital, 20–6, 22–3, 22–7, 59–11, 62–4, 69–5, 76–3, 79–4, 83–3, 95–2, 114–3
  error-detecting, 78–1
  hydraulic analogue, 92–2
  in control system design, 5–11, 22–3
  in studies of nuclear reaction mechanisms, 63–26
  pneumatic, 83–2
  programming, 2–8, 3–9, 15–14, 18–6, 18–7, 19–6, 60–5, 60–6, 63–30, 78–2, 79–4
  reading by, 92–3
  use in chemical engineering, 60–4
  use in structural analysis, 7–9, 19–5, 69–5
Computing, theory, 13–14
Concrete, 1–6, 3–9, 5–11, 7–9, 11–3, 20–6, 22–3, 26–9, 59–11, 60–2, 60–4, 62–4, 76–2, 80–2, 110–2
  curing, 79–3, 107–4
  prestressed, 3–9, 7–9, 10–10, 13–10, 19–5, 20–6, 59–11, 73–6
  reinforced, 4–8, 7–9, 19–5, 26–9, 59–11, 62–4, 73–6, 79–3, 94–3, 101–2, 107–4, 116–3
  thermal stresses, 62–4
Condensation,
  dropwise, 80–1
  physics, 1–6, 13–7
Conditioning, *see also* learning, 4–23
Conduction,
  electricity, 2–17, 14–8, 18–6, 19–3, 19–10, 22–3, 62–4, 63–26, 68–29, 72–9
  heat, *see also* heat transfer, 19–7, 63–26, 67–2, 69–5, 69–9, 76–5, 90–2, 110–2
Coniferae, fossil, 59–7
Conifers, 1–7, 19–2, 72–6
Conium alkaloids, 25–3
Conjunctiva, diseases, 7–27, 41–4
Connective tissue, 13–15, 59–38, 63–24
  diseases, 50–5
  effects of irradiation, 32–3
  electron microscopy, 3–22
  metabolism, 59–28
  physiology, 26–20
Conodonts, 4–10, 74–5
Conscience, psychology, 63–28
Consciousness, disturbances, 8–20
Contarinia, 7–1
Continents, drift, 7–11
Continuum mechanics, 7–12, 62–9, 64–9
Contraceptives, 59–29
  oral, 57–5
Contrast media, in urography, 44–1
Control mechanisms, *see also* automatic

Control mechanisms (*continued*)
control *and* servomechanisms, 4–8, 5–11, 26–10, 60–4, 62–4, 72–5, 74–3
Control systems, 3–9, 13–10, 19–6, 60–4, 62–4, 63–11, 64–1, 69–5, 72–5, 76–2, 94–2, 101–2, 108–3
Conulus, 64–7
Convection, *see also* heat transfer, 7–9, 19–7, 19–11, 59–11, 63–11, 95–2
Convex bodies, 64–9
Convex sets, 17–5
Conveyors, 62–4
Convulsions, infantile, 10–21
Convulsive disorders, *see also* epilepsy, in infancy and childhood, 3–21, 8–28
Cooling, engineering, 74–3, 79–3, 85–7, 95–2
Cooling towers, 19–7, 95–2
Co-ordination compounds, 4–6, 6–2, 13–7, 22–2, 26–7, 59–9, 60–3, 63–10, 72–4
Copper,
alloys, 63–19, 76–4, 77–4, 80–3, 95–1
doped, 80–3
hydrides, 59–9
metabolism, 5–18, 39–5, 47–2
mining, 14–5
ores, 63–16
Cor pulmonale, 68–14
Coralline Crag, 19–8
Corals, fossil, 5–15, 19–8, 62–7
Corbino effects, 79–3
Coriolis forces, 7–9
Cornea,
abnormalities, 41–3
curvature, 101–4
diseases, 7–27, 41–4, 53–11
measurement, 30–12
metabolism, 41–5
ulcers, 41–3
vascularization, 41–3
Corneal grafts, 41–3, 75–10
preservation, 41–3
Corona, solar, 5–5, 63–6
Coronary arterial disease, 10–23, 29–3, 30–8, 54–2
surgery, 10–28
Coronary occlusion, 10–28, 63–31
relation to atheroma, 58–2
Coronary thrombosis, treatment, 1–12, 7–13
Coronary vessels, surgery, 13–31
Corophium, 22–8
Corrosion,
flue gases, 76–2
metals, 4–21, 5–19, 7–14, 10–10, 11–3, 18–2, 19–4, 19–10, 60–4, 62–10, 68–15, 74–7, 76–1, 109–4
Corticoids, urinary, 29–2
Corticosteroids, *see also* adrenal cortex steroids, 15–21, 29–3, 29–8, 63–31, 79–5
metabolism, 68–14
Corticotrophin, 52–12, 59–15, 68–7
Cortisol, 81–5
Cortisone, effect on developing tissues, 1–2
Corynebacteria, 24–5
Corynebacteriaceae, 13–17, 62–1
Corynebacterium, 3–3
infection, 2–1, 19–2
Coryneform organisms, 64–10
Coryza, 68–16
Cosmic rays, 2–17, 4–21, 6–6, 8–26, 13–24, 18–6, 19–14, 62–13, 69–9, 77–6, 102–4
Cosmology, 5–17, 19–9, 20–9, 72–8, 76–3
Coumarin, 2–23, 70–2
derivatives, 59–30
Counters, ion, 3–4, 5–23, 10–24, 17–6, 20–11, 32–2, 49–9, 50–8, 52–13, 58–3, 59–31, 63–5, 73–11, 78–4
Counting, yeast cells, 93–4
Covellite, 81–6
Coxsackie virus, 54–6
Crabs, 16–1
Cracking, hydrocarbons, 3–9
Cranes, engineering, 11–3, 13–10
Cranial nerves, *see* nerves, cranial
Craniofacial development, 2–7
Crankshafts, 11–3, 106–3, 113–2
Crataegus, 72–1
Credibility, psychology, 59–34
Creep, 4–21, 5–11, 5–19, 10–10, 13–16, 19–7, 19–10, 59–11, 62–4, 68–15, 74–7, 76–2, 85–5, 92–2, 101–2, 104–3
Cretaceous, 2–10, 5–15, 20–8, 22–5, 64–7, 70–6
Cricopharyngeus, cine-radiography, 38–7
Critical constants, 81–2
Crocidolites, 112–3
Crofting, 10–13, 62–6
Crohn's disease, diagnosis, 53–20
surgery, 13–30
Crop drying, 2–1, 62–1
Crop husbandry, 5–1, 64–1
Crop yields, 13–1
Crops, storage, 71–6
Cross-infection, *see* hospitals, cross-infection
Cruciferae, 22–1
Crustacea, 1–26, 2–24, 7–31, 17–9, 26–23, 56–3, 59–41, 69–1, 112–7
fossil, 26–14, 112–3
Cryogenics, *see also* low temperature phenomena, 19–3
Cryptorchidism,
artificial, 15–2

Cryptorchidism (*continued*)
in cattle, 24–7
Crystal chemistry, 1–18, 5–20
Crystal growth, 1–18, 3–15, 4–6, 10–7, 12–6, 15–11, 19–4, 19–10, 59–18, 73–5, 83–5
Crystal optics, 1–9, 1–18
Crystal physics, 1–18, 19–4, 21–6, 22–7, 26–7, 59–31, 69–4, 90–7, 101–5
Crystal structure, 5–23, 6–2, 10–7, 12–6, 15–16, 18–6, 19–4, 60–6, 60–7, 63–10, 67–16, 68–5, 109–4
Crystallization, 79–2
industrial, 3–9, 11–10, 26–8
mechanics, 4–21, 19–3
rocks, 67–5
Crystallography, *see also* X-ray crystallography, 11–9, 68–13, 76–4, 80–3
Crystals
ferroelectric, 109–2
fracture, 68–15, 85–5
insulating, 113–6
lattice vibrations, 62–13
morphology, 18–4, 63–16
statistical mechanics, 110–3
Cucurbitaceae, 25–1
Cultivators, farming, 5–1
Cumacea, 15–13
Cups, cylindrical, mechanical engineering, 110–2
Currants, 4–1
Currents,
electric, 76–2, 85–4, 95–2
ocean, 7–31, 27–5
Curvature, corneal, measurement, 101–4
Cuscuta, 11–7
Cushing's syndrome, 10–22
Cuticle, arthropoda, 5–28, 59–41
Cutting, engineering, 104–3
Cyanides, 110–1
Cyanine, 19–3
Cyanocobalamin, 8–17
Cyanophyceae, 112–1
Cybernetics, 4–24, 19–6, 85–4, 95–4
Cyclobutadiene, 4–6
Cyclohexadienes, 84–6
Cyclohexane derivatives, 14–3
Cyclohexanone, 87–1
Cyclones,
mechanical engineering, 95–2
meteorology, 116–4
Cyclo-octatetraene, 70–4
Cyclo-pentadienes, 19–3
Cyclopentane derivatives, 3–9
Cyclopropane, 2–2
Cyclopyge, 66–7
Cyclostomata, 62–14
Cyclotrons, 3–23, 15–24, 63–26
Cyprus,
anthropology, 63–4
geography, 22–4, 63–15
geology, 13–13
Cyrtograptidae, 3–12
Cysteine, metabolism, 32–1
Cystinosis, 34–4
Cystinuria, 26–12
Cystoscopy, 3–1
Cytochemistry, 1–4, 7–31, 8–4, 10–5, 13–6, 15–12, 20–13, 22–8, 49–2, 63–33, 112–1
Cytochrome, 45–7
Cytogenetics, 30–12, 59–12, 73–4
animal, 66–12
plant, 3–5, 71–6
Cytology, 10–2, 55–9, 59–12, 63–3, 69–2, 83–1
animal, 8–13, 8–35, 20–13, 62–14, 63–33
bacterial, 8–18
exfoliative, 3–27, 40–2, 40–3, 40–5, 52–16, 57–7, 58–2, 63–21, 63–24
in obstetrics, 4–15
experimental, 4–30, 7–31, 53–25
human, 26–12
in obstetrics, 3–19, 40–3
plants, 1–4, 13–6, 23–1, 70–1, 71–3, 84–1, 112–1
quantitative, 31–1
Cytoplasm, grafting, 26–1
Cytotoxic agents, 10–28, 29–5, 53–22, 54–5, 57–7
in lung carcinoma, 30–9

Dactylioceratidae, 14–6
Dactylis, 71–3, 71–6
Dactynotus spp, 116–1
Dairy equipment, 65–5, 70–1
sterilization, 2–1
Dairy farming, 13–1
Dairy products, 65–4
Dalmanella, 74–5
Dalradian, 1–9, 19–8, 20–8, 68–12
Damping,
ferromagnetic, 85–5
vibrations, 3–9, 11–3, 11–6, 19–7, 21–6, 59–18, 60–4, 69–5
Dams, 4–8, 10–10, 19–5, 69–5
arch, 3–9, 8–10, 19–5, 26–9, 62–4, 74–3
Darzen's glycidic ester, 76–1
Data processing, 79–4
Data recording systems, 85–1
Data storage, 95–4
Dating, archaeology, 63–5
Datura, 113–5
pharmacognosy, 11–8, 62–12
Dayia, 22–5
Deaf,
education of, 59–5
mutism, congenital, 1–2
Deafness, 38–2, 39–4, 45–11
aetiology, 59–5
congenital, 38–2, 53–7
emotional and social aspects, 59–5

Deafness (*continued*)
in children, 3–20, 38–2, 47–14, 59–5, 59–26, 59–27
learning process, 38–2
non-organic, 59–26
occupational, 45–11, 59–23, 67–12
perceptive, 38–4, 40–4
surgical treatment, 3–20, 45–11
Death, determination of time, 7–21, 68–9
Decapoda, 15–13, 107–6
Decarbonylation, 114–5
Decidua, blood supply, 40–3
Decision, psychology, 83–4
Decks, civil engineering, 79–3
Decomposition,
chemical, 19–3
thermal, 2–6
Decompression,
effects, 15–2
equipment, 29–7
Deep drawing, 3–15, 77–4
Defence mechanisms, 14–9
Deformation, physics, 3–9, 3–15, 5–19, 5–23, 8–10, 8–26, 15–8, 15–16, 19–1, 19–4, 19–5, 19–7, 19–10, 21–6, 22–3, 59–18, 63–11, 68–15, 73–6, 74–7, 77–2, 83–2
Deglaciation, *see also* glacial periods, 8–14
Deglutition, 63–18
Dehydrogenase, isocitric, 29–7, 52–11
Dehydrogenation, 3–9, 12–2
Dehydroxyshikimic acid, 68–5
Delinquents, classification, 63–28
Demodex follicularum, infestation, 36–1, 47–7
Demyelinating diseases, 7–13, 30–13, 39–5
Dendrology, 72–6
Denmark, geography, 18–3
Density, nonhomogeneity effects, hydraulics, 11–3
Dental arch, 45–3
abnormalities, 45–3
alignment, in cleft palate surgery, 10–28
Dental cysts, 8–8
Dental plaque, 7–24
Dental pulp, *see* pulp, dental
Dental tissues, *see also* teeth, 3–23, 4–7, 8–8, 13–8, 45–3, 47–6
calcification, 10–8
effect of anorganic bone, 35–6
effect of materials on, 30–6, 51–2
histochemistry, 67–3
histology, *see also* teeth, 47–1, 68–6
innervation, 10–8, 47–1
microscopy, 59–10
electron, 10–8
Dentine, 35–2, 35–4, 51–2, 68–6
action of collagenase, 35–2
anatomy, 47–6
carious, 35–2
softening, 3–7
effects of heat, 35–6
electron microscopy, 47–6
innervation, 47–6
microradiography, 59–10
secondary, 3–7
sensory reception, 30–16
Dentistry,
anaesthesia, 59–1
hazards, 59–10
high speed cutting, 35–3
instruments, bacteriology, 10–8
hazards, 3–7
materials used, 7–7, 30–6, 35–6, 35–7, 47–6, 51–2, 59–10, 67–3, 68–6, 114–5
testing, 35–3
pre-operative medication, 67–3
radiation hazards, 10–8
shade matching, 7–7
value of induction heating in casting alloys, 2–7
Dentition, 35–5
development, 2–7
Dentoalveolar structures, 35–5
Dentures, 30–6, 67–3, 78–1
acrylic,
dimensional changes, 3–7
tissue tolerance, 7–7
base materials, resilient, 15–7
clinical assessment, 3–7
effects on tissues, 8–8, 30–6, 68–6
effects on oral mucous membrane, 47–6
full, stress distribution, 59–10
impression tray design, 8–8
irritation due to, 7–7
partial, 47–6, 67–3
stress distribution, 59–10
Denudation, 2–9, 7–10, 63–15, 64–6, 74–4
11-Deoxycorticosteroids, 29–8
Deoxyribonuclease, 32–1
Deoxyribonucleic acids, 32–1, 49–1
Deoxyribonucleoproteins, 32–1
Depersonalization syndrome, 7–25, 13–26
Depression, mental, 13–26, 15–26, 43–5, 52–15
and insomnia, 8–28
biochemistry, 13–26, 53–19
electroencephalography, 43–3
metabolism in, 43–3
treatment, 7–25, 13–26, 39–7, 53–19, 54–8
Depsides, 68–5
Dermabrasion, 47–7

Dermatitis, *see also* skin diseases
atopic, 36–1
contact, *see* dermatitis venenata,
industrial, 36–1
occupational, 36–1
psychological aspects, 14–26
venenata, 36–1
Dermatology, *see also* skin, 56-4
Dermatomycoses, *see also* skin, fungal diseases, 10–29
Dermatophytes, enzymes in, 36–1
Dermatoses,
oral manifestations, 30-6
racial incidence, 47–7
Derris, 114–5
Deserts, 4–9, 14–5
Design, engineering, 10–10
Desmids, 8–6
Desorption, 90–4
Desylamines, 67–2
Detonation, 19–4, 19–9, 70–8
Devonian, 5–15, 6–4, 19–8, 20–8, 62–7, 64–7, 74–5
Dewpoint, 97–2
Dextran, 3–22
Diabetes, 8–25, 13–15, 50–5
aetiology, 30–9
and cancer, 4–25
and *Candida* infection, 13–9
and glomerulosclerosis, 52–11
epidemiology, 8–30
experimental, 8–24, 30–9
genetic aspects, 15–15
in children, 3–21
in infancy, 59–27
in pregnancy, 45–9, 59–22
insulin antibodies in, 30–13
neurological complications, 13–15
ocular complications, 41–3, 41–4, 41–6, 52–17, 53–11, 67–10
peripheral vascular disease in, 4–13
treatment, 30–9
vitamin B12 levels, 75–7
Diabetic mothers, infants of, 8–23, 45–9, 45–12
Diabetics, dental disease, 7–7
Diagnosis, 1–17, 8–34
Diamines, *see also* amines, 80–1
Diamonds, 20–11, 23–4, 112–6
Diapause, insects, 8–35, 10–30, 56–3, 68–30
Diaphragm, perfusion, 21–7
Diarrhoea, calf, 10–29
Diazo compounds, 93–2
Diazoanthracenes, 84–6
Diazonium compounds, 13–7, 60–3, 68–5, 76–1
Dibenzobiphenylenes, 93–2
Dibunophyllum Zone, 74–5
Di-2-chloroethylamine, 32–1
Dichlorophenoxyacetic acid, 20–4
Dichroism, 9–5, 10–7
Dicynodontia, 8–35
Dielectrics, 4–21, 15–24, 17–6, 18–6, 22–3, 59–31, 60–4, 61–2, 63–10, 68–29, 69–9, 70–4, 72–9, 74–3, 84–7, 110–2
breakdown, 3–9, 3–23, 6–6, 22–3, 59–11, 74–8, 77–2
Diels Alder reaction, 22–2
1:6-Dienes, 94–2
Dies, 92–2
casting, 3–15, 77–4
Diesel engines, 3–9, 7–9
exhaust gases, 76–2
chemistry, 7–17
jet, 63–30, 83–1
iodine content, 68–25
protein content, 52–14
Dietary deficiencies, effects on tissues, 3–4
Diffraction, *see also* electron diffraction, X-ray diffraction, 11–5, 15–14, 19–14, 77–6, 84–7
Diffraction gratings, 60–4
engine, 1–18
Diffractometers, 81–6
Diffusers, engineering, 14–4
Diffusion, 63–17, 90–4, 110–4
gases, 1–5, 3–9, 4–8, 9–9, 19–3, 72–8
liquids, 1–5, 3–9, 6–2, 8–10, 15–8, 19–10, 59–18, 60–4, 60–8, 68–5
solids, 11–9, 19–3
Digenea, 14–10
Digestion, comparative physiology, 73–14
physiology, 7–24, 10–25
ruminants, 62–1, 65–6
Digestive tract, *see* alimentary tract
Digital arteries, disease, 53–23
Digitalis, 7–22, 45–2, 80–4, 84–1
in respiratory distress syndrome, 15–21
toxicity, 8–25
Dihydroxy-indoles, 12–2
Dimensions, theory, 66–8
Dimorphism, animals, 63–33
Dinantian, 84–3
Dinaphthyls, 93–2
Diodes, 19–6, 69–4, 84–7
Diol systems, 83–1
Diophantine analysis, 59–16, 110–3
Diorites, 66–7
Dioscorea, pharmacognosy, 62–12
1:4-Dioxan, 2:3-dichloro-, 76–1
Di-phenylmethane dyes, 12–2
Diphosphopyridine nucleotide inhibitors, 32–1
Diplopia, 101–4
Dipole moments, 116–2
Diptera, 5–28, 59–41
Discharges, electric, 1–6, 3–23, 11–3, 15–8, 18–2, 22–3, 60–4, 61–7, 68–8, 69–5, 74–8
Discomycetes, 69–2

Discrimination, 5–25
Discs, intervertebral, 4–29, 15–32, 53–9, 63–23, 79–7
Disease,
  genetic aspects, 8–30, 34–1
  geographical distribution, 5–16, 70–5
  psychological reactions, 15–26
  public attitudes to, 13–28
  social aspects, 15–28
Disintegration, radioactive, 8–26
Dispersion,
  liquid-liquid, 74–3
  optical, 9–5, 27–2, 112–2
Dissociation,
  acids, 26–3
  constants, 81–2, 94–2
  molecular, 94–6
Distemper, canine, 10–29
Distillation, liquids, 3–9, 5–11, 8–10, 11–10, 13–10, 19–4, 25–2, 60–4, 74–3, 76–2, 90–4, 95–2
Distributions, theory, mathematics, 63–17
Ditylenchus, 71–5
Diuresis, 8–25
Diuretics, 1–17, 7–13, 50–7, 52–5, 68–21
  effect on water and electrolyte metabolism, 10–28
  in oedema, 67–7
  in pregnancy, 40–3
Diurnal length, variations, 15–14
Diurnal rhythms, biology, 5–24
Diverticulosis, of colon, 52–8, 52–11
Docks, fauna, 74–9
Dogs,
  anatomy, 15–32
  bone abnormalities, 10–29
  cardiovascular disorders, 8–34
  coronary occlusion, 10–29
  dental development, 15–32
  dental disease, 10–29
  dermatology, 24–4
  distemper, 10–29, 51–2
  oestrus and pregnancy, 24–7
  otology, 24–4
  physiology of reproduction, 24–2
  surgery, 15–32
  urinary calculi, 15–32
Dolerite, 67–5
Domes, structural engineering, 15–8
Donegal Granite, 20–8
Dormancy, plants, 21–1, 22–1, 28–2, 62–2, 70–3, 73–4
Dosimeters, 59–6
Dosimetry, radiotherapy, 58–3, 59–31
Double refraction, 69–9
Drafting, textiles, 79–7, 110–3
Drainage,
  engineering, 3–9
  geography, 8–14
Drawing,
  metals, 79–3
  textiles, 79–7, 91–3
Dreaming, 8–28
Dredging, 60–4
Drill, high-speed, use in dentistry, 3–7, 10–8, 35–3,
Drilling, rocks, 68–17
Driving,
  effect of drugs, 26–21
  visual problems, 101–4
Drosophila, 1–26, 5–12, 8–13, 8–35, 26–23, 90–1
Drought, resistance, 23–1
Drowning, pulmonary effects, 45–12
Drug receptor, 31–3
Drug sensitivity, 55–6
Drugs, *see also* chemotherapy *and under names of various drugs*
  absorption, 11–8
  acting on nervous system, 3–25, 10–23, 10–29, 25–1, 25–4, 26–17, 26–21, 43–1, 52–12, 53–16
  action, 2–19, 8–25, 70–4, 75–8
  active principles, 11–8
  addiction, treatment, 55–10
  anti-inflammatory, 94–5
  anti-thyroid, 2–4
  autosensitization reactions, 26–17
  aspiration dangers, 68–9
  assay, 84–6
  complexing, 84–6
  effects, *see also* anaphylactic shock *and* anaphylaxis, 1–17, 3–25, 5–25, 43–4, 43–5, 47–17
    of humidity, 25–2
    on growth, 30–14
    on motor performance, 52–1
  formulation, 25–2
  hallucinogenic, 8–28
  hypotensive, 50–5
  metabolism, 15–23, 55–2
  radioactive, 5–26
  sympathomimetic, 20–10, 52–3
  synthesis, 8–25, 12–2
  trials, 8–25, 48–9, 50–5, 68–21
  tropical, 3–4
  vegetable, 59–30
Drüsen, optic nerve, 39–2, 45–10
Drying,
  freeze, 5–21, 8–34, 62–5
  industrial, 11–3, 11–10, 68–29, 93–4
  infra-red, 79–5
Dunes, 4–5
Duodenal ulcer, *see* peptic ulcer
Duodenum,
  acidity, 75–3
  effect of hypertonic solutions, 47–20
  radiology, 13–29
Durane, 87–1
Dust,
  coal, 104–4

Dust (*continued*)
cosmic, 94–6
electrostatic precipitation, 3–17
flame propagation in, 19–4
health aspects, 48–5
immunological effects, 37–1
in mines, 10–10, 73–9, 73–10, 73–13, 79–4
inhaled, 50–8
mineral content, 62–7
particle counting, 19–14
plant, 114–5
slate, 103–3
Dusts, sanitary engineering, 11–10
Dyeing, 13–7, 13–32, 60–8, 104–7,
Dyes,
arylmethane, 91–1
azo, 95–1, 103–1
disperse, 104–7
Dyestuffs, 11–10, 13–32, 60–8, 79–2
Dykes, 67–5, 74–5
Dynamometers, 62–4, 63–11
Dysentery,
amoebic, 48–11
treatment, 10–15
Dyslexia, 39–1, 45–8
Dysphasia, 8–20
Dysplasias, fibrous, congenital, 10–8
Dyspnoea, 50–5
Dystocia, 57–5
Dystonia, 34–5
Dystrophia myotonica, *see also* myotonia, 7–13

Ear,
cancer, 38–4
deformity, congenital, establishment of hearing, 63–32
disorders, 3–20, 7–19, 39–4
effect of ultrasonic waves, 4–17, 38–5
inner,
anatomy, 38–1, 38–5
effect of chemical substances, 38–5
fluids, 39–3
physiology, 38–6
middle,
cleft, 59–26
malignant disease, 3–20, 38–5
plastic surgery, 38–4
ossicles, blood supply, 59–26
surgery, 3–20
tumours, 3–22
vestibular mechanism, 45–11
Ear-chamber grafts, 63–24
Ear-chamber technique, 31–2
Earthquakes, resistant structures, 94–3
East Africa,
geology, 15–11, 17–4
social systems, 7–4
Ebenaceae, 63–14
Echinoderma, 5–28, 17–9, 23–5, 49–3, 63–33
fossil, 5–15
Echinoidea, fossil, 64–7
Echo-sounding, 3–9
Eclogites, 7–11, 8–15, 84–3
Ecology, 14–5
animals, 1–26, 4–30, 5–28, 6–8, 7–31, 9–11, 10–30, 13–35, 14–10, 23–5, 63–12, 63–33, 64–13, 68–30, 69–11, 72–1, 72–10
birds, 3–28, 70–9
forests, 26–6
freshwater, 15–33, 70–9
human, 5–16
Insecta, 28–6, 61–1
marine animals, 2–24, 4–30, 7–31, 22–8, 61–1, 68–30, 74–9
micro-organisms, 3–16
nitrogen-fixing organisms, 20–4
plants, 1–4, 1–7, 2–5, 3–5, 5–8, 6–1, 7–5, 8–12, 9–3, 10–6, 12–1, 13–1, 27–1, 64–1, 64–2, 69–2, 70–5, 79–3
plants, algae, 15–4, 15–13, 23–1, 66–4, 72–7, 112–1
Bryophyta, 10–6, 17–1, 22–1
caves, 73–4
dunes, 4–5
forests, 63–14, 72–3
fungi, 68–3
heathlands, 23–1
industrial waste areas, 73–4, 74–1
limestone, 4–5
marine, 10–6
marshes, 62–2, 70–3
moorland, 63–14
Wales, 72–1
psocids, 13–35
sewage beds, 7–9
Economics, 28–4, 63–30
agricultural, 1–1, 2–1, 4–1, 5–1, 7–1, 8–1, 9–1, 13–1, 62–1, 63–1, 64–1
engineering, 108–3
forests, 63–14
industrial, 19–9
mining, 104–4
Eczema, 57–6, 68–7
infantile, 34–3, 68–7
Eddies, hydraulics, 3–9
Eddingtonian physics, 12–5
Eddy currents, 19–6, 68–22
Education,
agricultural, 63–1
for family life, 59–34
medical, 8–30
Effluents, purification, 13–4
Egg products, 97–1
Egg yolk, 97–1
Eggs,
bacteriology, 8–1
commercial production, 62–1

Eggs (*continued*)
deterioration, 2–1
pigmentation, 62–1
preservation, 97–1
shell, 64–3
Egypt,
archaeology, 59–3
geography, 7–10, 17–3, 64–6, 74–4
geology, 7–11
Ehrlich's ascites tumour, 59–36
Eigenfunction expansions, 63–17
Eire,
geography, 12–3, 26–13, 74–4
geology, 2–10, 4–10, 6–4, 8–15, 9–7, 12–4, 14–6, 15–11, 17–4, 19–8, 20–8, 22–5, 26–14, 59–14, 63–16, 64–7, 66–7, 67–5, 68–12, 69–7, 73–7
Elasticity, 4–8, 5–17, 7–12, 7–23, 11–5, 12–5, 18–5, 19–8, 20–6, 26–16, 59–16, 60–4, 62–9, 63–17, 64–9, 73–8, 74–3, 76–3, 85–6, 116–4
thermal, 14–4
Elastin, 13–15
Electro-acoustics, 84–7
Electrocardiography, 45–2, 47–4, 50–5, 53–4, 67–7, 73–12
foetal, 57–5
Electrochemistry, 4–6, 5–9, 5–19, 7–6, 10–7, 12–2, 13–7, 13–32, 15–6, 18–2, 19–3, 19–10, 22–2, 26–7, 60–3, 70–4, 79–5, 112–2
Electroconvulsive therapy, 7–25
Electrocorticography, 7–25, 47–12
Electrodeposition, 3–15, 19–4, 22–2, 62–10, 76–4, 77–1, 101–1
Electrodes, 76–4, 95–1, 108–2, 112–2
bubble formation, 3–9
cathodes,
oxide-coated, 77–6
protection, 22–6, 109–4
Electrodynamics, 5–23, 8–26, 10–3
Electroencephalogram, 34–3
effect of drugs, 3–25
effect of electroconvulsive therapy, 7–25
in cerebral spastics, 4–23
in children, 7–25
in muscular dystrophy, 7–25
in newborn, 40–4
in old age, 4–23
in premature and normal children, 4–23
in schizophrenia, 7–25
wave analyzer, 7–25
Electroencephalography, 3–2, 3–21, 8–20, 39–6, 39–7, 43–3, 47–7, 47–12, 59–20
application to anaesthesia, 4–2, 8–20
in infants, 34–3
Electrokinetics, theory, 15–14
Electroluminescence, 3–23, 59–11, 64–11
Electrolysis, 94–2
Electrolytes, 8–7, 18–2, 19–3, 31–4, 57–6, 60–3, 64–3, 95–1, 102–2
amphipathic, 11–2
and protein sensitization, 4–22
balance, 10–29, 55–13
colloidal, 76–1, 79–2
derivatives, 3–22
effect of drugs on movement, 47–17
exchangeable, reference standards, 1–17
imbalance, 8–32
in labour, 13–19
in plasma, 15–22
in pregnancy, 8–21, 13–19, 57–5
in puerperium, 13–19
metabolism, 4–20, 49–4, 50–5, 50–10, 53–18, 59–17
Electromyography, 13–15, 30–2, 30–6
Electron,
affinities, 77–1
diffraction, 5–11, 10–7, 18–6, 19–4, 56–8, 60–7, 61–2, 63–10
emission, 61–7, 87–2
guns, 5–11
microscopy, 2–24, 3–3, 3–15, 3–22, 5–11, 5–23, 5–24, 7–13, 7–21, 8–13, 8–18, 8–27, 8–35, 10–7, 11–9, 13–5, 13–6, 13–22, 13–32, 15–12, 15–16, 17–1, 19–2, 19–3, 19–4, 19–10, 20–3, 20–11, 24–6, 26–1, 30–2, 31–1, 38–5, 47–1, 48–2, 48–6, 53–17, 60–3, 63–33, 64–11, 73–1, 73–9, 73–10, 101–5, 114–6
effects on micro-organisms, 5–23
embryonic tissues, 26–1
kidney, 8–24
mining applications, 73–10
skin, 15–12
viruses, 5–21
multiplication, 22–3
optics, 18–6, 19–14
plasmas, *see also* plasma, 19–6
scattering, 8–26, 17–6, 26–19, 64–11
spin, 7–6, 7–23, 13–7, 14–3, 22–2, 61–7, 72–9
trajectory, 7–9
Electronic simulators, 26–1
Electronics, 1–18, 11–3, 19–14, 72–5, 73–6
application to medicine, 5–24, 13–24, 50–3, 58–3, 66–10
Electrons,
beams, 18–6, 53–17, 59–31, 69–4
energy distribution, 102–4
transfer, 80–1
transport systems, 15–3, 56–2
Electropharmacology, 53–16
Electrophoresis, 3–6, 3–9, 5–10, 7–21, 10–21, 15–6, 30–3, 38–5, 46–2, 80–1

