

Professor Dugald L. Gardner



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Professor Dugald Gardner ScD (Cantab), MD, PhD (Edin), MSc (Manch), FRCP (London and Edinburgh), FRCSEd, FRCPath has presented a large amount of material .

He plans to write an overview of his career and his research, to accompany this latter material.(April 2009)

The material consists of two distinct parts.

The first is related to Professor Gardner's publication

'Surgeon, Scientist, Soldier: the life and times of Henry Wade'. London: RSM Press, 2005

Box 1 126 compact disks of images used

Box 2 Sheets of printed images ; Preparatory material, reprints etc

The second and much larger is described here.

Professor Dugald Lindsay Gardner BA (Cantab) 1945, MA 1952, ScD 1990; MSc (Manch) 1981; PhD (Edin) 1957, MD 1948; FRCPath; FRCP; FRCPEd; FRCSEd

Notebooks: student lecture and practical class notes (1942-1948), PhD, MD and collaborative research protocols and records (1953-1977), questions and notes for MRCPed examinations (1949-1950), notes from Boston meeting of the American Pathological Association (1959)

NOTEBOOK 1– Front part CAMBRIDGE 1942-43 ANATOMY LECTURE NOTES

2nd October 1942

Sex. The subject of my notes among which are a large number of simple line drawings, first record developmental anatomy: the sex organs; the embryo; and the placenta; the developing innervation of the skin and muscles of the limbs; reflex arcs; the autonomic system; and the development of the circulatory and lymphatic systems (Cremona).

7th July 1943

There follows topographical anatomy, especially of the upper limb.

11th October 1943

Detailed reviews of the CNS follow, then the phylogeny of the brain. Insanity as mentioned. Motor and sensory pathways follow, then the functions of selective parts of the cerebral cortex and of the cord. Stopford's anatomical theory is mentioned.

NOTEBOOK 2 – FRONT PART
Cambridge 1943 Physiology II Lecture Notes

28 January 1943

Heart – diagram – vagal control- sympathetic vasoconstriction
local blood flow regulation

Blood oxygen and CO₂/O₂ saturation curves – blood gases – CO₂ saturation curves

Kidney 1843 Bowman 1845 Ludwig – Richards - 1924 glomerular puncture – permeability. Mammalian kidney – composition of filtrate – renal plasma flow – water diuresis – diuretics –posterior pituitary; Innervation of bladder

Digestion

Salivary glands; Phases of gastric activity; Intestinal flow; pepsin – test meal; Pancreas; Intestinal secretion ; enzymes; Bile; Mechanical propulsion of food; Stomach contractions – vomiting; Intestinal movements

Absorption Of Food

Allergic reactions; amino acid absorption; fat absorption; carbohydrate absorption

22 April 1943

Ductless Glands

Thyroid – thyroxin – iodine; Parathyroids; Suprarenal cortex; Insulin and its effects; Pancreatic diabetes – actions of insulin; Anterior pituitary – hormones – types of disease – Cushing’s syndrome - Fröhlich’s syndrome; Posterior pituitary – hormones and their actions

Temperature Regulation

6 May 1943

Reproduction

Oestrous and other cycles; Pregnancy and parturition

NOTEBOOK 2 - BACK PART

26.1.43

Practical experiments (presumably demonstrated, not conducted personally although this is not stated) Graphs are included

2.2.43

1. Estimation of O₂ capacity of the blood
2. Effects of bile salts on surface tension
3. tests for pigments, litmus, spectrophotometer; 4.2.43 Action of glomeruli – filtrate – blood pressure effects;

11.2.43 Smooth muscle; 23.2.43 Isoelectric point – liberation of CO₂; Physical fitness tests; 2.3.43 Isoelectric point – casein; 4.3.43 Respirator quotient; 22.4.43 Frog’s heart conduction; 24.4.43 Chemistry of fats; 29.4.43 Tetanus in frog muscle; 1.5.43 Proteins; 6.7.43 Revision chemistry; 9.7.43 demon of salivary secretion; 10 7 43 Metabolic rate

