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Title Scientific research in British universities

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Introduction

THIS volume provides brief notes on scientific research in progress in British universities, university colleges and associated institutions during the academic year 1960–61. 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, except where work on them normally occurs within the science faculty.

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-xiii. The numbered sections within each organization are arranged alphabetically by subject and a list 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 indexes refer to the institution and subject concerned—in that order, e.g. 14–12, Leeds, Geography.

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.

As in previous years the material has been collected by the British Council from the heads of the departments of the universities, colleges and institutions, who alone are responsible for the entries. Publication continues to be sponsored by the Department of Scientific and Industrial Research under an arrangement with the British Council.

Department of Scientific and Industrial Research,
Charles House, 5–11 Regent Street,
London, S.W.1
April 1961

List of Universities

Code No.		*Page*
1	**Aberdeen University** Aberdeen, Scotland *Telephone* Aberdeen 24367	1
2	**Belfast: Queen's University** Belfast, Northern Ireland. *Telephone* Belfast 30111	7
3	**Birmingham University** Edgbaston, Birmingham 15. *Telephone* Selly Oak 1301	16
4	**Bristol University** Bristol 8 *Telephone* Bristol 24161	34
5	**Cambridge University** Cambridge *Telephone*. Cambridge 54451	46
6	**Durham University** 46, North Bailey, Durham. *Telephone* Durham 3355-6	63
7	Durham Colleges	63
8	King's College, Newcastle upon Tyne	65
9	**Edinburgh University** Edinburgh, Scotland. *Telephone:* Edinburgh 41001	81
10	**Exeter University** Exeter. *Telephone* Exeter 74141	95
11	**Glasgow University** Glasgow W.2., Scotland. *Telephone:* Glasgow, Kelvin 2231	98

Code No. *Page*

12 **Glasgow: Royal College of Science and Technology** . . . 112
George Street, Glasgow C.1.
Telephone. Bell 4400-9

13 **Hull University** 116
Hull, England.
Telephone: Hull 18960

14 **Leeds University** 119
Leeds 2.
Telephone Leeds 31751

15 **Leicester University** 134
University Road, Leicester.
Telephone. Leicester 24211

16 **Liverpool University** 136
Brownlow Hill, Liverpool 3.
Telephone Royal 6022

17 Liverpool School of Tropical Medicine 149

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

Colleges

18 Bedford College 150
Regent's Park, London, N.W.1.
Telephone Welbeck 5743

19 Birkbeck College 152
Malet Street, London, W.C.1.
Telephone Langham 7941

20 Imperial College 157
Prince Consort Road, London, S.W.7.
Telephone: Kensington 5111

21 King's College 174
Strand, London, W.C.2.
Telephone: Temple Bar 5454

Code No. *Page*

22 Queen Elizabeth College 178
61-67 Campden Hill Road, London, W.8.
Telephone: Western 3704

23 Queen Mary College 180
Mile End Road, London, E.1.
Telephone Advance 4811

24 Royal Holloway College 184
Englefield Green, Surrey.
Telephone Egham, 114, 414

25 Royal Veterinary College 185
Royal College Street, London, N.W.1.
Telephone Euston 5321

26 School of Pharmacy 187
29-39 Brunswick Square, London, W.C.1.
Telephone Terminus 7651

27 University College 188
Gower Street, London, W.C 1.
Telephone Euston 7050

28 Westfield College 197
Kidderpore Avenue, London, N.W.3.
Telephone Hampstead 7601

29 Wye College 198
Ashford, Kent.
Telephone. Wye 401

Medical Colleges Schools and Institutes

30 Charing Cross Hospital Medical School 199
62-65 Chandos Place, London, W.C.2.
Telephone Temple Bar 0581-4

31 Guy's Hospital Medical School 202
St. Thomas's Street, London, S.E.1.
Telephone. Hop 3500

32 Institute of Basic Medical Sciences 208
Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.
Telephone: Holborn 3474

Code No. *Page*

33 Institute of Cancer Research 209
Royal Cancer Hospital, Fulham Road, London, S.W.3.
Telephone: Flaxman 8171

34 Institute of Cardiology 213
35 Wimpole Street, London, W.1.
Telephone: Welbeck 1896

35 Institute of Child Health 214
The Hospital for Sick Children, Great Ormond Street, London, W.C.1.
Telephone: Holborn 2196

36 Institute of Dental Surgery 216
Eastman Dental Hospital, Gray's Inn Road, London, W.C.2.
Telephone: Terminus 7251

37 Institute of Dermatology 218
St. John's Hospital for Diseases of the Skin, Lisle Street, London, W.C.2.
Telephone Gerrard 8383

38 Institute of Diseases of the Chest 219
Brompton Hospital, London, S.W.3.
Telephone: Flaxman 3707

39 Institute of Laryngology and Otology 219
Royal National Throat, Nose and Ear Hospital, Gray's Inn Road, London ,W.C.1.
Telephone. Terminus 8855

40 Institute of Neurology 221
National Hospital, Queen Square, London, W.C.1.
Telephone: Terminus 3611

41 Institute of Obstetrics and Gynaecology 225
The Chelsea Hospital for Women, Dovehouse Street, London, S.W.3.
Telephone. Flaxman 9509

42 Institute of Ophthalmology 228
Judd Street, London, W.C.1.
Telephone: Euston 2543

43 Institute of Orthopaedics 231
Royal National Orthopaedic Hospital, Great Portland Street, London, W.1.
Telephone: Euston 5070

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44 Institute of Psychiatry 232
Maudsley Hospital, Denmark Hill, London, S.E.5.
Telephone: Rodney 6333

45 Institute of Urology 234
10 Henrietta Street, London, W.C.2.
Telephone. Temple Bar 5361

46 King's College Hospital Medical School 234
Denmark Hill, London, S.E. 5.
Telephone: Brixton 1731, 5739

47 Lister Institute of Preventive Medicine 238
Chelsea Bridge Road, London, S.W.1.
Telephone: Sloane 2181

48 London Hospital Medical College 240
Turner Street, London, E.1.
Telephone: Bishopsgate 0644-8

49 London School of Hygiene and Tropical Medicine . . . 245
Keppel Street, London, W.C.1.
Telephone: Museum 3041 and Langham 7621

50 Middlesex Hospital Medical School 248
Mortimer Street, London, W.1.
Telephone: Museum 8333

51 Postgraduate Medical School of London 252
Ducane Road, London, W.12.
Telephone: Shepherd's Bush 2030

52 Royal Dental Hospital of London School of Dental Surgery 255
32 Leicester Square, London, W.C.2.
Telephone: Whitehall 6427

53 Royal Free Hospital School of Medicine 256
Hunter Street, Brunswick Square, London, W.C.1.
Telephone: Terminus 5385

54 St. Bartholomew's Hospital Medical College 260
West Smithfield, London, E.C.1.
Telephone: Monarch 7404

Code No. *Page*

55 St. George's Hospital Medical School 268
Hyde Park Corner, London, S.W.1.
Telephone: Sloane 1716

56 St. Mary's Hospital Medical School 271
Norfolk Place, London, W.2.
Telephone: Paddington 3612

57 St. Thomas's Hospital Medical School 274
Albert Embankment, London, S.E.1.
Telephone: Waterloo 5656, Exts. 23 and 356

58 University College Hospital Medical School 276
University Street, London, W.C.1.
Telephone. Euston 5861.

59 Westminster Medical School. 278
Horseferry Road, London, S.W.1.
Telephone: Victoria 6041-2

60 **Manchester University** 280
Oxford Road, Manchester 13.
Telephone: Manchester, Ardwick 3333

61 **Manchester College of Science and Technology** 295
(Faculty of Technology, Manchester University)
Sackville Street, Manchester, 1.
Telephone. Manchester, Central 3266

62 **North Staffordshire University College** 302
Keele, Staffordshire.
Telephone: Keele Park 371

63 **Nottingham University** 304
University Park, Nottingham.
Telephone. Nottingham 45511

64 **Oxford University** 311
Oxford.
Telephone: Oxford 48491

65 **Reading University** 326
Reading, Berkshire.
Telephone: Reading 81771

66 National Institute for Research in Dairying 331
Shinfield, Reading.
Telephone: Reading 83103.

Code No. *Page*

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

67 St. Salvator's College, St. Andrews 333

68 Queen's College, Dundee. 336
Telephone: Dundee 3131.

69 **Sheffield University** 340
Sheffield 10.
Telephone: Sheffield 27451

70 **Southampton University** 353
Highfield, Southampton.
Telephone: Southampton 54071

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

71 University College of Wales, Aberystwyth 357
Telephone: Aberystwyth 346-8

72 University College of Wales, Aberystwyth: Welsh Plant Breeding Station 361
Plas Gogerddan, Bow Street,
Aberystwyth.
Telephone: Bow Street 255-7.

73 University College of North Wales, Bangor 363
Telephone: Bangor 2501

74 University College of South Wales and Monmouthshire, Cardiff 366
Cathays Park, Cardiff.
Telephone: Cardiff 20781

75 University College of Swansea 369
Singleton Park, Swansea.
Telephone: Swansea 56172

76 The Welsh National School of Medicine, Cardiff 373
34 Newport Road, Cardiff.
Telephone: Cardiff 28434

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
D. M. S. Livingston, 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	Structure and comparative anatomy of the central nervous system
	Structure and function of the peripheral extension of the autonomic nervous system
	Congenital abnormalities of head and neck and skeleton
	Congenital deaf-mutism
	Histology and histochemistry of the dermis in hairy and non-hairy part of the skin
	Histological, histochemical and ultrastructural changes in explanted chick embryos after the application of metabolic inhibitors
D. Bulmer, M.D.	Development and histochemistry of female genital tract
A.D. Dickson, M.D.	Development of cardiovascular system
	Histochemistry of placentation
	Implantation

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 israeli*
	Intracellular distribution of enzymes in 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
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
B.J. Aylett, Ph.D.	Derivatives of the silicon hydrides. Inorganic polymers
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

Organic:

R.H. Thomson, D.Sc., Ph.D., and colleagues	The chemistry of natural and synthetic quinones. Free radical reactions in solution Chemical effects of hydrogen bonding
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. K.C. Imrie 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. E.J. Fair R.G. Smith A. Coull	Analytical and experimental studies of reinforced and prestressed concrete and of other structural members
H. Hampson W.M. Ogston	Heat transfer; condensation of vapours on tubes with extended surfaces
E. Wilkinson, Ph.D. A.M. Hardie, Ph.D.	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
S.D. Richardson, D.Phil.	Tree physiology
M. Crooke, Ph.D.	Forest entomology

8. Geography

Profesor A.C. O'Dell	Scotland; Scandinavia; geography of transport
K. Walton, Ph.D.	Pacific area; coastline geomorphology
R.E.H. Mellor	Europe and northern Asia; demography
A.S. Fraser	Northern Europe; air photography, soils

9. Geology

Professor T.C. Phemister, D.Sc., Ph.D., D. de l'Univ.	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	The geology and mineralogy of the Oil Shales Group, Midlothian
	Geophysical interpretation of sub-surface structures
	Variation in non-marine lamellibranch communities of Upper and Lower Carboniferous age
F.E. Tocher, Ph.D.	Petrology and structure of Dalradian rocks

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
	Difference-differential equations
	Asymptotic expansions
H.S.A. Potter, D.Phil.	Abstract algebra
N.A. Bowen, Ph.D.	Power series
	Integral functions
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
K.B. Fraser, M.D.	Genetics of influenza virus
M.G. McEntegart, M.D.	Fluorescent tracers in immunology
H.G. Smylie	Epidemiology of staphylococcal infection
A.M. Paton, Ph.D.	Bacterial diseases of plants
T.M. Bell	Adenovirus infection of tissue cells

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.M. Thomson	Nutrition in pregnancy
I. MacGillivray, M.D.	Epidemiology of pre-eclampsia Hypertension in pregnancy Electrolytes and fluids in pre-eclampsia
*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. M.C. Macnaughton	
*J.S. Crawford	Anaesthesia in obstetrics

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

16. Pathology

Professor J.S. Young, M.D.	
A.L. Stalker	Microcirculatory studies using "ear chamber" technique in rabbits The "sludging" effects of macromolecules
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 Electrolyte disorders in diabetes
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 Effects 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
A.S. Block-Bolten	Non-stoichiometry in intermetallic compounds
D.M. Finlayson, Ph.D.	Low temperature semi-conductors
E.D. Griffith T.J. Buchanan, Ph.D. D.D. Lindsay	Medical physics
D.A. Jones, Ph.D.	Crystal growth
R.W.H. Stevenson, Ph.D. A. Duncanson	Optical properties of crystals
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. Ward, Ph.D.	Atomic physics
A.E.M. Geddes, O.B.E., D.Sc.	Seismology

19. Physiology

Professor J.L. Malcolm	Conditioned reflexes and the electrical activity of the central nervous system in relationship to behaviour Pharmacology of the central nervous system
H.W. Kosterlitz, M.D., D.Sc.	Analysis of the peristaltic reflex in the isolated ileum
with A.B. Cairnie, Ph.D.	Action of morphine on nervous transmission
D.W. Taylor, M.D.	Cardiac and respiratory effects of oxygen under high pressure
B.F. Matthews	Renal function in the pregnant rat
A.B. Cairnie, Ph.D.	Pharmacology of the central nervous system

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

*In Scotland the term "Natural Philosophy" is used

†Grant from Nuffield Provincial Hospitals Trust.

21. Psychology

Professor R. Knight	Motivation Applied (including 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
J.R. Symons, Ph.D.	Psychophysiology of learning

22. Public Health and Social Medicine

Professor E.M. Backett	A socio-medical follow-up study of hospital patients with special reference to the part played in recovery by the personal and social services
I.M. Richardson, M.D., Ph.D.	
R.D. Weir	A medical and sociological sample survey of old people in N.E. Scotland Epidemiology of accidents—particularly road accidents Various studies in the epidemiology of chronic disease

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
with Department of Geography	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 Statistical genetics
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	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
*R.N. Curnow, Ph.D.	Quantitative genetics Theory of selection Estimation involving selected data Design and analysis of experiments
C.R. Baines	Statistical problems in fish technology

25. Surgery

Professor W.C. Wilson	Blood clotting Biological actions of peptides
H.A.F. Dudley	Water and mineral metabolism
J. Kyle	Gastroenterology

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
B. Forman, Ph.D.	Regeneration in Coelenterata
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 R. H. Stewart	Methods of measuring output of plants under grazing conditions
	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

Agricultural Economics:

V. Liversage J.L. McWhinney	Studies of financial results of N. Ireland farms and factors contributing thereto

Agricultural Microbiology.

P. Clerkin	Microbiology of milk and milk products
J.G. Murray, Ph.D. J.T. Patterson D.J. Stewart	The flora of heat-treated milk frozen and stored at low temperatures Study of the factors affecting the manufacture of cultured milk Improvement in the techniques of washing and sterilizing milk bottles and 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 Manufacture of egg melange with reference to the bacteriological quality of the product through progressive stages of processing and storage Influence of nesting materials on the bacterial deterioration of eggs Studies of the mode of penetration of spoilage organisms through the shell and membrane Studies on the flora of bacon curing brines

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
D. Luke, Ph.D.	Pig housing investigation
W.A.M. Gordon	Brucellosis
J.F. Gracey, Ph.D.	Parasitism and animal production
C. Dow, Ph.D.	Anaerobic disease in sheep
J.R. Todd, Ph.D.	Hypomagnesaemia
J.E.F. Rankin	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	
W.E. Coey, Ph.D.	Poultry breeding: genetic interactions in laying stock; the practical use of reciprocal recurrent selection
	Studies concerning nutrition and management of pigs and poultry for commercial production
	Studies of practical problems in the conservation of grassland herbage and 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
R.M. Nicholl	
G.W. Black, M.D.	Cardiovascular effects of halothane and similar compounds
S.H.S. Love, M.D.	

3. Anatomy

Professor J.J. Pritchard, D.M.	Bone growth and repair
	The foetal membranes
W.R.M. Morton, M.D.	Mammalian embryology
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

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
B.E.S. Gunning	Plant growth-substances and morphogenesis
B.T.O. Lee	Genetics of *Neurospora*

6. Chemistry

Inorganic and Physical:

Professor C. Kemball, Ph.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 organometallic 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
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
M.F. Grundon, Ph.D.	Studies in heterocyclic chemistry Structure and synthesis of alkaloids

6. Chemistry (*continued*)

Organic (*continued*)

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
W.A.S. Aldritt	Regeneration of the epithelial cuff in the rat following gingivectomy
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
T.R.F. Nonweiler, Ph.D.	Stability and control of submarines Problem of atmospheric re-entry Behaviour of artificial satellites
J.L. Horne	The Coanda effect

Civil:

Professor A.H. Naylor	Stability of filled embankments
W.G. Godden, Ph.D.	Buckling of straight and curved beams in bending and torsion
R. Agnew, Ph.D.	Movement of sediment under tidal action Tidal beach profiles
J.G. Stuart	The bearing capacity of pile groups Settlement studies of foundations in sand
M. Gurr	Programming the matrix force method

Light Electrical.

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

Mechanical:

Professor B. Crossland, Ph.D. 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	Boundary layer theory and experimental work on the growth of boundary layers

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

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 dolerite plug, Slemish Mountain, Co. Antrim, and related Tertiary igneous rocks
W. Schwarzacher, Ph.D.	Stratigraphy of Carboniferous of Spitsbergen General sedimentary petrology including the Limestone facies of the Pennine and Irish Carboniferous
R.E.H. Reid	Cretaceous, Carboniferous and Recent sponges Mesozoics of Ulster
R. Tavener-Smith	Sedimentary tectonics of Karroo system in Mid-Zambezi region of Rhodesia Visean Bryozoa of N.W. Ireland
K.A. Jones, Ph.D.	General structural petrology with particular reference to rocks of S.W. Highlands, Scotland
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. A. Dalgarno, Ph.D. B.L. Moiseiwitsch, Ph.D. R. McCarroll	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:

S.C.R. Dennis, Ph.D.	Heat transfer in laminar motion through ducts
N.T. Dunwoody, Ph.D.	Viscous fluid motion past cylinders and flat plates
A.McD. Mercer, Ph.D.	Stability of laminar motion through ducts Numerical methods of stress analysis Finite-difference methods of numerical analysis

11. Mathematics (*continued*)

Pure Mathematics:

Professor S. Verblunsky, Ph.D.	Analysis
R. Cooper, Ph.D.	Analysis
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 and its epidemiology

Virology:

Professor G.W.A. Dick, M.D., D.Sc.	Poliovirus vaccines
	Poliovirus vaccines and louping ill virus
D.S. Dane	
E.M. Briggs (Miss)	Human enteric viruses and poliovirus vaccines
J.H. Connolly, M.D.	Ribonuclease. Virus diagnostic work
J.R.L. Forsyth	Pathogenesis of provocation poliomyelitis
	Virus diagnostic work
J.K. Clarke	Viral interference
J.B. McFerren, Ph.D.	Virus neutralizing substances and louping ill

14. Obstetrics and Gynaecology

Professor C.H.G. Macafee, with Professor J.H. Biggart, C.B.E., D.Sc., M.D.	Chorionepithelioma
H.L. Hardy Greer with T.J.M. Myles	Investigation into endometriosis
W.G. Millar	Electrolyte studies in pre-eclampsia
	Investigation of pre-eclampsia
T.J.M. Myles	The relationship of body type to the development of pre-eclamptic toxaemia
G. Harley	Essential hypertension in pregnancy

15. Paediatrics and Child Health

Professor F.M.B. Allen, M.D., with I.J. Carre, D.Ch.	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.	Studies of long-acting sulphonamides

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 of vascular degeneration
J. Willis	
F. Vint	Experimental thyroid carcinoma
D. Carson	Erythroblastosis Experimental leukaemia
H. Baker	Hormone control of uterine cancer

17. Physics

Professor K.G. Emeleus, Ph.D., Sc.D.	Spectroscopic and electronic research on gaseous conductors
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	Circulation in man
D.A. Blair	
R.G. Shanks	Renal circulation

19. Psychiatry

Professor J.G. Gibson, M.D.	A study of the effects of age on learning and memory in people of over 60, suffering from no known cerebral lesions
with Department of Physiology	The effects of personality and emotional stress upon peripheral blood supply
J.G. White	Temporal integration and the concept of self in psychiatric patients, normal adults and children
S.J. Knox	Psychiatric aspects of mitral valvotomy

20. Psychology

Professor G. Seth, Ph.D.	Educational and clinical psychology Learning: reminiscence
P. McEwen, Ph.D.	Language in relation to psychiatric and neuropathological conditions
J.R. Beloff, Ph.D.	Personality: social conformity: introversion-extraversion
R.S. Rodger	Perception: figural after-effects
R.G.A. Stretch, Ph.D.	Intellectual subnormality
M.F. McHugh	Child development, especially the development of language

21. Public Health and Social Medicine

J. Pemberton, M.D. G.C.R. Carey, M.D.	Air pollution in relation to respiratory disease
E.A. Cheeseman, Ph.D. S.J. Kilpatrick, Ph.D. J.D. Merrett	Design and analysis of experiments and application of statistical methods in all fields of medical research
P. Froggatt, M.D.·	Investigation into accidents amongst bus drivers and investigation into short-term absenteeism in industry

22. Surgery

Professor H.W. Rodgers, O.B.E.	Liver disease with particular reference to portal hypertension
Professor R.B. Welbourn, M.D.	Results and metabolic effects of gastric operations
I.D.A. Johnston	Effects of the pituitary and adrenal glands on gastric secretion
D.M. Hancock	Hormonal aspects and treatment of metastatic carcinoma
A. McCalister	Adrenocortical disease and analysis of urinary steroids
J.B. Lowry	Leukoplakia of the tongue
A. Adesola	Auto-immune disease
R. Chenneour S. Martin	Tissue transplantation with particular reference to the kidney
J.D.A. Robb	Effects of glucagon on gastric secretion
J. T. Ward	Effects of parathyroid hormone on gastric secretion
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
H.J. Dorman with F.W. Cox	The drying of wet spun flax yarns

24. Zoology

Professor R.A.R. Gresson, Ph.D., D.Sc.	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., P. Eckstein, M.D. A.P.D. Thomson, M.B.E.	The morphology and relationships of the Primates
	Reproductive physiology of Primates and other mammals
	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
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

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	Biochemistry of muscle. Sub-unit structure of myosin and other myofibrillar proteins Foetal development of muscle proteins Nature, function and biosynthesis of proteins of brain Biosynthesis of methyl compounds
F.W. Norris, D.Sc.	Microbiological assay of vitamins and amino acids in general Studies on vitamins 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
C. Rainbow	The nutrition and metabolism of lactic and acetic acid bacteria and of brewers' yeasts
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 J.H. Jones	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.	Biological effects of oxidized fats
R. Schneider, M.D.	Pharmacology of the gastrointestinal tract
with H.S.A. Sherratt, Ph.D.	Pharmacological studies on natural products of tropical origin
M.R.A. Chance, D.Sc., Ph.D.	Behaviour structure and environmental factors in biological responses
J.B. Finean, D.Sc., Ph.D.	Structural studies of lipid and lipoprotein systems, especially of nerve myelin
with P.F. Millington, Ph.D.	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.	Absorption of lipids and lipid-like substances (using radioactive isotope labelled test materials) 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
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

5. Botany

Professor J. Heslop-Harrison, Ph.D., D.Sc.	Development physiology and cytogenetics of angiosperms
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
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
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 to cancer, tuberculosis, pneumonia, blood transfusions, etc. General chemistry and biochemistry of micro-organisms and enzymes Bacterial polysaccharides Radiochemistry
D.G. Parsons, Ph.D.	Radiation chemistry Immunochemistry

Inorganic:

R.D. Peacock, Ph.D.	Fluorine compounds
F.W. Pinkard	Chemistry of the rare metals 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
D.C. Lamb, Ph.D.	Fatty acids
G.H. Whitham, Ph.D.	Alkaloids
K. Morgan, D.Phil.	Organic reactions
J.D. Hobson, Ph.D.	Iodine compounds
J. Webber, Ph.D.	Natural polymers
N. Rogers, D.Phil.	
R.L. Wormell, 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. Use of physical techniques such as mass spectrometry, radioactive tracer methods, electron magnetic resonance spectroscopy
P.E. Allen, Ph.D.	
J. Bevington, D.Sc.	
G.A. Gilbert, Ph.D.	
B.G. Gowenlock, Ph.D.	
R. Lehrle, Ph.D.	Molecular size and structure of synthetic and natural polymers using osmometry, light scattering, electrophoresis
J.R. Majer, Ph.D.	
F.W. Peaker, Ph.D.	Biosynthesis studies

6. Chemistry (*continued*)

Physical (*continued*)

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
A.P. Cox, Ph.D. J.K. Tyler	Microwave spectra

7. Dental Studies

Clinical Surgery:

Professor A.B. MacGregor, M.D.	A clinical and histological investigation into the penetration of fissures of the teeth by different types of foodstuffs
	Bacteriological study of the results of conservative treatment of dental caries
Professor A.B. MacGregor with E.A. Marsland, Ph.D., I. Whitehead D.A. Sidaway (Miss)	Histological and bacteriological investigation of carious softening of the dentine
D.S. Shovelton	A survey of the bacteriology of the infected root canal
D.S. Shovelton with E.A. Marsland, Ph.D.	The effects of high-speed cavity preparation on the dental pulp
E.C. Fox, M.D.	The nerve supply of the gingival tissues. Silicosis in the oral cavity

Pathology:

E.A. Marsland, Ph.D.	The structure of human and comparative enamels with particular reference to the distribution, composition and development of enamel lamellae
	The peripheral innervation of the oral soft tissues
	An investigation into the effect of high-speed cavity preparation on the human dental pulp
S.L. Rowles, D.Phil.	Biochemistry of saliva and dental calculus in man
	Certain natural and synthetic calcium phosphates
	In vitro studies on dental plaques
M.E. Corbett (Miss)	The reaction of the dental pulp to caries with special reference to the formation of secondary dentine

Prosthetics:

Professor J. Osborne, Ph.D.	Clinical assessment of full and partial dentures
T.C. Graty	Assessment of different melting methods on the structure of chromium cobalt alloys
H.R. Tomlin	Aesthetics in full dentures
	Production of chrome-cobalt alloys by alumino-thermic reactions

8. Endocrinology

Clinical:

A.C. Crooke, M.D. (Director of Department) W.R. Butt, Ph.D. F.J. Cunningham	The development of new assay techniques especially for the gonadotrophic substances in urine
	Their application to patients in various physiological and pathological states and their use in biochemical investigations of the gonadotrophins
	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
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 L.G. Miskin	Plate efficiency, foam formation and holdup studies for 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 Spinning band, brush and horizontal vacuum distillation units Sieve tray and mixer settler liquid-liquid extraction apparatus Entrainment in evaporators 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. T.R. Bott	Catalytic ozonic oxidation of hydrocarbons and other compounds Catalytic kinetics of isopropanol dehydrogenation on zinc oxide
H. Gilmour R. Long, Ph.D.	Combined miscible flooding: (i) Immiscible two phase flow in vertical columns (ii) Immiscible two and three phase flow in porous media Vapour phase oxidation of hydrocarbons "Hydrocracking" of hydrocarbons in gas production Equilibrium of carbon dioxide and hydrogen sulphide in potassium carbonate solutions Rates of absorption of carbon dioxide in carbonate solutions under pressure Hydrocracking of cresols and xylenols Carbon formation in flames
C.W. Nutt, Ph.D.	Heat transfer to gases in packed beds Froth flotation P.V.T. determinations on mixtures of ethylene, propane and carbon dioxide 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
W.H. Husband, Ph.D.	Adsorption equilibria. Entrainment in evaporators
E.J. Charles, Ph.D.	Corrosion of titanium
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

9. Engineering (*continued*)

Chemical (*continued*)

G.V. Jeffreys	Batch-operated solvent extraction
J.W. Carter	Transport of vapours in adsorbents. Adsorption in fixed beds
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
M.H. Cardew	Formation of bubbles on electrode surfaces
Professor F.H. Garner, O.B.E., Ph.D.	Mechanism of filtration of fine dust particles Diffusion from solid spheres in free and forced convection
F.M. Mohtadi, Ph.D. K.E. Porter	Diffusion from drops with reference to vortices present both inside the drop and in the wake
M.H. Cardew, Ph.D.	Diffusion from drops suspended in gas streams
V.G. Jensen	Diffusion from horizontal surfaces 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
with Professor J. Kolbuszewski and G.C-Y. Hu	Measurement of pressures in soils under flexible pavements
Professor J. Kolbuszewski	Deposition and vibration of sand Bearing capacity of pile groups in sand Influence of particle shape on mechanical properties of sand Mechanics of beach sand Wind-deposited sands
T.K. Chaplin	Consolidation test: edge losses in large and standard sizes of samples, electrical analogy of soil with secondary consolidation, compressibility of cohesionless soils Automatic pore-water pressure measurement
F.D. Hobbs B.D. Richardson R.F. Wills	Research associated with route locations, traffic engineering, road construction and surface water drainage
I.T.S. Essery	Hydraulics: problems concerned with air entrainment in siphons
T.H. Richards	Elasticity: theoretical and electrical analogy studies relating to the distortion of plates and bars
J.B. Dwight	Strength of riveted and bolted aluminium tension members
G. Brock, Ph.D.	Models for investigating reinforced and prestressed concrete structures
R.F. Wills	Sedimentation of sewage: investigation of flow distribution in a full scale rectangular sedimentation tank, and associated model tests
I.T.S. Essery R.F. Wills	An investigation into the behaviour of storm water overflows in conjunction with vortex chambers
I.E. Thomas, Ph.D.	Investigation of sill geometry of river measurement weirs

9. Engineering (*continued*)

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
Professor D.G. Tucker, D.Sc.	Circuits with time-varying parameters (modulators, etc.)
with J.M. Layton	Modulation systems
D.P. Howson	
D.A. Bell, Ph.D.	Electromagnetic machines
	Noise in valves and semi-conductors
	Automatic recognition of printed characters
	Data processing
J.T. Allanson	Properties of neural networks
	Synthesis of electrical networks
	Microwave radar systems
	Psychological acoustics
J.C. Cluley	Electronic digital and analogue computers
J.W.R. Griffiths, Ph.D.	Detection of pulse signals in noise on visual displays
	Synchronous detection of A.M. signals
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
J.M. Layton	Automatic control systems
I.R. Smith, Ph.D.	
G.T. Wright, Ph.D.	Electric breakdown in liquid dielectrics
	Solid state devices
	Ferro-electric heater
J. Hudson	Field studies with electrolytic tank
T.S.M. Maclean, Ph.D.	Helical aerials

Engineering Production:

Professor N.A. Dudley, Ph.D.	Work measurement: paced and unpaced work
W.G. Ainslie	Production planning
F. Benson, Ph.D.	Machine interference (mathematical study of congestion problems in industry)
E.N. Corlett	Human factors in machine control
H. Grisbrook	Precision grinding
	Horizontal milling
K.B. Haley	Linear programming
C. Kendrick	Vehicle component replacement policy
R.J. Sury	Performance rating systems

Mechanical:

Professor S.A. Tobias, D.Sc., Ph.D.	Various problems of machine tool vibration and dynamic cutting of metals
	Non-linear vibration of rotating discs, free and forced non-linear vibration of two-degree of freedom systems, non-linear isolating suspensions, and shock and random excitation of these
Professor F.K. Bannister, Ph.D.	Wave-action in gases
E.H. Wright	Application of wave-action to charging and scavenging of two-stroke engines

9. Engineering (*continued*)

Mechanical (*continued*)

B.N. Cole, Ph.D.	Application of Archimedean screw to amphibious propulsion
J.W. Railly, Ph.D.	Fluid flow in axial turbo-machinery
B. Mills, Ph.D.	Electrical analogies of systems in mechanical vibration
J. Patterson, Ph.D.	Tip leakage in multilobe displacement type air-motors
S.V. Hayes	Photoelastic investigation of stresses in elliptic pressure vessels
R.S.J. Good	Hydraulic control problems
E. Amini	Photoelastic investigation of the metal cutting process
J.C. Maltback	Machining with oscillating tools
K. Foster	Dynamic instability of hydraulic control valves
F.B. Blader	Development of non-linear vibration isolators
K.J. Durrands	Aspects of nuclear engineering
G.H. Trengrouse	The reduction of noise generated by pressure waves of finite amplitude
F.B. Scott	Investigation of the supersonic radial diffuser by use of the hydraulic analogue

10. Genetics

Professor K. Mather, C.B.E., D.Sc., F.R.S.	Organization, properties and analysis of polygenic systems
*J.L. Jinks, Ph.D.	Heritable variations in wild fungi
B. John, Ph.D.	Chromosome variation in wild and cultured populations
*R.M. Jones	Mathematical aspects of biometrical genetics
M.J. Lawrence, Ph.D.	Biometrical genetics

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

*A.R.C. Unit of Biometrical Genetics

12. Geology

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

Stratigraphical:

- The succession and structure of the Borrowdale Volcanics and Skiddaw Slates around Ullswater (Lake District)
- Stratigraphy of the Hagshaw Hills (Scotland) and Blawith (Lake District) areas of Silurian rocks
- The classification and correlation of the Ludlovian rocks of Britain and the mainland of Europe
- Directional features in the Ludlovian sediments of south-central Wales
- Stratigraphy of the Carboniferous rocks of the Sykes anticline, Bowland, and the area south of Galway Bay
- The stratigraphy and structure of the Permo-Carboniferous and Triassic rocks of W. Spitsbergen
- The Pleistocene sequence of the Avon/Tame watershed, the Tame valley, Nechells (Birmingham) and south Cheshire

Palaeontological:

- The morphology of *Eurypterus fischeri* from the Silurian rocks of Ösel
- Cyrtograptidae and Retiolitidae from Britain and Central Europe
- 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
- The behaviour in nature of melts of granitic composition
- Petrography and fabric of north Welsh slates
- The petrology of the Land's End granite aureole
- The petrology of the Glencoe fault intrusion
- 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:

- The remanent magnetism and susceptibility anisotropy of recent sediments and of certain metamorphic and igneous rocks from Scotland and Ireland
- Experiments on magnetostriction in rocks
- Gravity and magnetic surveys in the Falkland Islands Dependencies and remanent magnetism of igneous rocks therefrom
- The geological structure of the Abberley and Malvern Hills using gravity, magnetic and seismic methods

Falkland Islands Dependencies Survey:

- Petrological and structural studies on Deception Island and Anvers Island
- The geology of the Graham, Danco and Loubet Coasts
- Glaciological observations at South Georgia during the International Geophysical Year

13. Mathematics

Pure:

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
S.J. Taylor, Ph.D.	Measure theory
H.P. Rogosinski	Integral equations Moment problems
D.M.G. Wishart	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. P.C. Harris, Ph.D., M.D. L.A.G. Davidson G. Cumming, Ph.D.	Cardiorespiratory function in health and disease, in particular the haemodynamics of adaptation to exercise in normals and in those suffering from cardiac diseases Peripheral vascular adjustments to exercise 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	The vacuum brazing of metals
J.P.G. Farr, Ph.D.	Study of graphites during solidification and annealing
G.H.J. Bennett, Ph.D.	Gases in liquid metals
G.W. Rowe, Ph.D.	Feeding of ingots
A.T. Male	The strain-ageing of mild steel

15. Metallurgy (*continued*)

Industrial (*continued*)

Professor E.C. Rollason, Ph.D.	Influence of strain-ageing on deep drawing properties Hot working of metals
D.V. Wilson, Ph.D.	Warm working of steel
V. Kondic, Ph.D.	Working of hexagonal metals
W.T. Roberts, Ph.D.	The hardening and softening of metals by fatigue
D.R. Milner	Fatigue and fracture phenomena in light alloys
J.P.G. Farr, Ph.D.	Fatigue damage in high-strength light alloys
G.H.J. Bennett, Ph.D.	Fatigue processes in high-strength light alloys
G.W. Rowe, Ph.D.	Fatigue of strain-ageing alloys
A.T. Male	Crystal growth in electrodeposited copper Electron microscope study of electrodeposited surfaces Electrode potential measurements on single crystals of copper Metal flow in sand-mould Flow of metal in pressure die casting Friction during metal working

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.M. 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
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
L.M. Brown, Ph.D.	Imperfections in ionic and metallic crystals
B. Cockayne, Ph.D.	Study of early stages of precipitation in aluminium-rich alloys, with special reference to the role of vacancies
N. Pessall, Ph.D.	Study of the alloying properties of the early transition metals

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.	Adaptive enzyme systems
R.B. Drysdale	Biochemical genetics of yeasts

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	
G.F. Eveson, Ph.D.	Dust precipitation
N.G.T. Ludlow	Coal cleaning
A.J.W. Rozelaar	Close gravity fractionation of coals and coal petrography
R.B. Hoole	Froth flotation of coals
G.J. Lawson, Ph.D.	Flocculation and filtration
R.D. Hartley, Ph.D.	Mineral dressing Contact and frictional electrification of dielectrics and of coals Contact potentials of coals Incendivity of sparks Chemical constitution of coal and humic acids Oxidation of coal

18. Neurosurgery

Professor B. Hughes	An electroencephalographic and biochemical investigation into states of unconsciousness Stereotactic lesions in the thalamus for involuntary movements, intractable pain and epilepsy including anatomical studies of the normal disposition of the thalamic nuclei
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 Faseial slings for female stress incontinence The value of cytology in the early diagnosis of cancer
C.W. Taylor M.E. Taylor (Miss)	An assay of the value of ring biopsy in therapy in carcinoma *in situ*
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 Department of Zoology	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	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
V.M. Crosse (Miss), O.B.E., M.D.	Prematurity
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

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

22. Pathology (*continued*)

D.B. Brewer, M.D.	Pathology of thyroid gland Vascular changes in lungs in pulmonary hypertension Polarization microscopy of reticulin and collagen
*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
D.J. Parish	Problems of cardiac and mammary pathology
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
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

*Supported by the Birmingham Committee of the British Empire Cancer Campaign
†Supported by the Clinical Research Board.

22. Pathology (*continued*)

Experimental (*continued*)

P.W. Dykes	Protein metabolism and distribution using I^{131}-labelled albumin and γ globulin
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
†C.N.D. Cruickshank, M.D.	Metabolic and cytological studies of skin tissue cultures
†M.D. Trotter, Ph.D.	Antigenic polysaccharides of dermatophytic fungi
†S.R. Wood	Studies on *Trichophytin* 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 scattering
L. Riddiford, Ph.D. G.W. Greenlees, Ph.D. and other members of staff	Nuclear physics, including the acceleration of particles to high energies with cyclotrons and a 1000 MeV proton synchrotron
J.H. Fremlin, D.Sc.	Dental studies using radioactive tracers
J. Walker, Ph.D.	Nuclear reactor physics
M.C. Johnson, D.Sc.	Astrophysics, including the study of sunspots
K.A. Macfadyen	Breakdown in liquid dielectrics
K.F. Chackett, Ph.D.	Radiochemistry
P.J. Black, Ph.D.	Structure of liquid metals
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	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

†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*)

Electron Physics (*continued*)

Professor J. Sayers, Ph.D. with E.C. MacKenzie	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

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 computors

24. Physiology

Professor I.E. Bush, Ph.D.	Metabolism and actions of steroid hormones Biochemistry of mental disease
P. Ramwell, Ph.D.	
B. Hood (Miss)	
A. Weaving, Ph.D.	
M.E. Nutt (Miss), Ph.D.	Haematology
J.A. Barclay	Renal function in health and disease
K. Hall (Miss), Ph.D.	Endocrine control of mammalian pelvis
I.C. Whitfield, Ph.D.	Transmission of auditory impulses
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
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

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. The effect of drugs on the electroencephalogram in man
G.B. Ansell, Ph.D.	The effects of drugs on brain phospholipid metabolism *in vivo*
*A.R. King	Studies of the effects of drugs on animal behaviour
*B.J. Key, Ph.D.	The effects of drugs on conditioned responses in animals

*M.R.C. Neuropharmacology Research Unit

26. Public Health and Social Medicine

Professor T. McKeown, Ph.D., D.Phil., M.D.	The aetiology of congenital malformations Reproduction: observations related to the menstrual cycle, pregnancy, lactation and obesity
R.G. Record, Ph.D., M.D.	Growth and development: the influence of inheritance and environment on pre-natal and post-natal growth
C.R. Lowe, Ph.D., M.D.	Epidemiology of tuberculosis
J.M. Mackintosh (Miss), C.B.E., M.D.	Evaluation of medical achievement through consideration of the death rate and population growth
I.M. Leck	The design of contemporary medical services Medical fitness in relation to age

27. Statistics

Medical:

Professor L. Hogben, F.R.S.	Statistical theory Linguistic analysis of taxonomic problems
J.A.H. Waterhouse, Ph.D.	Twins and twinning Human genetics Cancer statistics Analysis of animal behaviour patterns, and medical and vital statistics generally
K.W. Cross, Ph.D.	Mental health statistics Morbidity studies in hospital and in general practice Assessment of future hospital requirements Design and analysis of medical documents Evaluation of clinical trials
R.F. Wrighton, Ph.D.	Statistical theory

28. Surgery

Professor F.A.R. Stammers, C.B.E., T.D.	Clinical approach to post-gastrectomy syndromes Stenosing cholangitis Obliterative arterial disease
Professor A.L. d'Abreu, O.B.E.	Open-heart surgery
L.D. Abrams	
B.N. Brooke	The surgical management of ulcerative colitis Earlier recognition of threatened complications of ulcerative colitis Ileostomy chemistry
with G. Slaney	Portal bacteriology Levels of 5-hydroxytryptamine in portal blood
F.C. Walker	Auto-immunity as a factor in ulcerative colitis and Crohn's disease
N. Winstone	Corticosteroid response to surgical stress
G. Slaney	Intestinal granulomata. Experimental work on the cause of Crohn's Disease Arterial surgery
J.A. Williams	Investigation into the protective role of the lymphoid tissue of the alimentary tract
F. Ashton	The anatomy of the bundle of His and its relation to operations for septal defects
J.L. Collis	Follow-up studies into the late results of surgical treatment for hiatus hernia. A similar study into the results of gastroplasty for hiatus hernia combined with short oesophagus
G.H. Baines with P. Dawson-Edwards	The uses of ileal loops in diseases of the urinary system

28. Surgery *(continued)*

G.H. Baines with D.J. Oakland	An assessment of serum calcium and phosphorus levels in nephro-lithiasis
L.D. Abrams	The practical application in the human of inductive coupled artificial pace-makers
G.T. Watts	Wound healing and the biochemistry of ground substance
D.J. Oakland	Exfoliative cytology of the large bowel and of the stomach

29. Zoology and Comparative Physiology

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

4 Bristol University

1. Agriculture

AGRICULTURAL AND HORTICULTURAL RESEARCH STATION, LONG ASHTON

Professor H.G.H. Kearns, O.B.E., Ph.D.	
C. Bould, Ph.D.	Nutrition of fruit crops:
R.A. Webb, D.Phil.	Trace elements in fruit crops
D.G. Hill-Cottingham, Ph.D.	Nitrogen metabolism of fruit crops
E.J. Hewitt, Ph.D.	Mineral nutrition of higher plants:
A.J. Abbott	Micro-element nutrition of excised tissues
D.J.D. Nicholas, D.Sc., Ph.D.	Nitrogen metabolism of micro-organisms: Nitrifying organisms
J.A. Anderson, Ph.D.	
H.E. Davenport, Ph.D.	Enzymes of higher plants in relation to photosynthesis
L.C. Luckwill, Ph.D.	Pomology and fruit breeding:
D.L. Abbott	Plant physiology; growth substances
R.R. Williams	Cider and perry fruit growing
D. Wilson, Ph.D.	Breeding of cider-apples, currants and rootstocks
B.A. Rake (Miss)	Gooseberry culture
E.W. Hobbis, M.B.E.	Plantation management
J.T. Martin, D.Sc., Ph.D.	Chemistry of insecticides and fungicides:
E.J. Skerrett, Ph.D.	Analytical methods
E. Somers, Ph.D.	Mode of action of fungicides
D. Woodcock, D.Sc., Ph.D.	Organic chemistry
M. Randall (Miss)	
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
C.G.L. Furmidge, Ph.D.	Physical chemistry of spray materials

1. Agriculture (*continued*)

H.R. Mapother	Spray materials for tropical crops
T.E. Cobbald	Spray mechanics
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 preservation of fruit, vegetables, meat and poultry
M.J. Davey (Miss)	
K.G. Stott	Culture, utilization, pests and diseases of basket and cricket bat willows
G.M. Clarke	Statistics: design and analysis of experiments

Agricultural Economics:

BRISTOL I PROVINCE

C.V. Dawe, O.B.E., Ph.D.	Special local surveys
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

BRISTOL II PROVINCE

S.T. Morris (Head of Department)	Farm management and organization—a continuing study of farm organization in eight "type of farming" areas
V.H. Beynon	Studies in farm planning; a detailed investigation into farm organization and planning on certain selected successful farms in Devon and Dorset
H.W.B. Luxton	
J.E. Harrison	
G.D.D. Davies	A continuing economic survey of a group of horticultural holdings
J.A. Langley	
E.T. Davies	The economics of certain farm enterprises
H.M. Cole (Miss)	Farm mechanization—the economics of tractor operation
R.C. Rickard	Study of farm finance and capital investment
W.J. Dunford	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

2. Anaesthetics

J. Clutton-Brock (Head of Department)	Application of electroencephalography to anaesthesia 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	Investigation into some actions of muscle relaxant drugs.

3. Anatomy

Professor J.M. Yoffey, M.D.	Quantitative studies of blood formation, and factors controlling it
with D.B. Thomas P.J. Roylance and others	Studies of human foetal blood formation Effect of irradiation upon the bone marrow
W.K. Metcalf	Studies of blood cells by special microscopic techniques
G. Hudson	Volume of bone marrow and factors which may influence it
D.G. Osmond	Studies of the circulation in the bone marrow
P.J. Roylance	Quantitative studies of adult human marrow

4. 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
M.J. Carlile, Ph.D.	Effects of light on the growth and physiology of fungi
A.P. Sims, Ph.D.	Metabolism of nitrogen in plants and micro-organisms

5. Chemistry

Biological.

Professor W. Baker, D.Sc., F.R.S. Professor E. W. Yemm, D.Phil. B.F. Folkes, Ph.D. A.P. Sims, Ph.D.	Nitrogen metabolism in plants; plant respiration
C.A. Ashford, Ph.D.	Respiratory pigments
S.J. Bach, Ph.D.	Intermediate protein metabolism; enzyme studies
A.R. Battersby, Ph.D.	Biosynthesis of alkaloids
P.C. Caldwell, D.Phil.	Ion transport and muscle contraction in large invertebrate 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. Chemistry (*continued*)

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 Surface tension of solids 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
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
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 Kinetics of deposition of crystals from the vapour on to surfaces Homogeneous hydrogenation reactions
R.C. Seymour	Spectrophotometric studies of the kinetics of gas phase reactions Structure and energy of surface oxides of carbon Adsorption of vapours of ionic solids
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
A.J.B. Cruickshank	Thermodynamics of solutions Precision calorimetry Thermodynamics of gas chromatography
A.J. Leadbetter, Ph.D.	Thermodynamic and vibrational properties of solids

Organic:

Professor W. Baker, D.Sc., F.R.S. J.F.W. McOmie, D.Phil. W.D. Ollis, Ph.D. J.W. Barton, Ph.D.	Non-benzenoid aromatic substances, especially derivatives of cyclobutadiene; structural and synthetic studies of oxygen and nitrogen heterocyclic compounds

5. Chemistry (*continued*)

Organic (*continued*)

T. Malkin, D.Sc., Ph.D.	X-ray and thermal studies of long-chain compounds Synthesis of phospholipids, lecithin, cephalin, sphingomyelin, plasmalogens and inositides
J.F.W. McOmie, D.Phil.	Pyrimidines; natural products; quinones
W.D. Ollis, Ph.D. I.O. Sutherland, Ph.D.	Structure, synthesis and biosynthesis of natural products including antibiotics, terpenoids and naturally occurring oxygen heterocyclic compounds Chemical taxonomy
L. Hough, Ph.D.	Carbohydrate chemistry and biochemistry
A.R. Battersby, Ph.D.	Structure and synthesis of alkaloids and peptides; studies on alkaloid biogenesis using tracer techniques; chemistry of isoquinoline and indole

6. 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*

7. 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 linear differential equations with variable coefficients
J.W. Flower	Studies of oscillating pressures in boundary layers
D.H. Lloyd	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

Civil:

Professor Sir Alfred Pugsley, O.B.E., F.R.S.	Structures: fundamental problems in connection with suspension bridges; impact problems concerning plates and tubes; wind loads

7. Engineering (*continued*)

Civil (*continued*)

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 Stiffened plates and slabs under transverse loads
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. Larach	Fatigue tests on reinforced and prestressed concrete beams; ultimate strength of Vierendeel girders
R.T. Severn, Ph.D.	Irregular slabs on elastic foundations; stresses in arch dams
M.C. Quick	Behaviour of fluid vortices

Electrical:

Professor G.H. Rawcliffe, D.Sc. J.E. Brown, Ph.D.	Problems in medium and small electrical machinery and plant; and in electrical measurement. In particular, problems related to machinery for control purposes, 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. W.H. Dearden	Strength of materials: yielding and fracture of metals; criteria under various stress conditions; stress-strain relations in post-yield state: effects of fluid pressure; effects of rate of strain
J.S.C. Parry, Ph.D. J.A. Bones D.J. Haines	Fatigue of ferrous materials: effects of surface finish and treatments: axial loading under reversed and repeated stresses: thick cylinders exposed to internal pressure; 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
G.F.C. Rogers Y.R. Mayhew M.A. Hollingsworth, Ph.D.	Heat transfer: free convection from plates in different configurations; deflection of hot gas jets; forced convection 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

8. 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

8. Geography (*continued*)

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
J.W. Birch, Ph.D.	Geography of agriculture and tourism; related problems of methodology (Britain and Canada)
A.E. Frey	Geomorphology of the Bristol area
	Industrial location, settlement and geomorphology of Exmoor
L.F. Curtis	Soil mapping from air photographs
	Soil studies on Exmoor
M.A. Morgan, Ph.D.	Urban geography, with special reference to S.W. England
	Political geography
D.I. Smith	Geomorphology of Bristol region and Mendips
	Geomorphology and geography of Arctic Canada

9. 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 Valentian 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
	Geochemistry of greenstones of Devon and Cornwall
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.	Miocene carnivores of E. Africa
	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 South Connemara basement complex, County Galway, Eire
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

10. Horticulture

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

11. Mathematics

Applied.

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

Pure.