Electrophysiology, 8–5, 8–17, 39–6, 61–3, 63–27
Electroplating, 76–1, 77–1
Embankments, engineering, 2–8
Embolism, 29–3, 55–9
  air, 39–3
  fat, 7–21
  pulmonary, 5–21, 33–1, 63–31
Embrittlement, hydrogen, 76–4
Embryogenesis, 8–13, 28–1
Embryology,
  animal, 2–3, 8–35, 10–29, 17–9, 24–1, 55–3, 62–14, 72–7, 72–10
  biochemical, 1–2, 26–1
  comparative, 55–1, 55–3, 64–13
  experimental, 5–2, 49–3
  human, 5–2, 10–2, 29–1, 47–1
Emetine, 25–1
Emotional disturbances, 39–7
Emotional reaction, 43–5
Emphysema, 15–1, 30–9, 53–20, 68–14, 75–7
  pulmonary, 50–7, 50–9
Empididae, 63–12
Emulsification, 25–2, 68–5, 79–5
Emulsifying agents, 78–5
Emulsions,
  photographic, for nuclear track examination, 4–10, 6–6, 8–26, 10–24, 20–11, 26–19, 63–26
  physical properties, 25–2, 65–9, 79–5, 84–6, 114–5
Enamel, dental, 51–2, 68–6
  biochemistry, 4–7
  calcification, 4–7
  caries, 3–7
  composition, 4–7
  defects, *see also* caries, dental, 68–6
  effects of heat, 35–6
  effects of thermal changes, 59–10
  electron microscopy, 47–6
  hypoplasia, 51–2
  microradiography, 59–10
  permeability, 59–10
  structure, 4–7
  X-ray diffraction, 10–8
Encephalitis, 7–13, 30–13, 39–1
Encephalomyelitis, allergic, 7–21
Encephalopathy, 41–2
Endocrine disorders, in children, 3–21
Endocrine glands, 8–27, 84–8
  and cancer, 13–22, 32–1
  and electron microscopy, 47–1, 73–1
  cytology, 73–1
  disorders, 43–2
  pathology, 15–22, 68–20
  physiology, 2–22
  vascularization, 15–2
Endocrinology, *see also individual endocrine glands*, 5–2, 20–1, 30–7, 43–3, 52–2, 56–4, 59–15, 62–14
  clinical, 3–8, 3–19, 8–25
Endocrinology (*continued*)
  comparative, 13–35, 15–33, 24–6, 68–30, 70–9
  gynaecological, 40–2
  in obstetrics and gynaecology, 1–14
Endometriosis, 2–14
Endometrium, 29–1
  diseases, 57–6
  lipids, 68–23
  tuberculosis, 40–5
Endophthalmitis, 41–4
Endothelium, 63–24
Endotoxins, 11–8
Endotracheal intubation, 63–2
Energy,
  expenditure, individual variations, 8–27, 10–25
  solar, 116–3
  transfer, 8–7, 68–5
Engineering,
  aeronautical, 81–3, 101–2
  chemical, 5–11, 7–9, 8–10
  hydraulic, 1–6, 3–9, 11–3, 15–8, 19–5, 67–4, 73–6
  medical, 50–3
  nuclear, 11–3
  sanitary, 7–9, 19–5, 26–9
Engines,
  diesel, 7–9, 60–4, 68–8
  hot air, 7–9
  internal combustion, 3–9, 5–11, 8–10, 15–8, 19–7, 20–6, 26–11, 59–11, 67–2, 73–6, 77–2, 78–1, 94–3, 95–2
Entamoeba, 16–2
Enteritis, 4–14
Enterobacteriaceae, 2–1, 24–5, 50–6
Enthalpy, 88–2
Entomology, 1–7, 1–26, 4–30, 5–28, 28–6, 68–30, 74–9, 107–6
Enuresis, 3–19, 4–23, 45–14, 59–35
  treatment, 44–1
Environment,
  and animal health, 5–27
  effect on plants, 70–1
  hygiene, 48–7
Enzyme kinetics, *see* chemical reaction kinetics, enzymes
Enzymes, *see also* co-enzymes *and* iso-enzymes *and by individual name*, 1–3, 2–4, 3–6, 3–16, 5–6, 5–10, 7–6, 8–7, 8–35, 9–5, 10–22, 11–7, 15–3, 20–4, 32–1, 47–2, 50–7, 53–3, 55–9, 62–5, 73–3, 80–4, 90–1
  acting on mucopolysaccharides, 42–1
  acting on polysaccharides, 46–1
  activity, 50–7
    intestinal, 52–14
    on muscle, 20–10, 30–9, 34–4
  adaptive, 14–1
  adrenal, 58–2

Enzymes (*continued*)
biochemistry, 31–2
catalytic activity, 62–3
cerebral, 39–5
crystalline structure, 18–6
cutaneous, 36–1
effect of drugs, 57–6, 67–15
foetal, 30–12, 63–18, 65–18
fungal, 26–3, 62–2
hepatic, 13–22
histochemistry, 31–2
hydrogen-activating, 4–4, 4–6
hydrolytic, 42–1, 49–1, 59–30
in micro-organisms, 7–5, 26–3, 26–6, 49–2, 63–7
in mucosal cells, 1–3
in newborn, 30–12, 63–18
in sugar hydrolysis, 19–2
inactivation, 53–17
inhibitors, 1–16, 30–6
irradiation, 5–26, 53–17
of alimentary tract, 3–4, 72–2
of mammary gland, 65–10
pancreatic, 13–15
proteolytic, 8–4, 68–2
respiratory, 74–1
serum, 7–13, 10–5, 20–2, 42–1, 52–11, 54–7, 58–2
staphylococcal, 7–15
steroid-hormone activation, 52–11
Eocene, 12–4, 19–8, 84–3
Eosinophils, 4–3, 55–9
Eperythrozoon infection, 3–3
Epicocci, 114–1
Epidemics, mathematical theory, 63–8
Epidemiology, 1–13, 1–24, 3–3, 4–25, 8–18, 10–15, 10–29, 14–9, 48–9, 56–5, 75–11
hospital infections, 4–14
virus diseases, 15–28
Epidermis, *see also* skin, 36–1
Epididymis, passage of radiopaque medium, 15–2
Epididymo-orchitis, 47–22
Epidural space, pressure measurement, 52–2
Epilepsy, 8–30, 34–3, 39–3, 39–6, 43–3, 59–20, 63–20
and psychoses, 39–7
body water changes, 39–1
stereotactic, thalamic lesions, 3–18
surgery, 3–18, 39–3
treatment, 7–25, 50–5
Epiphora, 53–11
Epiphyses, 63–23
Epistaxis, 38–4
Epithelia, 47–20
Epithelium,
biochemistry, 73–3
gastro-intestinal, 56–6
Epoxy resins, 36–1
Equations,
binary, 60–6
differential, 1–11, 5–17, 10–10, 10–16, 27–3, 63–17, 64–9, 66–8, 69–8, 70–7, 76–3, 79–4, 83–3, 101–3, 109–4, 112–4, 113–4, 116–4
integral, 3–13, 11–5, 76–3, 84–4
Equidae, 10–29
Equilibrium,
chemical, 3–9, 13–10, 17–2, 19–3, 19–4, 59–9, 59–14, 62–7, 68–29
organs of, 38–6
Ergodic theory, 19–9
Ergonomics, 26–21, 63–3, 85–4, 95–4
Ergosterol, 113–5
Eriophorum, 74–1
Erosion, 4–10, 9–6, 15–10, 22–3, 22–4, 26–9
Erysipelothrix infection, 1–13
Erythema, 36–1
nodosum, 68–19
Erythrasma, 52–6
Erythroblastosis, 2–16
foetalis, experimental, 10–22
Erythrocytes, 10–22, 16–2, 55–11, 57–3, 57–6, 59–36, 63–7, 68–21
effect of macromolecular substances, 1–16
elliptocytosis, 67–14
foetal, 30–11
in anaemia, 34–2
in disease, 58–2
metabolism, 52–7, 52–8
neonatal changes, 34–3
permeability, 17–7
proteins, 68–21
Erythrophleum, 25–1
Erythropoiesis, 4–29, 34–2, 47–9
Escherichia, 2–1, 24–5
Esters, 73–3, 84–2, 112–2, 113–5
Estuaries,
biology, 12–7, 15–4
hydraulics, 15–19, 69–5
Etching, 60–4, 101–1
Ether, effect on muscle relaxants, 10–23
Ethers, 76–1
Ethics, psychology and, 18–7
19-Ethinyl-nortestosterone, 40–2
Ethnography, 5–3
Ethnology, 63–13
Ethylene oxide, 80–4
Ethyleneimines, 59–29
Ethylenes, diphenyl, 91–1
Etiolation, 69–2
Eucalyptus, 2–5, 66–5
Euglenophyta, 13–6
Euphorbiaceae, 114–5
Euphrasia, 5–8
Europe, geography, 26–13, 62–6, 69–6
European Economic Community, agricultural economics, 70–1
Eurypterus, 3–12

Eustachian tube, 15–30
Evaporation, 3–9, 7–9, 11–10, 13–7, 19–4, 62–4, 67–2, 68–11
Evaporites, 8–15, 26–14
Evolution, 4–30, 5–1, 6–1, 7–1, 7–5, 30–3, 63–9, 63–33
Exchange transfusion, *see also* blood transfusion, exchange, 2–15
Excretory patterns, 50–7
Executives, health of, 48–5
Exercise,
  adaptation to, 3–14
  cardiovascular effects, 3–24
  severe, muscular capacity for, 13–25
  tolerance, 50–5
Exhaust gases, diesel, 7–17
Eximers, 68–5
Exophthalmos, endocrine, 45–10
Expansion, thermal, 3–15, 63–26, 79–6
Experiments, design, 1–24, 4–1, 5–25, 18–8, 63–8, 65–11
Explosion prevention, 19–4
Explosions,
  initiation, 11–5
  thermal, 13–7
Explosives, mining, 8–19, 68–17
Extenders, 78–5
Extracorporeal circulation, *see* blood circulation, heart, artificial, heart-lung machine,
Extraction, liquids, 7–9, 19–4, 19–10, 26–8, 62–3, 76–2
Extrusion, mechanical engineering, 15–8, 60–4
Eye, *see also* retina
  anterior chamber implants, 4–16
  biochemistry, 63–22
  blood supply, 41–5
  congenital defects, 41–3
  dermoid cysts, 53–11
  diet effect, 41–6
  diseases, 41–3, 41–4
    hereditary factors, 10–20
    in prematurity, 4–16
    vascular, 10–20
    virus, 41–4
  efficiency, 59–34
  filtration angle, 47–13
  fluids, 26–20
  growth and development, 30–16
  histochemistry, 63–22
  histology, 63–22
  intra-ocular pressure, 41–1, 41–5, 53–1
  malignant disease, detection, 4–16
  movements, 8–27, 8–28, 59–21, 59–34
  muscles,
    diseases, 39–2
    extrinsic, 30–2, 41–4
  paralysis, *see* paralysis, ocular,
  pigments, 65–1
  rigidity, 41–1, 41–5
Eye (*continued*)
  sarcoidosis, 45–6, 45–10
  surgery, 3–22, 41–1, 45–10
    anaesthesia, 53–1
    in dogs, 24–7
  tumours, 41–3, 53–11
    diagnosis, 15–20
    treatment, 41–6
Eyelids,
  proptosis, 39–2
  ptosis, 41–6

Fabrics, knitted, 104–7
Face,
  abnormalities, 51–7
  asymmetry, 51–7
  form and growth, 2–3, 54–6
  growth, 35–8, 51–7
Facial canal, radiology, 38–7
Facial paralysis, 3–20, 38–3, 45–11, 49–12
Facies, in disease, 30–12
Faeces, fats in, 3–4
Falkland Islands, geology, 3–12
Families,
  health, in Newcastle upon Tyne, 48–8
  life in high flats, 4–25
  social and psychiatric aspects, 55–8
Fans,
  noise, 96–1
  rotating, 94–3
Faraday effect, 64–11
Farm animals, metabolic diseases, 70–1
Farm layout, 64–1
Farm management, 2–1, 4–1, 5–1, 7–1, 8–1, 9–1, 13–1, 28–4, 64–1
Farm mechanization, 5–1, 9–1, 9–6, 64–1
Farm workers, accommodation, 4–1
Fascia, wound healing, 67–20
Fat,
  body, 34–3
  embolism, 7–21
  emulsion, *see also* fats, 34–5
  intravenous, 15–30
Fatigue of materials, 2–8, 3–15, 4–8, 4–21, 5–19, 11–3, 13–10, 13–16, 19–1, 19–7, 26–11, 59–11, 60–4, 62–4, 62–10, 63–26, 68–8, 68–15, 69–5, 73–6, 74–3, 74–7, 76–2, 76–4, 77–4, 85–5, 91–2, 101–2, 104–3, 109–3, 110–3, 114–6
Fatigue, psychology, 3–9, 4–24
Fats,
  absorption, 13–30, 52–8, 65–1, 67–20
    and metabolism, 3–4
  chemistry, 66–5
  dietetics, 83–1
  digestion, 7–24
  metabolism, 8–21, 24–6, 55–6
  oxidation, 11–4
  physical properties, 65–9

Fats (*continued*)
production by micro-organisms, 62–1
transport, 63–24
Fatty acids, 3–4, 20–5, 22–2, 26–8, 63–7, 63–10, 66–5, 68–5, 68–16, 83–1, 84–2, 90–3
biosynthesis, 50–7
metabolism, 30–9
Fatty compounds, unsaturated, 79–2
Fatty tissue, metabolism, 49–4
Faults,
electrical, 62–4
geology, 62–7
Fauna,
coastal, 9–11
intertidal, 22–8, 72–7
Feeding stuffs, animal, 8–1
Feldspars, 5–20, 19–8
Fell Sandstone, 7–11
Felt, 110–1
Femur, fractures, 29–3
Fens, 69–2
Fermentation, 3–9, 4–1, 26–8, 90–4
Ferns, 13–6
Ferrets, 70–9
Ferrimagnetism, 62–13, 63–26
Ferrites, 19–6, 26–10 62–13, 69–4, 76–2, 108–3, 108–6
sintered, 92–2
Ferritin, 68–2
Ferrocene, 32–1, 88–1
Ferrocenes, substituted, 84–2
Ferro-electrics, 4–21, 18–6, 76–5
Ferromagnetism, 5–11, 6–6, 62–13, 63–26, 68–22, 84–7
Fertility, 1–24, 5–1 .9–11, 40–2, 65–10
soils, 8–1
Fertilization, physiology, 8–35
Fertilizers, 7–1, 8–1
crop requirements, 1–24, 2–1, 70–1
organic, 13–1
synthetic, as sources of plant nitrogen, 2–1
Festoon bedding, geology, 64–7
Festuca, 3–5, 71–6
Festulolium, 62–1
Fever, 2–16, 55–9, 63–18
Fiberscope, 10–28
Fibreglass, 107–4
Fibres, 11–10, 13–7, 13–32, 19–2, 19–4, 60–8, 67–16, 79–2, 79–7
acrylic, 79–2
metallurgy, 60–4
Fibrin, 10–17
Fibrinogen, 3–22, 5–6, 40–3
Fibrinolysin, 1–16, 7–13, 7–29, 53–23
Fibrinolysis, 1–12, 45–5, 54–7, 60–1, 67–14, 75–7
in thrombosis, 45–13
Fibroblasts, 73–1
Fibrocystic disease, 75–6
Fibroplasia, retrolental, 41–4
Fibrosis, pulmonary, 7–17
Field systems, agricultural, 9–6, 26–13
Field theory, electromagnetic, 15–8, 59–16, 61–6, 67–4, 72–8, 84–4
mathematics, 3–23, 4–21, 8–16, 8–26, 9–8, 12–5, 15–24, 19–9, 19–14, 26–19, 63–17, 83–5, 109–6
Fields, electrical, 95–2, 109–3
Fiji,
geography, 26–13
geology, 19–8
Filariasis, 16–1, 48–2, 48–6, 48–11
Filaroides osleri, 10–29
Films, thin, 7–9, 7–23, 8–10, 9–5, 11–9, 19–3, 19–6, 19–7, 19–10, 19–14, 23–4, 60–4, 62–3, 67–2, 68–22, 74–8, 76–2, 84–7, 100–5, 109–6, 112–6, 115–2
Filters,
electrical, 60–4, 76–2, 101–3
sound, 84–7
Filtration, 13–18
sanitary engineering, 19–5, 26–9
Finite differences, calculus, 60–6
Finland, geography, 26–13
Fire prevention, 19–4
Fisheries, 15–13, 15–33
Fishes,
electric organs, 5–28
fossil, 7–11, 30–4
reproduction, 8–30
zoology, 1–26, 5–28, 6–8, 7–31, 10–30, 13–35, 14–10, 15–13, 15–33, 21–1, 26–3, 62–14, 63–33, 69–11, 73–14
Fishing nets, 5–28
Fission products, uptake by seaweeds, 8–5
Flagella, bacterial, 46–6
Flagellates, 5–28
Flames, 3–9, 5–9, 9–8, 10–10, 13–7, 13–32, 19–4, 19–7, 19–9, 26–8, 26–11, 60–3, 62–4, 63–10, 68–29, 76–2, 85–7
diffusion, 77–1, 112–2
Flamingoes, 4–30
Flavones, 81–2
Flaw detection, magnetic, 77–2
Fleas, 59–41
Flight,
insect, 5–28, 56–3, 63–33
man-powered, 10–10
Flocculation, 81–5
Flocking, zoology, 13–35
Flooding, chemical engineering, 3–9
Floods, control, 15–8, 19–5
Floors, 7–9, 79–3, 104–3
Flora,
aquatic, 18–1
British, 63–9, 116–1
European, 5–8, 14–2, 15–4

Flotation, ore dressing, 13–18, 19–13, 110–1
Flow, fluids, *see also* boundary layer flow, 2–8, 6–5, 7–9, 8–10, 11–5, 15–14, 19–1, 19–9, 22–3, 26–9, 59–16, 59–31, 60–4, 62–4, 66–8, 68–8, 68–13, 68–29, 69–5, 69–8, 83–2, 85–1, 95–2, 101–2, 101–3, 112–6, 113–2
  compressible, 63–17, 114–2
  control, 10–10, 19–5
  hypersonic, 63–11
  in ducts, 109–3
  in fluidized beds, 20–6, 74–3
  in nozzles, 4–8, 5–11, 19–4, 74–3
  in pipes, 13–10, 15–8, 22–3, 26–11, 59–11, 62–11, 74–3, 83–2, 101–2
  in reciprocating engines, 20–6
  in turbo-machinery, 3–9, 5–11, 15–8, 68–8
  measurement, 3–27, 13–18, 20–6, 116–3
  mixed phase, 69–5
  non-Newtonian, 5–11, 59–11, 74–3
  open channel, 1–6, 3–9, 4–8, 5–11, 13–10, 15–19, 19–5, 26–18, 59–11, 95–2
  siphonic, 20–6
  subsonic, 22–3
  supersonic, 4–8, 5–11, 13–10, 19–1, 63–11, 76–3, 84–4, 110–2, 110–3
  through orifices, 19–4, 78–1
  through porous media, 3–9, 19–3, 22–2, 70–8
  turbulent, 3–9, 5–23, 19–7
  velocity distribution, 67–4
  viscous, 2–11, 68–13, 74–6, 94–3
Flower, botany, 1–4, 5–8
Flowering, horticulture, 5–1, 28–2, 64–8, 70–3, 73–4
Fluidization, 3–9, 5–11, 11–10, 13–10, 19–4, 20–6, 26–11, 74–3, 76–2, 79–3, 90–4
Fluids, theory, 5–17, 19–9, 69–8
Fluorene, 14–3, 73–5
Fluorescence, 55–2, 63–10, 68–5, 113–1
Fluorescent tracers, in immunology, 1–3, 1–13, 52–8
  in obstetrics, 30–11
Fluorides, metal, 76–1
Fluorimetry, 68–2
Fluorine, 3–6, 5–9, 7–6, 8–8, 11–2, 13–8, 59–10, 81–2, 110–1, 115–1
  effects on teeth, 7–7, 7–24, 51–2, 51–3
  in toothpaste, 47–3
  organic compounds, 3–6, 6–2, 19–3, 60–3, 68–5, 73–4, 73–5
Fluorite, 13–18, 19–10
Fluorochromes, 7–29
Fluorosis, 4–7, 10–8, 13–34, 17–7, 68–6
  ruminant, 8–34
Fluothane, *see* halothane
Flutter, aerodynamics, 4–8, 26–11, 69–5
Flux,
  electrical, 116–3
  magnetic, 101–2
  neutron, 116–5
Fly-ash,
  brick manufacture, 103–3
  in concrete, 10–10
Flysch, 20–8
Foams, 3–9, 90–4
Foetus,
  animal physiology, 10–29, 24–6
  anoxia, 67–9, 67–13
  cephalometry, 10–19
  distress, 40–3
  electrocardiography, 57–5
  endocrinology, 49–1
  enzymes, 30–12, 65–18
  growth, 3–26
  haemoglobin levels, 30–8
  haemopoietic system, 4–3
  heart,
    monitoring, 58–3
    sounds, 40–3
  kidney function, 5–18
  membranes, 2–3, 53–10
  metabolism, 47–2, 55–12
  phonocardiography, 57–5
  physiology, 2–24, 63–18
  skeletal development, 34–3
  tissues, transplantation, 2–3
Folic acid, 50–4, 53–10, 55–4, 59–15
  metabolism, 3–4
Folk studies, 2–9
Food,
  additives, 3–4, 13–32, 36–1
  composition, 3–4, 5–18
  hygiene, 15–32
  pests, 52–4
  preservation, 84–8, 97–1
  processing, 3–4, 5–1
  spoilage, 11–7
Foot,
  defects, 7–18, 59–25
  form and function, 1–2
  fungus infections, 4–25, 52–6
  mammalian, 56–1
  prostheses, 67–11
Footings, engineering, 15–5
Forage crops, 8–1
Foraminifera, fossil, 5–15, 10–14, 19–8, 26–14, 70–6
Forensic medicine, 10–11, 13–11
Forest soils, 63–14, 72–1, 72–6
Forestry, 1–7, 8–12, 62–2
  economics, 70–1, 72–6
  machinery, 72–6
Formaldehyde, 2–23, 12–2, 60–3, 79–2
  germicidal activity, 5–21, 59–30
Formazans, 67–2
Formicoidea, 116–1
Forssman antigens, *see* antigens

Forts, archaeology, 59–3
Foundations, engineering, 2–8, 4–8, 13–10, 15–8, 19–5, 59–11, 60–4, 68–8, 74–3, 76–2, 77–2, 79–3, 108–3
Fourier series, 1–11, 8–16, 62–9, 74–6
Fourier transforms, 73–8
Fractionation, chemical engineering, 60–4, 61–2
Fracture, metals, 3–15, 68–15, 74–3
Fractures, 7–18
Fragaria, 73–4
Frameworks, engineering, 15–5, 79–3
France,
  geology, 14–5, 22–5, 26–14
  rural economy, 13–12
Free radicals, 1–5, 2–6, 5–9, 6–2, 8–7, 10–7, 13–7, 14–3, 15–6, 18–2, 20–5, 22–2, 30–15, 59–9, 61–7, 63–10, 64–3, 66–5, 66–9, 68–5, 70–4, 95–1
Freeze drying, *see* drying, freeze
Freeze methods in cytochemistry, 15–12
Freeze substitution technique, 8–34
Freezing, food preservation, 97–1
Frenum, lingual, 47–6
Freshwater biology, 10–30, 59–41, 64–13
Friction, 3–9, 3–15, 5–23, 7–9, 15–8, 17–6, 19–4, 19–7, 60–4, 63–11, 73–6, 95–2, 109–3
Friedel-Crafts reaction, 13–7, 60–3
Friedreich's ataxia, 45–2
Fries rearrangement, 73–5
Frogs, 8–35
Froth flotation, 3–9, 3–17, 11–10, 68–17
Froths, 90–4
Fruit,
  breeding, 4–1
  growing, 4–1, 28–4
  marketing, 4–1
  preservation, 4–1
Fucoideae, 15–4
Fuel cells, 19–4, 68–29
Fuels, 13–32, 68–29, 76–2
  combustion, 3–9, 19–4, 60–4, 68–29, 85–7
Functional thresholds, 63–28
Functions,
  almost periodic, 68–13
  automorphic, 10–16
  Bessel, 79–4
  Lamé, 76–3
  theory, 5–17, 7–12, 8–16, 9–8, 14–7, 15–14, 19–9, 26–16, 62–9, 74–6, 76–3, 84–4, 112–4
Fundus oculi, 53–11
Fungi, *see also* dermatophytes, 2–5, 3–5, 4–5, 6–1, 9–3, 10–6, 12–1, 15–4, 18–1, 23–1, 62–2, 63–9, 64–1, 64–2, 66–4, 70–3, 72–6, 74–1, 79–2, 83–1, 107–2, 107–3, 107–6, 114–1
Fungi (*continued*)
  animal communities in, 63–33
  aquatic, 13–6, 22–1
  attacking buildings, 60–2
  biochemistry, 48–1
  crop diseases, 2–1, 4–1, 4–11, 19–2, 74–1
  endophytic, 73–4
  genetics, 7–5, 19–2, 26–6, 74–9
  infections, 2–13, 4–14, 4–25, 8–6, 10–4, 10–29, 13–4, 13–9, 13–17, 29–3, 29–6, 29–8, 36–1, 52–6, 55–7
  pathogenic, 2–13, 8–34, 13–4, 13–9, 29–6, 37–1, 45–7, 52–6
  physiology, 1–4
  soil, *see also* soil microflora, 84–1
  taxonomy, 4–11, 5–8
  variation, 3–10
  virulence, 5–21
  wood decay, 90–2
Fungicides, 4–1, 19–2, 28–3, 59–30, 84–5, 93–4, 94–5
Fungistasis, 81–5
Fur, dyeing, 104–7
Furanone, 91–1
Furans, 68–5, 91–1
Furnaces, 10–10, 19–4, 68–29, 77–1
Furniture, design, 95–4
Fusarium, 10–5, 59–7

Gabbros, 19–8, 26–14
Galactosaemia, 59–27
Galaxies structure, 8–2, 8–3, 66–2
Galium, 61–1, 68–3
Gall bladder,
  effect of stomach surgery, 13–29
  innervation, 59–2
  radiography, 10–28, 13–29
Gall stones, 10–28, 29–3, 29–11
Gallium, 7–6, 76–1
Games, theory, 18–6
Gametogenesis, 3–2
Gamma-globulin, 1–15, 3–22, 45–7, 55–5
Gamma rays, 3–23, 7–6, 8–26, 9–9, 52–13, 80–3
  irradiation, 3–6, 49–11
Gammaridae, 68–30
Ganglia,
  basal, 7–29, 39–3, 54–5, 56–1
  blocking agents, 84–5
  superior cervical, 1–19
Ganglion transmission, 55–12
Ganglionectomy, 53–4
Gargoylism, 45–3
Garnets, 2–8
Gas cleaning, 13–32
Gas discharges, 11–9
  high pressure, 74–8
  silent, 21–6
Gas kinetics, 8–7, 26–7, 26–8
Gas liquefaction, 63–26, 66–9
Gas-metal systems, 19–3

Gas separation, 20–6, 63–10
Gas turbines, 5–11, 19–7, 59–11, 73–6, 85–7
Gases,
  collisions in, 19–4, 26–19, 112–4
  electrical breakdown, 113–6
  expansion, 107–4
  theory, 60–6
Gasteropoda, 72–7
Gastrectomy, *see* stomach, surgery
Gastric function, *see* stomach, physiology
Gastric secretion, *see* stomach, secretion
Gastrin, 8–17, 55–13
Gastritis, 7–21
Gastroenteritis, infantile, 75–4
Gastroenterology, *see also* alimentary tract, 4–13, 8–17, 56–4
Gastroenterostomy, 7–13
Gastrointestinal tract, *see* alimentary tract
Gastropoda, 21–1, 22–8, 64–13, 73–14
Gasworks, effluent, 13–32
Gault, 19–8, 70–6
Gear teeth, 5–11, 11–3, 68–8
Gearing, 13–10, 19–7, 68–8, 74–3, 85–4
Gears, grinding, 85–4
Geiger counters, *see* counters, ion
Gels, *see also* colloids, 94–2
  silica, 110–1
Generators, 101–2
  alternating current, 20–6
  Van de Graaff, 15–24
Genetics, *see also* pharmacogenetics
  animal, 1–24, 4–29, 5–12, 8–13, 20–13, 26–4, 26–12, 28–1, 63–33, 70–1, 72–1
  biometrical, 3–10, 63–8
  chemical, 74–2
  clinical, 15–9, 15–15
  experimental, 53–25
  human, 1–24, 8–13, 10–12, 15–9, 20–2, 26–12, 47–2, 49–3, 59–17, 63–9, 68–10
    advice service, 4–18
    tissue culture, 30–12
  micro-organisms, 3–16, 4–5, 8–13, 10–12, 46–6, 64–10, 67–8, 68–10
  plant, 2–1, 5–8, 5–12, 6–1, 10–5, 26–6, 62–2, 63–9, 70–1, 71–4, 74–1
  statistical, 5–12
Genital tract,
  female, development and histochemistry, 1–2, 59–2
    malignant disease, 40–3, 67–9
  malignant disease, 15–30
Genitalia,
  female,
    carcinoma, 3–19, 40–3
    development in sheep, 29–1
Genitalia *continued*
    tuberculosis, 63–21
    tumours, 59–22
  male, accessory, 10–29
Genito-urinary system, *see* urogenital system
Geochemistry, 2–10, 5–20, 6–4, 7–11, 8–15, 9–7, 13–13, 14–6, 15–11, 13–7, 19–8, 59–14, 61–5, 62–7, 63–16, 66–7, 68–12, 74–5
Geodesy, 5–13, 63–11, 74–4
Geoelectricity, 7–23
Geography,
  agricultural, 9–14, 18–3, 59–13, 74–4
  economic, 4–9, 5–14, 7–10, 8–14, 12–3, 13–12, 14–5, 15–10, 17–3, 20–7, 62–6, 63–15, 68–11, 74–4
  historical, 3–11, 4–9, 5–14, 6–3, 9–6, 12–3, 13–12, 14–5, 15–10, 17–3, 18–3, 22–4, 26–13, 59–13, 62–6, 63–15, 68–11, 69–6, 70–5, 74–4
  industrial, 4–9, 18–3, 20–7, 22–4
  political, 4–9, 64–6
  regional, 4–9, 5–14, 69–6
  social, 2–9, 6–3, 7–10, 8–14, 12–3
  tropical, 15–10, 20–7, 66–6
  urban, *see also* towns, 4–9, 10–13
Geology,
  historical, 7–11
  structural, 15–11, 26–14
Geomagnetism, 3–12, 5–13, 7–23, 9–2, 9–8, 13–18, 15–11, 19–8, 19–14, 22–6
Geometry,
  algebraic, 5–17, 8–16, 9–8, 12–5, 13–14, 14–7, 15–14, 18–5, 19–9, 20–9, 22–6, 26–16, 63–17, 68–13, 70–7, 72–8, 90–5
  differential, 5–17, 13–14, 15–14, 60–6, 69–8
  enumerative, 20–9, 108–4
    finite, 84–4
Geomorphology, 4–9, 6–3
  Africa, 5–14
  Canada, 4–9
  England, 3–11, 4–9, 5–14, 8–14, 12–3, 13–12, 15–10, 18–3, 20–7, 22–4, 59–13, 61–4, 68–11, 69–6
  limestone regions, 3–11, 63–15, 74–4
  Scotland, 8–14, 10–13, 18–4, 66–6
  soil associations, 14–5
  South West England, 9–6, 18–4
  Wales, 17–3, 68–11
Geophysics, 1–9, 1–18, 3–12, 5–13, 5–17, 6–5, 7–23, 9–8, 9–9, 18–4, 19–14, 22–6, 73–7, 90–6
  applied, 3–12, 5–15, 6–4, 8–19, 10–14, 13–18, 15–11, 19–8, 62–4, 64–7
Geotropism, 68–3
Germanium, 19–6, 79–3
Germany, trade, 59–13

Germination, 3–4, 6–1, 8–6, 10–5, 21–1, 62–1, 62–2, 63–1, 64–1, 70–1, 70–3, 71–1, 74–1
Gestalt theory, 63–28
Gestation, length, 52–9
Giberellic acid, 11–8
Gigantoproductus, 20–8
Gingiva, 35–7
Gingival tissues, 3–7, 7–7, 8–8
  innervation, 3–7
  physiology, 53–5
Gingivitis, 35–4, 51–2, 51–3, 51–5
Girder webs, 15–8
Girders, 4–8, 10–10, 67–4, 74–3
Glacial action, 3–11, 12–3, 74–4
Glacial periods, 73–7
Glaciology, 2–9, 3–12, 3–23, 4–9, 4–21, 14–5, 20–7, 64–6, 68–11, 68–12, 70–5, 74–4
Glass,
  fibre, building materials, 19–5
  fibres, 85–6
  physical properties, 61–7, 68–29, 73–6
  technology, 68–29
Glasses,
  natural, 3–12, 19–8
  theory, 4–6
Glaucoma, 3–22, 4–16, 41–1, 41–3, 41–4, 47–13, 53–11, 59–24
  experimental, 63–22
  treatment, 3–22
Glaucophane, 74–5
Glioma, intracranial, 39–3, 54–5
Globulin, 3–22, 46–4, 75–4
Globulins, 54–7
Glomerulo-sclerosis, diabetic, 52–11
Glomerulonephritis, 44–1, 52–11
Glomus, tumours, 53–20
Gloves, surgical, 15–30
Glucagon, 13–4
Glucosaccharo-1-4-lactone, 32–1
Glucose,
  administration, 34–5
  metabolism, 45–6
  uptake, 30–9
Glucuronidase, 75–5
Glucuronides, 67–17
Glutaric acid, 85–2
Glutarimides, 114–5
Glutathione, 26–8
Gluten, 79–2
  -induced enteropathy, 3–4
Glycerides, 3–4
Glycerol, 76–1
Glycogen, metabolism, 68–1
Glycols, 19–3
Glycoproteins, 3–22, 55–9, 75–7
  in disease, 30–9
Glycosidases, 42–1
Glycosides, 56–7
Goitre, 45–14, 50–10, 68–21
  amyloid, 3–22
  experimental, 2–16
  familial, 53–7
  in children, 10–21
  recurrence, 7–29
Gold,
  alloys, 63–19
  chemistry, 30–5, 74–7
  radioactive, therapy, 39–3, 45–14, 54–5
  use in dentistry, 7–7, 68–6
Gonadotrophins, 8–21, 8–30, , 59–29, 75–8
  assay, 3–8, 8–30, 15–18, 57–5
  urinary, 3–8, 3–14, 3–19
Gonads, endocrine functions, 55–3
Gondwana, geology, 26–14
Goniatites, 69–7
Gonococcus sensitivity, 15–31, 47–22, 53–24
Gonorrhoea, 47–22
  medico-social aspects, 7–30
Gooseberries, 4–1
Gout, 50–5
Grain, storage, 2–1
Gramineae, 28–2, 64–1, 72–1
Gramophone records, 110–4
Gramscatho Beds, 61–5
Granites, 3–12, 9–7, 13–13, 17–4, 19–8, 20–8, 22–5, 61–5, 64–7, 84–3
Granodiorites, 12–4
Granular materials,
  flow properties, 13–10
  packing, 13–32
  porous, 93–4
  pressure distribution, 26–9, 62–4, 63–11
Granuloma, 36–1
  intestinal, 3–27
Graphite, 3–15, 5–19, 9–5, 19–4, 19–7, 74–3, 85–5, 101–5, 109–4
Graphitization, metallurgy, 15–16, 60–4, 68–15
Graphs, theory, 1–11
Graptolites, 3–12, 5–15
Grass crop, 13–1
Grasses, 5–1, 8–7, 19–2, 62–1, 64–1, 68–3, 70–1, 71–3, 71–4, 72–1
  breeding, 2–1, 71–6
  protein extraction, 26–8
Grassland,
  experimentation, 1–24
  improvement, 2–1, 7–1, 8–1, 13–1, 28–3, 70–1, 71–1
  insect fauna, 7–1
  production, 28–1
  utilization, 9–1, 64–1, 65–3
Gravimetry, 5–13, 112–2
Gravitational syndrome, 8–32
Grazing animals, 2–1, 8–1, 28–1, 62–1, 71–1