12.7.43 Bile & pancreatic secretion; 19.7.43 Carotid sinus and body; 11.10.43 Constituents of urine – effects of Ringer’s on heart – refractory period; 1.11.43 Investigation of proteins; 24.1.44 Effects O₂ lack & CO₂ excess on ventilation pattern of normal person; Some lecture notes - How reflexes coordinate

NOTEBOOK 3 – FRONT PART
Cambridge 1943. Physiology lecture notes

12.10.43 CNS integrated action cells - action of anaesthetics –CSF; Blood supply of brain; Spinal reflexes: stretch, crossed, scratch; 27.10.43 Control of spinal paths of brain; 3.11.43 Postural control – basal ganglia;

Hypothalamus – sleep – the Cerebrum – auditory and visual areas; 17.11.43 Autonomic NS – spinal ganglia; 3.12.43 Audition – Helmholtz theory; Definitions and summaries

NOTEBOOK 4 BACK PART

Cambridge 1942-43 Biochemistry Lecture (Baldwin)

Much time was devoted to biochemistry, one of the University's most prominent subjects. Biochemistry was under the aegis of Sir Frederick Gowland Hopkins the first to discover a vitamin, ascorbic acid - vitamin C. However, the burden of teaching the wartime medical class fell on the skilled shoulders of Dr Ernest Baldwin who was both a talented teacher and an expert in his own field. He would often appear for his afternoon lectures dressed in the uniform of an air-raid warden since the country, and in particular London, was being subject to the full might of the Luftwaffe's bombing attacks. One half of the notebook (1942) is devoted to theory, the complementary half to practical classes.

17.11.42 Deamination; 19.11.42 Detoxication – methylation; 21.11.42 Ammonia as end product of aquatic organisms – urea in higher vertebrates – protein nitrogen – adenine – guanine – purines; 26.11.42 The lipids: simple, compound, derived; the sterols. Derived substances; 28.11.42 Simple lipids – plant and animal oils – cerebrosides Bile – porphyrins fatty acid breakdown; 16.1.43 Carbohydrates (CHO); 19.1.43 Simple CHOs – glycosides- other ; monosaccharides; 21.1.43 Disaccharide – polysaccharides; 26.1.43 Blood sugar – kidney – diabetes mellitus – yeast fermentation – alcoholic fermentation; 4.2.43 Muscle metabolism; 6.2.43 phosphagens – anaerobic muscle; contraction – lactic acid; 9.2.43 Aerobic muscle contraction; 11.2.43 Catalysis in living cells

NOTEBOOK 4 – FRONT PART

Cambridge 1942-43. Biochemistry practical classes

[Each note is initialed by presumably a class tutor]

17.11.42 Effects of enzyme concentrations; 19.11.42 Digestion of casein – trypsin; 21.11.42 Fats and assoc substances – emulsification; 24.11.42 Cholesterol + lipoids; 26.11.42 Fats cont; 28.11.42 colour reactions of proteins & amino acids; 1.12.42 Oxidative deamination by kidney; 3.12.42 Estimating inorganic phosphate; 16.1.43 CHO – osazones
19.1.43 Pentosans; 21.1.43 Blood sugar; 23.1.43 Manometer; 28.1.43 Glycogen estimation; 30.1.43 ditto; 2.2.43 pigments; 4.2.43 Acetoacetic acid; 11.2.43 Porphyrins

NOTEBOOK 5 – FRONT PART

Cambridge 1943. Practical biochemistry/microbiology

DLG notes are accompanied in many cases by typed and printed work sheets provided by teachers, and by lists of reference books

18.2.43 An index shows: 36. Fermentation by Strep faecalis; 39. Succinic dehydrogenase Man VII; 41. Muscle metabolism II - lactic acid estimation; 42. Phosphate estimation; 43. Muscle II. Estimation of phosphagen P, inorganic P; 44. Muscle V. estimation of total P, pyrophosphate; 45. Nutrition 1, Milk etc; 46. Estimation of ascorbic acid; test for vitamin A; 47. Tissue respiration/xanthine oxidase; nitrate as receptor for B. coli; 48. Tissue respiration. 2. Malic dehydrogenase; 49. Plant biochemistry: photosynthesis; 50. ditto: enzymes; 51. Metabolism of yeast; 52. Micro estimation of chlorides (Conway)