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

12. Medicine

Professor C.B. Perry, M.D.	Natural history and aetiology of acute rheumatism Rheumatic heart disease
J.E. Cates, M.D.	Diabetes mellitus Antidiuretic substances
D.W. Barritt, M.D.	Congenital heart disease Plasma lipids in vascular disease
D.R. Coles, M.D.	Peripheral vascular disease with special reference to diabetes mellitus

13. 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. A.H. Linton, Ph.D. G.C. Ware, Ph.D. E.A.van Horn (Miss)	Studies in growth of bacteria Phages and colicines
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. L.W. Greenham D.B. Peacock	Diagnostic methods in virology
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 Antibiotic sensitivity of anaerobes in peritonitis
M.P. English (Miss)	Mycology of human and animal diseases

14. 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
E.M. Edwards	Study of placental function using isotopes. Antidiuretic substance in the placenta

15. 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

16. Otorhinolaryngology

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

17. Paediatrics and Child Health

A.V. Neale, M.D. with G. Woods (Mrs.) M.D.	Perceptional and educational 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.	Long-term prognosis of recurrent abdominal pain in childhood Family patterns in response to stress Psychosomatic syndromes in childhood
A.V. Neale, M.D. G.K. McGowan C.K. Milner	The metabolism of amino acids and peptides in blood plasma
A.V. Neale, M.D. with N. Brown	Clinico-pathological studies
with G. Tovey, M.D. J Fraser B. Webb, M.D.	An investigation of haemolytic disease of the newborn with special reference to cases requiring multiple exchange transfusion and into the course of the postnatal anaemia
A.V. Neale, M.D. with F. Lewis Professor G.G. Lennon	Pressor amines: biochemical survey in pregnancy and the newborn
T.E. Oppé with R.F. Barbour, M.D. A. Miller, M.D. E. Borland (Miss)	A study of nocturnal enuresis, being a five year follow-up of a series of fully investigated enuretic children
with W. Barnes (Miss)	A study of the emotional factors associated with premature birth and their relationship to disturbances in the early mother-child relationship
with B. Arora (Miss)	A follow-up study of coeliac disease with special reference to physical growth, development and nutritional status
K. Simpson, M.D.	Staphylococcal disease in infants

17. Paediatrics and Child Health *(continued)*

G.R. Airth	Uses of image-intensifier radiology in infants and children Radiological studies on the alimentary tract of newborns and prematures
R. Harris	Respiratory function studies in infants and children
I. Westmacott (Miss)	Psycho-social paediatric problems

18. Pathology

Professor T.F. Hewer O.C. Lloyd, M.D. E.S. Meek, M.D.	A study of normal and tumour melanoblasts by "dopa" and fat stains, to elucidate the relationship between melanomas and other naevoid tumours
C.H.G. Price, M.D. G.M. Jeffree (Miss) Ph.D.	A study of tumours of bone derived from the Bristol Bone Tumour Register 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

19. Pharmacology and Therapeutics

Professor H. Heller, M.D., Ph.D.	Neurohypophysial hormones Pharmacologically active substances in the hypothalamus
M. Ginsburg, Ph.D.	Metabolism of neurohypophysial hormones
R.J. Fitzpatrick, Ph.D.	Oxytocin Adrenal function in ruminants

20. Physics

Professor M.H.L. Pryce, F.R.S.	Theoretical physics, mainly of the solid state and magnetism
Professor C.F. Powell, F.R.S.	Cosmic rays, mesons and nuclear physics
Professor F.C. Frank, O.B.E., F.R.S.	Crystallization and dissolution; structure and defects of solids
N. Thompson, Ph.D.	Creep and fatigue in metal
C.R. Burch, C.B.E., Ph.D., F.R.S.	Mineral dressing and applied optics
D. Bohm, Ph.D.	Basic quantum theory. Theory of electron plasmas
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
W.J. Bates, Ph.D.	Reflecting microscopes
G.N. Fowler, Ph.D.	Theoretical physics (mesons; field theory; many body problems)

20. Physics (*continued*)

P.M. Llewellyn, D.Phil.	Magnetic resonance
A.J. Forty, Ph.D.	Stress corrosion
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

21. Physiology

Professor R.J. Brocklehurst, D.M.	
S.J. Bach, Ph.D.	Intermediate metabolism of nitrogenous compounds Role of arginase and histidase in tumour metabolism Bovine ketosis
E.H. Batten, Ph.D.	Cranial nerve embryology
J.M.N. Boss, Ph.D.	Cell physiology
R.St.J. Buxton, Ph.D.	Sensitivity and electrolytes
A. Carlyle	Reproductive cycle
S.B. Carter (Miss), Ph.D. T.D. Williams, M.D.	
T.D. Williams, M.D.	Functional development of neonatal cortex
A.F. Rogers, M.D.	Energy expenditure and acclimatization in the Antarctic

22. Psychiatry

R.E. Hemphill, M.D. (Head of Department)	Mental illness in child-bearing Studies of disturbances in sleep Creative potentials in old age
R.E. Hemphill, M.D. A. Leitch, M.D.	Studies in homosexuality
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 C.P. Seager	Controlled trials of drugs in psychiatry
C.P. Seager	Investigation of sedation threshholds
P.K.G. Warren	Electroencephalograph changes associated with old age
A. Flood	Psychiatric disorder in the casual ward
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

23. 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

23. Psychology (*continued*)

M. Piercy	Experimental studies in abnormal psychology
I.W. Pleydell-Pearce, Ph.D.	Conflict, fatigue and stress
K.F.H. Murrell S. Griew, Ph.D.	Occupational psychology, with special reference to skilled activity related to age

24. Public Health and Social Medicine

Professor R.C. Wofinden, M.D.	Problems of public health administration
P.W. Bothwell	Epidemiology
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
H.T. Phillips, M.D.	Mental health
S. Walker (Miss), M.D.	Study of illegitimacy
J.F. Skone	Housing, health of immigrants, epidemiology

25. Radiodiagnosis

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

26. Radiotherapy

R.C. Tudway B. Hale	Investigation of time variation in uptake of radioactive phosphorus in carcinoma of the breast with, and without treatment of the carcinoma by radiotherapy or hormones
R.C. Tudway H.F. Freundlich	Statistic analysis of results of radiotherapeutic treatment of carcinoma of the larynx, breast and cervix, using the method of Boag

27. Surgery

Professor R. Milnes Walker C. Shaldon	The portal circulation and portal venous obstruction
J.H. Peacock	Endocrinological aspects of vasospastic disorders
R. Belsey	Clinical research into diseases of the oesophagus and chiefly congenital atresia of the oesophagus and benign oesophageal strictures of the oesophagus
G.L. Alexander	Cerebral vascular conditions
K.H. Pridie	The aetiology of osteoarthritis of the hip
W.M. Capper	Post-gastrectomy syndromes

28. 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

28. Veterinary Studies (*continued*)

Animal Husbandry:

Professor T.K. Ewer	
M.R. McCrea	The nutritional requirements of the baby pig
M.J. Manners, Ph.D.	
W.P. Jaffe, Ph.D.	Developmental genetics in the domestic chicken
P. Radford, Ph.D.	Artificial insemination of pigs

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
L.N. Payne	Graft-against-host reactions in the domestic chicken
R.H. Penny	Erythropoietic factors in anaemic plasma
A.I. Wright	

Surgery.

Professor A. Messervy	Improved surgical techniques
J.J. Yeats	Osteoarthritic conditions in the horse
H. Pearson	Mineral levels in cattle
B.M.Q. Weaver (Miss)	Anaesthesia of large animals

29. Zoology

Professor J.E. Harris, Ph.D., F.R.S.	Experimental cytology; neurophysiology; animal locomotion
H.E. Hinton, Ph.D., Sc.D.	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 (Director of University Farm)	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. (Director, A.R.C. Unit of Soil Physics)	Soil physics, with special reference to water movement

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
J.S. Edwards, Ph.D.	Aphid physiology
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
E.J.M. Kirkby, 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
T. Lewis, Ph.D.	The distribution and dispersal of thysanopteran populations on cereals and grasses
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	Economics of production of milk, pigs, cattle, sheep and cash crops
D.G.R. Belshaw	Factors affecting the productivity of labour in agriculture
P.G. James	Financial and physical requirements in sheep production
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

Anatomy

Professor J.D. Boyd M.D.	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.	Cytology, tissue culture, experimental embryology
J.D. Lever, M.D.	Endocrine glands and electron microscopy
P.A.G. Monro, M.D.	Autonomic nervous system Micro-circulation 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	Neurology and endocrinology
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.	Central nervous and endocrine regulation in reproduction and lactation
A.R. Akester	Movement studies in the male mammalian genital tract; photomicrography
I.A. Silver	Histophysiology of the mammary gland

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	Prehistoric economy in its ecological context 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

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 Kluber, 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.	Mechanism of action of insulin on carbohydrate metabolism
G.H. Smith, Ph.D.	
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.	Enzyme biochemistry
E.C. Webb, Ph.D.	

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.	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
*F. Sanger, Ph.D., F.R.S.	Methods for the determination of protein structure
*J.I. Harris, Ph.D.	Chemistry of corticotropic and melanocyte-stimulating hormones. Chemistry of virus protein
*B.S. Hartley, Ph.D.	Proteolytic enzymes

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
‖H. Laser, Sc.D.	Parasitic amoebae
†T. Mann, Sc.D., F.R.S.	Tissue metabolism and radiobiology
†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.	Quaternary research (pollen analysis, vegetational history and geology)
R.G. West, Ph.D.	
D.M. Churchill	
E.H. Willis	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

*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*)

J. Rishbeth, Ph.D., Sc.D. H.J. Hudson, Ph.D.	Fungal and bacterial plant diseases
K.R. Sporne, Ph.D.	Phylogeny of vascular plants. Morphology of dicotyledon flowers. Palaeobotany
D.E. Coombe, Ph.D. C.D. Pigott, Ph.D.	Plant ecology
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. D.A. Hopwood, Ph.D.	Genetics and cytology, including genetics of micro-organisms
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. Reaction of liquid ammonia
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.	Synthesis of nucleotides and nucleotide coenzymes 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

9. Chemistry *(continued)*

Physical:

Professor R.G.W. Norrish, Sc.D., Ph.D. F.R.S.	Reaction kinetics and photochemistry including combustion and polymerization
E.A. Moelwyn-Hughes, Sc.D., D.Phil, Ph.D. D.Sc.	Chemical statics and dynamics of solutions
T.M. Sugden, Ph.D.	The thermodynamics of inorganic compounds in flame gases
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
J. Guttridge	Application of electronics to chemical problems

Theoretical.

Professor H.C. Longuet-Higgins, F.R.S.	Wave mechanics and its application to atomic and molecular structure and chemical reactivity
L.E. Orgel, D.Phil.	The development of automatic computation methods for the solution of problems in theoretical chemistry
S.F. Boys, Ph.D.	The electronic structure of inorganic molecules and complex compounds
A. Carrington, Ph.D.	The study of paramagnetic molecules by electron resonance spectroscopy
A.G. Massey, Ph.D.	Experimental studies in transition-metal chemistry

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 J.F. Baker, O.B.E., F.R.S.

Aeronautical:

Professor W.A. Mair	Boundary layers with distributed suction
M.R. Head, Ph.D.	Hot wire anemometry
E.P. Sutton	Turbulent boundary layers and separated flows
D.J. Maull	Supersonic flow

Applied Mechanics:

K.L. Johnson, Ph.D.	Surface contact stresses
H.S.L. Harris	Dynamic stresses in gear teeth
D.B. Welbourn	Dynamics of control systems

11. Engineering (*continued*)

Applied Mechanics (*continued*)

R.W. Gregory, Ph.D.	Non-linear vibration
J.W. Prentis, Ph.D.	Gyroscopic problems
F.A. Leckie, Ph.D.	Static and dynamic stresses, shells
F. Fallside, Ph.D.	Automatic controls
R.P.N. Jones, Ph.D.	Impact stresses and vibration

Applied Thermodynamics:

Professor W.R. Hawthorne, F.R.S.	Flow of air in compressors, turbines and cascades of compressor and turbine blades, including vibration effects
H.G. Rhoden	Problems in heat transfer
P. de K. Dykes, Ph.D.	Gas and oil leakage past piston rings
	Magnetohydrodynamics
R.W. Haywood	Flexible ships
F.D. Robinson	Flow of stratified gases
H. Cohen, Ph.D.	
J.A. Shercliff, Ph.D.	
D.S. Whitehead, Ph.D.	
M.G. Cooper	
M.D. Wood, Ph.D.	
J.T.B. Oxford	

Chemical:

Professor P.V. Danckwerts, G.C., M.B.E.	Mixing of fluids
W.D. Armstrong, Ph.D.	Automatic process control
J.F. Davidson, Ph.D.	Behaviour of bubbles in liquids
H.P. Hutchison	Distillation
C.N. Kenney, Ph.D.	
G.A. Ratcliff, Ph.D.	Gas absorption; diffusion coefficients; liquid-liquid mass transfer
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.	
J.R.A. Pearson, Ph.D.	Non-Newtonian flow dynamics

Control:

J.F. Coales, O.B.E.	Development of generally applicable methods of analysis of non-linear control systems and filters with random inputs
A.T. Fuller, Ph.D.	
P.E.W. Grensted, Ph.D.	
J.K. Lubbock, Ph.D.	The use of functionals and the application of the methods of statistical mechanics to control system analysis and synthesis
	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

11. Engineering (*continued*)

Electrical:

Professor C.W. Oatley, O.B.E.	Applications of the scanning electron microscope
G.E. Middleton	Problems of ferromagnetism including non-linearities
J.C.S. Shaw	Investigation of arc discharges and applications of controlled rectifiers and inverters
K.F. Sander, Ph.D.	Electron trajectory problems and the design of electron guns
D.E. Radley	
P. Hammond	Electromagnetic problems in electrical machines
A.H. Beck	The design of microwave valves Studies of thermionic emission Plasma physics
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	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

F.J. Willett	The organization of design teams
D.L. Marples	Problem solving in technical organizations Small group behaviour

Soil Mechanics

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

Structure and Materials

Professor J.F. 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.	The compacting of concrete by vibration
A.M.P. Brookes	Behaviour of pressed steel sections
K.J. Pascoe	Stress analysis
T.M. Charlton	Shell theory
A.H. Chilver, Ph.D.	Dynamic loading of structures
R.K. Livesley, Ph.D.	Column instability
J.L. Reddaway	Plastic theory of structures
D.B.C. Taylor, Ph.D.	Automatic computation of structures
L.G. Jaeger, Ph.D.	
H.S L. Harris	
W.D. Biggs, Ph.D.	
J. Heyman, Ph.D.	
E.K. Frankl	
R.P. Johnson	
P.A. Leckie, Ph.D.	
A.N. Sherbourne	

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
A.R.G. Owen, Ph.D.	Linkage and affinity in the mouse
P.A. Parsons, Ph.D.	Mathematical and statistical genetics
J.A. Pateman, Ph.D.	Quantitative and biochemical genetics in *Neurospora*
M.E. Wallace (Mrs.), Ph.D.	Quantitative genetics and experimental population genetics, and chemical mutagenesis with *Drosophila*

13. Geodesy and Geophysics

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

14. Geography

Professor J.A. Steers	Coastal research
W.W. Williams	Beach problems: cliff erosion
W.V. Lewis	Glacial action Beach profiles
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.)	Biographical and bibliographical study of Friedrich Ratzel
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 specail reference to Peru
J.E. Jackson	Atmospheric refraction of terrestrial rays
C. Board	Land use in S. Africa
E.A. Wrigley	Rates of industrial growth and demographic problems in coalfield areas of N. Europe 1850-1914
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
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; health and welfare of man in relation to his environment; organization of medical care
J.A. Hislop, M.D.	
L.H.H. May	The University Health Service and statistical investigations arising therefrom
R.G. Carpenter	Medical statistics

17. Mathematics

Professor P. Hall, F.R.S.	Algebra
D.R. Taunt, Ph.D.	
Professor Sir William Hodge, F.R.S.	Algebraic and differential geometry
D.W. Babbage, Ph.D.	
J.A. Todd, Ph.D., F.R.S.	
F.P. White	
M.F. Atiyah, Ph.D.	
A.J. Ward, Ph.D.	Topology
E.C. Zeeman, Ph.D.	
J.F. Adams, Ph.D.	
J.C. Burkill, Sc.D., F.R.S.	Theory of functions, particularly of a real variable
M.L. Cartwright (Miss), Sc.D., F.R.S.	Complex variable and non-linear differential equations
F. Smithies, Ph.D.	Functional analysis
M.E. Grimshaw (Miss)	
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
L.A. Pars	Dynamics and calculus of variations
A.G. Walker	Statistics
P. Whittle, M.D.	
V. Cane (Miss)	
Professor P.A.M. Dirac, F.R.S.	Quantum mechanics Field theory
F.C. Powell, Ph.D.	Theoretical physics
J.A. Polkinghorne, Ph.D.	
R.J. Eden, Ph.D.	
J.G. Taylor, Ph.D.	
G.K. Batchelor, Ph.D. F.R.S.	Theory of real flui
F. Ursell, Sc.D.	
I. Proudman, Ph.D.	
E.R. Lapwood, Ph.D.	Geophysics
F.G. Friedlander, Ph.D.	Methods of mathematical physics
Professor F. Hoyle, F.R.S.	Cosmology and astrophysics
R.A. Lyttleton, Ph.D. F.R.S.	
L. Mestel, Ph.D.	
M.V. Wilkes, Ph.D. F.R.S.	Design and operation of automatic computing machines
J.C.P. Miller, Sc.D.	
D.J. Wheeler, Ph.D.	
H.P.F. Swinnerton-Dyer	

18. Medicine

F.G.J. Hayhoe, M.D.	Functions of the spleen in health and in blood disorders
D'A.Kok, Ph.D.	Chemotherapy of leukaemias and allied diseases
F. Wild, Ph.D.	Histochemistry of blood and bone marrow Tissue culture techniques in haematology Studies of haemorrhagic states and the coagulation mechanism Chemical investigation of factors active in thromboplastin generation
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
*L. Hill (Mrs.), M.D.	Pyruvate levels of the blood in diabetes
W.R. Keatinge	The control of body temperature under water and the effect of work and clothing upon it The effect of chilling on the cardiovascular system
*J.W.T. Dickerson	Effect of development, undernutrition, and rehabilitation on the composition of the body, its tissues and its cells
*D.A.T. Southgate	Chemical composition of foods
†D.M. Nutbourne (Miss)	Excretion of hydrogen ions in the urine

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, high temperature oxidation of stainless steel by steam
G.C. Smith	Mechanism of fatigue in aluminium alloys and β brass, fatigue of metals at high temperatures and high stresses, the fracture of ductile metals in tension and torsion, fracture mechanisms in sintered metal compacts, 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

*M.R.C. staff

†M.R.C. Clinical Research Fellow

19. Metallurgy (*continued*)

J.A. Charles	Extraction and refining of metals
J.P. Chilton, Ph.D.	Solidification processes in metals and alloys
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 inter relation of precipitate distribution and stress corrosion behaviour of aluminium alloys, precipitation in Nimonic alloys, the structure of hard magnetic alloys

20. Mineralogy

Professor C.E. Tilley, F.R.S.	Regional petrology, alkali rock genesis
S.R. Nockolds, F.R.S.	Geochemistry Trace element distribution in igneous rock series
N.F.M. Henry, Ph.D.	Ore microscopy
S.O. Agrell, Ph.D.	Regional petrology
P Gay, Ph.D.	X-ray crystallography, investigation of feldspars, pyroxene series
J.D.C. McConnell, Ph.D.	Hydrothermal synthesis
C H. Kelsey (Miss), Ph.D.	X-ray crystallography
I.D. Muir, Ph.D.	Regional petrology
M.J. Le Bas, Ph.D	Petrology
D. McKie	Physicochemical mineralogy
E.J. McIver	
J.V.P. Long, Ph.D.	X-ray absorption microspectroscopy
J.H. Scoon	Mineral and rock analysis

21. Pathology

Professor H.R. Dean, M.D.	Serum reactions
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
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.	Factors affecting the virulence of staphylococci obtained from human infections. Atherosclerosis in the rat
A.P. Waterson, M.D.	Biological and electron microscopic studies of the structure and replication of the myxoviruses
J.G. Cruickshank	
R.W. Ainsworth	Studies on staphylococci and toxin
J.G. Cruickshank	Studies on antibody and antigen localization in cells in tissue culture and in sections by the fluorescence technique
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	The structure and dimensions of arteries in health and disease. Hypophosphatasia. Sudden death in infancy
M.H. Gleeson-White	Post mortem bacteriology and resistance to antibiotics
D.G. Chalmers	Investigation of leucocyte antibodies Haematological radioisotopes technique Haematolytic disease of the newborn
J. Rack	Cytology of tumour cells

21. Pathology (*continued*)

J. Rack with J.N. Harcourt-Webster	Changes in the hearts of patients who have died from pulmonary embolism
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.	The structure and development of poliomyelitis virus
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

Professor E.B. Verney, F.R.S.	Antidiuretic hormone; suprarenal function
F. Howarth, M.D.	Cerebro-spinal fluid
H.F. Grundy	
C.V. Greenway	Suprarenal function

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.	
J.M.C. Scott	Theory of nuclear properties
W.H. Taylor, Ph.D.	Development of methods of analysis of crystal structure, applications to complex metallic phases, minerals and ferroelectric materials
H. Megaw (Miss), Ph.D.	
W. Cochran, Ph.D.	
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.	Theoretical electrodynamics and radio
K.G. Budden, Ph.D.	
B.H. Briggs, Ph.D.	Physics of the upper atmosphere: propagation of radio waves through the ionosphere, and their use to study its structure and movements
J.O. Thomas	
Professor M. Ryle, F.R.S.	Radioastronomy: radio frequency radiations from the sun and galaxy
F.G. Smith, Ph.D.	
A. Hewish, Ph.D.	
J.E. Baldwin, Ph.D.	
B. Elsmore	
T.W. Wormell, Ph.D.	Meteorological physics: atmospheric electricity and thunderstorms; physics of rain clouds (radar studies); radiation problems in the stratosphere
C.D. Walshaw, Ph.D.	
D. Shoenberg, Ph.D., F.R.S.	Low temperature physics; electrical, magnetic and thermal properties of metals including superconductivity; properties of liquid metals; theory of metals
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.	

23. Physics (*continued*)

V.E. Cosslett, Ph.D. R.W. Horne K.C.A. Smith, Ph.D.	Electron microscopy; optics of electron nses; 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.	Laminar and turbulent motion of fluids
A.A. Townsend, Ph.D., F.R.S.	
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

24. Physiology

Professor Sir Bryan Matthews, C.B.E., F.R.S.	Neurophysiology: sense organs; electrical aspects of reflex activity
Lord Adrian, O.M., F.R.S.	Neurophysiology: central nervous system
G.S. Adair, F.R.S.	Proteins: studies of physicochemical properties
W.A.H. Rushton, Sc.D., F.R.S.	Neurophysiology: peripheral nerve and retinal physiology
H.E. Tunnicliffe	Transport of hormones
E.N. Willmer, Sc.D.	Histology: physiology of vision; tissue culture
Professor A.L. Hodgkin, F.R.S. R.H. Adrian I.M. Glynn, Ph.D.	Physicochemical studies of single cells with particular reference to nerve and muscle
R.S. Comline, Ph.D. D.A. Titchen, Ph.D.	Physiology of the ruminant and young animal
W.E. Balfour, Ph.D. M. Silver (Mrs.). Ph.D.	Transport of hormones
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. G.S. Brindley, M.D.	Retinal physiology
T. Vickers, Ph.D.	Histology
J.T. Fitzsimons	Water balance and water intake
M.B. Walker (Miss)	Cellular physiology
P. Donaldson	Electronic technique and electronic models of neural activity

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
A.T. Welford	Studies in human skill with special reference to "automation" and to ageing

*M.R.C. Unit for Molecular Biology

25. Psychology (*continued*)

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.	Clinical trials and laboratory studies of chemical radiosensitizers and of oxygen in conjunction with X-ray therapy
C.L. Smith, M.B.E., Ph.D.	Design and conduct of clinical trials
D.H. Marrian, 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
D.M. Brinkley (Mrs.)	
S.W.H.W. Falloon	
I. Simon-Reuss (Mrs.)	
B.E. Holmes (Mrs.), Ph.D.	Tissue culture techniques
E.M. Kingsley-Pillers (Miss), M.D.	Metabolism of compounds of therapeutic interest labelled with carbon 14 and tritium
D.B. Cater, M.D.	Techniques of ultra-violet photomicrography with quantitative photometry
J. Seed, Ph.D.	The techniques of autoradiography and ultra-thin sectioning
D. Heard (Mrs.), Ph.D.	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

*M.R.C. Applied Psychology Research Unit

27. Veterinary Studies (*continued*)

Animal Pathology (*continued*)

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
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
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 clinial 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
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.W.S. Pringle, Sc.D., F.R.S.	Structure and physiology of muscle. Insect flights
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
R.A. Hinde, D.Phil.	Reproductive behaviour of passerines Behaviour of primates
M.J. Wells	Brain function of cephalopods
E.A. Robson (Miss), Ph.D.	Neuromuscular and sensory physiology of sea-anemones

Entomology:

*Professor V.B. Wigglesworth, C.B.E. F.R.S.	Insect hormones: histology and section cutting in insects
W.H. Thorpe, Ph.D. Sc.D., F.R.S.	Animal behaviour, special reference to birds
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 systematic insecticides; biology of *Pieris* under laboratory conditions
*J.S. Kennedy, Ph.D.	Behaviour and nutrition of greenfly (Aphididae)
*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; neurosecretion; insect pathology

THE MUSEUM

F.R. Parrington, Sc.D. (Director)	Vertebrate palaeontology, special reference to reptiles
H.B. Cott, Sc.D.	Animal colouration and palatability
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

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

6 Durham University

1. Mathematics

COMPUTING LABORATORY

E.S. Page, Ph.D.	Numerical analysis Operational research
H.I. Scoins, D.Phil.	Commercial application of automatic computers
P.A. Samet, Ph.D.	
J. Eve, Ph.D.	

7 Durham University, Durham Colleges

1. Botany

Professor D.H. Valentine	Experimental taxonomy of flowering plants Cytotaxonomy of the Teesdale flora 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
P. Watson (Miss), Ph.D.	Specialized parasites of larger fungi, especially *Calcari sporium*

2. Chemistry

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

Radiochemistry:

LONDONDERRY LABORATORY

G.R. Martin M. Weston, Ph.D.	Tracer studies of reaction mechanisms (especially photo-chemical and free radical reactions)
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'Univ.	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

3. Geography (*continued*)

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
K.G. Wardhaugh	Biogeography of the N. Pennines
V.B. Proudfoot, Ph.D.	Palaeoclimates, geomorphology

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 Petrology of N. Skye Petrography and geochemistry of the Magnesian Limestone of N.E. England
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, Sierra Leone and Scottish igneous complexes 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
M.R. Hirst, Ph.D.	X-ray techniques of silicate analysis Geochemistry of modern sediments

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
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, F.R.S., Ph.D.	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.	

6. Physics (*continued*)

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 of ferromagnetic domains under stress
E.M. Williamson (Miss), Ph.D.	Theoretical physics

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
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 J.B. Cragg	The ecology of moorlands
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

8 Durham University
King's College, Newcastle upon Tyne

1. Agriculture

Professor M.M. Cooper, F.R.S.E.

Agricultural Botany:

Professor M. Jones H.H. Clark (Mrs.)	Management of herbage plants for persistency and production
J.H.W. Holden F. Blackburn	Ecological variation of herbage plants with reference to selection of improved types. Studies on the intraspecific relationships in the Avenae
	Origin and evolution of cultivated plants
	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

1. Agriculture (*continued*)

Agricultural Chemistry:

B. Thomas, D.Sc.	Digestive capacity of different breeds of hill sheep for heather
F. Hunter J. Pringle (Miss), Ph.D. A. Thompson	Mineral mixtures in relation to the known mineral requirements of dairy cows
E. Crompton	Restoration problems on opencast coal sites, with special reference to soil structure
	Lime and fertilizer responses on hill swards
	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 R.F. Lord	Farm management studies; business analysis; budgeting methods and advisory aids
S. Robson	Economics of hill sheep farming
K. Dent (Miss) T. Winter	Labour productivity studies; work study techniques; building and farm lay-outs
G.H. Brayshaw W.G.R. Weeks	Economics of beef, mutton, dairy, poultry and pig production
A.W. Tansey	Variance analysis of fluctuations in farm profits
J.G. Blake	Income and investment in relation to farmers' business expectations
	International trade in farm products

Agricultural Engineering:

H. Fail A.R. Reece	Rotary cultivation: eradication of rhizomatous weeds (*Agropyron*, *Agrostis* and *Pteridium* spp.)
	Land reclamation
	Soil tillage
	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

1. Agriculture (*continued*)

Agricultural Entomology:

G. Heslop-Harrison, Ph.D. A. Ibbotson	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
	The ecology and bionomics of grassland insects with special reference to the frit fly and its relatives
*A. Milne, Ph.D., D.Sc. *R. Laughlin *A. South, Ph.D.	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)

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 autumn and spring defoliation on subsequent productivity of leys
W. Smith	Progeny testing of Clun sheep
M. Bichard	Selection in poultry
W.J.M. Black, Ph.D.	Calf rearing studies 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.	Effectiveness of methods of artificial respiration
E.A. Cooper, Ph.D.	Effects of anaesthetics on the peripheral circulation
H. Smith, Ph.D.	Estimation of plasma oxygen concentration in the presence of nitrous oxide

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

*A.R.C. Unit of Insect Physiology

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, Ph.D.	Mating systems in fungi
W.A. Clark, Ph.D.	Plant ecology
P.G. Fothergill, Ph.D.	Nutrition of fungi History of thought concerning evolution
B.L. Moss (Miss), Ph.D.	The structure, chemical composition and ecology of brown seaweeds
S.L. Ranson, Ph.D.	Metabolic and enzymic studies
J.A. Richardson, Ph.D.	Physiological ecology
T.G. Walker, Ph.D.	Cytotaxonomy of *Pteris*

6. Chemistry

Inorganic and 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
E.E. Aynsley, Ph.D.	Inorganic chemistry of fluorine and fluorine compounds
A.B. Littlewood	Gas chromatography
R.E. Dodd	Spectroscopic studies of inorganic compounds

Organic:

Professor J. Baddiley, D.Sc., Ph.D.	The structure of bacterial cell walls Enzymic processes in bacterial wall formation
R. Raper, Ph.D.	The structure and function of nucleotide coenzymes from micro-organisms
G.A. Swan, D.Sc., Ph.D.	Synthesis of carbohydrates
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 Natural porphyrin precursors

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

6. Chemistry (*continued*)

Physical (*continued*)

M. Fleischmann, Ph.D.	Thermodynamics of solutions
K.B. Oldham, Ph.D. A.K. Covington, Ph.D. R.E. Dodd	Electrode processes; mechanism of electrode reactions and over-voltage; electrochemistry of solutions in hydrogen peroxide 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

7. Dental Studies

Professor G.E.M. Hallett	Tissue repair in the periodontal membrane, cementum and pulp of subluxed teeth in children and monkeys 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 Efficiency of conservation laboratory design
H.E. Simpson	Erosive lesions of the oral mucosa Effects of extraction of teeth on the adjacent tissues Diseases of dental pulp
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 peri-coronitis
P.H. Burke	Serial data on eruptive tooth movements Effects upon the occlusion of the early loss of the first permanent molars
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

7. Dental Studies (*continued*)

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

8. Dermatology

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

9. Engineering

Chemical:

Professor J.M. Coulson	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 between solid surfaces and liquid drops
	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.	Estuarine tidal hydraulics, River Tyne
	River sediment hydraulics, River Tyne
P.C.G. Isaac	Estimation of smoke by filter stains
	Production of hydrocarbons from sewage sludge
	The ecology of bacteria beds
	Biological treatment of organic wastes
J.R. Simpson	Comparison of B.O.D. and direct oxygen uptake rates
D.W. Cooper	Joints and construction in glued timber structures
	Ultimate strength in bending of closed reinforced concrete frames
	Strength of post-stressed brickwork
	Deflection characteristics of continuous beams of reinforced concrete
	Performance characteristics for joints made with timber connectors
	Design of timber roof trusses
	Analysis by three-dimensional models
T.E.H. Williams, Ph.D.	Potential traffic between centres of population
	Speed-volume relationships for urban traffic
J. Wright	Distribution methods of analysis of structures
	Use of electronic digital computer in structural analysis
	Design of plane frames for minimum cost
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

9. Engineering (*continued*)

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
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.W. 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

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 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

9. Engineering (*continued*)

Naval Architecture:

Professor L.C. Burrill	Propeller cavitation:
A. Emerson	Systematic series tests with model propellers in cavitation tunnel
W. Robson	
R.L. Townsin	Vibration:
F. Leathard	Effect of entrained water on vibration frequencies of long bars of different cross-sectional shape
P. Mars	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	Denudation chronology of N. England
with J.I. Sharp	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	Hydrology of certain drainage basins of N.E. England
with W.W. Anson	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
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*)

11. Geology *(continued)*

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 (J.M. Jones, M.Sc.)	Correlation of physical properties, chemical composition and petrographic components of coal
K.A.G. Shiells	The geology of the Lower Carboniferous of Northumberland
W.A. Elders	Norwegian Pre-Cambrian granites and gneisses

12. Mathematics

Applied.

Professor A.E. Green, Sc.D., F.R.S.	Non-linear continuum mechanics Elasticity
W.D. Collins, Ph.D.	Elasticity and hydrodynamics
J.W. Craggs, Ph.D.	Mechanics of solids and fluids
G. Eason, Ph.D.	Elasticity and plasticity
C. Gilbert, Ph.D.	Theory of relativity

Pure

Professor F.F. Bonsall	Functional analysis
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
J.R. Ringrose, Ph.D.	Functional analysis
J.D. Weston, Ph.D.	Functional 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
Professor G.A. Smart, M.D.	Follow-up of gastrectomy and gastroenterostomy with vagotomy for duodenal ulcer

13. Medicine *(continued)*

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
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

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 Tertiary creep in metals Influence of residual elements on brittle fracture
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 The kinetics of superlattice formation
J.D. Meakin. Ph.D.	Studies of the yield and flow of polycrystalline alloys

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	Staphylococcal enzymes
M. Emslie-Smith (Mrs.)	Aspects of bacterial variation

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	Endrocrine studies in hyperemesis gravidarum
	Obstetric and sociological factors in handicapped children
H.E. Hughes (Miss)	A study of exfoliative cytology in certain obstetric conditions

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	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
	Estimation of organic contaminants in gasworks' atmospheres
	Psychology of coal miners' nystagmus
	†Organization of industrial health service on Tyneside
	Clinical trial of anti-tuberculous chemotherapy
	Follow-up in sputum-negative progressive massive fibrosis in 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 (Radiotherapy Department)	

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

†Under the auspices of the Nuffield Provincial Hospitals Trust

18. Orthopaedics (*continued*)

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

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 speech disorders in childhood with a view to rational classifications 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

21. Pathology (*continued*)

A.J. Watson, M.D.	Fat embolism Ulcerative colitis
J. Hart-Mercer	Congenital hepatic fibrosis
E.J. Field, M.D.	Experimental allergic encephalomyelitis
G.S. Anderson, M.D.	Pathogenesis of hyaline membrane disease of the lung in the newborn Perinatal pathology
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
L.C.D.P. Raine (Mrs.) Ph.D.	The absorption of vitamin B_{12} from the intestine. Uptake of B_{12} by tissues. Clinical applications of serum B_{12} levels Studies of auto-immunity
R.J. Pennington, Ph.D.	Biochemical studies related to muscular dystrophy

22. Pharmacology and Therapeutics

Professor A.A. Harper, M.D., F.R.S.E.	
N.A. Wynne	Actions of digitalis Chelating agents Hypothermia 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
R. Hide, Ph.D.	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
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
T.A. Littlefield, Ph.D.	Interferometry, hyperfine structures and accurate wavelengths
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

23. Physics (*continued*)

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
P.H. Roberts, Ph.D.	Hydrodynamics and hydromagnetics

24. Physiology

Professor A.A. Harper, M.D., F.R.S.E.	Physiology of digestion: Gastric and pancreatic secretion
T. Scratcherd	
H.J. Lake, Ph.D.	
E.L. Blair	
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 ending
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	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.	Clinical effects of anti-depressive drugs
Professor M. Roth, M.D. D.W. Kay C.F. Lascelles P.J.G. Quinn D. Irwin	
L.G. Kiloh, M.D. with J.W. Osselton	Effects of drugs on the human electroencephalogram
L.G. Kiloh, M.D. J.R.B. Ball R.F. Garside	Evaluation of anti-depressive drugs
D.W. Kay with P. Beamish (Mrs.)	Survey of a random sample of old people in the community
D.W. Kay	Genetic factors in mental disorder of old age
R.F. Garside	Premorbid intelligence of patients with mental illness
J. Liggett	The non-verbal evaluation of the phenomenal self
J.W. Osselton with W. Stanton	Stabilization of low frequency wave analyzer

25. Psychiatry (*continued*)

J.W. Osselton with W. Stanton	Integration of cerebral responses to peripheral stimuli
J.W. Osselton with L.P. Lassman H. Majoram	Electrocorticography in the treatment of focal epilepsy

26. 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
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

27. Public Health

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

28. Radiotherapy

C.J.L. Thurgar (Head of Department) with Department of Pathology	Experiments on the leukaemogenic action of ionizing radiation on mice
W.M. Ross, M.D. S.B. Wigoder (Miss), M.D., Ph.D. with Department of Surgery	The evaluation of megavoltage radiation in comparison with that from cobalt 60 and caesium 137 in clinical practice The use of triethylene thiophosphoramide and testosterone in advanced breast cancer
P.J. van Miert with D.N. Walder (Department of Surgery)	Investigation of the effects of ionizing radiation on lymphatic vessels
with P.N. Robson (Department of Orthopaedics)	The treatment of osteoarthritis of the hip by cobalt 60 implantation
P.J. van Miert	The use of 30 kV X-rays in the treatment of diseases of the conjunctiva and cornea
W.M. Ross, M.D.	Ablation of the pituitary gland by interstitial irradiation in advanced malignant disease and in certain endocrine disorders Steroid administration in the prophylaxis of post-radiation pulmonary fibrosis

29. Statistics

Mathematical:

See **Mathematics**, *Statistics*

30. Surgery

Professor A.G.R. Lowdon, O.B.E.	Social and economic results after operations for peptic ulcer
D.J. Tibbs, M.C.	Experimental and clinical assessment of blood flow in
D.N. Walder, M.D.	muscles
G.A. Mason	Study of reactive hyperaemia in skin associated with injury
G.F. Rowbotham	Study of pretentious surgical techniques especially in
F. Braithwaite, O.B.E.	arterial surgery
J. Swinney, M.C., M.D.	Clinical study of results of arterial grafting and the effects
J. Hankinson	of long-term anticoagulants
P.H. Dickinson	Studies on the origin of pseudo-intima
J.E.S. Scott	Neurovascular changes in fatal head injuries
D.B. Leaming	Study of tumours from bone forming elements of the skull
I.F. McNeill	Stereotaxic investigation of basal ganglia
	Studies in the use of fibrinolysin
	Study of lymphatics
	Study of liver blood flow
	Urinary tract substitution
	The problem of cortical circulation
	A study of recurrences following operation for nodular goitre
	Problems associated with the arrested heart
	The structural and dynamic effects of prolonged vesico-ureteric reflux
	The treatment of fractured phalanges
	Skin healing
	The chemotherapeutic treatment of breast cancer
	Problem of exposure to high atmospheric pressure

31. Venereology

W.V. Macfarlane, M.D. (Head of Department)	Lightning pains: evaluation of treatment
	Behaviour of the blood sedimentation rate in syphilitic aortitis
with W.G.A. Swan, M.D.	Cardiovascular syphilis: clinical assessment following penicillin-heavy metal therapy
B.E. Tomlinson, M.D.	Cardiovascular syphilis: pathological evaluation following pencillin-heavy metal therapy

32. Zoology

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

DOVE MARINE LABORATORY

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

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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
J. Evans Gordon, O.B.E., Ph.D.	Establishment of grassland
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
J.C. Holmes	Nitrogen manuring of grassland for beef production Some 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
R.M. MacIver	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
L.S. Cobley	Performance of grass species on different soils
P.C. Harper, Ph.D.	Relation of plant distribution to soil factors
D.S.C. Erskine	Studies on weeds and weed control
A.E.W. Boyd, Ph.D.	Diseases of potato tubers and sugar beet seedlings
J.H. Lennard, Ph.D.	Skin spot disease of potatoes Potato physiology and storage
W.A. Hughes	Club root disease of Brassicae

Agricultural Chemistry.

A.M. Smith, Ph.D., D.Sc. K. Simpson	Soil analysis, responses to fertilizers, radioactive phosphorus; plant nutrition and deficiency diseases; spectrochemical analyses of soils and plants
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 Engineering:

	Facilities are being developed in the new Agricultural building

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. Bruck	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. 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
F. Albert-Recht	Plasma proteins

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.C. Miller (Miss), D.Sc.	Newer methods of analysis for metals
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
F.J.C. Rossotti, D.Phil.	Complex ions in solution
W.B. Brown, M.Sc.	Computation of higher virial coefficients
H.W.W. Ehrlich, Ph.D.	X-ray diffraction studies
R. Foon (Miss), Ph.D.	Gas kinetics: free radicals
A. Miller	X-ray diffraction studies
J.L. Holmes, Ph.D.	Gas phase free radical reactions

Organic:

Professor E.L. Hirst, C.B.E., LL.D., F.R.S. G.O. Aspinall, D.Sc. E.E. Percival (Mrs.), Ph.D. C.T. Greenwood, Ph.D. D.J. Manners, Ph.D. D.M.W. Anderson, Ph.D. J.C.P. Schwarz, Ph.D. M. Rennie (Mrs.), Ph.D. K. Hunt, 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.	Chemistry of aromatic polycyclic compounds and heterocyclic compounds
D. Leaver, Ph.D. J. Smolicz	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

*A.R.C. Staff
†M.R.C. Staff

8. Dental Studies

Professor J. Boyes	Early dental cyst formation
G.B. Hopkin	A study of mesio-occlusion (relative mandibular protrusion) as regards its incidence, diagnosis, aetiology, 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	The analysis of occlusal sounds Developments of impression techniques Investigation of the oral tissues under load
M. Geddes	Strains in acrylic resin
A.R. MacGregor	Facial changes following the loss of anterior teeth
J.N. Mansbridge, Ph.D.	The 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	Bacterial plaque and its relation to periodontal disease

9. Dermatology

Professor G.H. Percival M.D.	Research has continued on pemphigus vegetans A study of cutaneous myxoedema has been completed, and a study of cutaneous reticulosis is continuing in collaboration with the Department of Pathology Work on virology and immunity in verruca vulgaris is about to commence in conjunction with the Department of Bacteriology

10. Engineering

Professor R.N. Arnold, D.Sc., Ph.D.	Dynamics Vibration of beams, plates and shells
G.B Warburton, Ph.D.	Vibration of turbine blades
J.D. Robson, Ph.D.	Buckling of thin tubes in bending
L. Maunder, Sc.D., Ph.D.	Non-linear vibration
A.D.S. Barr, Ph.D.	Gyroscopic instruments
T.D. Patten, Ph.D.	Boiling heat transfer Free convection heat transfer Compact heat exchanger surfaces
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
A.L. Florence, Ph.D.	Thermal stresses around inclusions and cavities Waves in elastic media
Professor W.E.J. Farvis	Glow and arc discharges
C.W. Davidson, Ph.D.	Aerials Noise Ionospheric absorption Pulse code modulation
B. Meltzer, Ph.D.	Electron dynamics Space-charge-limited currents in insulators
H.M. Melvin, Ph.D.	Linear networks Linear analysis
Chemical:	
Professor P.H. Calderbank, Ph.D.	Mass transfer in fluid dispersions

10. Engineering (*continued*)

Chemicals (*continued*)

D.M. Wilson, Ph.D.	Mass transfer in slurry phase and similar systems Studies of surfaces during mass transfer Diffusion measurements
N. Macleod, Ph.D.	Distillation Mass transfer

11. Forensic Medicine

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

12. Forestry

Professor M.L. Anderson, D.Sc.	Study of the history of Scottish forests and forestry
W.A. Fairbairn, D.Sc.	Studies concerned with certain aspects of forest ecology including light measurement and climatic zonations
C.J. Taylor, 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

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.	Heteroploidy in mammals; experiments on mammalian ova
*D.S. Falconer, Ph.D.	Selection in mice
*E.C.R. Reeve, D.Phil	Quantitative inheritance in *Drosophila*
*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

*A.R.C. Staff

†M.R.C. Staff

14. Geography

Professor J.W. Watson, Ph.D.	Urban geography of Canadian Maritimes
Professor J.W. Watson, Ph.D. with R. Jones, Ph.D.	Social areas in Edinburgh
N.R. Elliott, Ph.D.	The development of industrial seaports The interpretation of aerial photographs Political world maps
A. Geddes, Ph.D.	Regional and medical 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 sociology in Hereford The ecology of the British town
J.J. Klawe	Problems of photo-reproduction in atlas cartography Cartographic expression in atlas work Symbols in the post-war atlases Relief representation for young children
D.R. Macgregor	Land use in central Scotland
A. MacPherson	Climate classification and applied climatology Regional geography of Scotland
C.J. Robertson, Ph.D.	Agricultural developments in S.E. Asia Economic geography of Italy Scope and method in economic geography
J.B. Sissons, Ph.D.	Deglaciation of parts of Scotland Subglacial drainage Morphological mapping
R.P. Kirby	Aspects of glacial geomorphology Till-fabric analysis
R.A. Neilson	Pleistocene geomorphology of Scotland and S.W. England Cartographic techniques for land-form analysis

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.	Palaecology Southern Uplands geology Silurian fish faunas of Scotland
P. McL.D. Duff	Petrological study of parts of Centre 1, Ardnamurchan Ore microscopy Cleat in Midlothian 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 Petrofabrics of mylonites Structures in N.E. Scotland
E.L.P. Mercy, Ph.D.	Geochemical studies in Co. Donegal, Ireland, and in 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.	Geology of S.W. Rhum Petrology of Kapalagulu complex, W. Tanganyika
E.K. Walton, Ph.D.	Southern Uplands geology The Lesmahagow inlier Cambrian rocks in N. Wales

15. Geology (*continued*)

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

17. Medicine

Professor K.W. Donald, D.S.C., M.D., D.Sc.	Cardiorespiratory function in health and disease Arterial hypertension, haemodynamic and pharmacological studies
S.H. Taylor	Factors controlling myocardial efficiency and the cardiac output
A. Doig	Circulatory and respiratory behaviour during exercise in health and disease
Professor K.W. Donald, D.S.C., M.D., D.Sc. S.H. Taylor G.R. Sutherland B.S.L. Kidd D.L.S. Hutchison P.C. Robertson D.C. Flenley A. Doig	Studies of the circulation, respiratory mechanics and blood gases in chronic respiratory disease, and acute bronchial asthma Renal haemodynamics
R.H. Girdwood, Ph.D. M.D. with J. Richmond	Clinical and biochemical studies of disorders of the small intestine Metabolic studies concerning vitamins and amino-acids Studies with radioactive iron, chromium and cyanocobalamin The clotting mechanism of the blood
W.I. Card, M.D. with W. Sircus, Ph.D., M.D.	Peptic ulceration Physiology and pathophysiology of gastric and pancreatic secretion Gastroenterology The mechanism of insulin-induced gastric secretion in dogs and humans
R.W.D. Turner, O.B.E. M.D. with M.B. Matthews, M.D.	Haemodynamics of the heart and circulation Assessment of drug treatment for hypertension and radioiodine treatment for ischaemic and anoxic heart disease Value of renal biopsy in hypertension and other diseases
J.A. Strong, M.B.E.	Radioiodine in the study of thyroid disorders Hormones in breast cancer Studies with human growth hormones Studies of intersexes Metabolism in obesity

17. Medicine (*continued*)

J.J.R. Duthie	Series of clinical and laboratory studies in relation to rheumatoid arthritis and other locomotor diseases
J. 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
J.C. Gould, M.D.	Studies on staphylococci
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

20. Neurology

Surgical:

Professor N.M. Dott, C.B.E., F.R.S. and staff	Continued observations on the cerebrospinal 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 stereotaxic 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 with A. Brown	Electroencephalography in elucidation of cerebral function and dysfunction Electroencephalogram alterations during anaesthesia and their interpretation
A.A. Donaldson	Intracranial haemorrhage; review of results of treatment
J. McLelland	Neuro-radiotherapy techniques and follow-up
A. Brown	Investigation into treatment of severe intractable pain, the peripheral pain pathways and chemical means of selectively interrupting these pathways
A. Brown and staff	Investigations concerning management of severe dynamic head injuries: blood oxygenation, temperature control, electrolyte balance, etc.
A.A. Donaldson J.J. Maccabe	Intracranial haemorrhage; review of results of treatment
Professor P.B. Ascroft J.J. Maccabe	Investigation and follow-up of 100 cases of patients in whom radioactive thorotrast was used, covering period from 1933 to present time

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.	Placental function in relation to metabolism, enzyme function and blood supply
P.R. Myerscough	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	
G.P. Mitchell	Congenital dislocation of the hip
D.L. Savill	Prophylactic surgery in rheumatoid arthritis
*R. Tinning	

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
	Endocrine studies
J.O. Forfar, M.D.	Idiopathic hypercalcaemia
	Rhesus incompatibility
T.T.S. Ingram	Cerebral palsy
	Development aphasia
A Lloyd (Mrs.)	Aminoaciduria
J. Thomson, M.D.	Growth of infants

24. Pathology

Professor G.L. Montgomery, Ph.D , M.D	Studies in pathology of arterial disease
R.F. Ogilvie, M.D.	Pancreas: various aspects of experimental diabetes
J.D. McGregor	Tumour pathology
A.D. Bain, M.D.	
A.F.J. Maloney	Neuropathology
A. Wynn Williams, M.D.	Experimental peptic ulceration
A.E. Stuart, M.D., Ph.D.	Response of reticulo-endothelial system in infection
A. Shivas, M.D.	Studies in tumour pathology
M. Robson (Mrs.)	Electron microscopy
D.L. Gardner, M.D.	Experimental hypertension

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

*Empire Rheumatism Council Research Fellow

25. Pharmacology and Therapeutics (*continued*)

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. and	Studies of the nature of the metabolic response to injury Electron microscope studies of the protein-losing kidney
A.T. Lambie (Miss)	Clinical evaluation of the methods used in the treatment of acute renal failure Endocrine factors influencing the renal excretion of water
L.J.P. Duncan	A long-term clinical study in diabetes mellitus
E.A. Harris	Studies on the toxicity of digitalis Studies on problems of respiratory control in changing states of acid base balance
D.A. Seaton	Blood volume studies

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.	Quantum theory of fields Theory of elementary particles
with D.J. Candlin, Ph.D.	General relativity
P.W. Higgs, Ph.D.	
G.R. Screaton, Ph.D.	

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.	Clinical neurophysiology; special senses
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
K.B. Roberts, D.Phil	Foetal and adult haemoglobins of mice and men
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

28. Psychiatry

F.J. Fish (Acting Head of Department)	Syndromes of thought disorder and perceptual change in schizophrenia
	A long-term follow-up of paranoid states
	Perceptual changes in schizophrenia and depression and their response to drugs
A.D. Forrest, M.D. P.G. Fawcett	A regional trial of perchlorperazine
I. Oswald, M.D.	Treatment of fetishism
	Relation between sleep, perceptual isolation and awareness
	Electroencephalogram studies of insomnia
J. Drewery	Validation of experimental procedures for the measurement of drive level and levels of aspiration
	Experimental investigation into the use of the reinforcement theory of learning as a method of treatment of monosymptomatic phobias
J. Drewery E L.R. Macpherson F.M. Macpherson	Speed of conditioning in recidivists as an indication of their suitability for re-training

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
	Development of visual perception in children
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
D. Cameron with G.D. Forwell Ph.D.	Epidemiology of epilepsy and diabetes
with 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)
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)	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
I.S.R. Sinclair	Studies on the pancreas
A.N. Smith	Measurement of intestinal motility and pressure
J.W.W. Thomson	Local perfusion and chemotherapy in malignant disease
A.V. Foote	Histamine and gastric secretion

32. Surgery (*continued*)

Clinical (*continued*)

J.R. Cameron	Clinical studies on malignant melanoma
A.I.S. Macpherson	Arterial replacement Clinical research on portal hypertension and diseases of the spleen
C.W.A. Falconer	Hormonal aspect of breast cancer Clinical studies on ulcerative colitis Chemotherapy of cancer
A. Logan	Clinical studies on mitral stenosis
A.B. Wallace and	Accident prevention
A.B. Sutherland (Miss)	Nutritional problems in surgical patients
J D. Robertson, M.D.	Efficiency of new anaesthetic agents Analgesia in labour
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 Urinary glucuronidase in bladder cancer
G.F. Murnaghan	Haemodynamics of urinary tract

WILKIE LABORATORY FOR SURGICAL RESEARCH:

Professor M.F.A. Woodruff, M.D. D. Michie, D.Phil J.G. Howard, Ph.D., M.D. B. Nolan	Transplantation of tissues and organs; problems relating to immunological tolerance and storage of tissues and organs
D. Wade	Cardiopulmonary by-pass research. Hypothermia
G.F. Murnaghan	Dynamic and pathological studies after uretero-intestinal anastomosis Autoradiography of the hydronephrotic kidney

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	The 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 Histological changes in the skin during the phases of the sexual cycle
W.M. Stokoe, Ph.D.	The development course, structure, and functional significance of the adrenal gland of the sheep
P.H. Hutton	A comparative study of the regional distribution of blood vessels in domesticated animals

Veterinary Hygiene and Preventive Medicine:

Professor A. Robertson, Ph.D., F.R.S.E.	Metabolic diseases of ruminants
G.S. Ferguson	Bovine brucellosis and mastitis
H. Paver, Ph.D.	Digestion in herbivores

34. Veterinary Studies (*continued*)

Veterinary Hygiene and Preventive Medicine (*continued*)

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	Intermediary metabolism in the ruminant

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.D. McTaggart	Parasites of mink
	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
R. Burrows	Tissue cultures: general study of animal viruses
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
	Studies on anaesthesia in domestic animals

Veterinary Physiology:

F.J. Elliott, Ph.D. F.R.S.E.	Electrocardiographic investigations on domestic animals
H. Lundy	Studies on stretch receptors
J. Lamb	Intracellular recording from cardiac cells

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	Replica techniques in electron microscopy. Structure of viruses
B.C. Clarke	Population genetics. Nucleocytoplasmic relations in *Acetabularia*
D.W. Dresser	Immunological mechanisms
M.J.W. Faed, Ph.D.	Interrelation of cell division and growth

35. Zoology (*continued*)

G.F. Friend	Speciation of salmonid fish; ecoligical, morphometric and parasitological studies
L.J. Hale, Ph.D.	The activities of cells during morphogenesis, with particular reference to the hydroids
B.M. Jones, D.Sc.	Growth and behaviour of cells *in vivo* and *in vitro*
D.S. Kettle, D.Sc.	Bionomics and control of biting midges, *Culicoides*
R.A. Kille, Ph.D.	Fertilization
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* Biochemical cytology of micro-organisms and tissue cells
P.D. Mitchell, Ph.D.	Control of cell behaviour by spatial organization of enzymes in membranes
J.M. Mitchison, Ph.D.	Cell growth
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 in membranes
C. Rayski, Ph.D.	Helminths and protozoa in domestic animals
D.S. Saunders, Ph.D.	Ovulation cycles in blowflies and tsetse flies Fat-body metabolism in tsetse flies
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.	Cytochemistry of nucleic acids
T. Warwick	Hydrobiid snails, freshwater leeches, spawning habits of frogs and toads
P.A.G. Wilson, Ph.D.	Hatching mechanism, egg membrane chemistry and permeability, and larval nutrition of trichostrongyle nematodes

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1. Astronomy

NORMAN LOCKYER OBSERVATORY

D.R. Barber (Superintendent)	Colour temperatures of early type stars Emission line stars Emission-absorption pattern of the twilight sodium airglow

2. Botany

Professor J. Caldwell, D.Sc., Ph.D. J. Wilkinson, Ph.D. S.M. Robb (Miss)	Virus diseases in plants; associated nuclear aberrations; the nature of the virus; movement and general physiology
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

3. 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.	