Great Britain,
geography, 14–5, 15–10, 17–3, 62–6, 69–6
geology, 17–4, 63–16
geomorphology, 26–13
Great Oolite Series, 63–16
Great Scar Limestone, 62–7
Green fly, 5–28
Greenland,
geography, 7–10
geology, 3–12, 4–10, 5–15, 6–4, 9–7, 63–16, 73–7
Grenz ray therapy, 36–1
Greywackes, 62–7, 70–6
Grid structures, 78–1, 79–3
Grillages, 69–5
Grinding, metals, 3–9, 60–4, 85–4, 110–2
Griseofulvin, 45–4, 55–7, 113–5
Group structure, dynamics of, 43–4
Groups, 7–12, 10–16, 12–5, 15–14, 19–9, 22–6, 59–16, 60–6, 61–6, 67–6, 68–13, 70–7, 72–8, 74–6, 77–3
Abelian, 102–3, 112–4
Grouse, ecology, 1–26
Growth, 3–26, 13–3, 24–2, 24–6, 34–3, 79–7, 97–2
bacteria, 4–14, 53–15, 68–16
chemistry, 5–18
disorders, 34–3
effect of drugs, 30–14
hormones, 30–12, 34–4, 59–29
assay, 3–21
mechanism, 61–3
plants, 5–8, 6–1, 8–1, 13–6, 17–1, 19–2, 20–4, 23–1, 28–5, 59–7, 62–1, 62–2, 62–8, 63–1, 64–1, 69–2, 73–4, 74–1, 83–1, 97–2
prenatal, 55–12
-regulating substances,
animal, 65–6
plant, 2–5, 3–4, 4–1, 5–1, 17–1, 19–2, 20–4, 22–1, 28–2, 28–3, 62–3, 63–1, 64–8, 70–3, 72–1, 80–1, 114–6
Guanase, 23–1
Guanethidine, 68–14
Guillemots, 63–33
Gum arabic, 79–2
Gynaecology,
endocrinology in, 1–14
pathology, 53–10
Gyrinidae, 22–8
Gyroscopes, 5–11, 7–9, 11–3, 62–4

Haem,
biosynthesis, 10–17
pigments, *see also* blood, pigments, 3–22
Haematocrit, 34–3
Haematology, *see also* blood, 3–24, 5–18, 5–27, 24–4, 49–7, 55–11
Haemodynamics, *see* blood circulation, blood flow
Haemoglobin, 3–22, 5–23, 5–27, 10–23, 26–3, 48–3, 50–4, 50–7, 56–6, 58–2, 59–15, 63–7, 68–2
electrophoresis, 47–18
immunology, 47–18
levels, in foetus, 30–8
metabolism, 50–4
Haemoglobinopathy, 48–10, 55–4
Haemoglobins,
abnormal, 40–3, 53–15
foetal, 5–21
sheep, 5–21
Haemolytic disease, 3–22, 55–4
of newborn, 5–21, 7–20, 40–3, 46–4, 47–15, 59–22, 59–27, 75–6
Haemophili, 13–17
antigens, 13–17
Haemophilia, 59–15
pseudo-, 34–2
Haemophilus, 13–17, 48–3
influenzae, 7–15
pertussis, 46–5
Haemopoiesis, 68–1
Haemopoietic system, 4–3
Haemorrhage, 2–14, 67–15
ante-partum, 40–3
dental, 63–32
in surgery, 68–4
post-partum, 52–1
subarachnoid, 53–9
Haemorrhagic diseases, *see also* von Willebrand's disease, 3–22, 5–18, 53–15, 59–10, 63–32, 75–3
Haemosiderosis, 48–11, 63–31
Haemostasis, 63–24
Hafnium, 109–1
alloys, 109–5
Hair, 3–28, 29–8, 36–1, 68–30
growth, 64–13, 75–7
Halides, 102–2
Hall effect, 26–10, 62–4, 79–3, 110–2
Hallucinations, experimental induction, 8–28
Hallucinogenic drugs, 8–28
Halothane, 3–1, 35–1, 52–1, 53–1, 59–1
Hamsters, 13–35
Hand,
anatomy, functional, 29–1
congenital deformities, 63–32
injuries, 7–29, 8–22
Handicapped, treatment, *see also* children, handicapped, 15–28
Harbours, 15–8
Hardening, metallurgy, *see also* age hardening, 7–14, 60–4, 62–10, 76–4
Harmonics,
electrical, 78–1, 116–3
integral, 15–14
Hashimoto's disease, 7–13

Hatchability, 28–1
Hausdorff measure, 17–5
Hay,
  drying, 7–1
  fever, 53–19
Head, congenital abnormalities, 1–2
  injuries, 7–29, 8–20, 43–2, 54–5
  morphogenesis, 49–1
  surgery, 63–20
Health,
  physics, 19–4
  public, 5–16
  services, 5–16, 67–18
    mental, 8–30
Hearing, 38–6
  aids, 45–11, 38–2, 59–5
  binaural, 19–6, 38–2
  defects, in early childhood, 3–21
  effects of noise upon, 95–4
  physiology, 69–11
  testing, 38–2, 45–11
Heart,
  abnormalities, 56–1
  anatomy, 24–4, 33–1, 56–1, 66–1, 68–1, 68–30
    vertebrate, 68–1
  arrest, 7–29
    elective, 29–9, 50–10, 56–10
  arrhythmias, 16–2, 55–10
  artificial, 29–3, 30–17, 63–31
  block, 55–9
    pacemakers in, 54–9
    treatment, 3–27
  catheterization, 13–31, 45–2, 47–4, 50–5
  cine-angiocardiography, 3–21, 54–2, 67–7
  cysts, 59–2
  development, 1–2
  disorders, 5–21, 10–22, 13–31, 29–5, 33–1, 50–5, 68–14
    congenital, 3–21, 4–13, 10–22, 15–21, 30–12, 33–1, 34–3, 50–5, 50–10, 54–6, 59–2, 59–27, 63–31, 68–4, 68–14, 75–10
      dye dilution studies, 10–21
      electrocardiography, 50–5
      in infancy, 67–7
    coronary, 59–8
    exercise tolerance, 50–5
    in pregnancy, 59–8
    ischaemic, 33–1, 53–4
    medico-legal aspects, 68–9
    rheumatic, 4–13, 8–17, 33–1, 75–8
  effects of chest injury, 8–32
  failure, 33–1, 50–5, 75–7
  fibrillation, 55–10
  function, 10–17
  histopathology, 3–22
  hypertrophy, 68–4
  infarction, 16–2
  interstitial fluid, 17–7
Heart (*continued*)
  intracardiac shunts, 53–4
  -lung machine, 8–32, 11–28, 13–31, 29–3, 34–5, 47–21, 50–10, 55–13, 59–40
  murmurs, 54–6
  muscle, 68–1
    disorders, 33–1, 50–5, 55–10
    pharmacology, 63–25
  output, 8–17, 10–29
    radioactive measurement, 50–10
  pacemaker, artificial, 3–27, 54–2, 54–9
  pacemaking, 30–15
  pathology, 3–22, 5–21
  physiology, 3–24, 8–4, 13–25, 26–5, 33–1, 63–18, 63–27
  radiography, 50–9
  radiology, 15–29
  sounds, 54–2
  surgery, 3–27, 8–32, 10–28, 13–31, 15–30, 30–18, 34–3, 47–21, 49–13, 50–5, 50–10, 56–10, 63–31, 67–20
    anaesthesia in, 3–1, 75–1
    haemodynamic effects, 3–14
    haemorrhage, 56–10, 68–4
    post-operative respiration, 30–1, 50–1
    prognosis, 50–5
    prostheses, 56–10
    psychiatric aspects, 2–19
    transplants, 30–18
  syphilis, 7–30
  valves,
    aortic, disease, 33–1
    mitral,
      disease, *see also* mitral stenosis, 54–2
      surgery, 2–19, 3–14, 13–31, 15–26, 53–4
    movement, 54–2
    replacement, 13–31, 56–10
    tricuspid, disease, 33–1
  valvular incompetence, 33–1, 50–9
Heat,
  acclimatization, 15–2, 16–2
  direct conversion into electricity, 26–10
  effects on circulatory system, 63–3
  exchangers, 60–4, 68–8, 79–3
  shock, 15–2
  specific, 79–6, 116–5
  stress, 14–4, 15–5, 26–21
  transfer, 1–6, 2–8, 2–11, 3–9, 4–8, 5–11, 7–9, 8–10, 11–3, 11–10, 13–10, 13–32, 14–4, 15–5, 15–8, 19–1, 19–4, 19–7, 19–10, 22–3, 26–8, 59–11, 60–4, 60–8, 62–4, 63–11, 63–26, 68–29, 69–5, 72–8, 73–6, 74–3, 76–2, 77–2, 78–1, 79–3, 81–4, 83–2, 90–4, 94–3, 95–2, 96–1, 104–3, 108–3, 110–2, 114–2

Heaters, ferro-electric, 3–9
Heather, 7–1
Heathlands, 1–4, 9–3, 23–1, 69–6, 69–11
Heating,
  domestic, 11–1
  kinetic, 19–1
Heats,
  of adsorption, 4–6, 19–13, 60–3
  of combustion, 59–9
  of fermentation, 3–9
  of formation, 3–15, 4–6, 9–5, 19–3, 60–3
  of mixing, 93–2
  of reaction, 60–8
  of wetting, 60–3
Hebrides, geology, 8–15
Helianthus, 11–7
Helicopter rotors, 4–8
Helicopters, 69–4, 69–5
Heliodons, 104–3
Helium, 63–26, 81–4, 110–1
  liquid, 22–7, 59–31, 63–26, 66–9
Helminth infections, 4–29, 10–29, 12–7, 15–32, 24–1, 48–11
Helminthology, 3–28, 4–30, 8–35, 10–30, 13–35, 16–1, 21–1, 48–6, 66–12, 70–9, 72–1, 73–14, 74–9
Hemicelluloses, *see also* celluloses, 90–1
Hemi-choliniums, 15–23
Hemichordata, 72–7
Hemiplegia, spastic, 68–19
Hemiptera, 10–30, 116–1
Heparin, 29–3
Hepaticae, 23–1
Hepatitis,
  contagious, 10–29
  neonatal, 34–4
  viral, 52–11, 54–7
Hepato-lenticular degeneration, 39–5
Herbage,
  composition, 71–2
  crops,
    conservation studies, 2–1, 70–1
    diseases, 71–5
  digestibility, 71–1, 71–2
  utilization, 8–1, 62–1
Herbicides, 63–1, 70–1
Herbivores, digestion in, 8–34
Hercynian, 73–7
Heredity, *see also* genetics, 10–20
Hernia,
  hiatus, 3–27, 15–30, 49–12, 52–17, 53–4
  inguinal surgery, 52–17
  recurrent surgery, 8–32
Herniorrhaphy, 15–30
Herpes, 10–18, 57–4
  gestationis, 53–10
  simplex, 15–7, 36–1, 47–10
Herring, 15–13
Heterocyclic compounds, 2–6, 3–6, 4–6, 5–9, 8–7, 9–5, 10–7, 18–2, 19–3, 20–5, 23–2, 26–7, 52–3, 59–9, 60–3, 61–2, 62–3, 63–7, 63–10, 64–3, 66–5, 80–1, 104–2, 115–1
Heteroptera, 19–15
Heterosis, 10–30
Hevea, 3–4
Hibernation, 15–33, 23–5
High temperature phenomena, 19–10, 19–14, 68–29, 74–8
High voltage technology, 60–4, 74–3
Highway engineering, 19–5
Hill's equation, 76–3
Hinges, 116–3
Hip,
  congenital dislocation, 8–22, 42–1
  osteo-arthritis, 4–28, 7–27, 7–18
Hippocampus, histo-electronic investigation, 26–1
Hippophae, 62–2
Hirschsprung's disease, 30–9
Hirsutism, 40–3
Histaminase, 8–7
Histamine, 8–25, 10–29, 13–23, 25–4, 67–13, 67–15
  -releasing agents, 17–7
Histidase, role in tumour growth, 4–22
Histidine decarboxylase, 13–23
Histochemistry, 5–2, 31–2, 47–1, 63–3, 68–1
  of female genital tract, 1–2
  of placentation, 1–2
  of skin, 1–2
Histology, 5–24, 63–27
  comparative, 53–18
  morbid, 5–21
  oral, 35–6
Histones, 8–4, 32–1
Histopathology, 2–1, 31–2
  oral, 35–6
History,
  of agriculture, 17–3
  of astronomy, 10–3, 26–15
  of biology, 26–15
  of botany, 70–3
  of building, 79–3
  of chemistry, 26–15, 95–3
  of geology, 7–11, 63–16
  of medicine, 26–15
  of metallurgy, 7–14
  of mining, 14–5
  of physics, 26–15
  of psychology, 15–27
  of science, 1–10, 13–7, 23–4, 26–15 70–3
  of taxonomy, 5–8
  of technology, 26–15
  of veterinary science, 24–1
  of zoology, 1–26
Hodgkin's disease, treatment, 52–8, 52–16

Holcus, 71–3
Holism, 63–28
Holostei, 21–1
Homotopy, 62–9
Honey, 11–10
Honing, 11–3
Hops, 28–5
Hormones, *see also* growth hormones *and by name and by organ*, 5–6, 20–1, 26–17, 45–12, 56–6, 108–5, 114–5
  animal, 13–35, 62–1, 68–30
  assay, 40–2
  control of oxygen consumption, 34–3
  effects on ground substance, 29–1
  effects on muscle, 29–1
  in breast cancer, 8–17, 53–20
  in pregnancy, 67–9, 68–18
  in testis tumours, 8–32
  insect, 5–28, 69–10
  metabolic effect, 26–3
  neurohypophysial, 4–20, 69–1
  protein, 40–2, 59–29
  steroid, *see* steroid hormones
  synthetic analogues, 49–2
  transport, 5–24
Horse, *see also* Equidae
  anaesthesia, 10–29, 15–32
  digestive tract, 8–34
  evolution, 8–34
  foot diseases, 24–7
  growth, 24–2
  osteo-arthritis, 4–29
  parasitology, 24–4
  surgery, 15–32
Horticulture, 28–4, 28–6, 59–7
Hospitalization, effect on children, 10–21
Hospitals,
  administration, 7–17, 60–5
  bacterial infections, 8–18, 10–4, 13–17, 55–7
  community needs, 75–9
  cross-infection in, 2–13, 3–21, 7–15, 13–17, 50–6, 53–15, 57–6, 75–4, 75–7
  design, 1–24, 63–8
  morbidity survey, 75–6
  out-patients, 8–28
  patients, 8–28, 48–8
    interpretation of instructions, 2–22
    length of stay, 60–5
  staff, *see also* nurses, 60–5
Housing,
  public health aspects, 4–25, 15–28
  social aspects, 4–25, 8–28
  statistics, 64–6
Hovercraft, 81–3
Humoral transmitters, *see also* neuromuscular transmitters, 26–17
Humulone, 3–4
Humus, 1–23, 5–1, 15–4, 62–1, 63–14
Hyaluronic acid, 75–4
Hyaluronidase, 21–7
Hybrids, mammalian, 70–9
Hydantoins, cancer chemotherapy, 32–1
Hydatid infections, 16–1
Hydra, 61–1
Hydraulic engineering, 62–4, 76–2, 83–2, 104–4
Hydrazine, 3–9, 10–10
  alkylnaphthyl, 110–1
  naphthyl, 110–1
Hydrides, 5–9, 7–6, 15–6, 19–3, 60–3, 72–4
Hydrobiidae, 8–35
Hydrocarbons, 3–9, 63–10, 64–10, 67–2
  aromatic, 77–1
Hydrocephalus, 8–20, 15–2, 34–5, 43–2, 47–12, 59–27, 63–20, 68–19, 75–6
Hydrocortisone, 15–21, 68–7
Hydrodynamics, 7–9, 7–23, 9–8, 13–10, 15–14, 18–5, 19–5, 19–7, 19–9, 22–3, 26–16, 60–6, 61–6, 63–11, 66–9, 69–5, 69–8, 70–7, 70–8, 76–3, 90–4, 110–3
  stellar, 59–4
Hydrogen, 81–4
  bonding, 19–4
  ions,
    effect on leucocytes, 29–3
    excretion, 5–18
  liquid, 22–7
  peroxide, 7–6, 12–2, 67–2
Hydrogenation, 4–6, 12–2, 14–3, 19–3
Hydrography, 10–13, 15–13, 72–7
Hydrology, 7–10, 12–3, 13–10, 61–5, 64–6, 64–7, 70–5, 116–3
Hydrolysis, 60–4, 84–2
Hydromagnetics, 7–23, 72–8
Hydronephrosis, 45–14
Hydropsychidae, 61–1
Hydrostatics, 76–2
Hydrotubation, 52–9
3-Hydroxyanthranilic acid, 32–1
βHydroxybutyrate metabolism, 30–9
17-Hydroxycorticosteroids, 29–8, 53–23
5-Hydroxyindoles, 40–3
Hydroxylation, enzymic, 32–1
Hydroxylic compounds, 80–1
Hydroxyphenols, 53–15
5-Hydroxytryptamine, 3–27, 10–22, 10–23, 25–4, 56–7, 67–15, 79–5
Hymenomycetes, 18–1
Hymenoptera, 1–26, 8–35, 19–15, 63–12, 73–14, 74–9, 110–1, 116–1
Hyperbilirubinaemia, 7–20, 8–23, 40–4
Hypercalcaemia, 55–8, 67–14
Hypercalcinuria, idiopathic, 13–33
Hyperemesis gravidarum, 7–16
Hyperkinetic syndrome, 8–28
Hypermagnesaemia, 70–2
Hyperons, 63–26
Hyperoxaluria, 53–7

Hyperparathyroidism, *see* parathyroid gland
Hypersensitiveness, 5–21
Hypersensitivity reaction, 3–22
Hypertelorism, 10–8
Hypertensin, 63–18
Hypertensinogen, 54–1
Hypertension, 7–22, 8–17, 47–9, 50–5, 55–6, 57–3, 59–17, 63–18, 68–14, 68–20
  aetiology, 3–26
  arterial elasticity, 29–3, 49–8
  cerebral, 43–2
  experimental, 8–24, 47–9
  haemodynamics, 8–17
  portal, 2–22, 8–32, 53–23, 59–40
    surgery, 53–1
  pulmonary, 3–22, 33–1, 50–9, 67–14, 68–14, 75–7
  renal, 44–1, 47–9, 47–20, 55–6
  treatment, 8–17, 33–1, 52–8, 52–12, 68–14
Hyperthyroidism, *see* thyroid gland
Hyperuricaemia, 13–15
Hyphomycetes, 68–3, 107–1
Hypnosis, 1–20, 3–1
  therapeutic, 45–6
Hypnotic drugs, 30–8
Hypocapnoea, 15–1
Hypochondriasis, 68–24
Hypofibrinogenaemia, 10–22
Hypogammaglobulinaemia, 3–22
Hypoglycaemia,
  agents, 67–15
  insulin-induced, 8–32
  neonatal, 8–23
Hypomagnesaemia, 2–1, 7–1, 8–1, 10–29, 65–2
Hypophosphatasia, 5–21, 26–12,
Hypophysectomy, 45–14
  for breast cancer, 30–9, 49–11
  for carcinomatosis, 52–11
  for neoplasms, 4–17
  for prostatic cancer, 44–5
  urinary steroids after, 30–17
Hypotensive drugs, 10–23, 52–8, 52–12 68–14, 84–6
Hypothalamus, 5–18, 43–2, 47–18
  effects of injury, 29–8
  effects of irradiation, 29–3, 29–8
  electron microscopy, 4–20
  histology, 26–1
  hypophyseal relationships, 10–22
  pharmacology, 4–20
Hypothermia, 7–29, 8–32, 10–22, 10–28, 11–3, 12–7, 13–31, 15–23, 29–3, 30–18, 39–3, 49–10, 55–13
  biochemistry and physiology, 30–18
  in heart surgery, 47–21
  in neonatal surgery, 10–28
  in regional perfusion, 47–20
  induced, 34–5, 57–7, 59–1, 63–31
Hypothermia (*continued*)
  of brain, 7–29
  spontaneous, 2–2
Hypoxia, 47–18, 52–10, 53–17
Hysterectomy, 53–10
Hysteresis, 4–6

Ice formation, in plant tissues, 3–5
Iceland,
  geology, 19–8
  meteorology, 4–9
Ichthyosauria, 73–7
Ideal theory, 10–16
Ileitis, regional, 3–14, 13–30
Ileum,
  dialysis, 55–6
  peristaltic reflex, 1–19
Ileus, 15–30
Illegitimacy, 4–25
Imidates, 67–2
Imidazole, 79–5, 93–2
Imidines, 19–3
Immigrants, health and welfare, 4–25
Immunity, 5–21, 8–24, 16–1, 26–23 29–6, 46–1
  auto-immune disease, 2–22, 7–21 13–9, 58–2
  auto-immunity, 2–22, 8–21, 10–9, 11–22, 13–9, 30–6, 59–2
  auto-immunization, 10–22, 29–6
  non-specific, 46–7
  ulcerative colitis, 3–27
Immunization, 59–27
Immunochemistry, 3–6, 3–22, 15–15, 46–1, 53–3, 60–1
Immunohaematology, 63–24
Immunology, 7–15, 8–32, 10–12, 10–29, 13–17, 13–22, 48–3
  and electrophoresis, 10–21
  comparative, 54–7
Immunopathology, 1–16, 10–22
Impedance, 19–6, 26–10
Imprinting, psychology, 6–7, 15–33
Incentive schemes, 60–5
Inclusion bodies, 54–7
Incontinence, *see also* urine,
  cervical, 53–10
Indanthrone, 13–7
Indenes, 110–1
Indexing, 85–3
India,
  anthropology, 63–4
  geography, 8–14, 15–10, 22–4
  geology, 26–14
  palaeontology, 26–23
Indian Ocean, geography, 14–5
Indicators, chemistry, 11–2, 91–1
Indium, 69–4, 76–1
  use in dentistry, 59–10
Indoles, 3–22, 4–6, 63–10, 81–1, 92–1
Industrial health, 67–12, 67–18
Industrial medicine, 7–17, 48–5

Infants,
deafness in, 59–5
death, 5–21
feeding, 15–21, 30–12, 68–19
hearing tests, 38–2
metabolic disorders, 55–8
mortality, 7–16, 29–8
newborn,
adaptive mechanisms, 55–8
anaesthesia, 10–28
blood, 40–3
pressure, 7–20
body water, 34–5
clinical problems, 13–21
death, 40–3, 67–9
causes, 1–14
development, 5–18
diseases, 3–19
enzymes, 30–12, 65–18
fits, 52–10
heat control, 40–3
hypoglycaemia, 8–23
infections, 10–28, 53–14
metabolism, 47–18
neurological examination, 30–12
physiology, 53–14
pneumonia, 67–13
respiration, 8–23, 47–15, 47–18, 57–5
surgery, 10–28
physiology, 5–18
premature *see* prematurity
surgery, 15–30
Infectious diseases, 15–15
in children, 10–22
Infertility, 10–29, 72–10
female, 40–3, 52–9
human, 40–2, 52–9
male, 44–1, 57–5
Inflammation, 7–21, 46–7, 57–6
Inflorescence, botany, 27–1
Influenza,
immunization, 68–14
infection, 57–4
Information,
communication, 27–21
retrieval, 85–3
storage, 10–3
theory, 1–18, 5–25, 18–7
Injection, 78–1
Injuries,
crushing, 45–12
head, 54–5
metabolic response, 8–25
Inositol, 3–4, 55–12
Insecta, *see also* insects, 22–8
fossil, 3–12, 7–1
Insecticides, 2–1, 4–1, 5–28, 16–1, 19–15, 48–2, 62–1, 70–2
effects on plants, 25–3
resistance to, 48–10
Insects,
attacking buildings, 60–2
bacterial disease in, 13–1
blood-sucking, 46–5
disease vectors, 48–10
entomophagous, 10–30
interrelation with plants, 64–8
nervous system, 14–10, 59–41, 80–1, 81–1
physiology, 3–28, 4–1, 5–28, 6–8, 7–31, 10–30, 14–10, 18–9, 19–15, 22–8, 56–3, 62–14, 63–33, 64–13, 69–1, 71–1, 73–14
Insemination, artificial, 24–2
Insomnia, 8–28
Inspection, production engineering, 83–4
Instrumentation, *see also* process instrumentation, 60–7
Instruments,
astronomy, 63–6
design, 19–5
electrical, 77–2
induction, 77–2, 78–1
technology, 19–14, 59–31, 60–4, 62–4
Insulation,
buildings, 60–2
materials, 109–3
Insulators, 14–8, 18–6, 22–3, 60–4, 62–4, 101–2, 113–6
Insulin, 5–6, 8–4, 13–15, 29–3, 30–9, 30–13, 45–7, 67–1
antagonists, 7–13, 13–15
antibodies, 30–13
antiserum, 30–9
blood levels, 52–8
plasma levels, 52–8
radiation damage, 30–9
Integral transforms, 110–3
Intelligence, 59–34
effect of mental disease, 7–25
measurement, 68–19
Interferometry, 7–23, 19–14, 23–4
Interferon, 1–3
Intermolecular forces, 26–8
Interstellar material, 26–2
Intervals, mathematics, 79–4
Intestines, 3–4, 8–32
absorption, 8–24, 13–30, 30–14, 50–5, 68–23, 68–28
electrophysiology, 68–23
of fat, 52–8
of water and electrolytes, 10–28
adrenergic mechanisms, 30–14
disorders, 8–17
innervation, 10–25
malformations, 15–30
motility, 8–32, 47–20
mucosa, 50–5
obstruction, 10–29, 75–10
pathology, 3–27

Intestines (*continued*)
physiology, 3–4, 3–14, 8–32, 10–25, 10–28
post-operative activity, 13–29, 15–30
radiology, 13–29
surgery, 13–30
Intracranial pressure, 53–20
Intracranial tension, 39–3
Intussusception, 10–28
Invariants, mathematics, 72–8
Invertebrates, zoology, 21–1
Involution, mathematics, 62–9
Iodides, 68–21
Iodine, 3–6, 7–6, 19–4
in diets, 68–25
metabolism, 3–24, 10–17, 57–1, 68–21
radioactive, 3–22, 45–13, 57–1, 58–3, 68–26
damage to insulin, 30–9
medical uses, 10–21, 15–20, 49–11
placental transfer, 29–7
use in obstetrics, 29–7
Iodoacetates, 76–4
Ion exchange, 2–6, 5–11, 13–32, 19–3, 19–13, 25–1, 64–3, 91–1, 93–2, 110–1, 112–2
resins, 19–4, 76–1
Ion uptake, 32–2, 68–23
Ionization,
chemistry, 73–5, 94–6
gases, 3–23, 22–3, 59–31, 74–8
radiotherapy, 53–21
sources, 19–6
Ionizing radiations, 13–24, 47–19, 68–26
Ionosphere, 3–23, 5–23, 20–11, 22–6, 26–19, 72–5
Ions,
beams, 72–5
hydration, 92–1
fluxes, in cells, 10–25
transport, 4–30, 8–27, 13–6, 23–5, 75–4
Iproniazid, 53–19
Iran, archaeology, 59–3
Iridium, 32–2
Iris, tumours, 41–3
Iron, 15–16
absorption, 10–28
Age, 59–3, 73–2
alloys, *see also* steels, 63–19
cast, 60–4, 83–1, 99–1
deficiency, 53–13, 55–9
-dextran, carcinogenic, 32–1
electrolytic, 79–3
metabolism, 10–17, 10–22, 30–14, 45–5, 47–8, 48–11
in disease, 47–8, 63–31
ores, 19–4, 19–8, 20–8
powders, 83–1
radioactive, 8–17, 34–2
transplacental transfer, 29–3
Irradiation, *see* radiation
Irrigation, 19–5, 62–1, 64–1
Isatogens, 113–5
Ischaemia, 10–28, 53–23
cerebral, 53–9, 57–3
Iso-agglutinins, 3–22
Isoenzymes, 52–11
Isomerase, 47–2
Isomerism, rotational, 13–7
Isoniazid, 59–27
excretion, 47–7
therapy, 30–10
Isopoda, 73–14, 74–9
Isoprene, 63–10, 98–1
Isoquinoline, 4–6
Isotopes,
exchange, 20–5, 79–2, 103–1
measurement, 47–19
Israel, geography, 63–15, 69–6
Italy,
geography, 8–14, 63–15
geology, 61–5
Ivory, 63–13
Ixodes, 7–1

Jan Mayen, geology, 18–4
Jaundice, 10–5
effects on liver, 55–10
obstructive, 50–10
Jaws,
anatomy, 8–8, 35–3
radiographic, 47–6
deformities, congenital, 63–32
foetal, development, 2–3
fractures, 63–32
innervation, 51–1
Jejunitis, 3–14
Jets, fluid flow, 11–5, 19–7, 26–11, 62–4, 83–2, 96–1
Johne's disease, 2–1, 10–29
Joints,
anatomy, 56–1, 66–1
annular, 104–3
circulation, 56–9
concrete, 76–2, 107–4, 110–2
disorders, 13–15, 47–6, 59–38
intervertebral lesions, 53–9
movements, cineradiography, 30–2
physiology, 56–1, 66–1
spastic, tendon transplantation, 29–3
steelwork, 79–3
tissues, electron microscopy, 56–1
Judgment, psychology, 83–4
Jumps, hydraulic, 76–2
Jurassic, 5–15, 14–6, 26–14, 63–16, 64–2, 68–12

Kalanchoe, 19–2
Kale, 70–1, 71–6
anaemia, 5–27
Karroo, geology, 13–13
Kelly-Paterson syndrome, 38–5, 38–7
Kenya, geology, 6–4

Keratin, 11–10, 29–8
Keratoconus, 41–3
Keratophyres, 7–11
Keto-acids, 84–2
Ketones, 77–1, 81–2, 84–6, 87–1, 95–1, 110–1
  aromatic, 67–2
  bicyclic, 76–1
  polycyclic, 13–7
  unsaturated, 76–1
Ketosis, bovine, 4–22, 10–29
17-Ketosteroids, 29–8, 40–3
Ketosteroids, urinary, 10–28, 53–15
Ketyls, 59–9
Keyboards, operation, 95–4
Khellins, 110–1
Kidney,
  artificial, 7–13, 13–15, 13–33, 15–30, 44–1, 47–9, 50–10
  biopsy, 1–12, 8–17, 34–4, 44–1
  blood,
    flow, 2–18, 8–17, 8–34, 52–8
    supply, 53–2
  calcinosis, 10–22
  calcium metabolism, 47–9
  calculi, *see* calculus, renal
  chloride excretion, 13–25
  colic, 13–29
  cysts, 44–1
  damage, experimental, 7–21
  disorders, 5–21, 8–25, 10–17, 29–5, 30–13, 57–3, 59–17, 67–7
    after clamping aorta, 55–13
    metabolic studies, 3–22
    proteinuria in, 47–9
    vascular, 44–1
  effects of metabolic disorders, 75–3
  effects of radiation, 47–9
  electron microscopy, 8–24
  failure, 1–16, 8–25, 10–17, 13–33, 44–1, 50–7
    metabolism in, 13–15, 47–20
    treatment, 47–9
  function, 1–12, 3–24, 7–24, 8–7, 10–5, 29–5, 44–1, 50–5, 52–8, 53–7, 53–18, 59–17, 59–32, 68–14, 73–12 75–3
    control, 3–24
    in disease, 29–3, 55–9
    in foetus, 5–18, 49–3, 55–12
    in pregnant rat, 1–19
  growth, 4–22
  hypertrophy and pituitary gland, 8–27
    experimental, 50–10
  infarct, 15–30
  ischaemia, 8–17, 10–22
  mineral excretion, 10–29
  pathology, 15–22
  pelvis, cineradiography, 8–32
  perfusion, 52–17
  phosphate excretion, 45–6
Kidney (*continued*)
  physiology, 3–24, 13–25, 26–20, 49–4, 84–8
  polycystic, 44–1, 45–14
  radioactive, renograms, 47–20
  sodium excretion, 13–25
  transplantation, 10–28, 50–10, 52–17, 55–13
  tuberculosis, 44–1
  tubules, diseases, 55–8, 67–7
Kimmeridge Clay, 26–14, 74–5, 112–3
Kinesiology, 20–6
Kinetic theory, 60–6
Klebsiella aerogenes, 84–2
Klinefelter's syndrome, 34–3
Klockmannite, 81–6
Klystrons, 26–10
Krebs' cycle, 10–22
Kveim antigen, 75–4

L67 anaesthetic, 35–1
Labour, 29–7
  analgesia in, 40–3
  biochemical and electrolyte changes, 1–14, 13–19
  induction, 30–11
  pain in, 29–7
Lacerta, anatomy, dental, 4–7
Lactation, 26–3, 65–10, 108–5
  biochemistry, 57–6
  nervous and endocrine control, 15–32
  physiology, 1–14
Lactic acid, 3–14
Lactobacillus, 64–10, 65–7
  acidophilus, 3–7
Lactones, 87–1
Lactose metabolism, 59–27
Lagoons, fauna, 27–5
Lambs, fattening, 64–1
Lamellibranchs, 12–7, 22–8, 64–13, 66–12, 112–7
  fossil, 3–12, 59–14, 61–5
Lampreys, 30–4, 81–1
Lancelets, 27–5
Land,
  reclamation, 61–4
  use, 1–23, 2–9, 5–14, 8–14, 13–12, 14–5, 17–3, 20–7, 28–4, 59–13, 61–4, 63–14, 70–5, 74–4
Landscapes, painting, 9–6
Landslides, 74–4
Language,
  disorders, 39–1, 39–7, 45–8
  experimental studies, 63–28
  in relation to psychiatric conditions, 2–20
  neuro-anatomy, 5–2
Larch, 69–2
Laryngectomy, 53–5
Laryngocele, 53–20

Larynx,
amyloidosis, 38–5
analgesia, 30–1
anatomy, 1–2
cancer, 3–20
carcinoma, 4–27
cartilage, calcification, 38–7
innervation, 52–2
neoplasms, 38–5
Lathes, 110–2
Lathyrism, 10–22
Latitude,
determination, 19–12
variations, 15–14
Lattice,
defects, crystallography, 3–15, 7–14, 15–16, 19–10, 59–9, 68–15
energies, chemistry, 5–9, 9–9
vibrations, crystals, 62–13
Lavas, 2–10, 74–5
Lead, 76–2
encephalopathy, 57–6
ores, 19–8, 20–8, 63–16
poisoning, 7–17, 34–4
toleration, by plants, 3–5
urinary, 59–23
Leaf miners, 64–13
Learning, 1–21, 2–20, 4–24, 5–25, 6–7, 13–27, 14–9, 15–27, 18–7, 26–21, 43–5, 59–33, 59–34, 83 4
effect of age, 2–19
in deaf children, 38–2
in higher primates, 26–1
therapy, effect of drugs, 4–23
Least squares, 84–4
Leather, 13–32, 100–1
dermatitis, 36–1
Leaves,
growth, 62–1, 70–3
movements, 73–4
Leeches, 64–13
Leg,
prostheses, 67–11
shortening, 34–5
ulcers, 13–9
Legumes, 63–1, 64–1
Leguminosae, 20–2, 62–1
Leishmaniasis, 48–6
Lejeuneacae, 72–3
Lemna, 14–2
Lens,
congenital absence, 41–3
crystalline disorders, 24–7
intra-ocular acrylic, 41–6
peptides, 63–22
proteins, 63–22
regeneration, 12–7
Lenses, 19–14
contact, 41–3, 77–6, 101–4
dielectric, 83–2
magnetic, 18–6
non-reflecting films, 101–4
Lenticels, 59–7
Leontice leontopetalum, 11–8
Lepidoptera, 26–23, 68–30, 84–9, 116–1
Leprosy, 75–4
chemotherapy, 16–2, 30–14
immunology, 37–1
Leptospirae, 13–17
Leptospirosis, 8–34, 10–29
Leptothrix, 70–4
Leucocidin, 63–24
Leucocytes, 45–5, 52–11, 76–5
antibodies, 5–21, 46–4
electron microscopy, 3–22
metabolism, 55–6, 56–6
oxygen consumption, 1–17
physiology, 29–3
Leucoplakia, 2–22
Leukaemia, 32–1, 47–3, 54–7, 58–2, 59–12, 59–15, 68–21, 68–26
acute, 7–13, 52–8
aetiology, 59–36
chemotherapy, 5–18, 13–15
experimental, 2–16, 7–27, 59–36
in children, 15–21, 55–8
treatment, 58–2
Lewis acids, 23–2, 63–10
Lewisian, 12–4, 19–8, 61–5, 66–7, 70–6
Leys, 7–1, 70–1
Lias, 4–10, 8–15
Libya, geology, 70–6
Lichens, 10–6, 19–2
Light,
effect on animals, 64–1
effect on skin, 36–1
influence on plants, *see also* photoperiodism, 63–1, 64–8
scattering, 9–9, 11–2, 60–6
sensitivity, 17–9, 36–1
stimulated, emission, 116 2
ultra-violet, 80–4
zodiacal, 63–6
Lighting,
buildings, 15–5, 62–4, 104–3
mines, 7–9, 62–11
street, 19–14
Lightning protection, *see also* atmosphere, electricity, 62–4, 107–4
Lignans, 68–5, 112–2
Lignin, 100–1
Lignocaine, 15–1
Lime, 106–2
Limestone, 5–15, 61–5, 64–7, 68–3
Limnology, 4–5, 15–33, 27–1
Limnoria, 69–11
Linear spaces, 73–8
Linguistics, 18–6, 39–1, 45–8
Lipaemia, and thrombosis, 1–12
Lipids, *see also* phospholipids, 11–7, 30–3, 49–2, 53–4, 59–28, 75–4
anions, 31–4
biochemistry, 31–4

Lipids (*continued*)
cerebral, 39–5
chemistry, 46–1, 63–10, 83–1
metabolism, 3–4, 10–17, 15–3, 22–1, 33–1, 52–8, 55–13, 68–7
Lipoidoses, 15–15, 39–5
Lipopolysaccharides, bacterial, 11–8
Lipoproteins, 3–22, 15–3, 26–8, 54–3
electrophoretic separation, 3–21
serum, 3–21, 83–1
Lips, 30–6
cleft, 15–30, 45–3, 51–3, 63–32
orthodontic effects, 35–5
Liquids,
physics, 19–4, 21–6, 79–5, 110–3, 112–7
tensile strength, 70–8
theory, 4–6, 17–6, 18–6, 22–7
Liquorice, 93–1, 114–5
Listerella, 56–5
Lithography, offset, 41–3
Lithospermum, 108–5
Liver,
acid secretion, 55–13
biopsy, 1–12
blood supply, 8–32, 17–2, 18–2, 55–10
obstruction, 53–23
carcinogenesis, 13–22, 31–2
carcinoma, 3–22, 52–11, 53–23
cirrhosis, 53–23
disorders, 4–13, 7–21, 52–11
and portal hypertension, 2–22, 53–23
diagnosis, 31–2
effect on nervous system, 52–11
metabolic studies, 3–22
splanchnic circulation, 52–8
effect of anaesthetics, 31–2
effect of drugs, 16–2
electron microscopy, 3–22
enzymes, 13–22, 34–4
exo-peptidases, 13–4
failure, 47–20
fibrosis, immunology, 75–7
function, 10–5, 10–28, 53–23, 73–12
in newborn, 1–15
heavy metal content, 53–23
injury, 7–29, 57–6
innervation, 59–2
lymph, 55–10
metabolism, 26–3, 30–9, 47–20, 57–7
necrosis, 10–22, 57–6
pathology, 2–16, 15–22
perfusion, 53–23
physiology, 59–40
proteins, 13–22, 15–30
regeneration, 47–16
secretion, of dyes, 47–20
structure, effect of diet, 30–16
surgery, 15–30
syphilis, 53–23
tumours, 47–3, 57–6
Llandeilo, 66–7
Llandovery Series, 63–16
Locomotion, animal, 4–29, 4–30, 5–2, 5–28, 9–11, 84–9
Locomotor diseases, 8–17
Locomotor system, anatomy, functional, 52–2
Locusts, 13–4, 23–5, 73–14
eyes, 7–24
Lofoten Islands, geology, 66–7
Logic, mathematical, 4–12, 5–17, 7–12, 13–14, 13–27, 14–7, 17–5, 20–9, 59–16, 62–9, 63–17, 78–1
Lolium, 2–1, 71–1, 71–6
Longitude, determination, 19–12
Losses, electrical engineering, 3–9, 20–6
Loudspeakers, 69–5
Low temperature phenomena, 4–21, 5–23, 13–7, 13–24, 19–3, 19–4, 22–7, 30–15, 59–9, 59–31, 62–13, 63–10, 63–26, 64–11, 66–9, 69–9
Lower Carboniferous, 14–6, 19–8, 64–7
Lower Cretaceous, 22–5, 68–12
Lower Devonian, 7–11
Lower Greensand, 22–5, 64–7
Lower Palaeozoic, 4–10, 6–4, 7–11, 10–14, 12–4, 15–11, 19–8, 62–7, 63–16, 66–7, 70–6, 74–5
Lubricants, 11–10, 79–7, 85–4, 100–1, 110–2
Lubrication, 3–15, 8–10, 10–10, 11–3, 13–10, 19–4, 19–7, 68–8, 79–3
Lucilia, 10–30
Ludlovian, 3–12
Lugs, 76–2
Lumbricidae, 8–1, 104–1
Luminescence, 3–23, 12–6, 116–2
Lung,
anatomy, 53–20
cancer, 53–15
histochemistry, 31–2
in women, 53–15
relation to tobacco smoking, 9–3
relation to lung scars, 56–6
statistics, 4–25, 13–22
capillary blood volume, 53–4
carcinoma, 47–21, 55–9
treatment, 30–9
diseases, 7–21, 29–10, 30–9, 52–9, 55–9, 57–7, 68–14
chronic, 2–12, 45–6
collagen, 37–1
diffuse, interstitial, 47–4
vascular, 29–5
effect of chest injury, 8–32
effect of anaesthesia, 13–2
effect of drowning, 45–12
effect of injury, 45–12
electron microscopy, 7–21
fibrosis, 7–17, 7–27
foetal, 10–29

Lung (*continued*)
function, 2–12, 48–7, 50–9, 54–6, 63–2, 68–25
in disease, 47–4, 68–14
histology, 10–29
hypoplasia, 37–1
infections, 75–7
innervation, 59–2
lesions, bacterial residues, 75–4
oedema, 63–31
pathology, 75–7
physiology, 13–25, 33–1, 45–6, 53–4, 59–1, 63–18, 63–31
radiography, 53–20
surgery, post-operative complications, 30–1, 54–1, 54–5
ventilation, 15–1, 34–3
mechanical, 30–1
vital capacity, 4–15
volume, 59–1
Lungworms, 24–5
Lunularia, 28–2
Lupus erythematosus, 13–9, 13–15, 29–8, 36–1, 45–4, 45–10, 53–6
Lupus vulgaris, 47–7
Luxembourg, 62–6
Lycopodiales, 26–6
Lymph,
glands, 58–2
effects of radiation, 7–27
hepatic, 55–10
Lymphadenopathies, 32–3
Lymphangiography, 56–10
Lymphatic system, 7–29
injection, 63–32
Lymphocytes, 47–18, 63–24
Lymphoedema, 53–23, 63–32
Lymphoid tissue, 52–8, 59–2
Lymphoma, 57–6, 58–2
Lymphoreticular system, 29–8
Lymphoreticular tissue, 63–24
Lymphosarcoma, 10–29, 58–2
Lyophilization, 69–1
Lysinuria, 26–12
Lysogeny, 30–10
Lysophosphatides, 30–13

Machine tools, 3–9, 11–3, 60–4, 69–5, 77–6, 78–1, 85–4, 110–2, 114–2
design, 95–4
Machines,
electrical, 5–11, 10–10, 11–3, 13–10, 19–6, 22–3, 62–4, 68–8 69–5, 94–3, 101–2, 104–3, 109–3
Macroglobulins, 3–22, 54–7
Macrophages, 73–1
Magma, 10–14, 13–13
Magnesian Limestone, 6–4
Magnesium,
alloys, 60–4, 110–4
metabolism, 2–12, 13–33, 34–5, 50–7
oxide, 13–32, 114–6
Magnetic fields, 79–3
Magnetism, 1–18, 3–12, 4–21, 6–4, 7–23, 19–8, 63–26, 68–22, 74–3, 84–7, 101–2, 109–6
Magnetization, 62–13
Magnetoacoustics, 4–21
Magnetochemistry, 26–7
Magneto-gasdynamics, 11–5, 15–8
Magnetohydrodynamics, 5–11, 10–24, 15–14, 17–5, 19–9, 29–9, 22–6, 63–17, 68–29, 70–7
Magneto-resistance, 62–4
Magnetostriction, 95–2
Magnus effect, 101–2
Maia squinado, 106–4
Maize, 63–1
Malabsorption syndrome, 3–4, 13–21, 50–5
Malaria,
avian, 5–7
body response, 16–2
chemotherapy, 16–2
effects, 16–2
epidemiology, 48–10
parasite, 16–2, 48–6
pathogenesis, 16–2
prophylaxis, 48–10
Malaya, geology, 4–10
Malformations, congenital, *see* abnormalities, congenital,
Malnutrition, 48–4
effects, 41–6, 48–4
Malpighian tubules, 5–28
Malta, geology, 6–4
Malting, 90–1
Mammalia, 19–15
ecology, 6–8
fossil, 4–10, 8–35, 23–5, 26–23
marine, specialization in, 29–1
Mammotrophic factor, 59–29
Management, industrial, 5–11, 60–5
Mandible,
effects of age, 51–4, 51–5
fractures, 35–8
prognathic surgery, 51–7
rest position, 4–7
Manganese, ores, 6–4, 19–8
Manifold systems, 113–2
Mannosidase, 75–5
Manx Slate Series, 18–4
Many-body phenomena, 7–23, 15–24, 18–6, 72–9
Maple syrup disease, 34–4
Marine biology, 7–31, 10–30, 12–7, 15–13, 21–1, 62–14, 66–4, 69–11, 70–9, 72–7, 72–10, 74–9
Marketing, agricultural products, 28–4
Markov chains, 8–16, 63–17
Markov forms, 84–4
Marshland, ecology, 62–2
Martensite, 3–15, 15–16, 68–15, 76–5

Masers, 6–6, 23–4, 61–7, 62–13, 63–11, 63–26, 69–4
Mass spectrometry, 4–6, 5–9, 7–23, 10–7, 13–7, 20–5, 26–7, 63–10, 63–26
Mass transfer, 3–9, 7–9, 7–14, 8–10, 11–10, 19–7, 19–10, 60–4, 60–8, 76–2, 90–4
Mast cells, 67–15, 67–19
Mastication, movements of, 30–16
Mastitis, bovine, 2–1, 8–34
Mastoid, infection, 3–20, 38–7
Materials testing, 4–8, 5–11, 11–3, 22–3, 60–4, 62–4, 68–8
  microhardness, 76–4
  non-destructive, 79–3, 101–2
Matrices, 1–11, 4–8, 18–5, 22–6, 74–6, 81–4, 112–4, 116–3
Matrix force method, 2–8
Measles, 15–17
  vaccination, 15–21, 59–27
Measure theory, 3–13, 14–7, 27–3, 67–6
Measurements, electrical, 4–8, 11–3, 26–10, 77–2, 79–3, 101–2
Meat,
  bacterial flora, 2–1
  preservation, 4–1
  production, 7–1, 13–1
  spoilage, 97–2
Meatus, auditory, skin of, 47–14
Mechanics,
  celestial,10–3, 66–2
  classical, 14–7
  fluids, *see also* flow, fluids, 4–12, 15–8, 62–9, 94–4, 116–4
  linear, 78–2
  non-linear, 78–2
  statistical, 1–18, 3–23, 5–11, 5–17, 7–23, 9–8, 18–6, 19–9, 20–11, 22–6, 23–2, 59–31, 66–2, 68–13, 73–8
  vectorial, 70–7
  wave, *see* wave mechanics
Mechanization, agriculture, 13–1
Mecoptera, 112–7
Mediastinum, tumours, 8–32
Medicago, 71–6
Medical care, 1–22, 59–35
Medical services, 3–26
  public attitudes to, 13–28
Mediterranean, geography, 6–3
Megacin, 68–16
Meiosis, *see* cells, division
Melampyrum, 74–1
Melanin, 7–3
Melanization, 8–35
Melanocytes, 7–3
Melanogen, 53–15
Melanoma, 4–19
  malignant, 36–1, 41–4, 53–11, 53–15
Melphalan, 32–1
Melting, 19–4, 88–1
Membranes,
  biological, 8–35, 26–5, 30–15
  permeability, *see* permeability, membranes,
  potential, 17–7, 20–10
Memory,
  disturbances, 8–20, 68–24
  effect of age, 2–19
  psychology, 8–29, 26–21
  psychopathology, 59–33
Ménière's syndrome, 47–14
Meningioma, 39–3
  intracranial, 41–2, 53–9, 54–5
  intraspinal, 54–5
Meningitis,
  late results, 1–15
  treatment, 10–15
  tuberculous, 15–21
Meningomyelocele, 68–19
Menisci, injuries, 67–11
Menopause, post-, states, 4–15, 10–19
Menorrhagia, 53–10
Menstruation, 3–26, 68–23
  disorders, 40–2, 40–3, 52–9
    endocrine therapy, 40–2, 57–5
  electroencephalography, 43–3
  metabolism, 43–3
Mensuration, forests, 63–14
Mental defectives,
  amino-acids in, 13–22
  employment, 15–28
Mental deficiency, 59–35, 68–19
  biochemistry, 34–3, 34–4
  chromosome studies, 30–12
  genetic aspects, 13–26
  in children, 34–4
  metabolic studies, 13–26
  pathology, 40–3
  social aspects, 43–4
Mental disease, 7–25, 10–26, 43–04
  and memory disturbances, 68–24
  cardiovascular effects, 3–24
  drug therapy, 2–19, 4–23, 43–3
  effect on intelligence, 7–25
  epidemiology, 43–4, 59–35
  forensic aspects, 43–4
  heredity, 7–25, 43–4
  in a new town, 48–8
  metabolic studies, 43–4, 68–24
  pathology, 43–2
  post-partum, 53–19
  social factors, 7–25, 43–4, 59–35
  surgical treatment, 63–20
  vital statistics, 43–4
Mental health, 4–25, 8–30
Mental hospitals, patients, social rehabilitation, 8–30
Mental patients,
  occupational adjustment, 68–24
  rehabilitation, 4–23
Mental tests, 26–21

Mercury, 94–2, 101–3
radioactive, 112–2
Mesolithic Period, 5–4
Mesomorphism, 12–2
Mesons, 3–23, 4–21, 10–24, 27–4, 59–31, 63–26, 102–4
Mesozoic, 4–10, 5–15, 8–35, 14–6, 19–8, 26–14, 26–23, 61–4, 68–12, 73–7
Metabolism, 3–24, 8–25, 15–3, 30–9, 53–7, 56–6, 59–17, 63–7, 63–27, 94–2
aceto-acetate, 30–9
albumin, 52–8
algae, 26–6
amines, 49–2, 52–3, 52–8
amino-acids, 3–5, 4–23, 15–4, 20–2, 24–6, 34–4, 60–1, 84–2, 110–1
ammonia, 47–20
animal, 24–4, 62–14
bacterial, 3–3, 3–4, 13–1, 13–4, 15–6, 25–1, 63–7, 68–16, 72–2
bilirubin, 13–22
brain, 13–22, 43–1, 68–2
calcium, 2–12, 3–4, 5–27, 7–1, 10–17, 32–2, 34–5, 47–9, 58–3, 65–2
carbohydrate, 5–6, 8–4, 10–23, 22–1, 23–2, 59–27, 65–8, 66–3, 73–12, 81–2
carbon compounds, *see also* metabolism, carbohydrates, 14–1
cellular, 5–26, 13–6, 49–2, 63–7, 81–5
changes, in insulin deficiency, 30–13
cholesterol, 8–4
choline, 62–12
copper, 5–18, 5–27, 8–34, 47–2
disorders, 3–22, 24–5, 72–2
effect on teeth, 57–2
genetic aspects, 2–21
in burns, 34–5
in children, 3–21, 34–4, 34–5, 55–8
in infants, 55–8
in ruminants, 8–34
drugs, 55–2, 84–5, 84–6
electrolytes, 4–20, 8–7, 50–5, 50–10, 53–18, 63–7
enzymes, 49–2
erythrocytes, 52–8
fats, 55–6
fatty acids, 30–9
fungi, 13–4, 15–6, 25–1
hormones, 67–9
hydroxybutyrates, 30–9
in breast cancer, 2–22
in newborn, 47–18
in premature infants, 4–18
in psychoses, 34–4, 39–5
in renal failure, 13–15, 50–7
in surgery, 2–22, 55–13, 63–31
in tumours, 50–7
in uraemia, 13–22
in vitro, 10–29
intermediary, 43–1, 69–1
Metabolism (*continued*)
iodine, 10–17, 57–1
iron, 8–4, 10–17, 10–22, 30–14, 47–8, 49–9
lipid, 3–4, 10–17, 15–3, 30–3, 33–1, 52–8, 70–2, 113–5
magnesium, 2–12, 5–27, 13–33, 34–5, 65–2
mammary gland, 2–4
micro-organisms, 13–4, 22–1, 48–1, 60–1, 63–7, 70–4, 73–4
minerals, *see also under individual elements*, 8–34, 64–3, 72–2
nitrogen, 3–4, 4–22, 15–4, 26–3, 63–33, 65–8, 68–3, 69–2
nucleic acids, 4–4, 5–26, 10–5, 49–3, 69–2
oxalates, 13–33, 63–7
phospholipids, 3–25
phosphorus, 3–4, 7–1, 68–3
plant, 4–4, 4–5, 5–8, 7–5, 13–4, 17–1, 19–2, 22–1, 28–2, 59–7, 63–1, 68–3, 70–2, 72–3, 74–1
polyphenols, 68–3
proteins, 4–4, 10–5
rumen, 65–2
steroid, 3–2, 7–24, 49–2, 63–7
sterols, 15–3
sulphur, 56–2
tissue, 1–3, 5–7, 30–9, 47–2, 65–1
toxic substances, 55–2
trace elements, 32–2
vitamin, 8–7, 8–23, 63–7, 65–8
water, 3–28, 4–20, 10–29, 53–18
Xanthophyceae, 79–1
yeasts, 13–4
Metallography, 3–15, 7–14, 79–2
Metallurgy, 5–19, 7–14, 11–6
history, 63–13
Metals,
cold working, 3–15, 15–16, 19–7, 68–8
complexes, 1–3, 2–6, 13–7, 15–6, 26–3, 76–1, 77–1, 79–5, 112–2, 116–2
cutting, 13–10, 19–7, 60–4, 62–4, 68–8, 85–4, 110–2
deposition, 59–18
effect on biological tissues, 42–1, 53–23
heavy, biological aspects, 53–23
hot working, 3–15
industries, 5–4
irradiation effects, 5–19
liquid, 3–15, 7–9, 18–6, 20–6, 62–3, 69–3, 69–9, 83–5
physics, 3–15, 3–23, 5–19, 5–23, 7–14, 9–9, 13–24, 18–6, 19–4, 19–7, 19–10, 19–14, 26–9, 26–11, 27–4, 59–18, 59–31, 60–4, 60–7, 61–7, 62–3, 63–5, 63–11, 63–26, 64–11, 66–9, 68–15, 68–22, 69–9, 70–8, 73–6, 74–7, 74–8, 76–5, 78–1, 78–3, 81–6, 85–5, 90–7, 115–2

Metals (*continued*)
theory, 17–6, 19–9, 22–6, 27–3, 63–17
transition, 3–15, 63–10, 76–1, 79–6, 104–2, 108–2, 116–2
Metamorphism, 8–15, 13–13, 14–6, 19–8, 26–14, 63–16, 68–12, 84–3
Metamorphosis, zoology, 13–35
Meteorites, 7–11, 18–6, 59–18
Meteorology, 4–9, 8–26, 19–11, 63–26, 67–6, 92–3, 116–4,
Meteors, 59–4
Methane, 3–17, 67–2, 68–17, 73–10, 84–2, 110–1
Methodology,
biological, 10–30
geographical, 66–6
Methohexital, 35–1, 52–1
sodium, 13–2
3-Methoxy-4-hydroxymandelic acid, 53–15
2-Methyl-1-2-bis-3-pyridyl-1-propanone, 53–7
Methyl-cholanthrene, 10–22
α-Methyl-dihydroxyphenylalanine, 56–7
Metronidazole, 53–24
Mica, 63–16
Mice,
breeding, 8–13, 13–1
genetics, 5–12, 10–12, 26–12
Micelles, 13–23, 84–6
Micrasterias, 84–1
Microanalysis, 2–6, 3–6, 6–2
Microcalorimetry, 2–18
Microclimatology, 8–12, 67–21, 68–11
Micrococcaceae, 2–1
Micro-manipulative techniques, 13–17
Micromeritics, 3–9, 13–18
Micro-organisms,
cultivation, 21–4
mass production, 62–1
motility, 67–17
physiology, 64–10
Microradiography, 58–3, 59–2
Microscopy, *see also* electron microscopy *and* X-rays, microscopy, 19–14, 20–3, 110–4
biological applications, 63–3
ores, 4–10, 5–20
Microwaves,
electrical engineering, 2–8, 5–11, 12–6, 26–10, 68–8, 81–4, 83–2, 94–3
physics, 76–5
Micturition, 15–30, 30–16
Middle Jurassic, 7–11, 84–3
Migmatism, 68–12
Migraine, 39–1, 52–8
Migration, birds, 63–33
Mikulicz's disease, 49–12
Milium, 68–3
Milk,
bacteriology, 2–1, 8–1, 10–29, 64–4, 65–7
chemistry, 2–1, 8–1, 62–1, 64–3, 65–2, 65–6
heat treatment, 64–4, 65–5
nutritive value, 65–8
processing, 64–4, 65–8
production, 5–1, 9–1, 28–4, 65–3
proteins, 48–4
secretion, 65–10
sterilization, 2–1, 65–5
testing, 1–24
Milling,
ball, 114–5
engineering, 104–3
Millstone Grit, 20–8, 74–5, 68–12
Mine rescue apparatus, 8–19, 90–6
Mine surveying, 19–12
Mine waters, 11–7
Mineral deficiencies, animal nutrition, 10–29
Mineral oils, carcinogenic, 13–22
Mineralization, 6–4, 7–11, 13–13
Minerals,
examination, 5–20, 63–16
metabolism, 1–25, 55–10
in malignant disease, 58–2
separation, 4–21, 26–8, 68–17, 90–4
Miners, occupational diseases, 7–17
Mining, 7–9, 8–19, 10–10, 13–18, 19–12, 90–6
effects on landscape, 12–3
subsidence, 73–10
Miocene, 6–4
Mitochondria, 5–6, 59–7, 63–7
Mitosis, *see* cells, division
Mitral stenosis, 33–1, 47–21, 53–4
radiology, 15–29
Mixing,
chemical engineering, 26–8, 76–2
mechanical, 94–3, 101–2
Models, engineering, 1–6, 19–5, 67–4, 69–5
Modulation, electrical engineering, 3–9, 74–3
Mohair, 79–7
Moine Series, 8–15, 19–8, 20–8, 68–12, 70–6
Moiré fringes, 19–12, 77–6, 104–3
Moisture, absorption, 25–2
Molecules,
interaction, 93–2
structure, 3–6, 5–9, 10–7, 13–5, 13–7, 15–14, 19–4, 60–3, 61–2, 63–17, 64–3, 67–16, 68–5, 70–4, 72–4, 73–11, 109–4
vibrations, 12–5
weight, 1–5, 77–1, 79–2
Mollusca, 5–28, 7–31, 10–30, 15–33, 22–8, 49–3, 61–5, 66–12, 72–10
fossil, 5–14, 10–14, 19–8, 59–14

Mollusca (*continued*)
neuromuscular activity, 24–1
Molybdenum,
acids, 76–1
alloys, 63–19, 76–4
metallurgy, 19–10
Monascus, 112–1
Mongolism, 10–27, 26–12, 30–12, 34–3, 40–4
Moniliasis, incidence, 36–1
Monkeys, Rhesus, radiation effects, 59–36
Monoamine oxidase, 40–3
Monosaccharides, 116–2
Monsoons, 63–15
Monte Carlo methods, 63–17, 101–3
Moon, 59–4
Moorlands, *see also* heathlands, 1–26, 7–1
Morphine, 81–2
effects, 1–19
Morphogenesis, 1–4, 2–5, 5–28, 8–35, 12–1, 14–2, 18–1, 28–2, 59–7, 60–1, 64–10, 73–4
Morphology,
human, 31–1
insects, 1–26
plants, 5–8, 26–6, 69–2
Morphometry, comparative, 5–14
Mortality, 8–34
occupational, 4–25
perinatal, 29–8
prenatal, 72–10
Mortars, 76–2
Mortierella, 62–2
Mosquitoes, 48–2
genetics, 17–1
insecticide resistance, 48–10
Mossbauer effect, 49–9, 80–3
Motivation, 6–7, 18–7, 60–5, 66–11
Motor vehicles,
design, 95–4
engineering, 86–1
steering, 3–9
users' habits, 3–9
Motors,
induction, 3–9, 19–6, 59–11, 68–8, 77–2, 79–3, 81–3, 109–3
rocket, 85–7
series, 81–3
squirrel-cage, 81–3, 109–3
swash plate, 77–2
Moulding, injection, 94–3
Moulds,
chemistry, 11–7, 62–3, 74–2
materials, 101–1
Moult, animals, 63–33
Mouth,
artificial, in experimental caries, 3–7
carcinoma, 8–31
cartilage, resilience, 47–6
Mouth (*continued*)
development, 7–3, 59–2
diseases, 13–8, 45–3
flora, 35–4, 3–3
galvanic action in, 47–6
histology, 35–6
histopathology, 35–6
infection, prevention, 35–7
innervation, 59–1
mucosa, 4–7, 30–6
diseases, 7–7
effect of antiseptics, 51–2
effect of dentures, 47–6
histology, 47–6
metabolic abnormalities, 7–7
mucous membrane, 45–3
pathology, 67–3
surgery, 7–7, 51–7
tissues, 8–8, 35–2, 47–6
effect of radiation, 30–6
effect of zinc, 47–6
tuberculosis, 45–3
tumours, 51–4, 68–6
ulceration, 13–8, 35–7
vestigial structures, 68–6
Movements, involuntary,
pharmacology, 57–3
physiology, 50–5
Mucilages, 25–2
Mucopolysaccharides, 4–19, 4–22, 15–21, 42–1, 56–6, 67–17, 72–4, 73–3
urinary, 13–33
Mucoproteins, 50–4, 59–9
urinary, 13–33
Mucor, 26–6
Mucorales, 6–1, 104–1
Mucosa, blood supply, 53–23
enzymes, in cells, 1–3
Mucosa oral, *see* mouth, mucosa
Mucous glands, 34–4
Mucoviscidosis, aetiology, 59–27
Mucus, cervical, 65–9, 65–10
Muds, flora, 6–1
Multiple sclerosis, *see* sclerosis, disseminated
Muscle,
action, 1–2
effect of drugs on, 20–10, 31–3
atrophy, 42–1
biochemistry, 3–4, 4–4, 5–6, 15–30, 17–7
blood supply, 7–3, 7–29, 10–25, 56–9
carcinoma, 52–8
control, 5–24
disorders, 7–13, 7–21, 10–5, 10–22, 13–22, 15–21, 30–9, 34–3, 34–5, 39–3, 39–5, 43–2, 47–11, 52–8, 53–8
congenital, 53–8
histochemistry, 68–19