4. Chemistry

Professor H.N. Rydon, D.Sc., Ph.D., D. Phil.	Chemistry of polypeptides
S.J. Gregg, D.Sc., Ph.D.	Surface chemistry: properties of adsorbed films on solids Study of active solids, including carbon High-temperature oxidation of metals
K. Schofield, D.Sc., Ph.D.	Chemistry of nitrogen heteroaromatic systems Stereochemistry of reduced cyclic bases Naturally occurring quinones Chemistry of tropolones
L.H. Long, Ph.D.	Heats of formation Bond and valence-state energies Volatile boron compounds Kinetics of thermal decomposition of metal alkyls
J.S. Whitehurst, Ph.D.	Stereochemistry of alicyclic ketones Chemistry of steroids
E. Bishop	Physical, electrical and instrumental methods of analysis; titrimetric inorganic analysis
S.F. Mason, D.Phil.	Ultra-violet and infra-red spectra; kinetic and ionization constants
R.J. Williams, Ph.D.	Photochemistry of inorganic complex ions
G. Read, Ph.D.	Chemistry of quinones

5. Geography

Professor A. Davies	The discovery of America Portuguese African exploration Historical cartography of the 15th and 16th centuries
A.H. Shorter, Ph.D.	Historical geography of the paper-making industry in the British Isles Field patterns in England Historical geography of S.W. England
E. Patterson (Mrs.), Ph.D.	Politico-geographical aspects of the government in the British Commonwealth 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.	Microclimatic measurements in standing crops for determination of heat balance Measurements for the determination of the heat balance of the human body

6. Geology

Professor S. Simpson	Stratigraphy and structure of areas in N. Devon and W. Somerset Stratigraphy and structure of country between Dartmoor and Bodmin Moor Trace fossils

6. Geology (*continued*)

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 and palaeontology of the Upper Devonian and Carboniferous rocks of N. Cornwall

7. 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, D.Sc., Ph.D.	Statistical mechanics; flame theory

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

8. Physics

Professor G.K.T. Conn, Ph.D.	Measurement of optical constants of metals and semiconductors in the infra-red region
J.E. Cousins	Mechanism of conduction in metals and semi-conductors
N.A. Portman	Behaviour of solids at microwave frequencies
K.E. Grew, Ph.D., D.Sc.	Thermal diffusion of gases
G.F. Lothian	Scattering of optical radiations by small particles
	Raman spectroscopy
	Examination of phototropic materials
F.C. Flack, Ph.D.	Spectroscopy and angular correlation of β- and γ-rays
W.G.V. Rosser, Ph.D.	Spectroscopy of β- and γ-rays
	Studies in internal Bremsstrahlung
R. Jakeways	Spectroscopy of β- and γ-rays
K.E. Weekes, Ph.D.	Geophysics, with particular reference to the study of the upper atmosphere
J.R. Drabble, Ph.D.	Solid state physics
	Electrical characteristics of high impedance systems

9. 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

10. 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

10. Zoology (*continued*)

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

11 Glasgow University

1. Agriculture

Agricultural Botany:

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*

Agricultural Chemistry:

W.R. Rees, Ph.D.	Plant biochemistry

Agricultural Zoology: See **Zoology**, *Agricultural 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
R.J. Fallon, M.D.	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.	
J. Mackenzie (Miss)	
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, Ph.D.	Estimation of glycocyamine and its application in the study of renal disease
A.E. Cameron (Mrs.)	Studies of purine compounds in body fluids
D.M. Goldberg, Ph.D.	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: Devonian, Tertiary angiosperms: leaf architecture; ontogeny of stomata
M.W. Dick, Ph.D.	Mycology (Saprolegniaceae)

7. Chemistry

Professor J.M. Robertson, D.Sc., F.R.S.	
Professor R.A. Raphael, D.Sc.	
Inorganic:	
J.A. Mair, Ph.D.	Investigation of 10- and 11- heteropolytungstic acids with metallic central atoms and their molybdenum analogues
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. R. Hodges, Ph.D.	Reactions involving sulphur extrusion
G. Eglinton, Ph.D.	Seven-membered ring compounds
C. Buchanan, Ph.D.	Stereochemical 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. W. Parker, Ph.D.	Mass spectrometry of organic compounds

Physical:

Professor J.M. Robertson, D.Sc., F.R.S. J.C. Speakman, D.Sc. G.A. Sim, Ph.D. T.A. Hamor, 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.	High polymer kinetics
J. Bell, D.Sc. S.J. Thomson, Ph.D. I.M. Hoodless, Ph.D. R.I. Reed, Ph.D.	Chemical studies using stable and radioactive isotopes; mass spectrometry
J.C. Speakman, D.Sc. G.H. Nancollas, Ph.D. H.S. Dunsmore (Miss), Ph.D.	Electrochemistry, including the use of potentiometric, conductivity, solubility and polarographic methods
E. Gelles, D.Phil.	Mechanism of chemical reactions
G. Eglinton, Ph.D.	Infra-red spectroscopy
A.L. Porte, Ph.D.	Nuclear magnetic resonance studies
K.D. Warren, Ph.D.	Thermodynamic studies of hydrogen bonding in solution
A.G. Cairns Smith, Ph.D.	Proton transfer reactions

8. Dental Studies

Professor J. Aitchison	Study of sex differences in human teeth Epipteric bones Hypertelorism and associated dental anomalies
with J. Houston	Effect of premature birth on the dental tissues

8. Dental Studies (*continued*)

Professor J. Aitchison A. Carmichael	Association of dental caries as pathological conditions of gums with blood groups
J. Campbell, Ph.D.	Trigeminal neuralgia and temporo-mandibular joint syndromes
C.K. McNeil, Ph.D.	Non-surgical closure of cleft palates
J. Ireland	Pathology of dental pulps
J. Ireland	Pathology of fluorosis in rodent teeth. Pathology of osteolathyrism in rodents
G.D.C. Kennedy J.S. Kennedy	Experimental caries in rodents
G.S. Nixon, Ph.D.	Radioactive investigation of effect of materials on dental tissues
G.S. Nixon, Ph.D. L.G. Bruce	Bacteriology of dental instruments
G.S. Nixon, Ph.D. Hamilton Smith, Ph.D.	Activation analysis for trace elements in teeth
G.S. Nixon, Ph.D. J.M.A. Lenihan, Ph.D. (Physics Department)	Audiometric survey on dental high speed drills
G.D.C. Kennedy J.S. Kennedy	Study of the mechanism of calcification of the dental tissues
H. Clark, Ph.D.	Radiation hazards in dental radiography
H.W. Noble	Innervation of dental tissues
D.A. Lunt (Miss)	Study of prehistoric and early mediaeval Scottish skulls

9. Dermatology — No information

10. Engineering

Aeronautics and Fluid Mechanics:

Professor W.J. Duncan, C.B.E., F.R.S.	The general theory of the response of systems
A.S. Thom, Ph.D.	Kinematics
A.W. Babister, Ph.D.	Theory of oscillations
T.H. Cain	Theory of stability
P.H. Tanner	Fundamentals of fluid mechanics
H.H.Y. Wong F.H. Kelling	Thermodynamic method of determining the efficiency of hydraulic machines Cavitation in centrifugal pumps Reabsorption of cavitation nuclei Influence of entrained water on vibration of ships Measurement of aerodynamic derivatives Heat transfer in joints

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 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

10. Engineering (*continued*)

Electrical:

Professor B. Hague	Bridge methods of alternating current measurement
A.J. Small, Ph.D.	Measurement of small temperature differences
D.S. Gordon, Ph.D.	Instrument transformers
T.R. Foord, Ph.D. J.H. Shankland	Electrical measurement and recording of mechanical vibrations
P.A.V. Thomas	Electrical breakdown in compressed gases
J.H. Collins O.K. Gashus, Ph.D.	Design of small surge generators and Van de Graaff machines
R.C. Langlands	Theory of a.c. commutator motor Harmonic generation in induction machines Parametric theory of electrical circuits and machines Servomechanisms Unbalanced magnetic fields in electrical machines Microwave aerials and measurements Ferromagnetic amplifiers Digital and analogue computers

Mechanical.

Professor J. Small, D.Sc. E.A. Bruges, Ph.D.	The construction of an experimental supercritical steam generator, and associated development research
B.E.L. Deckker, Ph.D.	Thermodynamic properties of high pressure steam
W.W. Mackie	Measurements on viscosity of steam
W.L. Taylor N.R.L. Maccallum, Ph.D.	The measurement of oxygen and the behaviour of hydrazine in boiler feedwater Stress corrosion phenomena
S.K. Nisbet	Behaviour of materials in high temperature steam Combustion time experiments Forced flame vibrations Self-excited flame vibrations Flame spreading in high speed gas streams Flame structure Second law analyses

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.	Flow through hydraulic and pneumatic control valves
D. Morrison, Ph.D.	Metal cutting and shearing
J.S. Corry	Lubrication and oil-film whirl
W. Ross	Vibration Training in engineering design

Mining:

Professor G. Hibberd	Resistance to air flow in mine shafts and roadways
A.W.K. Stewart	Dust suppression
F.P. Gardner	Subsidence: transference of ground stress to surface structures
R. Stewart	Shock waves in ventilation circuits
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.	Research in the application of scientific methods to criminal investigation
J.A. Imrie, M.D.	
E. Rentoul, M.B.E.	
Hamilton Smith, Ph.D.	

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 of human cell cultures
J.H. Renwick, Ph.D.	Protein variation in human cell cultures
J.S. Gale	Genetics of *Aspergillus nidulans*
B.L. Cohen	Genetics of mouse haemoglobins

13. Geography

Professor R. Miller, Ph.D.	Africa: especially Nigeria
	Scotland
H. Fairhurst, Ph.D.	Early settlement of Clyde basin
H.A. Moiseley	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
J. Weir, D.Sc., Ph.D.	Carboniferous non-marine molluscs
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
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

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
S.D. Silvey, Ph.D.	Mathematical statistics
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	Applications of computers to problems in pure mathematics
J. Leech	Theory of automata

17. Medicine

ROYAL INFIRMARY

Professor L.J. Davis, M.D.	Various problems in clinical haematology
E.M. McGirr, M.D.	Application of radioactive isotopes in the study of thyroid disorders and blood diseases
T. McEwan, M.D.	Respiratory diseases
A.S. Douglas, M.D.	Haemophilia and other disorders of blood coagulation
A.C. Kennedy, M.D.	Renal diseases

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 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**

18. Microbiology (*continued*)

*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 Continuous sphygmomanometry Foetal cephalometry *in utero* by ultrasonic echo sounding
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 S.G. Graham	Fat balances in coeliac disease and fibrocystic disease of the pancreas Calcium balances in hypercalcaemia
J.H. Hutchison, O.B.E.	Radioactive iodine in goitrous children
R.A. Shanks	Electroencephalography in infantile febrile convulsions
J.O. Craig	Somatotyping in children
A.M. MacDonald	Nephrocalcinosis
F.H. Stone	Effects of hospitalization on children of varying ages
G.C. Arneil	Studies in nephrosis: long-term results
H.E. Wilson	Studies on congenital heart disease
E.N. Coleman	Electrocardiographic changes in electrolyte disturbances

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
I.A. Carr	The electron microscopy of the human adrenal cortex
G. Studzinski	The effect of ACTH on the dehydrogenase enzyme systems of the pentose phosphate and Krebs' cycles

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

22. Pathology (*continued*)

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 HT in pathological mechanisms Haematological disorders
B. Lennox, M.D.	Skin tumours (histopathology and carcinogenesis) Nuclear sexing Human chromosomal abnormalities
J.R. Anderson, M.D.	Red cell and tissue antigens and antibodies Experimental erythroblastosis foetalis Auto-immunization
G.B.S. Roberts, M.D.	Pathology of infectious diseases in childhood Fibrocystic disease of the pancreas
A.T. Sandison, M.D.	Pathology of the mamma Pituitary ablation for carcinoma
J.A. Milne	Histopathology of the skin
A.J. Watson, M.D.	Experimental fat embolism Mesenchymomata Ulcerative colitis
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

23. Pharmacology and Therapeutics

Professor S. Alstead, C.B.E., M.D.	
J.G. Macarthur	Clinical application of hypotensive drugs
W.F.M. Fulton	Clinical and pathological inquiry into coronary artery disease
T.J. Thomson	Study of gastric function in health and disease
B.R. Hillis, M.D.	Physical properties of respiratory tract fluid
G. Parker Lewis	Studies in haemoglobin catabolism
G. Onuaguluchi	The natural history and pharmacological aspects of post-encephalitic Parkinsonism
Experimental:	
Professor R.C. Garry (Department of Physiology)	
J.J. Lewis	Studies on the mode of action of muscle relaxants, anti-psychotics and antidepressives
J.J. Lewis	Influence of inter-onium distance on curariform activity
with F. Stothers (Mrs.)	Influence of alkyl group size on curariform activity
F.M. Carey, (Miss)	Influence of the ether function on curariform activity
T. Muir	Influence of antipsychotics and antidepressives on brain enzyme systems
G.R. Van Petten	Mode of action of muscle relaxants
B. Mir (Mrs.)	Influence of membrane-active drugs on curariform activity

23. Pharmocology and Therapeutics (*continued*)

Experimental (*continued*)

with K. Ahmad	Influence of the ether function on curariform activity
S. Nanjappa	Mode of action of 5-hydroxytryptamine analogues
J.R.C. Baird	Influence of antipsychotics and antidepressives on metabolic processes in the brain
M. Martin-Smith, Ph.D. with I. Brown	Rational approaches to drug synthesis
M. Alauddin	Preparation of rigid poly-quaternary ammonium salts for curare-like properties and the utilization of the saponins of *Acokanthera longiflora*
T. Khatoom	Terpenoids as starting materials for the synthesis of drugs

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. W.S.C. Williams, 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.E. Azuma, 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
P.V. March, 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
R.G. Moorhouse, Ph.D. B.H. Bransden, Ph.D. E.W. Laing, Ph.D.	Theory of nuclei and mesons
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
P. Baillie	Central and peripheral control of food and water intake in rats
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

25. Physiology (*continued*)

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.G. 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
J.K. Todd	Nervous control of pelvic viscera

26. Psychiatry

Professor T.F. Rodger	Survey of psychiatric illnesses in general practice Preventive psychiatry and its implications for public health
F. Stone, M.D.	Infantile autism Psychopathology of the brain-damaged child
R.M. Mowbray, Ph.D.	Psychophysiological implications of arousal mechanisms Recovery of consciousness after electroconvulsive therapy Huntington's chorea
I.M. Ingram, M.D.	The effects of drugs on arousal mechanisms
G.C. Timbury	Psychiatric aspects of hyperthyroidism
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.	Psychological problems of cultural change in Ghana Development of the perception of social differences in children "Animistic" thinking
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

28. Surgery (*continued*)

ROYAL INFIRMARY

Professor W.A. Mackey with W.H. Bain	Clinical research in the surgery of the cardiovascular system
A.M. Harper	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, Ch.M.	The therapy of acute pancreatitis Clinical trial of therapeutic drugs in acute pancreatitis
C. Miller	Regional perfusion with cytotoxic agents
A.C. Forrester (Department of Anaesthetics)	Research in hypothermia using air cooling with particular reference to the accurate production of body temperature
D. Campbell (Department of Anaesthetics)	Research into the effects on the cardiovascular and respiratory systems of a new patient-triggered ventilator

WESTERN INFIRMARY

Professor C.F.W. Illingworth, C.B.E., M.D. G. Smith, M.B.E., M.D. assisted by I.M. Ledingham G.R. Sharp	Researches on cardiovascular surgery; studies of effect of high-pressure oxygen on experimental coronary artery occlusion. Clinical and experimental observations 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 D.L. Glen H.J. Stewart (Miss) A.W. Sim	Hormonal approach to breast cancer—destruction of the pituitary by radioactive implants; adrenal physiology; tests of adrenal and pituitary function; electron microscopy of breast cancer; use of chemotherapeutic agents; isolation of cancer cells in peripheral blood Studies in gastric secretion: effect of antihistamines, atropine, adrenal inhibitors; physiology of the pyloric antrum
W. Burnett assisted by C. Gordon (Miss)	Studies of liver and bile duct function; cholangiography; formation of gallstones. Experimental shock. Gastric cytology. Seromucoprotein estimations in breast cancer
H.L. Duthie	Studies of post-gastrectomy syndrome changes in blood volume; iron absorption; small bowel absorption and motility
A.W. Sim	Urinary ketosteroid and oestrogen estimations in breast cancer

29. Veterinary Studies

Professor W.L. Weipers W.F.H. Jarrett, Ph.D. F.W. Jennings W.I.M. McIntyre, Ph.D. W. Mulligan, Ph.D. G.N. Urquhart, Ph.D. N.C. Craig Sharp H. Hein (Miss) H. Pirie	Pathological and immunological studies on helminth and protozoal diseases, in particular vaccination by irradiated infective larvae
F.W. Jennings W. Mulligan, Ph.D. I.D. Aitken	Immunological tolerance in the domestic fowl to simple protein antigens. Antibody production in the domestic fowl to simple protein and chemically altered protein antigens. Immunological studies on helminth infections of very young animals

29. Veterinary Studies (*continued*)

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	Comparative studies of the accessary reproductive organs of the male from the point of view of histology, histochemistry and ontogeny
L. Kellas, Ph.D.	Comparative placentation with reference to domestic and wild ruminants. Globule leukocytes and reproductive tract
R.S. Anderson E. Pickering	Renal control of acid-base regulation in the dairy cow
W.I.M. McIntyre, Ph.D. R.G. Dalton E.W. Fisher	Factors affecting absorption of water and electrolytes
H. Pirie W.F.H. Jarrett, Ph.D.	Pathology of pneumonia in pigs
W.A. Greig, Ph.D.	Aetiology and treatment of bovine ketosis. Toxicity of vitamin D in cattle. Mineral inter-relationships in the diet of fattening pigs. Ataxia in lambs
E.W. Fisher R.G. Dalton	Cardiac output in cows and horses
E.W. Fisher	Further haemodynamic 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 W.F.H. Jarrett, Ph.D. W.I.M. McIntyre, Ph.D.	Calf diarrhoea, an electrolyte and bacteriological study
E.M. Harper Professor W.L. Weipers	Intestinal obstruction in the dog
D.D. Lawson G.S. Nixon, Ph.D. H.W. Noble	Correlation of clinical, radiographic and pathological features of dental disease in the dog
D.D. Lawson P. Leahy (Miss)	Veterinary radiology
D.D. Lawson G. Smith, M.B.E.	Studies on effects of various O_2, CO_2 mixtures and experimental carbon monoxide poisoning in dogs. Effect of high-pressure oxygen in acute coronary occlusion in the dog. Effects of high-pressure oxygen in experimental carbon monoxide poisoning in the dog
I.M. Lauder J.G. O'Sullivan	Dermatomycosis in animals
S. Jennings	Study of twinning mares. Study of bovine ovarian cystic degeneration
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	Studies on tranquilizing of horses. Development of closed circuit anaesthesia in horses and farm animals
D.D. Lawson T.A. Douglas, Ph.D.	Studies in use of bovine serum albumin as plasma expander in dogs
T.A. Douglas, Ph.D.	Veterinary aspects of clinical biochemistry

29. Veterinary Studies (*continued*)

T.A. Douglas, Ph.D. P.G. Hignett	Studies in pregnancy toxaemia
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. The distribution of histamine in sheep and cattle. The mode of action of analeptics
F.E.F. Lindsay (Mrs.)	Radiographic anatomy (veterinary)

Animal Husbandry and Veterinary Preventive Medicine:

Professor J.S.S. Inglis P.J. Pearce	Studies on pregnancy toxaemia in sheep and ketosis in dairy cattle
M. Weipers (Mrs.)	Hypomagnesaemia in sheep
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
R.G. Hemingway	Studies in hypomagnesaemia
N.S. Ritchie	Effects of fertilizers on the mineral composition of farm crops and their association with mineral deficiencies in livestock

Pathology:

Professor J.W. Emslie J.G. O'Sullivan	Dermatomycosis
R.S.F. Campbell T.D.V. Lawrie, M.D.	Experimental atherosclerosis of poultry, with special reference to treatment
R.S.F. Campbell	Study of neuropathology 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
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	A study of feline pneumonitis
J.T. Vantsis, Ph.D.	A study of natural and experimental toxoplasmosis The isolation and identification of animal viruses by the method 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, Ph.D.	Ecology and physiology of non-marine Mollusca

30. Zoology (*continued*)

J.W.H. Lawson, Ph.D.	Insect behaviour
G. Hoyle, D.Sc.	Excitation/contraction coupling in muscle Neurological mechanisms in 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.	Insect ecology

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Royal College of Science and Technology

1. Building Studies

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

2. Chemistry

Professor P.L. Pauson

Inorganic:

A.B. Crawford, Ph.D.	Reaction of metal salts with semicarbazides
W.A. Alexander	Interaction of nitrite with sulphites and selenites
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. McNall	Irradiation phenomena
J.T. Pender A. Douglas	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. P.L.V. Pomella	Electronics: Synchronization of oscillatory systems Transient response of servomechanisms Effect of non-linear torque in servomotors Servomechanisms with backlash Sampling servomechanisms
W.S. Wood	Machines: 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	Field studies of density non-homogeneity effects
A.M. Laird	Soil mechanics:
H.L. McBroom	Behaviour of granular materials
C.M. Moir	Behaviour of clay soils under consolidation pressure
R.M. Kenedi	Behaviour of clay soils under shear
W. Ferguson	Cement and concrete:
G.V. Stabler	Effect of curing conditions on concrete strengths
W.B. McHutchison	The rheology of fresh concrete
R. Hendry	Testing of concrete: effect of various factors on indicated strength
D.B. Swinbanks	
J.F.T. MacLaren	The pressure of concrete on formwork
R.G. Tudhope	Traffic engineering:
D.G. McKinlay	Capacity studies
J.M. Harvey	Intersection design
R. White	Water tube boilers:
T. Allan	Natural circulation in water tube boilers
A. Dykes and others	Heat transfer: Refrigeration compressor cylinders Hypothermia Extended cooling surfaces Single fin effects General thermodynamics: Nozzle erosion Thermodynamic steam trap Free-piston compressor Nuclear power engineering
Professor A.S.T. Thomson Professor A.W. Scott	Fluids: Impulse turbine development Performance of ventilator heads

3. Engineering (*continued*)

Mechanical, Civil and Chemical (*continued*)

Professor W. Frazer	Lubrication:
Professor J.C. Orkney	Varying loads on sleeve bearings
A.M. Laird	Bearing metal failure
H.L. McBroom	Strength and durability of gear teeth
C.M. Moir	Materials and structures:
R.M. Kenedi	Built-up engine crankshafts
W. Ferguson	Fatigue tests on studs
G.V. Stabler	Load carrying capacity of thin walled structures
W.B. McHutchison	Stress and stability investigation of thin steel shells
R. Hendry	Dynamic effects in crane structures
D.B. Swinbanks	Load carrying capacity of roof decking
J.F.T. MacLaren	Concrete slab and shell structures
R.G. Tudhope	Progress of yield in thick steel cylinders
D.G.McKinlay	Collapse conditions in model rigid frames
J.M. Harvey	Technical dynamics:
R. White	Transient vibrations
T. Allan	Shaft whirling
A. Dykes and others	Gyroscope nutation
	Process control
	Production engineering:
	Investigation of honing characteristics
	Metrology
	Work measurement
	Chemical engineering:
	Disc atomizers
	Transients in heat transfer
	Mixing
	Boiling heat transfer

Naval Architecture:

I.C. Bridge (Head of Department)	Design of 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

5. Mathematics

Professor D.C. Pack, D.Sc.	Theory of viscous and inviscid jets
	Hodograph methods in transonic flow
L.J. Crane, Ph.D.	Initiation of explosions
J.B. Helliwell, Ph.D.	
J.L. Smyrl, Ph.D.	
F.J. Warner	
D.G. Weir	
R.D. Lord	The application of Hankel transforms
B. Noble	Integral equations
C.C. Bartlett	Numerical methods for boundary-value problems
W.W. Muir, Ph.D.	Diffraction theory
S.B.L. Wilson	
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 slags 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
D.B. Downie	Thermodynamic properties of alloys
D.J. Fabian, Ph.D.	Soft X-ray spectroscopy

7. Microbiology

Applied:

E.O. Morris, Ph.D.	Acetic acid bacteria 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
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.P. Todd, Ph.D.	Bacterial polysaccharides, isolation and examination
D.H.O. Gemmell	Percutaneous absorption of medicaments
J.L. Paterson	Pharmacological effects of bacterial lipopolysaccharides
F. Fish, Ph.D.	Pharmacognostical and chemical studies on *Leontice leontopetalum* and on some plants of the Apocynaceae The effect of giberellic acid on the growth and alkaloidal content of *Datura stramonium*
J.B. Stenlake, Ph.D.	Chemotherapeutic compounds for tuberculosis Active principles of crude drugs The physical properties of piperidine derivatives related to ergot alkaloids Organo-selenium compounds Neuromuscular blocking agents
P.H. Elworthy, Ph.D.	Physical chemistry of phosphatides Non-ionic surface active agents

9. Physics

Professor J.S. Rankin	
J.W. Sharpe	Electron microscopy
L. Jacob, D.Sc.	Field emission microscopy Semi-conductors Electron-optical lens modulators

9. Physics (*continued*)

A.S.V. McKenzie	Acoustics
A.S. McLaren	Photoelasticity
L.G. Griffiths, Ph.D.	Cavitation
C. Weaver	Thin films: optical, electrical and dielectric properties; intermetallic reactions; adhesion Diffusion in solids
T.S. Wylie	Radiography and X-ray 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
C.H. Giles, D.Sc.	Mechanism of fading of dyestuffs Mode of attachment of dyestuffs to natural and synthetic substrates
W. Gibb, Ph.D.	Physicochemical studies on airborne dusts. Atmospheric pollution Froth flotation. Deterioration of lubricating oils
R.G. Gardner, Ph.D.	Mass transfer studies in packed absorption columns Performance of plates in distillation columns
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
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

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1. Botany

Professor N.F. Robertson, Ph.D.	Fungi: morphogenetic problems Plant pathology: analysis of pathogenicity
B.T. Cromwell, Ph.D.	The nitrogen metabolism of plants, especially the biosynthesis of alkaloids
D.J. Boatman, Ph.D.	Plant ecology, especially physiological aspects
A.J. Peel, Ph.D.	Plant physiology: transport of organic solutes
J. Friend, Ph.D.	Biochemistry of carotenoids and of photosynthesis
D.H. Morgan	Genetics of fungi

2. Chemistry

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

2. Chemistry *(continued)*

C.C. Barker, Ph.D.	Absorption spectra and stereochemistry of hindered di- and tri-phenylmethane dyes The formation of polycyclic aromatic hydrocarbons by cyclodehydrogenation reactions
J. Biggs, Ph.D.	Synthesis and properties of pharmacologically active substances
G C. Bond, Ph.D.	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
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 Aspects of historical geography of the British Isles
G. de Boer	Geomorphology of the Yorkshire Wolds Development of cirques and troughs Coastal geomorphology of Holderness
A. Harris with J.H. Appleton	Aspects of historical geography of the British Isles The development of coastal resorts in N.W. England, with particular reference to Cumberland, Westmorland and N. Lancashire

3. Geography *(continued)*

D.P. Brachi	Coastal geomorphology of Holderness (particularly wind and wave action) Precipitation and hydrological investigations in E. Yorks. 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
L.R. Latham (Miss)	Mining landscapes Aspects of the regional geography of Yugoslavia
A. Lathbury (Miss)	Coastal geomorphology of Holderness

4. Geology

L.F. Penny	Pleistocene deposits of E. Yorkshire
J.W. Neale	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 Fells
M.A.J. Piaseckı	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 G.C. Steward, Sc.D., D.Sc.	Kinematics and mechanisms
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. S. Sankaran	Functional analysis
R. Shaw, Ph.D.	Quantum field theory
J.E. Wallington, Ph.D.	Algebraic geometry
M.B. Zarrop	Magnetohydrodynamics

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
E.R. Trueman	Studies in the lamellibranch shell
N.W. Nowell, Ph.D.	The control of pituitary hormone secretion in mammals
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

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1. Agriculture

Professor T.L. Bywater	
Professor J. McGregor	Cattle: study of milk and meat production in a Red Poll
T.G. Boaz, M.B.E.	herd; appetite in the dairy cow
R. Holliday	Sheep: breeding from ewe lambs; winter feeding of sheep
J. Dalley	on silage; intensive grassland fat lamb production
D.R. Hodgson	Pigs: nutrition of the pregnant sow; significance of growth
J.R. Proud	rate and body composition of the young bacon pig
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
	Restoration of land covered with ash from pulverized fuel furnaces
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.M. Turner (Miss)	Seed-borne diseases
M.J. Wren (Miss)	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
A.G. Jeffrey	farming systems in Yorkshire
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
I.G. Simpson	century

1. Agriculture (*continued*)

Agricultural Economics (*continued*)

A.J. Wynne	A statistical study of the determinants of management
E.M. Wright (Miss)	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	Germination, sporulation and metabolic requirements of aerobic bacilli
A.N. Barker, Ph.D.	Physiology, distribution and classification of thermophilic bacteria
	Antigenic structure of aerobic and anaerobic spore-forming bacteria

Agricultural Zoology

N.H.E. Gibson, Ph.D.	The effects 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 buthalitone sodium in dental anaesthesia
	Investigation of fluothane in dental anaesthesia
J.J.L Ablett	Scope of therapeutic blocks with local anaesthetics
	Problems in the treatment of tetanus

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 bacteria 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 ultra-centrifuge
	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
R.B. Cain, Ph.D.	Microbial metabolism of nitro- and halogeno-aromatic compounds in relation to effluent detoxication

5. Biomolecular Structure

Professor W.T. Astbury, Sc.D., D.Sc., F.R.S. I. MacArthur, Ph.D. K.M. Rudall, Ph.D. D.Sc. E. Beighton, Ph.D. A. Millard K.D. Parker, Ph.D. F.G.E. Pautard, Ph.D. G.N. Graham, Ph.D. W.E. Seeds, Ph.D.	Studies, by X-ray diffraction, electron microscopy, infrared spectroscopy, and supporting physicochemical and chemical analytical techniques, of the structure of biological tissues and macromolecules

6. Botany

Professor I. Manton (Miss), D.Sc.	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 Salt 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.	Ecology and pollen analysis
G.F. Leedale, Ph.D.	Cytology and electron microscopy of the Euglenophyta Radiobiology of flagellates and algae Cytology of *Chrysochromulina* ssp.
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 Azoic dyes from substituted alkylanilines Cellulose acetate and nylon dyes from 2-alkyl anthraquinones
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
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:

N.H. Hartshorne, Ph.D.	Chemical microscopy Kinetics of polymorphic transformations in molecular solids
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

Organic:

Professor B. Lythgoe, F.R.S. D.I. Davies, Ph.D. W. Rigby, Ph.D. J.E. Saxton, D.Phil. A F. Thomas, 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.	Mechanism of the nitrosation and related reactions
S. Trippett, Ph.D.	Chemistry of organo-phosphorus 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
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

7. Chemistry (*continued*)

Physical (*continued*)

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

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)	Auto-immune reactions in the skin
S.T. Anning	Arterial ulceration of the legs
C.J.P. LaTouche	Studies in pathogenic fungi
A. Charles	Electron microscope studies in skin diseases
A. MacLennan	Studies in epidermal metabolism in relation to psoriasis
N.R. Rowell	Systemic manifestations of chronic discoid lupus erythematosus Studies in systemic sclerosis Excretion of 5-hydroxyindole acetic acid in rosacea and menopausal women
G.K. Hargreaves	Investigation into the treatment of fungus infection of the nails

10. Engineering

Chemical:

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor G.G. Haselden	Heat transfer:
K.L. Butcher F.H. Cass	Nature of boundary sub-layers in fluid flow accompanied by heat transfer Condensation of binary vapour mixtures Convection within thermal insulations

10. Engineering (*continued*)

Chemical (*continued*)

Professor G.G. Haselden	Distillation:
K.L. Butler	Efficiency of distillation trays as a function of the properties of the fluids (binary and ternary)
F.H. Cass	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 liquified natural gas
	Sulphation of alpha olefins. Energetics and kinetics
	Transient response in liquid-liquid extraction systems

Civil:

Professor R.H. Evans, C.B.E., D.Sc., Ph.D.	The ultimate strength of prestressed beams in shear
	Bond stress distribution in prestressed concrete
	Bond stress distribution in lightweight aggregate concrete members
	Use of cold-worked steels as shear reinforcement in reinforced concrete beams
E. Lightfoot, Ph.D.	Photoelastic and theoretical determination of stress distributions in beams and slabs
	Analysis of circular and rectangular tanks and bunkers
	Structural analysis and design of spandrel-braced arches
	Dynamic stresses in jib cranes
E.W. Bennett	Flexural strength of prestressed concrete beams
	Moment redistribution in continuous prestressed concrete beams
	Composite prestressed concrete beams under sustained loading
R.D. Mackey	Angle of internal friction and particle shape
	Length and direction of the flow path in the consolidation of clays
	Chemical stabilization of clays
	Application of the vane shear test to sands
	Pressure distribution in bunkers, bins and silos
R. Sutcliffe	Spring flow and sedimentation in rivers
A. Chronowicz	Effect of shear reinforcement along boundary beams on the load carrying capacity of shells
	Behaviour and stability of perforated shells
A.L. Yettram	Diffusion of loads into panels
	Experimental investigations of vibrations in structural assemblies

Electrical:

Professor G.W. Carter R.S. Mamak, Ph.D.	Electromagnetic field problems; electromagnetic aspects of rotating machines
G.S. Brayshaw, Ph.D.	The analysis and synthesis of electrical networks; measurement of acoustic absorption coefficients
P.H. Walker, Ph.D.	The application of electronics to instrumentation and control
B.F. Salvage, Ph.D T. Wilson	Electrical discharges in gaseous voids in solid dielectrics, with particular reference to direct voltage conditions

Mechanical:

Professor D.C. Johnson	Vibration, particularly in connection with toothed gearing
A.S. Leah, Ph.D.	Combustion, including flame temperatures and general study of gas combustion

10. Engineering (*continued*)

Mechanical (*continued*)

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
F.R. Mobbs	Taylor vortex flow in a plain bearing
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
M. Kirk	Settlement patterns of N. Yorkshire in 15th and 16th centuries Aspects of urban geography in S. Devon
G.R.J. Jones	Settlement, tenure and land utilization in N. Wales and W. Yorkshire
F.A. Leeming	Economic geography of tertiary production Economic geography of major cities
S.R. Eyre, Ph.D.	Factors limiting settlement and land improvement in N. Derbyshire
J. Palmer	Geomorphology of N.E. and E. Yorkshire
G.C. Dickinson	Geography of transport in the north of England
I.B. Thompson	Demographic problems in the U.S.A.

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.E. Hemingway, Ph.D.	The provenance and sedimentation of the Torridonian Series of N.W. Scotland Sedimentational problems in the middle Jurassic of Yorkshire
D.H. Rayner (Miss), Ph.D.	The Mey beds of the Caithness Flags
J. Hartley	The mineralization of N. England
J.S. Turner	Carboniferous nautiloids Carboniferous Limestone Series of N.W. England Tournaisian–Viséan boundary problems
A.R.J. Gaskin	The structure and genesis of the Tonkolili iron ores, Sierra Leone
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
P.J. Wyllie, Ph.D.	High pressure hydrothermal study of systems relevant to the origin of carbonatites, ultrabasic rocks, and the metamorphism of calcareous rocks

13. Geology (*continued*)

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
	The geochemistry and mineral paragenesis of African pegmatites
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
R.L. Johnson, Ph.D.	Structure and petrology of Karroo igneous complexes in Central Africa
K.G. Cox, Ph.D.	Petrology and structure of some Karroo igneous complexes in S. Rhodesia and Nyasaland
J.R. Vail, Ph.D.	Karroo igneous complexes in S. Rhodesia and Nyasaland

14. Mathematics

Professor H.S. Ruse, D.Sc.	Differential geometry
Professor T.G. Cowling, D.Phil., F.R.S.	Astrophysics; atmospheric problems
R.O. Gandy, Ph.D.	Mathematical logic
M.H. Löb, Ph.D.	
B.L. Welch, Ph.D.	Mathematical statistics
G.S. James	
D. Kirkby, Ph.D.	Algebraic geometry
H.L. Price, Ph.D.	Aerodynamics
N.B. Slater, Ph.D.	Chemical kinetics: Eddingtonian physics
H.D. Ursell	Analysis

ELECTRONIC COMPUTING LABORATORY

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

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
	Serological studies in thyroiditis
Professor R.E. Tunbridge O.B.E., M.D. with 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. Taverner, M.D. M.B.E.	Clinical electromyography
	Clinical and pharmacological aspects of the action of drugs on the spinal nerves and cerebral cortex
G. Watkinson, M.D.	Experimental studies relating to the control of gastric secretion
	Clinical and pathological studies of peptic ulcer and ulcerative colitis

15. Medicine (*continued*)

M. Atkinson, M.D., with M.L. Losowsky	Motor disorders of the gastrointestinal tract Portal hypertension
J.R. Fountain, M.D.	Chemotherapeutic studies in leukaemia and polycythaemia
E.P. Langworth	Nerve conduction studies
G.A. Rose	Problems relating to calcium metabolism

Clinical:

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
V. Wright, M.D.	Quantitative and qualitative measurement of joint stiffness Aetiological factors in psoriatic arthritis Clinical studies of colitic arthritis
V. Wright, M.D.	Intra-articular therapy in rheumatic diseases
R.A.H. Morison	The problem of placebo responses in arthritic patients Comparative value of latex slide test and D.A.T. in rheumatoid arthritis and allied disorders
R.A.H. Morison	Studies in C-reactive protein levels in rheumatoid arthritis Salicylate levels in rheumatoid arthritis
Professor S.J. Hartfall, M.D.	Study of oedema in rheumatoid arthritis Problem of disseminated lupus erythematosus
K. Swinburne	Anti-streptolysin O titres

Medical Physics: See **Physics,** *Medical*

16. Metallurgy

HOULDSWORTH SCHOOL OF APPLIED SCIENCE

Professor J. Nutting, Ph.D.	Phase transformations in the solid state Dislocation theory of yielding creep, and stress corrosion cracking
P.M. Kelly, Ph.D.	Atom movement and interaction within solids
W.R. Berry, Ph.D. R. Shuttleworth, Ph.D. P.A. Feltham, Ph.D. I. Codd, Ph.D. R.M. Douthwaite P.R. Beeley, Ph.D.	Influence of shot peening on the fatigue properties of steel springs and of aluminium alloys

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.	Micro-manipulative techniques and design of apparatus
K. Zinnemann, M.D.	Differentiation, pathogenicity, antigens and toxins of haemophili, corynebacteria and vibrios The infective factor in chronic bronchitis and bronchiectasis
G.M. Williamson, M.D.	Studies in the mode of action of streptomycin Antigens of haemophili The infective factor in chronic bronchitis and bronchiectasis

17. Microbiology (*continued*)

Bacteriology (*continued*)

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

19. Obstetrics and Gynaecology

Professor A.M. Claye, M.D.	Cervical mucus: Diagnosis of pregnancy Recurrent abortion and progesterone therapy
U.M. Lister (Miss), M.D.	Biochemical and electrolyte changes in normal and abnormal pregnancy, labour and puerperium

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, M.D.	Clinical problems in the neonate
	Social paediatric problems in out-patient practice
	Varieties of convalescence
with W. Goldie	Neonatal tetany
with M. Owen (Mrs.)	The almoner's contribution in social paediatrics
M.F.G. Buchanan	Clinical problems in the neonate
with W. Goldie	Haemophilia
G. Lewis	Recurrent haemorrhagic nephritis
	Variations in the clinical pattern of acute respiratory infections in infancy
with Department of Obstetrics and Gynaecology	Combined study of prematurity

22. Pathology

Professor C.E. Lumsden, M.D.	Myelination and demyelinating processes (experimental, cytological and biochemical aspects)
with *R. Blight	
*D. Robertson, Ph.D.	
D.G.F. Harriman	The myoneural junction in muscle diseases
†S. Czuczwar, M.D.	Effects of cortisone, desoxycortisone, and aldosterone on
with Professor C.E. Lumsden, M.D.	implanted mammary tumours in pure-line C3H, C57B1 and A Strong mice

Chemical.

Professor G.H. Lathe, M.D., Ph.D.	Metabolism of bile pigments
with T.R. Ricketts	Development of liver enzymes during the neonatal period
J.B. Holton	Serum inhibitor of bilirubin conjugation
V. Finnegan (Miss)	Metabolism of non-esterified fatty acids
J. Spencer-Peet	Muscle metabolism
M. 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

Experimental Pathology and Cancer Research:

Professor H.N. Green, M.D.	Mechanism of carcinogenesis
	Tumour chemotherapy
	Immunological theory of cancer
T.D. Day, M.D.	The experimental production of lung cancer, and experimental study of the spread 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	Endocrines and cancer
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
G. Eaves, Ph.D.	Electron microscopy
H.M. Anthony (Mrs.)	Immunology
M. Parsons (Mrs.)	Chemotherapy

*Research Fellow in Multiple Sclerosis
†Visiting Rockefeller Research Fellow

23. Pharmacology

Professor D.R. Wood	Gastric secretion Folic acid antagonists
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
G.A. Nelson, Ph.D.	Plant constituents

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. E.F.W. Seymour, Ph.D. L. Mackinnon, Ph.D. A.J. Manuel, Ph.D.	Physics of metals and alloys at low temperatures: thermal, elastic, electrical and magnetic properties; nuclear resonance
C. Curry, Ph.D.	Soft X-ray spectroscopy
R.F. Youell, Ph.D.	X-ray crystallography: layer lattice minerals, urinary calculi

**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 ‡Investigations on X-ray image intensification
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

25. Physiology

Professor A. Hemingway	Dynamics of heart beat and heart reflexes
J.C.G. Coleridge R.J. Linden, Ph.D. C. Kidd, Ph.D.	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
J.H. Wolstencroft, Ph.D.	Neuronal activity in brain stem

*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

26. Psychiatry

M. Hamilton	Clinical studies of depression
R.E.D. Markillie with Department of Psychology	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

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 Psychological aspects of laboratory work
P.P. Daws, Ph.D.	Learning processes in children
D.H. Holding	Motor skill training problems Scale effects in multidimensional judgments

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, M.D.	Study of chronic pericarditis Small bowel radiology
J.N. Glanville, M.D.	Simple tumours of the oesophagus

30. Surgery

Professor J.C. Goligher F.G. Smiddy G. Watkinson, M.D. G. Wilson	Investigation of secretory activity of stomach before and after operations for duodenal ulcer Controlled clinical trial of vagotomy and other operations for duodenal ulcer
D. Pratt	Study of the incidence and mechanism of staphylococcal invasion of the stomach after gastric operations Experimental studies in mechanism of the cardia in the dog Studies of pathological, clinical and therapeutic aspects of segmental forms of ulcerative colitis Studies of long-term results of surgery in ulcerative colitis and malignant disease of the large intestine Studies of functional results after operations for anal fissures and fistulae Follow-up studies of results of operations for rectal prolapse Studies of the influence of uraemia on the reaction of the tissues of the rabbit to skin homografts

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 cathererization 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	Constitution of fire-clays ands iliceous refractories; studies of recrystallization and the properties of sintered oxides
T.G. Carruthers	
J.P. Roberts, Ph.D.	The development of ceramic metal mixtures and the study 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 mechanical properties of magnesium oxide single crystals
	The solubility and diffusion of water in silica glass
	High-temperature reactions in magnesium oxide

Gas Engineering and General Fuel Science:

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Professor A.L. Roberts, Ph.D.	The properties of coal and coke
	The packing of granular solids
J.E. Garside, Ph.D.	Factors affecting the formation of tar emulsions
J.C. Macrae	The detergent properties of lubricating oils
S.C. Mitchell	The properties of burner flames
	Factors affecting gas cleaning
	Transformation of hydrocarbons by thermal and catalytic means

JOINT RESEARCH COMMITTEE OF THE GAS COUNCIL AND THE UNIVERSITY

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

Leather Industries:

Professor A.G. Ward, O.B.E.	Physical studies of skin and leather
	Gelation of natural organic macromolecules
R. Reed, Ph.D.	Electron microscope studies of skin proteins and leather
	The tanning properties of metallic salts
	Investigation of leather of historical and archaeological interest
F.O. Flint (Miss), Ph.D.	Histochemistry of skin
H.E. Nursten, Ph,D.	Chemistry of vegetable tannins
	Dyestuffs and their interaction with leather
C.H. Pearson	The application of analytical methods to leather research
	The chemical constitution of skin
J. Scholtz	Experimental and semi-scale tannages
	Dyeing and finishing practice
G. Stainsby, Ph.D.	The preparation and properties of solubilized collagens
	The surface chemistry of leather

32. Technology (*continued*)

Textile Industries:

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. 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.	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
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	A study of renal failure in surgical conditions with special reference to electrolyte imbalance
	Metabolic studies in cases of surgical renal failure and following cases of uretero-colic anastomosis with special reference to potassium deficiency
	Assessment of the artificial kidney as a mode of treatment in cases of renal failure. Studies of the efficiency of existing models of the artificial kidney

33. Urology (*continued*)

A. Hodgkinson, Ph.D.	Calcium and phosphorus metabolism in cases of urinary calculus, in particular calcium balance and calcium clearance studies Studies of urinary oxalates and citrates with special reference to hyperoxaluria
F.W. Heaton, Ph.D.	Magnesium metabolism in cases of urinary calculus and renal failure
M.J. Holdsworth (Miss)	Study of mucopolysaccharides and mucoproteins in urine in normal patients and in patients suffering from calculus disease of the kidney
M.J. Purton	Crystallographic investigations into urinary calculus using X-ray diffraction techniques, polarized light and microfocus 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

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1. Botany

Professor T. G. Tutin G. Halliday P.W. Ball A.O. Chater	European flora, experimental taxonomy
A.P. Conolly (Miss)	Post-glacial history of British vegetation
E. Wangermann (Miss), Ph.D.	Morphogenesis in *Lemna*
W. Tutin (Mrs.), Ph.D.	Lake sediments

2. 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 Ion-ion and ion-solvent interactions studied by magnetic resonance and spectrophotometric methods Structure and reactivity of oxyanions and oxycations

2. Chemistry (*continued*)

I.M.T. Davidson, Ph.D.	The kinetics of gas-phase reactions of organo-silicon compounds
C. Eaborn, D.Sc.	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
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

3. Genetics — No information

4. 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 Lancashire Historical geography of 19th century England Europe with special reference to Scandinavia and the Mediterranean
A.H.W. Robinson, Ph.D.	Coastal research including shallow water morphology
K. Warren, Ph.D.	Economic geography of the British and American iron and steel industries
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
R.J. Rice	Problems concerning the final glacial phases in Angus and N.E. Fifeshire Geomorphology of Leicestershire
H.R. Jones	Recent demographic trends with particular reference to France

5. 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)

5. Geology (*continued*)

J.H.M. Whitaker	Stratigraphy, sedimentary petrology and geochemistry of the shelly facies of the Silurian in the Welsh Borderland Field mapping of the Wigmore Rolls area (North Herefordshire)
T.D. Ford, Ph.D.	Carboniferous stratigraphy, palaeontology and micropalaeontology, especially the Lower Carboniferous of Derbyshire and Leicestershire Geological aspects of speleology Quaternary stratigraphy of Leicestershire. Pre-Cambrian fossils
A.M. Evans	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

6. 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
A.J. Knight, Ph.D.	Algebraic geometry
A. Weinmann, Ph.D.	Mathematical physics

7. Physics

E. Matsukawa, Ph.D.	Photonuclear reactions
Professor Stewardson, Ph.D.	X-ray spectroscopy
J.E. Wilson and P.C. Russell, Ph.D.	
C.A. Haywood	Interaction between low energy protons and atoms
W.E. Spear, Ph.D.	Conduction processes in semi-conductors and insulators
K.E. Banyard, Ph.D.	Molecular orbitals

8. Zoology

Professor H.P. Moon with J. Moody (Miss)	Ecology and systematics of *Asellus* General limnology
M.G. Webb (Miss), Ph.D.	Encystment in the protozoa and ciliate ecology of lake muds
D.M. Guthrie, Ph.D.	Development of polymorphism in *Gerris* and studies of nerve regeneration in the cockroach

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1. Anaesthetics

Professor C. Gray, M.D.	Effects of CO_2 imbalance during anaesthesia and on relaxant agents Reactions of patients under light anaesthesia
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

1. Anaesthetics *(continued)*

J.S. Robinson	The effects of alterations of ventilation on anaesthesia
J.R. Riding	Post-operative vomiting
	Clinical study of thiobarbiturates
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

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
M. Brookes	The relationship of the vascularization of bone to its growth, age and disease
	The vascularization of bone in relation to genotypic and phenotypic variations
J. Wright	Hepatic circulation
R. Harris	Tropical demography

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.	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.	Mode of action of vitamin A
	Lipids in enzyme systems
	Electron transport systems
C. Green, Ph.D.	Lipoproteins
F.W. Hemming, Ph.D.	Lipid metabolism
M.M. Barnes, Ph.D.	Veterinary biochemistry; lipid metabolism

4. Botany

Professor N.A. Burges, Ph.D.	Soil microbiology and the decomposition of humus
P.M. Latter (Miss)	
D.A. Coult	Gas exchange in aquatic plants
E.M. Burrows (Mrs.), Ph.D.	Culture of algae in relation to problems of marine ecology
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	Flora of Europe and cytotaxonomy of *Salicornia*
D. Parkinson, Ph.D.	Ecological problems in soil mycology
B.D. Cubbon	Biosynthesis of fungal metabolites
D. Boulter, D.Phil.	The metabolism of nitrogen compounds
A.R. Cook	Amino-acid metabolism
T.R.G. Gray	Bacterial populations of estuarine salt marsh muds Classification and biology of species of *Mortierella*
J. Cullen	Taxonomy of *Anthyllis vulneraria* agg. in Europe

5. Building Studies

Professor A.W. Hendry	The analysis and load bearing capacity of grid structures Comparative study of timber building types Wind flow around buildings Temperature gradients in building elements due to solar radiation
P. Manning	Survey of factory roof design with special reference to the economics of natural lighting
A.L. Britch	Prefabricaton techniques as applied to multi-storey construction
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 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
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

6. Chemistry (*continued*)

Inorganic and Physical (*continued*)

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.	Analytical and synthetical investigations of natural products and related compounds, particularly peptides, porphyrins, fungal metabolites, bacterial metabolites and terpenoids
W.B. Whalley, D.Sc., Ph.D.	
R.J.S. Beer, D.Phil.	Physical organic chemistry of alicyclic compounds
F.M. Dean, Ph.D.	Mechanisms of organic reactions
J.S.E. Holker, Ph.D.	
A.H. Jackson, Ph.D.	
M.J.T. Robinson, D.Phil.	
R.C. Sheppard, Ph.D.	
D. Bethell, Ph.D.	
D.F. Shaw, Ph.D.	