Muscle, (*continued*)
disorders, (*continued*)
metabolism, 30–13
dystrophy, 7–25, 10–22
pseudohypertrophic, 34–4
effects of hyperthyroidism, 53–7
electromyography, *see also* electromyography, 30–2
electron microscopy 7–21
electropharmacology, 63–25
electrophysiology, 8–28, 26–20
extra-ocular, 39–2, 41–4
facial, 35–8
flexor, 53–2
growth, 1–1, 63–3, 66–10
hypertrophy, 42–1
in young adults, 34–3
innervation, 67–17
motor, 20–12
skeletal, 30–13, 54–2
metabolism, 13–22, 55–12, 56–9
nervous control, 5–24
oro-facial, 30–6
pathology, 39–5
physiology, 4–4, 5–24, 8–27, 20–12, 26–5, 26–20, 29–1, 29–10, 31–3, 47–18, 48–7, 50–3, 106–4
relaxants, 10–23, 15–1, 59–29
effects on muscle performance in spastics, 4–23
skeletal,
calcium in, 10–23
effects of drugs, 10–23
nerve endings, 30–13, 54–2
spinal, 63–23
weakness, 42–1
Museums, techniques, 31–2
Mutagenesis, 5–12, 8–13
Mutation, 26–6, 26–12, 49–3, 68–10
Myalinidae, 59–14
Myasthenia gravis, 15–23, 59–20
Mycetoma, 48–3
Mycobacteria, 54–7, 75–4, 75–11
infections, 8–34, 63–24
Mycobacterium tuberculosis, 37–1
Mycology, *see* fungi
Mycorrhiza, 63–1
Mycoses, *see* fungi infections
Mycosis, fungoides, 36–1
Myelin, 3–4, 8–2, 13–22, 30–13
metabolism, 47–18
Myeloproliferative disease, 10–17
Myelosis, erythraemic, 55–9
Myenteric plexus, 7–29
Myleran, 32–1
Myocardial infarction, 3–14, 50–5, 52–5
Myocarditis, 7–21
Myocardium, 8–17
blood supply, 57–7
histopathology, 3–22
hypertrophy, 68–4
injuries, 67–14
Myoglobin, 5–23, 55–5
Myokinase, 52–11
Myometrium, physiology, 24–6
Myopia, 30–12
Myosin, 3–4, 5–6
Myriapoda, 59–41, 79–1
Mytilis, 11–7
Myxoedema, 7–13
Myxomycetes, 26–23
Myxoviruses, 5–21
Myzus persicae, 5–1

Naevi, 34–3, 36–1
Naevoid tumours, 4–19
Nails, disorders, 36–1, 55–7
Namurian, 15–11, 20–8, 63–16, 69–7, 74–5, 84–3
Naphthalenes, 32–1, 60–4, 90–3
Naphtho-furan, 91–1
2-Naphthylamine, 32–1
Nasal mucosa, 49–6
allergic response, 3–20, 38–3
Nasal sinuses,
anatomy, 38–7
malignant disease, 3–20
tomography, 13–29
Nasopharynx,
dimensions, 3–20
lymphoid hyperplasia, 4–17
radiography, 51–6
Nautiloidea, fossil, 13–13
Naval architecture, 7–9
Navigation, sense, in humans, 39–1
Nebulae, 66–2
Neck, congenital abnormalities, 1–2
Nematodes, 7–31, 8–35, 13–1, 19–15, 72–1, 107–6
plant, 2–1, 7–31, 71–5, 107–2
Nemertini, 5–28
Neomycin, 38–5
Nepenthes, 21–7
Nephritis, 3–22, 13–21, 57–6
Nephrocalcinosis, 10–21
Nephrosis, 10–21, 34–3, 57–6
Nephrotic syndrome, 3–22, 10–17, 15–21
Nephrotoxic syndromes, 29–3
Nerve-blocking agents, 13–23
Nerve-effectors, effect of morphine, 1–19
Nerve endings, 7–24, 8–2, 1–19, 54–4
pathology, 30–13
Nerve fibres, 4–4, 8–2, 8–27
gamma, 3–18
Nerves,
afferent, autonomic, 13–25
biochemistry, 47–18
cranial, *see also* nerves, optic, nerves, trigeminal, 4–22, 59–2
electrical impulses, 38–6
embryology, 4–22
tumours, 39–3, 54–5

Nerves (*continued*)
degeneration, 30–2, 68–6
dorsal, 59–2
efferent, fibres, 59–2
facial, 59–2
function, 3–2
impulses, 55–10
injuries, 66–10
mammalian, growth, 30–2
motor, development, 52–10
myelination and demyelination, 13–22, 30–13
optic, 8–27
compression, 41–2
diseases, 39–1, 39–2,
drüsen, 45–10
microanatomy, 41–5
peripheral, 10–25
degeneration, 55–1
electrophysiology, 30–16
injuries, 39–6, 42–1, 52–2
regeneration, 26–1, 55–1
physiology, 20–12, 47–18
regeneration, 31–3, 52–2
staining, 10–25
structure, 30–2
trigeminal,
anaesthesia, 54–1
diseases, 54–5
neuralgia, 10–8
vasomotor, 30–9
Nervous impulse, transmission, 10–25, 13–15, 31–3, 49–8
Nervous system,
anatomy, 26–1, 30–2, 43–2, 66–12
autonomic, 4–2, 5–2, 26–1, 52–14, 59–2, 63–25
peripheral extension, 1–2
central,
anatomy, 5–2, 63–3
biochemistry, 30–3, 43–1, 62–12
blood vessels, 59–2
comparative physiology, 3–28, 15–33
congenital abnormalities, 75–6
degeneration, 39–3
effects of anoxia, 30–12
effects of drugs, 3–25, 10–23, 15–23, 20–10, 53–16, 84–6
effects of radiation, 55–9
electrical activity, 1–19, 62–12
histology, 26–1
pharmacology, 1–19, 62–12
physiology, 5–24
sensory pathways, 3–24, 15–2
visceral, afferent pathways, 52–14
changes in liver disease, 52–11
conduction velocity, 43–3
cytology, 39–5
degenerative lesions, 30–13
development, 5–2
Nervous system (*continued*)
diseases, 8–30, 39–1, 39–3, 39–5, 45–8 63–20
aromatic metabolism, 39–5
in children, 3–21, 30–12
electrophysiology, 39–3, 39–6
embryology, 5–2
endocrinology, 5–2
experimental studies, 5–2
histopathology, 39–5
in deaf children, 59–5
in infancy, 15–21
irradiation, 39–5
lipids, 30–13
peripheral, 66–1
histochemistry, 67–1
pharmacology, 63–25
physiology, 5–24, 66–10, 66–12, 69–10
structural disorders, 39–3
sympathetic, 84–8, 102–2
trauma, 43–2
tumours, 3–22, 47–10, 54–7
vascular abnormalities, 3–22
vascularization, 5–2
Nervous tissue,
catechol amines, 1–17
response to injury, 45–13
Networks,
electrical, 3–9, 10–10, 13–10, 14–4, 19–6, 19–7, 19–9, 60–4, 74–3, 101–2, 101–3, 104–3, 110–2, 110–3
neural, 3–9, 18–6
Neuralgia, trigeminal, 10–8, 54–5
Neurites, *see* axons
Neuritis,
ischaemic, 10–28
optic,
retro-bulbar, 39–1, 39–2, 41–2, 45–10
treatment, 39–2
Neurochemistry, 5–28, 43–1, 63–27,
Neurohormones, 69–10, 84–8
Neurohypophysis,
development, 59–2
histochemistry, 59–2
hormones, 4–20, 63–25
hypothalamic relationships, 10–22
Neuroma, 39–3, 54–5
Neuromuscular anatomy, 24–1
Neuromuscular blocking drugs, 11–8, 50–1, 52–12, 58–3, 84–6
Neuromuscular diseases, 13–29, 39–1, 39–5, 43–2, 47–11, 47–16, 67–7
electromyography, 52–8
in children, 34–3
Neuromuscular pharmacology, 53–16
Neuromuscular physiology, 10–25, 17–7, 21–7, 25–4, 26–5, 53–16, 63–27
Neuromuscular transmitters, 25–4
Neuromyopathies, carcinomatous, 47–10
Neurones, motor diseases, 39–1

Neuropathology, *see also* nervous system, 2–16, 3–22, 43–2, 59–28, 63–24
Neuropharmacology, 8–17, 13–23
Neurophysiology, *see also* nervous system, 1–19, 4–30, 15–25, 26–20, 70–9
  insects, 6–8, 74–9, 80–1
Neuro-radiology, 53–20
Neuro-radiotherapy, 8–20
Neurosecretion, comparative, 3–2
Neuroses, 10–27, 13–26, 68–24
Neurospora, 2–5, 3–16, 4–4, 5–12
Neurosurgery, 3–1, 54–5
  anaesthesia, 53–1, 59–1, 59–21
Neutrometry, 6–2
Neutrons, 5–23, 8–26, 19–7, 112–2, 116–5
New Guinea,
  anthropology, 5–3
  palaeontology, 68–12
New Zealand,
  geography, 59–13
  geology, 74–5
  land utilization, 59–13
Newborn, *see* infants, newborn, *and* animals, newborn
Newfoundland, geography, 63–15
Nialamid, 13–15, 13–26
Nickel, 76–4, 90–3, 101–1
  alloys, 60–4, 63–19, 68–15, 76–4, 77–4, 109–5
  complexes, 77–1
  crystals, 3–15
  effect on skin proteins, 36–1
Nigeria,
  economics, 63–30
  geography, 10–13
  geology, 20–8
Night sky, 9–2
Niobium, 15–16, 59–9, 79–2, 110–1
  alloys, 68–15, 76–4
Nitidulidae, 10–30
Nitramines, 14–3, 68–5
Nitrates, 19–3, 104–2, 110–1
  organic, 21–2
Nitration, 23–2
Nitrites, 110–1, 116–2
  alkyl, 116–2
Nitro compounds, 112–2
Nitrogen, 102–4
  chemistry, 4–6
  dioxide, 73–5
  fixation by micro-organisms, 19–3
  in alloys, 73–9
  metabolism, 3–4, 4–22, 7–1, 63–33, 65–1
    plants, 4–1, 4–5, 10–6, 12–1, 20–4, 26–6
  mustards, 19–3, 32–1, 53–3, 59–15, 67–8
  negative balance, 63–7
Nitrogen (*continued*)
  organic compounds, 60–3
    heterocyclic, 97–2
  plant nutrient, 2–1
  radioactive, 55–9
  retention, 52–14
Nitromethane, 110–1
Nitroso derivatives, 10–7
Nitrosyls, 19–3
Nitrous oxide, anaesthesia, 59–1
Nocardia, 35–4
Nocardiosis, in animals, 24–5
Nodulation, legumes, 63–1, 71–5, 71–6
Noetherian rings, 63–17
Noise,
  aerodynamic, 85–1
  electrical engineering, 3–9, 7–9, 19–6, 20–11, 22–3, 26–10, 69–4, 76–2, 77–2, 102–4, 116–5
  in coal mines, 62–11, 73–6, 73–10
  in urban areas, 60–2
  industrial, 59–26, 67–18, 95–4
  jet aircraft, 69–5
  reduction, 3–9, 79–3
  sound analyses, 84–7
Nor-ethisterone, 53–10
Northern Ireland, *see* Ulster
Norway,
  geography, 8–14, 12–3
  geology, 4–10, 7–11, 17–4, 26–14, 62–7, 63–16, 67–5, 74–5
Nose,
  cancer, treatment, 38–4
  granuloma, 38–5
  tumours, 59–26
Nubian Sandstones, 68–12
Nuclear magnetic resonance, *see* nucleus, physics, magnetic resonance
Nucleic acids, 4–4, 5–6, 7–6, 8–6, 8–35, 10–5, 18–2, 20–3, 32–1, 47–2, 53–17, 61–2, 63–7, 69–2, 79–2, 81–2, 112–1
  in malignant cells, 4–19
  photochemistry, 32–1
Nucleons, 26–19, 63–26
Nucleoproteins, 2–4, 2–23, 3–22, 32–1, 50–4, 63–7
  in malignant cells, 4–19
Nucleosides, 7–6, 18–6
Nucleotides, 3–4, 5–9, 7–6, 18–6, 19–2, 32–1, 59–9, 61–2, 64–10
Nucleus,
  cytology, 8–4, 10–2, 84–1
  physics, 3–23, 4–21, 5–17, 5–23, 10–24, 14–8, 15–14, 15–24, 17–6, 18–6, 19–9, 19–14, 21–6, 22–7, 27–4, 53–17, 59–31, 60–6, 63–17, 63–26, 69–8, 69–9, 76–5, 79–6, 103–2
    disintegration, 10–24
    electromagnetic radiation, 59–31

Nucleus, physics (*continued*)
magnetic resonance, 3–6, 4–21, 5–9, 10–7, 13–7, 13–24, 15–6, 19–3, 22–2, 22–7, 26–7, 60–3, 61–7, 63–10, 63–26, 66–9, 68–5, 69–4, 69–9, 72–9, 76–2
Numbers,
algebraic, 14–7
theory, 74–6
geometry, 66–8
theory, 1–11, 4–12, 5–17, 6–5, 10–16, 23–3, 26–16, 27–3, 59–16, 67–6, 68–13, 70–7, 84–4
Nurses, 8–30
selection, 8–29
Nutrition, *see also* malnutrition, 5–1, 5–18, 10–25, 15–3, 48–4, 63–7, 63–27, 64–10, 84–8
animal, 1–24, 7–1, 8–1, 13–1, 28–1, 28–3, 62–1, 64–1
bacteria, 3–4, 65–7
disorders, 5–18
in surgery, 55–13
plants, 4–1, 7–5, 11–4, 19–2, 28–5, 62–1, 63–1, 63–14, 68–3, 72–1
post-operative, in newborn, 34–5
variations, effects, 15–7
Nux vomica, 114–5
Nylon, dielectric constant, 24–6
Nymphaeaceae, 3–5
Nystagmus, miners', 7–17

Oaks, forestry, 8–12
Oats, 2–1, 19–2, 70–2, 71–6
Obesity, 8–27, 10–23, 49–3, 49–4, 59–15
in children, 3–21, 68–19
metabolic aspects, 8–17
Obstetrics,
endocrinology in, 1–14
epidemiology in, 1–14
psychiatric problems, 4–23
sociology, 1–14
statistical aspects, 1–14
Occupational health, *see* industrial medicine
Occupational mortality, 4–25
Occupational psychology, 15–27
Oceanography, 5–13, 5–17, 19–11
Odontomes, 67–3
Oedema, 29–10, 56–10
pulmonary, 63–31
renal, 47–9
treatment, 67–7
Oesophagitis, reflux, 52–17
Oesophagus,
abnormalities, 38–7
cancer, 8–32
congenital defects, 4–28
diseases, 4–28, 8–31, 13–29, 38–7, 52–17
incompetence, in children, 2–15
motor activity, 24–6
Oesophagus (*continued*)
mucus, malignant cells, 47–14
neuromuscular disorders, 13–29
surgery, 50–10
tumours, 13–29
Oestrogens,
excretion, 8–21
metabolism, 10–19, 65–1
urinary, 10–28, 40–2, 57–5
Oil Shale Group, 22–5
Oil shales, 68–12
Oilfields, 19–8
Oils,
carcinogens in, 3–22, 9–3, 47–3
drying, 5–19
genesis, 68–12
geochemistry, 62–7
hydrostatic, 110–2
insulating, 101–3
oxidation, 60–4, 84–6, 95–1
Oilseed crops, 63–1
Old Red Sandstone, 1–9, 7–11, 10–14, 26–14, 64–7, 73–7, 74–5
Old Stone Age, 5–4
Olefines, 12–2, 13–10, 17–2, 60–3, 76–1, 98–1
Olefinic acids, 22–2
Olivines, 14–6
Oman, geology, 6–4
Onchocerciasis, 16–1, 48–10, 48–11
Onions, 19–2
Onium salts, 11–2
Oocytes, 3–2
Oogenesis, 3–2, 18–9
Oophorectomy, 40–5
Operating theatres, hygiene, 3–22
Operational research, 7–12, 110–2
Ophthalmic membranes, 59–2
Ophthalmodynamometry, 39–2
Ophthalmoscopy, electronic, 41–6
Opisthobranchia, 21–1, 22–8
Optics, *see also* electron optics
physics, 1–18, 109–6
physiology, *see also* eye, 15–3, 19–14, 26–3, 64–11
technical, 19–14
Orbit,
angiography, 39–2
dermoid cysts, 41–6
lesions, 39–3
surgery, 41–6, 53–11
tumours, 41–3, 41–6, 53–20
Orbitals, molecular, 14–8, 20–5, 70–4
Orchitis, granulomatous, 44–1
Order-disorder transformations, 60–4, 72–9
Ordovician, 3–12, 4–10, 12–4, 67–5
Ore dressing, 13–18, 19–13, 73–10
Ore microscopy, 8–15, 14–6, 19–8,
Ore minerals, 13–13, 66–7, 77–4

Organo-metallic compounds, 2–6, 3–6, 4–6, 5–9, 6–2, 11–2, 14–3, 19–3, 59–9, 60–3, 61–2, 64–3, 66–5, 67–2, 76–1, 101–1, 102–2
Organo-phosphate poisoning, 49–8
Organo-silicon compounds, *see also* silicon, organic compounds, 14–3, 77–1
Oribatei, 59–41, 62–1
Ornithology, *see also* birds, 63–33
Oro-facial behaviour, 35–5
Orphans, psychiatric disorders, 52–15
Orthodontics, 35–5, 59–10
  consultant service, 7–7
Orthopaedic lesions, pathology, 10–22
Orthopaedics,
  appliances, 42–1
  veterinary, 10–29, 24–7
Orthoptera, 9–11, 68–30, 112–7
Oscillators, 7–9, 19–6, 20–6, 77–2, 78–1, 101–2
  hydraulic, 3–9
Oscilloscopes, 83–5, 109–3
Osmium compounds, 76–1
Osmolality, effect on leucocytes, 29–3
Osmometry, 3–6, 98–1
Osmoreceptors, alimentary, 30–16
Osmosis, 4–4, 22–2
  marine animals, 2–24, 8–5, 62–14
Ossicles, 38–7
Osteo-arthritis, 7–18, 68–20
  of hip, 4–28, 7–27
Osteo-arthropathy, pulmonary, 53–23
Osteochondritis, 34–5
  dissecans, 67–11
Osteogenesis, 63–23
Osteolathyrism, 10–8
Osteoporosis, 10–22, 30–9
Ostracoda, 59–41, 112–3
  fossil, 12–4, 14–6, 26–14
Ostreidae, 14–6
Otitis,
  externa, 59–26
  media, 7–19
Otocyst, 38–5
Otology, veterinary, 24–4, 24–7
Otosclerosis, 7–19, 38–5
  fenestration for, 3–20
  pathology, 49–6
  surgery, 38–4
Ovary,
  carcinoma, 3–22, 30–11
  dysfunction in cattle, 24–7
  granulosa cell tumours, 59–22
  histology, 75–7
  physiology, 63–21
  tumours, 2–14, 3–22, 15–30, 40–5, 57–6
Ovulation, 5–1, 40–3, 52–9
Ovum, 15–32
  implantation, 1–2, 29–1
Ox, evolution, 8–34
Oxalates, 13–33, 19–3, 53–7, 63–7, 108–5, 110–4
  metabolism, 13–33
Oxidases, 11–7, 40–3, 68–3
Oxidation,
  biochemistry, 60–4, 68–3, 73–4
  chemistry, 1–5, 2–6, 3–6, 3–9, 3–17, 5–19, 9–5, 11–4, 12–2, 15–6, 19–3, 19–4, 19–7, 22–2, 59–9, 60–3, 60–4, 63–10, 67–2, 73–9, 74–3, 74–7, 76–1, 76–4, 77–1, 83–1, 88–1, 110–1, 112–2, 115–2,
Oxides, 103–3, 105–1
  metallic, 81–6, 112–5
11-Oxycorticosteroids, 29–8
Oxygen,
  consumption, 34–3, 40–4
  high-pressure, cardiac and respiratory effects, 1–19, 10–28
  tension in blood, 3–14
Oxytocin, 4–20
Oyster-catchers, 15–33

Pacemaking, cardiac, *see* heart, pacemaking
Packaging, pharmacy, 81–5
Paediatrics, *see also* children, infants
  statutory and voluntary services, 3–21
  teaching, 30–12
Paget's disease, 67–11
Pain, 2–2, 4–24, 49–8
  cervical, 53–12
  in mental stress, 68–24
  intractable, 3–18, 8–20, 75–1
    treatment, 4–2, 39–3, 53–9
  psychogenic, 68–24
  referred, 52–8
  relief, 8–20, 39–3
Paint, X-ray analysis, 63–5
Paints, chemistry, 78–5
Pakistan, geography, 3–11, 8–14
Palaeobotany, 5–8, 5–15, 10–6, 13–6, 14–2, 19–2, 26–6, 59–7, 64–2, 68–12, 72–3, 73–4
Palaeoclimatology, *see also* climatology, 5–15, 7–23
Palaeoecology, *see also* ecology, 8–15, 84–3
Palaeomagnetism, *see also* magnetism, 7–23, 10–14
Palaeoniscidae, 21–1
Palaeontology, vertebrate, 63–3, 73–14
Palaeopathology, 73–1
Palaeozoic, 2–10, 5–15, 10–6, 26–23, 68–12
Palaeozoology, 2–10, 3–12, 4–10, 5–15, 5–28, 6–4, 10–14, 12–4, 13–13, 15–11, 19–8, 20–8, 26–14, 26–23, 30–4, 59–14, 61–5, 62–7, 63–16, 64–7, 66–7, 68–12, 70–6, 73–14, 74–5

Palate,
cleft, 2–3, 8–8, 10–8, 10–28, 15–7, 15–29, 15–30, 34–5, 45–3, 50–10, 51–3, 59–27
closure, 47–6
jaw development, 63–23
deformities, 63–23
embryology, 47–1
innervation, 52–2
muscle, 52–2
soft, radiography, 13–29
Palladium, 4–6
Pallidectomy, 3–1
Palsy, *see* cerebral palsy
Palynology, 2–5, 5–8, 5–15, 14–5, 15–10, 59–14, 68–12
Pancreas, 55–12
development, 59–2
disorders, 10–28
duct, obstruction, 52–14, 53–23
enzymes, 13–15
fibrocystic disease, 34–3, 34–4, 75–6
function, 2–22, 8–32, 10–28
histochemistry, 59–2
innervation, 59–2
Islets of Langerhans, 30–9
radiography, 7–29, 15–29, 53–23
Pancreatic secretion, 7–24
Papaver, 21–1
alkaloids, 25–3
Paper making, 9–6, 60–8
Paraffins, 12–2, 22–2
Paragenesis, minerals, 13–13
Paralysis,
brachial plexus, 42–1
cerebral, *see* cerebral palsy
facial, 3–20, 38–3, 45–11, 49–12
ocular, 39–2, 41–2, 45–10
Paramagnetism, *see also* magnetism, 6–6, 62–13, 63–26, 73–7
Paramecium, 8–13
Paranasal sinuses, 53–9
Paraplegia,
bladder in, 53–23
urethro-cystography in, 15–29
Parasitism, 2–1, 4–11, 4–29, 5–1, 5–7, 5–28, 10–6, 11–7, 16–1, 26–23, 62–14, 63–12, 64–1, 69–2
Parasitology, 7–31, 68–30, 72–1, 79–1, 102–1
animal, 2–24, 5–27, 8–35, 10–29, 12–7, 13–35, 15–13, 15–33, 16–1, 19–15, 20–13, 22–8, 24–5, 66–12
plant, 19–2, 70–1
Parathormone, 10–17, 13–8, 13–22, 13–33
Parathyroid gland, 1–19, 44–1, 56–6, 75–10
disorders, 13–33
physiology, 30–9
Parents, group studies, 75–6
Parity, non-conservation, 8–26
Parker effect, 102–2
Parkinsonism, 8–20, 8–24, 10–23
psychological aspects, 54–8
surgery, 39–1
Parkinson's disease, 39–3, 54–5
Parks, 26–13
Paronychia, chronic, 45–4
Parotidectomy, 49–12
Parthenogenesis, 67–21
Particle acceleration, 3–23, 10–24, 58–3, 59–31, 69–9
Particles,
elementary, *see also* electrons, hyperons, mesons, neutrons, protons, 1–18, 8–26, 19–14, 26–19, 69–9, 113–6
size analysis, 79–5, 104–6, 106–2
Partition theory, mathematics, 1–11
Passerines, 5–28
Pasteurella, 24–5
Pasteurization, 65–2
Pastures, 8–1, 65–8, 70–1, 71–1, 71–2
Patella, 61–1
Paterson-Brown-Kelly syndrome, *see* Kelly-Paterson syndrome
Paterson-Kelly syndrome, *see* Kelly-Paterson syndrome
Pathology,
forest, 1–7
gynaecological, 15–18
techniques,
laboratory, 75–7
museum, 31–2
Pavements, 3–9, 79–3
Pearlite, 19–10
Peas, 19–2
Peat,
bogs, 15–10, 59–7
wax, 2–23
Pedology, *see also* soil, 18–3
Pegmatites, 13–13, 19–8
Pelleting mechanism, pharmaceutical preparations, 25–2
Peltier effect, 97–2
Pelvimetry, 63–21
Pelvis,
anatomy, 56–1
cancer, chemotherapy, 10–19
endocrine control, 3–24
growth, 2–3
injuries, 59–25
Pemphigus vegetans, 8–9
Penicillin, 15–31, 45–7, 50–6, 114–5
causing urticaria, 36–1
in dentistry, 51–2
Penicillinases, 4–14, 30–10, 80–4
Penicillins, 30–10
Penicillium digitatum, 19–2
spinulosum, 94–5
Pentose phosphatide cycle, 10–22

Pepsin, 68–28
Peptic ulcer, 3–24, 7–21, 7–29, 8–32, 15–30, 45–13, 47–9, 68–28
  epidemiology, 1–22, 59–35
  experimental, 1–20
  malignant, 53–20
  surgery, 13–30
  treatment, 7–13
Peptidases, 13–4
Peptides, 1–25, 2–4, 4–6, 5–6, 15–6, 19–3, 49–2, 54–7, 63–10, 63–24, 74–2, 106–2, 116–2
  synthesis, 63–1
Perception, 1–21, 2–20, 4–24, 5–2, 5–25, 6–7, 8–28, 8–29, 9–10, 14–9, 15–27, 17–8, 18–7, 26–21, 43–5, 59–34, 61–3, 63–28, 64–12
  disorders, 39–1, 39–7
  visual, 39–6
Perchlorates, 12–2, 19–3, 21–2
Percolation, theory, 63–17
Performance tests, 8–29
Perfusion, 50–10
  therapeutic, 8–32, 10–19, 53–23, 67–20
  total body, 30–18
Pericarditis, 13–29, 53–4
Pericardium, transplants, 30–18
Pericoronitis, 7–7
Peridineae, 18–1
Perimetry, clinical, 10–20, 45–10
Periodates, 14–3
Periodic table, 7–11
Periodontal diseases, *see also* periodontitis, 4–7, 13–8, 30–6, 35–7, 67–3
Periodontal membrane, disorders, 7–7
Periodontal pockets, 35–7
  bacteriology, 47–6
Periodontal tissues, 59–10
  electron microscopy, 10–8
  reattachment, 35–7
  recession, 51–5
Periodontitis, 35–7
Periosteum, 24–1
Peristaltic reflex, in isolated ileum, 1–19
Peritonitis, mortality, 8–32
Perivasculitis, 41–3
  retinae, 45–10
Perkin reaction, 2–23
Permeability, membranes, 8–5, 17–7, 19–3, 55–11
Permian, 7–11, 26–6, 68–12
Permo-Carboniferous, 3–12
Permo-Triassic, 26–14, 62–7, 104–4
Peroxidases, 5–9
Peroxides, organic, 26–7
Perry, 4–1
Persian Gulf, geology, 19–8
Persilicates, 60–3
Personality, 2–20, 9–10, 10–27, 17–8, 26–21, 43–5, 59–34
  disorders, 8–28
Personality (*continued*)
  measures of, 43–5
Personnel,
  selection, 8–29, 18–7, 59–34
  training, 18–7
Perthes' disease, 34–5
Peru,
  geography, 5–14
  geology, 63–16
Pes cavus, 39–1, 53–12
Pests,
  of crops, 2–1, 4–1, 4–11, 5–1, 5–28, 7–1, 8–1, 19–15, 28–6, 62–1, 72–1
  of stored products, 52–4, 67–21, 83–1
  on stored vegetable drugs, 59–30
Petrogenesis, 62–7, 66–7
Petrography, 84–3
Petrology, *see also* rocks, 1–9, 4–10, 5–20, 6–4, 7–11, 13–13, 18–4, 20–8, 66–7, 67–5, 70–6, 84–3, 104–4
  experimental, 59–14
  sedimentary, 2–10
Petrous bone, 38–1
Phaeophyceae, 7–5
Phagocytosis, 55–7
Phalangida, 6–8
Pharmacogenetics, 15–15
Pharmacology, *see also* drugs, 13–15, 13–23, 53–16, 63–25
  statistical methods, 68–21
Pharmacy,
  chemistry, 11–28
  history, 62–12
Pharmocognosy, 79–5
Pharostoma, 7–11
Pharynx,
  amyloidosis, 38–5
  analgesia, 30–1
  cancer, treatment, 38–4
  carcinoma, 8–31, 38–4
  malignant disease, 3–20
  paralysis, 47–14
  tumours, 38–4
Phase difference, 109–3
Phase transformations, 7–23, 68–15
Phase-meters, digital, 79–3
Phaseolus, 3–4
Phenazines, 79–2
Phenelzine, 53–19
Phenethyldiguanide, 30–9
Phenol, germicidal action, 12–2
Phenology, 9–6, 71–6
Phenols, 8–7, 59–9, 60–3, 81–2, 109–1, 116–2
  hydroxy, 53–15
  oxidation, 3–9
Phenothiazines, 2–2, 84–6
o-Phenylenediamines, 80–1
Phenylalanine derivates, 32–1
Phenyl ketonuria, 15–21, 34–4, 68–2, 68–19

Philosophy of science, 13–7, 23–4, 26–15
Phleum, 71–6
Phobias, 13–26
Phonation, 63–18
Phonocardiography, 47–4, 54–2
  foetal, 57–5
Phorodon, 28–5
Phosphatase, acid, prostatic, 4–19, 44–1
Phosphatases, 50–7, 53–15, 65–2, 90–1
Phosphate esters, 3–22
Phosphates, 76–1, 84–2, 103–3
  excretion, 45–6
  geology, 19–3, 62–7
Phosphatides, *see also* lysophosphatides, 3–4, 11–8
Phosphine, 67–2
Phosphites, 10–7
Phospholipases, 30–13
Phospholipids, 3–24, 5–9, 25–1, 30–13, 31–2, 36–1, 46–1
  metabolism, 3–25
Phosphonitrilic chloride, 83–1
Phosphorescence, 49–9, 68–5
Phosphors, 12–6, 78–4
Phosphorus,
  chemistry, 4–6, 64–3, 67–2, 76–1, 110–1
  compounds, organic chemistry, 5–9, 10–7, 13–7, 20–5, 23–2, 60–3, 69–3, 102–2, 115–1
    toxicology, 30–13
  halides, 10–7
  metabolism, 3–4, 57–3
  nitrogen compounds, 18–2, 18–6, 59–9
  radioactive, 4–16, 4–27, 58–3
    medical uses, 15–20, 49–11
  retention, 52–14
Phosphorylation, 61–2, 63–7
  enzymic, 7–6
  oxidative, 7–13, 13–22
Photochemistry, 4–6, 5–9, 7–6, 8–7, 9–5, 10–7, 18–2, 19–3, 20–5, 59–9, 60–3, 60–8, 61–2, 63–10, 67–2, 68–5, 69–3, 84–2
Photoconductivity, 6–6, 12–6, 26–10
Photodermatoses, 36–1
Photoelastic testing, 3–9, 7–9, 13–10, 19–5, 22–3, 26–9, 60–4, 62–4, 68–17, 105–2
Photoelasticity, 4–8, 11–9, 68–8, 88–2, 101–2
Photoelectricity, 19–14, 21–6
Photogrammetry, 4–9, 8–14, 10–13 26–18, 63–14, 74–4
Photography,
  aerial, 61–4, 69–6
  high-speed, 19–4, 22–3
Photoionization, 20–11
Photolysis, 2–6, 10–7
Photometry, stellar, 5–5, 8–3, 66–2
Photomicrography, 5–26
Photoperiodism, 2–5, 2–24, 5–1, 28–2
Photoplasticity, 19–7
Photosensitivity, 36–1
Photosynthesis, 4–1, 5–6, 8–5, 12–1, 15–3, 19–2, 22–1, 26–6, 63–1 64–8, 70–2
Phototropic materials, 9–9
Phycomyces blakesleeanus, 81–1
Phycomycetes, 61–1, 107–6
Phylloerythin, 36–1
Phyllopertha, 7–1
Phyllotaxis, 28–2
Phylogeny, plants, 5–8
Physics, medical, 1–18
Physiography, 4–9, 74–4
Physiology,
  comparative, 3–28
  plant, 1–4, 10–6, 64–2, 84–1, 94–1 114–1
Physiotherapy, 66–10
Physique, 10–21, 66–10
Phytic acid, 90–1
Phytin, 70–2
Phytogeography, 17–1
Phytoliths, 72–1
Phytopathology, 2–1, 3–5, 4–11, 5–1, 5–8, 7–1, 8–1, 9–3, 12–1, 13–1, 19–2, 28–2, 28–5, 59–7, 62–1, 63–1, 63–14, 69–2
Phytotoxicity, 63–1
Picrates, 87–1
Picrites, 66–7
Pieris, 5–28
Pigments,
  chemistry, 78–5
  dyeing, 13–7
  mineral, 81–6
  natural, *see also* bile, pigments, 4–4, 5–9, 9–5, 17–9, 63–33, 72–7, 79–2
Pigs, 4–29, 5–1, 13–1, 28–1
  anaesthesia, 15–32
  artificial insemination, 4–29, 24–2
  atherosclerosis, 63–24
  breeding, 2–1, 28–1, 71–1
  diseases, 5–27, 15–32
  growth, 1–1, 5–1, 10–29, 65–3
  housing, 2–1, 7–1, 8–1
  husbandry, 10–29, 62–1
  leptospirosis, 10–29
  nutrition, 4–29, 5–1, 13–1, 62–1, 65–8
  pneumonia, 5–27, 8–34, 10–29
  production, 1–1, 64–1
  urinary tract infections, 5–27
  young,
    mortality, 8–34
    nutrition, 4–29, 65–8
Piles, engineering, 2–8, 3–9, 13–10, 62–4, 68–8, 69–5, 108–3
Pinacol, 76–1
Pinguicula, 3–5

Pinus sylvestris, 19–2
Pions, *see* mesons
Piperazine, 5–9, 8–32
Pipes,
  ceramic, 103–3
  geology, 20–8
  organ, 115–2
Piridoxin, 52–8
Pistons, 7–9
  compressor, 80–2
Pisum sativum, 84–1
Pitcairn Island, geology, 19–8
Pitocin, 30–11
Pituitary gland, *see also* hypophysis *and* neurohypophysis, 43–2, 90–7
  ablation, for carcinoma, 10–22
  and renal hypertrophy, 8–27
  cytology, 3–2, 55–3
  destruction, by radioactive implants, 7–27, 10–28, 50–9
  disorders, 30–11, 50–5, 59–15
  effects of injury, 29–8
  effects of irradiation, 29–3, 29–8
  function in rheumatoid arthritis, 29–3
  function tests, 53–7
  histochemistry, 47–18
  histology, 3–2
  inhibitors, 8–32
  pathology, 10–22
  physiology, 10–22, 10–28, 34–4, 43–3
  surgery, *see* hypophysectomy
  tumours, 5–21, 10–22, 39–3, 54–5
Pituitary hormones, *see also* adrenocorticotrophin, 1–3, 8–30, 12–7, 29–8, 59–29, 75–8
  and sex hormones, 47–2, 63–1
Place names, 68–11
Placebo responses, 10–26, 13–15, 13–26
Placebos, 13–26
Placenta, 53–10, 53–14
  artificial, 5–18
  biochemistry, 3–4, 29–7
  circulation, 2–18, 40–3
  enzyme content, 29–7
  function, 57–5
  histochemistry, 40–3, 57–6
  in toxaemia, 40–3
  insufficiency, 2–14, 40–3, 75–5
  location, 15–18
  metabolism, 29–3
  pathology, 13–19, 67–13
  perfusion, 40–3
  physiology, 40–3
  structure and function, 5–2, 8–21, 29–1, 29–7, 47–1, 55–12
Placentation, 55–1
  histochemistry, 1–2
Plagioclases, 14–6
Plankton, 15–13, 56–3, 59–41, 69–11 84–9, 112–7
  fossil, 64–7, 68–12
Plants,
  aquatic, 15–4
  bacterial diseases, 1–13
  biochemistry, 9–3, 10–1, 10–5
  breeding techniques, 64–1, 71–6
  chemical effects of insect attacks, 25–3
  chemistry, 13–23
  cultivated, evolution, 7–1
  extractives, 95–1
  geography, 22–4
  interrelations with insects, 64–8
  lice, 7–1
  medicinal, *see also* names of plants, 84–6
  methods of cultivation, 62–8
  nutrition, 2–1, 2–5, 4–1, 11–4
  ornamental, 4–11
  propagation, 28–6, 62–8, 73–4
  toxicology, 5–22, 24–1
  transport processes in, 17–1
  virus-infected, 84–1
  water relations, 64–2
Plasma, 13–15
  administration, 34–5
  analysis, 30–13
  electrolytes, 15–22
  gas discharge, physics, 5–11, 5–17, 7–23, 11–9, 18–6, 19–14, 22–3, 59–4, 60–4, 61–7, 63–11, 66–9, 68–8, 70–8
  proteins, 2–19, 3–22, 7–13, 8–7, 44–1, 46–4
    in disease, 3–22
  sterilization, 46–4
  volume, 59–36
Plasmin, 42–1
Plasticity, 4–8, 4–21, 7–23, 19–1, 19–7, 59–11, 62–9, 68–8, 116–4
Plastics, 19–4, 19–7, 60–3, 60–8, 62–4, 69–5, 98–1
  antibacterial effect, 29–6
  carcinogenic effects, 32–1
  properties, 83–1
Plates, engineering, 4–8, 19–5, 60–4, 63–11, 68–8, 95–2, 104–3
Platinum, 19–8, 26–14, 101–1, 110–1, 112–2
Platyhelminthes, 5–28, 19–15
Plecoptera, 15–33
Pleistocene, 3–12, 4–10, 5–15, 6–4, 8–14, 10–14, 12–4, 26–14, 59–14, 62–2, 63–16, 64–7
Pleoptic methods, 41–3
Plethysmography, 29–3, 63–18, 63–31
Pleuropneumonia-like organisms, 10–29, 46–7
Pliocene, 63–16
Pneumatic engineering, 13–18
Pneumokoniosis, 7–17, 7–21, 15–29, 16–2, 48–5, 50–7, 62–7, 67–18

Penumonia,
in pigs, 5–27, 8–34
neonatal, 67–13
perinatal, 59–22
radiology, 53–20
treatment, 10–15
Podophyllum, 79–5
Podzolization, 62–1
Poisoning,
lead, 34–4
organophosphate, 49–8
Poisson's equation, 104–3
Poland, geography, 15–10
Polariscope, reflection, 76–2
Polarization, 19–3, 20–11, 60–4
dielectric, 80–1
molecular, 17–2
Polarography, 2–6, 5–2, 13–23, 52–3, 60–4, 84–6, 95–1, 116–2
Pole devices, electrical engineering, 7–9
Polecats, 70–9
Poliomyelitis, 42–1, 57–4
immunization, 59–27, 68–14
virus, 5–21, 18–6, 57–4, 68–16
vaccines, 2–13
Pollen, 13–6, 62–2, 73–4, 79–2
in relation to allergies, 75–3
Pollens, fossil, 2–5, 3–12, 14–5, 15–10, 59–7, 68–12
Pollution,
atmospheric, 13–27, 15–5, 19–4, 48–9, 53–17, 64–6, 68–11, 76–2, 110–2, 112–2
prevention, 15–28
water, 15–33, 22–8, 69–5, 70–9
Salmonellae, 15–28
Polyamines, 4–19
Polyarteritis nodosa, 29–8
Polyaza heterocyclic compounds, 62–12
Polychaeta, 17–9, 21–1, 26–23, 68–30
Polycyclic systems, chemistry, 10–7, 83–1
Polycythaemia, 13–15, 32–1, 49–11
Polyenes, 22–2, 63–10
Polygala senega, 93–4
Polygenic systems, 3–10
Polymerization, 1–5, 2–23, 3–6, 5–9, 10–7, 11–10, 13–7, 13–32, 15–6, 19–3, 19–4, 26–7, 59–9, 60–3, 61–2, 62–3, 63–10, 87–1, 98–1, 110–1, 110–4
Polymers, 8–7, 14–3, 18–2, 19–3, 20–11, 27–2, 60–3, 60–6, 66–5, 74–3, 76–1, 77–1, 78–5, 79–7, 83–1, 85–6, 98–1, 102–2, 110–3, 110–4, 114–1
crystallization, 4–21
polar, 79–2
Polymixinmethanesulphonate, 41–3
Polymorphism, zoology, 5–28
Polymyositis, 53–4
Polynomial distributions, 79–6
Polyol dimesylates, 32–1
Polyoma virus, 10–18
Polypeptides, 1–3, 4–19, 9–5, 63–18, 74–2
cancer chemotherapy, 32–1
Polysaccharides, 1–5, 3–4, 3–22, 8–7, 11–8, 13–15, 46–1, 83–1
antigenic, 3–22
bacterial, 3–6, 11–7, 11–8, 67–8
serum levels, 7–21
Polytopes, 3–13
Polytrichum, 22–1
Polyzoa, 107–6
fossil, 5–15
Pomology, 4–1, 28–6
Population,
analysis, 9–11, 15–10, 59–13
densities, 59–13, 63–12, 63–33
genetics, 8–35, 14–10
movements, 7–10, 8–14, 15–10, 20–7, 59–13, 62–6, 63–33
parasites, 4–30
statistics, 48–9, 63–29
studies, 1–8, 3–10, 3–11, 6–3, 8–35, 13–12, 14–10, 15–33, 16–1, 27–5, 62–6
insects, 19–15, 63–12
Porcelain,.103–3
dental, 3–7, 7–7, 68–6
Porifera, 107–6
Porosity, 4–6
Porphin, 68–5
Porphyria, 55–9
Porphyrins, 15–6, 22–2, 57–6, 59–15, 112–2
action spectrum, 36–1
biosynthesis, 55–9
metabolism, 45–12
Portal circulation, 4–28
Ports, 7–10, 8–14, 20–7
Positrons, 8–26
Post Glacial, 14–5
Post-maturity, 13–21, 59–27
Post mortem changes, 8–11
Posture, 10–25
defects, 34–3
Potassium,
deficiency, 28–2, 55–9
role in malignant disease, 29–3
Potato, taxonomy, 3–5
Potatoes, 8–1, 62–1, 68–3, 70–1
diseases, 2–1
eel worm parasites, 2–1
Poultry
breeding, 2–1, 5–1, 7–1
diseases, 5–27, 10–29, 15–32, 16–1 24–4
environmental studies, 24–2
farming, 7–1, 10–29, 64–1, 70–1
feeding, 7–1, 15–32, 62–1
genetics, 8–1
hatchability in, 8–34

Poultry (*continued*)
physiology, 64–3
Powder metallurgy, 60–4, 83–1
Powders,
pharmacy, 80–4
physics, 20–6, 25–2, 104–6
Power,
industries, geography, 74–4
lines, 87–2, 95–2, 107–4
plants, nuclear, 22–3
systems,
analysis, 4–8, 10–10, 11–3, 15–8, 60–4, 69–5, 74–3
operation, 19–6
stability, 7–9
transient response, 114–2
transmission,
hydraulic, 77–2
hydrodynamics, 3–9
mechanical, 74–3, 91–2
Pox group viruses, 5–21, 15–17
Praecordium, blood flow, 50–5
Pre-Cambrian, 4–10, 9–7, 13–13, 14–6, 19–8, 62–7
Precipitates, 94–2, 112–2
Pre-eclampsia, 40–3
Pregnancy, 3–26, 63–29
adrenal insufficiency, 15–18
albuminuria, 30–11
anaemia, 1–14, 41–3, 54–10, 67–14, 75–2
biochemical and electrolyte changes, 13–19
bladder disturbances, 15–18
body water changes, 40–3
circulation in, 40–3
cytology, 2–14, 3–19, 4–15, 40–3
diabetic, 45–9, 59–22
effects of drugs, 30–14
fasting metabolism, 5–27
haemodynamics, 8–21, 40–3
heart disease, 59–8
hormone excretion, 68–18
hormone metabolism, 40–3, 67–9
in previously infertile women, 57–5
intervertebral disc lesions, 53–9
isoimmunization, 40–3
lungs in, 40–3
maintenance and termination, 52–14
nutrition, 1–14
nutritional and metabolic factors, 52–9
oxytocin and, 4–20
physiology, 1–14, 8–21, 8–27
psychiatric problems, 4–23, 10–27, 59–33
toxaemia, *see also* eclampsia, pre-eclampsia, 4–15, 10–19, 10–29, 40–3, 63–18
in sheep, 4–22
vital capacity changes, 4–15
Pregnanediol, 40–2
Pre-history, 5–4
Prehnite, 63–16
Prematurity, 4–18, 8–23, 13–21, 30–12, 59–35, 67–9
effect on neuro-motor system, 52–10
eye diseases in, 4–16
eyes and vision, 67–10
metabolic problems, 4–18
protein diet in, 75–6
social aspects, 1–20
Premenstrual syndrome, 10–25, 53–19
Premolars, positional development, 47–6
Presses, 77–2
Pressing, metal working, 77–4
Pressure,
high, 4–21, 22–7
chemistry, 13–7
equipment, 2–8
intra-ocular, 101–4
measurement, 7–9, 15–8, 19–4, 83–5
vessels, 60–4, 68–8
Pretensioning, engineering, 2–8
Primates, 3–2
anatomy, 52–2
behaviour, 5–28
fossil, 63–3
learning, 26–1
reproductive physiology, 3–2
Primula, 6–1, 63–9
Probability, 6–5, 18–5, 26–22, 59–34, 63–17, 74–6
Process control, production engineering, 83–4
Process instrumentation, chemical engineering, 5–11, 19–4, 74–3, 74–7
Proconsul africanus, skull, 52–2
Progesterone, 10–29, 40–2, 81–5
deficiency, 13–19
excretion, 8–21
in pregnancy, 40–3
metabolism, 67–9
Progestogens, 40–2, 53–10, 57–5
Programming computers, *see* computers, programming
Prolactin, 13–35, 59–29, 65–10
Propellers, 7–9
Prophylactic agents, trials, 48–9
Prospecting,
geochemical, 19–8
geophysical, electrical, 19–8
Prostate, 44–1
acid phosphatase, 4–19
cancer, 45–12
carcinoma, 8–32, 44–1
in dogs, 5–27, 24–5
Prostatitis, 47–22
Prostheses, *see also under organ concerned*,
dental, 30–6
internal, 42–1
muscular control, 58–8

Protactinium, 68–5
Proteaceae, 2–5
Protein,
  C-reactive, 13–15
  deficiency, 48–4
  requirements, 5–1, 48–4
Proteins, *see also individual substances*, 3–4, 3–6, 3–22, 5–6, 5–10, 5–23, 5–24, 8–5, 10–5, 10–12, 11–4, 13–32, 17–7, 19–2, 20–3, 26–3, 30–3, 46–2, 47–11, 49–2, 49–9, 50–7, 53–17, 54–7, 59–38, 63–7, 63–10, 64–3, 66–3, 68–2, 79–2, 79–7, 81–1, 87–1, 104–2, 112–2
  abnormal, in disease, 54–7
  assay, 94–1
  biosynthesis, 1–3, 10–17, 50–7, 63–1
  cancer chemotherapy, 32–1
  cerebral, 39–5
  dietary, 52–14
  effect of irradiation, 32–1, 36–1
  electrophoretic separation, 3–21
  extraction, 26–8
  fluorescent tracing, 1–16
  freezedrying, 5–21
  hepatic, 13–22, 15–30
  in cerebrospinal fluid, 39–5
  in urine, 57–6
  metabolism, 3–22, 4–4, 4–5
    in malignant disease, 8–32, 58–2
  plant, metabolism, 4–5
  plasma, 2–19, 3–22, 46–4
  radioactive, biological uses, 59–36
  sensitization, 4–22
  serum, 1–3, 15–21, 20–2, 26–12, 46–5, 54–7
  skin, 36–1
  synthesis, 32–1
    bacterial, 5–6, 62–1
  tissue, 39–5, 45–12
Proteinuria, 3–22, 44–1
Proteus vulgaris, 45–7
Protons, 3–23, 10–7
  low energy, 14–8
Protozoa, 4–30, 5–7, 5–8, 9–11, 10–30, 20–13
  drug resistance, 5–7
  parasitic, 1–3, 5–7, 48–6
Prurigo, Besnier's, 47–7
Pseudocholinesterase, 53–15
Pseudodementia, 7–25
Pseudomonas, 2–1, 11–7, 64–10
Pseudoperonospora, 28–5
Psittacosis, lymphogranuloma group of viruses, 4–29, 7–15, 47–10
Psocoidea, 13–35
Psoriasis, 13–9, 68–7
Psychiatric breakdown, 1–20
Psychiatric diagnosis, 8–28
Psychiatric disorders, 4–23, 15–26
Psychiatric patients, occupational adjustment, 68–24
Psychiatry, 56–4
  demography, 59–33
  genetic aspects, 43–4
  preventive, 10–26
Psychological function, cerebral localization, 52–15
Psychology,
  applied, 1–21
  child, 4–24, 8–29
  educational, 2–20
  experimental, 5–25, 61–8
  history, 15–27, 59–33
  industrial, 5–25, 18–7, 26–21
  physiological, 18–7
  social, 10–27, 66–11
  testing, 61–8
Psychopathology, 14–9
Psychoses,
  associated with epilepsy, 39–7
  juvenile, 34–3
  manic-depressive, 30–13
  metabolism, 34–4, 39–5
  model, 1–21
  motivation towards employment, 4–23
  occupational, 8–28
  social aspects, 43–4
Psychosomatic conditions, 4–18, 43–4
Psychotherapy,
  child, 10–27
  group, 59–35
Psychotics, rehabilitation, 4–23
Psyllidae, 7–1
Pteridines, 11–2, 110–1
Pteridium, 7–1, 10–6
  poisoning in animals, 72–2
Pteridophyta, 1–5, 10–6, 13–6, 26–6, 59–7
Pteris, 7–5
Pteronitella, 74–5
Public health, 59–35
  administrative problems, 4–25, 15–28
  history, 59–35
Puccinellia, 13–6
Puccinia, 11–7
Puerperium 10–26
  biochemical and electrolyte changes, 13–15
  blood changes, 15–18
  fibrinogen in, 40–3
Pulmonata, 21–1, 68–30
Pulp, dental, 47–6
  drug reaction, 47–6
  effect of high-speed cutting, 3–7, 7–7
  infected, 59–10
  innervation, 47–6
  pathology, 10–8
  response to trauma, 7–7
  vascular architecture, 35–6
Pulse,
  arterial, 54–2
  electronic detection, 30–1
Pulses, toxic substances in, 5–18

Pumps,
centrifugal, 10–10, 73–6
ejector, 20–6
heat, 95–2
ion, 107–5
rotary, 78–1
swash plates, 77–2
turbine, 69–5
Pupils, *see also* Adie's syndrome,
myotonic, 41–2
Purbeckian, 15–11
Purgatives, vegetable, 25–3
Purines, 32–1, 74–1, 84–6, 87–1, 110–1 113–5
Purpura, 75–2
thrombocytopenic, 29–8, 75–2
Putrescine, 28–2
Pyelography,
intravenous, 13–29
retrograde, 8–32
Pyelonephritis, 10–17, 40–3, 55–7
Pyloric antrum, 68–28
Pylorus,
mucosa, 45–12
physiology, 10–28
stenosis, 66–1
Pyrans, 21–2, 91–1
Pyrazoles, 102–2
Pyrenomycetes, 68–3
Pyrethrum, 62–1
Pyridethiazoles, 80–4
Pyridine, 84–2, 91–1, 93–2, 95–1, 104–2, 108–5, 113–5, 116–2
dihydro-, 112–2
Pyridinium salts, 101–1
Pyridoxal phosphate, 32–1
Pyridoxine deficiency, 7–13
Pyridylacetic esters, 113–5
Pyrimethamine, 49–11
Pyrimidines, 4–6, 74–1, 87–1, 110–1
Pyrites, 19–8
Pyrolysis, 11–10, 19–4, 77–1
Pyrones, 91–1
Pyroxenes, 5–20, 14–6, 19–8, 63–16
Pyrrole pigment, metabolism, 57–6
Pyrroles, 22–2
Pyrrolidine, 108–5
Pyrrolines, 22–2
Pyrrolizidine compounds, 52–11

Quality control, 83–4, 110–3
Quantum electrodynamics, 74–8
Quantum mechanics, 2–11, 5–17, 7–23, 13–14, 18–5, 23–2, 61–2, 68–22, 110–3
Quantum theory, 1–18, 5–17, 8–26, 10–24, 12–5, 15–14, 15–24, 18–6, 19–9, 23–3, 23–4, 59–31, 63–17, 63–26, 68–13, 73–8, 102–3
Quartz dolerite, 112–3
Quartzite, 74–5
Quaternary, 5–8, 5–14, 14–5, 14–6, 19–8, 59–7
Quaternary compounds,
ammonium, 25–1
synthesis, 59–30
Quercus, 61–1
Queues, theory, 1–24, 3–13, 63–8
Quinolizidines, 9–5
Quinolizines, 61–2
Quinones, 4–6, 9–5, 11–2, 13–7, 19–3, 22–2, 32–1, 79–2
diphenyl benzo, 79–2
Quinoxalines, 21–2, 110–1

Rabbit,
ear chamber grafts, 63–24
fur, dyeing, 104–7
gonadectomy, 55–3
hair replacement, 75–7
Racemization, 17–2
Radar systems, 3–9
Radiation,
ante-natal, leukaemogenesis, 59–36
background, from natural sources, 13–24
bactericidal effects, 25–2, 59–6, 59–30
biochemical effects, 63–7
biological effects, 2–3, 3–2, 3–4, 4–3, 7–27, 8–20, 13–6, 13–24, 22–1, 30–15, 32–1, 32–2, 32–3,40–4, 47–7, 47–9, 47–19, 48–9, 49–11, 52–13, 53–3, 53–17, 53–21, 55–9, 58–3, 59–12, 59–36, 59–37, 63–32, 68–26, 69–2, 73–4
chemical effects, 2–6, 7–6, 8–7, 8–26, 19–3, 19–4, 23–2, 30–15, 59–9, 64–11, 68–5, 68–22, 73–5
damage, 4–21, 8–26, 49–3, 53–17, 59–36
detectors, 78–5
hazards, 48–9, 49–9
hazards, in dentistry, 10–8
ionizing, 15–28, 29–3
protection against, 4–18, 32–2
by chemicals, 52–16
solar, 116–3
Radio waves,
discrete sources, 5–5
propagation, *see also* wave propagation, 3–9
Radioactive elements, 32–2, 66–7
Radioactive examination of rocks and minerals, 4–10
Radioactive isotopes,
standardization, 32–2
therapeutic use, 5–26, 34–3, 39–3, 59–37, 68–26
Radioactive materials, applications, 87–2
Radioactive tracers,
use in analysis, 3–6, 4–1, 26–7, 81–2, 95–1

Radioactive tracers (*continued*)
use in biochemistry and medicine, 3–4, 3–22, 5–21, 8–32, 10–17, 10–22, 13–24, 19–2, 29–3, 30–9, 32–2, 32–3, 34–2, 45–13, 47–19, 49–9, 50–10, 53–6, 55–9, 55–11, 57–1, 58–3, 59–2, 59–29, 59–31, 63–18, 65–1, 68–21
use in biology and medicine, 4–6, 15–3, 15–18, 24–4, 34–2, 47–20, 50–3, 50–8, 52–5, 53–3, 53–17, 114–1
use in chemical engineering, 19–4
use in dental studies, 3–23, 51–6
use in engineering, 3–9
use in industry, 60–8
use in liquid flow studies, 60–4
use in metallurgy, 11–6
use in physics, 7–9, 8–26, 11–2, 26–7, 64–11
use in plant nutrition studies, 63–1
use in study of chemical reactions, 6–2, 7–6, 10–7, 19–3, 23–2, 62–3, 63–10
Radioactivity,
bone, study techniques, 13–24
in rocks, 64–7, 74–5
low level, measurement, 13–24
measurement, in living subjects, 13–24, 32–2
Radioastronomy, 2–8, 5–23, 59–4, 68–22
Radiocarbon dating, *see also* radioactive tracers, 5–8
Radiochemistry, 3–6, 3–23, 5–9, 6–2, 13–7, 15–6, 93–2, 94–2
Radiography, *see also* autoradiography *and* microradiography, 30–15, 32–2
veterinary, 5–27
Radioiodine, *see* iodine, radioactive
Radiology,
distribution of scattered radiation, 49–9
of tropical diseases, 4–26
veterinary anatomy, 10–29, 24–1
Radiomercury, *see* mercury, radioactive
Radiosensitizers, chemical, 5–26
Radiotherapy, 3–19, 5–26, 8–31, 32–2, 49–9, 49–11, 52–16, 55–9, 59–37, 68–26
dosage, 47–19, 58–3
high voltage, 7–27, 47–19, 53–21, 59–37
wedge filters, 47–19,
Radon, 78–4
Radstock Group, 68–12
Railways,
geography, 61–4
vehicles, 26–11
Rain,
clouds, 5–23, 19–14
forests, 72–3
Rainfall, 7–10, 15–10, 19–5, 61–4, 68–11
Raman spectra, *see also* spectra 9–9, 19–3, 26–7, 63–10, 69–3, 74–2
Raman spectroscopy, *see* spectroscopy, Raman
Ramie, 79–7
Rana temporaria, 108–1
Random function, 62–9
Ranunculus, 27–1
Rape, 71–6
Rare earths, 19–8, 62–13, 110–1
Rare metals, 3–6
Rauwolfia oxyphylla, 81–5
pharmacognosy, 62–12
Reactivity, chemical, 63–17
Reactors, nuclear, 3–23, 15–8, 19–4, 19–7, 19–10, 22–3, 59–11, 59–18, 62–4, 69–5
Reading,
and deafness, 59–5
by computer, 92–3
disorders, 7–20, 39–1, 39–7, 45–8
Reasoning, psychology, 26–21
Recent sediments, 84–3
Recoil, atoms, 22–2
Recrystallization, 3–15
Rectifiers, 4–8, 19–6, 74–3, 101–2, 108–3
silicon-controlled, 77–2
Rectum,
blood supply, 53–23
carcinoma, 52–23
cytology, exfoliative, 3–27
innervation, 13–30
prolapse, 13–30
surgery, 13–30, 53–23
Red Sea, geophysics, 6–4
Redox properties, 79–5
Redox reactions, 17–2
Reduction phenomena, 115–2
Reflex action, 5–24, 49–10
Reflexes, 29–10
carotid, 53–18
conditioned, 1–19
peristaltic, 1–19
somatic, autonomic, 42–1, 52–1
spinal, 52–14, 56–9
Reformatsky reactions, 76–1
Refraction, atmospheric, 5–14
Refractories, 13–32, 19–3, 19–4, 68–29, 103–3, 112–5
Refrigerants, 80–2, 96–1
Refrigeration, 11–3, 20–6, 68–8, 96–1, 107–4
Regeneration,
biology, *see also* bone, regeneration, 12–7, 63–33, 83–1
forest, 1–7
thermal, 13–10
Rehabilitation, 15–28, 48–8, 67–18
Reiter's syndrome, 47–22

Relativity, 7–12, 8–26, 15–14, 17–5, 18–6, 19–9, 20–9, 21–3, 23–3, 72–8, 76–3, 77–6, 101–3, 116–4
Relaxation phenomena, 10–10, 14–3, 22–7, 63–26, 66–9, 68–5, 68–13, 76–3, 116–2
Renal failure, *see* kidney, failure
Renal function, *see* kidney, function
Renal tract, radiography, 13–29, 47–20
Rennin, 63–18, 65–7
Reproduction, comparative, 4–29, 24–2, 24–6
  effects of radiation, 3–2
  endocrinology, 30–14, 52–14
  environmental control, 3–2
  fish, 8–28
  hormonal and neural factors, 3–2
  nervous and endocrine control, 5–2
  physiology, *see also* pregnancy, 3–2, 3–26, 5–7, 5–24, 5–27, 47–1, 53–25
Reproductive cycle, 4–22
Reptilia, 23–5
  fossil, 5–28, 7–11, 18–9, 26–23
  physiology, 68–30
  pigmentation, 56–6
Rescue apparatus, *see* mine rescue apparatus
Reserpine, 25–1, 52–12, 56–7
Reservoirs, 60–4
Resins,
  bonding, 2–23
  chemistry, 68–5, 79–2
  physical properties, 19–4, 101–2
  synthetic, 98–1
    use in surgery and dentistry, 42–1, 47–6
Resistance, contact, 73–6
Resistances, electrical engineering, 7–9, 77–6
Resistors, 101–2
Resonance, 7–23, 12–6, 101–3
  electron spin, 9–9, 13–7, 14–3, 30–15, 62–13, 68–5
  ferrimagnetic, 2–8
  magnetic, 14–3, 62–13, 68–22, 79–2, 112–2
  nuclear, magnetic, *see* nucleus, physics, magnetic resonance
  paramagnetic, 49–9, 62–13
Resonators, 69–9, 110–4
Resorts, geography, 12–3
Respiration, 63–27
  artificial, 4–2, 7–2, 57–7
  birds, 4–29, 15–32
  cellular, 24–6
  controlled, 3–1, 50–5, 53–1, 59–1, 75–1
  defects, in children, 34–3
  distress, in newborn, 8–23
  fishes, 69–11
  in anaesthesia, 50–1
Respiration (*continued*)
  in hypocapnoea, 15–1
  in infants and children, 4–18
  in newborn, 4–18, 7–20, 57–5
  insects, 56–3
  marine worms, 68–30
  micro-organisms, 75–4
  nervous control, 49–10
  pharmacology, 67–15
  physiology, *see also* respiratory function, 5–18, 10–25, 57–7, 59–32, 63–31, 69–10
  plants, 1–4, 4–4, 4–5, 5–8, 15–4, 19–2, 28–2, 59–7, 64–8, 74–1
  positive pressure, 50–1
  post-operative, 50–1
  tissue, 79–1
  tumours, 75–4
Respirators, 42–1, 59–1, 63–2
Respiratory diseases, industrial, 67–18
Respiratory disorders, 7–17, 10–17, 48–5, 68–14
  congenital, 3–21
  exercise tolerance in, 50–5
  in newborn, 10–19, 13–21
  in students, 8–30
  occupational, 2–21
  relation to air pollution, 2–21
Respiratory failure, 37–1
  treatment, 2–2, 13–2
Respiratory function, 3–14, 30–1, 49–4, 53–4, 56–4, 59–17
  after surgery, 49–12
  in children, 7–20, 15–21
  in newborn, 5–18
Respiratory pigments, 69–10
Respiratory rate, 74–9
Respiratory tract, 10–28
  anatomy, 5–2
  embryology, 5–2
  infections, 7–15, 37–1, 55–7
  resistance in anaesthesia, 53–1
  upper,
    carcinoma, 3–20, 38–4
    infections, 3–20
    suppuration, 7–19
    tumours, 3–22
    viruses, 38–5
Reticulin, 3–22
Reticulo-endothelial system, 8–24, 20–1, 30–4
Reticulo-endotheliosis, cutaneous, 8–9
Reticuloses, 45–6, 59–28
  chemotherapy, 59–37
Reticulosis, cutaneous, 36–1
Retina,
  blood supply, 41–2
    disorders, 15–20, 41–4, 45–10
  blood vessels, 53–11
  detachment, 4–16, 13–20, 41–3, 41–6
  disorders, 41–4, 45–10
  effect of hypotensive drugs, 53–11

Retina (*continued*)
fluid, 41–6
microanatomy, 41–5
physiology, 5–24, 26–3, 41–4, 53–11, 79–6
Retinitis,
hypertensive, 50–5
pigmentosa, 3–22, 41–4
Retinoblastoma, 41–6, 53–11
Retinopathy, diabetic, 41–4, 41–6
Retiolitidae, 3–12
Rhaetic, 64–7
Rhaetic Bone Bed, 4–10
Rhenium, 19–3
Rheology, 10–10, 11–3, 13–32, 26–20, 55–11, 60–3, 60–6, 60–8, 63–17, 65–9, 68–8, 68–17, 70–7, 74–6, 75–6, 76–2, 93–3
skin, 13–15
Rhesus,
antibodies, 53–15
immunization, 40–3
incompatibility, 40–3
isoimmunization, 7–16
sensitization, 13–19, 47–15
Rhesus monkey, 59–36
Rheumatic diseases, 10–22, 59–38, 68–14
treatment, 13–15
Rheumatic fever, 4–13, 52–11, 75–6
Rheumatism,
acute, 4–13, 75–9
treatment, 50–5
Rheumatoid arthritis, 8–17, 8–22, 29–3
Rhinitis,
allergic, 38–3
vasomotor, 53–19
Rhinocerotidae, osteology, 53–2
Rhizobium, 62–1
Rhizoctonia solani, 19–2
Rhizopus, 112–1
Rhizosphere, 8–1, 19–2, 62–2, 72–1
Rhodesia, geology, 2–10
Rhynchonellidae, fossil, 19–8
Rhythms, biology, 5–28, 20–4, 59–7
Ribonuclease, 2–13, 32–1, 47–2
Ribonucleic acids, 3–16, 32–1
Ribonucleotides, 32–1
Rickets, vitamin D-resistant, 3–21
Rickettsial disease, 13–17
Rift valleys, 15–11
Ring constrictions, 63–32
Rings, mathematical theory, *see also* noetherian rings, 7–12, 68–13
Ringworm, 2–13, 36–1
Rivers,
biology, 64–13, 112–7
geography, 6–4, 13–10, 64–6, 64–7
hydraulics, 3–9, 4–8, 19–5, 112–3
pollution, 70–9
Road accidents, *see* accidents, road
Road construction, 3–9, 108–3
Road materials, testing, 19–5
Rockets,
aerodynamics, 116–4
combusion, 19–7, 68–29
for ionospheric measurements, 3–23, 26–19
for space research, 69–9
multi-stage, 101–2
nozzles, 62–4
Rocks,
age determination, 5–13, 63–16
chemical analysis, 5–20, 61–5, 63–16
igneous, 2–10, 3–12, 4–10, 5–20, 6–4, 7–11, 8–15, 10–14, 12–4, 13–13, 14–6, 17–4, 18–4, 26–14, 61–4, 62–7, 63–16, 69–7, 74–5
mechanical properties, 68–17
metamorphic, 2–10, 5–20, 10–14, 15–11, 17–4, 18–4, 19–8, 26–14, 59–14, 62–7, 70–6
sedimentary, 2–10, 3–12, 5–15, 6–4, 9–7, 10–14, 15–11, 20–8, 22–5, 64–7, 74–5
volcanic, 17–4, 19–8, 62–7, 63–16, 68–12
Rods, manufacture, 77–2
Rolling, metals, *see also* cold-rolling, 101–1
Roofs, 11–3, 15–5
shell, 76–2, 101–2
trusses, timber, 76–2
Root, plants, 1–4, 2–5, 13–1, 63–9, 64–1, 64–8, 66–4, 71–1, 72–1
Root canals, *see* teeth, root canals
Ropes, wire, 101–2, 116–3
Rosa, 64–1
Rosacea, 47–7
Rosaceae, 64–1
Rotenoids, 114–5
Rotenone, 20–5
Rotifera, 17–9
Rotors, 101–3, 108–3
Rubber, 98–1
antibacterial effects, 29–6
dielectric constant, 24–6
Rubella, foetal, 7–3
Rubidium, 28–2
Rubrospinal tract, 30–2
Rubus, 3–5, 79–5
Ruminants, 5–24
abdominal disease, 15–32
colon, 4–29
digestion, 13–1, 15–32, 62–1, 65–6, 72–2
evolution, 8–34
fluorosis, 8–34
haematology, 24–4
infertility, 15–32
metabolic diseases, 8–34
physiology, 15–25, 65–1
stomach, 10–29
taste perception, 24–6