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
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	Histopathology of the dental pulp
J.M. Mumford	Electrical properties 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
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

8. Engineering (*continued*)

Civil (*continued*)

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. G. Carter J. Durnford J.A. Harrison, Ph.D. J.J. Lennon A.B. Parker, Ph.D. A.N. Prasad 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. T.I. Canning	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	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.	Elastic plastic deformation of thick cylinders due to pressure and radial temperature gradients
J. Halling	Extrusion studies using wax as a model material Friction and wear in rolling contacts
A.B. Lomax	Effects of contaminant films on wear mechanisms
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	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 in the Dee estuary on the Cheshire and Lancashire coast
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 West Africa Rainfall and water supply in the British Isles and W Europe
R.K. Gresswell	Geomorphology of N. W. England and of the Isle of Man; fluvio-glacial deposits; coastal deposition, erosion and control
J.B. Harley	Medieval historical geography of the English Midlands
B.M.C. Husain	Historical geography of Delamere Forest
J.M. Kenworthy (Miss)	Tropical climatology, especially of Africa Regional geography of East Africa
A.T.A. Learmonth, Ph.D.	Medical geography, population distribution and regional planning in India
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); palaeomagnetism; gravity
D. Flinn, Ph.D.	Metamorphic and structural petrology of the eastern half of Mainland and associated islands, Shetland. Partitioning of elements between co-existing materials in metamorphic rocks
R.G.C. Bathurst	Sedimentology (Carboniferous Limestone; Namurian; Purbeck; Wealden): carbonate sedimentation in the 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

12. Histology

N.M. Hancox, M.D. J. Kruszynski, M.D. A. Wright, Ph.D. E.B. Beckett (Miss), Ph.D. B. Boothroyd, Ph.D. J.J.T. Owen	Electron microscopy and tissue culture studies on bone absorption; freeze methods in cytochemistry; micro-ciné photography. Microincineration and measurement of refractive index of tissue sections. Comparative histology of the adrenal gland. Cytochemistry and 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
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
A. Fletcher, Ph.D.	Tabulation of mathematical functions Bibliography of mathematical tables
S.D. Daymond, Ph.D.	Conformal mapping with approximately circular boundaries
T.A.S. Jackson, Ph.D.	Cartesian tensors Integral harmonics
G.R. Baldock, Ph.D.	Molecular and crystal structure
A. Sharples, Ph.D.	Diffraction theory
F. Booth	Electrokinetic effects Fluid dynamics
S. Brenner (Miss), Ph.D.	Atomic and nuclear physics
W.E. Williams, Ph.D.	Diffraction theory, radio propagation and magneto-hydrodynamics
G.L. Sewell, Ph.D.	Quantum field theory Solid state theory
D.G. Drake, Ph.D.	Fluid dynamics
P.E. Doak	Aerodynamic noise Acoustics
D.C. Belinfante, Ph.D.	Hydrodynamics
C.B. Raynor, Ph.D.	Differential geometry and relativity
N. Lynn, Ph.D. R. Shail, Ph.D.	Mathematical physics
M.G.J. van der Burg, Ph.D.	General relativity
R.M. Terrill, Ph.D.	Fluid dynamics, numerical analysis
C.B. Wilson, Ph.D.	Solid state theory
R.L. Plackett M.C.K. Tweedie J.R. Green, Ph.D.	Mathematical statistics, with applications
A. Young, Ph.D.	Variations in the length of the day Variation of latitude Numerical analysis
A. Kirk	Numerical analysis and logical design of automatic computers
J.M. Watt	Numerical analysis, automatic programming of computers

14. Mathematics (*continued*)

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

15. Medicine

Professor Lord Cohen of Birkenhead, M.D.	Lipoidoses Collagen diseases Fundamental concepts in medicine
C.A. Clarke, M.D.	Human genetics
R.B. McConnell, M.D.	
E.S. Jones, Ph.D.	Electrolyte disturbances Blood chemistry
K. Slatter, Ph.D.	Electroencephalography
D. Price-Evans, M.D.	Pharmacogenetics

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 The stability of ϵ-carbide and Fe_3C in some low alloy steels The variation of Ms with solute concentration in alloys with a restricted γ-field An experimental study of time-dependent strain in B.C.C. metals at sub-zero temperatures The nature of the carbides in high-silicon low-carbon iron-carbon-silicon alloys
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 in ternary alloys of iron by gas equilibria methods Kinetics of tempering chromium steels
J. Burke, Ph.D.	Kinetics of graphitization of white irons Kinetics of isothermal transformations in uranium-chromium and related alloys Lattice defects in pure iron 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 F.C.C. metals Kinetics of graphitization of white irons

16. Metallurgy *(continued)*

T. Ellis	Evaluation of some thermodynamic quantities in iron-carbon and ternary iron-carbon alloys Tensile deformation of certain metals as a function of testing conditions and specimen preparation
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

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*
J.S. Scott	Circumvallate placenta. Pregnancy toxaemia. Chorio-carcinoma
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

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

LIVERPOOL OBSERVATORY AND TIDAL INSTITUTE

J.R. Rossiter, D.Sc.	Tide models
G.W. Lennon	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 lamellar keratoplasty Statistical research into congenital ocular defects occurring in children Clinical research into various aspects of treatment of amblyopia

20. Ophthalmology (*continued*)

J.A. McCann	Clinical research into action of a-chymotrypsin in cataract extraction
	Clinical research into naso-lacrymal obstruction in infants and young children
	Clinical research into muscle operative procedures in ptosis of the upper eyelid
	Research into the formation of cataracts in atopic eczema
	Research into malignant growths of the eyelid

21. Paediatrics and Child Health

Professor J.D. Hay, M.D.	Congenital cardiovascular disorders
H.G. Farquhar	
O. Scott (Mrs.), M.D.	
F.P. Hudson	The dietary treatment of phenylketonuria
S.E. Keidan	Leukaemia in childhood
	Trial of actinomycin D in childhood cancer
J.R. Roberts, M.D.	Neurological conditions in childhood
R.W. Smithells	Registry of congenital abnormalities
	The nervous system in infancy
	Infant feeding
R.M. Todd, M.D.	The use of hydrocortisone in the treatment of primary
S.E. Keidan	tuberculosis
R.M. Todd, M.D.	Assessment of physical, mental and emotional status after
J. Neville	tuberculous meningitis
R.M. Todd, M.D.	Electrophoretic pattern of serum proteins in paediatric disorders
	Corticosteroids in the treatment of nephrotic syndrome
	Pseudohypertrophic muscular dystrophy:
	Investigation of serum aldolase and transaminases
	Treatment with gastric mucopolysaccharide

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
C.H. Jones, M.D.	Histochemistry of testis
R. Carroll, M.D.	Pathology of liver
H.D. Cheetham, M.D.	Endocrine pathology

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
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. R.T. Taylor, Ph.D.	Fundamental particle physics at high energy, especially using 380 MeV cyclotron
R.W. Roberts, D.Sc.	Teaching
M.J. Moore	Plant engineering
L.L. Green, Ph.D. J.C. Willmott, Ph.D. B. Hird, Ph.D. G. Parry, Ph.D. P. Dagley, Ph.D.	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.	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

25. Physiology

Professor R.A. Gregory, D.Sc., Ph.D.	Gastric secretion
T.G. Richards, M.D., Ph.D. A.E. Goetzee, M.D.	Circulation in special regions of the body
I. Calma, M.D. G. Kidd, Ph.D. D.V. Roberts	Neurophysiology
H.J. Tracy (Miss)	Gastric secretion
A.G. Singleton	Ruminant physiology
A.H. Sykes, Ph.D.	Avian renal function

26. Psychiatry

S.B. Hall, M.D. (Director)	Comparison of responses to treatment by electroplexy and antidepressant drugs
H.J. Jarvie, M.D.	Psychological effects of brain injury Physiological and psychological effects of electroconvulsive therapy Projective tests

26. Psychiatry (*continued*)

R.R. Hetherington, Ph.D.	Effects of electroconvulsive therapy, alcoholism, tests for psychological deficit Projective tests
B. Petrovskaia (Miss), Ph.D.	Personality and motivation in attempted suicide

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, M.D. with W.H. Parry, M.D. T.L. Hobday, M.D.	Health aspects of ionizing radiations Antivaccinial γ-globulin A further report on smallpox prophylaxis
Professor A.B. Semple, M.D. with T.L. Hobday, M.D.	Control of anthrax: suggestions based on survey of imported hides
Professor A.B. Semple, M.D. with W.H. Parry, M.D. A. Griffith, M.D.	The occurence of sensitivity reactions to poliomyelitis in Liverpool
Professor A.B. Semple, M.D. with T. Lloyd Hughes, M.D.	Liverpool's X-ray campaign report

29. Radiodiagnosis

P.H. Whitaker, M.D. A.J. Robertson, M.D.	Radiological changes in pneumoconiosis associated with smelters in tin oxide
G. Ansell, M.D.	Complications of cortisone therapy demonstrated radiologically
R. Green, M.D.	Radiological assessment of palatal repair following cleft palate operation
J.A. Ross	Urethro-cystography in paraplegic by cine radiography with image intensifier
R. Grainger	Co-ordination of radiology of heart with the vector electrocardiograph
G. Row, M.D.	Radiological examination of post-nasal space

30. Surgery

Professor C.A. Wells	Post-gastrectomy syndromes Oesophageal hiatus hernia Ileus
I.W. MacPhee, M.D.	Cell energy and cell cation exchanges
D. Annis, M.D.	Physiology of micturition

30. Surgery (*continued*)

C.R. Helsby	Experimental urolithiasis
L.J. Temple	Operations on the open heart
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	Urogenital surgery
N. Gibbon	Anuria and the artificial kidney
E. Edwards	The paraplegic bladder

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:

H.V. Hughes	The blood supply to the skin of the dog
J.W. Dransfield	The correlation of structure and function in the hip joint of the dog
T.D. Glover, Ph.D.	Nervous and vascular mechanisms associated with the reproductive system

Animal Husbandry:

J.O.L. King, Ph.D.	Studies on the influence of environmental conditions on the growth rate of fattening pigs

Clinical:

Professor J.G. Wright P.A. Neal	Surgical techniques in horses and cattle. Infertility in bovines. Anaesthesia in horses and cattle
P.J.N. Pinsent P.A. Neal H.E. Ritchie	The diagnosis of disease in the bovine abdomen. The blood picture as an aid to diagnosis in the bovine species

32. Veterinary Studies (*continued*)

Clinical (*continued*)

H.E. Ritchie	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	Bovine mastitis
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 Lake Bala
	Problems of coarse fish conservation
H.B.N. Hynes, D.Sc.	Freshwater Amphipoda
	Water pollution
	Ecology of mountain stream
	Plecoptera
J.N. Ball, Ph.D.	Endocrinology of lower vertebrates
R.O. Brinkhurst, Ph.D.	Alary polymorphism and population studies in Gerroidea
	General limnology
C.J. Duncan, Ph.D.	Mollusca. Taste in birds
J.C. Chubb	Parasites of 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

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1. Parasitology and Entomology

Professor W.E. Kershaw, V.R.D., M.D., D.Sc.	Pathogenicity of parasites, and their population dynamics
	Immunity
Emeritus Professor R.M. Gordon, O.B.E., M.D., Sc.D.	Culture of trypanosomes
J.F.B. Edeson, M.D.	Malayan filariasis
W.W. Macdonald	Mosquito genetics and insecticides
M.J. Clarkson	Coccidiosis and blackhead in turkeys

1. Parasitology and Entomology (*continued*)

R. Augustin (Mrs.), D.Sc.	Immunochemistry
A.P. Ridges (Mrs.)	
T.R. Williams	Crabs and *Simulium*
A. Venkataratnam	Onchocerciasis in horses and cattle
C.P. Ramachandran	Malayan filariasis
S. Nair (Miss)	
E. Pena (Mrs.), M.D.	Schistosomiasis
M.A. Zaini	Insecticides
G. Hearnshaw (Mrs.), Ph.D.	Intelligence and parasitism
D.J. Brewster	
J.K. Miller	Culture of trypanosomes

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*
M.V. Riley	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.	Physiological basis of cardiac arrhythmias, infarction and shock
M.B. Skirrow	
A. Godfrey (Mrs.)	
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

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1. Botany

Professor L.J. Audus, Ph.D.	The physiology of plant growth with particular reference to its hormone relationships
	The microbial breakdown of the "hormonal" herbicides in soils
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
E.G. Duncan	Intersterile races in diaphoromictic fungi
	Nuclear division in vegetative hyphae

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 The electrode processes occurring during the electrodeposition of metals The kinetics of reactions involving multivalent ions
D.M. Hall (Miss), Ph.D.	The configuration of partially reduced polycyclic compounds The influence of substituents on conjugation in diphenyls as revealed by ultra-violet absorption spectra
M.S. Lesslie (Miss), Ph.D., D.Sc.	Stereochemistry of diphenyl 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.	The application of dissociation constant measurements to some problems of molecular structure and of rates of reaction The calculation of potential barriers to rotation
J.G. Tillett, Ph.D.	The kinetics and mechanism of organic reactions

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 Structures in the Karagwe–Ankolean and Buganda–Toro systems of Uganda
C.H. Holland	Stratigraphy and palaeontology of Silurian rocks of the Dingle Peninsula, Co. Kerry
G.M. Dunlop (Miss), Ph.D.	Stratigraphy and palaeontology of the Clew Bay area, Mayo, Eire
B.A. Sturt, Ph.D.	Metamorphic and igneous rocks of the islands of Söröy and Sieland, N. Norway
D.C. Turner	Granite ring complexes in Nigeria
R.V. Beavon, Ph.D.	Stratigraphic and volcanic studies near Beddgelert, N. Wales

5. Mathematics

Professor H.G. Eggleston, Sc.D.	

6. Physics

Professor H.O.W. Richardson	Investigation of nuclear radiations and energy levels by magnetic spectrometry and other methods
B. Donovan, Ph.D.	Theory of metals and semi-conductors
D.L. Hurd	Theory of nuclear reactions
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

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.	Electromyographic studies of behaviour Personality and perceptual thresholds
S. Chown (Mrs.), Ph.D.	Occupational psychology Ageing

9. Zoology

Professor N. Millott, Ph.D.	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 freshwater faunas Biology of *Artemia*
J. Green, Ph.D.	Biology of Crustacea and estuarine faunas
R.P. Dales, Ph.D.	Taxonomy and biology of polychaetes
A.J. Pontin, D.Phil.	Behaviour in ants
R.M. Pontin (Mrs.)	Physiology and ecology of Rotifera

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1. Botany

Professor C.T. Ingold, D.Sc.	Spore dispersal in fungi Aquatic fungi
K. Wilson, Ph.D.	Fine structure of cell walls and other aspects of plant anatomy

1. Botany (*continued*)

B.E. Plunkett, Ph.D.	Morphogenesis in hymenomycete sporophores
G.J. Cunnell, Ph.D.	Fungi (Sphaeropsidales) Aestivation in flowers
P.A. Dixon	Fungi (Lower Ascomycetes)
P.J. Casselton	Respiration in algae
J.D. Dodge	Cytology of peridinians

2. Chemistry

Inorganic and Physical:

D.J.G. Ives, D.Sc.	Thermodynamic galvanic cells Hydrogen overpotentials Anodic processes Corrosion Interfacial tension Properties of liquid mixtures
R.W. Pittman, Ph.D.	Photochemical studies with selenium Studies of some fields of selenium chemistry Thermodynamic galvanic cells
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.W. Fitzsimmons	Esters of phosphorus-nitrogen compounds
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.	Mechanisms of carbohydrate reactions
B.C. Smith, Ph.D.	Organic compounds of boron Chemistry of uranium

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

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

3. Geography (*continued*)

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 Thermal and hydrothermal studies of silicates and silicate systems Structural and model 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

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
R.W. Tiffen, Ph.D.	Theory of elasticity and hydrodynamics
A.W. Ingleton, Ph.D.	Functional analysis
E.H. Kronheimer, Ph.D.	Quantum mechanics
D.A. Greenwood, Ph.D.	Solid state theory
D.R. Cox, Ph.D.	Mathematical statistics
W.A. Coppel	Differential equations
G.B. Wetherill, Ph.D.	Mathematical statistics
M.R. Mehdi, Ph.D.	Functional analysis

6. Physics

Professor J.D. Bernal, F.R.S.	Theory of solids and liquids
R. Furth, D.Phil.	Theory of solids and liquids Theory of stochastic processes and fluctuation phenomena Problems of Brownian movement and random walk Dielectric properties of crystals Photoelectric Fourier transformer
S.P.F. Humphreys-Owen, Ph.D.	Experimental study of optical properties of solids, especially scattering and reflection
W. Ehrenberg, Ph.D., D.Sc. with J. Hirsch, Ph.D.	Electrical properties of semi-conductors and dielectrics including the effect on them of electron beams Barrier layer problems Electron bombardment conductivity

6. Physics (*continued*)

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, its application to measurements of γ line spectra Development and use of low-energy lens β spectrometer Study of γ-γ and β-γ angular correlations
N.E. Cusack, Ph.D.	Electrical properties of metals in the liquid state
P.T. Trent, Ph.D.	Cosmic rays: investigation into the behaviour of mu-mesons at various depths below ground
M.N. Moore, Ph.D.	Theory of stochastic processes and fluctuation phenomena Fluctuation fields in linear multiplying media Neutron transport and thermalization theory Reactor kinetic theory
Crystallography:	
Professor J.D. Bernal, F.R.S.	
with C.H. Carlisle, D.Phil M.A. Rosemeyer	Structure of organic crystals and crystalline proteins Chemical investigation of proteins
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 Research on biological fibres
A.L. Mackay, Ph.D.	Research on structure of magnetic minerals 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
A. Klug, Ph.D. J.T. Finch, Ph.D. K.C. Holmes, Ph.D.	*X-ray and physical studies of plant and animal viruses and related substances †X-ray and physical studies of poliomyelitis virus and turnip yellow mosaic virus †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

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

7. Psychology

Professor C.A. Mace, D.Lit.	General theoretical psychology Borderline problems of psychology and the philosophy of science General principles of applied psychology with special reference to problems of human motivation
A. Rodger	Vocational guidance Management selection and development Industrial rehabilitation Youth employment Job specification
B. Foss	Perception and thought; discrimination learning in birds
T. Veness (Miss)	Problems of motivation Aspirations of school leavers
H.M.B. Hurwitz	Experimental extinction of acquired responses Behavioural variability Parameters of avoidance behaviour Counting behaviour in animals Sequential analysis of complex skills Sensory reinforcers Discrimination learning in birds Problems in learning theory Operant conditioning procedures
J. Brown, Ph.D.	Perception, learning and information theory
R.S. Peters, Ph.D.	History of psychology Methodological and conceptual problems in psychology Theories of motivation The psychology of morals
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 The effects of automation on industrial and office work

8. Zoology

Professor W.S. Bullough with E.B. Laurence (Mrs.), Ph.D.	Physiology of cell division and comparative endocrinology
T.E. Hughes	Functional morphology and physiology of *Acarina*
I. Griffiths, Ph.D.	Developmental physiology in Salientia
S.M. McGee-Russell, Ph.D.	Studies in cell structure: histochemistry and electron microscopy
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

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1. Aeronautics

Aerodynamics:

Professor H.B. Squire, F.R.S.	Fluid mechanics
F.G.Irving	Supersonic flow
L.E. Fraenkel	Supersonic flow theory
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	Buckling of tapered panels Instability of sandwich panels with honeycomb core
S. Kelsey H. Kamel	Static and dynamic analysis of fuselages and wing of arbitrary planform; theory and experiment
K. Thomas, Ph.D.	Effect of coverbending
S.L. Kochanski	Effects of kinetic heating on thin wings
J.W. Warren	Non-linear matrix methods
S. Kelsey	Fatigue investigations under random loading

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)	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 macrolichens

2. Botany and Plant Technology (*continued*)

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

Mycology and Plant Pathology:

R.K.S. Wood, Ph.D.	Physiology of soft-rot diseases, *Verticillium* wilt of tomatoes, and "chocolate spot" of beans (*Botrytis fabae*) Wastage of citrus Seed-borne diseases of peas and celery and control by fumigation Adaption to fungicides especially the chlorinated nitrobenzenes
C.C.V. Batts, Ph.D.	Diseases of cereals and grasses, especially those caused by rust and smut fungi Seed-borne diseases
M.F. Madelin, Ph.D.	Physiology of entomogenous fungi Morphogenesis and fruiting in fungi

**Plant Physiology:*

Professor H.K. Porter (Mrs.), 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
R.J. Ellis, Ph.D.	Sulphur metabolism in plants
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 signifiance
D.H. Dalby, Ph.D.	Experimental and herbarium taxonomy

3. Chemistry

Agricultural Chemistry, and Food and Drugs:

A.G. Pollard	Chemistry of soil and soil solutions Soil physics and use of "conditioners" Chemistry of soil phosphates Chemistry of water-logged soils Electrodialysis as a method of soil examination
A.H. Cornfield, Ph.D.	Metabolism of nitrogen in soils and composts

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

3. Chemistry (*continued*)

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 and technetium 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
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
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 Role of ribose nucleic acid in the biosynthesis of protein
J.F. Herringshaw, Ph.D.	Analytical chemistry of transition elements
D.F. Evans, D.Phil.	Nuclear magnetic resonance Magnetic perturbation of singlet-triplet transitions by O_2 and other paramagnetic substances
J.A.W. Dalziel, Ph.D.	The analysis of trace elements involving the use of microchemical techniques and radiochemical methods
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
D.W.A. Sharp, Ph.D.	Complex fluorides and carbonyl fluorides Fluorides of non-metallic elements Molybdenum and tungsten chemistry
N.S. Gill (Miss), Ph.D.	Complex halides
A.T.M. Dunne (Miss)	Stabilities of complexes

Organic:

Professor D.H.R. Barton D.Sc., F.R.S.	Theoretical and natural product chemistry
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 Radiation chemistry Ultra-violet and infra-red absorption spectroscopy
D.W. Turner, Ph.D.	Vacuum ultra-violet spectroscopy Radioactive tracer studies of hydrocarbon combustion Electrical conductivity in aprotic solvents
J.K. Sutherland, Ph.D.	Structural determination of a natural product

3. Chemistry (*continued*)

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 aluminosilicates Crystals as molecular and ion sieves and semi-permeable membranes Self-diffusion in ionic crystals Electrical properties of some aluminosilicates Molecular complexes of clays, zeolites and organic crystals; intracrystalline and multilayer sorption Properties of clathrate compounds Solubility and diffusion in high polymers Volume and surface diffusion in micropore systems and in single capillaries Mixture separation by flow through heterogeneous membranes and microporous beds
Professor F.C. 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 Physical adsorption on ionic crystals; adsorption of inert gases on metallic films Mechanism of decomposition of solids, e.g. oxalates, oxides, permangenates, fulminates. The researches include measurement of ionic conductance and photoconductance, adsorption (reflection) spectra; prolonged photolysis and effects of pre-irradiation and slow electron bombardment on the decomposition
with P.W.M. Jacobs, Ph.D.	Field emission microscopy; application to the interaction of gases with metals and simple catalytic processes
J.A. Kitchener, D.Sc.	Surface chemistry of colloidal suspensions Mechanical properties of interfaces Surface chemistry applied to mineral processing
M. Gordon, D.Sc., Ph.D.	Theory of thermal degradation of polymers Crystallization mechanism in polymers Heterogeneous catalysis of polymerization and sorption of polymers Precision measurements of density and the state of polymerization of water in solvents
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 and oxalates Application of the thermodynamics of irreversible processes to membrane phenomena and to ionic crystals
G.J. Hills, Ph.D.	Thermodynamic studies of aqueous electrolytes Temperature and pressure coefficients of ionic conductance Electrode processes in non-aqueous media Electrode processes in fused-salt systems Membrane phenomena
J.A. Barrie, Ph.D.	Diffusion and sorption of vapours and gases in polymer films Stress-strain properties of elastomers

3. Chemistry (*continued*)

Physical (*continued*):

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 of weak electrolytes Mixture potentials and heterogeneous catalysis in solution
I.S. Kerr, Ph.D.	Aluminosilicate structures and crystal surfaces studied by X-rays and electron microscopy respectively
R. Ash	Theoretical studies of diffusion through polymer and metal membranes Theoretical and experimental studies of gas transport through networks of capillaries and microporous media

4. Engineering, Chemical

Professor D.M. Newitt, F.R.S. & S. Angus	Measurement of thermodynamic properties of steam
Professor D.M. Newitt, F.R.S.	Hydraulic conveying, granulation, pelletizing
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 Maldistribution in packed columns
Professor A.R. Ubbelohde, D.Sc., F.R.S.	Hydrogen in metals Hydrogen bonds in crystals Crystallographic transformations Crystal vibrations Chemical physics of aromatic and conjugated systems Graphite and its crystal compounds Properties of ionic melts at moderate and at high temperatures Melting parameters and structure of melts Transport processes in liquids Transport properties of gases Energy exchange in gases Detonation and combustion
J.C. McCoubrey, Ph.D., D.Phil.	Equilibrium and transport properties of gases Inelastic collision processes in gases Critical properties of liquids
G.S. Parry, Ph.D.	Crystal vibrations Crystallographic transformations X-ray diffraction and general crystallography Structure analysis by X-ray diffraction techniques
E. McLaughlin, Ph.D.	Melting parameters and the structure of melts Transport properties of liquids Thermodynamics of solutions Calorimetry

4. Engineering, Chemical (*continued*)

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
K.E. Weale, Ph.D.	Chemical kinetics at high pressures Polymerization reactions at high pressures Modification of coal structure by pressure 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 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 Relaxation times for vibration and dissociation in gases
L.R. Barrett	Sintering and diffusion in refractories Bonding of super-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
R.F. Strickland-Constable, D.Phil.	Crystal growth and evaporation, and nucleation Heterogeneous reaction under electronic excitation Carbon oxidation
E.W. Voice	Preparation and smelting of iron ores
R.P. Fraser, O.B.E.	Liquid fuel firing Supersonic flow through nozzles Atomization

4. Engineering, Chemical (*continued*)

P. Eisenklam, Ph.D.	Fluid mechanics of packed beds Flow of particles Filtration and fluidization
N. Dombrowski, Ph.D.	Flow and disintegration of liquid sheets Combustion characteristics of atomized fuel High speed photography

Nuclear Technology (Chemical):

G.R. Hall	Applications of radioisotopes in chemical engineering processes Effects of γ- and α-radiation on ion exchange resins Reactions of fission fragments in gaseous systems Incorporation of fission products in glass
H.D. Evans, Ph.D.	Environmental aspects of health physics
S. Hartland	Dissolution of uranium reactor fuels, and design of critically safe equipment Kinetics under fluidized bed conditions of the denitration of uranyl nitrate
A.J. Swallow, Ph.D.	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
A.J. Ashdown J.C. de C. Henderson	Moment rotation characteristics of reinforced concrete frame members
K. Newman A. Edwards	The shear strength of reinforced concrete and pre-stressed concrete beams
J. Munro	Fundamental strength and deformation characteristics of concrete Crack characteristics of smooth and deformed bar reinforcement and the influence of temperature gradient 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

Fluid Mechanics, Hydraulics and Hydrology:

Professor C.M. White, D.Sc., Ph.D. J.R.D. Francis	Investigation of particular structures using models of flow-control arrangements and spillways for water-supply, hydro-power, irrigation and flood control projects
P. Minton P.O. Wolf T. O'Donnell	Transport of sand grains by a stream and the influence of solids transported upon the dimensions of rivers. Sand ripples and their dependence on the physical properties of the sand Secondary flows and their effects in a curved open channel Dissipation and motions in greatly roughened channels and in pipes of non-circular cross-section Wave forms in open channels River flow in relation to rainfall Ground-water flow

5. Engineering, Civil (*continued*)

Fluid Mechanics, Hydraulics and Hydrology (*continued*)

Professor C.M. White, D.Sc., Ph.D.	Stability of interface between liquids of different densities and the generation of vortices of ideal type with free surface
J.R.D. Francis	
P. Minton	Cavitation and its effect on concrete
P.O. Wolf	The motion downstream of sluices and associated scour problems
T. O'Donnell	The behaviour of curved boundaries in relation to cavitation and separation

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	The design of a variable-gap strainer for liquids

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.	Theoretical, experimental and model studies of problems in ships' structures
J.C. Chapman, Ph.D.	Composite action of steel and reinforced concrete Plated grids Use of models in structural analysis and design Electrical analogues Full scale behaviour of structures
E.H. Brown, Ph.D.	Minimum weight design of shells
A.C. Cassell	Full scale behaviour of structures of composite construction
L. Chitty (Miss)	Arch dam research
A.R. Gent, Ph.D.	Study of gravity stresses by photoelastic methods
Z.S. Makowski, Ph.D.	Double layer grids and stressed skin space construction

6. Engineering, Electrical

Professor A. Tustin	Studies in binaural perception, especially of simultaneous voices
Professor E.C. Cherry	Binaural fusion of sounds Studies of pitch perception, binaurally and monaurally, using tones of various short durations Bandwidth compression of facsimile channels by variable velocity scanning Bandwidth compression of television channels by automatic variable delays using "elastic coding"
J. Roberts	Non-reciprocal slow-wave structures Study of propagation in helically-threaded wave guides Tunable filters using ferrites Field patterns in wave guides containing resistive vanes and ferrites Analogue treatment of eddy current problems

6. Engineering, Electrical (*continued*)

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 C.J. Carpenter	Feed-back methods for improving the stability of synchronous machines
B.J. Prigmore	Asynchronous operation of synchronous machines and
P.H. Allen, Ph.D.	conditions for resynchronization
	Measurement and calculation of alternator impedance allowing for eddy current effects
	Simulation of a prime mover driving a generator and its governor
	Electromagnetic phenomena involved in commutation in direct current machines
	A study of temperature rises in machines under conditions of varying load and speed
	The use of controlled rectifiers to provide a variable speed commutatorless motor
	The production of large current pulses by means of electromagnetic machines
	A study of the permanent-magnet synchronous motor
J.H. Westcott, Ph.D.	Estimation of the parameters of a model specifying the dynamic relationship between quantities in a system from records of the fluctuation of the quantities
	Automatic probing for adaptive systems
	Study of the use of dynamic programming techniques in optimal control of dynamic 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
	Mechanization of correlation analysis of random fluctations by digital and analogue means
B.M. Sayers, Ph.D.	Parameter estimation for physiological processes
	Brain models as a guide for self-organizing analogues
A.P. Roberts	Theory of self-optimizing systems and extremum controllers
J.R. Barker, Ph.D.	Application of new stationary value theorems for the solution of non-linear network problems
D.Q. Mayne	Filtration of time series subjected to discontinuities
J.J. Florentin, Ph.D.	Study of methods for approximate calculation of probability distributions of feed-back control system responses
J. Lamb, D.Sc.	Study of the visco-elastic properties of liquids (i) under shearing stress at frequencies from 30 c/s to 3000 Mc/s, (ii) at high pressures up to 200 000 p.s.i. (iii) under steady shearing motion at high rates of shear up to 10^5 reciprocal seconds
	Visco-elastic relaxation in polymer solutions and lubricating oils
	Electrical methods for measuring the viscosity of liquids at high pressures
	Absorption of sound waves in liquids up to 200 Mc/s
	Study of the absorption of high frequency compressional and shear waves in single crystals up to 3000 Mc/s

6. Engineering, Electrical *(continued)*

J. Lamb, D.Sc.	Dielectric and ultrasonic relaxation
with E.L. Heasell, Ph.D.	Measurement of short lifetimes in semi-conductors by high frequency light modulation
	Study of the factors controlling tunnel diode behaviour
	The 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
A.R. Boothroyd, Ph.D.	High frequency transistor oscillators and frequency converters
with R.A. King M.B. Das	Measurement of transistor properties at very high frequency
	High speed transistor switching circuits
	Design of optimized high frequency transistor amplifiers including consideration of stability definition
	Application of computing techniques to traffic flow problems
	Parametric frequency multiplication and division
	Switching properties of transistors operating at high current level
	Transistor noise studies
	Study of electronic processes in transistors in terms of their analogue representations
	Study of tunnel diode switching processes
	Analogue digital conversion
	Possibilities of narrow band pulse code modulation
D.G.O. Morris, D.Sc.	Analogues of electric machines and power systems
with B.J. Cory	The automatic operation of network analysers
J.J. Bates, Ph.D.	The operation of power systems with the aid of logical analysers
	Techniques for the economic operation of power systems
	The characteristics of power system load centres
	Control systems for rectifier-inverter sets
	The experimental evaluation of the equivalent circuits of electrical machines
	The development of network facilites 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 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
	Vibration of twisted cantilevers and turbine blades
	Photoplasticity

7. Engineering, Mechanical (*continued*)

Applied Mechanics (*continued*)

Professor H. Ford, D.Sc., Ph.D.	Plastic deformation in plane strain with notched test pieces
	Stresses and deflections of expansion bellows and mitre bends
J.M. Alexander, Ph.D.	
R.D. Hoyle, Ph.D.	Fatigue of springs coated with plastics and ceramics
P. Grootenhuis, Ph.D.	Fatigue at relatively few cycles of high stress intensity
C.E. Turner, Ph.D.	Deep drawing
F. Ellis	Cold extrusion of steel
A. Shelton, Ph.D.	Lubrication in gearing
P. Benham, Ph.D.	Brittle fracture in mild steel
L.E. Culver	Fracture mechanism in aluminium alloys
P.J.B. Solomon	Impact properties of plastic sheet and film
A. Cameron, Ph.D.	Symmetrically loaded plates and shells
R.M. Ogorkiewicz	Heat balance for machining process
R.T. Smith	Creep buckling of thermal reactor fuel elements
S.A.V. Swanson, Ph.D.	Studies in the mechanism of metal cutting
	Oil whirl in fluid film bearings
	Thin film lubrication applied to oil seals, gears and ball bearings
	Instability in journal bearings
	Pitting of gear steels and bronzes
	Mechanism of running in of bearing metals and their seizure
	Gear ripple
Professor D.G. Christopherson	Study of the effect of mean stress on the internal damping capacity of materials
W.G. Wood, Ph.D.	Theoretical work on hydrodynamics of a viscous fluid
	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
	Heat transfer under sweat cooling conditions including case of porous cylinder with combustion near surface
	Flow in laminar boundary layers with injection through the surface
N.P.W. Moore	Flame propagation and quenching in narrow gaps
	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 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
	Turbulent heat transfer
	Heat transfer in turbulent boundary layers
	Development of non-linear electrical network analogue
	The prediction of turbulent pre-mixed flame phenomena
	Radiative heat transfer
	Heat and mass transfer through boundary layers

7. Engineering, Mechanical (*continued*)

Nuclear Power:

Professor J.M. Kay, Ph.D.	Exponential experiments with subcritical natural uranium/graphite assemblies
P.J. Grant, Ph.D.	Nuclear reactor transient and control problems
C.G. James, Ph.D.	Heat transfer investigations relating to gas-cooled reactors
R.E. Strickland	Investigation into stress distribution in pressure vessels
R. Vaux	High-speed gas bearings
	Theoretical studies in neutron transport theory

8. Geology

Professor D. Williams, D.Sc., Ph.D.	
Professor J. Sutton	Metamorphism, stratigraphy and tectonics of the Moines
J. Watson (Miss), Ph.D.	and Moine thrust region in Wester Ross and N.W
J.G. Ramsay, Ph.D.	Inverness-shire
	Geology of Marungudzi, S. Rhodesia
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
	Structure of the Moine Series in the neighbourhood of Carn Chuinnaig, Easter Ross
	Structural study of the rocks in the vicinity of the 'Loch Skerrol's Thrust', Isle of Islay
F.G.H. Blyth, Ph.D.	Structure of eastern and northern margin of the Dartmoor granite
	Correlation between physical properties and petrological features in road-stones (dolerite group)
	Pre-Cambrian petrology in the Malvern Hills
G.P.L. Walker, Ph.D.	Tertiary volcanic geology, petrology and mineralogy of E. Iceland
D.J. Shearman	Petrology and structure of the Devonian sediments of part of N. Devon
	Brickearths of S.E. England
	Petrography and sedimentation of the Yoredale Series of Yorkshire
	Recent sedimentation in the Wash
W. Skiba, Ph.D.	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
G. Thomas, Ph.D.,	Palaeo ecology 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 palaeo ecology of the Foraminifera of the Coralline Crag, E. Anglia, and the Recent Foraminifera of the Wash
	The distribution of microfossils in the Devonian of Alberta
	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

8. Geology (*continued*)

D.V. Ager, Ph.D.	Palaeo-ecology of Jurassic Brachiopoda in Europe and adjacent areas Morphology and classification of Mesozoic rhynchonellids Morphology and distribution of non-marine Mollusca in the British Pleistocene The geology of the S. Juras, with special reference to sedimentation and faunas Ecology of Upper Carboniferous spores
F.J.W. Holwill	Coral fauna from the Ilfracombe Beds, N. Devon
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
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; leached outcrops near Mt. Isa, Queensland; tin mineralization at Geevor, Cornwall; cupriferous pyrites deposits of Avoca, Eire; pegmatites of N. Rhodesia; structure and mineralization of the Skiddaw Hills, Cumberland; lead-zinc deposits of Zawar, India
A.P. Millman, Ph.D.	Ore microscopy; indentation microhardness; reflectivity in monochromatic light; electron probe microanalysis Geology and mineralogy of manganese deposits in Greece; copper at Cerro de Pasco, Peru, and lead mineralization at Greenside, Cumberland
C.J. Dixon	Studies on replacement of rocks and minerals
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
Oil Geology:	
G.D. Hobson, Ph.D.	Detailed analysis of Schlumberger logs to provide data on structure and geological history of a sedimentary area in Venezuela Reviewing data on composition of oilfield brines in connection with theories of their origin Study of organic matter in oil source rocks 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

9. Mathematics (*continued*)

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
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
J.N. Hunt, Ph.D.	Fluid dynamics
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
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
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.	Slag-gas and metal-gas reactions
A.R. Burkin, Ph.D.	Thermodynamics of borides, silicides and uranium compounds
D.A. Pantony, Ph.D.	Diffusion of cations in fluorite lattices
H.D. Sawyer	Electrochemical measurements of oxygen potentials
J.W. Tomlinson, Ph.D.	Physical chemistry of solutions of metals in molten salts
	Diffusion 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
	Kinetics of dissolution reactions in hydrometallurgical processes

10. Metallurgy (*continued*)

Chemical (*continued*)

Professor F.D. Richardson	Chemistry of solvent extraction methods for recovery of metals from aqueous solutions
C.B. Alcock, Ph.D.	Chemisorption of solutes at solid-liquid interfaces
A.R. Burkin, Ph.D.	Solid-phase reaction of columbite and tantalite with sodium and potassium hydroxides
D.A. Pantony, Ph.D.	Separation of cations by chromatography of their organic complexes
H.D. Sawyer	Thermogravimetry in controlled gas atmospheres
J.W. Tomlinson, Ph.D.	

Physical:

Professor J.G. Ball	Behaviour of dislocations in semi-conductor crystals
Professor E.N. da C. Andrade, F.R.S.	Formation of grain boundary cavities during creep
	Cracking phenomena in metals
A.R. Bailey, Ph.D.	Creep of metals under pure shear
R.L. Bell, Ph.D.	Radiation embrittlement and lattice defects in B.C.C. metals
M.S. Fisher, D.Sc.	Yield-point phenomena and brittle fracture in molybdenum
A.A. Johnson, Ph.D.	Effects of point defects on electrical properties of B.C.C. transition metals
J.S. Llewelyn-Leach, Ph.D.	Direct observation of lattice defects in molybdenum by transmission electron microscopy
P.L. Pratt, Ph.D.	Generation of point defects by plastic deformation in alkali halide crystals
D.L. Thomas, Ph.D.	Internal friction in metals and non-metals
D.R.F. West, Ph.D.	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
	Special metallographic techniques
	Constitution, age-hardening, mechanical properties and electron microscopy of aluminium alloys
	Constitution of thorium alloys
	Transformation phenomena and kinetics in aluminium bronzes and uranium alloys
	Ordering of β-phase in aluminium bronze
	Effects of stress and austenitizing conditions on martensite transformation in steel
	Corrosion mechanisms of the reactive metals, Al, Zr, U, etc.
	Properties of thin oxide films on metals

11. Meteorology

Professor P.A. Sheppard F.H. Ludlam, D.Sc.	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. J.S.A. Green	Study of large-scale motions with reference to numerical weather prediction and the general circulation of the atmosphere and oceans

12. Mining

Professor J.C. Mitcheson	
H.N. Blyth	Improvements to shaking tables
J.W. Bray, Ph.D.	Analysis of ventilation networks by numerical, graphical and analogue methods
E. Cohen, Ph.D.	The application of thin section radiography to the study of non-ferrous ores and mill products The fundamental principles of gravity separation and classification in hydrocyclones and other centrifugal systems The concentration characteristics of chromite The removal of iron from chromite to produce high chrome/iron ratios
M.G. Fleming, Ph.D.	Flotation characteristics of certain metal oxide minerals Factors influencing flotation rate Flotation conditioning in gaseous suspensions Concentration of niobium-bearing ores
A. Grierson	Rock stresses in the vicinity of shotholes
O. Mellgren, Sc.D.	Adsorption of xanthate on galena Fatty acid flotation
A.P. Prosser, Ph.D.	Ion adsorption on synthetic compound oxides Fundamental study of electrical double layer
E.J. Pryor	Flotation of non-sulphide minerals Anion balance in malachite flotation
J.S. Sheppard, O.B.E.	Correlation of mining surveys
D. Sutton	Propagation of ultrasonics through non-homogenous materials
T.L. Thomas, M.B.E., Ph.D.	Field astronomy; latitude, longitude and azimuth

13. Physics

Professor P.M.S. Blackett, F.R.S.	
Professor C.C. Butler	Study of elementary particles using bubble chambers
O. Klemperer, Ph.D.	Electron physics Electron optics
J.A. Clegg, Ph.D.	The history of the earth's magnetic field by measuring the remanent magnetism of sedimentary and igneous rocks
Professor H. Elliot, Ph.D.	Time variations of cosmic ray intensity and large air showers
Professor M. Blackman	Properties of surface layers of crystals by electron diffraction methods and associated theoretical problems
R.W.B. Stephens, Ph.D.	Vibrational physics and ultrasonics
H.R. Allan, Ph.D.	Large cosmic ray air showers
N.C. Barford	Experiments using bubble chamber techniques
J.A. Newth	Study of electronic methods for detecting elementary particles
J. Aharoni, Ph.D.	Theoretical physics
J.P. Astbury, Ph.D.	Bubble chamber track analysis
S.J. Goldsack, Ph.D.	Study of elementary particles using bubble chambers
D.M. Binnie	Study of electronic methods for detecting elementary particles
B.R. French, Ph.D.	Study of elementary particles using bubble chambers
J.G. Park, D.Phil.	Electrical and magnetic properties of metals and alloys at low temperatures
J.J. Quenby, Ph.D.	Time variations of the cosmic ray intensity
I. Butterworth, Ph.D.	Experiments using bubble chamber techniques at low temperatures

3. Physics (*continued*)

B.R. Coles, D.Phil.	Electrical and magnetic properties of metals and alloys
C. Kellner (Mrs.), Ph.D.	Nuclear moments (microwave spectrometer)
N.D. Lisgarten, Ph.D.	Properties of surface layers of crystals by electron diffraction methods
G.G. Parfitt, Ph.D.	Vibrational physics and ultrasonics
R.L. Wilson	The history of the earth's magnetic field by measuring the remanent magnetism of sedimentary and igneous rocks
Cloud Physics:	
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
High Temperature Physics:	
R. Latham, Ph.D.	High temperature plasma physics
H.J. Pain	Study of shock waves
A. Folkierski, Ph.D.	High temperature plasma physics
C.B. Wheeler	
M.G. Haines, Ph.D.	Theoretical studies in plasma physics
Instrument Technology:	
Professor J.D. McGhee, O.B.E.	Instrument technology
	Photo-electronics
W.L. Wilcock, Ph.D.	Astronomical optics
	Photo-electronics
L. Mandel, Ph.D.	Photon beams
	Photo-electronics
E.H. Carman, Ph.D.	Photo-electronics
N.D. Twiddy, Ph.D.	
D.J. Bradley	
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
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	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

13. Physics (*continued*)

Theoretical Physics:

Professor A. Salam	Elementary particle theory. Field theory
P.T. Matthews, Ph.D.	
J.C. Taylor, Ph.D.	

14. 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
M.J. Way	Insect pests of crops
A.B.P. Page, Ph.D.	Insecticides, especially fumigation
K. Boratynski, Ph.D.	Coccoidea (scale insects)
R.G. Davies	Insect morphology
H.E. Goto	Collembola
C.T. Lewis, Ph.D. D.R.P. Murray, Ph.D.	Insect physiology
T.R.E. Southwood, Ph.D.	Biology of Heteroptera
N. Waloff (Miss), Ph.D.	Behaviour of insects, especially in relation to population problems

21 London University, King's College

1. Anatomy

Professor T. Nicol, M.D., D.Sc. D.L.J. Bilbey, T.D., Ph.D. L.M. Charles J.L. Cordingley D.G.W. Cooper	The effect of hormones and other substances on the reticulo-endothelial system as a defence against infection and tumour growth
R.M.H. McMinn, M.D., Ph.D	Cytology of wound healing
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 basic amino acids from natural sources
A. Darbre, Ph.D.	Metabolism of isolated muscle preparations
H.K.F. Blau, Ph.D.	The isolation and identification of urinary amines
N. Spencer, Ph.D.	Intermediate metabolism of carbohydrates in moulds

3. 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

4. Chemistry

Professor D.H. Hey, F.R.S.	Free radical reactions in solution Heterocyclic compounds
Professor D.W.G. Style	Thermal and photochemical reaction kinetics and molecular spectroscopy
V. Gold, D.Sc.	Reaction kinetics in solution Isotope exchange and kinetic isotope effects
A.J.B. Robertson, Ph.D.	Processes at the gas-solid interface Mass spectrometry
L. Crombie, D.Sc.	Natural fatty acids Natural *o*-heterocyclic compounds Terpenic cyclization New reactions of acetylenic substances The chemistry of rotenone
I.R. Beattie Ph.D.	Diffusion in silicates Study of dinitrogen trioxide 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

5. 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

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
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 entrainment in flowing water 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 A study of certain polyphase oscillator circuits
H.M. Clarke W. Fraser	The solution of partial differential equations by analogue techniques

5. Engineering (*continued*)

Electrical (*continued*)

G.H. Platt	Development of an analogue method of multiplication
E.M.S. Deeley, Ph.D.	A study of certain magnetic amplifier circuits
N.S. Japolsky, D.Eng.	Development of a new analogue integrator
	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
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

6. 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 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

7. Geology

Professor J.H. Taylor, F.R.S.	Sedimentary petrology, especially with reference to origin of phosphorites and bedded iron ores and problems of Pre-Cambrian 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

7. Geology (*continued*)

R.W. Le Maitre	Oceanic volcanic provinces with special reference to their petrochemistry and mineralogy The problem of the "iddingsitization" of olivine
J.B. Richardson	British Devonian microfloras with special reference to stratigraphic utilization of these fossils

8. 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 J.A. Tyrrell	Algebraic geometry

9. Pharmacology

Professor G. Brownlee, Ph.D., D.Sc.	Redox buffers Mode of action of central nervous system stimulants
G. Paterson, Ph.D.	Nerve-effector cell junctions with special interests in electropharmacology
G.D.H. Leach, Ph.D.	Action of drugs and transmural stimulation on smooth muscle

10. Physics*

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

Biophysics:

Professor J.T. Randall, Ph.D., D.Sc., F.R.S. M.B. M'Ewen (Miss), Ph.D. A.R. Stokes, Ph.D. C.D. Curling R.E. Burge, Ph.D. J.D. Coombes, Ph.D. G.F. Elliott, Ph.D. N.R. Silvester, Ph.D.	Many physical and biochemical 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

Infra-red and Ultra-violet Spectroscopy:

Professor W.C. Price, F.R.S.	High resolution absorption and emission spectroscopy; microspectrometry; macromolecular investigations
G.R. Wilkinson, Ph.D. W.F. Sherman, Ph.D.	Absorption and photoionization in the vacuum ultra-violet

*Houses the Biophysics Research Unit of the M.R.C. The staff of the Unit includes Professor J.T. Randall, F.R.S., 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., C.R. Worthington, Ph.D., B.M. Richards, Ph.D., J. Lowy, Ph.D., M.R. Watson, W. Fuller, S. Arnott, Ph.D., and R. Pearson. 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

10. Physics (*continued*)

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
E.J. Burge, Ph.D. S. Chomet R.A. Giles K.D. Outteridge	Nuclear emulsion techniques: scattering by counter techniques; total reaction cross-sections; polarization effects

Theoretical:

Professor C. Domb, Ph.D.	Theory of co-operative phenomena and phase transitions Theory of liquids and solutions
M.E. Fisher, Ph.D.	Theory of the solid state: problems in statistical mechanics
A. Danielian, Ph.D.	Polymers and polyelectrolytes

11. 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.F. Buller	Nerve and muscle physiology
R.L. Speirs, Ph.D.	Saliva in relation to dental caries

12. 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.	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	Developmental physiology and morphogenesis
R.C. Fisher, Ph.D.	Physiology of insect parasitism
R.J. Cole	Nucleo-cytoplasmic relations in *Amoeba*

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1. Biology

Professor G. Chapman	The movements and hydrostatics of invertebrate animals Mesogloea of coelenterates
P.C. Gardiner (Miss)	Morphology and biology of anobiid wood beetles
D.O. Rawson (Mrs.)	Functional anatomy of cestode genitalia
J.E. Rigby (Miss), Ph.D.	Functional anatomy of gastropods (pulmonates and opisthobranchs)
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
S.R. Rogers (Miss)	Experimental taxonomy of *Papaver rhoeas*
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

3. Mathematics

W.B. Bonner, D.Sc. (Head of Department)	Relativity; astrophysics
R.L. Perry, Ph.D.	Analysis

4. Microbiology

H.R.B. White (Miss), Ph.D.	Intestinal flora of small animals in relation to diet and age The resistance of various micro-organisms in disinfecting agents (including particularly the effect of heat, cold and drying) The genus *Pediococcus* Microbiology of frozen vegetables
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

6. Physics

T.J. Dillon (Miss), (Head of Department)	Photosensitive neon indicator tubes as photoemissive cells
U. Andrewes (Miss), Ph.D.	Photoelectric spectrophotometry and visual tricolorimetry
J.J. Parsons	Structure of liquids
M.T. Browne	Vibration damping by visco and visco-elastic substances
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 profused rat diaphragm preparation
S.M. Morrissey (Miss)	Physiology of *Nepenthes*

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1. Botany

Professor C.P. Whittingham, Ph.D.	Physiology and biochemical mechanisms of photosynthesis Physiology of higher plants
M.B.E. Godward (Miss), Ph.D.	Cytology and taxonomy of algae and angiosperms Radiobiology
H.V. Newby	Physiology of aquatic fungi Habitat relations of aquatic fungi
D.A. Walker, Ph.D.	Carbohydrate metabolism and photosynthesis Enzymic carboxylation
P.J. Wanstall	Ecology of *Polytrichum* Bryophyte flora of Scilly Isles Bryophyte ecology of the Azores
B.M.G. Jones	Experimental taxonomy of *Arabis* Classification of the Coniferae
C. Bradbeer, Ph.D.	Microbial sulphur metabolism

2. Chemistry

Professor K.W. Sykes	The structure and reactivity of inorganic complex ions in solution Carbon-gas reactions Metal-gas reactions
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
D.C. Jones, D.Sc.	Adsorption from solution Heats of wetting Adsorption on water surfaces of insoluble vapours
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.	The preparation of reduced cyclic systems and related studies
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
D.S. Urch, Ph.D.	Chemistry of recoil atoms

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 Shock attenuation and reflection processes in shock tubes
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	Aeroelastic problems of high-speed aircraft

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 Erosion of concrete due to high velocity water flow
A.W.T. Daniel, Ph.D.	Soil mechanics of granular materials
D. Gadd	Photoelastic research

Electrical:

Professor M.W. Humphrey-Davies	Application of digital computers to problems in the design of transformers and electrical machines, and in the design and control of power systems Synthesis of all-pass equalizer networks
H. Tropper, Ph.D.	The electric breakdown of transformer oil under direct and impulse voltages The role of dissolved gases in the electrical breakdown of transformer oil Electric flashover along oil surfaces and the effect of barriers Electrical conduction processes in liquid dielectrics
T.J. Lewis, Ph.D.	The statistics of impulse testing Electron energy distribution functions in gas discharges The electric strength and conductivity of liquified gases Studies of breakdown time lags in pure liquids The electrical properties of mixed solid/liquid insulating systems The electric strength and conductivity of hydrocarbon gases Theoretical calculation of the ionization coefficients of gases

3. Engineering (*continued*)

Electrical (*continued*)

J.S. Seeley, Ph.D.	Investigation of the transmission properties of interfering 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 electro-mechanical devices
R.F. Thumwood, Ph.D.	Investigation of the mechanism of flash X-ray production
A.J. Guile, Ph.D.	Electron multiplication in image tubes
A.J. Ellison	Heat flow in electrical plant Mechanical noise Asynchronous operation of synchronous machines
A.G.J. MacFarlane	Application of digital computers to the design of control systems Behaviour of electric arcs in magnetic fields
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
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 N.W. Devon Geomorphology of Cyprus Marine abrasion on the Channel coast
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 evolution of central Cornwall up to 1800

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
E.V. Tucker, Ph.D.	Palaeoecology of the *Dayia* Beds of Welsh Borderland Variation in *Dayia navicula* Structural analysis of Welsh Borderland

6. Mathematics

Professor V.C.A. Ferraro	Geomagnetism and astrophysics
Professor K.A. Hirsh	Theory of groups and modern algebra
H.S. Allen, Ph.D.	Theory of infinite matrices and allied topics
M. Tropper (Mrs.), Ph.D.	
B.H. Chirgwin, Ph.D.	Wave mechanics
C. Plumpton, Ph.D.	Astrophysics
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

7. Physics

Professor G.O. Jones	Properties of solids and liquids at liquid helium and liquid hydrogen temperatures Superconductivity, superconducting instruments and sub-millimetre spectroscopy 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
R. Heastie, Ph.D.	Solid-liquid phase equilibria at low temperatures
R.O. Davies, Ph.D.	Thermodynamics of relaxation phenomena
J.C. Burfoot, Ph.D.	Elements for digital electronic computers
D.H. Martin, Ph.D.	Superconductivity and spectroscopy in the sub-millimetre range
F.E. Neale, Ph.D.	Properties of the solidified inert gases

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

8. Zoology (*continued*)

J.D. Carthy, Ph.D.	Behaviour of shore Crustacea and insects
R.F.H. Freeman	Physiology of lamellibranchs Helminth parasites in invertebrate hosts
K. Simkiss, Ph.D.	Cytology, cytochemistry Calcifying mechanisms
L.J. Goodman, Ph.D.	Electrophysiology of insect vision Landing behaviour of flying insects

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1. Botany

Professor F.W. Jane	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

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 Radioactive tracers
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
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
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 Ecology of terrestrial vertebrates
J.G. Thomas (Miss), Ph.D.	Functional morphology of insects, especially locusts Ecology and behaviour of soil Collembola
A. Duncan (Miss), Ph.D.	Pigment in *Arenicola* Freshwater ecology
W.A. Gaunt	Embryology of mammalian dentition

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1. Anatomy

Professor J. McCunn	Applied anatomy Radiological anatomy
J.H. Austin (Miss)	Epitrichia Development in gastrotheca Tissue grafting
B. Bowes	Growth and histogenesis in angiosperms
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

2. Animal Husbandry and Hygiene

Professor J.A. Laing, Ph.D.	Animal reproduction
D.A. Green	Growth in horses
A.E. Harrop	Canine reproduction Artificial insemination in pigs

2. Animal Husbandry and Hygiene *(continued)*

P.A. Jewell, Ph.D.	The physiology of very small mammals The breeding behaviour of species of *Apodemus*. Faunal remains from archaeological sites Productivity of sheep
E.C. Offord	Environmental studies of poultry houses
H.Ll. Williams	Taste thresholds and palatability tests Productivity of sheep

3. Chemistry

E.G.C. Clarke, Ph.D.	Properties of phytotoxins Microidentification of alkaloids Chemistry of steroids
S. Taylor (Miss)	Chemistry of steroids

4. Medicine

Professor H. Burrow	
H.R. Allen	Bacteriological methods in mastitis diagnosis
J.C. Greatorex, Ph.D.	Haematology of cattle
E.F. Lewis	Dermatology of the pig
E.K. Price	Veterinary cardiology
J. Stratton	Otology of the dog and cat Laboratory aids to clinical diagnosis
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 *Clostridium* infections and nocardiosis
E.C. Appleby, Ph.D.	Aspergillosis in birds
W.P. Beresford-Jones	Sheep lungworm infections
D.K. Blackmore	Mortality in foxes and virus studies
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
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

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

6. Physiology *(continued)*

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 Anaesthesia of horses and cattle Diseases of the bovine abomasum
W.R. Cook	Diseases of the upper respiratory tract in the horse
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
J.E. Stock	Veterinary anaesthesia
W.D. Tavernor	Anaesthesia in all species
L.C. Vaughan	Orthopaedic surgery in all species Diseases of the foot in the horse

26 London University, School of Pharmacy

1 Chemistry

Pharmaceutical:

Professor W.H. Linnell, D.Sc.	Preparation of clinical analogues of the adrenal cortex hormones based upon fragments of the cyclopentenophenanthrene nucleus Synthesis of derivatives of adrenochrome Hypnotics
L. Saunders, D.Sc.	Physicochemical studies with phosphatides
A.L. Glenn, Ph.D.	Effect of salts on the ultra-violet absorption of simple aromatic chromophores The accuracy and precision of spectrophotometric methods of pharmaceutical analysis
D.W. Mathieson, Ph.D.	Examination of some constituents of Cucurbitaceae and certain *Erythrophleum* barks
L.K. Sharp, Ph.D.	Synthetic analogues of reserpine

2. Pharmaceutics

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
Engineering:	
D. Train, M.C., 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

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* and *Papaver* Chemical changes in plants which are initiated by insect attack

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.	Relationship of histamine and 5-hydroxytryptamine to anaphylactic shock in different species Physiological significance of histamine and 5-hydroxytryptamine
W.C. Bowman, Ph.D. L.C. Blaber	The mode of action of anticholinesterases on skeletal muscles
A.M. Barrett, Ph.D.	Factors affecting the level of corticotrophin and corticosterone in the blood
B.A. Callingham, Ph.D.	The effects of reserpine on the adrenal medulla and the subsequent recovery of its catechol amine content
B.P. Block, Ph.D.	Further metabolic effects with adrenocortical steroids
R. Cass (Miss), Ph.D.	Studies on 5-hydroxytryptamine and catechol amines
P.S.J. Spencer	Relationship of thyroxine to hypersensitivity

27 London University, University College

1. Anatomy

Professor J.Z. Young, D.Sc., F.R.S.	Nervous system
J.T. Aitken, M.D.	Histology of the spinal cord
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 microsopy of the central nervous system

1. Anatomy (*continued*)

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
D.A.T. New, Ph.D.	Chick blastoderm expansion

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	Inter-stellar material

3. Biochemistry

Professor E. Baldwin, Ph.D.	Nitrogen metabolism in fishes and invertebrates
E.M. Crook, Ph.D.	Metal complexes and the 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.	Peptide chemistry
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.	
D.H. Jenkinson	
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

6. Botany (*continued*)

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 Sir Christopher Ingold, D.Sc., F.R.S.	Mechanism of reactions
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
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
Y. Pocker, Ph.D.	Mechanisms of reactions in aprotic solvents
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 Statistical analysis of mixing solid particles Flange gasket design Still downcomer design Liquid-liquid extraction Continuous fermentation

8. Engineering, Chemical *(continued)*

J.W. Mullin, Ph.D.	Distribution of liquids in packed towers Crystallization
J.A. Barnard, Ph.D.	Gas kinetics Vapour phase chromatography
K. Ridgway, Ph.D.	Azeotrope formation
R. Chayen, Ph.D.	Protein extraction from grasses Manufacture of co-enzyme A and glutathione Conversion of hydrocarbons to fatty acids

9. Engineering, Civil

Professor E.H. Thompson, O.B.E.