Rumination, 24–6
Ruthenium compounds, 76–1
Rutile, 110–1
Ryania, 81–5
Rye, 19–2
Ryegrass, 2–1

Salicornia, 15–4
Salicylates, 13–15
Salientia, 18–9
Saline administration, 34–5
Salinity, effects on vegetation, 8–6
Saliva, 3–7, 7–24, 31–4
  metabolic processes in, 15–7
  zinc in, 47–6
Salivary glands, 73–1
  electron microscopy, 47–6
  histochemistry, 47–6
  radiography, 52–17
  relation to oral disease, 45–3
Salmonella, 2–1, 15–28, 46–6
  typhimurium, 30–10
Salmonellosis, 15–32
  epidemiology, 15–28
Sallopian, 62–7
Salpa fusiformis, 84–9
Salpingitis, 47–22
Salt,
  balance, physiology, 3–28
  domes, 63–16
  effect on plants, 70–1
  marshes, 15–10, 69–2, 70–3
  -secreting glands, 7–3
Salts, uptake by plants, 5–8, 8–5
Sampling,
  random, 19–6
  sequential, 68–27
  theory, 1–24
Sand,
  deposition, 3–9
  hydraulic engineering, 19–5
  mechanical properties, 3–9, 80–2, 95–2 114–2
Sandwich compounds, 1–5
Sap, ascent, 13–6
Saprolegniaceae, 10–6
Sarcoidosis, 37–1, 45–6, 45–10, 53–4, 75–4
Sarcoma,
  osteogenic, 8–31
  transplantation, 25–4
Satellites, artificial, 9–2, 10–10, 19–8, 26–19, 59–4, 69–9, 70–7, 70–8, 101–3
Savannahs, geography, 61–4
Sawflies, 67–21
Scalp, verrucous naevi, 36–1
Scandinavia, geography, 26–13
Scanning, electronic, 3–9, 60–4, 78–1
Scapolitization, 62–7
Schistocerca, 68–30
Schistosomes, 48–6
Schistosomiasis, 48–10, 48–11, 57–6
Schistosomicides, 62–12
Schizophrenia, 7–25, 8–28, 13–26, 34–3, 53–9
  actiology, 52–15
  effect of plasma protein, 2–19
  electroencephalogram, changes, 7–25
Schlicht functions, 74–6
Schmidt systems, 5–5
Scintillation, 52–13, 112–6
  counters, 57–1, 102–4, 103–1
Sclera, diseases, 41–4
Sclerosis, 13–9
  disseminated, 2–13, 7–13, 7–15, 39–5, 57–6
    aetiology, 4–13
    lysophosphatides in, 30–13
Sclerotia, 19–2
Sclerotinia trifoliorum, 5–1, 13–1, 71–5
Sclerotization, 8–35
Scoliosis, 7–18, 8–22, 34–5, 39–1
  treatment, 53–5
Scopalamine, 30–1
Scorpionida, fossil, 3–12
Scotland,
  anthropology, 1–2
  archaeology, 14–5
  flora, 1–4, 66–4
  geography, 1–8, 6–3, 8–14, 10–13
  geology, 1–9, 2–10, 4–10, 5–15, 7–11, 8–15, 10–14, 12–4, 13–13, 15–11, 17–4, 19–8, 22–5, 61–5, 63–16, 64–7, 66–7, 67–5, 68–12, 70–6, 73–7, 74–5
  geriatric survey, 1–22
  incidence of children's diseases in N.E. region, 1–15
Scotoma, 41–3
Scrapie, 63–18
Scremerston Coal Group, 26–14
Sea,
  anemones, 5–28
  fertilization experiments, 69–11
  floor, geology, 4–10
  level variations, 15–19, 20–7
  mist, 113–6
  walls, 15–8
  water, composition, 15–19, 72–7
Seals,
  mechanical, 78–1
  metal-ceramic, 106–2
Seats, motor vehicles, design, 95–4
Secretin, 63–24
Sedation thresholds, 4–23, 43–5
Sedimentation, 1–9, 3–9, 7–11, 8–15, 15–11, 19–8, 20–8, 59–14, 60–6, 62–7, 63–16, 64–7, 69–7, 69–9, 74–5. 84–3
  ore dressing, 3–17, 13–18
  tanks, 3–9, 19–5, 60–4
Sediments, 27–5, 62–7, 69–7, 112–3
  lacustrine, 14–2

Seed,
anatomy, 21–1
multiplication, 71–6
plant physiology, 10–5, 70–3
testing, 2–1
Seismology, 1–18, 5–13, 6–4, 6–5, 18–4
applied, 15–11, 19–8
Selection,
animal breeding, 8–13
biological, 1–24
Selenium, 18–2
Self,
concept of, 2–19
perception of, 7–25
Semantics, mechanisms, 13–27
Semen, 65–9
Semi-circular canals, 38–6, 38–7
physiology, 39–4
Semi-conductors, 1–18, 3–23, 4–6, 4–8, 4–21, 7–23, 9–9, 12–6, 14–8, 17–6, 18–6, 19–6, 19–10, 22–2, 26–10, 27–4, 60–4, 62–3, 62–13, 63–26, 64–11, 66–9, 69–5, 72–9, 77–2, 77–6, 79–3, 80–3, 83–2, 83–5, 84–7, 109–6, 115–2
Sensation,
disorders, 39–7
physiology, 39–3
Sense organs, 3–28, 13–1
physiology, 5–24
Sense perception, psychology, 64–12
Senses, special, 5–25, 15–33, 26–12
Sensory deprivation, 59–33
Sensory mechanisms, 43–3
Sensory thresholds, 4–2, 24–2, 63–28
Separators, cyclone, 95–2
Serine peptides, chemotherapy, 32–1
Serology, 26–12
chemical aspects, 5–21
Serotonin, *see* 5-hydroxytryptamine
Serum,
enzymes, *see* enzymes, serum
lipids, 53–4
pattern distribution, 6–3
proteins, 3–22, 10–28, 39–5, 52–14
reactions, 5–21
Servomechanisms, 1–6, 11–3, 20–6, 26–11, 59–11, 60–4, 60–6, 67–4, 68–8, 74–3, 77–2, 79–3, 81–3, 94–3, 95–2, 101–2, 108–3, 113–2
Settlements, geography, 1–8, 2–9, 3–11, 4–9, 8–14, 10–13, 13–12, 17–3, 20–7, 22–4, 59–13, 62–6, 63–15, 64–6, 70–5
Sewage, purification, 3–9, 7–9
Sewers, civil engineering, 68–8, 110–2
Sex,
anomalies, 8–17, 15–18
chromatin, 7–3, 30–12, 59–2
chromosomal, 30–12
determination, 10–22
development, effect of drugs, 30–14
Sex (*continued*)
diagnosis, 7–13
differentiation, 7–3
hormones, *see also under individual names*, 5–1, 5–27, 7–3, 30–14, 62–1, 65–10
organs, development, 7–3
Shaft rotors, 77–2
Shafts,
engineering, 7–9, 11–3, 13–10, 26–11, 62–4, 68–8, 78–1, 85–4, 88–2, 95–2, 104–3
geometry, 104–3
Shales, *see also* oil shales, 68–12, 90–3
Shear, engineering, 101–2
Sheehan's syndrome, *see* pituitary gland disorders
Sheep, 1–1, 2–1, 4–1, 7–1, 13–1, 64–1 70–1, 71–1
anaerobic disease, 2–1
breeding, 8–13, 72–1
diseases, due to parasites, 24–5
evolution, 8–34
feeding, 8–1
genital sytem, 29–1
production, 5–1
productivity, 24–2
reproductive activity, 62–1
teeth, 59–10
toxaemia of pregnancy, 4–22, 63–18
virus diseases, 4–29
Shell construction, engineering, 3–9, 5–11, 11–3, 13–10, 19–5, 19–7, 22–3, 26–9, 59–11, 62–4, 69–5, 73–6, 76–2, 101–2, 108–3
Shellac, 66–5, 78–5, 98–1
Shells,
aircraft, 85–4, 95–2
cylindrical engineering, 114–2
elastic, 116–4
Shelter belts, forestry, 8–12, 70–1
Shetland, geology, 15–11
Shigella, 8–18, 67–8
Ships,
derricks, 113–2
design, 5–11, 7–9
masts, 10–10, 113–2
models, testing, 7–9
stresses, 10–10
structures, 19–5
ventilation, 11–3
vibrations, 10–10
Shivering, physiology, 63–18
Shock, 16–2
and vascular permeability, 24–7
burns, 34–5
electric, 26–21, 59–23
experimental, 10–28
treatment, 53–15
tubes, 15–6, 15–8, 22–3, 26–11, 63–11
tunnels, 22–3
waves, 19–9, 19–14, 69–5

Shoot, plants, 59–7
Shores, 72–7
Sialography, techniques, 52–17
Siderosis, 10–22
Sierra Leone, geology, 13–13, 26–14
Signals, electrical engineering, 104–3
Silage, 2–1, 8–1, 8–7, 13–1, 63–1
  as food stuff, 7–1, 13–1
Silencers, aircraft engines, 69–5
Silica glass, 13–32
Silicates, chemistry, 1–5, 6–4, 19–3, 27–2, 59–14, 60–3, 62–3, 68–15, 68–29
  mineralogy, 3–12, 18–4, 19–7
Silicides, 19–10
Silicon, 1–5, 4–6, 11–6, 18–2, 19–6, 26–10, 60–3
  hydrides, 27–2
  organic compounds, 12–2, 60–3, 70–4, 102–2
Silicosis, 50–7, 56–6, 64–3, 75–11
Silico-tuberculosis, 75–11
Sills, 7–11, 64–7
Silos, 62–4
Silts, 3–12
Silurian, 3–12, 7–11, 12–4, 14–6, 17–4, 59–14, 62–7, 66–7, 74–5
Silver, 60–3, 74–7
  alloys, 77–4, 83–1
Silviculture, 1–7, 63–14
Simuliidae, 6–8
Simulium, 16–1
Sinapis, 62–1
Sintering, 13–32, 19–3, 19–4, 60–4
Sinuses, *see* nasal sinuses
Sjogren's syndrome, 3–22, 41–4
Skeleton,
  anatomy,
    comparative, 52–2
    functional, 52–2
  congenital abnormalities, 1–2
  development, 4–29, 34–3, 63–29
  tissue, 13–8
Skill, 4–24, 5–25, 9–10, 13–27, 26–21, 63–28, 63–30, 64–12
Skin, *see also* epidermis, 36–1
  afferent nerves, 8–27
  animals, 8–34, 24–4, 68–30
  cancer, arsenical, 47–7
  carcinoma, 3–22, 75–7
  chemistry, 3–22, 13–32, 53–3
  diseases, 3–22, 36–1, 41–3
    auto-immunity, 10–9, 13–9
    electron therapy, 36–1
    epidemiology, 48–5
    occupational, 48–5
    psychological aspects, 13–26
    treatment, 47–7
  electron microscopy, 3–22, 15–12
  epithelioma, 36–1
  fungal diseases, in animals, 10–29, 13–4
Skin (*continued*)
  fungus infections, 36–1, 45–4, 52–6, 62–2
  grafts, 3–22, 10–22, 30–13, 63–32
  healing, 30–2
  histochemistry, 1–2, 10–9, 13–32, 13–35, 31–2, 36–1
  histology, 10–2
  histopathology, 10–22
  metabolism, 3–22, 36–1, 53–6
  patterns, 26–12
  pharmacology, 47–17
  physics, 13–32
  physiology, 36–1, 47–17
  pigmentation, 3–22, 15–2, 36–1, 55–1, 56–6
  reactions, 2–1, 13–9, 36–1, 75–7
  reactive hyperaemia, 7–29
  reticulo-endotheliosis, 8–9
  reticulosis, 36–1
  rheology, 13–15
  sensibility, 63–3
  tensions, 11–3
  tissue culture, 10–9
  tumours, 10–22, 29–8
  virus infections, 8–9
Skull,
  age assessment, 10–8
  anatomy, mammalian, 53–2
  embryology, 15–7
  form, 2–3
  growth, 3–2, 15–7, 51–6
  protective capacity, 68–9
  tumours, 7–29
Slabs, civil engineering, 79–3
Slags, 7–14, 11–6, 15–16, 19–4, 19–10
Slates, petrology, 4–10
Sleep,
  deprivation, 8–28
  disturbances, 4–23
Sludge, dewatering, 60–4
Slugs, 10–30
Sluices, 19–5
Slurries, 7–9
Smallpox,
  diagnosis, 46–5
  vaccines, 46–5
Smelting, 19–4
Smouldering, 19–4
Snails, 5–28, 8–35
Soaps, effect on epidermis, 36–1
Social medicine, 1–22, 48–8
Sociology, community, 5–3, 7–4
Soda lime, bactericidal effects, 30–1
Sodium,
  brietal, 54–1
  carbonate, 110–1
  effect on muscular contraction, 29–10
  metabolism, 67–7
  orthovanadate, 52–8
  radioactive, use in obstetrics, 45–9
  transport, 45–6

Soil,
aeration, 3–5
associations, 14–5
chemistry, 1–23, 5–1, 8–1, 13–1, 19–3, 63–1, 72–1
cultivation, 7–1, 70–1
drainage, 116–3
erosion, 62–1
fauna, 13–1, 18–9, 23–5, 26–23, 59–41, 62–1, 72–1, 74–9
fertility, 2–1, 8–1
formation, 1–23, 2–9, 6–3, 7–1, 62–1, 68–3, 70–2, 74–4
frost action, 3–9, 70–1
geomorphology, 63–1, 74–4
mapping, 4–9, 63–1
mechanics, 3–9, 5–11, 8–10, 11–3, 15–8, 19–5, 20–6, 22–3, 59–11, 60–4, 62–4, 63–11, 69–5, 74–3, 76–2, 79–4, 95–2
microflora, 2–5, 3–3, 4–1, 5–1, 7–1, 15–4, 23–1, 59–7, 62–1, 62–2, 72–3, 72–6
mineralogy, 72–1
moisture, 1–23, 5–1, 60–4
permeability, 60–4
physics, 5–1, 7–9, 10–10, 62–1, 70–5
restoration, 7–1
stabilization, 19–5, 60–4
sterilization, 61–1
structure, 1–23, 7–1, 28–3
surveys, 28–3
temperature, 1–23
Soils, 2–1,
and plant nutrition, 8–1, 19–3, 62–2, 63–1, 70–1
forest, 63–14
Solder, 104–3
Solid state, 1–18, 3–9, 4–6, 4–21, 5–23, 7–23, 8–7, 9–9, 10–24, 13–16, 15–14, 19–3, 20–5, 20–11, 22–7, 27–4, 61–7, 62–3, 63–17, 63–26, 64–11, 66–9, 68–22, 73–9, 101–5
Solids,
deformation, 8–26
dissolution, 26–8
mechanics, 68–13
melting, 60–4
theory, 3–23, 7–23, 13–24, 15–6, 15–24, 18–5, 18–6, 19–9, 63–17, 73–8
Sols, *see also* colloids, 114–5
Solutes, body distribution, 73–12
Solution, 1–5, 4–6, 5–9, 7–6, 12–2, 13–7, 14–3, 15–6, 20–11, 22–2, 68–5, 88–1, 95–1, 101–1
solid, 2–6, 59–18
Solvents, 79–3
Solvolysis, 11–2, 12–2
Somatotyping, 10–21
Soot, formation, 68–29
Sound,
velocity, 116–5
waves, 67–6, 84–7
South Africa, geology, 26–14
South Orkney Islands, geology, 74–4
Space,
perception, 114–6
research, 3–23, 14–8, 26–19, 59–4, 68–22, 69–9
vehicles, *see also* rockets, 81–3
Spain,
geography, 61–4, 63–15
geology, 15–11, 19–8, 68–12
Spark chambers, 26–19
Sparks, 3–17, 11–3, 60–4
Spartina, 69–2
townsendii, 70–3
Spastics,
children, defects, 30–12
physiology, 39–3
Spectra,
absorption, 20–11, 64–11, 93–2, 95–1, 104–7
atomic, 19–14, 63–26
electronic, 112–2
emission, 93–2
gamma rays, 18–6
infra-red, 4–6, 84–2, 102–4, 110–1
line, 23–4, 26–2
magnetic, 17–6
micro-wave, 7–6
molecular, 19–14, 20–5, 63–17, 70–4
polarization, 68–2
solid state, 112–2
stellar, 5–5
ultra-violet, 104–7
Spectrofluorimetry, 84–6
Spectrographic analysis, 13–24, 74–8
Spectrometers, *see also* mass spectrometry
photoelectric, 59–31
Spectrophotometry, 12–2, 13–33, 14–3, 19–14, 21–6, 25–1
stellar, 5–5, 8–3
Spectroscopy, 2–6, 2–17, 5–9, 7–6, 7–23, 9–9, 15–3, 19–3, 19–4, 20–3, 22–7, 23–4, 32–2, 60–7, 62–3, 63–5, 68–5, 69–3, 69–4, 112–2
electron, 18–6, 30–15
infra-red, 1–5, 1–18, 2–6, 3–6, 10–7, 11–2, 12–2, 13–5, 13–32, 20–11, 26–7, 59–9, 60–3, 63–10, 65–9, 67–2, 68–5, 72–9, 74–2, 76–1, 94–2, 102–2, 112–2
Raman, 83–1
ultra-violet, 13–32, 14–3, 17–2, 19–3, 20–11, 26–7, 63–10, 64–11, 67–2, 76–1
X-rays, 8–26, 11–6, 13–24, 14–8, 83–1, 112–6

Speech, 84–7
  analysis, electrical engineering, 81–3
  development, 8–23
  disorders, 8–20
    in childhood, 8–23, 38–2
  in deaf children, 59–5
  mechanical synthesis, 26–10
  relation to oro-facial behaviour, 35–5
Speeton Clay, 12–4
Speleology, 14–6
Spermatogenesis, 15–2
Spermatozoa, 5–7, 5–28, 15–32, 65–9, 67–17
  evidence of, 30–8
Sphacelariaceae, 102–1
Sphaeropsidales, 27–1
Sphagnum, 27–1
Sphingidae, 116–1
Spiders, 5–28, 59–41
Spilites, 7–11
Spin, aerodynamics, 79–4
Spina bifida, 53–23, 59–27
  cystica, 75–6
Spinal cord,
  anatomy, comparative, 55–1
  blood supply, 50–5, 59–2, 75–7
  compression, 53–9, 75–10
  degeneration, 39–3
  disorders, 53–9
  electrophysiology, 8–27
  histology, 26–1
  motor localization, 8–2
  physiology, 26–20, 59–32
  surgery, 53–9
  tumours, 54–5, 75–10
Spinal reflexes, 52–14
Spine,
  comparative anatomy, 110–1
  congenital lesions, *see also* spina bifida, 75–10
  growth, 2–3
  muscles, 53–23
  pathology, 75–7
  prosthetic fixation, 50–10
  structural disorders, 39–3, 63–23
Spinels, 103–3
Spinning, textiles, 79–7, 91–3
Spirolactones, 7–13
Spitsbergen, geology, 3–12, 5–15, 63–16
Spleen,
  circulation, 15–2
  diseases, 8–32
  functions, 5–18
Splint, motor, pneumatic, 42–1
Spondylosis, 39–3, 75–10
  ankylosing, 53–8
  cervical, 53–9
Sponges, 72–10
  fossil, 2–10
Sporangiophores, 81–1
Spores, 79–2, 104–4
  in coal, 8–18, 90–6
Sporulation, 13–1, 19–2
Spray drying, 3–9
Spraying,
  crops, 7–1
  horticulture, 4–1
Springs, mechanical engineering, 19–7, 79–3
Sprue, tropical, 3–4, 48–11
Sputum, physical properties, 2–12
Squint, 67–10
Stability,
  aerodynamics, 10–10, 19–1, 22–3
  hydrodynamics, 2–11
Stachys, 70–3
Staining, biological, 11–10
Stalling, aerodynamics, 22–3
Stanchions, 10–10
Staphylococci, 7–15, 10–4, 45–7, 59–30 63–24
  antibiotic-resistant, 50–6
  infection, 1–13, 8–23, 8–30, 8–34, 10–22, 42–1, 50–6, 53–14, 53–15, 53–23, 55–7, 56–5, 57–6, 59–27
    in newborn, 4–18
    in skin grafts, 30–13
  toxoids, in obstetrics, 30–11
Staphylococcus aureus, 2–1, 10–4
  pyogenes, 52–11
Staphylokinase, 42–1
Starch, 3–6
Stars,
  binary, 59–4
  evolution, 66–2
  statistics, 6–5
  structure, 10–3, 66–2
Statistical mechanics, *see* mechanics, statistical
Statistical research, applied, 1–24, 2–21, 48–9, 63–8
Statistics,
  economic, 1–24, 63–30
  housing, 64–6
  mathematical, 1–24, 5–17, 7–12, 9–8, 10–16, 11–5, 14–7, 15–14, 18–8, 26–22, 60–6, 62–9, 63–8, 63–17, 63–30, 64–9, 66–8, 67–6, 68–27, 76–3, 79–4
  medical, 1–24, 4–25, 5–16
  psychological, 5–25
  vital, 1–24, 3–26, 48–9
Steam,
  engineering, 10–10, 15–8, 19–4, 74–3
  viscosity, 10–10
Steatorrhoea, 3–4, 59–15
  idiopathic, 3–4, 3–14
Steel, stainless, use in dentistry, 68–6
Steels,
  cutting conditions, 104–3
  E.N. series, 107–4
  low carbon, 76–4, 104–5
  magnetostriction, 95–2

Steels (*continued*)
metallurgy, 3–15, 5–19, 7–14, 11–6, 13–16, 15–16, 19–10, 60–4, 62–10, 63–19, 68–15, 76–4, 77–4, 104–5
stainless, 79–2
testing, 68–8
thermal properties, 69–5, 110–2
Steering, automobile engineering, 3–9, 62–4, 86–1
Stereocampimetry, 39–2
Stereochemistry, 2–6, 7–6, 9–5, 10–7, 12–2, 13–7, 17–2, 22–2, 25–1, 26–7, 27–2, 59–9, 66–5, 67–2, 68–5, 69–3
Stereocomparators, 26–18
Stereophony, 19–6
Stereosynthesis, 112–4
Stereotaxis, 3–18, 39–3
anaesthesia for, 54–1
use of ultrasound, 3–18
Sterility, *see* infertility
Sterilization, bacterial, *see also* antibacterials, antibiotics, bactericides, 4–14, 8–18, 10–4, 30–10, 65–7, 70–1, 77–5, 80–4
Steroid analogues, 13–23
Steroid hormones, 3–8, 3–24, 40–2, 59–9, 114–5
Steroids, 3–21, 7–6, 7–24, 7–27, 9–5, 11–2, 13–15, 25–1, 27–2, 30–3, 34–3, 47–7, 49–2, 49–9, 54–7, 56–6, 63–7, 63–10, 68–5, 74–2, 81–5, 90–3
biosynthesis, 75–8
carcinogenic, 32–1
chromatography, 34–4
metabolism, 3–2, 55–9, 67–15, 75–8
therapy, surgical stress, 3–27
urinary, 29–2, 30–17, 53–15, 56–6, 67–9
use in dermatology, 68–7
Sterols, *see also* ergosterol, 3–6, 15–3, 113–5
Stilbene, 87–1
Still's disease, 34–3
Stillbirth, causes and prevention, 1–14
Stillbirths, 40–3, 67–9
Stills, chemical engineering, 26–8
Stirling cycle, 7–9
Stochastic phenomena, 1–18, 3–13, 6–5, 18–8, 26–22, 59–39, 63–17, 68–27, 74–6
Stokes' law, 94–3
Stomach,
acidity, 75–3
cancer, 50–10, 52–11, 53–23, 72–1
diagnosis, 45–12
carcinoma, 7–21
cytology, 7–13, 10–28
effect of drugs, 45–13
incompetence, in children, 2–15
morphology, 15–23
Stomach (*continued*)
mucosa, 7–21, 8–17, 10–2, 45–12
cytology, 55–1
physiology, 3–24, 10–23, 13–15, 13–23, 30–16, 57–1, 68–28
radiology, 13–29
secretion, 2–22, 7–24, 8–17, 8–32, 10–28, 13–15, 13–30, 15–22, 15–25, 45–13, 68–14, 68–28, 75–8
in dogs, 68–28
effects of steroids, 13–15
effects of surgery, 10–28
surgery, 2–22, 3–27, 4–28, 7–13, 13–30, 49–12
complications, 53–20
effects, 13–29, 13–30
on secretion, 10–28
post-operative metabolism, 3–27, 63–31
post-operative syndromes, 3–27, 4–28, 10–28, 15–30, 49–12
Stomata, 4–5, 64–8, 69–2
Stone Age, 63–13
Stone axes, 3–12, 68–12
Stored products, pests, *see* pests of stored products
Storm surges, 15–19
Strabismus, 59–24, 67–10
Strain gauges, 95–2
Stratosphere, 2–11
Strawberries, 4–1
Strength of materials, 2–8, 4–8, 5–11, 60–4, 62–4, 68–8, 73–6
Streptococcal infections, 5–21, 8–18, 54–6
Streptococci, 5–27, 59–30, 64–10, 65–7, 84–2
infections, 55–7
Streptococcus pyogenes, 52–11
zymogenes, 94–1
Streptomyces, 10–12
scabies, 13–1
Streptomycin, 45–7
toxic effects, 45–11
Stress,
analysis, 4–8, 5–11, 19–7, 26–11, 60–4, 62–4, 68–8, 88–2, 116–3
and physique, 66–10
corrosion, 4–21
determination, 77–2
diffusion, 7–9,
mining, 13–18, 19–12
structural engineering, 11–3, 13–10, 69–5, 74–3
measurement, 10–10
mental, 4–18, 43–5
and rheumatoid arthritis, 13–15
pain reactions in, 68–24
surgical, 3–27
vibrational, 92–2
waves, 70–8, 84–7

Stretch receptors, 8–34
Stridor, congenital, 47–14
Strip lynchets, 64–6
Strontium, in foodstuffs, 11–4
Structure,
  chemical, 5–9, 7–6, 17–2, 19–3, 21–2, 60–3
  design, 15–8
  molecules, 10–7, 13–5, 61–2
Structures,
  strength, 5–11, 7–9, 10–10, 11–3, 13–10, 15–8, 22–3, 59–11, 60–4, 62–4, 67–4, 73–6
  tubular, 79–3
Struts, 116–3
Students,
  failure, 26–21
  health service, 67–18
  mental health, 8–28
  paternal status, 59–35
  psychological tests, 48–8, 61–8
  psychology, 83–4
  selection, 6–7
Stylolites, 62–7
Styrene, 77–1, 113–1
  polymers, 77–1
Styrylquinone derivatives, 32–1
Sublimation, 60–4
Submarines, 10–10
Subnormality, intellectual, 2–20
Subperiosteal implants, 7–7
Subphrenic abscess, 75–10
Subsidence, mining, 7–9, 10–10, 14–5, 68–17
Substance P, 55–12
Substitution,
  aromatic compounds, 12–2, 13–7, 14–3, 17–2, 22–2, 26–7, 64–3
  organic chemistry, 67–2
Succinic dehydrogenase, 32–1
Succulents, 64–1, 70–3
Sudan, geography, 74–4
Sugar beet, 5–1, 8–1, 19–2, 62–1
Sugars, chemistry, 3–6, 14–3, 95–1
Suicide, 68–24
  attempted, 8–28, 68–24
Sulphates, 80–2
  carbohydrate, 77–1
Sulphonamides, metabolism, 68–21
Sulphones, 114–5
Sulphonic acids, 22–2, 60–3
Sulphur,
  compounds, 4–6, 68–5, 84–2, 94–2
  biochemistry, 73–3
  organic chemistry, 13–7, 56–2, 60–3, 63–7, 63–10, 102–2
  crystals, 20–11
  in steels, 68–15
  irradiated, 112–2
  organic chemistry, 1–5, 2–6, 17–2
  radioactive, 58–3
Sulphuric acid, 10–7
Sulphydryl, 87–1
  group reactors, 32–1
Summability, 3–13, 8–16, 62–9, 66–8, 74–6, 84–1
Sun, 3–23, 5–5, 26–2, 26–19, 59–4, 116–3
Sunspots, 3–23, 63–6
Superchargers, 79–3
Superconductivity, 3–23, 5–23, 15–24, 22–7, 63–26, 95–2
Suppositories, use in labour, 29–7
Suppuration, 24–5
Suramin, 53–3
Surface-active compounds, 5–10, 11–8, 55–13, 84–6
Surface chemistry, 2–6, 8–7, 9–5, 11–2, 12–2, 13–18, 13–32, 19–3, 19–4, 19–13, 22–2, 26–9, 60–3, 62–3, 62–5, 63–10, 67–2, 74–8, 79–2, 104–2, 110–1, 116–2
Surface physics, 10–24, 12–6, 13–7, 19–4, 19–13, 19–14, 61–7, 64–11, 69–9, 73–6, 74–7, 115–2
Surgery,
  body temperature during, 15–30
  metabolic aspects, 2–22, 55–13, 63–31
  nutritional problems, 8–32
  of newborn, 10–28, 15–30
  stress, 3–27
Surveys,
  astronomical, 60–4
  geophysical, 6–4, 10–14, 19–8, 63–5
  mining, 13–18, 104–4
Susceptibility, magnetic, 3–15, 4–6, 7–6, 17–2, 62–13, 68–22
Suspensions, 3–17, 7–9, 62–11, 70–8, 80–4, 84–6
Sutures, 31–2
Swards, 7–1, 71–1
Swash plates, 77–2
Sweat glands, 34–4, 63–3
Sweating, 47–7, 52–2, 52–13
Sweden, 63–15
  metereorology, 4–9
Swedes, 70–1
Sweet peas, 28–2
Sweet vernal grass, 70–2
Swelling, tissues, 63–7
Swim-bladders, 72–10
Switches,
  transistor, 95–2, 101–2
  magnetic core, 101–2
Switzerland,
  geography, 22–4
  geology, 26–14
Symbiosis, 2–5, 10–6, 63–1
Symblepharon, 41–3
Symmetry, 18–6
Sympathectomy, physiology, 54–9
Sympathins, 7–22
Synchrotrons, 3–23, 10–24, 15–24, 63–26
Syndinidae, 84–9
Syneresis, 65–9

Synkavit, 13–22
Synovial fluid, 10–29
Syphilis,
  cardiovascular, 7–30
  diagnostic tests, 47–22
  penicillin-heavy metal therapy, 7–30
  treatment, 47–22
Syringe, motor-driven, 53–1