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	Non-destructive testing of concrete using the ultrasonic pulse velocity and resonance methods in relation to curing conditions Applications of the above non-destructive testing techniques to timber technology Study of the structural use of light-weight concrete Study of the effect of curing temperatures on high alumina cement concrete Shear strength of reinforced concrete Tee-beams Investigation into the lateral and vertical pressure distribution in deep storage bins containing non-cohesive granular material Use of pumice concrete for structural model testing

Photoelasticity:

C. Snell I.M. Allison, Ph.D. H.T. Jessop	Application of photoelastic methods of exploration to engineering problems, including high pressure cylinders, aircraft components, prestressed concrete, etc. Physical and optical properties and treatment of plastics with special reference to frozen-stress technique and development of scattered light method Bearing pressures and arching effects in granular material, with reference to bins and silos 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
K.O. Kemp	Birefringence of polarized light in connection with fluid flow problems

Photogrammetry and Surveying:

Professor E.H. Thompson, O.B.E.	Research into methods of aerial triangulation, both analogue and digital
E.A. Miskin, Ph.D.	Non-topographic applications of photogrammetry with particular reference to medical and engineering problems Investigation into and reduction of distortions of cameras through physical conditions outside the apparatus

9. Engineering, Civil (*continued*)

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

10. Engineering, Electrical

Professor H.E.M. Barlow, Ph.D., F.R.S.	The internal conditions in electrical laminations with alternating magnetization
Professor F. Brailsford Ph.D.	Measurement of power by application of the Hall effect in semi-conductors
J. Brown, Ph.D.	Problems of low-loss tubular waveguide transmission at millimetre wavelengths
B.C. Brookes	
H. Marriott	The origins of transformer noise
W.K. Taylor, Ph.D.	Simultaneous measurement of Hall effect and radiation pressure for a semi-conductor
H.G. Effemey	
G.E. Gimson	Measurement of microwave Hall coefficients for semi-conductors
G.E. Kenshole	
G.D. Sims, Ph.D.	Investigation of a lumped-circuit travelling wave tube
I.M. Stephenson, Ph.D.	Magneto-resistance and planar Hall effects in single crystal silicon Investigation of the errors arising in aerial radiation pattern measurements 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 Investigation of a microwave mixer employing Hall effect in a semi-conductor 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 waveguides Investigation of the direct conversion of heat into electricity using a crossed-field thermo-electron converter 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

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

11. Engineering, Mechanical *(continued)*

H. Billett	Inhibition of combustion by water droplets Mechanism of flame extinction in flame traps Effect of intake additives on oil engine performance
K.L. Jackson	Investigations of the vibration of flexible rotating shafts
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.	Preliminary investigations in 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
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.
K.M. Barbour	Geography of the Sudan
T.J. Chandler	Climate of London
J.H. Johnson	Historical geography of Ireland in the 19th century
J.C. Crossley	Geography of Latin America
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

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
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
A.J. Smith, Ph.D.	Cambrian sediments of N. Wales
	Structures in the late-glacial laminated clays of Windermere, Lake District
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

16. Mathematics

Professor W.R. Dean	Hydrodynamics and elasticity
Professor C.A. Rogers, D.Sc., F.R.S.	Theory of numbers, packing and covering
T. Estermann, D.Sc., D.Nat.Sc.	Theory of numbers
K.F. Roth, Ph.D., F.R.S.	
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 F.R. Winton M.D., D.Sc.	Intra-renal pressure, renal blood flow and other aspects of pharmacology of the kidney
H.O. Schild, M.D. Ph.D., D.Sc.	Mechanism of anaphylaxis
	Pharmacology of gastric secretion
	Drug antagonism

17. Pharmacology and Therapeutics (*continued*)

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
J.L. Mongar, Ph.D.	Mechanism of the anaphylactic reaction and immune haemolysis
H. Steinberg (Miss), Ph.D.	Psychological effects of drugs affecting the nervous system

18. 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.	Experimental studies of electron collision processes, especially in gas discharges Space research
J.B. Hasted, 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
F.F. Heymann, Ph.D. D.G. Davis, Ph.D.	Experimental study of the polarization of protons in meson-proton collisions
T.C. Griffith, Ph.D.	Experimental study of nucleon-nucleon collisions at high energy
M.J. Seaton, Ph.D.	Physics of atomic collisions; applications in astrophysics
S. Zienau, Ph.D.	Field theory
J.W. Fox, Ph.D.	Collision processes in atomic hydrogen
G.V. Groves, Ph.D.	Theoretical studies relating to scientific use of rockets and satellites
D.W.O. Heddle, Ph.D.	Spectroscopic studies of atomic collision phenomena
I.C. Percival, Ph.D.	Theory of atomic collisions; the use of electronic computers
H.S. Tomlinson	Design of a heavy liquid bubble chamber
F.R. Stannard, Ph.D.	Development of bubble chamber analysis methods
A.P. Willmore, Ph.D.	Space research

19. 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.	General physiology
G.D. Dawson	Transmission through sub-cortical nuclei
M.G. Eggleston (Mrs.) D.Sc.	Renal physiology
R.D. Harkness M.L.R. Harkness (Mrs.)	Properties of connective tissue
S.J. Hubbard, Ph.D.	Sensory mechanisms
O.F. Hutter, Ph.D.	General physiology of cardiac muscle
O.C.J. Lippold	Human muscular function

19. Physiology *(continued)*

J.E. Pascoe	Properties of the spinal cord
M. Schachter, M.D.	Active substances in tissues
D.R. Wilkie, M.D.	Muscle energetics

20. Psychology

Professor G.C. Drew	Skills, especially effects of drugs on skilled performance Ergonomic problems
J.W. Whitfield	Experimental studies of problem solving and non-parametic statistics
G.H. Keir (Miss)	Child psychology
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 and prediction studies in deliquency
C. de Monchaux (Miss), Ph.D.	Psycho-analytic study of thought disturbances
N.F. Dixon, M.B.E., Ph.D.	Decision process underlying recognitive behaviour in mental patients. The classification of pre-recognitive hypotheses as a function of mental disorder
R.T. Green, Ph.D.	Learning, remembering and attention Electric shock thresholds
A.R. Jonckheere, Ph.D.	Devising distribution-free tests for the analysis of psychological data Mathematical analysis of learning phenomena
R.P. Kelvin, Ph.D.	Social psychology of class structure The study of small group productivity The investigation of subjective colours
A. Summerfield	Problems of learning and perception Psychopharmacology
R.B. Buzzard	Studies of attendance in occupations with different environmental conditions
J.L. de C. Downer, Ph.D.	Functions of the cerebral cortex
R. Marriott	Reactions to merit systems in industry
L.J. Buck N. Harris (Mrs.)	Human factors in railway accidents
M. Khairy (Miss) Ph.D.	Behavioural effects of drugs and brain lesions
D. Monnington (Miss)	Communication of production information and the relation of this to success in identifying and solving production problems liable to result in delivery delay
R. Sergean	Individual patterns in absence from work
R.D. Shepherd	Memory for spatial position
S.B.N. Shimmin (Miss)	Methods of teaching visual inspection tasks Extra-mural factors influencing industrial motivation
J. Walker	Perception of lettering
P.C. Wason, Ph.D.	Reasoning Negative information

21. Statistics

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

22. Zoology

Professor P.B. Medawar, C.B.E., F.R.S.	Transplantation immunity
L. Brent, Ph.D.	Cellular transformations
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
Professor D.R. Newth	Embryogeny, regeneration and nucleic acid metabolism in Amphibia
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 lifespan
B.B. Boycott	Nervous system of cephalopods and lower vertebrates
J.P. Stevenson, Ph.D.	Immunity in insects
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

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1. Botany

Professor G.E. Fogg, Ph.D.	Algal physiology and biochemistry; nitrogen fixation; photosynthesis and production of extracellular products by phytoplankton

2. Chemistry

Professor W. Klyne, D.Sc.	Optical rotatory dispersion Chemistry of steroids (including M.R.C. Steroid Reference Collection)

3. Mathematics

Professor E.H. Sondheimer, Ph.D.	Electron theory of metals
G.K. Stanley (Miss)	Theory of numbers
W.B. Pennington, Ph.D.	Theory of numbers; theory of series
N.J. Hardiman (Miss), Ph.D.	Elasticity
B. Fishel	Differential equations; abstract analysis

4. Physics

Professor E.H. Bellamy	The photoproduction of pions Nuclear reactions 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

29 London University, Wye College

1. Agriculture

Professor W. Holmes, Ph.D.	Nutrition of dairy cows
with J.G.W. Jones, Ph.D.	Measurement of feed intake in grazing Plant physiology and grass production
J.E. Duckworth, Ph.D.	Pig breeding and selection
A.E. Maddison	Sib selection in poultry
with M.W. Murray (Miss)	Factors affecting egg quality

Agricultural Zoology.

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

2. Botany

Plant Pathology:

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

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. D.R. Williams 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. 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

*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., and G.A. Carter.

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	Poultry economics
	Agrarian development in E. Africa

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	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*
J.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 plant growth substances
M.Miles (Mrs.)	Entomology. anthomyid flies of economic importance

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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
	Specializations in marine mammals
	Hormonal effects on ground substance and muscle
J.R.W. Ross (Miss)	The development of the female genital tract in sheep
D. Brown	The bronchial anatomy of the primates, ungulates and carnivores

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
W.O. Sykes	Hydrogenated derivatives of substituted 4:7-phenanthrolines

3. Clinical Research

W.E. Evans, M.D.	Changes in tissues observed in materials from exhumations
R.M. Kirk	Lymphoedema and mechanical drainage
N C. Lake, D.Sc.	Hypothermia in small mammals
A.R. Makey J. Angus Smith T.R. Preston	Oxygenation of blood in cardiopulmonary by-pass, utilizing the paramagnetic properties of oxygen
J.M. Mickerson, M.D.	The role of potassium in the maintenance of blood pressure Suprarenal insufficiency in systemic disease An assessment of the effect of insulin
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. M.K Jeacock (Miss)	Changes in the metabolism of the placenta in normal and abnormal pregnancy
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
J.E. Pendower	Investigation of post-gastrectomy alimentary function, using iodine-labelled oil
M.A Peyman, D.M	Role of heparin and diet in cardiovascular disease
G.D.H. Shawe	Regeneration of automatic innervation at the site of bowel anastomosis
Professor H.E. de Wardener, 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

FULHAM HOSPITAL

A.W. Lipmann 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 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.	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. (Head of Department)	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 Adrenal function in malignancy
K.D. Bagshawe	Use of cytotoxic drugs

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.	Assessment of p acental function by studying the rate of transfer of I^{132} to the foetus *in utero* 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

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

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	The role of calcium and potassium ions in the action of digitalis
	The mechanism of digitalis bradycardia
	Elective cardiac arrest
R.G. Penn	The mode of action of various cardiovascular drugs

10. Physiology

Professor W. Burns, D.Sc.	Effect of acoustic stimulation on cochlear function
J. Lee	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	The development of blood vessels

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1. Anaesthetics

P.J Helliwell (Director)	
T.H.S. Burns J.M. Hall	The development of new, non-explosive inhalational anaesthetic drugs
J.A. Thornton	Investigation into the relative merits of various forms of artificial pulmonary inflation during anaesthesia with particular reference to thoracic surgery and chronic chest disease
C. Bishop	Mortality and morbidity of out-patient dental anaesthesia
M.W. Potts	Anaesthesia for angiocardiography with special reference to possible respiratory effects of contrast medium
	Mortality and morbidity of out-patient dental anaesthesia
	Estimation of blood loss during T.U.R. (trans-urethral prostatectomy), using chromium-tagged cells
B.R.P. Murray	An investigation into blood volume, using radioactive isotopes
	Estimation of blood loss during T.U.R. (trans-urethral prostatectomy), using chromium-tagged cells

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
	Ultrasonics in central nervous research
J. Joseph, M.D.	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

2. Anatomy (*continued*)

G.A. Thomas, Ph.D. with Professor P.E. Polani, M.D.	Studies of the sex chromatin in certain bodily abnormalities
P.L. Williams with C.P. Wendell-Smith	An experimental study of nerve structure
C.P. Wendell-Smith	Investigation of comparative anatomy, innervation and development of pelvic floor musculature Intrinsic musculature of uterus
I. McColl	Micro-anatomy of the anal canal
with M. Hill (Miss)	Ultrasonics in detection of gall stones

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	Vertebrate palaeontology: 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 dental tissues in relation to diseases
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 roentgenographic 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

7. Endocrinology

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

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

W.N. Mann, M.D. (Director of Department)	
K.S. MacLean, M.D. with Department of Surgery	Hypophysectomy and adrenalectomy in the treatment of breast cancer
with R. Brain	A combination of cytotoxic drugs and surgery in the treatment of carcinoma of the lung
K.D. Allanby, M.D.	Investigation of the incidence and mechanism of polycythaemia in chronic anoxic lung disease by the study of the total body haemoglobin and red cell mass related to the lean body mass
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 Treatment of hypercholesterolaemia
R.F. Mahler	Studies on the quantitative aspects of tissue metabolism Enzyme patterns in various myopathies
J.A. Thornton	Investigation of the problem of pulmonary emphysema in relation to general anaesthesia
T. Hanley, M.D.	Utilization of fatty acids by muscle
A.L.J. Buckle, Ph.D.	Amino-acid patterns in blood plasma
H. Keen with R.K. Knight	Methods for measuring blood glucose in samples collected on to fibre glass discs by the patient or during field studies
B.L. Mallett	Studies of metabolic changes associated with temporary alterations of consciousness
*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

*M.R.C. staff

10. Microbiology

Bacteriology:

Professor R. Knox, M.D.	The mode of action of anti-tuberculous drugs, especially isoniazid
	The mode of action of new penicillins
	Studies on the breakdown of isoniazid
	New techniques in sterilization of syringes, dressings, etc.
R.H. Gorrill, M.D.	Localization of bacteria in the kidneys of experimental animals
	Studies on the establishment of lysogeny in *Salmonella typhimurium*

11. Obstetrics and Gynaecology

T.L.T. Lewis J.B. Blaikley with F.A. Murray	Gastric secretion in pre-eclamptic toxaemia
C.M. Flood, M.D.	Investigation into the treatment of ovarian carcinoma especially in young women with special reference to subsequent pregnancies
A.S.F. Butcher I. Macdonald, Ph.D.	Follow-up on the educational standards and mental state of children born to mothers who had pre-eclamptic toxaemia in their pregnancy
A S.F. Butcher	The prognosis of carcinoma of the ovary in relation to the extent of disease found at operation
	Investigation into the relation between the shape and position of the sacrum on X-ray and difficulties in labour
P.J. Dwyer	Uterine rupture associated with intramuscular pitocin
P.J. Dwyer C.P. Wendell-Smith	Anatomical and radiological changes in the pelvic floor in patients suffering from prolapse
L. Rankin N. Veall	The measurement of menstrual loss using radioactive chromate
L. Rankin	The use of biological pregnancy test as a means of assessing Rhesus iso-immunization
	The nature of adenosis vaginae

12. Paediatrics and Child Health

Professor P E. Polani, M.D.	"Nuclear sexing" and chromosome studies in relation to: Errors of sexual development Mental deficiency Cerebral palsy Schizophrenia
	Twinning in cerebral palsy
	Statistical investigation of congenital heart diseases from the aetiological view point
	Clinical studies on cerebral palsy
	Dermatoglyphics in congenital malformations
	Investigation into the mechanism of disturbed sex ratio in anencephaly
	Human cytogenetics and congenital malformations
J.L. Hamerton	Study of human cytogenetics in relation to: Congenital abnormalities Malignancies of childhood Comparative cytogenetics
A.D. McDonald (Mrs.), M.D.	Prospective survey of neurological handicaps, blindness and deafness in small premature babies
	Prospective survey of congenital malformations in relation to abnormal pregnancy states (Watford area)
	Studies of neurological handicaps in children born from mothers with severe toxaemia of pregnancy
	Survey of cases of cerebral palsy from information collected retrospectively

12. Paediatrics and Child Health *(continued)*

J.M. Abercrombie (Mrs.), Ph.D.	Oculo-motor disturbances in relation to perceptual disorders in brain-damaged children
P.R. Evans, M.D.	Follow-up of acute nephritis Treatment of acute rheumatic fever Allergy in mongolism Congenital syndromes Chromosomes in congenital heart disease
R.C. MacKeith, M.D.	Breast feeding Nature and treatment of cerebral palsy Neurological examination of the newborn Techniques of teaching Television in medicine

13. Pathology

Professor G. Payling Wright, D.M.	Studies on myelinogenesis and the persistence of myelin lipids
with S. Leibowitz D. Bassett	Pathogentic effects of heterophile antibodies with special reference to the central nervous system
S.J. De Navasquez, M.D.	Experimental infections of the kidneys
P.A. Gorer, D.Sc., F.R.S. with *J.R. Batchelor *S.M. Saleh (Miss)	Serological studies on neoplasms
G.A.K. Missen	Studies on arteritis in man
J. Dobbing	Studies on the blood-brain barrier
J.B. Cavanagh	Culture studies of nervous tissue in relation to myelination Studies on toxicology of organic phosphorus compounds

Chemical:

Professor R.H.S. Thompson, D.M. *B. McArdle, M.D. G.R. Webster, D.M.	The lipases and esterases, including the cholinesterases, of the nervous system, with special reference to myelin metabolism and to the degenerative lesions of the nervous system produced by certain anticholinesterases The oxidation of keto-acids by nervous and other tissues, with particular reference to peripheral neuritis Effect of lysolecithin and other lytic agents on nervous tissue Urinary excretion of catecholamines
B. McArdle, M.D.	Studies on potassium metabolism in diseases of muscle
G.R. Webster, M.D. L. Rathbone, Ph.D.	Fractionation of lipids of the nervous system
R.W.R. Baker, Ph.D.	Applications of gas chromatography in the analysis of plasma and cerebro-spinal fluid constituents
P.H. Wright, M.D.	Studies on insulin antibodies and on plasma insulin levels, using the isolated rat diaphragm, in diabetes mellitus and other endocrine disorders
C.J. Earl, M.D. P.J. Warren	Studies on copper metabolism in the brain and other tissues with special reference to Wilson's disease
W.L. Magee, Ph.D.	Studies on phospholipase A

Clinical:

W.H.H. Merivale (Director)	Studies on the development of staphylococcal infection in human skin grafts Metabolic studies of patients with manic-depressive psychosis

*M.R.C. staff

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
L. Sinclair	The distribution and effects of drugs in the brain Distribution of drugs in pregnant animals
F.M. Sullivan	Chemotherapy of tuberculosis and leprosy

15. Physics

Professor C.B. Allsopp D.Sc., Ph.D.	Routine control of X-ray protection in the hospital and of physical problems arising in X-ray diagnosis
S.J. Wyard Ph.D.	Measurement of gonad doses received by patients during diagnostic X-ray examinations
C.K. Battye	
E.H. Grant, Ph.D.	Photoconductive properties of amorphous selenium under irradiation with X- and γ-rays
M. Hill (Miss)	
B.R. Worsnop	Preparation of thin films of amorphous selenium
M.W. Aaron (Miss)	Electron spin resonance spectroscopy of free radicals produced in radiation chemical and biochemical processes
P.G. Lale, M.D.	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 for radiotherapy
	Physiology and technology of cardiac pacemaking
	Development of electronic apparatus for use in clinical diagnosis and research
	Use of ultrasonics in clinical diagnosis

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
D.J. Anderson, Ph.D.	Inter-dental forces in mastication The control of movements of mastication
I. MacDonald, 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

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

17. Surgery (*continued*)

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

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1. Anatomy

Professor G. Causey	Electron microscopy and quantitative cytology
A. Barton	
M. Barton (Mrs.)	
Professor R.J. Last	Human anatomy and morphology
F. Stansfield	
R. Livingston	Human and comparative anatomy
D. Tompsett, Ph.D.	Anatomical techniques

2. Pathology

Professor G.J. Cunningham, M.B.E., M.D.	Tissue repair
J.B. Walter, M.D.	
Professor G.J. Cunningham, M.B.E., M.D.	Histochemical methods applied to histopathology
J. Chayen, Ph.D.	
Professor G.J. Cunningham, M.B.E., M.D.	Histochemical aids to routine histological diagnosis of liver lesions
J. Chayen, Ph.D.	
L. Bitensky	
Professor G.J. Cunningham, M.B.E., M.D.	Histochemistry of lung cancer
J. Chayen, Ph.D.	
Professor G.J. Cunningham, M.B.E., M.D.	Experimental liver carcinogenesis
J. Chayen, Ph.D.	
L. Bitensky	
Professor G.J. Cunningham, M.B.E., M.D.	X-ray microscopy
P. Gahan	
J. Chayen, Ph.D.	Enzyme histochemistry and biochemistry
G.R.N. Jones	
J. Chayen, Ph.D.	Histochemistry and biochemistry of phospholipids
P. Gahan	
L. Bitensky	
M.S. Israel	Tissue and organ culture
	Normal viral flora of tonsils and adenoids
L.W. Proger	Museum mounting methods

2. Pathology (*continued*)

J.B. Walter, M.D.	Transparent rabbit ear chamber techniques
J.B. Walter, M.D. F.S. Freisinger, M.D.	Effects on tissue of experimental irradiation
J.B. Walter, M.D. D.H. Pratt R.W. Baldwin, Ph.D.	Carcinogenic action of chemical oil additives
A.J.M. Reese, T.D., M.D.	Fate of suture material in wounds Experimental liver damage by anaesthetic agents

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. Amchache	Neurotoxins Physiologically active lipids anions

33 London University, Institute of Cancer Research

1. Cancer Research

CHESTER BEATTY RESEARCH INSTITUTE

Professor A. Haddow, M.D., D.Sc., Ph.D., F.R.S.	Mechanism of carcinogenesis Nutritional protection against carcinogenesis Experimental chemotherapy
Professor F. Bergel, D.Phil.Nat., D.Sc., F.R.S.	Synthesis and study of chemotherapeutic agents: Phenylalanine and serine peptides Modified proteins, polypeptides and antibiotics
G.M. Timmis, D.Sc.	Polyol dimesylates
W.C.J. Ross, D.Sc., Ph.D.	Amino-acid antagonists Hydantoins related to amino-acid mustards
J.A. Stock, Ph.D.	Sulphydryl group reactors
W. Davis, Ph.D.	Potential antipurines and antifolics
J.J. Roberts, Ph.D.	Potential inhibitors of diphosphopyridine nucleotide synthesis
G.P. Warwick, Ph.D.	Toxicology and haematology of agents
C.L. Leese, Ph.D.	Actions of the alkylating agents: Chemical reactivity of alkylating agents
J.H. Lister, Ph.D. R. Wade, Ph.D. J.L. Everett S.S. Brown, Ph.D.	Action of nitrogen mustards and other alkylating agents on nucleoprotein and proteins

1. Cancer Research (*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	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.	Crosslinking 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.	
G.D. Hunter, Ph.D.	Amino-acids, histones and proteins:
A.B. Robins, Ph.D.	Avidity of tumours for amino-acids
D.J.R. Laurence, Ph.D.	Histones of calf thymus and other tissues
D.M. Phillips, Ph.D.	Protein synthesis in rat liver: role of the microsomes
P. Cohn, Ph.D.	DNPolymerases and binding of protein to DNA
K.S. Kirby, Ph.D.	Ribonucleic acids:
E. Reid, D.Sc., Ph.D.	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.	Crosslinking 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	Direct and indirect action on chymotrypsin
	Shortening o 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
I. Hieger, D.Sc., Ph.D.	Sarcomas induced by a carçinogen 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

1. Cancer Research *(continued)*

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
J.J. Roberts, Ph.D.	The estimation of free and conjugated 3-hydroxyanthranilic acid using spectrofluorimetry
G.P. Warwick, Ph.D.	The metabolism of 4-amino-2[1]: 3-dimethyldiphenyl in relation to the induction of intestinal cancer Mechanism of action of urethane 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
E.M.F. Roe (Miss), Ph.D.	Microscopy: Interference microscopy of normal and tumour cells
R.L. Jones, Ph.D.	Differential fluorescent staining of deoxyribonucleic acids/ribonucleic acids by acridine orange
E.H. Mercer, Ph.D.	Microscopical investigations of the cytoplasm in ascites tumour cells
M.S.C. Birbeck	
R.J. Goldacre, Ph.D.	Cell membranes and intercellular contact Electron microscopy of macromolecules
D.A.G. Galton	Clinical and chemotherapeutic studies:
E. Witshaw (Miss)	Clinical trials of di-2- chloroethylamine (nor-HN2)
D.E. Speed (Miss)	Amino-chlorambucil

1. Cancer Research (*continued*)

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
Professor E. Boyland, D.Sc., Ph.D.	The treatment of cancer of the bladder with glucosaccharo-1:4-lactone
K. Williams, Ph.D.	The use of drugs in local regional perfusion
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
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.	Application of low-level α-counting techniques in studies of natural radioactivity in a wide range of biological materials, foods and other substances
R. Bentley, Ph.D.	
I.G.F. Gilbert, Ph.D.	Chemical and α-counting methods of measuring activities of individual nuclides in bone and other tissues
C.A. Greatorex, 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
J.P.M. Bensted	Experimental biological and physiological investigations:
N.M. Blackett, Ph.D.	Radiation response of bone of the growing rat with particular reference to bone tumour production following (a) internal administration of radioactive materials, (b) localized external irradiation. Application of histological, radiographic and autoradiographic techniques
L.F. Lamerton, Ph.D.	
	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.C. Jones	Applications of physics to medical radiology:
J.A. Newell, Ph.D.	Development of diagnostic techniques using I^{131}, I^{132} and Ca^{47}
K.W. Taylor, Ph.D.	
N.G. Trott, Ph.D.	Development of Ir^{192} grains for use in permanent implants

2. Physics (*continued*)

J.C. Jones	Studies of distribution of radiation dose during various X-ray and radium treatment techniques
J.A. Newell, Ph.D.	
K.W. Taylor, Ph.D.	Application of calorimetric methods in the measurement of absolute intensity and absorbed dose from X-ray and γ-ray beams
N.G. Trott, Ph.D.	
	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 on 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

34 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, selection of cases for surgery, abnormalities of blood coagulation brought out by surgery, post-operative long-term results and respiratory physiology
D.E. Bedford, M.D.	
W. Evans, D.Sc., M.D.	
G.W. Hayward, M.D.	
W.W. Brigden, 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
A.G. Leatham	
E.L. McDonald, M.D.	
T. Holmes Sellors, D.M.	
R.E.B. Hudson, M.D.	
P.J. Kerley, C.V.O., C.B.E., M.D.	
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

35 London University, Institute of Child Health

1. Genetics

M.R.C. CLINICAL GENETICS RESEARCH UNIT

J.A. Fraser Roberts, M.D., D.Sc.(Director)	Study of genetic and other factors in causation of developmental abnormalities

2. Haematology

R.M. Hardisty, M.D. (Head of Department)	
J.C.W. Macfarlane, M.D. with J.B. Weiss	The toxoplasma dye test accessory factor and its relationship to the properdin system
S.S. Epstein, M.D. with J.B. Weiss	Developments of a method for assessing the growth response of *Euglena gracilis* in the presence of high concentrations of vitamin B_{12}
J.B. Weiss	Chromatographic identification of differences in pigment function of *Euglena gracilis* in the presence of vitamin B_{12} antimetabolites
P.J. Jensen, M.D.	Studies on the uptake and survival of Cr^{51}-labelled erythrocytes administered intraperitoneally to children with thalassaemia major
R.M. Hardisty, M.D. with K. Dormandy	Studies on the blood coagulation mechanism in infancy and childhood

3. Medicine

Professor A.A. Moncrieff, C.B.E., M.D. with W.W. Payne	Study of nephrosis
R.E. Bonham-Carter	Initial expansion of human lungs Effect of early surgery of the prognosis of congenital heart disease
R.T. Brain, M.D.	Use of radioactive isotopes in the treatment of vascular naevi
with F. Bell P.J. Koblenzer	20-year survey of the national history of infantile eczema
E.M. Creak (Miss), M.D.	Research into childhood schizophrenia
M. Coghlan	Allergic conditions in mongolism
J.E. Hall	Lung volume of children with fibrocystic disease
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 J.E. Hall	Investigation of respiratory problems
G.H. Newns, M.D.	Adrenal hyperplasia Growth deficiences
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

3. Medicine (*continued*)

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
J.P.M Tizard	Research into electroencephalography in the newborn

4. Pathology

M. Bodian, M.D. (Head of Department) with G.M. Timmins	The biology of vitamin B_{12} especially in relation to tumour chemotherapy
S.S Epstein	
S Leibowitz	The pathology of megalo-ureters
T. Scott	The physiology and pathology of sweat glands in fibro-cystic disease of the pancreas
G.H. Newns, M.D.	Neonatal hepatitis
T. Scott	

Chemical

B. Clayton, M.D. Ph.D. (Head of Department)	Work in amino-acid and sugar patterns in plasma, urine and cerebro-spinal fluid in children with mental retardation Survey of blood ACTH in Cushing's syndrome and the histological studies on pituitary gland
R.H. Wilkinson, M.D. with H.H. Nixon	Body space determinations in newborns undergoing surgery
W.S. Craig, M.D.	Measurement of total ultra-filtrable calcium in neonates
W.W. Payne with S Hardy	Measurement of high voltage electrophoresis of amino-acids with particular reference to cardiac disease
P. Wilson	Absorption of D-xylose as a test of intestinal function
T. McKendrick	Study of the electrolytes in the sweat of children with fibro-cystic disease of the pancreas, utilizing pilocarpine by iontophoresis

5. Surgery

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. J.E. Hall P. James (Cardiac Research Unit)	Construction of an artificial heart-lung machine suitable for children
D.N. Matthews, O.B.E. M.D.	Reconstruction of congenitally absent and malformed ears
G.H. MacNab	Treatment and prognosis of hydrocephalus by use of the Spitz-Holter valve

5. Surgery (*continued*)

H.H. Nixon	A continued series of cap-splinted cleft palates Function in repaired imperforate anus
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
with A.H. Snaith L. Stevens J. Orr (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
D. Innes Williams, M.D.	Investigations into urinary tract obstruction in infants
K. Till	Effects of Cooper's procedure on children with dystonia

36 London University, Institute of Dental Surgery

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

2. Dental Studies

Children:

R.R. Stephens (Head of Department)	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 (Head of Department)	Properties of dental materials Application of high-speed cutting instruments in clinical dentistry

Prosthetics:

R.I. Nairn	Histological structure of edentulous jaws

3. Microbiology

Bacteriology:

G.C. Blake (Head of Department)	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

4. 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
P. Blyth and E.K. Bond, (Miss), with the assistance of the staff of the Department	A study of the relationship between variations in the soft tissue morphology and patterns of behaviour, and variations in speech patterns
D.G. Gould	Investigation of the number and distribution of missing teeth in adults between the ages of 25 and 35 Longitudinal cephalometric study of treatment of patients with "Heath" plates Investigation of treatment of patients with untrimmed Andresen appliances
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 and piezoelectric material to measure the forces exerted upon the dentition by the labial and lingual musculature
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 temporomandibular 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

5. Pathology

I.R.H. Kramer (Head of Department)	Problems in oral histology and histopathology, including the experimental investigation of biological properties of materials The vascular architecture of the dental pulp Changes in the dental pulp following cavity preparation using turbine handpieces The effects of heat on enamel and dentine Changes in the tissues following the injection of fluids by high pressure jet

6. Periodontology

W.G. Cross (Head of Department)	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

7. 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

37 London University, Institute of Dermatology

1. Dermatology

F.R. Bettley, T.D., M.D.	Assessment of Grenz-ray therapy in atopic dermatitis and other disorders
	An investigation into the irritant properties of soap and other cleansers in normal and eczematous subjects
C.D. Calnan	Cement dermatitis
	Survey of industrial dermatoses in an engineering factory
	Dermatitis from shoe adhesives
	Dermatitis from epoxy resin systems
	Dermatitis from phenothiazine derivatives
S.C. Gold, M.D.	Continued long-term study of lupus erythematosus
L. Forman, M.D.	Investigation of protein changes in nickel sensitivity
H. Haber, M.D	Histopathological aspects of mycosis fungoides
	Alopecia mucinosa
I.A. Magnus	Studies with the monochromator of erythema and pigmentation in normal human skin and experimental animals
	Monochromatic photosensitivity tests on patients with photodermatoses
	Determination of action spectrum of phylloerythin and haematoporphyrin in rabbits and lambs with a monochromator
	Studies of spectral reactivity in pig skin
	Appraisal of light-absorbing applications and antimalarials in patients with photodermatoses
	Assay of skin responses to ultra-violet light by monochromatic photography
	Determination of action spectrum of largactil in human skin, with the monochromator
	Determination of action spectrum of photosensitivity due to hydrocarbons
A.K. Monro, M.D.	Malignant melanoma (clinical series) 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. with R.W. Riddell, M.D.	Assessment of the value of griseofulvin in the treatment of fungus infections
R.W. Riddell, M.D.	Immunology of ringworm infections
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

1. Dermatology (*continued*)

K.V. Sanderson	The morphology, histopathology and histochemistry of basal-cell carcinoma The effect of exposure to sunlight on the histopathology of epithelial neoplasms The experimental production of epithelial tumours in mice with arsenic as a cocarcinogen The histogenesis of epithelial tumours of rats produced by 2-amino-anthracene
L. Szur	The natural history and treatment of skin reticulosis A clinical comparison between the effects of Grenz rays and superficial X-rays in benign dermatological conditions
A. Tickner with D. Gilbert	Metabolic control mechanisms in skin
A. Tickner with P.D. Mier	Oxidative phosphorylation in skin Assay of various enzymes in normal and abnormal skin
A. Tickner	Biochemical effects of ultra-violet light on the skin Carcinogenic action spectrum of ultra-violet light
G.C. Wells	Histochemistry of the skin with particular reference to enzyme systems

38 London University, Institute of Diseases of the Chest

1. Chest Diseases

J.G. Scadding, M.D.	Sarcoidosis, with special reference to aetiology Pulmonary aspergillosis: clinical aspects and pathogenesis
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 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 antigenic 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

39 London University, Institute of Laryngology and Otology

1. Anatomy

OTOLOGICAL INVESTIGATION UNIT

Professor F.C. Ormerod, M.D.	The minute anatomy of the petrous bone including the internal ear
D.F.N. Harrison, M.D. J.D. Pye E. Pye	The comparative anatomy of the temporal bone and the internal ear and of the larynx

2. Audiology

E. Whetnall (Miss) A.S. Walker	The aetiology of congenital deafness and acquired perceptive deafness
Professor D.B. Fry, Ph.D.	Auditory training of children and adults
L. Fisch, M.D.	Use of hearing aids by partially deaf and severely deaf children, including pre-school age children and infants, technique for the fitting of inserts
	Relation of speech defects and deafness
	Tests of hearing in children
	Tests of intelligence in deaf children

3. Medicine

Physical.

B. Kiernander S. Banerji	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
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 deafness
	Relation between abnormal blood conditions and tumours of the pharynx
	Relation between abnormalities of cardiovascular system and of blood pressure and epistaxis

5. Pathology

I. Friedmann, M.D. D.A. Osborn	Electron microscopy of human biopsy material with particular reference to neoplasia
A.L. Jeanes	The fine structure of the nasal and laryngeal mucosa
J.C. McAlpine	Tissue culture of the isolated fowl embryo otocyst with particular reference to the fine structure of the cilia and nerve endings
	The application of histochemical methods to electron microscopy
	Quantitative electrophoresis on stabilized media
	Study of serum iron levels in relation to the Kelly-Patterson syndrome
	Antibiotic treatment of experimental otitis in the guinea-pig
	Epidemiology and pathology of otitis media with particular reference to intracranial complications
	Isolation and structure of adenoviruses
	The pathology of otosclerosis
	Malignant granuloma of the nose

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 M. Flinn J.D. Pye	The effects of various chemical substances on the inner ear

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 pathways
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 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 Patterson-Brown-Kelly syndrome The movements of the ossicles The anatomy of the sinuses in different races
with Sir Victor Negus	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

40 London University, Institute of Neurology

1. Neurology

Academic:

J. Marshall, M.D. (Reader)	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
D.J. Joyce (Mrs.)	The estimation of pharmacological substances in normal and in plastic brain tissue in humans

Clinical:

Macdonald Critchley, M.D.	Disorders of language Disorders of perception with special reference to the parietal lobes

1. Neurology (*continued*)

Clinical (*continued*)

W. Gooddy, M.D.
- Clinical-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

M.R.C. NEUROLOGICAL RESEARCH UNIT

E.A. Carmichael, C.B.E. (Director)
J.A.V. Bates
G.D. Dawson
A.M. Halliday
P.W. Nathan, M.D.
M.C. Smith (Miss), M.D.

The aim of the Unit is towards determining a clearer understanding of the intimate functioning of the nervous system of man by the development of new methods and instruments for recording changes; the application of these methods to the study, in healthy subjects, of changes in function resulting from applied stresses of a temporary character; the study by these methods of changes in function; the result of disease process or therapeutic measures; the control of such observations when possible by morphological studies

- Cerebral action potentials: the elaboration of methods for recording evoked cerebral action potentials through intact scalp in man; the design and assembly of apparatus for recording direct from the cerebral cortex during surgical operation
- The detection of focal cerebral abnormalities in epileptics
- The study of infantile hemiplegics before and after hemispherectomy
- Studies of nerve and spinal cord: an enquiry into the underlying physiological disturbances found in paraplegia
- The sensory and autonomic function in inoperable cancer before and after cordotomy and their correlation with histological changes
- Histological studies of nerve cell and tract degeneration following cordotomy

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

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

3. Neurosurgery (*continued*)

H. Jackson (*continued*)
- 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 globus pallidus and by chemopallidectomy
- 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, lyophilized chymotrypsin and pathilon, in the control of cerebral swelling

MAIDA VALE HOSPITAL

V. Logue
- Use of stereotaxis in the treatment of intractable pain
- Investigation of the time limits of temporary major vessel occlusion of the cerebral arteries, in the treatment of aneurysms under hypothermia, utilizing isotopes
- Investigation into the cases of epilepsy continuing or appearing after the removal of benign tumours
- Investigation into the prevention of air embolism in neurosurgical operations, in the sitting position

4. Otology

M.R.C. OTOLOGICAL RESEARCH UNIT

C.S. Hallpike, C.B.E., F.R.S. (Director)
M.R. Dix (Miss), M.D.
J.D. Hood, D.Sc.
L. Citron
- 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
- Clinical, anatomical and electro-acoustic investigations of the loudness recruitment phenomenon, and other aspects of cochlear function in health and disease of the VIII nerve system
- Physiological studies of the semicircular canal system in man
- Experimental studies on the physiology and pathology of vertigo
- Biochemical studies of the labyrinthine fluids

5. Pathology

Professor W. Blackwood	Demyelinating diseases Myopathies and neuropathies
W.G.P. Mair, M.D.	Effect of proton beam irradiation on the nervous system

Chemical:

Professor J.N. Cumings, M.D.	Copper metabolism in hepatolenticular degeneration 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 the various keto acids in disorders of peripheral neuritis and polyneuritis, previously investigated by the pyruvic acid metabolism test Electrolytic disturbances in pituitary tumours in relation to post-operative conditions
D. Marrack, M.D.	The cytology of the cerebro-spinal fluid
G. Curzon, Ph.D.	The chemistry of caeruloplasmin Investigations into metabolic disorders of schizophrenia
B.P. Hughes, Ph.D.	Investigations into muscular dystrophy and muscle proteins
V. Dubowitz	Histochemical investigation of muscular disorders

MAIDA VALE HOSPITAL

W.H. McMenemey, D.M. H.C. Grant (Miss), M.D. R.O. Barnard	Histopathology of the nervous system
K. Gavrilescu (Mrs.)	Electrophoresis of serum and cerebro-spinal fluid proteins

6. Physiology

Applied:

D. Williams, C.B.E., M.D.	Mechanisms underlying the conscious state in man Effects of interruptions of blood flow through the basilar artery in man A study of hemianopic field defects
W.A. Cobb T.A. Sears	The electrophysiology of the nervous system in health and disease The human electroencephalograph with particular reference to symptomatic epilepsy Differential blocking of nerve fibres by local anaesthetics
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 multi-channel electroencephalographs

7. Psychiatry

MAIDA VALE HOSPITAL

R.T.C. Pratt, D.M.	Studies on the mental state of patients with brain disease
A. Elithorn, M.D. M. Piercy L. Hersov, M.D. M. Kerr (Mrs.)	The interaction of the abnormalities in physiological and psychological mechanisms which determine emotional disturbances and disorders of behaviour in children and adults

7. Psychiatry (*continued*)

NATIONAL HOSPITAL

E.T.O. Slater, M.D. (Head of Department)	Physiological and psychological studies on patients subjected to leucotomy, temporal lobectomy and hemispherectomy
Professor O.L. Zangwill	
G. Ettlinger, Ph.D.	The relationship between paroxysmal changes in the electroencephalograph and states of partial consciousness and persisting abnormalities of mood, including psychological studies on the relationship between epileptic paramnesia and paramnesia in normal subjects
M. Wyke (Mrs.), Ph.D.	
E.K. Warrington (Mrs.), Ph.D.	
M. Scott-Wilson (Miss)	
M. Wilson	The development of central excitatory and inhibitory states and on the interaction of the physiological and psychological mechanisms underlying depressive reactions
	Experimental studies of higher visual disabilities 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

41 London University, Institute of Obstetrics and Gynaecology

1. Clinical Research

CHELSEA HOSPITAL FOR WOMEN

R.M. Feroze, M.D.	Investigation of metropathia haemorrhagica in functional uterine bleeding

2. Endocrinology and Fertility Studies

ENDOCRINE LABORATORIES

I.F. Sommerville, M.D., Ph.D. (Director)	The biochemistry of steroid and protein hormones with special reference to disorders in women
with M.I. Stern	
J.M. McDonald	Studies upon chemical and biological technique 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
E.P. Giorgi (Miss)	
D. Jones	
	Application of such methods to the study of patients in the Endocrine and Fertility Clinics

CHELSEA HOSPITAL FOR WOMEN

P.M.F. Bishop, D.M.	The role of cervical mucus on infertility
	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
in association with Sir Charles Dodds, M.V.O., F.R.S., and S.J. Folley, D.Sc., F.R.S.	The evaluation of "Miroestrol"
in association with Professor P.E. Polani	The investigation of chromosomal anomalies

3. Obstetrics and Gynaecology

HAMMERSMITH HOSPITAL

Professor J.C.M. Browne	Utero-placental haemodynamics Sodium and water metabolism in pregnancy Treatment of haemolytic disease of newborn Ovulation in human female Nitrogen mustard compounds in inoperable cancer
A.F. Bushby	Non-specific vaginitis
D. Davey	Contractility of muscle of blood vessels Cortisone test for prediabetes
B. Dawson with J. Mathie	Relationship between uterine activity near term, and the induction delivery interval
P. Elliott	Studies on the formation, volume and disposal of the liquor amnii
V.B. Green-Armytage	The effect of procain, streptomycin and cortisone on tubal occlusion
D.F. Hawkins	The pharmacology of the isolated human fallopian tube Maternal jaundice and hydrops foetalis Pharmacology of the umbilical cord
H.B. Jones	The assessment of the interpretation and assessment of treatment in late latent sylphilides in pregnant women
W.G. MacGregor	Haemodynamics of circulation in pregnancy Estimation of placental insufficiency
J. Mathie	Potassium metabolism in hyperemesis The use of the guard ring tocograph in the study of uterine action
J.D. Murdoch	Ante-partum haemorrhage
W.J. O'Sullivan	Sodium and water metabolism Fibrinolysin Megaloblastic anaemia
C.S. Seah	Anuria in obstetrics
E. Wachtel	Cornification index and prognosis of patients after treatment for carcinoma in the genital tract Studies of vaginal smear patterns in patients suffering from recurrent carcinoma of the breast The influence of yttrium implants into the pituitary gland on vaginal smears of patients with metastatic breast cancer Methyl-cholanthrene-induced uterine cancer in C_3H strain mice
W.A.W. Walters	Cardiac output during normal and abnormal pregnancy

QUEEN CHARLOTTE'S MATERNITY HOSPITAL

T.L.T. Lewis	Investigation into the effect of niamid in the treatment of spasmodic dysmenorrhoea (at CHW)
T.L.T. Lewis with M. Sandler	Investigation into the effect of decarboxylase inhibitor in the treatment of toxaemia (at QCH)
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
G.C. Steel	The production of a tilting bed to meet the demands of obstetrical anaesthesia
E. Rohan-Williams with Professor J.H.M. Pinkerton	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)	Isoimmunization in pregnancy
	Isolation of blood group substances
	Preparation of Rh antibodies in animals from human antigens
J. Murray, M.D. with R.M. Calman	Studies on new antiseptics and antibiotics for midwifery
	Bacteriology of prolonged labour
R.M. Calman	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
A.E. Claireaux, M.D.	Study of placentae 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 monamine oxidase activity
	Amine inactivation in pregnancy
	Alternative pathways of 5-hydroxyindole metabolism
	The pathogenesis of mental defect
W. Payne with J. Murray, M.D.	Studies on the use of ultra micromethods for the estimation of various substances in blood, using 10 or 20 microlitres
	Using the above techniques a study is being made of the changes in the blood of monates 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	Urinary tract infection in women
	The histological anatomy of the umbilical cord
	Oral diuretics in pregnancy
R.T. Booth	Abdominal decompression in labour
P. Stallabrass	Foetal distress
M. Shelton	Continuous foetal heart recording
	Physiology of uterine muscle
	Fluorescence cytology
	Injection of ovarian vessels
Professor J.H.M. Pinkerton M.D. with P.M.F. Bishop, M.D. M. Murray (Miss) F. Osmond-Clarke (Mrs.)	Vaginal cytology in normal and abnormal pregnancy
Professor J.H.M. Pinkerton, M.D. with I.F. Sommerville, M.D.	Urinary and plasma progesterone in normal and abnormal pregnancy
Professor J.H.M. Pinkerton M.D. with 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

4. 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

5. Paediatrics and Child Health

HAMMERSMITH HOSPITAL

J.P.M. Tizard (Nuffield Institute of Medical Research, Oxford)	Electroencephalography in the newborn Control of oxygen consumption in young animals

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

42 London University, Institute of Ophthalmology

1. Glaucoma Research

Sir Stewart Duke-Elder, G.C.V.O., M.D., F.R.S. (Director)	
J.D.M. Cardell	Clinical follow-up study of cases of glaucoma
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
J. Gloster, M.D., Ph.D.	Tonometry and tonography
A.B. Leith, M.D.	Outflow of aqueous humour
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

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

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 A study of the syndrome of dyslysis
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
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
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
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
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

3. Ophthalmology *(continued)*

Clinical (continued)

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. Pedler	The normal and morbid anatomy of retinal glial tissue
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

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. J. Gloster, M.D., Ph.D.	Control of the intra-ocular pressure
D. Cole	The blood-aqueous barrier and the formation of the intra-ocular fluids
D.M. Maurice, Ph.D.	The metabolism of the cornea
Froomberg (Mrs.) Ph.D.	The metabolism of the lens
G.B. Arden, Ph.D.	The electrophysiology of the visual pathways
H.J.A. Dartnall, Ph.D. C.D.B. Bridges, Ph.D.	The photopigments of the eye
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

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
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
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 sub-retinal fluid in cases of retinal detachment
	An investigation of diabetic retinopathy with particular reference to dietary fat intake and composition

43 London University, Institute of Orthopaedics

1. Orthopaedics

H.J. Seddon, C.M.G., D.M. and others	Poliomyelitis
	Peripheral nerve injuries
	Congenital dislocation of the hip
	Volkmann's ischaemic contracture
A. McPherson	Somatic-autonomic reflexes
	Blood flow in bone
P.G. Walker, Ph.D.	Enzymes acting on mucopolysaccharides
R. Heyworth, Ph.D.	Balance studies in metabolic bone disease
D.H. Leaback, Ph.D.	Kinetic studies on glycosidases
F.B. Anderson, Ph.D.	The estimation of hydrolytic enzymes
	The chemistry and biochemistry of uronides
	Histochemical localization of hydrolytic enzymes
	Glycosidases in serum
A.B. Kinnier-Wilson	Follow-up studies of patients treated in respirators
R. McWilliam	Mechanics of breathing with respiratory obstruction
D. Dalrymple	Use of weak muscles for electromyographic signalling
A. Bottomley	Development of pneumatic splint motor
	Apparatus designed to help severe cripples
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

44 London University, Institute of Psychiatry

1. Biochemistry

Professor H. McIlwain, D.Sc., Ph.D.	Biochemistry in relation to the central nervous system and mental disease
P.J. Heald, Ph.D. 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 Maintenance of the composition, metabolism and associated electrical properties of the brain and of isolated tissues from it Analysis of body fluids in normal and pathological conditions and in relation to treatment

2. Pathology

Neuropathology:

Professor P.M. Daniel, D.M.	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 endocrine disorders
E. Beck (Mrs.)	Anatomy of the nervous system Pathological changes in the hypothalamus
F.B. Byrom, M.D.	Experimental hypertensive encephalopathy, and effects of posterior pituitary hormones
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:

J.D.N. Hill	Clinical and physiological aspects of epilepsy with special reference to mental disorder
M.V. Driver	Studies of cerebral excitability in response to convulsant drugs in mental disorder
E.W. Poole	Conduction-velocity in the central nervous system in health and disease. The interrelation of neurophysiological events
J.H. Margerison	Studies of temporal lobe epilepsy in man. Methods of EEG analysis

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

4. Psychiatry (*continued*)

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. M.E.L. Malherbe (Miss)	Genetics of mental disorder

M.R.C. SOCIAL PSYCHIATRY RESEARCH UNIT

Professor Sir Aubrey Lewis 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.) N. Goodman (Miss) 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 personalities

45 London University, Institute of Urology

1. Urology

J.D. Fergusson, M.D.	Carcinoma of prostate (methods of endocrine control therapy, prostatic smear cytology, tracer research with labelled oestrogens, and other methods of investigation of the disease)
A.R.C. Higham, T.D.	Cine-cystoscopy
H.G. Hanley, M.D.	Tuberculosis of the genito-urinary tract
	Male infertility
A.R. Harrison, M.D.	Renal resuscitation unit (artificial kidney)
	Metabolic research on urinary calculi
A.M. Joekes	Renal biopsy
R.C.B. Pugh, M.D.	Morbid anatomy of urological disease. Testicular tumours
J.J. Stevenson, M.D.	Radiological research with the X-ray image intensifier
D.M. Wallace, O.B.E.	Pathology and treatment of carcinoma of the bladder
D.I. Williams, M.D.	Paediatric urology
H.P. Winsbury-White	The association between chronic urinary infection and rheumatic conditions

46 London University, King's College Hospital Medical School

1. Anaesthetics

No information

2. Cardiology

S. Oram, M.D. with L. Resnekov	Cardiac catheter studies in Friedreich's ataxia and allied neurological conditions
J.P.H. Davies E. Sowton	Qualitative and quantitative indicator dye-dilution studies in myocardial ischaemia with and without operation and in congenital and acquired heart disease
	Abnormalities of the RS-T phase of the electrocardiogram
	Significance of toxic effects of digitalis on the human auricle
	Correlation of complete heart block and gall bladder disease
	Cardiac aspects of scleroderma
	Studies of complete heart block with a rapid ventricular rate
	Assessment of Etrynite in angina pectoris
	Haemodynamics of Fallot's trilogy

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
	Investigation by clinical examination, cine-photography, 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

3. Dental Studies *(continued)*

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

4. Dermatology

D.I. Williams	Staphylococcal infections
	Bacteriology and therapeutic trials
	Use of vitamin A in skin disorders
	Griseofulvin in fungus infections
R.H. Marten	Necrobiosis lipoidica
	Chronic paronychia: clinical and bacteriological study
	Griseofulvin in fungus infections
	Nylon hair net dermatitis
	Chloroquine: experimental study using guinea-pigs
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
with C. Franco (Miss) R. Colman	Morphological sex difference in leucocytes of man and animals
	Chromosome studies
P.T. Flute, M.D.	Contact factors in fibrinolysis

6. Medicine

C. Hoyle, M.D. (Director)	Sarcoidosis
with H. Smellie, M.D. R.P. Crick	Ocular sarcoidosis
N.J. Hamer, M.D.	Lung function in sarcoidosis and the effects of steroid treatment
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. Turner-Warwick, (Mrs.) M.D.,	Bronchial artery patterns in chronic pulmonary disease
J.L. Livingstone, M.D.	Value of long-term steroids in asthma
with R.S. Bruce Pearson, D.M. Professor C.H. Gray, M.D., D.Sc.	Adrenal function in asthma
R.S. Bruce Pearson, D.M.	Hypnosis in asthma: effect on symptoms and on skin reactions
with A.A. Mason L. Fry	

6. Medicine (*continued*)

J.P.H. Davies	Familial incidence of favism:
G.E. Sowton	Referred sensation from spinal segments
	Use of niamid in chronic pain

7. Microbiology

Bacteriology:

A.C. Cunliffe, M.D. (Head of Department)	Relation of hypersensitivity to immunity
	Passive cutaneous anaphylaxis
	Epidemiology of infections of surgical wounds
	Bacteriology of *Proteus vulgaris*
F.L. Jackson	Mammalian and bacterial cytochrome systems
	Streptomycin and streptomycin antagonists
	The penicillin dependence of a staphylococcus
	Metabolism of *Proteus vulgaris*
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

Macdonald Critchley, M.D.	Disorders of language; disorders of perception and corporeal awareness

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

10. Ophthalmology

T.K. Lyle, C.B.E.	Surgical treatment of ocular palsies
	Endocrine exophthalmos
	Retrobulbar neuritis
	Amblyopia ex anopsia
R.P. Crick	Sarcoidosis and the eye
	Research in perimetric technique
	Operative technique under high magnifications
	Investigations into eye complications of lupus erythematosus

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
A.B. Hewlett	Incidence and causes of deafness
	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
	Experimental amyloidosis
	The pathology of bronchial asthma
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
	Urethane as an initiator of carcinogenesis in mice
	An investigation into the relative densities of blood cells in relation to the formation of the buffy coat

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 action of anti-rheumatic drugs
	Metabolic problems in diabetes
	Investigations of the clinical significance of multiple enzyme determinations in disease
D.C. Nicholson, Ph.D.	Synthesis, structure and metabolism of porphyrins and bile pigments

13. Physical Medicine

R. Greenwood	Circulating antibody production in rheumatoid arthritis

14. Surgery

H.C. Edwards, C.B.E. (Director)	
S. Taylor	Autoradiographic study of I^{124} in human and rat thyroid
	I^{131} studies of human nodula 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
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

15. 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

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Lister Institute of Preventive Medicine

1. Biochemistry

Professor W.T.J. Morgan, C.B.E., D.Sc., Ph.D., 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 of heart muscle and other tissues
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

2. Biophysics

R.A. Kekwick, D.Sc.	Biophysical studies on proteins and other macromolecules of biological origin, particularly concerned with ultracentrifuge and electrophoresis data Proteins associated with the blood clotting system and with antigen-antibody interactions are being especially examined
J.M. Cleeth, 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.D. L. Vallet	The techniques of freeze-drying plasma proteins Physical methods of sterilization of human plasma and plasma fractions Purification 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

4. Haematology (*continued*)

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

Bacterial Vaccines:

ELSTREE

A.F.B. Standfast J.M. Dolby (Mrs.), Ph.D.	The antigenic potency of typhoid vaccines; the antigens of *Haemophilus pertussis*

Smallpox Vaccine:

ELSTREE

D. McClean	Inactivation of vaccinia virus by various physical and chemical agents
C. Kaplan	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

Therapeutic Sera:

ELSTREE

B.G.F. Weitz 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 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*

Virology.

L.H. Collier, M.D.	Properties of trachoma and inclusion blennorrhoea viruses Properties of measles virus

7. Pathology

Experimental:

Professor A.A. Miles, C.B.E., M.D., 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
M. Robertson (Miss), D.Sc., F.R.S.	Bulk growth of protozoa in bacteria-free media for the production of antigen Serological studies of ciliates and flagellates (*Trichomonas, Tetrahymena*)
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

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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	Embryology of palate
B.A. Young	Electron microscopy: endocrines and placenta

2. Biochemistry

Professor F.L. Warren, Ph.D., D.Sc.	Studies in human genetics by investigation of biochemical individuality
M.W. Neil, Ph.D. C.W. Parr, Ph.D. M. Whittaker (Miss), Ph.D.	Biochemical processes involved in the metabolism of foetal tissues and the development of certain enzyme systems during foetal growth
D.A. Hopkinson C.A. Ross, Ph.D.	Studies on the significance of phosphoglucose isomerase and factors influencing its activity in animal tissues

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) F.J.C. Roe, D.M. K.E.K. Rowson, M.D.	The 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 polyoma virus has been isolated and is under further investigation Chemical carcinogenesis, 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 The experimental induction of tumours by tobacco products, with special reference to the detection of tumour-initiating and tumour-promoting substances in tobacco smoke
D.H. Adams, D.Phil.	The effect of tumours on liver catalase and its relation to the normal maintenance of catalase activity

4. Cardiology

W. Evans, M.D., D.Sc. W. Brigden, 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	Chemotherapy of pulmonary tuberculosis, collagen diseases of the lungs and respiratory physiology

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
J.A. Pedler	Natural history of lesions of oral soft tissues
R.W. Fearnhead	Innervation of the pulp and dentine
	Electron microscopy of enamel and dentine
G.T. Hankey	Temporo-mandibular arthrosis
A.R. Seward	Radiographic anatomy of jaws
Conservative:	
Professor G.L. Slack, O.B.E. (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	The bacterial flora of infected root canals and associated bone lesions, with special reference to the bactericidal efficiency of various agents
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
Orthodontics:	
H.E. Wilson	The study of the frenal attachment
J.S. Rose	The study of variations in the positional development of the premolars in man
Prosthetics:	
S.F. Fish	Examination of structure of matrix of silicate cements by thermal and X-ray diffraction
	Examination of relationship between functional positions of tongue and rest position of the mandible

7. Dermatology

B.F. Russell, M.D.	Arsenical skin cancers and visceral malignancy
with S.L. Last	The significance of *Demodex folliculorum* in rosacea
J.N. Morris	Electroencephalography in Besnier's prurigo
	Social survey of 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

8. 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.	Blood groups and lesions of the stomach
D.W. Vere	The nature of renal oedema
D.G. Penington	Humoral regulation of erythropoiesis

9. 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 blenorrhoea

10. Neurology

Sir Russell Brain, Bt.	Further studies on cervical spondylosis
R.A. Henson, D.M. M.D.	The carcinomatous neuromyopathies
	Clinical and pathological studies of diseases of muscle
	Clinical and pathological aspects of diabetic neuropathy
	Electrophoretic studies on cerebro-spinal fluid proteins

11. Neurosurgery

D.W.C. Northfield	Electrocorticography
J.V. Crawford	Recording of electroencephalography from deep electrodes
	Radioactive isotopes in hydrocephalus studies

12. 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

13. 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

14. Paediatrics and Child Health

R.H. Dobbs, M.D.	Correlation of maternal antibody titres with clinical
A.D.M. Jackson, M.D. with Departments of Obstetrics and Haematology	severity in haemolytic disease of the newborn due to Rh sensitization
with Department of Physiology	Study of problems associated with neonatal respiratory physiology

15. Pathology

Histopathology:

Professor I. Doniach, M.D.	Growth and regeneration of the rat thyroid gland
E.D. Williams	

15. Pathology (*continued*)

J.W. Landells	Histochemistry of cartilage and bone in relation to arthritis
K. Weinbren, M.D.	Regeneration of the liver and other tissues
A.H.E. Marshall	Immunological reactions in the thymus gland
R.G. White, D.M.	
L.J. Rubinstein, M.D.	Neuropathology. Histochemistry of the nervous system
P.G.I. Stovin	Tumours and vascular diseases of the lungs
	Histopathology of the skin

16. 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

17. Physiology

Professor K.W. Cross, D.Sc.	The control of respiration and metabolism and the cardiac output of the newborn infant
A. Howe, Ph.D.	Histochemical studies on the hypothalamus and pituitary gland
E.M. Glaser, M.C., Ph.D., M.D.	The influence of the central nervous system of man and rodents on slow retained adaptation to heat and cold. Effects of drugs acting upon the central nervous system in man and rodents
J.R. Hill (Miss)	The comparative physiology of newborn and adult animals, with special reference to metabolism, thermal stability and the effects of hypoxia

18. Radiotherapy

W. Shanks	The treatment of bladder cancer
L.A.W. Kemp	Telecobalt therapy
M. Cohen	The use of wedge filters in radiotherapy
D.G. Arnott	Research in the dosimetry of ionizing radiations
	Application of automatic and semi-automatic methods of investigating dose distributions in X-ray and γ-ray therapy
	The use of isotopic tracers in various research projects
	The measurement of the reaction of human skin to radiation by means of reflection spectrophotometry

19. Surgery

W.T. Irvine, M.D.	The role of the antrum in gastric acid secretion
	Relationship of oestrogens to cancer of the breast
	Colon absorption studies
	The use of alkylating agents combined with isolated perfusion techniques in the treatment of malignant tumours
H.D. Ritchie	Extension of dialysis techniques
	Studies with exchange resins on ammonia uptake
	Histamine in the gastric venous blood during acid secretion
J.P. Blandy	Studies on motility of oesophagus, duodenum and jejunum
	Studies on pancreatic function
C.F. Noon	Colon absorption studies
	The use of alkylating agents combined with isolated perfusion techniques in the treatment of malignant tumours
J.R.G. Bastable	Effect of vagotomy on intestinal function with special reference to fat absorption

19. Surgery (*continued*)

P. Folca	Studies employing a tritiated oestrogen of patients submitted to bilateral adrenalectomy and oöphorectomy for advanced breast carcinoma

20. 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

21. 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
	Radiological changes associated with 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—1956
	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 clinical, radiological and serological changes in cases of chronic yaws
	The incidence of significance of genital infection in male patients with ankylosing spondylitis
	The diagnosis and treatment of treponemal disease in coloured immigrants
	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 and urethritis
	Investigation of the causes of epididymo-orchitis with special reference to viral infections

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1. Biochemistry

Professor J.H. Birkinshaw, D.Sc. G. Smith C.E. Stickings, Ph.D. R.J. Townsend	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

2. Entomology

Professor D.S. Bertram, Ph.D.	Virus transmission
J.R. Busvine, D.Sc., Ph.D.	Laboratory studies on insecticides
B.R. Laurence, Ph.D.	Mosquito biology
R.G. Bird	Electron microscope studies of arbor viruses

3. Microbiology

Professor F. Fulton, D.M.	Growth of virus in tissues Purification of viruses
E.W. Meynell (Mrs.)	Bacteriophage for motile *Salmonella*
C.E.G. Smith, M.D.	Arthropod-borne viruses
J.H. Marshall, D.Phil.	Aromatic biosynthesis in bacteria Nutrition of *Haemophilus*
P. Chadwick	Microcolonial morphology of aerobic spore-forming bacteria
C.E. Cradock-Watson	Haemoglobin antigens
I.G. Murray	Aetiology of mycetoma
J. Walker (Mrs.), Ph.D.	Medical mycology
J.W.G. Smith	Immunological diseases
Y.E. Brohier	Arthropod-borne viruses in tissue culture
J.M. Stephens	Insect immunity

4. Nutrition

Human:

Professor B.S. Platt, C.M.G., Ph.D. C.R.C. Heard, D.Phil. D.S. Miller D.J. Naismith, Ph.D.	Clinical, field and laboratory investigations of patients suffering from protein malnutrition; treatment and prevention of this syndrome, especially in infants and young children; interrelationship of protein malnutrition with effects of zymotic diseases, particularly malaria
P.L. Pellett, Ph.D. W.R. Aykroyd, C.B.E., M.D., Sc.D. P.R. Payne P.M. Carroll (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
R. Schwartz (Miss), Ph.D. T.P. Eddy	The effects of malnutrition on ante- and post-natal development, especially of the skeletal and nervous systems in experimental animals
K.O. Godwin, Ph.D.	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

4. Nutrition (*continued*)

Human (*continued*)

	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 and Holland
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 to their molluscan vectors
P.L. LeRoux, D.Sc.	
	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
S.W. Hinds, M.D. (in conjunction 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

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

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
H.G. Maule, Ph.D.	The social and economic problems of the long-term hospital patient and the value of correspondence courses to such patients
M. Jefferys (Mrs.)	Problems of social classification in socio-medical enquiry
S.P.W. Chave	A study of general practice in a new housing estate A survey of mental illness in a new town
R.M. Acheson, D.M.	Studies in the adaptation of the developing mammalian skeleton to adverse environmental circumstances
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. (in conjunction with the Department of Social and Preventive Medicine, Royal Free Hospital School of Medicine and Department of Physical Medicine, Royal Free Hospital)	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 A. Bradford Hill, C.B.E., D.Sc., Ph.D., F.R.S.	The development and application of statistical methods in medicine and its associated sciences, including research into the epidemiology and aetiology of disease
Professor D.D. Reid, M.D., D.Sc.	The promotion and analysis of vital statistics
J.T. Boyd	The design and analysis of therapeutic trials of new drugs and other agents
P. Armitage, Ph.D.	The design and analysis of field trials of prophylactic agents
W.R.S. Doll, O.B.E., D.Sc.	The application of mathematical statistical techniques to the solution of laboratory problems
A.S. Fairbairn	The development of methods of biological assay
J.O. Irwin, D.Sc., Sc.D.	Studies of the hazards to man of nuclear and allied radiations
B.J. Kinsley (Miss)	
W.J. Martin, Ph.D. D.Sc.	
I. Sutherland, D.Phil.	
R. Tall (Miss)	

*Includes M.R.C. Statistical Research Unit: Honorary Director, Professor A.B. Hill, C.B.E., F.R.S.

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
C.E. Jackson (Miss)	Mosquito genetics including resistance studies
H. Lipke, Ph.D.	Insecticide resistance studies in mosquitoes: biochemical studies
L.K. Goma	Insecticide resistance studies in mosquitoes: morphology and behaviour
B.B. Waddy, D.M.	Onchocerciasis

11. Tropical Medicine

Clinical:

Professor A.W. Woodruff, M.D., Ph.D.	The nature of various nutritional anaemias and their relationship to protein deficiency and liver damage
S. Bell, M.D.	The therapeutic efficiency of various antibiotics and synthetic organic compounds in amoebic dysentry, filariasis and leprosy
G. Stott	Adrenocortical function in tropical peoples
	The therapeutic efficiency of various drugs in helminthic 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

50 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
W.W. James, O.B.E.	The structure of dentine
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.	
J.G. Bennette	
P.N. Campbell, D.Sc.	Biosynthesis of proteins
I. Roitt, D.Phil.	Thyroid auto-immunity
W. Lawson	Synthetic hormone analogues
A.E. Kellie, Ph.D.	Steroid metabolism

2. Biochemistry (*continued*)

E.R. Smith	
J.G.D. Carpenter	
J.B. Jepson, D.Phil.	Pharmacologically active bases and peptides
C.F.M. Rose	Clinical biochemistry
J.M. Wilkins (Miss)	
L.M. Worsley (Miss)	
S.J. Holt, Ph.D.	Cytochemical research
P.W. Sadler, Ph.D.	Chemical pharmacology
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
V.M. Craddock (Miss), Ph.D.	Biosynthesis of proteins
E.G. Wilson (Miss), Ph.D.	Thyroid auto-immunity
W.F. Coulson, Ph.D.	Steroid metabolism
H.B. Waynforth	Hormone assay
A.D. Smith	Amine metabolism
T.S. Spencer, Ph.D.	Bacterial proteases
S.E. Greenwood (Miss)	
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

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.	Pathology of the nasopharynx Vasomotor catarrhs of nose
J.P. Monkhouse	Pathology of otosclerosis
D. Ranger	Vasomotor responses of nasal mucosa
J.C. Seymour	Pathology of the vascular insufficiencies of the labyrinth and evaluations of the results of treatment. Investigation of fluid exchanges in the labyrinth in an attempt to provide relevant data to explain a number of the pathological features of some of the disorders

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

9. Physics

Medical:

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	
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.	
R.P. Ekins	
T.H.E. Bryant	Study of adrenal corticosteroids of high mineral activity using physical methods of separation, detection and assay
W.S. Reith, D.Sc.	
S. Goss	
I.M. Hoppett (Miss)	The build-up of protein from carbohydrates in normal and malignant tissues using compounds labelled with tritium and C^{14}
A. Deubert (Miss)	
E.S. Williams	
P. Ayres	The physical problems of hearing and electrical properties of the cochlea and labyrinth
B.J. Paine (Miss)	The distribution of scattered radiation in radiological procedures with special reference to gonad and bone-marrow dose
	Biophysical and clinical studies using radioisotopes:
	Iodine 131 for thyroid studies with particular reference to detailed knowledge of iodinated plasma proteins
	Sodium 24 and potassium 42 for electrolyte balance studies
	Iron 54 and chromium 42 to study metabolism in normal and anaemic conditions
	Iodinated 131 and brominated 82 fats in excretion and turnover studies
	Study of radiation effects on solids using electron paramagnetic resonance techniques
	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
W.F. Floyd, Ph.D.	
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
I.S. Cade (Miss)
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- and X-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

Radiation sickness:
- A controlled trial is being undertaken of methods of treatment

12. Surgery

D.H. Patey — An experimental investigation of functional facial palsy following parotidectomy
W. Moffatt
L.P. Le Quesne — Post-gastrectomy syndrome
J. Candy
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. — A study of the temperature changes in the skin over tumours
K.L. Williams
V. Marshall — Blood transfusion reactions

13. Surgery, Thoracic and Cardiac

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

51 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. Pallet	Medical electronics

4. Haematology

Professor J.V. Dacie, M.D.	*Pathogenesis of haemolytic anaemia in man
J.C. White	Nucleoprotein metabolism of human tissues †Haemoglobin metabolism and abnormal haemoglobins Mucoproteins of bronchial secretions
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.	Haemodynamic studies in heart failure and hypertension
Professor R. Fraser, M.D.	Thyroid disorders. Bone metabolism. Diabetes Pituitary disorders
Professor E.G.L. Bywaters	The natural history of rheumatoid arthritis and other connective tissue diseases. Therapeutic trials
A.St.J. Dixon, M.D.	Gout. Pharmacology of anti-rheumatic drugs
C.L. Cope, D.M.	Adrenal function in disease
C.M. Fletcher, C.B.E., M.D.	Epidemiological and laboratory studies of the aetiology and evolution of chronic bronchitis

*Supported by M.R.C. grant

†Supported by Colonial Medical Research Committee grant

5. Medicine (*continued*)

J.F. Goodwin, M.D.	Congenital and acquired heart disease in relation to cardiac surgery Electrocardiography and angiocardiography The pulmonary circulation in heart disease Cardiomyopathy studies
M.D. Milne, M.D.	Renal tubular function in health and disease; biochemistry of uraemia; disorders of amino-acid transport
*P. Hugh-Jones, M.D.	Lung function studies, including mass spectrometric and radioactive gas analysis to measure lobar and segmental lung function
*J. Shillingford, M.D.	The study of circulation by indicator dilution curves Direct measurement of intracardiac and intravascular velocity in man 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.	Studies of heart failure, by phonocardiography and recording of praecordial pulsation

6. Microbiology

Bacteriology:

Professor Lord Stamp	Immunity to staphylococcal infection
M. Barber (Miss), M.D.	Study of antibiotic resistance in staphylococci in relation to cross-infection
†D.A. Mitchison	Bacteriological aspects of the chemotherapy of tuberculosis
A.C. Dutton	Cross-infection in hospital wards
N. Datta (Mrs.) M.D.	The bacteriology of chronic bronchitis

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

Chemical:

Professor E.J. King, Ph.D., D.Sc.	‡‖Experimental silicosis and pneumoconiosis Phosphatase: 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

*Part-time member of M.R.C. staff

†Honorary Director of the M.R.C. Unit for Research on Drug Sensitivity in Tuberculosis

‡Supported by M.R.C. grant

‖Supported by N.C.B. grant

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

8. 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

9. 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
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
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

*Supported by U.S. Public Health Services grant
†Supported by M.R.C. grant

52 London University
Royal Dental Hospital of London School of Dental Surgery

1. Anatomy

Oral:

H.J.J. Blackwood, M.D.	Human and comparative anatomy of the temporo-mandibular joint Cell kinetics
J.L. Scheuer (Mrs.), Ph.D.	Comparative innervation of the jaws and temporo-mandibular joint

2. Dental Studies

Children:

J.H. Hovell	Clinical research into the surgical procedure for the correction of mandibular prognathism
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	The effects and fate of Kri paste 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, children with cleft palate and hare lip

4. Pathology

Professor R.B. Lucas, M.D.	Pathology of oral tumours Pathology of periodontal disease
W. Sims	Bacteriology of dental caries, with special regard to the relationship between lactobacilli and streptococci
J.D. Manson	Pathology of the dental pulp

5. Periodontology

A.B. Wade	Recession of the periodontal tissues round mandibular incisor teeth Regeneration and reattachment of periodontal tissues 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

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

D. Greer Walker	Gross developmental errors of the face Facial asymmetry in the newborn

53 London University
Royal Free Hospital School of Medicine

1. Anaesthetics

R.A. Green	An investigation into the clinical value of a new short-acting barbiturate: methohexital. The investigations are being carried out in three phases: A comparative study of methohexital and thiopentone involving electroencephalographic studies on volunteers A clinical study into the behaviour of 500 out-patients in whom anaesthesia has been induced prior to dental extraction with an intravenous injection of methohexital A study into the recovery period of volunteers in whom sleep has been induced with an intravenous injection of methohexital. This study chiefly involves an assessment of the subject's ability to drive a car and is being carried out on a 'Miles trainer'

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 hand
P.R. Davis, Ph.D.	The functional anatomy of the axial skeleton in man and animals Radiological investigations of the internal structure of the bones of modern and fossil primates, with particular reference to *Proconsul africanus*
P.C.B. MacKinnon (Mrs.), Ph.D.	Sexual, season and age changes in the endocrine system of man and lower animals Sexual seasonal, age and stress effects of palmar sweating in man and in relation to endocrine activity

3. Biochemistry

A. Lawson, Ph.D., D.Sc. (Head of Department)	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

C.L.T. Lucas (Miss) (Head of Department)	
A.M. Hughes (Mrs.), Ph.D.	Systematics and life histories of Acari with special reference to those associated with stored foods
A.M. Baxter (Mrs.), Ph.D.	Cytology and histology of mammalian and reptilian adenohypophysis

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

6. Dermatology

No information

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

8. Medicine

H.A. Kellgren (Miss) with E. Preiskel (Mrs.)	Spastic colon causing referred pain in the left leg
Professor S. Sherlock	The mechanism of hepatic coma
with B.H. Billing	Bile pigment metabolism in jaundice
A.M. Dawson	The mechanism of fat absorption from the intestine
C.S. Pitcher	Erythrocyte metabolism
E. Samols	Estimation of insulin in blood
S. Shaldon	Renal blood flow and function
M.D. Turner	Amine metabolism in health and disease
R. Williams	The genetics of haemochromatosis
A.T. Richardson	Serology of the collagen diseases with particular reference to muco proteins
	Electromyograms in muscle fibre diseases (myopathies)
A.G. Beckett	Study of diabetes especially by renal biopsy
with E. Samols	Plasma insulin in diabetes
D.M. Matthews (Department of Pathology)	Study of vitamin B_{12} in diabetes

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 the problems of infertility

9. Obstetrics and Gynaecology (*continued*)

L. Epsztejn (Miss)	Investigation into the possible relationship between length of gestation and nutritional and metabolic factors
P.N. Norris L. Epsztejn (Miss)	Investigations into human uterine muscle physiology with particular reference to the action of various drugs 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
Fertility Studies:	
M. Moore White (Miss), M.D.	Investigation into the effects of hydrotubation: The value of oral prednisone therapy ovaid: effects of the administration of whole gland ovarian products, i.e. ovaid, on infertile women
with P. Wade (Miss) (Radiotherapy Department)	Treatment of a series of infertile women with failure of ovulation by pituitary irradiation

10. Paediatrics and Child Health

No information

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 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 Systematic study of biological properties of *Vibrio jamaiciensis* Isolation of viruses from parturient mothers and their infants Study of the haemagglutination test for viral hepatitis Attempts to infect tissue culture with *Treponema pallidum*
G.B.D. Scott, M.D.	A study of the production of thrombosis of small vessels by bacterial antigens Investigations of the coagulation mechanism and thrombotic disease using a bio-assay method A study of the reversibility of atheroma A study of the arterial changes in the post-partum uterus An experimental study of the histochemical and enzymic reactions of normal and abnormal liver cells A histochemical study of the intracellular pigments in the liver cells of relatives of cases of haemochromatosis
I.P. Beswick (Miss), M.D.	Renal lesions in liver disease Pathogenesis of diverticulosis of the colon

12. Pharmacology

Professor E. Zaimis (Mrs.), M.D.	Neuromuscular blocking drugs Hypotensive drugs
J.R. Hodges, Ph.D.	Sympathomimetic amines
M.J. Maclagan (Miss)	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)	The use of scintillation spectrometry techniques in the investigation of the determination of the position and strengths of γ-ray sources situated in scattering media
	Measurement of electron diffusion in plastic scintillators
M.E. Monk-Jones (Mrs.)	An investigation into the viscous properties of synovial fluid
K. Stratton (Mrs.), Ph.D.	Investigation into the protective properties of certain organic substances against the action of X-rays on mice
R.B.J. Palmer (Mrs.), Ph.D.	The determination of the α-particle stopping power of organic liquids in different phases using a photographic emulsion and other techniques

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
M.W. Duckworth (Mrs.)	Acclimatization to hypoxia in the rat
	Carbon monoxide hypoxia in dogs
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
H.N. Duke (Miss), Ph.D.	Vasomotor control of the pulmonary circulation: circulatory changes in relation to oxygen diffusing capacity
B.L. Coles (Miss), Ph.D., M.D.	Enzyme activity in the small intestine of the cat before and after pancreatic duct ligation

15. Psychiatry

S.W. Hardwick, M.D. F. Brown, D.M. A. Elithorn, M.D. A.V. Francis (Mrs.) S. Hollingsworth (Mrs.) M.O. Kerr (Mrs.) N. Swift (Mrs.) S. Wiseberg	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. Further studies on the bereavement factor in depressive illness and in criminal behaviour

16. Radiotherapy

P. Wade (Miss) J.D. Crowley	Clinical study of the effect of oxygenation during radiotherapy
K. Stratton (Mrs.), Ph.D. K. Davis	Chemical protection against radiation by pre-treatment of mice with a series of new organic compounds incorporating the thioureido structure. Ten new compounds have been tested to date
P. Wade (Miss) with J.G.S. Crabbe (Department of Pathology)	Exfoliative cytology
P. Wade (Miss) with E.J. Radley Smith D.N. Baron A.M.H. Bennett	Pituitary ablation A recent development has been implantation of yttrium by stereotaxy
P. Wade (Miss) with G. Qvist	Simple mastectomy and post-operative radiotherapy This method is selected as the treatment of choice in patients seen in joint consultation with G. Qvist

17. Surgery

D. Downton and G.L. Fordyce with R.A. Green with D.C. Calnan and Professor K.R. Hill	The use of intravenous anaesthesia (methohexital sodium) for dental extractions Investigation into the conditions of black hairy tongue
H. Daintree Johnson	Research on the changes in blood volume which follow haemorrhage and which result from blood transfusion. Comparison of results obtained by haemoglobin estimations and by radioactive tracer techniques Research on the means by which the valvular mechanism at the oesophago-gastric junction is rendered physiologically incompetent during the act of vomiting Bacteriology of cancerous stomach and preparation for operation
H.E. Hobbs	The ocular effects of chloroquine The early diagnosis of orbital tumours
J.P. Hopewell	Renal response to added load following urinary diversion into intestine-clearance studies and radioactive diodrast renogram Storage and transplantation of the kidney as a homograft
J. Minton	Ocular manifestations in paediatric medicine

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St. Bartholomew's Hospital Medical College

1. Anaesthetics

R.I.W. Ballantine	Hypophysectomy in relation to anaesthesia Electrocardiographic changes produced by trichlorethylene and halothane
R. Bowen	Variable speed motor-driven syringe for continuous injection Anaesthesia in operation for the relief of portal hypertension Airway resistance during anaesthesia
C. Langton Hewer	Development of ribbed mattress and bolsters to retain patients in Trendelenburg position
G. Ellis	Halothane administered in closed circuit

2. Anatomy

Professor A.J.E. Cave, M.D., D.Sc.	Mammalian pharynx and epipharynx 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 reversed 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)

3. Biochemistry (*continued*)

Professor A. Wormall, D.Sc., F.R.S.	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
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 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 effects of exercise on electrocardiograms of hypertension
	Study of angina of effort with serial exercise tests
	Study of effects of radiations on the heart
	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.	Effect of corticosteroids on pulmonary function in sarcoidosis
H.C. Smellie (King's College Hospital)	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. (Department of Zoology)	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

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. I.H. Backhouse H. Lehmann, M.D., Sc.D. E. Silk	The effect of methandrostenolone, a protein anabolizer, on hepatic function
A.W. Spence, M.D. I.H. Backhouse	Androgenic potency of methandrostenolone
A.W. Spence, M.D. C.W.H. Havard, D.M.	Chorionic gonadotrophin in the treatment of obesity
J. Stark	The effect of methandrostenolone on diabetes mellitus
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.	The use of 2-methyl-1, 2-bis (3-pyridyl)-1-propanone, an inhibitor of the production of aldosterone by inhibition of 11β hydroxylation, in the treatment of diuretic-resistant oedema Antidiuretic properties of hydrochlorothiazide in diabetes insipidus Diuretic action of benzthiazide Thymic tumour and erythroblastic aplasia
N.C. Oswald, M.D.	Investigation upon the benefits of short-term in-patient treatment of patients with chronic bronchitis during remissions
N.C. Oswald, M.D.	Factors influencing the prognosis of pneumonia, a study of 1,330 cases admitted to St. Bartholomew's Hospital during the period 1949-58
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. W.R. Cattell	The transport of amino-acids by the renal tubules The development of new tests of renal function, especially in hypertension and renal disease. Urinary excretion of enzymes in renal disease

8. Neurology

J.W. Aldren Turner D.M. K.W.G. Heathfield, M.D.	Quadriceps myopathy occurring in middle age: a clinico-pathological study
J.W. Aldren Turner, D.M.	Neuralgic amyotrophy: a follow-up study
J.W. Aldren Turner, D.M. F. Lees, M.D.	Congenital myopathy: a follow-up study

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

9. Neurosurgery (*continued*)

J.E.A. O'Connell	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

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
	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

11. Ophthalmology (*continued*)

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
	Fatigue fractures and infractions
with Institute of Orthopaedics	Prosthetic replacement of bone

13. 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

14. 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 L.P. Garrod, M.D.	Studies in activity, absorption, excretion and therapeutic value of newly discovered antibiotics
A.B. Anderson, M.D., 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
R.J.R. Cureton, M.D.	Investigation of pathological specimens by X-ray diffraction methods
J.C.B. Fenton	Investigation of blood ammonia in health and in disease
W.J. Hanbury, M.D.	Primary and secondary tumours of the heart
H. Lehmann, M.D., Sc.D.	Pseudocholinesterase
	Abnormal haemoglobins
A.M. Robinson (Mrs.), D.Sc.	Urinary ketosteroids in adrenal tumours
R.A. Shooter, M.D.	Spread of staphylococcal infection in hospital wards
	Antibiotic resistance of staphylococci in out-patients

14. Pathology (*continued*)

A.G. Stansfield	The pathology and experimental production of arterial necrosis and necrotizing arteritis
	Pathology of bone cysts
P. Story, M.D.	Blood platelet changes in anaemia
	Auto-immune mechanisms in thrombocytopenia

15. Pharmacology

J.P. Quilliam and staff	Analysis of mode of action of general anaesthetics, hypnotics and tranquillizer drugs using conventional and electropharmacological techniques to study responses at peripheral synapses. Pharmacology of smooth muscle relaxants
D.F.J. Mason	Ganglionic effects of anticholinesterases
P.M.G. Bell	Application of electronic techniques to pharmacological research
B.W. Payton	The electropharmacology of the skeletal neuromusclar junction
P.D. Mulcahy	Assessment of tranquillizer action in man

16. Physics

Radiation:

Professor J. Rotblat Ph.D., D.Sc.	Radiation research: effects of ionizing radiations on matter, particularly on living tissue
T.E. Banks, Ph.D. E. Rollinson, Ph.D.	Nuclear physics: structure and properties of nuclei of light atoms
S. Lovell, Ph.D. P.J. Lindop, Ph.D.	Medical physics: clinical uses of radiations and radioactive isotopes
G.S. Innes A.E. Bradshaw	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
	Radiation-induced lens opacities in mice
	Induction time of radiation damage
	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
	Monitoring and dosimetry of high energy X-ray and electron beams

16. Physics (*continued*)

Radiation (*continued*):

Professor J. Rotblat, Ph.D., D.Sc.	The possible use of mixed X-ray and electron beams in radiotherapy
T.E. Banks, Ph.D.	Physical principles underlying the use of 15 MeV electrons in therapy
E. Rollinson, Ph.D.	
S. Lovell, Ph.D.	Investigation on the use of telecurietherapy units
P.J. Lindop, Ph.D.	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
G.S. Innes	
A.E. Bradshaw	
	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
	Investigation on the ultrasonic frequencies of a turbo-driven dental drill
	The radiation dose received by patients injected with thorotrast
	Study of thorotrast turnover in animals
	Study of pollution of the atmosphere with radioactivity

17. 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
J.G. Widdicombe, D.Phil.	The study of afferent nervous activity arising from the lungs and its reflex responses, both on the respiratory muscles and on pulmonary smooth muscle
E.A. Ullman (Miss), Ph.D.	Renal function with special reference to water and electrolyte metabolism

18. Psychiatry

W. Linford Rees, M.D. (Head of Department)	Double blind controlled trials of new drugs in psychiatric treatment, e.g. chlorpromazine, acetyl promazine; anti-depressants 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 post-partum mental disorders and premenstrual syndromes
	Continuing research on temperamental and behavioural correlates of physical types

19. 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
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

19. Radiodiagnosis (*continued*)

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

20. 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. G. Innes	Studies of ionization in heterogenous media at these ranges of MeV 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

21. Statistics

Medical:

M.P. Curwen	Collaboration with clinical and other departments on various research projects

22. 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
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

22. Surgery (*continued*)

A.H. Hunt, D.M. P. Knipe	Portal hypertension, various aspects
A.H. Hunt, D.M. with H. Lehmann, M.D.	Serum albumin, pseudocholinesterases and transaminases in the assessment of liver function before and after venous shunt operations
T. Earley, M.D.	The relationship between heavy metals and cirrhosis
G. Gencsi	Tertiary syphilitic hepatitis and its relationship with portal hypertension
A.H. Hunt, D.M.	Extra-hepatic portal obstruction, its nature and treatment
J.O. Robinson	Clinical survey of cancer of the stomach, 1948-52 and 1953-57

23. Surgery, Thoracic

O.S. Tubbs R.L. Hurt I.M. Hill D. Mendel P.R. Slade B.G. Wells	An investigation into the problems of deep hypothermia with particular reference to differential cooling of various organs

24. Venereology

C.S. Nicol, T.D., M.D.	Partial resistance of gonococci to penicillin Investigation of Metronidazole (Flagyl) a new trichomonicidal drug continues

25. Zoology and Comparative Anatomy

D. Lacy, Ph.D. (Head of Department)	Experimental cytology
B. Lofts, Ph.D.	Physiology of reproduction
M.J. Hollingsworth, Ph.D.	Experimental genetics

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1. Anaesthetics

No information

2. Cardiology

B. Robinson A.G. Leatham	Development of a test for measuring cardiac output on exertion using indicator dilution curves Development of an indirect method for recording the central arterial pulse and its comparison with direct recordings
B. Segal with A.G. Leatham	Long-term study of children with innocent systolic murmurs. Mainly concerned with assessing the relation of the murmur on the phonocardiogram to the heart sounds and to a central arterial pulse
H. Shafter	A study of splitting of the second heart sound in normal subjects and patients with atrial septal defect
P. Sleight	Investigation of serum salicylate levels at intervals using four different varieties of aspirin Investigation of cardiac output following acute cardiac infarction
K. Jefferson A.G. Leatham	Development of coronary angiography and visualization of the aortic valve Diagnosis of ventricular septal defect by cine-angiocardiography

2. Cardiology *(continued)*

T. Pilkington, M.D. A.G. Leatham A. Stafford	Long-term study of the treatment of coronary artery disease with anticoagulants, low fat diet, etc.
B. Segal	Relation of intracardiac phonocardiograms to pressure pulses
J. Davies	Development of an internal and external pacemaker

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.	Affective disturbances in epilepsy, with special regard to the representation of emotional patterns in the temporal lobes of the human brain
	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
	Symptomatology and pathology of intracranial chordoma
	The EEG 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 I. MacKenzie	A controlled trial of surgical versus medical methods of treating primary spontaneous intracerebral haemorrhage
K. Till A. Richardson	The treatment of trigeminal neuralgia by injection techniques
J. Taylor C. Earl	A controlled trial of X-radiation in the treatment of the intracranial gliomas
D. Crompton M. Buckell	A social and economic survey of the late results of extirpation of intracranial and intraspinal meningiomas
M. Bloch	The treatment of Parkinson's disease and other forms of disordered movement by thermocoagulation of the globus pallidus and by chemopallidectomy
	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, lyophilized chymotrypsin and pathilon, in the control of cerebral swelling
	Investigation of the gross and microscopic changes in the brain following rupture of intracranial aneurysms and primary intracerebral haemorrhage
	Study of the electrolyte changes in patients with acute cerebrovascular accidents and following the oral and intravenous administration of urea

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
	Lung function studies in asthma
U. James (Miss)	Coxsackie virus infections in children
C.W. Kesson, M.D.	Aetiology of congenital malformations
Professor C.F. Ballard	Cross-sectional and longitudinal study on the relationship between varieties of facial morphology and the incidence of mouth breathing and upper respiratory infections
A.G. Leatham	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
N. Woolf	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
L. Irons	Protein interaction with calcium
A. Carter (Mrs.)	The serum enzymes in health and disease
Professor S.D. Elek, M.D., Ph.D.	Study of immune phenomena in lower animals
G.R.F. Hilson, M.D.	Serological relationships between leprosy and other acid fast bacilli
H. Stern, Ph.D.	Cytomegalic inclusion body disease in man and animals
P. Fleming	Control of staphylococcal cross-infection in hospitals
T. Rees, Ph.D.	Immune reactions in the South African claw-footed toad-
L. Butler, Ph.D.	Transformation experiments in *Haemophilus*
B.V.K. Smith	Electron microscopy of *Polyoma* virus in tissues
J.L. Stafford	Pathology of primary marrow dyscrasias
	Coagulation mechanisms and anticoagulant therapy
	Cytotoxic therapy in leukaemia
C.R. Spittle (Miss)	Vitamin B_{12} metabolism
N.H. Kemp	Autologous marrow transplants; alkylating therapy in malignant disease
	Cytogenetics of blood diseases
J.N. Pleaden (Miss)	Coagulation studies in animal and man
H.F. Pogany (Miss)	Fibrinolytic mechanisms in disease

8. Psychiatry

P. Hays	Comparative trial of anti-depressive medications
A.H. Crisp	
P. Hays	Study of cases of hysterical amnesia

9. Surgery

M.F. Nicholls, C.B.E. with Institute of Urology	Long-term study of renal tuberculosis hydronephrosis
A.H.M. Siddons	Results of major surgical operations for pulmonary tuberculosis
	Association between thoracic disease and cerebral abscess
R. Smith	Relapsing pancreatitis
J.A. Gillespie, M.D.	Blood flow in vascular disease and after therapy. Post-sympathectomy physiological investigations

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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

2. Biochemistry

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

3. Biology

C.L. Foster, Ph.D. (Head of Department)	Electron microscopy of rabbit anterior pituitary
	Histochemistry of pars intermedia
A. Fisk, Ph.D. with A.G.H. Menzies, M.D., Ph.D.	Developmental cytology of the chick's proventriculus
E. Cameron, Ph.D., D.Sc. with C.L. Foster, Ph.D.	Pituitary changes in rabbit following gonadectomy

4. Haematology

P.L. Mollison, M.D.	Clinical and serologica aspects of human blood group differences
	Investigation of haemolytic syndromes
N.C. Hughes Jones, Ph.D.	Studies with labelled red cells in man and animals
I.C. Chanarin, M.D.	Folic acid metabolism and megaloblastic anaemias in general
P. Barkhan, M.D.	Problem of blood coagulation

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	Pharmacological action of hypertensinlike peptides in man and animals
	Renal hypertension
P.H. Sanderson	The nature of alkalosis
	Therapy of peptic ulcer
	General problems of electrolyte disturbance and renal function
	Control of calcium metabolism
J.F. Ackroyd, D.Sc.	Thrombocytopenic purpura
	Drug sensitivity
	Investigation of anticoagulants
J.I.S. Robertson	Nature of flushing in carcinoid syndrome
	Renal clamp hypertension
J.J. Brown	Isolation of further hypertensin-like peptides
J.F. Mowbray	Vascular effects of sympathomimetic amines in man
	Measurement of human blood flow by direct methods
A.F. Lever	Study of renal lymph
N. Stone (Miss)	Isolation of renin
H. Muir (Miss), D.Phil.	The composition of the arterial wall
E.H. Cooper	Protein metabolism in isolated lymphocytes

7. Microbiology

ALLERGY CLINIC

A.W. Frankland, D.M.	Immunochemical and clinical studies on allergens
E.D. Hamilton (Miss), Ph.D.	Mycological aspects of inhalant allergens

Bacteriology:

Professor R.E.O. Williams, M.D.	Staphylococcal infections in hospital
	Experimental staphylococcal and streptococcal infections in animals
	Biology of streptococci
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	The role of *Haemophilus influenzae* in chronic bronchitis
	The secretion of blood group substances
	Phagocytosis and cellular antibacterial mechanisms

8. Paediatrics and Child Health

R.C. Lightwood, M.D. (Director)	Childhood leukaemia and its treatment
	Hypercalcaemia and other metabolic problems in infancy
	An investigation of home care of sick children
T. Stapleton, D.M.	Psychiatric disorders in children
	Hypercalcaemia and other metabolic problems in infancy
K.W. Cross, D.Sc., Ph.D.	Respiration in infancy: physiological studies
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

9. Pathology (*continued*)

E.A. Wright, M.D.	The influence of oxygen tension on radiosensitivity Radiation carcinogenesis Radiation effects in the central nervous system Experimental radiotherapy in relation to anoxia
K. Porter, M.D.	Bone marrow transplantation in X-irradiated animals
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
L. Michaels	Pathology of chronic bronchitis Pathology of reticulum cell leukaemia Sarcoidosis Thrombosis and malignancy
J Guthrie	Testicular teratomas Experimental induction of testicular teratomas in birds Effects of sub-lethal anaphylactic shock on parenchymatous organs in mammals
A. Jacobs	The effect of iron deficiency on the buccopharyngeal mucosa and on the finger nails The effect of pernicious anaemia on the buccal mucosa Factors in the etiology of post-cricoid carcinoma

Chemical:

Professor A. Neuberger, F.R.S.	The carbohydrate complex in egg albumin
with J.J. Scott, Ph.D.	Biogenesis of porphyrins
B.J. Houghton	The use of N^{15} labelled compounds in the investigation of clinical problems
K.D. Gibson, Ph.D.	Biosynthesis of glycoproteins Enzymic transformation for phospholipids
N.M. Green, Ph.D.	The effect of biotin on enzymic reactions
E. Kawerau	Proteins of the cornea
V.H.T. James, Ph.D.	Metabolism of steroids

10. Pharmacology and Therapeutics

H.C. Stewart, M.D. (Head of Department)	Investigation of new analgesic drugs and other analgesic problems
with K.R. Butterworth, Ph.D. M. Weinstock (Miss) J. Kemp (Miss) C.M. Saunders (Miss)	Investigation of some clinical analgesic problems, including the control of withdrawal symptoms in addiction
P.A. Nasmyth, Ph.D.	Investigation of the mode of action of 2:6 xylyl ether bromide (T.M.10)
with W.H.H. Andrews, D.M.	Investigation into: The mode of action of 2:6 xylyl ether bromide (T.M.10) Characteristics and function of certain cells in the skin resembling mast cells, particularly whether they contain adrenalin and noradrenalin
W.H.H. Andrews, D.M. with I. del Rio Lozano	The storage and excretion of various dyes by the liver, and an investigation into the source of hepatic lymph
P.L. Sharma	An investigation into the mechanism of potentiation of the antifibrillatory activity of quinidine by some tranquillizing agents

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
G.H. Wright	Membrane potentials of placenta and foetal gut
D.P. Alexander (Miss)	Foetal renal efficiency and excretion

13. Surgery

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

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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

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.	The relationship between the output of carbon dioxide and sexual maturation in insects
(Head of Department)	Periodic discharge of carbon dioxide by insects
P.S.B. Digby	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

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
E.H. Letchner (Miss)	Studies on *Listerella* and natural immunity
E.M. Cooke (Mrs.)	Epidemiology of staphylococcal infections

6. Pathology

Professor R.C. Curran, M.D.	Histochemistry of mucopolysaccharides
	Experimental silicosis
	Electron microscopical structure of the human intestinal villus
H. Spencer, M.D.	The relationship of lung cancer to lung scars, and the nature and development of such scars
R.G. Shorter, M.D.	Gastrointestinal epithelial turnover
	Immunologic aspects of extra-hepatic cholestasis
	Experimental rheumatic lesions
J. Burston, M.D.	Electron microscopical structure of normal and abnormal neuroglia
	Oxidative enzymes in animal and human brain
J.A.M. Ager, M.D.	The 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.	Factors affecting the amount and distribution of 5-hydroxytryptamine in the intestine
	Action of cardiac glycosides on the uterus
S.E. Smith, Ph.D.	Actions of reserpine and α-methyl dihydroxyphenylalanine
I. Laszlo, M.D.	Estimation of substance P in tissues and the effect of drugs on its distribution