Tables, mathematical, 15–14
Tablets,
  compaction, 79–5, 108–5
  disintegration, 25–2
Tachycardia, 53–4
Taenia, 73–14
Talipes, congenital, 7–18
Tanks, civil engineering, *see also* sedimentation tanks, 13–10, 74–3
Tanning, 13-32, 100–1
Tannins, 13–32, 32–1, 63–10, 68–5
Tantalum, 15–16, 19–10, 59–9, 110–1
Tape,
  magnetic, 102–4
  recorders, use in cardiology, 54–2
Tar, 93–2
Taste perception,
  in animals, 15–33, 24–2
  in ruminants, 24–6
Tauberian theorems, 8–16, 74–6
Tautomerism, 14–3
Taxonomy,
  bacteriological, 64–10, 65–7
  botanical, 1–4, 2–5, 3–5, 4–11, 5–8, 6–1, 9–3, 13–6, 14–2, 15–4, 18–1, 19–2, 21–1, 22–1, 23–1, 26–6, 27–1, 28–2, 61–1, 62–2, 63–9, 63–14, 64–1, 64–2, 68–3, 69–2, 70–3, 71–6, 74–1
  chemical, 4–6
  functional, 15–2
  zoological, 5–28, 15–13, 17–9, 19–15, 26–23, 27–5, 59–41, 63–12, 63–33, 72–10, 74–9,
Tea, fermentation, 5–6
Teaching, automatic, 1–21
Technology, history, 26–15
Techtonites, 4–10
Teeth,
  abnormalities, 53–5
  animal, 13–35, 23–5
  bone implants, 35–7
  calcification, 10–8, 13–8
  caries, *see* caries, dental
  cavity,
    linings, 7–7
    preparation, 35–3
  chemistry, 20–12
  conservative restorations, durability, 7–7
  cusps, 59–10
  deciduous,
Teeth (*continued*)
    growth, 4–7
    treatment, 35–3, 59–10
  developing, apical therapy, 10–8
  development, 7–7, 35–5, 51–6
    abnormalities, 47–6
  disease,
    in children, 47–6, 68–6, 59–10
    in laborary animals, 47–6
  effect of metabolic diseases, 57–2
  effects of musculature, 35–5
  electrical stimulation, 15–7
  enamel, *see* enamel, dental,
  erosion, industrial, 59–10
  eruption, 2–3, 2–7, 8–8, 13–8
  fluorine in, 13–8
  growth and development, 59–2
  histology, nutritional aspects, 15–7
  hypoplasia, 4–7
  impacted, 68–6
  in gargoylism, 45–3
  incisors, 67–3
  infection, 51–2
  injuries, 7–7
  loss,
    effects, 35–3
    premature, 51–3, 59–10
  malocclusion, 13–8, 35–5
  mobility, 57–2
  molars, 8–8, 59–10
  mottling, 51–2
  nerve degeneration, 68–6
  nutrition, 47–6
  occlusion, 4–7, 35–5, 51–3
  organic fractions, 15–7
  pulp, *see* pulp, dental,
  pulpless, bacteriology, 68–6
  radiography, 51–6
  root canals,
    infected, 3–7, 7–7
    sterilization, 68–6
  sex differences, 10–8
  shape, relation to mandibular movements, 51–2
  staining, extrinsic, 3–7
  stress distribution, 57–2
  structural faults, 4–7
  structure and development, 7–3, 47–1, 68–6
  tissues, *see* dental tissues, pulp, dental
  trace elements, 10–8
Telecobalt therapy, 47–19, 49–11
Telecurietherapy, 49–11
Telemeters, 101–2
Teleostei,
  embryology, 4–29
  parasites, 24–1
  zoology, 5–28, 6–8, 62–14, 72–10
Telephony, 81–3
Television, 19–6, 60–4
  in medicine, 30–12, 44–1, 53–20
Tellurium, 115–2

Temperament, psychology, 53–19
Temperature,
  animal response, 63–3, 63–33
  in health and disease, 3–14
  regulation, 52–14
Tempering, 3–15, 15–16, 62–10, 68–15, 76–4, 104–5
Temporal bone, 38–1
  tumours, 53–20
Temporal integration, 2–19
Temporo-mandibular joint, 35–5
  anatomy, 51–1
    comparative anatomy, 51–1, 68–6
  arthrosis, 47–6
  disorders, 35–5, 53–5, 68–6
  radiography, 4–7,
  syndromes, 10–8
Tendo vaginitis, 67–11
Tendons,
  growth, 2–3
  transplantation, 29–3
Tensor calculus, 116–4
Tensors, 15–14
Teratology, 5–2
Teratoma, nuclear sexing, 34–4
Terebratulidae, fossil, 22–5
Terns, 63–33
Terpenes, 4–6, 7–6, 11–2, 15–6, 20–5, 22–2, 25–1, 66–5, 68–5, 70–2, 84–2, 108–6
p-Terphenyl, 12–2
Tertiary, 7–11, 10–6, 12–4, 19–8, 26–6, 59–7, 59–14, 62–7, 63–16, 64–7, 67–5, 68–12, 70–5, 112–3
Testis, *see also* orchitis
  anatomy, 29–1
  descent, in animals, 24–7
  granuloma, 44–1
  tumours, 3–22, 8–32, 44–1, 55–9, 59–28
  undescended, 15–30
  virus infections, 47–22
Testosterone, 114–5
  in breast cancer, 7–27
Tests, psychology, 8–29
Tetanus, 48–3, 57–3, 63–24
  pharmacology, 26–17
  treatment, 13–2
Tetrachlorosalicylanilide, 36–1
Tetracyclines, 42–1
Tetrahydrofurans, 67–2
Tetraphenylethylenes, 73–5
Tetrapoda, fossil, 73–14
Tetrazolium salts, 67–2
Tetrose disulphones, 103–1
Textile factories, public health aspects, 48–5
Textile machinery, 13–32, 60–8, 79–7
Textiles, 2–23, 11–10, 13–32, 60–8, 63–13, 79–4, 79–7, 91–3, 114–1
  causing dermatitis, 36–1
Thalamus, 15–26
  lesions, 3–18
  stereotaxis, 30–2
Therapeutic trials, *see* drugs, trials
Thermochemistry, 19–4, 59–9, 63–10
Thermodynamics, 4–6, 5–9, 5–11, 7–6, 10–10, 11–3, 11–6, 12–2, 13–7, 13–10, 13–32, 15–6, 19–3, 19–4, 19–10, 22–7, 27–2, 59–9, 59–18, 60–3, 60–6, 61–2, 63–10, 64–3, 67–2
Thermoelectricity, 6–6
Thermogravimetry, 116–2
Thermoluminescence, 63–5
Thermostats, 60–4
Thiadiazoles, 52–3
Thiazine dyes, 4–19
Thiazolium, 5–9
Thiols, 19–3, 32–1
Thiophenes, 84–2
Thiophosphoramide, 49–11
Thiopyridones, 11–8
Thiotepa, 8–32
Thixotropy, 76–2
Tholeiites, 62–7
Thoracic duct, lymphocytes, 47–18
Thorium, 13–13, 19–10, 102–4
Thought,
  disorders, 8–28, 13–26
  processes, 6–7, 8–29, 15–27
Thrombocythaemia, 29–4
Thrombocytopenia, 53–15, 75–3
Thromboplastin, generation, 5–18
Thrombosis, 33–1, 52–11, 55–13, 56–10 63–24, 67–15
  arterial, 63–18, 63–31
  artificial, 63–24
  carotid, 54–5
  coronary, 1–12, 7–13
  fibrinolysin in, 45–13
Thumb, congenital absence, reconstruction, 34–5
Thunderstorms, *see* atmosphere, electricity
Thymidine, 8–8, 59–12
Thymus gland, 12–7, 15–23
  electron microscopy, 59–2
  immunology, 47–16
Thyratron, 113–6
Thyroid gland,
  antithyroid drugs, 68–21
  cancer, 45–13
  carcinoma, 8–32, 57–1
    experimental, 2–16
  disorders, 7–13, 8–17, 10–17, 10–21, 47–10, 50–5, 57–1, 57–3, 58–2, 58–3, 68–21
  hormones, 7–13, 8–4, 10–17, 55–8
  hyperthyroidism, 10–26, 53–7
    treatment, 1–17, 59–37
  immunology, 10–22, 30–12, 49–2
  iodine content, 10–17, 68–21
  pathology, 3–22, 10–22, 68–21

Thyroid gland (*continued*)
physiology, 3–24, 10–17, 45–13, 50–10, 52–8, 53–7, 53–15, 53–17, 57–1, 68–21
protein, 10–17
radio-resistance, 1–17
regeneration, 47–16
-stimulating hormone, 68–21
surgery, 75–10
Thyrotoxicosis, 67–15
Thyrotrophin, 47–2, 67–15
Ticks, 7–1, 20–13, 48–2
Tides, 2–8, 13–10, 15–8, 15–19, 69–5
Timber,
African, 90–2
civil engineering, 7–9, 11–1, 26–9, 60–2, 69–5, 76–2, 79–3
diseases, 19–2
Timbers, structure, 63–14, 72–6
Time,
access factors, integral, 95–5
and motion study, 18–7
sense, in humans, 39–1
series, 63–8, 101–3, 102–3
Tin, 1–5, 19–8, 26–14, 60–4
alloys, 3–15, 76–4, 80–3
compounds, 84–2
dust, 15–29, 16–2
organic compounds, 12–2, 24–3, 60–3
causing brain oedema, 39–5, 102–2
Tinnitus, 39–7
Tinplate, 114–4
Tipula, 7–1
Tipulidae, 6–8
Tissue,
composition, 45–12, 58–2, 63–7
connective, *see* connective tissue
cultures, 1–26, 2–4, 3–3, 3–22, 5–18, 5–24, 5–26, 5–27, 7–15, 7–21, 8–34, 8–35, 10–5, 10–29, 11–8, 13–3, 13–17, 15–12, 20–4, 24–6, 26–1, 31–2
for cancer research, 32–1
free cells 10–12, 47–10, 58–2, 58–3 67–1, 70–9, 73–1, 74–1
in brain tumour studies, 8–20
in genetic studies, 30–12
for vaccinia virus production, 46–5
plant, 7–5, 8–6
elastic, formation, 10–22
electron microscopy, 8–2, 63–23
enzymes, 1–16, 50–7
growth and regeneration, 15–32, 47–1, 73–1
physiology, 3–4, 26–20, 53–18
polarography, 5–2
post-mortem changes, 29–3, 29–8
preservation, 8–32
transplantation, 2–22, 7–29, 13–3, 26–23, 50–10, 75–10
experimental, 3–27
transplants, 2–3, 7–3, 8–32, 10–2, 30–13
Tissue (*continued*)
immunology, 3–2, 8–32, 29–3, 55–9
Titanium, 3–15, 15–16, 19–8, 60–4, 76–4, 81–6, 95–1, 104–5,
alloys, 77–4, 95–1
oxide, 110–1
Titrimetry, 83–1, 94–5
Toads, 8–35
Tobacco,
amblyopia, 67–10
smoke, 84–8, 112–2
and lung cancer, 9–3, 32–1
smoking, 59–40
electrocardiogram, 45–2
health hazards, 48–9, 49–9, 84–8
Tofranil, 53–19
Tomatoes, 10–5, 19–2, 28–2
Tombs, prehistoric, 5–4
Tongue, 30–6
functional positions, 35–3, 35–5
leucoplakia, 2–22
proprioceptors, 47–6
Tonography, 41–1, 41–3
Tonometry, 41–1, 41–3
Tonsillectomy, 45–11
effects, 67–12
Tonsils, viral flora, 31–2
Tools, wear, 60–4, 76–2, 104–3
Toothpaste, 30–6, 47–6
Topology, 3–13, 5–17, 9–8, 10–16, 12–5, 15–14, 17–5, 20–9, 59–16, 63–17, 61–6, 66–8, 69–8
Torque, measurement, 81–3, 104–3
Torridonian, 7–11
Tourism, geography, 63–15, 69–6
Tournaisian, 13–13
Towns, 2–9, 3–11, 7–10, 8–14, 13–12, 15–10, 18–3, 22–4, 62–6, 63–15, 66–6, 68–11
Toxic agents, biochemistry, 55–2, 56–2
Toxicology, and poisoning, *see also*
toxins, bacterial, 3–4, 5–27, 8–11, 24–1, 55–2, 64–3, 72–2, 72–7, 81–5, 84–5
Toxins, *see also* endotoxins
bacterial, 5–21, 11–8, 13–17, 46–1, 46–5
plant, 24–3
Toxocara canis, infections, 48–11
Toxoplasma antigens, 47–10
Toxoplasmosis, 48–6, 68–16
Trace elements, 32–1
chemistry, 19–3, 83–1
in plants, 4–1
in sea water, 15–19
petrology, 5–20, 14–6, 63–16
Trace fossils, 9–7
Tracers, *see* fluorescent tracers, radioactive tracers
Trachea, innervation, 59–2
Tracheo-oesophageal fistula, 3–21

Tracheostomy, 53–9, 54–5
Trachoma, 41–4, 63–24
  virus, 46–6, 47–10
Tractors, agricultural, 7–1, 64–1
Tradescantia, 69–2
Traffic,
  accidents, *see* accidents, road
  flow, 3–9, 11–3, 13–10, 15–8, 26–9, 69–5
    control, 3–9, 63–11
  generation, 110–2
Training, industrial, 13–27, 15–27
Tranquillizers, 10–29, 39–7
  identification, 30–8
Transaminases, 15–21, 84–2
Transducers, 95–2
Transformers, 7–9, 22–3, 26–10, 62–4, 79–3, 101–2, 110–4
Transforms, integral, 101–3
Transients, electrical engineering, 4–8, 11–3, 61–7
Transistors, 2–8, 19–6, 60–4, 67–4, 69–4, 72–5, 74–3, 87–2, 95–2, 101–5
  applications, in radioastronomy, 2–8
Transition metals, 19–3, 59–7
Translation, mechanical, 18–6
Translocation, in plants, 2–5, 5–8, 12–1, 13–6, 17–1
Transpiration, 62–1, 68–11, 69–2
Transplantation, *see also under* tendons, tissue, tumours, *and* ureter, 55–6
  tissue,
Transplants, *see also* tissue, transplants, 3–2, 50–10
Transport, Africa, 63–30
  problems, 15–10, 60–5
  Scandinavia, 1–8
  Scotland, 1–8
Traumatic injury, *see also* injuries, 73–14
Tree growth rings, 72–3, 72–6
Trees, physiology, 70–3
Trehalose, 13–4
Trematodes, 10–30, 48–6, 69–11, 73–14
Tremor, physiological, 3–18, 39–1
Treponema pallidum, 52–11
Treponematosis, 47–22
Triangulation, 26–18
Triassic, 3–12, 7–11, 8–35, 10–6, 18–9, 26–6, 26–23, 30–4
Triazines, 18–2
Trichinella spiralis, 15–12
Trichomonas vaginitis, 15–18, 47–22
Trichomoniasis, 44–1, 47–22
Trichomonicides, 53–24
Trichophytin, 3–22
Trichoptera, 59–41
Trichostrongylis, 8–35
Tricladida, 72–10
Tricuspid valve disease, 33–1
Triethylene thiophosphoramide, 7–27
Trifolium, 71–6
Trilobites, 4–10, 5–15, 7–11, 9–7, 12–4, 18–4, 64–7, 66–7
Triphenylmethane dyes, 12–2
Tritium, 112–2
Trobriand Islands, anthropology, 7–4
Trophoblasts, 29–1
  pathology, 67–14
Tropical diseases, diagnostic radiology, 4–26
Tropics,
  agricultural economics, 1–1
  agricultural geography, 1–8, 59–13
  forestry, 63–14
  geography, 15–10, 66–6
Tropisms, plant, 6–1, 20–4
Tropolones, 9–5, 11–2
Trusses, structural engineering, 74–3, 76–2
Trypanocides, 53–3
Trypanosomes, 26–23, 46–5, 48–6, 53–17, 72–1
Trypanosomiasis, 5–27
Tryptophan, 36–1
  metabolism, 24–6, 34–4
Tsetse flies, 8–35, 67–21
Tuberculin sensitivity, 75–11
Tuberculosis, 3–6, 10–29, 68–19, 75–6, 84–5
  bacteriology, 37–1
  chemotherapy, 7–17, 8–33, 11–8, 15–21, 30–10, 30–14, 50–6, 75–11
  epidemiology, 53–15
  genito-urinary, 63–21
  in children, 7–20
  oral, 45–3
  pulmonary,
    surgery, 54–9
    treatment, 15–28, 63–31
d-Tubocurarine chloride, 15–1
Tubes, 116–3
  manufacture, 77–2
Tumours, *see also* cancer, carcinoma, *and under organ affected*, 47–3, 49–7, 53–20
  animal, 8–34, 10–29, 24–5, 28–1
  ascites, cytology, 32–1
  cells, 5–21, 32–1
  chemotherapy, 13–22, 34–4, 59–40
  debatable, histogenesis, 50–7
  effect on skin temperature, 49–12
  electron microscopy, 38–5, 54–7
  enzyme activity, 50–7
  experimental, 3–22, 7–21, 32–1
  enzymology, 1–16
  fibroblastic, 58–2
  granulosa cell, 59–22
  growth, 4–22, 8–24
  hormone-dependent, 4–17, 4–27

Tumours (*continued*)
host relationships, 47–3, 66–3
immunity, 8–32
in children, 34–4
intra-cranial, 63–20
intra-ocular, 15–20, 41–6, 53–11
malignant,
cytology, 58–2
enzyme inhibitors, 1–16
in children, 59–27
treatment, 47–20
mesonephric, 59–22
metabolism, 50–7
metastases, 5–26
mutagenicity, 32–1
oxygen tension, after radiotherapy, 5–26
pathology, 8–24, 32–3
perfusion, 59–40
post-cricoid, 38–5
respiration, 75–4
retro-peritoneal, 53-20
sensitivity to irradiation, 5–26, 58–2
serology, 30–13
soft tissue, 75–7
spectrography and spectrometry, 58–2
tissue culture, 8–24
transplantation, 8–32, 25–4
treatment, surgery, 53–23
vascularization, 15–2
Tungsten, 11–2, 60–3, 87–2
acids, 76–1
Tunnels, 10–10
Turbines, blades, 81–3
Turbo-alternators, 83–1
Turbo-machinery, 3–9, 109–3
Turbulence, 15–19, 19–11, 22–3, 69–5, 72–8, 96–1, 110–3
Turkey,
flora, 8–6
fossil, 68–12
geography, 59–13
Turkeys,
breeding, 8–13
diseases, 16–1
production, 70–1
Turner's syndrome, 34–3
Twinning, crystals, 3–15, 15–16, 68–15
Twins, 34–3, 40–3
mongolism in, 30–12
monozygotic, dentition, 2–7
Typhoid, vaccines, 46–5
Tyres, 86–1

Ubiquinones, *see also* quinones, 15–3
Uganda,
geology, 17–4
petrology, 13–13
Ulcer,
aphthous, 15–7
gastric, *see* peptic ulcer
rodent, 47–7
Ulcer (*continued*)
varicose, 56–10
Ulrich's syndrome, 53–8
Ulster,
geology, 20–8
mental disease, 2–19
respiratory disorders, 2–21
Ultra-centrifuge, 13–4, 13–32, 46–2
Ultrasonic waves,
effect on the ear, 4–17, 38–5
effects on nervous tissue, 30–2
estimation, 38–6
Ultrasonics, 3–9, 7–23, 19–14, 63–10, 69–5, 70–4, 84–7, 92–3, 110–4
biological applications, 57–7
measurement of rock stresses, 7–9
medical applications, 3–18, 10–19, 30–2, 30–15, 32–2, 39–3, 54–5
use in testing materials, 3–9, 26–9
Ultra-violet light, dermatological effects, 36–1
Uncaria gambier, 113–5
Union of Soviet Socialist Republics, geography, 15–10, 26–13, 74–4
United States,
demography, 13–12
geology, 74–5
Upper Albian, 84–3
Upper Carboniferous, 68–12
Upper Cretaceous, 22–5
Upper Devonian, 19–8, 64–7
Upper Palaeozoic, 4–10, 9–7, 64–7, 68–12
Uraemia, 13–22, 75–7
Uranium, 18–2, 19–4, 19–7, 19–10, 22–3, 60–4, 62–13, 63–19, 68–29, 76–4
alloys, 15–16
compounds, 76–4
Urbanization, effects on health, 8–30
Urea, 52–3, 53–10
use in neurology, 39–3
Urease, 53–17
Uredinales, 69–2
Ureter,
artificial, 50–10
cineradiography, 8–32
congenital enlargement, 34–4
physiology, 50–10
transplantation, 50–10
Urethane, 32–1
Urethra,
histology, 47–22
pressures, 30–16, 53–23
reflux, 44–1
stricture, 47–22
Urethritis,
non-gonococcal, 46–7
non-specific, 47–22
Urethrocystography, 15–29
Urethrosphincterometry, 40–3
Uric acid, calculi, 44–1

Uridine diphosphate glucuronic acid, 67–17
Urinary tract,
  caculi, *see* calculus, urinary
  disorders, mechanical, 7–29
  infections, 3–27, 4–15, 10–19, 40–3, 44–1, 59–27, 67–20
    chemotherapy, 15–31, 40–3
  obstruction, neonatal, 34–5
  pressure measurement, 67–20
  radiography, 8–32, 15–29
  surgery, 7–29, 47–20
    anaesthesia, 44–1
Urine,
  amino-acids, 57–3
  analysis, 59–23, 63–7
  calcium excess output in, 13–33
  diversion, 47–20
  electrophoresis, 30–11
  hydrogen ions, 5–18
  in newborn, 34–5
  incontinence, *see also* enuresis, 3–19, 4–23, 68–18
    stress, 15–18, 40–1
  mucopolysaccharides and mucoproteins, 13–33
  pregnanediol determination, 68–18
  proteins, 57–6
Urogenital system,
  cancer, 44–1
  congenital lesions, 75–10
  development, 29–1
  radiology, 44–1
  surgery, 15–30
Urolithiasis, *see* calculus urinary
Urology, paediatric, 44–1
Uronic acids, 8–7
Uronides, 42–1
Urticaria, 36–1, 53–19
  cholinergic, 47–7
  penicillin, 36–1
Uterus,
  bacteriology, 40–3
  cancer, hormonal control, 2–16
  carcinoma, 8–31, 40–5, 45–9
  cervix,
    carcinoma, 40–5, 53–10
    radiotherapy, 4–27, 49–11, 68–26
    epithelium, 2–14
    erosion, 40–3
    histology, 3–19
    mucosa, 13–19, 40–2
    physiology, 1–14
    radiotherapy, 3–22
  circulation, 40–3, 73–1
    in pregnant diabetics, 45–9
  contractility, 1–14
  contractions in labour, 57–5, 63–21
  drugs, 15–23, 56–7
    acting on, 57–5, 63–21
  effect of anaesthesia, 8–21
Uterus (*continued*)
  electrolytes in, 57–5
  haemorrhage, 40–5, 53–10
    treatment with radioisotopes, 3–19
  healing, after surgery, 40–3
  in labour, 57–5
  in pregnancy, 52–1, 57–5
  musculature, 40–3, 52–9
  post-partum changes, 5–2, 10–2
Uvea, 41–4
Uveitis, 41–3, 47–22, 59–24

Vaccines, 68–25
  measles, 15–21
  smallpox, 46–5
Vaccinia virus, 46–5, 57–4
Vacuum physics, 15–8, 107–4
Vagina,
  adenocarcinoma, 30–11
  adenosis, 30–11
  atresia, 10–28
  bacteriology, 40–3
  cytology, 40–2, 40–3, 52–16
  fluids, 75–5
  mucosa, 75–5
  smears, 52–9
  virus infections, 3–3
Vaginitis,
  monilial, 47–22
  trichomonad, 15–18, 47–22
Vagotomy, effects, 8–32, 13–29, 13–30
Vagrancy, 4–23
Valency, 5–9, 12–2, 13–7, 63–10
Valentian, 62–7
Valleys, 70–6
Valves,
  electrical, 3–9, 77–6
  heart, *see* heart valves
  mechanical engineering, 2·8
  microwave, 5–11
Van de Graaff generators, *see* generators,
Vanadium,
  biochemistry, 32–1
  chemistry, 60–3, 79–3
  geochemistry, 14–6
  ores, 19–8, 20–8
Vaporization, 2–23, 19–4
Vapour pressures, measurement, 13–7, 81–2
Vapours, condensable, 79–2
Variation, fungi, 3–10
Variations, calculus, 5–17
Varicella, 15–17
Variscan, 15–11
Vasculitis, 41–3
Vasculosis, fibrinous, 67–14
Vasodilators, 7–13, 63–31, 68–4
Vectorcardiography, 47–4, 67–7, 73–12
Vegetable drugs, 59–30

Vegetables,
marketing, 4-1
production, 28-6
Vegetation, changes, 74-1, 74-4
Veins, *see also* blood vessels
radiography, 53-20
varicose, 45-13
vertebral, anatomy, 47-1
Venereal diseases, *see also under specific diseases*
aetiology, 47-22
drug treatment, 15-31
in immigrants, 47-22
Venezuela, geology, 19-8
Ventilation, mines, 62-11, 68-17, 73-10
Ventilators, 11-3
Vernalization, 19-2
Verruca vulgaris, 8-9
Verticillium, 19-2, 21-1, 28-2, 71-5, 74-1
Vertigo, 3-20, 38-4, 39-4
Vesico-ureteric reflux, 7-29, 44-1
Vestibular apparatus, 8-27
Vestibular dysfunction, 39-4
Veterinary medicine, 2-1, 70-1
Vibrating systems, 83-5
Vibrations, 2-8, 3-9, 4-8, 5-11, 7-9, 8-10, 8-27, 10-10, 13-10, 15-8, 19-7, 19-9, 19-14, 26-11, 59-11, 60-4, 68-8, 69-5, 73-6, 74-3, 76-2, 77-2, 92-2, 95-2, 101-3, 104-3, 109-3
Vibrators, oral, after laryngectomy, 53-5
Vibrios, 13-17, 64-10
Vibriosis, 10-29
Vicia, 69-2
Vinyl carbinols, 83-1
Viola, 14-2
Violet, crystal, 106-4
Virugon, 36-1
Virus diseases, 5-27, 10-29, 13-17, 47-10, 57-4
epidemiology, 15-28
plant, 9-3, 28-2, 71-5
Virus infections, 1-13, 3-4, 4-14, 10-15
Viruses, 1-3, 8-18, 8-27, 10-12, 13-17, 15-17, 46-6, 48-2, 48-3, 49-7, 52-11, 57-4, 59-19, 63-24, 68-16
diagnostic methods, 2-13
effects on cells, 58-2
effects on embryogenesis, 28-1
electron microscopy, 5-21
enteric, 68-16
human, 2-13
growth, 5-6
in tissue culture, 1-13, 48-3, 67-8
herpes, 10-18
plant, 63-9, 84-1
X-ray studies, 18-6
polyoma, 10-18
toxicity, 57-4
transmission, 48-2, 48-3
Viscera,
afferent nerves, 8-27, 52-14
blood, circulation, 84-8
supply, 8-27, 52-8
innervation, 5-24, 10-25, 59-2
Viscosity, 7-23, 10-10, 19-4, 19-13, 67-2, 68-29, 69-9, 74-6, 76-5, 113-2
Visean, 2-10, 13-13, 64-7
Vision, *see also* optics, physiology, 3-24, 22-8, 41-3, 61-3, 63-27, 64-11, 72-7, 101-4
binocular, 5-25, 6-7
central nervous mechanisms, 8-27
colour, 6-7, 8-29, 10-27, 15-27, 19-14, 59-34
disorders, *see also* myopia, 39-2, 39-7, 41-3
in animals, 41-5
in premature infants, 67-10
informational organization of system, 61-3
photobiology, 41-5
physiology, 5-24, 39-6, 41-5
stereoscopic, 19-14
Vitamin A, 15-3
effects on otocyst, 38-5
effects on skin, 45-4
in sea, 65-1
stability, 84-6
Vitamin B12, 5-9, 7-13, 7-21, 22-2, 34-4, 58-2, 59-15, 62-3, 65-1, 75-2
and tobacco amblyopia, 15-20
metabolism, 50-4, 68-21
serum levels, 52-7, 75-7
Vitamin C, deficiency, 114-1
Vitamin D, 8-23, 10-29
Vitamin E, 15-3
Vitamin K, 65-7
in blood coagulation disorders, 40-3
Vitamins,
assay, 3-4, 49-9, 65-7, 65-8
biosynthesis, 70-2
deficiencies, 21-7, 57-6, 63-7
farm livestock requirements, 2-1
fat-soluble, 15-3
in general, 15-3
metabolism, 8-17, 50-4, 63-7, 65-8, 68-21
Vocational guidance, 8-29, 18-7
Voice control, 38-6
Voices, hallucinogenic, experimental induction, 8-28
Voles, 63-33
Volkmann's ischaemic contracture, 42-1
Voltage, measurement, 101-2
Vomiting, post-operative, 2-2
Von Willebrand's disease, 34-2
Vortices, 4-8
Vulcanization, 98-1, 114-1
Vulcanology, 13-13, 15-11, 17-4, 18-4

Vulpes, reproduction, 24–1

Wage rates, 63–30
Wales,
  archaeology, 73–2
  geography, 17–3, 26–13, 70–5, 74–4
  geology, 2–10, 3–12, 4–10, 15–11, 17–4, 18–4, 19–8, 22–5, 61–5, 62–7, 63–16, 64–7, 66–7, 68–11, 70–6, 73–7, 74–5
  manufacturing industry, 114–4
Walls, 90–2
Warts, 8–9
Wastes,
  calcium silicate, 103–3
  radioactive, 60–4
Water,
  atmospheric, 69–6
  -hammer, 59–11
  metabolism, 1–25, 4–20, 5–24, 53–18, 55–13, 67–7
  physical properties, 19–14
  purification, 13–4, 13–32, 26–9, 73–4
  repellants, 100–1
  resources, 15–10, 63–15, 64–7, 66–6, 74–4
  structural properties, 79–5
  towers, 76–2
  transport, by living cells, 1–4
Waulsortian, 64–7
Wave action, in gases, 3–9
Wave analyser, 7–25
Wave guides, 10–10, 19–6, 26–10, 68–8, 84–4, 107–4, 108–3, 109–3
Wave mechanics, 5–9, 6–5, 22–6, 63–17, 67–2
Wave propagation, 26–10, 62–9, 104–3
  high frequency, 5–23, 15–14
  in solids, 10–16, 113–4
  in turbines, 2–8
  low frequency, 20–11
Waves,
  electromagnetic, surface, 26–10
  hydrodynamics, 3–9, 10–10, 11–3, 13–10, 15–8, 19–5, 60–4, 67–6, 74–3
  pressure, 76–2
  propagation, ultrasonic, 83–5
  resistance, 19–9
Wax, 87–1
  animal, secretion, 5–28
  peat, 2–23
  wool, 13–32
Wealden, 15–11, 19–2, 20–8, 64–7, 112–3
Weapons, guided, 81–3, 81–4
Weardale Grits, 64–7
Weathering, geology, 6–4
Weaving, textiles, 79–7, 91–3
Web stiffeners, engineering, 67–4
Weedkillers, 2–1
Weeds, 5–1, 7–1, 8–1, 64–8, 70–1, 71–6, 72–1
Weirs, 3–9, 113–2
Welded connections, 82–2
Welding, 3–15, 7–14, 62–10, 68–15, 74–7, 114–2
Wells, 68–8
West Africa,
  anthropology, 5–3
  ethnography, 5–3
West Indies,
  geography, 59–13, 63–15, 74–4
  geology, 63–16
Westphalian, 68–12
Wheat, 19–2, 71–6
Whirling, dynamics, 90–4
Whooping cough, 59–19
Willow, culture, 4–1
Wind,
  effects on plants, 19–2
  load, on buildings, 11–3, 15–5, 59–11
  tunnels, 10–10, 69–5, 101–2, 101–3
Wings, slewed, aerodynamics, 81–3
Winter moths, 63–12
Wire,
  drawing, 68–8
  filaments, 5–19
Wohl-Auer reaction, 79–2
Wood,
  botany, 23–1, 26–6
  extracts, chemistry, 62–3
Wood wasps, 63–14
Wool, 79–2, 110–1
  angora, 79–7
  blending, 91–3
  cloths, 91–3
  uses, 79–7
  wax, 13–32
  yarns, 111–1
Work,
  muscular, 48–7
  physiology, 95–4
  psychology, 6–7, 26–21
  study, 3–9, 7–1, 15–5, 18–7, 60–5
Wounds,
  bacteriology, 45–7
  dressings, 42–1
  healing, 1–2, 3–27, 10–22, 20–1, 26–1, 31–2, 31–4, 42–1, 67–20
  infection, 3–22, 15–30, 53–23
Wright peak flow meter, paediatric applications, 13–21

Xanthelasma, 68–7
Xanthine oxidase, 32–1
Xanthines, 84–6
Xanthophyceae, 79–1
Xenon, 78–4
Xenopus laevis, 8–30, 90–7
Xiphydria, 63–14

X-rays,
analysis, 6–4, 13–7, 13–13, 20–5, 59–9, 63–16, 73–11, 84–7
crystallography, 2–6, 3–15, 4–21, 5–20, 7–23, 10–7, 12–6, 13–24, 18–6, 19–3, 22–7, 26–7, 59–18, 60–7, 61–2, 62–3, 63–5, 63–10, 64–11, 67–2, 72–9, 73–11, 76–4, 84–7
diagnosis, 30–15, 54–6
diffraction, 3–6, 4–21, 6–2, 8–7, 10–7, 13–5, 19–4, 20–3, 20–11, 53–15, 60–3, 60–7, 67–2, 73–11, 101–5
dosimetry, 53–17
effects on tibia, 58–3
low voltage, 73–1
measurement, 18–6, 58–3
microscopy, 5–19, 31–2
protection, 4–18, 30–15
spectroscopy, 63–5
therapy, 5–26, 32–2, 49–11

Yachts, 69–5
Yarns, 2–23, 60–8
Yeasts, 3–4, 3–16, 4–1, 5–6, 11–7, 13–4, 15–9, 19–2, 29–6, 93–4
Yoredale Series, 6–4, 64–7, 69–7
Yttrium, 50–9
Yugoslavia, geography, 12–3

Zelleriidae, 14–6
Zener breakdown, 74–3
Zeolites, 19–3, 113–3
Zinc, 103–1
alloys, 83–1
compounds, 76–1
effect on oral tissues, 47–6
ionization therapy, 38–3
metabolism, 53–3
ores, 20–8, 63–16, 80–3
Zingiberaceae, 112–1
Zirconium, 3–15, 7–14, 60–4, 68–15, 109–1
Zircons, mineralogy, 4–10
Zone melting, 88–1
Zoology, historical, 1–26

Printed in England under the authority of Her Majesty's Stationery Office by Henry Blacklock & Co. Ltd., Manchester, 8

2/1/61. Wt. 4089-1090. K22 H.B. & Co. 999/135.