8. Physics

W. Cochrane, Ph.D. (Head of Department)	Electron diffraction

9. Physiology

Professor H. Barcroft, M.D., F.R.S.	Action of nerves and hormones on blood vessels in muscle and skin
M.R. Allwood, Ph.D.	
A.F. Cobbold, Ph.D.	Circulation in joints and muscles; muscle metabolism
E.M. Evans, Ph.D.	Neurophysiology of spinal reflexes
I.M. Young (Miss), Ph.D.	Foetal circulation and respiration

10. Surgery

Professor J.B. Kinmonth, M.S. (and other members of the staff of the Department)	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 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
F.B. Cockett, M.S.	The post-thrombotic syndrome of the leg and the long-term results of operations on the lower leg perforating veins Long-term results of arterial grafting Investigation of operative cholangiography in biliary disease

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1. Clinical Research

M.R.C. LABORATORY

E.E. Pochin, C.B.E., M.D. (Director) L.G. Plaskett, Ph.D. E. Shalom	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. J. Lennard-Jones, M.D.	Gastrointestinal function in man, in health and disease

2. Medicine

Professor M.L. Rosenheim, C.B.E., M.D.	Treatment of hypertension and renal disease
Professor C.E. Dent, M.D., Ph.D.	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

2. Medicine (*continued*)

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
O.M. Wrong	Electrolyte disturbance in renal disease

3. 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

4. Obstetrics and Gynaecology

W.C.W. Nixon, M.D.	Foetal electrocardiography and phonocardiography
C.N. Smyth	Electrical and mechanical studies of uterine action in labour
	The effects of drugs upon the human uterus in pregnancy, labour and post partum
	Studies of respiration in the newborn
	Studies of diagnostic procedures and treatment for dystocia
	Studies of anaesthetics and uterine action
	Investigation of electrolytes in human uterus
G.I.M. Swyer, D.M., M.D., D.Phil.	Separation and estimation of oestrogens in body fluids
	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
	Therapeutic uses of androgens in women
	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
H.P. Wright, Ph.D.	Detection of placenta praevia with protein bound I^{132}
	Assessment of placental function using ionic and protein bound I^{132}
	Study of foetal and litter size in hypertensive rats
	Study of transfer of various elemental ions across placenta of rats using appropriate isotopes

5. Pathology

Professor Sir Roy Cameron, D.Sc., LL.D., F.R.S.	Biliary cirrhosis Liver necrosis Structure of the bile ducts
J.F. Smith	Lead encephalopathy Problems of nephritis
A. Jarrett	Dermatological pathology, especially eczema and various vitamin deficiences
P. Hughesdon, M.D.	Tumours of the ovaries Chronic endometritis
W.G. Spector	Nephrosis Birth injuries Chemical mediation of inflammation
P. Sutton	Lymphomata
C.T. Hou, Ph.D.	Regeneration of the bile passages Structure of the bile ducts Tumours of the liver
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 tissue slices and 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

6. 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

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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

2. Pathology (*continued*)

Chemical (*continued*)

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

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. 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	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. (Head of Department)	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 undergoing cardiac repair operation Effect of various diuretics on body sodium and potassium Changes in body sodium and potassium during treatment of malignant disease: Patients with primary bone disease Patients with bony secondaries Patients with no bone involvement

3. Physics (*continued*)

Medical (*continued*)

C.W. Wilson, Ph.D. (Head of Department)	Study of potassium loss in patients with chronic intestinal disease
	Microradiography of tissue sections including normal and irradiated mouse bone
	Development of various electronic equipment: an internal defibrillator; an electronic timer suitable for time-lapse cinemicrography; apparatus for preservation of bone marrow at $-79^{\circ}C$; control systems of caesium and cobalt beam units; a warning device for use in surgery; an osmolometer; an apparatus for measurement of neuromuscular block
	Work on physical aspects of rotation therapy with a cobalt 60 beam unit
	Cytological and histochemical studies of the effect of X-rays on the tibia of the growing mouse

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1. Anaesthetics

H.J. Brennan, M.D. (Director)	Development of automatic blood pressure recorder
	The inefficiency of controlled respiration
	Investigation of vagal apnoea
T. Dinsdale	The assessment of safety in nitrous oxide anaesthesia
	The effects of anaesthesia in surgery of the heart
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

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
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

2. Anatomy *(continued)*

M.K. Wright	Investigation of electrical activity and changes in nerve cells within neuronally isolated slabs of cerebral cortex with intact blood supply
	Development of a new method for observing pulsation and blood flow in arteries, using radiologically visible markers; application of this technique to certain problems in the cerebral circulation
A.W.F. Fisher	Studies on innervation of trachea, bronchi and lungs
G.B. Seddon	The morphology and innervation of the bladder neck and urethra in the female
W.N. Schofield	Studies on the innervation of the female genital tract
	The blood of the human palate
S.D. Sutherland	Studies on the innervation of the liver, gall bladder and 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., West Riding

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
F.D. Kahn, D.Phil.	Interstellar matter
	Electromagnetic theory
M. Kitamura	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.	
C.H. Slater	The galactic and extra-galactic radio emission, including measurements of the size of radio stars
J.G. Davies, Ph.D.	
H.P. Palmer, D.Phil.	Investigations of the hydrogen line emission from the interstellar gas
R.D. Davies, Ph.D.	
R.C. Jennison, Ph.D.	Radio echo investigation of meteors
M.I. Large, Ph.D.	Delineation of orbits and studies of the physical processes in the upper atmosphere
R.G. Conway, Ph.D.	
	Measurement of upper atmosphere winds by the observation of radio echoes from meteor trails
	Radio echo studies of the aurora borealis
	Radio echo studies of the moon and planets
	Satellite and space probe tracking

5. Audiology and Deaf Education

Professor Sir Alexander Ewing, 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
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 dea and partially deaf 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.	Oxygen and nitric oxide effects in radiation
J.V. Davies, Ph.D.	Relative biological efficiency of 4- and 20-MeV radiation
C. Russell, Ph.D.	experiments with ferrous sulphate and *E.Coli* B

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
A.P. Wylie (Miss)	Cytogenetic research on *Rosa* and Leguminosae
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.	Experimental studies of etiolation
	Shoot morphogenesis
D.L. Smith	Lower Carboniferous spore-bearing fructifications
	Fossil lycopods
B. Truelove	Organic acid and metabolism of plant tissues

* M.R.C. staff

7. Botany (*continued*)

Cryptogamic:

Professor J. Colhoun, Ph.D., D.Sc.	Mycology and plant pathology; epidemiology of plant diseases; factors underlying resistance of lenticels of fruit to invasion by fungi
A. Allsopp, Ph.D.	Morphogenesis, with special reference to Pteridophyta and Bryophyta
D. Park, Ph.D.	Investigation of soil-borne plant pathogens

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J.W. Franks, Ph.D.	The flora of Andorra

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.	The chemistry of niobium and tantalum Co-ordination compounds of polyvalent metal halides
W.C.E. Higginson, D.Phil.	Kinetic studies of reactions of cobalt (III) complexes Redox reactions of titanium (III)
I.G. Campbell, Ph.D. N.L. Paddock A. Thomson, Ph.D.	The chemical consequences of nuclear transformations (e.g. chemical effects of radiative neutron capture and of radioactive decay) The preparation and determination of the structures of phosphonitrilic derivatives

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
H. Smith, Ph.D.	Synthesis of steroid hormones and diterpenes; tracer studies in biosynthesis of phenols and polyterpenes
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.	The spectra and reactivities of ketyls and sodium-hydrocarbon complexes
J.H. Baxendale, D.Sc.	Chemical reactions induced by X- and γ-radiation and electrons Photochemistry of solutions Kinetics and mechanisms of oxidation and reduction reactions

9. Chemistry (*continued*)

Physical (*continued*)

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

10. Dental Studies

Professor H.G. Radden B.V. Janes E.H. Seeley	Implantation of various substances in bone
H. Allred	An aspect of the morphology of human dentine
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	An investigation into the magnitude and the consequence of thermal changes in the surface of enamel
T.C. Rowbotham C. Cooke	The dentition and associated structures of approximately 300 skulls unearthed near York (approx. 200-300 A.D.)
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.) J.A. Hargreaves	A clinical evaluation of methods of treatment of caries in children 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
R. Earnshaw, Ph.D.	Cobalt-chromium alloys
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
P. Hargreaves	Application of electronic methods to testing of dental materials
E.A. Wain	The development of a miniature pressure transducer for the study of the distribution of masticatory forces in prosthetic appliances

11. Engineering

Civil:

Professor M.R. Horne, Sc.D.	Plastic theory of structures
J.K. Alderman, Ph.D.	Settlement of foundations on glacial clays The geotechnical properties of glacial deposits
T. Constantine, Ph.D.	The behaviour of ships in canals Orifice plates in hydraulic pipelines
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 pre-stressed beams
P.W. Rowe, D.Sc.	Stability of sheet-pile walls Development and experimental proof of the stress-dilatancy theory for soils
M.G. Derrington	Lateral stability of framework Temperature stresses
P. Montague	Load distribution and creep in overhead electric cables
A. Jennings	The elastic buckling loads of rigid frameworks
J. Stebbings	The characteristics of self-formed channels in alluvial material

Electrical:

Professor F.C. Williams, O.B.E., F.R.S. Professor T. Kilburn, D.Sc. D.B.G. Edwards, Ph.D. R.L. Grimsdale, 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	Engineering developments of electronic digital computers
R.A. Brooker C.M. Popplewell (Miss) R.B. Payne, Ph.D. D. Morris, Ph.D. D.J. Evans	Application of electronic digital computers
R. Cooper, Ph.D. T.E. Broadbent, Ph.D.	Dielectric breakdown
E.R. Laithwaite, Ph.D. D. Tipping J.F. Eastham G.F. Nix	Development of induction motors and linear synchronous machines
C.N.W. Litting, Ph.D.	Electroluminescence
M.J. Somerville, Ph.D. D. Atherton	Non-linear servomechanisms and sampled-data systems

Mechanical:

Professor J. Diamond	Heat transfer
F.J. Edwards	Forced convection heat transfer with rough surfaces
J.L. Livesey, Ph.D.	Internal aerodynamics of gas turbine combustion chambers Secondary flows about struts in thick boundary layers Generation and decay of velocity profiles having high velocity gradients

11. Engineering (*continued*)

P.G. Morgan	Air flow through wire gauzes Change of velocity profile of air flowing in ducts
J.D. Jackson	Effect of temperature on convection heat transfer
R.I. Tanner	Lubrication of higher pairs of machine elements
F. Cheers	Heat transfer from finned tubes in cross flow
A. Williams	Heat transfer between solids in contact
W.J.D. Annand	Combustion in i.c. engines

Nuclear:

Professor W.B. Hall	Heat transfer and fluid mechanics problems in nuclear reactors
P.H. Price, Ph.D.	Radiation-induced nucleation in boiling water systems
M.J. Harris	Effect of boundary condition on heat transfer and mass transfer in tubes and cluster of rods
W.G. Littlejohn	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

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S. Muldal	Smear cytology
A.J. Bateman, D.Sc.	Effects of ageing on somatic chromosome variation
C. Ockey	Trisomy for the ABO gene
J. Muskett (Mrs.)	Time of death of embryos from mice heterozygous for translocations
	Mutations in *Drosophila* spermatocytes
	Mutations induced by tritiated thymidine

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	Urban and historical geography of the Manchester region
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	The henequen industry of Yucatan; land use in British Honduras

14. Geology

Professor W.A. Deer, Ph.D.	Igneous and metamorphic petrology
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 the charnockites and aplites
W.S. Mackensie, 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	Structural geology and sedimentation

14. Geology (*continued*)

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:

C.R. Illingworth M.B. Glauert R.F. Chisnell, Ph.D. F.A. Goldsworthy, Ph.D. E.J. Watson N.R. Morton, Ph.D.	Fluid dynamics (all branches)
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 N. Fox, Ph.D.	Visco-elasticity

16. Mathematics (*continued*)

Pure:

Professor M.H.A. Newman, F.R.S.	Algebraic topology and mathematical logic
Professor K. Mahler, F.R.S.	Theory of numbers Diophantine analysis
B.H. Neumann, F.R.S., Ph.D.	Algebra, theory of groups
W. Ledermann, Ph.D.	
J.A. Green, Ph.D.	
P.M. Cohn, Ph.D.	
M.G. Barratt, Ph.D.	Topology
A.H. Stone, Ph.D.	
D. Stone (Mrs.), Ph.D.	Linear spaces, measure theory
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
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
R.A.J. Shelton	Analysis of metals and alloys Deposition of metals from vapour phase
J.R. Stubbles, Ph.D.	High temperature thermodynamic studies of sulphides and oxides 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

19. Microbiology

Bacteriology:

Professor H.B. Maitland, M.D.	Investigation of viruses
M.R.J. Salton, Ph.D.	Bacterial chemistry
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: Cerebro-vascular disease Epilepsy Myasthenia gravis Disseminated sclerosis

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 Cerebrovascular 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 aluminium lung
I. Dingwall-Fordyce (Miss)	Survey studies of disease due to cotton dust
W.R. Lee	Studies of the after-effects of electric shock Deafness in workers exposed to noise Urinary changes in shift workers

24. Ophthalmology

O.M. Duthie, M.D. A. Stanworth, M.D. Ph.D. E.J. Naylor, Ph.D. P.A. Graham	Aetiology and treatment of uveitis and glaucoma Characteristics of fusion, depth perception and amblyopia in strabismus

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
R.F. McNab Jones	Anaemia and dysphagia in relation to hypopharyngeal malignancy
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

27. Paediatrics and Child Health

W.F. Gaisford, M.D.	Studies with isoniazid resistant B.C.G.
with G.V. Feldman *E.T. Perkins, Ph.D.	Antenatal and neonatal immunization with single and multiple antigens
A.H.C. Walker G.M. Komrower	Haemolytic disease of the newborn: antenatal prediction and perinatal management
G.M. Komrower	Management of the "diabetic" baby
W.I.C. Morris	The supervision of the adrenogenital syndrome
W.F. Gaisford, M.D. R.F. Jennison	The control of staphylococcal infections in the newborn
V. Schwarz, Ph.D. with A. Holzel, M.D. G.M. Komrower	Further studies in galactosaemia; biochemical, genetic and clinical
J.K. Steward K. Pearce	The Children's Tumour Registry
G.V. Feldman with J.B. Hartley, M.D.	Radiological and clinical studies in postmaturity
G. Watson	Congenital heart disease
F. Cavanagh (Mrs.)	Deafness in childhood
A. Jolleys, M.D.	Sequelae of cleft palate
M.I. Griffiths (Mrs.), M.D.	Multiple puncture techniques for B.C.G. vaccination in infancy
with S. Guthrie (Mrs.), M.D.	Cerebral palsy
A.N. Guthkelch, M.D.	The pathology of craniosynostosis The late results of surgical treatment of hydrocephalus and spina bifida, and the ultimate state of infants who had subdural haematoma
A. Holzel, M.D. with V. Schwarz	Studies in allergy Congenital alactasia
G.V. Feldman	Vitamin K 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

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J.P. Smith, M.D.	Iron metabolism

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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

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*H. Jackson, Ph.D.	Actions of alkylating substances in proliferating cells
A.W. Craig, Ph.D.	Esters of alkyl sulphonic acids
B.W. Fox, Ph.D.	Metabolic studies with isotope-labelled alkylating compounds
W. Tampion	
R.M.V. James	Diuretic effects of ethyleneimines
L.G. Skinner	Protein hormone research
P.J. O'Connor, Ph.D.	Correlation of urinary protein hormone levels with clinical response 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
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* sp. The germicidal activity of formaldehyde The germicidal activity of cationic germicides

31. Physics

Experimental:

H.J.J. Braddick, Ph.D. J. Ring, Ph.D. J.F. James, Ph.D.	Development and application of photoelectric spectrometers and interference filters; optical instrument design
J.B. Birks, Ph.D.	Physics of organic molecules and crystals
N.J. Dunning	Scintillation counters and nuclear detectors Dielectrics
E.B. Mendoza, Ph.D. H.E. Hall, Ph.D.	Low temperature physics; properties of liquid helium
J.O. Newton, Ph.D.	Nuclear structure; nuclear reactions
A.J.F. Boyle, Ph.D.	Electromagnetic radiation from nuclei
D.St.P. Bunbury, Ph.D. J.M. Calvert, D.Phil. I.S. Grant, Ph.D. A.A. Jaffe, Ph.D. W.R. Phillips, Ph.D. J.C. Lisle, D.Phil. B. Dickinson N. Gale P.F. Henry F.D. Read, Ph.D.	Nuclear spectroscopy; coulomb excitation

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31. Physics (*continued*)

Experimental (*continued*)

D.M. Binnie, Ph.D.	Meson physics
G. Nassibian	Linear accelerator for heavy ions
D. Broadbent	
A. Herzenberg, Ph.D.	Nuclear physics; terrestial magnetism
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:

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C.W. Gilbert, Ph.D.	Studies with radioactive isotopes
J.P. Keene, Ph.D.	Whole-body irradiation syndromes
T.J. Davy	Radiation calorimetry
	Electron beam irradiation

M.R.C. BETATRON RESEARCH UNIT

D. Greene, Ph.D.	Studies in relative biological efficiency
	Comparison of 4- and 20-MeV radiations: support of clinical studies

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.	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

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. Hoenig	Memory disorders
J.C. Kenna	History of British psychology, 1875–1950
J. Hoenig	A demographic psychiatric study
G.F. Reed	Laterality. Satiation and "un-learning"

34. Psychology

Professor J. Cohen, Ph.D.	Experimental and developmental studies of psychological probability, luck and chance
	The study of a national lottery
	The educational and occupational background of Members of Parliament
	Suicide pacts
	The idea of automata

34. Psychology *(continued)*

Professor J. Cohen, Ph.D. with E.J. Dearnaley	Experimental study of football Experimental study of mind wandering
F.E. MacNeill (Miss), Ph.D.	Range of sensory experience in personality development
C.E.M. Hansel	Visual perception Investigation of work on E.S.P.
J. Morris, Ph.D.	Executive selection techniques Adolescent attitudes and behaviour
R.R. Skemp, Ph.D.	Reflective intelligence Hypnosis Eye movements Cerebral palsy
E.E. Rump	Visual perception Semi-structured interviewing
E.J. Dearnaley	The subjective future Psychopharmacological studies

35. Public Health and Social Medicine

Professor C.F. Brockington, M.D.	A follow-up study of a group of premature infants A study of the status of the student's father Studies into the history of English public health
M.G. Bulmer, Ph.D.	Completion of the study on the biology of human twinning
J.E. Leeson (Mrs.)	Studies of families of young mentally handicapped children in a local community Investigation of the problem associated with the demand for mental deficiency hospital accommodation in the Manchester Region
*S.M. Lempert (Mrs.)	Problems of the aged
J. Simpson, M.D.	Medical administrative problems produced by the progressive ageing of the population Sickness absence in professional groups Chronic disease and adult health
M. Susser, M.D. with Z. Stein (Miss), M.D.	A socio-medical family and clinical follow-up study of a group of persons ascertained as educationally subnormal at school A cultural and family study of enuresis in schoolchildren
R.F.L. Logan, M.D.	Operational studies in medical care in hospital and general practice Methods of multiphasic screening in general practice for diabetes, hypertension, anaemia, coronary heart disease, cancer, etc.

36. Radiotherapy

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Professor J.R.K. Paterson, C.B.E., M.C., M.D.	Clinical radiotherapy Series of clinical trials Development of isotope therapy (including for hyperthyroidism)
J.L. Dobbie	Megavoltage studies
E.C. Easson, M.D.	Development of techniques for malignant disease in children
H.C. Warrington R. Gibb M. Cole (Miss), M.D. R.C.S. Pointon E. Sherrah-Davies K.E. Halnan, M.D.	Chemotherapy of the reticuloses and malignant disease

*Grant from the National Corporation for the Care of Old People.

36. Radiotherapy (*continued*)

J.G. Stewart	Hormone therapy and endocrine procedures for breast cancer
*E. Paterson (Mrs.)	
*E. Paterson (Mrs.)	Whole-body irradiation on red cells in the Rhesus monkey
M.V. Haigh (Mrs.)	Effect of radiation on teeth
D. Porteous	Irradiation effects on the mouse foetus
D. Thomason (Miss), D.Phil.	Irradiation effects on cells
R. Schofield	Calcium metabolism in normal, malignant and irradiated cells

37. Rheumatism Research

Professor J.H. Kellgren	The definition and classification of rheumatic diseases in terms of abnormal connective tissue processes; controlled therapeutic trials
J. Sharp, M.D.	
A.J. Propert	
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
C.H. Wynn, Ph.D.	Connective tissue metabolism
J.A. Chapman, Ph.D.	Biophysical studies of connective tissue and other biological material
R. Peach, Ph.D.	
J.S. Lawrence, M.D.	Field studies of the prevalence of the various rheumati diseases in the general population

38. Statistics

Mathematical:

T. Lewis	Statistical methodology and inference
J.N. Darroch	
M.B. Priestley, Ph.D.	

39. 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
	Extracorporeal 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

40. 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	Biology and taxonomy of Chalcidoidea

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40. Zoology (*continued*)

THE MUSEUM

W.D. Hincks, D.Sc.	A systematic revision of the Dermaptera (earwigs) of the world Systematic studies on the Cassidinae (Coleoptera Chrysomelidae) of Madagascar Systematic revisions of the British fairy flies (Hymenoptera Mymaridae)
E.L. Seyd	Systematic study, with some ecological notes, of the moss mites (Oribatei) of Derbyshire; Oribatei of Kinder Scout
A. Brindle	Taxonomic studies on the immature stages of British Diptera

D.E. Owen, Ph.D. (Director)
R.M.C. Eagar, Ph.D.
W.D. Hincks, D.Sc.
E.L. Seyd
J.W. Franks, Ph.D.
A. Brindle
T. Burton-Brown
} **The Museum**

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1. Building Studies

Professor D. Harper, Ph.D.	Structure of the building industry
J.R.A. McDonald	A study of soil-cement stabilization related to building and an assessment of suitability of soil for this purpose
C.H. Garrett	Regional bioclimate related to building
R.A. Burgess	The design of building materials as elements in site productivity
T. Hesp	Analysis of the incidence of beetle and fungoid attack in the Mersey valley
C.T.G. Boucher, Ph.D.	Investigation of problems connected with settlement and drainage
V.C. Barnes J.K. McKay	Concrete strength related to time of placing
R. Dilworth	Comparative analyses of claddings
T.A. Harwood J.W. Simpson	Thermal insulation of clay brick walling

2. Biochemistry

Professor A.A. Eddy, D.Phil.	Cell structure and transport processes Metabolism in micro-organisms
A.N. Hall, Ph.D.	Metabolism in micro-organisms
K. Corbett, Ph.D.	Amino-acid transport in tissues
B. Hodgson, Ph.D.	Metabolism in micro-organisms
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

3. Chemistry

Professor R.N. Haszeldine

3. Chemistry (*continued*)

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
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
R.B. Heslop	Free-radical hydroxylation and nitration in aqueous solution Peroxy compounds of nitrogen and sulphur
B.A. Pethica, Ph.D.	Contact potential and kinetic studies in ultra-high vacua in the system silver-caesium and tungsten-nitrogen 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 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
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 actions Molecular weight distribution
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, Ph.D.	Organo-boron and other electron-deficient compounds; co-ordination compounds; inorganic polymers; inorganic boron 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
G.J. Leigh	Non-transitional element complexes
M.J. Newlands, Ph.D.	Silicon to metal bonds Silicon to metalloid bonds Transition-element complexes
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

3. Chemistry (*continued*)

Organic (*continued*)

Professor R.N. Hazeldine, Ph.D., D.Sc., Sc.D.	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
G. Baddeley, D.Sc., Ph.D.	Effects of intramolecular 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
A.R. Thompson, Ph.D.	Phenol-formaldehyde condensation products Infra-red spectrum of aromatic compounds Light absorption of organic compounds Effect of hydrogen bond formation on electronic spectra Colour filters
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
R.E. Banks, Ph.D. J.M. Birchall, Ph.D.	Fluorine chemistry
H. Goldwhite, Ph.D.	Halogenated organic componds
R.S.W. Braithwaite, Ph.D.	Polycyclic cinnoline derivatives Tautomeric arylazo derivatives of cyclic ketones

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
S.T. Loh, Ph.D.	Solubility studies of systems involving coal-tar bases
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

4. Engineering (*continued*)

Chemical (*continued*)

H. Holness with R.W. Adams	Thermogravimetric studies of some hafnium 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
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.	Alloys in the system Bi-Cd-Sn
with J.D. Kitchingman	X-ray studies of phase changes and order-disorder phenomena in alloys
K. Pearce	Effect of Al and Si additions on malleable cast iron
R.J. Edwards	Investigation of the kinetics of the first stage graphitization of Fe-C-Si alloys
F.D. Bell	A study of the Au rich ternary system Bi-Cd-Sn
J.F.C. Morden	Fibre metallurgy
J.H. Cairns, Ph.D.	A study of the total emissivity, heat capacity and energy of transformation of metals
C. Handford	Etching metallic surfaces by controlled elemental attack
P.E. Evans, Ph.D.	Structure-sensitive properties of some ceramic materials Studies of interstitial compounds prepared with a pure heat source Fundamental studies in sintering Continuous compaction of powdered materials
B. Gregory, Ph.D.	The effect of certain elements on formation and transformation of pearlite in steels of certain composition

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	Protective gear studies; semi-conductor relays; development of a generalized theory of protective relaying
D.K. McCleery	Power system analysis and control problems
B.D. Nellist	New forms of indicating instruments
J. Rawcliffe	Use of flexure pivots in electrical instruments
F.G. Heath	Two- and four-port networks as very high frequency filters
G.R. Nicoll	Transistor devices
C.S. Gledhill	Chain codes
B. Horsley	Microwave discharges
F. Walker	Microwave plasma studies
J.M. Nightingale, Ph.D.	Electromechanical filters
E. Kuffel, Ph.D.	
M.G. Hartley J.B. Knowles	

4. Engineering (*continued*)

Electrical (*continued*)

R.W. Whitehead	Helical aerials
F.R. Perry	Adaptive control
W.P. Baker	Digital control systems
R. Feinberg, D.Ing.	A.C. modulated control systems
P.L. Taylor	Breakdown mechanisms in liquid dielectrics
P. Mathews W.J. Gibbs, D.Sc.	Radio and television interference problems from high-voltage insulators

Mechanical:

Professor H. Wright Baker, D.Sc.	
J.H. Lamble, D.Sc.	Stresses, deflections and support reactions for flat plates subjected to uniformly varying hydrostatic loading and to rolling loads Relation of parts of the S/N curve in fatigue with specific physical tests The use of diffraction gratings in the control of strain Photoelasticity An examination of the mechanics of the sandwich method Stresses at a branch or nozzle in a thick cylinder subject to internal pressure Membrane and other stresses in flat plates subject to uniform and uniformly varying hydrostatic loading Load distribution in screwed fastenings A study of the scarphed joint Stresses in thin-walled cylinders with large openings under bending and torsion
F. Koenigsberger, D.Sc.	Measurement of cutting forces during milling operations under various cutting conditions Some aspects of automatic error correction in machine tool alignment Use of different measuring systems for machine tool positioning and control An investigation into the rigidity characteristics of welded machine tool structures by means of model and full scale experiments Servo-problems in the positioning and control of machine tool slides Effect of residual stresses on dimensional stability of welded machine structures. (See also J.H. Lamble) Effect of welds, which do not carry loads, on the fatigue strength of plate materials. (See also J.H. Lamble) Stresses in hammer guides due to impact other than transverse
E. Johnson	The influence of speed on torque value when tapping $\frac{3}{4}$in. dia. holes with variation in hole diameter and with oils with different characteristics
A.P. Hatton, Ph.D.	Thermal conductivity of insulating materials at low temperatures with special reference to the effect of contained water and ice Influence of surface roughness on heat transfer to air flowing between parallel flat plates. Measurement of heat transfer coefficient on smooth and rough flat plates by velocity and temperature surveys in the boundary layer
G.R. Schiffer	Development of teaching methods in drawing and design
J. Parker, Ph.D. J. Kettlewell	Behaviour of metals under complex stress conditions beyond the elastic limit

4. Engineering (*continued*)

Mechanical (*continued*)

J.K. Royle, Ph.D.	Non-linear damping of a hydraulic control
	Feedback control on hydrostatic film bearings
	Stiffness improvement in high gain electro-hydraulic drives
	Selective non-linear effects for improving hydraulic control systems
B.J. Fielding	Vibration of prime movers
M. Barash, Ph.D.	Mechanical properties of spark-eroded surfaces
J. Skorecki	Vibration of prime movers (diesel engines)
	Vibration of machine tools
J.S. Turton	Influence of lengthwise wall temperature gradient on heat transfer from air flowing in a straight circular tube
	Performance analysis of cross-flow heat exchangers under transient flow and temperature conditions
P.L.B. Oxley, Ph.D.	Investigation of the effect of different rates of work-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 rate
H.J. Baker	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
R. Kitching	Flexibility of and stresses in fabricated pipe bend
G. Needham	Stresses in hammer guides caused by impact loading other than transverse
G.H. Farnworth	Vibrations of grinding machines

Municipal:

Professor R.J. Cornish	Permeability of soils
E.Ll. Morgan	Lime stabilization
G.B. Tait	The determination of the true angle of internal friction
E. Spencer	and true cohesion in clay soils
D.S. Chisholm	Astronomical surveying:
J.B. White	Application of radio time signals
P. Coackley, Ph.D.	Automatic recording of altitudes
J.C. Collins	Devices to eliminate personal error of observation;
G.M. Bish	design of registering chronometer; graphical and mechanical solution of spherical triangles
	Analysis of indeterminate structures
	Biochemical oxidation of alkyl benzene sulphonates and their degradation products
	Influence of nitrogen in trade wastes
	Sludge dewatering
	Study of variables controlling sludge drying by evaporation
	Deposition of radioisotopes on to natural sediments
	Use of radioisotopes as tracers of liquid flow
	Disposal of radioactive wastes
	Behaviour of sedimentation tanks
	Yield-storage relationships for impounding reservoirs
	Effects of additives on the workability of high-strength concrete

Structural:

Professor W. Merchant	Investigation of the elastic, plastic and stability phenomena
S.S. Gill, Ph.D.	of structures
S.J. McMinn, Ph.D.	

4. Engineering (*continued*)

Structural (*continued*)

R.B.L. Smith	Reinforced concrete
D.M. Brotton, Ph.D. F.N. Pannell N.W. Williamson, Ph.D.	Application of digital computers to structural problems

5. 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. H.E. Hogg	Statistical thermodynamics of colloid and co-operative systems
R.K. Bullough, Ph.D.	Theory of high polymers: crystal structure determination
R. Butler, Ph.D.	Hydraulic servomechanism theory
V.T. Buchwald, Ph.D.	Elasticity theory of plates and of anisotropic materials
W.M. Fairbairn, Ph.D.	Theoretical nuclear physics
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
R.A. James	Theoretical astronomy
A. Davis, Ph.D.	Kinetic theory

6. 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, Ph.D.	Crystal structure determination by direct methods Origin of solar system
J.E. Geake, Ph.D.	Instrumentation, particularly spectroscopy

7. 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

7. Technology (*continued*)

Textile Chemistry and Paper Technology (*continued*)

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
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 Industries:

Professor J.J. Vincent	Weft insertion
Professor W.E. Morton	Rectilinear comber design
G.E. Cusick	Fabric drape and the factors governing it
J.W.S. Hearle, Ph.D.	The structure and physical properties of textile fibres and yarns
V. Duxbury	Boundary conditions of strip and grab tensile testing of fabric Air drag on suspended yarns and filaments Pneumatic weft projection
J.S. Taylor	Distribution of fibre mass in carding Cause of carding sliver long wave irregularity Significance of particular yarn wavelength in woven cloth Lap formation by scutcher cages and effect of fibre separation on this
G.R. Wray	The drafting behaviour of various fibre assemblies Textured filament yarns Yarn ballooning

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1. Biology

Professor A.R. Gemmell	Ecology of sand dunes 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

1. Biology *(continued)*

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
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 molecules and crystals

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

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 British resources of glass-making sands
J. Naylon, Ph.D.	Irrigation and colonization in Spain

5. Geology

Professor F.W. Cope, D.Sc.	The stratigraphy, structure, and palaeontology of the Carboniferous rocks of the area between Macclesfield, Buxton, Great Longstone (Derbyshire) and Leek
T.G. Miller	British Palaeozoic fenestrate Bryozoa Critical evaluation of stratigraphic concepts
C.S. Exley, Ph.D.	The petrology and geochemistry of the Bodmin Moor Granite and its relationships with the other granites of S.W. England
J.L.M. Lambert	The structure and petrology of the Gramscatho Beds, Cornwall
T.P. Burnaby, Ph.D.	Multivariate distance functions: palaeontological applications Foraminiferal populations and their palaeoecology
J.E. Thomas	Petrology and geochemistry of the Tan-y-Grisiau Intrusion, N. Wales Investigations of rapid methods of chemical analysis of silicate and carbonate rocks Geochemical investigations in the Lower Palaeozoic rocks of N. Wales
R.G. Park	The geology of the Lewisian rocks of Gairloch, Wester Ross

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

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.	Gas discharges with special reference to surface effects
D.G. Holloway, Ph.D.	Physical properties of glass with special reference to the state of the surface
D.M. Schlapp, Ph.D.	
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.	

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1. Agriculture

Professor J.D. Ivins, Ph.D.	Evaluation of grass production techniques in terms of animal production
	The utilization of herbage by the grazing animal
	Developmental studies of herbage plants
with N. McDermott (Mrs.), M.B.E.	Factors affecting yield of potato crop
P.M. Bremner	Growth analysis and yields of cereals 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
J.T. Morgan, Ph.D.	Nutrition of the breeding sow during pregnancy and lactation
	Nutrition of the bacon pig
	Nutrition of the broiler chicken and laying hens
C.G. Payne, Ph.D.	Environment and growth rate in poultry
J. Chatterton	Crop drying
J.C. Buxton, Ph.D.	The occurrence of *Brucella abortus* in cow's milk
	Bovine aphosphorosis
	Porcine haemolytic anaemia
	"Swayback"
F.G. Clegg	Effects of antibiotic—supplemented feeding on structure and function of the alimentary tract
R.R. MacKay	The causes of abortion and stillbirth in pigs
	Toxoplasmosis
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
T.H. Nicolson, Ph.D.	The mycotrophic habit in grasses 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. I.H. Rorison, D.Phil. 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:

R.B. Jones	Problems of farm classification Economics of beef production
K.A. Ingersent	Economics of farm buildings
T.K. Warley	Agriculture in the Common Market and other regional trading blocs Integration in agricultural markets
G.E. Jones	Factors affecting the adoption of new farm practices
K.E. Hocknell	The profitability of fertilizer applications to grass for beef production
H.G. Evans	Economics of scale in commercial egg production

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 Anti-bacterial mechanisms of trypanocides 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
B.G. Haughton (Miss), Ph.D.	The breakdown of pectic materials by bacteria
A. Pettet, Ph.D.	Factor analysis and taxonomy: genetics of pollen polymorphism

3. Chemistry

Inorganic:

Professor C.C. Addison	Structure of metallic complexes; inorganic molecular addition compounds
N.N. Greenwood, Ph.D.	Preparation, properties and X-ray study of metal nitrates
W.E. Addison, Ph.D.	Properties of freshly formed surfaces
D.G. Tuck, Ph.D.	Physicochemical properties of liquid metals and alloys
N. Logan, Ph.D.	Reactions in non-aqueous solvent systems
K.M. MacKay, Ph.D.	Chemistry of metal carbides
	Chemistry of boron and gallium
	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, Ph.D.	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

Physical:

Professor D.D. Eley	Catalysis chemisorption and solid state physical chemistry
S.C. Wallwork, D.Phil.	of metals, metal oxides, polymers and enzymes
R.B. Cundall, Ph.D.	Organic semi-conductors
G.D. Parfitt, Ph.D.	Monolayer and multilayer studies
R. Rudham, Ph.D.	Ionic polymerization
M.R. Willis, Ph.D	Homogeneous gas kinetics
	Colloid chemistry of organosols
	X-ray studies of organic and inorganic complexes and hydrogen-bonded crystals

4. Engineering

Civil:

Professor R.C. Coates, Ph.D.	Flexure of skew slabs
D. McKay, Ph.D.	Pile driving by vibration methods

4. Engineering (*continued*)

Civil (*continued*)

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

Electrical:

Professor J.E. Parton, Ph.D.	Response loci of a.c. machines under slowly varying conditions Analogue computer for studies of nuclear reactor control Reswitching transients in machines Homopolar generator and mercury slip rings Reciprocating machines Permanent magnet machines
W. Alexander, Ph.D.	Magnetic elements in computer circuits Energy spectra of isolated pulses
S.A. Swann, Ph.D.	Electromagnetic fault detection in non-ferrous pipes An investigation of the magnetic field in the air-gap of a dynamo-electric machine with eccentric rotor Speed control of induction motors
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	The performance and protection of long, extra-high voltage, electrical power lines A study of radioactive lightning conductors The recording of varying machine speeds
A.R.M. Noton, Ph.D.	Adaptive control systems
P. Strange, Ph.D.	Jitter in control system synchros Complex vector loci
A.M. Marsden	Factors affecting visual performance Inter-reflections in interior lighting design Transient characteristics of photo-voltaic cells

Mechanical:

H. Fessler, Ph.D.	Photoelastic determination of stresses in pressure vessels, bolted connections and arched dams Plasto-elastic stress distributions studied by photoelastic reflection technique Strains near cracks
E. Markland, Ph.D.	Discharge from perforated pipes Performance of diffusers Eddy diffusion in a pulsating air stream Mixing of jets Performance of a hydraulic control valve
W.B. Heginbotham, Ph.D.	Effects of cutting conditions on surface finish Development of lathe tool dynamometers Photographic studies of the metal cutting process Probability characteristics of automatic feeders
H. McCallion, Ph.D.	Determination of the control characteristics of plant The mechanism of vibrating conveyors The dynamics of lace machinery Statics and dynamics of framed structures Behaviour of rubber under impact

4. Engineering (*continued*)

Mechanical (*continued*)

B.R. Dudley	Effect of cold rolling on fatigue strength of large shafts
with M.J. Owen	Propagation of fatigue cracks
	Strength of rotor discs
E. Ollerton, Ph.D.	Fatigue in rolling contact
	Photoelastic determination of contact stresses under radial and tangential loads
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. Geography

Professor K.C. Edwards	Historical geography of the Luxembourg iron and steel industry
	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
	Glaciology and geomorphology in W. Norway
R.H. Osborne, Ph.D.	Internal migration in Britain
	Economic geography of central and eastern Europe
J.P. Cole	Economic and urban development in N. Italy
P.T. Wheeler	Economic and social development in Sutherland with special reference to crofting

6. 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
A.J. Rowell, Ph.D.	The Bala and Valentian rocks of the Lake District between Coniston and Ambleside
	Inarticulate brachiopods
	Lower Palaeozoic rhynchonelloid brachiopods

6. Geology (*continued*)

F.M. Taylor, Ph.D.	The morphology, ontogeny and taxonomy of the Avonian Rugose Corals of Derbyshire Carboniferous stylolites
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, South 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

7. Horticulture

Professor J.P. Hudson, M.B.E., G.M.	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
W.M. Dullforce (Miss)	The effects of transplanting on subsequent growth and development of plants in relation to environmental factors

8. 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	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
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

9. Metallurgy

Professor J. W. Cuthbertson	Fundamental research on electrodeposition including bright plating
H.K. Lloyd, Ph.D.	Determination of residual stresses in ferrous alloys Effect of hydrogen on the transformation characteristics of steels 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.	Intercrystalline failure by contact with liquid metals Diffusion of impurities in chromium at elevated temperatures Fretting corrosion
P.A. Brook, Ph.D.	Adhesion of electrodeposits

10. 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

11. 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. H.J. Vipond, Ph.D. R.J. Grout, Ph.D.	Chemistry of potential schistosomicides

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 historical studies in the genus *Datura*
R. Hardman, Ph.D.	Chemical and histological studies on steroid-yielding species of *Dioscorea*

12. 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

12. Physics (*continued*)

N. Davy, M.M., D.Sc.	Theory of electric and magnetic fields. Equations of state
J.C. Woolley, Ph.D.	Properties of high coercivity magnetic materials Properties of semi-conducting materials
K.J. Standley, D.Phil.	Microwave properties of ferrites; paramagnetic resonance; solid state masers
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
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

13. Zoology

Professor E.J.W. Barrington, D.Sc.	Cytology and function of vertebrate digestive and endocrine systems
M.R. Young (Miss), Ph.D.	Parasitology Marine biology
A. Aitken	Metabolism of fish
B. Morris, Ph.D.	Mammalian embryology
K.U. Clarke, Ph.D.	Insect respiration
R. Morris, Ph.D.	Osmo-regulation in cyclostomes
A.K. Kent, Ph.D.	Endocrine control of teleost colour change
G.H. Manley	Endocrine factors in fish behaviour

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1. Agriculture

Professor G.E. Blackman, F.R.S.	The analysis of environmental factors governing plant growth and development especially the light factor The physiology of growth substances Physiological studies of phytotoxicity and the factors controlling selective action
with M.H.R. Soper	Factors affecting the development and productivity of the bean under field conditions
J.L. Harley, D.Phil. R.P. Martin, D.Phil. B.C. Loughman, Ph.D.	Investigations of plant nutrition, active transport and phosphorus metabolism; application of tracer methods to agricultural problems; physiology of mycorrhiza
J.L. Harper, D. Phil.	The autecology of weeds Competition between closely related species
R.L. Lucas, Ph.D.	Factors affecting seed germination and seedling diseases Control of diseases by chemical, physical and biological means
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

1. Agriculture (*continued*)

Agronomy:

A.R.C. UNIT OF EXPERIMENTAL AGRONOMY

Professor G.E. Blackman, F.R.S. with E.K. Woodford O.B.E., Ph.D.	Studies in the principles of phytotoxic action The physiology of growth substances The development of herbicides
J.D. Fryer R.J. Chancellor J.G. Elliott K. Holly, Ph.D. C.C. McCready, D.Phil. D. Smith (Mrs.), Ph.D. R.G. Powell J.A. Sargent, Ph.D.	
E.K. Woodford, O.B.E., 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

Agricultural Economics:

INSTITUTE FOR RESEARCH IN AGRICULTURAL ECONOMICS

C. Clark (Director)	Terms of trade Population
R.N. Dixey	Economics of farm organization
A.H. Maunder J.R. Bellerby	Agricultural income
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
H. Frankel	Agricultural development
G.H. Peters	Economic growth Location
M. Haswell	Primitive agriculture
G.T. Jones E.G. Jones L. Moore G.L. Williams G.B. Kay	Special project: long-period forecasts of demand for and supply of farm products in the United Kingdom

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

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 J. Parkhouse, M.D.	Design of portable bellows respirators for use during anaesthesia Study of appliances for endotracheal intubation

3. Anatomy

Human:

Professor Sir Wilfred 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 K. Foster	Climatic adaptation; anatomy and physiology of sweat gland function
D.F.B. Roberts, D.Phil.	Physical anthropology with particular reference to geographical and climatic factors
R. Barer S. Joseph G.A. Meek, Ph.D.	Biological application of new methods of microscopy, including electron microscopy and cell refractometry
D.A.T. Dick, D.Phil.	Cell permeability
M. Clegg (Mrs.), Ph.D. L. Micklem (Mrs.)	Microbeam irradiation of local regions of single cells
T.P.S. Powell W.M. Cowan, D.Phil. J. Carman G. Raisman	Studies of the central nervous system with particular reference to the connections of the basal ganglia and hippocampus, and the phenomenon of transneuronal degeneration
G.N.C. Crawford	Factors regulating the growth of voluntary muscle
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
R.W. Hiorns	Statistical applications

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 extension to low atomic numbers X-ray crystallography of ceramics X-ray microfluorescence Analysis of paint films, surface enrichment of metals and ceramic glazes
M.J. Aitken, D.Phil.	Optical spectrometry of metals and ceramics 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 Radiocarbon assay by delayed boiling and its possible use for radiocarbon dating

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
W.R. Hindmarsh, D.Phil.	Laboratory determination of pressure broadening and shift

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.	Nutrition and metabolism of micro-organisms
R.G. Tucker, D.Phil.	
J. Lascelles (Miss), D.Phil.	
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
A.R. Rodgers, Ph.D.	
K. Burton, Ph.D.	Function and structure of nucleic acids
M.W. Whitehouse, D.Phil.	Steroid metabolism; chemistry of animal polysaccharides
H.L. Kornberg, Ph.D.	The metabolism of C_2-compounds in micro-organisms Terminal respiratory mechanisms in micro-organisms
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
G.D. Parkes, D.Phil.	Reactions of organic compounds
R.M. Acheson, D.Phil.	Urine constituents and heterocyclic compounds
K. Rodgers (Mrs.)	Ultra micro-analysis
R. Whittam, Ph.D.	Cation transport and metabolism
A.R. Peacocke, D.Phil.	Nucleic acids and nucleoproteins
C.A. Pasternak, D.Phil.	Metabolism of amino-sugars and sulphate ions
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
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
W.F. Warren, D.Phil.	Studies in sulphaemoglobin
R.H. Wilkinson, D.M.	Intracellular metabolism in disease

*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.A. Grunau, Dr. D.E. Hughes, Dr. H.L. Kornberg, Dr. M. Lunt, Dr. J.R Quayle, Dr. A.R. Rodgers, Mrs. K. Rodgers

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
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.	Chemistry of steroids, polyenes and of acetylenic and allenic compounds
M.C. Whiting, Ph.D.	
G.D. Meakins, D.Phil.	
V. Thaller, Ph.D.	
G. Lowe, Ph.D.	
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

10. Chemistry (*continued*)

Organic (*continued*)

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, D.Sc., F.R.S.	Chemical kinetics including biophysical applications
E.J. Bowen, D.Sc., F.R.S.	Photochemistry; study of fluorescence
R.P. Bell, F.R.S.	Catalysis and quantum chemistry
H.W. Thompson, C.B.E., D.Sc., F.R.S.	Spectroscopy with special reference to infra-red
L.E. Sutton, D.Phil., F.R.S.	Electron diffraction and dielectric phenomena
C.J. Danby, D.Phil.	Mass spectrometry and chemical kinetics
J.D. Lambert	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
H.M.N.H. Irving, D.Phil.	Analytical methods and their physicochemical basis
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
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 A. Thom, Ph.D., D.Sc., LL.D.	Theoretical and experimental studies of hydrodynamic problems
H. Motz, Dr. Ing. with D. Walsh	Millimetre wave generation, Cerenkov and undulator radiation, solid state masers, thermonuclear studies
G. Bomford, O.B.E., D.Sc.	Geodesy; deviation of the vertical
J.D. Campbell, D.Phil.	Effect of rate of loading and other factors on the plastic deformation of metals
J.E. Bialokoz, Ph.D.	Heat transfer
A.R. Robbins, D.Phil.	Geodetic astronomy

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) (Head of Department)	Problems of ethnology and archaeology Air photography in environmental studies
J.S.P. Bradford	Work on Mediterranean and Middle Eastern archaeology
A.J. Butt (Miss), D.Phil.	Pacific and Americanist ethnology and archaeology
K.O.L. Burridge, Ph.D.	Work on techniques of ancient and modern Stone Age cultures and implements, textiles, ancient metallurgy, ivory, bone and antler, pottery, musical instruments, etc.

14. Forestry

Professor M.V. Laurie, O.B.E.	Tropical forestry: forestry and land use
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*
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
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

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
M.G. Bown, Ph.D.	Studies of mineral intergrowths by X-ray diffraction X-ray fluorescence analysis Mineral identification
J.M. Edmonds	History of geology in Oxford and local Jurassic stratigraphy

16. Geology *(continued)*

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
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	Markov chains, semigroups of linear operators Applications of theory of stochastic processes
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
H. Wang	Mathematical logic: transfinite ordinal numbers
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	Automatic and molecular scattering theory

ROUSE BALL CHAIR OF MATHEMATICS

Professor C.A. Coulson, F.R.S.	Wave mechanics, theoretical chemistry Chemical reactivity Theory of metals Molecular structure and spectra

SAVILIAN CHAIR OF GEOMETRY

Professor E.C. Titchmarsh, F.R.S.	Eigenfunction expansions associated with differential equations

17. Mathematics (*continued*)

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

18. Medicine

REGIUS CHAIR OF MEDICINE

Professor Sir George Pickering, M.D., D.M.	Location of renin Action of hypertension Mechanism of treatment of hypertension Experimental fibrinoid necrosis of arterioles Coronary atheroma
G. de J. Lee	Dynamics of the pulmonary circulation
M.A. Pears	Pyelonephritis Treatment of hypertension
W.I. Cranston	Mechanism of fever Treatment of hypertension
N.M. Bleehen	Action of hypertension on rabbits
R. Ross Russell	Cerebral vascular disease

NUFFIELD INSTITUTE

G.S. Dawes, D.M. (Director) J.C. Mott (Miss), D.Phil.	Physiological changes in foetal and newborn animals
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. S. Callender (Miss), M.D. G.H. Spray, D.Phil.	Clinical and experimental study of anaemia
S.C. Truelove, M.D. J. Badenoch, D.M.	Experimental, statistical and clinical studies in gastroenterology
Dame Janet Vaughan, D.M. M. Owen (Mrs.), D.Phil.	The study of bone metabolism with radioactive isotopes

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 bismuth alloys General work on the theory of alloy structures

19. Metallurgy (*continued*)

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 Fatigue in aluminium-copper alloys Recrystallization in aluminium-copper alloys Temper brittleness in alloy steels
S.L. Altmann, Ph.D.	Theoretical investigations of the band structure of transition metals
A. Hellawell, D.Phil.	Grain boundary precipitation The freezing of metals and alloys

20. Neurosurgery

J.B. Pennybacker (Director)	Intracranial neoplasm, hydrocephalus angiomatous malformations; infections of nervous system
W.S. Lewin	Head injuries, epilepsy and surgical treatment of mental disorders

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
M.P. Embrey, M.D.	Clinical measurement of uterine contractility and action of drugs on the uterus
J.A. Stallworthy	Genital tuberculosis

22. Ophthalmology

A. Pirie (Mrs.), Ph.D. R. van Heyningen (Mrs.), D.Phil.	Biochemistry of the eye with particular reference to changes in cataract formation
S.G. Waley, D.Phil.	Proteins and peptides of the lens

23. Orthopaedics

NUFFIELD DEPARTMENT

Professor J. Trueta	Studies on osteogenesis with special reference to epiphyseal cartilage growth
H.V. Crock	Experimental vertebral inter-body fusion Clinical studies of the orthopaedic aspects of haemophilia
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
J. Poal	Study of epiphyseal growth cartilage in scurvy
W. Rigal	Tissue culture of epiphyseal cartilage
M. Sarrias	Studies on the longitudinal growth of bone

24. Pathology

SIR WILLIAM DUNN SCHOOL OF PATHOLOGY

Professor Sir Howard Florey, Ph.D., M.D., F.R.S. M.A. Jennings (Hon. Mrs.), D.M.	Arterial disease

24. Pathology (*continued*)

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.	Biochemistry of peptides with biological activity
G.G.F. Newton, D.Phil.	
N.G. Heatley, Ph.D.	Purification of Castle's intrinsic factor secretin
A.G. Sanders, D.Phil.	The effect of radiation on connective tissue
J.E. French, D.M., D.Phil.	Experimental atherosclerosis
Sir Paul Fildes, O.B.E., F.R.S.	Biochemistry of phage/bacterium complexes
D. Kay, D.Phil.	
J.L. Gowans, D.Phil.	Life history and function of lymphocytes
J.F. Watkins, Ph.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
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.	Electro-pharmacology of heart muscle
H. Blaschko, M.D. Ph.D.	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°K; paramagnetism and relaxation effects; nuclear paramagnetism and induction; nuclear orientation and nuclear cooling; low temperature calorimetry; cryogenic techniques; ferromagnetism, ferrimagnetism, antiferromagnetism

26. Physics (*continued*)

CLARENDON LABORATORY (*continued*)

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. R.E. Meads, D.Phil. A.B. Clegg, Ph.D. M. Derrick, 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; investigations of radiations from nuclei aligned at low temperatures; 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. J.H. Sanders, D.Phil.	Interferometric spectroscopy; nuclear and radiation effects in atomic spectra; radio-frequency resonances in excited states; atomic beam resonance Precise measurements of fundamental constants; optical maser
A.W. Brewer, Ph.D. J.T. Houghton, D.Phil.	Physics of the upper air
Professor W.E. Lamb, Ph.D. 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.Phill C.A. Caine, D.Phil. M.J. Kearsley (Miss), D.Phil.	Quantum theory of elementary particles; theories of nuclear and atomic structure; theories of the solid state and collective phenomena

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
R.S. Creed, D.M.	Special senses
D.J.C. Cunningham	Regulation of respiration
I. de B. Daly, C.B.E., M.D., F.R.S.	Cardiovascular physiology

27. Physiology (*continued*)

G. Gordon, D.M.	Electrophysiology
F.P. Glees, M.D. D.Phil.	Neurohistology
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
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
M. Argyle	Studies of the conscience and inner control processes
	Classification of delinquents by psychological types
	Studies of the need for achievement
	Self-perception in adolescents
S. Sutherland	Stimulus-analysing mechanisms
M. Treisman	Central factors affecting threshold levels
	Mechanims of arousal and attention
D. Vowles	Nervous mechanisms in insect 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	Earnings in the coal mining industry
T.P. Hill	
H.F. Lydall	A comparison of consumer behaviour in Britain and the United States
H.F. Lydall	The distribution of national capital
D.G. Tipping	
A.D. Hazlewood	Testing of an econometric model of the U.K. economy
P. Vandome	
C.R. Ross	Factors affecting rates of replacement of capital assets
H.J.D. Cole	
K.G.J.C. Knowles	Inquiry into wage rates and earnings, wage "leadership",
E.M.F. Ward (Miss)	skill, differentials, and regional variations in wages
J.M. Hammersley	Problems in mathematical statistics
P. Vandome	Design of computer programmes
H.J.D. Cole	Alternative measurements of industrial productivity
D.G. Holland	
T. Schulz (Miss)	Family budgets and human needs diet
G.D.N. Worswick	Inquiry into profits in British industry between the wars
D.G. Tipping	
M.J. Artis	Inquiry into selling costs

31. Surgery

NUFFIELD DEPARTMENT

Professor P.R. Allison, D.M.	
R. Marshall R. Bosman	Investigation of pulmonary blood flow by plethysmographic methods
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
A.J. Gunning	The use of vasodilators in patients undergoing profound hypothermia with extra corporeal circulation in the surgery of congenital heart disease
Professor P.R. Allison, D.M. A.J. Gunning	The surgery of vascular disease with special reference to coronary occlusion and the application of endarterectomy Open heart surgery involving the use of the artificial circulation with and without hypothermia as an adjuvant
with the Nuffield Department of Medicine	Metabolic problems related to total gastrectomy and gastric exclusion and the different forms of restoration of intestinal continuity
C.U. Webster	Surgical anatomy of the liver
H. Ellis	An investigation into the revascularization of ischaemic intestine and into the formation of intra-abdominal adhesion in the rat
Professor P.R. Allison, D.M. P.J.R. Phizackerley	The investigation of substances designed to reduce the oxygen requirements of the brain
Professor P.R. Allison, D.M. R. Light M. Dunnill	The fate of radio-opaque pulmonary emboli
Professor P.R. Allison, D.M. A.H.B. de Bono M. Dunnill	The use of soluble cannulae for small blood vessel anastomosis

32. Surgery, Plastic

E.W. Peet	Causes and treatment of palatal insufficiency
T.J.S. Patterson, M.D.	Causes and treatment of congenital and acquired jaw deformities
T.F. Wilkie	Jaw development in cleft lip and palate patients
F.R. Wells	Establishment of air-conduction hearing in cases of congenital ear deformity
D.S. Hayton-Williams	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

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

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
D.H. Chitty, D.Phil.	Fluctuations and population processes in the field vole
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
H. Chitty (Mrs.)	Reproduction in the vole
K. Paviour-Smith (Miss), D.Phil.	Animal communities in bracket fungi

Zoology and Comparative Anatomy:

Professor Sir Alister Hardy, D.Sc., F.R.S.	Marine plankton studies
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.	Comparative histology
A.E. Needham, D.Sc.	Biochemistry; regeneration in animals
N. Tinbergen, D.Phil.	Animal behaviour
A.J. Cain, D.Phil.	Taxonomy and evolutionary studies
M. Fischberg, D.Phil.	Studies in developmental biology
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

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1. Agriculture

Professor A.N. Duckham, C.B.E.	Farm operation Comparative agriculture Agricultural seasonality
R.S. Taylor P.M. Harris	Irrigation of farm crops, water resources, effect on grass species, utilization of irrigated grassland Role of organic matter in crop production

1. Agriculture (*continued*)

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 use of protein supplements in the diets of breeding hens
	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
	Automation on the farm
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
	A study of the yard and parlour layout in southern England
	Effect of farm layout, soil type and other physical factors on choice of system of farming
	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
J. McNeill, Ph.D.	Experimental taxonomy of cultivated plants
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

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
J.W. Wilson, Ph.D.	Physiological ecology of Arctic plants. Analysis of the spatial distribution of foliage in vegetation

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 Chemical and physical properties of vermiculite
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 R. Scott	Scientific and technical studies of milk processing and the manufacture of dairy products 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, 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

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 Channel, braided and shoreface sediments. Festoon bedding Application to sedimentology of trend-surface analysis The Weardale Grits of County Durham

7. Geology (*continued*)

Emeritus-Professor H.L. Hawkins, F.R.S.	Hydrology Fossil echinoids
P.S. Walder (Miss)	Mineralogy of the Tertiaries of the Isle of Wight and Lower Old Red Sandstone of the Welsh Borderland and S. Wales
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
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, particularly *Conulus*
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. England and S. Wales
J.R.L. Allen	Sedimentology of the Niger Delta and Nigerian continental margin Petrology and genesis of Lower Old Red Sandstone sediments of S. Wales and the Welsh Borderland Petrology and genesis of Namurian sediments in the High Peak district of Derbyshire
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 Tournaisian limestones of shelf, reef and basin facies in N. Staffordshire and S. Derbyshire
L.B. Tarlo, Ph.D.	World stratigraphy and palaeogeography of Devonian times with special reference to vertebrate faunas Morphology and evolution of pteraspid and psammosteid ostracoderms Early lepidosaur, archosaur and nothosaur reptile faunas of the Permo-Trias Morphology and evolution of Plesiosauria Fossil protochordates

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 carnation; tissue culture; nitrogen nutrition
D. Prue (Mrs.), Ph.D.	Developmental physiology; effects of wavelength of light

9. Mathematics

Professor R. Rado, Ph.D., Dr. Phil.	Combinatorics, transfinite numbers, convex bodies
R.E. Edwards, Ph.D.	Functional analysis
P. White, Ph.D.	Elasticity, statistics

10. Microbiology

Professor B.C.J.G. Knight, D.Sc.	Nutrition of micro-organisms including *Mycoplasma* (pleuropneumonia-like) organisms Physiological studies in relation to classification
H.P. Charles, Ph.D.	Microbial genetics
R.M. Keddie, Ph.D.	The genus *Lactobacillus;* coryneform organisms
M.E. Rhodes (Miss),	Systematics of polarly flagellate bacteria
P.M.F. Shattock (Miss) Ph.D.	Seriological and physiological studies on streptococci
L.J. Zatman, Ph.D.	Microbial physiology

11. Physics

Professor R.W. Ditchburn, Ph.D.	Absorption spectroscopy in near and far ultra-violet
with D.H. Fender, Ph.D.	Vision with a stabilized image
E.W.J. Mitchell, Ph.D.	Irradiation damage of solids
C.D. Clark, Ph.D.	
J.N. Lomer (Miss), D.Phil.	
S.D. Smith, Ph.D.	
T.B. Rymer, Ph.D.	Electron scattering intensities Semi-conductors
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.	Physical properties of diamond
E.A. Faulkner	Magnetic resonance studies of solids
H.K. Henisch, Ph.D.	Semi-conductors; electroluminescence
A.B. Lidiard, Ph.D.	Statistical mechanics and theory of solids
U. Öpik, Ph.D.	Molecular structure and states of ions in crystals
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 (Miss), Sc.D.	Visual perception
D.J. Bruce, Ph.D.	Linguistic communication
E.R.F.W. Crossman, Ph.D.	Control skill, Laboratory and field studies
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 The history and present status of the British chironomid fauna in selected freshwater habitats. Larval systematics of the British Chironomidae Factors affecting the growth and replacement of hair
V. Fretter (Miss), D.Sc.	Functional morphology and embryology of prosobranch gastropods
M.I. Crichton, Ph.D.	Functional anatomy of insects; the biology of caddis flies; leaf miners

13. Zoology (*continued*)

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
M.G. Hardy	The neurophysiological basis of lamellibranch behaviour

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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 milk secretion and related phenomena using labelled compounds
R.W. Smith	Preparation and use of tritium-labelled substances
	The metabolism of small molecules and pathways of glucose catabolism in various tissues of various species
	The metabolism of oestrogens by animals and animal tissues
	Chemical and biochemical changes of hexoestrol and other oestrogens deposited in soil

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

Experimental Dairy:

H.R. Chapman (Miss)	Ripening of cheese and its control
	Studies concerning milk and cheese quality
	New methods of making cheese

Liaison:

W.G. Wearmouth, Ph.D.	Application in the dairy industry of recent scientific findings

5. Engineering

H.S. Hall (Head of Department)	Engineering aspects of machine milking and equipment cleaning
R.T. Budd	Bulk milk cooling and collection
H. Burton	Basic engineering problems of the heat treatment of milk
S.F. Suffolk	Aseptic filling of milk
C.C. Thiel, Ph.D.	Testing dairy machinery and equipment

6. Feeding and Metabolism

C.C. Balch, Ph.D. (Head of Department)	Efficiency of food utilization by the ruminant Factors controlling the voluntary food intake of 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 of dairy heifers
K.W.G. Shillam, Ph.D.	Colostrum and other factors in relation to health, growth and development of the young calf

7. Microbiology

Bacteriology:

W.A. Cuthbert (Head of Department)	Bacteriology of milk products Improvements in processing; ultra-high temperature sterilization
C.M. Cousins (Miss)	
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)	Paper chromatography and recognition of closely related types of bacteria
G.C. Cheeseman, Ph.D.	Chemical and bacteriological studies of cheesemaking and ripening
L.A. Mabbitt, Ph.D.	
T.I. Steenson	Rennin Nutrition of micro-organisms

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.	Vitamin D and antagonistic factors in pastures and hays
S.Y. Thompson, D.Sc.	
J. Toothill (Miss), Ph.D.	

9. Physics

G.W. Scott-Blair, D.Sc. (Head of Department)	Kinetic studies of enzyme reactions on casein and of changes in physical properties of milk under action of rennet; rheological measurements, studies in syneresis, physical changes in curd during early stages of cheese-making
F.A. Glover	
J.D.S. Goulden, Ph.D.	
L.W. Phipps	
J.H.P. Prentice	

9. Physics (*continued*)

G.W. Scott-Blair, D.Sc. (Head of Department)	Thermal properties of emulsions, especially milk and cream, including preparation and processing
F.A. Glover	Electrical measurements on dairy products
J.D.S. Goulden, Ph.D.	Mechanical properties of fats and butter: cohesive and adhesive properties of butter
L.W. Phipps	
J.H.P. Prentice	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 of bovine blood; flow properties of semen

10. Physiology

S.J. Folley, D.Sc., F.R.S. (Head of Department)	Physiology of milk secretion: neural and hormonalfactors and mechanisms concerned in mammary growth and in initiation and maintenance of lactation
P. Andrews, Ph.D.	
G.K. Benson, Ph.D.	Neuro-endocrine milk-ejection reflex
A.T. Cowie, D.Sc.	Assay of prolactin
R.A. Gibbons, Ph.D.	Biosynthesis of main milk constituents in the living animal, in the perfused udder and in mammary tissue preparations
H. Gutfreund, Ph.D.	
G.S. Pope, D.Phil.	
J.S. Tindal, Ph.D.	Mechanism of action of mammary gland enzymes
	Sex hormone levels in relation to mammary development and lactation
	Biochemistry of cervical mucus with special reference to the control of fertility

11. Statistics

C.P. Cox	Principles and methods of experimentation with dairy cattle
	Biometry in dairy research

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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
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	Construction of the 38-in. Cassegrain-Schmidt telescope at the University Observatory
	Stellar kinematics and galactic structure
	Theory of stellar atmospheres and interiors
T.B. Slebarski	Astrometry
T.R. Carson	Stellar structure
J. Cisar	Diffuse nebulae
A.J. Meadows	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

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; non-classical aromatic structures
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
P.G. Blake, D.Phil.	Kinetics of gas-phase unimolecular decomposition reactions

6. Geography

K.M. MacIver (Miss), Ph.D.	Problems of tropical geography, with particular reference to Africa Scotland: geomorphology, water resources
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
H.I. Drever, D.Sc., F.R.S.E.	Petrogenesis of picritic rocks
W.T. Harry	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 (a) the Slieve Bernagh Mountains, Co. Clare; (b) 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, Ph.D.	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
D.V. Osborne, Ph.D.	
D. Bijl. Ph.D.	E.S.R. of free radicals
	Spin lattice relaxation and other problems in the solid state
F.A. Rushworth, Ph.D.	N.M.R. in molecular crystals
H.M. Barkla	Birefringence in ferro-electrics

Theoretical:

Professor R.B. Dingle, Ph.D.	Problems in metals and semi-conductors
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
J. Crossland, Ph.D.	Electroencephalography
	Chemistry of central nervous system
W.G.S. Stephens	Medical electronics, design and application

11. Psychology

H.H. Ferguson (Lecturer in Charge)	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

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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
	Reactions occurring in a nitrogen-oxygen atmosphere
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
	A study of the properties of surfaces in relation to the structure of thin deposited films
D.E. Hoare, Ph.D.	The effects of added gases in the photolysis of acetone
	The photochemical oxidation of ketones. The thermal and photochemical oxidation of di-t-butyl peroxide
D.E. Bethell, Ph.D.	Infra-red spectra of inorganic compounds and absorption intensity measurements of infra-red spectra
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. Wright, Ph.D.	Thermal conductivity and viscosity of gases; evaporation and condensation
A.S. McGavin, Ph.D.	The structures of proteins, in particular of antibodies, and of antibody-antigen systems
with J. Iball, D.Sc.	X-ray diffraction studies
C.R. Allen, Ph.D.	The pyrolysis and oxidation of lead tetraethyl

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.	Epidemiology of dental disease and its correlation with causative factors
J.D. McEwen	
N.B.B. Symons	A histochemical study of the dental tissue
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	Clinical evaluation of partial dentures and of tooth form in full dentures
with J.W. McCrorie	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
W.M. Mackay, M.C.	Magnetic phenomena in electrical machines
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 waves in non-homogeneous media
	Relaxation computing by electronic methods
T.E. Faulkner, Ph.D.	Statistics
H.G. Anderson, Ph.D.	Group representation
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, C.B.E. K.G. Lowe, M.D. H. Watson P.G.C. Robertson	Studies in intracardiac electrocardiography, vector-cardiography and haemodynamics
J.M. Stowers, M.D.	Studies of hypoglycaemic agents in patients Testing for and treating prediabetics Establishment of controlled trial of sulphonylureas for this purpose Balance studies in patients with disturbances of calcium and electrolyte metabolism
H. Watson	Cine-angiocardiography with image intensification
J.A.R. Lenman	Experimental studies in neuromuscular disorders
W.K. Stewart	Homeostatic mechanisms governing sodium and water economy

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 causes of still-birth and neonatal death Problems of foetal anoxia Clinical and laboratory investigations in prematurity
A. Buchan	Clinical investigation of high multiparity
A.C. Turnbull	Clinical and laboratory studies in uterine action in labour
M.G. Coyle	Urinary steroid excretion in normal and abnormal pregnancy

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. R.D. Muckart	Aetiology and surgical pathology of meniscus tears Paget's disease Preparation of cancellous bone grafts Stenosing tendo-vaginitis Tendon transplants in spastic paralysis Extensor apparatus of the fingers

12. Otorhinolaryngology

A.G. Gibb J.L. Mowat	Investigation into the hearing of spastic children

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.	The relationship between mast cell and non-mast cell histamine
W. Walker	
D.M. Shepherd, Ph.D.	The chemistry and pharmacology of smooth muscle
R.S. McNeil	The pharmacology and therapeutics of hypoglycaemic agents
A.J. Matty, Ph.D.	
	The effects of drugs on enzyme systems
	Studies on thrombosis and haemorrhage and the pharmacology of anticoagulants
	The mode of action of neuromuscular transmitters on plain muscle
	The pharmacology of 5-hydroxytryptamine
	Study of gas diffusion in the lungs and the effect of drugs on respiratory pharmacology
	Intermediate metabolism of steroids
	The pharmacology and therapeutics of drugs affecting tremor
	Comparative pharmacology of endogenous chemical substances

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

18. Public Health and Social Medicine

Professor A. Mair and staff	Epidemiology of chronic bronchitis Respiratory disease in jute and flax workers Hospital and community follow-up of patients discharged from medical wards of hospitals Survey of the Student Health Service in Britain Road accidents to pedestrians Development and evolution of health services in Dundee Trends in infant mortality Aetiology of congenital malformations

19. Radiotherapy

W. Cameron Swanson	Carcinoma of breast
J.F. Riley	Mast cells in carcinogenesis

20. Surgery

Professor D.M. Douglas J. Grieve, M.D. W.F. Walker	The treatment of congenital and acquired valvular lesions of the heart by surgical means The healing of incised wounds in fascia in relation to local factors Tissue culture of certain simple and malignant tumours Use and storage of vascular grafts Investigation of urinary system by cine-radiography
with Department of Radiology	Calcium metabolism in relation to surgical procedures Cine-radiography of blood flow in hepatic veins 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

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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
M. Taylor, M.D.	Histology, histochemistry and histopathology of nasal respiratory mucosa
W.J.C. Wilkinson	Metabolism of glycogen in the muscle and conducting system of the heart

2. Biochemistry

Professor Q.H. Gibson	Intermediate compounds of haemoglobin with gases
M.A.G. Kaye, Ph.D.	Enzymes of snake venoms
G. Weber, M.D., Ph.D.	The properties of protein molecules as revealed by spectroscopic and fluorescence techniques
T. Hofmann	Phosphoproteins, phosphatases
P.M. Harrison (Mrs.), D.Phil.	Structure of collagen by X-ray diffraction
V. Massey, Ph.D.	Oxidative enzymes
K. Dalziel, Ph.D.	Enzyme kinetics
G.A. Palmer, Ph.D.	Flavoprotein enzymes
J. Sykes, Ph.D.	Mechanisms of action of antibiotics
S. Ainsworth, Ph.D.	Energy transfer in photosynthesis

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

5. Chemistry

Inorganic:

R.G. Wilkins, Ph.D.	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

5. Chemistry (*continued*)

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
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 sulphuric acid
B. Stevens, D.Phil.	Fluorescence and energy transfer in gases
J.N. Murrell, Ph.D.	Theoretical chemistry
B. Brocklehurst, D.Phil.	Radiation chemistry
K.R. Jennings, D.Phil.	Reactions of atoms and radicals in the gaseous phase
R.N. Dixon, Ph.D.	Spectroscopy

6. Dental Studies

Professor G.L. Roberts

Oral Anatomy and Histology:

R. Sprinz, Ph.D.	Experimental work on the mandibular joint in rodents and monkeys Trigeminal nerve section for the study of the effect on muscle function and midline overlap
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	The incidence and nature of erupted teeth in the newborn and the effect of such teeth, and their loss, on the deciduous and permanent arches A survey of impacted teeth, their aetiology and treatment by orthodontic means An investigation into the sequelae of supernumerary teeth and their treatment 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

6. Dental Studies *(continued)*

Pathology (continued)

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
	Pathological and physiological variations in the ultra-structure of human dentine

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) Professor E.L. Hampson	An investigation into the bacteriology of pulpless teeth and the drugs used to sterilize their root canals
F. Moore Professor E.L. Hampson	A study of the accuracy of copper deposited dies made from silicone and rubber base impression materials
J. Clarke Professor E.L. Hampson	A study of the effect on the dentine and pulp of (a) high speed instruments; (b) drugs and cements used in conservative dentistry
D.T. Belk	Observations on replanted teeth

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	Deformation of surfaces by point-loading and line-loading
	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	Mechanism of "running in" of gear teeth
	Performance of a hydrostatic thrust bearing in a power transmission system
	Investigation of electrical methods for the measurement of lubricant film thicknesses
C.L. Kirk	Vibration characteristics of stiffened plates and solids of revolution

8. Engineering (*continued*)

Civil:

Professor N.S. Boulton	Fatigue strength of steel under variable loads
	Elastic-plastic strength of tubular steel frames
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 structural properties of thin concrete slabs with large percentages of reinforcement
	The characteristics of diagonal tensile failures for pre-stressed concrete beams

Electrical:

Professor A.L. Cullen, Ph.D.	Generation of millimetre waves
	Applications of millimetre waves to plasma diagnostics
	Parametric amplification
	R.F. corona on aerials
	Supergain aerials
	Radiation pressure mixer
	Theory and applications of electromagnetic surface waves
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 tube
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
R. Brown, Ph.D.	Characteristics of machines with drag-cup rotors
J. Allison, Ph.D.	Backward-wave oscillators
	Microwave plasma phenomena
A.M. Howatson, Ph.D.	Gas discharge measurements

Mechanical:

Professor J.P. Duncan	Stress analysis of heat exchanger tube plates
	Development of stayed thin-walled pressure vessels
E. Baildon	Vibrations
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
T.B. Ferguson	Fluid mechanics and thermodynamics of turbo-machinery
B. Kenny	Stress analysis of thick plates
	Three-dimensional photoelasticity
P.B. Neal	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
K.H. Sutherland	Study of mechanical lapping
J.F. Wallace, Ph.D.	Mechanical and geometrical aspects of plastic flow in metals
	Deep drawing, extrusion, rolling and metal forming operations
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
J.A. Beardmore, Ph.D.	Environmental fluctuation, heterosis and homeostasis
	Disruptive selection
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	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
	Survey of atmospheric pollution in the Sheffield region
I.S. Maxwell	Geography of 11th century Yorkshire from Domesday sources
	Place names and natural vegetation in Cornwall
A.J. Hunt	The morphology and growth of Sheffield
R.A.G. Savigear	Slope analysis and problems of slope evolution in S. Pennines, S. Wales, Cornwall and W. Africa
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

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
	Petrology of the Tertiary rocks of the Isle of Wight
	Petrology of the Cretaceous rocks of Loch Aline
	Mechanical analysis of modern sediments
	Petrology of Yorkshire hand axes
	Sedimentology and palaeoecology of Millstone Grits of Sheffield, the Derbyshire and S. Yorkshire areas
A.E. Currall, D.Phil.	Metamorphism and tectonics of Dalradian, Co. Mayo, Eire
	Petrological studies in the Ox Mountain migmatitic complex, Eire

12. Geology (*continued*)

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
	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. Palenia and Leon, Spain
	Sedimentology and paleoecology of Millstone Grits of Sheffield, the Derbyshire and S. Yorkshire areas
P.A. Mohr, Ph.D.	Geochemistry of Coal Measure sediments
	Rift Valley geology of Ethiopia
Professor L.R. Moore W.H. Wilcockson P. Wilkinson C. Downie, Ph.D. D.W. Humphries, Ph.D. R. Neves	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

Pure:

Professor D.G. Northcott, Ph.D.	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

14. Medicine (*continued*)

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

CITY GENERAL HOSPITAL

C.S. Darke, M.D. E.G. Rhind	Prolonged antibiotic therapy in severe cases of emphysema

UNITED SHEFFIELD HOSPITALS

H.F. West, M.D.	Corticosteroid metabolism in relation to rheumatoid disease
A.W.D. Leishman, D.M.	Studies on prognosis in hypertension with and without therapy Clinical trial of 2-perhydroazocin-1'-ylethylguanidinium sulphate (guanethidine) in hypertensive patients
T.E. Gumpert	Asthma

15. Metallurgy

Professor A.G. Quarrell, D.Sc., Ph.D.	Carbides in alloy steels Structural changes under creep conditions Intergranular fracture in cast steels Effects of hydrogen on properties of steel Graphitization 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 dislocation Interactions of lattice singularities and dislocations Theory of fracture
H.T. Protheroe, Ph.D.	A study of the forces which control the flow of metal in moulds Effect of molybdenum on the properties and structure of S.G. iron Removal of impurities from molten iron alloys under vacuum conditions Graphite in magnesium-treated cast irons
R.G. Ward, Ph.D.	Kinetics of the carbon-oxygen reaction in molten iron Constitution of liquid alloys Effects of fluorides in molten silicates and phosphates Kinetics of silicon transfer between iron and slag Solubility of hydrogen in iron alloys Interaction between chromium and carbon in liquid iron
A.R. Entwisle, Ph.D.	Yield point phenomena in non-ferrous alloys Transformations in iron-nickel alloys
W.J. M. Tegart, Ph.D.	Effect of sulphur on mechanical properties of steels Structural changes during high temperature deformation Ductility of iron in the temperature range of alpha-gamma transformation Influence of alloying on creep properties of zone-refined zinc
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

15. Metallurgy *(continued)*

G.F. Modlen, Ph.D.	Fatigue of welds in high strength structural steels Effect of grain size on fatigue of iron
C.W. Haworth, D.Phil.	Solidification of polyphase alloys Crystallographic structure of alloy phases
J.M. West, Ph.D.	Influence of interstitials on behaviour of zone-refined iron Determination of oxygen activity in molten iron and steel
J.H. Woodhead	Influence of hydrogen on the austenite-pearlite transformation in steels Effect of small amounts of niobium on the yield behaviour of iron alloys Martensitic transformation curves in alloy steels

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 Study of explosives substitutes in blasting 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	Particle movement in the bed of a jig washer 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 Stress transmissions in drill rods
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 Errors in local triangulation

18. Obstetrics and Gynaecology

Professor C.S. Russell	Management of urinary incontinence
C.J. Dewhurst	Urinary pregnanediol in abnormal pregnancy
D.H. Blakey	Investigation of urinary incontinence
D.W. Warrell	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
	The development of the normal child with particular regard to prediction of intelligence
	Early diagnosis of mental deficiency and cerebral palsy
	The prognosis of children with birth injury
	The treatment of rheumatic fever with particular regard to the use of cortisone and to the duration of bed rest
	The treatment of acute nephritis
	The problem of the handicapped child in the home
	The treatment of cerebral palsy
J. Lorber, M.D.	The natural history of miliary and meningeal tuberculosis
	The treatment of tuberculous meningitis
	The natural history and treatment of primary tuberculosis
	Different types of B.C.G. vaccine
	Long-term follow-up of cases of tuberculous meningitis and miliary tuberculosis
	The aetiology of erythema nodosum
	Long-term results of B.C.G. vaccination
	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
	The impact of handicapped children upon the family
	The treatment of phenylketonuria
	The growth disturbances in infantile spastic hemiplegia
	The evaluation of treatment of cerebral palsy
T.J. Rendle-Short, M.D.	Constipation in children
	The diagnosis of infantile congenital heart disease
	The measurement of intelligence by conditional reflexes
	The testing of hearing by conditional reflexes
	The treatment of obesity
	The diagnosis of infantile congenital heart disease

20. Pathology

Professor D.H. Collins M.D.	Pathology of bone and connective tissues
	Vitality and ageing of human cartilage
	Small-celled sarcomas of bone
F.N. Ghadially, M.D., Ph.D.	Mitosis and metabolism of tumours
	Action of carcinogens
	Squamous epithelial tumours of man and animals
O.G. Dodge, M.D.	Human tumours at tissue junctions
	Aspiration cytology of gastrointestinal epithelium
R.A. Caldwell	Osteoporosis; endocrine associations; reaction to plastic implants
W.A.J. Crane, M.D.	Effects of adrenal cortical hormones
	Mechanisms in hypertension
with T.F. McElligott	Utilization of S^{35} by human alimentary mucosa

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.	Redcell volume and production in anaemia and leukaemia Vitamin B_{12} metabolism Red cell proteins
R. Kilpatrick	Antihyroid 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
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 rare earth ferrites Radiation damage in ferromagnetic material Domain structure Magnetic resonance
E.W. Lee	Magneto-optic effects in ferromagnetics Eddy current effects Properties of thin magnetic films
J. Crangle	Intrinsic magnetic properties of alloys Antiferromagnetism in metals

23. Physiology

Professor D.H. Smyth, M.D., Ph.D.	Intestinal absorption
V.R. Pickles, M.D.	The menstrual stimulant
G. Wiseman, Ph.D.	Transport of ions, amino-acid metabolism
G.R. Hervey, Ph.D.	Control of appetite
H. Newey, Ph.D.	Intestinal absorption
R.J.C. Barry, Ph.D.	Absorption of fatty acids
E.L. Jervis (Miss)	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

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, M.D. Ph.D.	Metabolic changes associated with periodic mental disorder Pathophysiology of appetite

24. Psychiatry (*continued*)

L. Grimshaw	Personality and obsessional illness
	Student-patient relationships
P. Hall	Change of domicile and neurosis
F.G. Spear	Psychogenic pain

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	The socio-medical aspects of rheumatoid arthritis
C.E. Fleming	The age factor in the British cutlery industry (the three inter-relating aspects are: (a) work force age structure, (b) managerial policies and practices with regard to ageing operatives, and (c) operatives and former operative attitudes to later-age employment and to retirement)
	Community attitudes and adjustments to population ageing in Great Britain

26. Radiotherapy

G.W. Blomfield	Therapeutic use of radioactive colloids
	Studies of body composition
	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

27. Statistics

H. Ruben, Ph.D.	Characterization of a class of distribution functions in terms of iterated convolutions of infinitely divisible distributions
	Probability that each of n equally correlated normal variates shall be positive for large mutual correlation
H. Ruben, Ph.D. H.M. Davies (Miss)	Tables of the mean of censored samples from normal populations
G.H. Jowett, Ph.D. H.M. Davies (Miss)	Practical experimentation as a teaching method in statistics
D.F. Kerridge	Inaccuracy and inference
	Inaccuracy and the probability controversy
	The relationship between subjective probability and decision theory

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
I.E. Gillespie	The physiology of the pyloric antrum in man
	Gastric secretion studies in dogs
	Anaemia following gastrectomy
	Studies in human gastric pepsin secretion
A.G. Cox	Clinico-physiological problems of intestinal absorption
S.D. Clarke	Cancer chemotherapy
	Human and canine gastric physiology

29. Technology

Fuel Technology:

Professor M.W. Thring C. Hulse, Ph.D. R.G. Siddall, Ph.D.	Combustion of solid, liquid and gaseous fuels in relation to heat transfer, soot formation and chemical action on material heated

29. Technology (*continued*)

Fuel Technology (*continued*)

M.G. Perry K. Littlewood	Application of new principles and methods to furnace heating and power production
G. Underwood, Ph.D. R.H. Essenhigh, Ph.D.	Solution of problems in steady and unsteady state conduction of heat in various shapes Fluid flow in force convection Use of cold models for study of fluid flow pattern, recirculation and mixing in furnaces, combustion chambers and rockets Direct electricity processes both magnetohydrodynamics and fuel cell Physical and chemical processes in the temperature range 2000-6000°K Smoke and fume production from combustion of all fuels
I. Fells, Ph.D.	Study of coal structure to elucidate mechanism of coking Desulphurization of liquid hydrocarbons and flue gases
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

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 Infra-red absorption of glasses Reactions of glasses with water Viscosity and delayed elasticity of glasses Phase equilibria in glass forming systems
T. Bates	Coloured glasses including applications of ligand field theory
J.O. Isard	The electrical conductivity and dielectric properties of glass Electrode potentials 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 Mechanism of bond formation in basic refractories
W.F. Ford, Ph.D.	The tensile properties of refractories at high temperatures The mechanism of failure of magnesia refractories The influence of thermal stresses on the mechanical properties of ceramic bodies

30. Zoology

Professor I. Chester Jones, D.Sc.	Comparative endocrinology
E.T.B. Francis, Ph.D.	The conductive system of the vertebrate heart The salivary enzymes of amphibia Water relations in reptiles Host reactions to parasites with special reference to the gut Nutritional requirements of intestinal worms with special reference to larval stages

30. Zoology *(continued)*

F. Segrove, Ph.D.	Estuarine and marine shore ecology Reproductive cycles in Spirorbinae and structural changes in the operculum
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
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*
J.G. Philips, Ph.D.	Comparative endocrinology
G.T.C. Stark	Ecology of estuarine Gammarids
D. Bellamy, D.Phil.	Comparative endocrinology

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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	Tropical taxonomy

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

3. Chemistry (*continued*)

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

4. Electronics

Professor E.E. Zepler, D.Phil., Ph.D.	Practical application of indium antimonide
W.A. Gambling, Ph.D.	Noise in travelling wave tubes and other microwave devices Stability and noise generation in electron beams Ferrite parametric amplifiers Design of high resolution microwave spectrometers
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
M.K. Bull	Noise due to boundary layer turbulence
P.C. Parks	Automatic flight Panel flutter
J.F. Barrett, Ph.D.	Magnetic suspension of aircraft in wind tunnels Randomly disturbed non-linear systems, especially in automatic control

Civil:

Professor P.B. Morice, D.Sc., Ph.D.	Application of electronic digital computers to the linear analysis of shell roofs and other statically indeterminate structures The strength of prestressed concrete statically indeterminate structures The analysis of infilled and clad frames Load distribution in grillages
P.N. Ray	Studies of soil-cement and soil-bitumen mixtures
A.P.K. Tate	Elastic and collapse studies of flexibly supported concrete slabs Load-carrying capacity of eccentrically loaded pile groups in clay

5. Engineering (*continued*)

Civil (*continued*)

N.B. Webber	Model studies of the tidal phenomena in Southampton Water and the Solent
J.R. Rydzewski, Ph.D.	Stresses in buttress and arch dams Use of photoelastic techniques for structural problems
L.G. Booth, Ph.D.	Structural model and wind tunnel studies of shell roofs Structural design using digital computers Timber structures
H. Tottenham	Analyses of doubly curved shells and thin-walled space structures
H.G. Allen, Ph.D.	Use of "plastic" materials for 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	Heat flow analogue
R.E. Steven	Synchronous machine performance
R. Yorke	Transient performance of the acoustical loudspeaker Electrical analogues of vibrating systems
K. Morgan	Electro-acoustics
E.E. Ward	Control of rotating machines by semi-conductors

Mechanical:

Professor A.N. Black	Traffic studies
A.F. Cook	Motion of railway coach bogie
C.H. Helmer	Vibrations
H.J. Sara	Thermal conductivity
N.S. Grassam, Ph.D.	Nuclear engineering
R.J. Foyle	Separation of mixed liquids
T.R.G. Williams	Fatigue, brittle fracture
J.B. Hunt	Machine tool vibration
R.W. Page	Heat transfer

6. Geography

Professor F.J. Monkhouse	Regional geography of W. Europe (Belgium and Netherlands) The waterways 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
R.A. Pelham, Ph.D.	English iron industry in 16th Century 1801 crop census of England and Wales Regional study of Val d'Herens (Switzerland) Early steam mills of Birmingham
G.W.S. Robinson	Urban geography of Southampton The geography of "Tourism"
D. Large	Cotton production in southern U.S.A. Settlement problems in the W. Hampshire Basin
R.J. Small, Ph.D.	The geomorphology of the Chalk
L.E. Tavener, Ph.D.	The revival of Israel
R.G. Barry	Water vapour over N.E. North America

7. Geology

Professor F. Hodson	Carboniferous stratigraphy particularly of Ireland Carboniferous Goniatites
P.H. Shelford	Irish Namurian stratigraphy Gault Foraminifera Superficial deposits around Stevenage
M.E. Cosgrove	Petrological and chemical studies of basic igneous rocks of Padstow-Camelford area

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.	

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.	
W.H. Cockroft, D.Phil.	Algebraic topology

9. Physics

Professor A.M. Taylor, Ph.D.	Refractive indices in the ultra-violet
Professor G.W. Hutchinson, Ph.D.	High-energy particle physics Space research in satellites and rockets
S. Weintroub	Thermal, electrical and elastic properties of single crystals of metals and of liquid metals
K. Kellner, Ph.D.	Thermal conductivities of gases and vapours at low temperatures and high pressures
H.G. Jerrard, Ph.D.	Viscosity, optical scattering, birefringence, and dielectric constant of streaming liquids and solutions of macromolecules
D.M.A. Mercer, Ph.D.	Acoustic absorption by tuned resonators Correlation techniques applied to acoustic measurements
B.J. Hopkins, Ph.D.	Surface studies in diodes
R.G. Scurlock, D.Phil.	Properties of solids below 1°K

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

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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	Microbiology of grassland
D.B. James	Physiological aspects of plant distribution

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 milk production Organization of intensive small dairy farms
M.T. Jawetz (Mrs.)	Cost studies in pig production
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 egg and table poultry production Economic survey of store-raising farms
M.H. Dummer	Economics of hill farming Economics of potato production Economics of sheep farming (hill and lowland flocks)
G. Hallett	Problems of agricultural policy
W.J.K. Thomas	Distribution of farm types in Wales

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

1. Agriculture (*continued*)

Crop Husbandry:

Professor W. Ellison, Ph.D.	Studies of marginal land problems Pasture improvement in upland areas The productivity and longevity of leys in upland areas and their response to certain major and minor plant nutrients Factors affecting the formation of herbage mat on certain types of reseeded hill pasture
R.S. Edwards, Ph.D.	Moisture relationships in cut herbage of different physiological ages under varying conditions of temperature and humidity 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
J. L. Hammerton, Ph.D.	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

Dairying:

J. Lewis (Director)	Performance and operational costs of farm dairy equipment Studies on the manufacture and ripening of Caerphilly cheese
with A. Edwards (Miss)	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
T.A. Scott, Ph.D.	Nicotinic acid formation and metabolism in higher plants and bacteria

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

3. Botany (*continued*)

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*
H. Jones, Ph.D.	Translocation of C^{14} assimilates, especially in relation to leaf age
	Leaf development problems in *Callitriche intermedia*
J.W. Bradbeer, Ph.D.	Metabolism of succulent plants
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
J.B. Bowen	Structural factors in adsorption of polar-nonpolar molecules
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 erosion in Iceland
G.M. Howe, Ph.D.	Distribution of human diseases in Britain
J.G. Thomas	Rural depopulation in N. and central Wales
H. Carter	The urban geography of Wales
R.A. Yates	Coastal studies in W. Wales
J.A. Taylor	Ecological and soil climate studies in S. Britain
P.R. Mounfield	Geographical aspects of industrial location in the United Kingdom
B.S. McCann	Geomorphological studies of W. 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

6. Geology (*continued*)

J.R. Haynes, Ph.D.	Sedimentation and ecological relations of the recent and sub-recent Foraminifera in Cardigan Bay and St. George's Channel
	Foraminifera of the Cretaceous and Tertiary of Libya
	Gault Foraminifera of England
W.J. Phillips, Ph.D.	The stratigraphy, structure and petrology of the Moine-Lewisian rocks of Morar
	The palaeogeography and petrology of the Lower Palaeozoic rocks of Merioneth and Pembrokeshire
H. 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	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

Pure:

Professor V.C. Morton	Algebraic geometry
D.S. Meyler (Miss)	
A.O. Morris, Ph.D.	Algebra

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

9. Zoology

Professor T.A. Stephenson, D.Sc. F.R.S.	The intertidal fauna and flora of the shores of the world
	The scientific study of painting
F.G. Rees (Miss), Ph.D.	Helminth parasites of fishes and whales
J.R.E. Jones, Ph.D. D.Sc.	The general ecology of rivers
	Biological aspects of river pollution
P. Fortune (Miss), Ph.D.	Endocrinology of the lower vertebrates
T.B. Poole	Ecology of the Collembola
L. Slay (Mrs.)	Ecology of birds
A. Joyner	Neurophysiology

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University College of Wales, Aberystwyth, Welsh Plant Breeding Station

1. Agronomy

Grassland:

Ll.I. Jones R. Hughes	The reaction of different species to climatic conditions, manuring and management
D.G. Miles A. Troughton, Ph.D.	The comparison of varieties in sward formation under different conditions of upland and lowland
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
	The management of grassland
	Animal production of pastures
	The influence of sward type and sward management on subsequent arable crops
Ll.I. Jones with R. Hughes	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
D.G. Miles	Investigations regarding suitable technique for pasture experimentation
A. Troughton	Root studies of herbage plants
A.H. Charles	Sociological studies regarding the establishment of herbage plants
A.G. Davies (Miss)	The effect of external factors on the behaviour of *Lolium perenne* at close spacings

2. Chemistry

G.ap Griffith, Ph.D.	Analysis of plant material in collaboration with herbage and cereal breeders
with D.I.H. Jones, Ph.D.	Fibre content and other factors in relation to seasonal change in herbage
	Soil-nitrogen relationships of pasture species
	Studies of non-protein nitrogen fraction of pasture species

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.	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

Professor P.T. Thomas, Ph.D.	Cytogenetic studies in crop plants
	Cereals, beans and brassicae:
D.J. Griffiths, Ph.D.	Study and development of breeding techniques for the improvement of cereal crops
T.D. Johnston J.D. Hayes H. Thomas	The production of new varieties of oats for varying levels of fertility and different purposes 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:
A.R. Beddows	Breeding of improved varieties of *Lolium*, *Dactylis*, *Phleum*, *Festuca*, *Agrostis*, etc. Study of breeding techniques Study of breeding systems Phenology of grasses and anthesis in relation to meteorological conditions
M. Borrill, Ph.D.	The genecology and taxonomy of *Dactylis* and *Anthoxanthum* Developmental anatomy of various grasses
E.L. Breese, Ph.D.	Syngenetical studies in *Lolium* Quantitative inheritance in herbage grasses
E.J. Lewis	Artificial intergeneric hybridization and induced polyploidy in *Lolium* and *Festuca*
E.J. Lewis 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:
G. Evans, O.B.E.	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

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University College of North Wales, Bangor

1. Agriculture

Professor E.J. Roberts	
G.M. Davies, Ph.D.	The effect of spring defoliation on winter-sown cereals
G.L. Williams	Performance and progeny testing of mountain sheep
J.H. Watson, Ph.D.	Animal breeding and genetics
W. Brown	The application of work study techniques to design and layout of farm buildings

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 Chemistry:

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
R.I. Davies	Correlation of soil type with the incidence of stomach cancer
G.H. Owen	Soil profile formation, nutrient status, and soil humic acid fraction
F. Smithson, D.Sc.	Phytoliths (silica bodies) in plant and soil
D.A. Jenkins	Mineralogy of rocks and soils of Snowdonia

Agricultural and Forest Zoology:

J. Hobart (Head of Department)	The ecology of the arthropods of forest soils
	General biology and control of insect pests
M.O. Ind (Miss), Ph.D.	Protozoology, with special reference to soil faunas and the gut parasites of arthropods
J.B. Ford, Ph.D.	Behavioural and biochemical studies of feeding and nutrition in insects
	Ecology of Chironomidae

1. Agriculture (*continued*)

Agriculture and Forest Zoology (*continued*)

I.V. Herbert	Animal parasitology: Cytochemistry and food requirements of Trypanosomidae Nutrition of nematode parasites of farm stock

2. 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
D.J. Griffiths, Ph.D.	Systematics of Lejeuneaceae
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

3. 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

4. Engineering

Electronic:

Professor M.R. Gavin, M.B.E., D.Sc.	Ion beams Parametric amplification
F.J. Hyde	Transistor measurements
A.R. Owens	High-speed transistor switching
G. Ratcliff	Apparatus for ionospheric measurement Control engineering

5. Forestry

Professor E.C. Mobbs, O.B.E.	Natural regeneration of exotic conifers Establishment and development of various species under conditions of exposure and high elevation
T.H. Owen	
D. Kinloch G.K. Elliott	Structure and qualities of timber from conifer plantations in varying site conditions
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

6. Marine Biology

D.J. Crisp, Ph.D. (Director)	Biology of cirripedes Distribution of intertidal fauna Settlement of invertebrate larvae Vision in marine invertebrates

6. Marine Biology (*continued*)

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 diatoms and flagellates Hydrography of inshore water Pigments from red algae
W.E. Jones, Ph.D.	Settlement and growth of red algae Algal ecology and distribution
V.B. Morris (Miss), Ph.D.	Electrophysiological studies of fish

7. 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

Pure:

Professor D.E. Littlewood	Algebra Invariant theory Group representation theory
C.C.H. Barker	Algebraic geometry

8. Physics

Professor E.R. Andrew, Ph.D. R.G. Eades, Ph.D. J.P. Llewellyn, Ph.D. A. Bradbury	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
J.D. Hurd, Ph.D.	Conduction processes in dielectrics
P. Wright, Ph.D.	Kinetics of order-disorder transformations

9. Zoology

*Professor F.W.R. Brambell, F.R.S. †W.A. Hemmings †R. Halliday, Ph.D. †I.G. Morris, Ph.D.	Embryology, foetal physiology and immunology of mammals in relation to problems of sterility and prenatal mortality
L.H. Jackson	Marine biology
T.B. Reynoldson, D.Sc.	Taxonomy and ecology of freshwater triclads
W.C. Jones, Ph.D.	Physiology and growth of sponges
A.B. Acton, D.Phil.	Chromosomal polymorphism in *Chironomus*
R.M. Alexander, Ph.D.	Biophysics of the teleost swim-bladder
N.W. Runham	Molluscan histochemistry

*Honorary Director, A.R.C. Unit of Embryology
†A.R.C. Unit of Embryology

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University College of South Wales and Monmouthshire, Cardiff

1. Anatomy

F. Jacoby, M.D., Ph.D. (Acting Head of Department)	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	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 mediaeval archaeology with special reference to Wales
M.G. Jarrett, Ph.D.	Romano-British archaeology with special reference to Wales Chronology of mediaeval pottery in the north of England

3. Biochemistry

Professor J. Pryde, D.Sc. K.S. Dodgson, Ph.D. F.A. Rose, Ph.D. A.G. Lloyd, Ph.D.	The biochemistry and enzymology of sulphuric acid esters and cognate structures, including the biochemistry of mucopolysaccharides, of connective tissues and of epithelia

4. Botany

Professor G.F. Asprey Ph.D., D.Sc.	Plant ecology of industrial waste areas Tropical plant ecology with particular reference to the Caribbean area Studies on the nyctinastic movement of leaves
M.S. Percival (Mrs.), Ph.D.	Pollen presentation in flowering plants
A.G. Lyon, Ph.D.	Palaeobotany
K. Benson-Evans (Miss)	The physiology of reproduction in the Bryophyta
R. Harvey	The endophytic fungi of the roots of aquatic plants Aerobiology with particular reference to fungal spores
S.E. Arney	Shoot growth and morphogenesis in *Fragaria*, including the induction of flowering and dormancy
E.C. Hill	The bacteriological decomposition of effluents The 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

5. Chemistry

Professor A.G. Evans, D.Sc.	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
J.W. Bayles, D.Phil.	The acid-base function in non-aqueous solvents
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

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

Mechanical:

Professor S.P. Hutton, D.Eng.	Hydraulic machines and flow measurement
B.J. Brinkworth	Properties of thermal radiation in a scattering atmosphere
L.H. Butler	Friction and surface effects during plastic deformation of metals
H.A. Slyper	Mechanical vibrations
T.T. Lewis	Fatigue of fibres

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
R.K. Blundell, Ph.D.	Caledonian and Hercynian structure in S.W. Wales
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

8. Mathematics

Professor J.L.B. Cooper, D.Phil.	Fourier transforms, linear spaces
Professor P.T. Landsberg, Ph.D.	Statistical mechanics; theory of solids

8. Mathematics (*continued*)

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
G. Lederer	Descriptive function theory
D.E. Edmunds, Ph.D.	Elasticity
G. Gould, Ph.D.	Linear spaces

9. Metallurgy

Professor W.R.D. Jones, D.Sc.	Stress-corrosion of high-strength aluminium alloys
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
W.H. Powell	Noise from underground machinery
R.D. Potter	Strata pressure and the economics of roadway supports
J. Taylor	The efficiency of mine ventilation
W. Baxter-Browne	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. D. Rogers, Ph.D.	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)	Extension of ASTM 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	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

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1. Botany

Professor H.E. Street, D.Sc.	Studies in growth, metabolism and genetics involving the culture of excised roots and callus tissues Heterotrophic metabolism of unicellular algae Free-cell cultures of higher plant cells
I. Isaac, Ph.D.	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
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*

2. Chemistry

Professor C.H. Hassall, Ph.D.	Structural chemistry of naturally occurring organic compounds, in particular steroids, polypeptides, mould metabolites
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	Problems of two-phase flow Problems of the flow of non-Newtonian liquids
J.C. Lee, Ph.D.	Gas absorption accompanied by chemical reaction
R.M. Wood, Ph.D.	Transient behaviour of distillation columns
J.M. Smith	Fluidization
W.J. Thomas, Ph.D.	Heat transfer

3. Engineering (*continued*)

Civil:

Professor B.G. Neal, Ph.D.	Steel trusses Dynamical plasticity
K.C. Rockey, Ph.D.	Buckling of plate girders
J.A. Sandover, Ph.D.	Bed movement due to wave action Breaking of waves
J.D. Davies	Reinforced concrete tanks Composite prestressed concrete beams
H.E. Evans, Ph.D.,	Soil pressure gauges Foundation pressures

Electrical:

Professor W. Fishwick, Ph.D.	Control systems including non-linear servomechanisms, analogue computer studies and machine vibrations
H. Dickinson	High-voltage measurements. Behaviour of liquid dielectrics and glass under high field stress
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.N. Chiplunker	Transistorized multi-channel communication systems
V.J. Phillips, Ph.D.	Modulation techniques

Mechanical:

Professor R.H. Macmillan	The application of adaptive control systems to industrial processes Continuously variable speed power transmission systems including techniques for regeneration The efficiency of high-ratio gear systems Propagation of fatigue cracks, including the effect of residual stresses
J.S. Caswell	Stress concentrations and fatigue strength Stresses in rolling mill housings
T.C. Daniels	Density separation in fluidized beds
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

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 Peat and related deposits in central and 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.

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

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 Slate" of southernmost Ireland
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	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
P.R. Hooper	Dykes of Graham Land, W. Antarctica Geology of Oksfjord, N. Norway

6. Mathematics

Applied:

Professor J.G. Oldroyd, Ph.D., Sc.D.	Viscous fluid flow Elasticity in solids and liquids

6. Mathematics (*continued*)

Applied (*continued*)

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 R. Wilson, D.Sc.	Coefficient theory of the Taylor series Functions analytic in an angle
H.O. Foulkes, D.Sc.	Symmetric functions Matrix representation of groups
H.J. Godwin, Ph.D.	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 The viscosity characteristics of slags
J.P. Dennison, Ph.D. P.W. Davies, Ph.D.	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.	Responses of marine invertebrates to changes in hydrostatic pressure Setting behaviour of serpulids and barnacles Sublittoral faunistic surveys with the aqualung
A. Macfadyen	Extraction methods for soil animals Continuous records of respiratory rates of small animals

9. Zoology (*continued*)

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

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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

D.E.B. Powell	Staphylococcal septicaemia
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
Professor S. Thomson, M.D.	The bacteriology and mechanism of infantile gastroenteritis
	Cross-infection in hospitals
	Influence of pCO_2 upon sodium ion transport
R.A. Holman, M.D.	Bacterial respiration
	The formation of antibodies
	Anaerobes
	Mycobacteriaceae
	Bacillus proteus
	Respiration of tumours

5. Obstetrics and Gynaecology

Professor A.S. Duncan, D.S.C. A.H. John	Investigation of a method of forecast of placental insufficiency by means of a hypoxic test
J.G. Lawson, M.D. D.K. Watkins	Investigation of β-glucuronidase and α-mannosidase in 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 Iron therapy in prematures
O.P. Gray	Rheology studies Protein diet in prematures
K.M. Laurence	Pathology and natural history of hydrocephalus Pathology and genetics of spina bifida cystica Pathology of choroid plexus papilloma Relationship between lymphangioma and lymphangiectasia

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 glycoprotein pattern in disease and after injury, with particular reference to the influence of hormones Investigations of laboratory techniques
with G.M. Mitchell	Studies on ACTH
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 hypertension
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
J.H. Jones, M.D.	The mechanism of anaphylatoxin formation The pathogenesis of thrombocytopenic purpura

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

8. Pharmacology and Therapeutics *(continued)*

G.M. Mitchell	Functional significance and metabolism of chorionic gonadotrophin
	Differentiation and assay of melanophore expanding hormone and ACTH
R.S. Tonks, Ph.D.	Gastric secretory processes
with A. Hughes, M.D.	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. Public Health and Social Medicine

Professor F. Grundy, M.D.	Thermal comfort standards in schools and offices
with G. Grant	Patterns of well-being and vigour in students and others
E. Lewis-Faning, D.Sc., Ph.D.	
with G. Grant	Aspects of the epidemiology of acute rheumatism
R.A.N. Hitchins, M.D.	Relation between morbidity in the school child and educational attainment
	Morbidity and anthropometric surveys of students in the University of Wales
	Serial tuberculin testing in school children
E. Lewis-Faning, D.Sc., Ph.D., and others	Studies in the epidemiology of bronchial asthma
	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

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