NOTEBOOK 6: Front part

Cambridge 1944 – 45. Experimental pathology & Bacteriology,

18.1.45 Titration of haemolysin	22.1.45 Bacteriology of the pneumococci	23.1.45 Grouping of streptococci
1.2.45 Complement fixation	C. diphtheriae	Wasserman reaction
Acid-fast bacilli	19.2.45 The sulphonamides	Filterable viruses

Penicillin & Brilliant green	27.2.45 + 1.3.45 Human influenza viruses	Vaccinia virus
6.3.45 Isolation of vaccinia elementary bodies from rabbit	5.3.45 + 12.3.45 Anaerobic spore bearers	

NOTEBOOK 6 Back part

1953 Response of blood platelets to radiotherapy. Detailed blood counts of 37 cases

NOTEBOOK 7

Edinburgh 1945-46. Practical pharmacology

These appear to have been demonstrations rather than experiments conducted by students themselves. My notes are extensive and formal

8.10.45 Effect of changed intestinal pressure on the activity of the mammalian gut – diagrams – contractions shown as traces? smoked drums. A ‘critique’ follows

15.10.45 Action of acetylcholine, atropine and other compounds on movements of the isolated gut

22.10.45 Action of acetylcholine, adrenaline and oxytocin on the isolated rat and rabbit uterus.

29.10.45 Action of cocaine, homatropine, physostigmine, pilocarpine, ephedrine on the internal muscles of the eye.

5.11.45 Effects of atropine given simultaneously “Solutions A and B (acetylcholine, muscarine) were administered to CPH (61 Kg) (? Colin Hay) and to DLG (75 Kg). There was little effect and it was concluded that the amounts given were too small. Larger amounts cause pupil dilatation and acceleration of the pulse.

12.11.45 Study VI

Effects of exercise, adrenaline, and amyl nitrate on of blood pressure – JHS (Jocelyn Sandison) and KMC (Katherine Carmichael) joined DLG and CPH

19.11.45 Study VII

Absorption, distribution and excretion of drugs – KI, sulphanilamide made up in different strengths studies with test papers and colorimetry.

26.11.45 Study VIII

Rabbits were used. CNS depressants – general anaesthetics, basal anaesthetics, motor depressants, hypnotics, analgesics. Wide individual variation in response to barbiturates

Local anaesthetics- procaine, ?naplocaine, cocaine, tested on the rabbit cornea and intradermally. Carefully tabulated results. Cocaine easily penetrated mucous membranes.

NOTEBOOK 8

Surgery lecture notes as a 4th year student 1947

Many of the lectures were given by Professor Sir James Learmonth. It became apparent that his surly manner towards a large class was attributable to certain shyness. He would stop half way through a lecture and say ‘Now children, boys and girls, I’ll give you to minutes to blow your noses and cough before I resume’.

This manner did not show during personal chats when he was very easy to talk to. He stopped me one day at the top of Middle Meadow walk and asked how I was getting on – he realized I was a friend of Sir James Fraser who had inherited the title from his father, the distinguished surgeon and former Principal of the University of Edinburgh who had died during our 4th student year. The chat was very friendly and relaxed.

The notes that came from these lectures are often* very detailed. They are accompanied by pages of the rough notes I made during the lectures which were transcribed in the evenings after the lectures.

Peripheral vascular disease*; Gangrene; Frost bite; Hand infections*; Carcinoma of tongue; Dysphagia; Cholecystitis; Ulcer; Rheumatoid arthritis*; Osteoarthritis; Appendicitis*; Pernicious anaemia; Pyogenic

osteomyelitis – Brodie’s abscess; Tuberculosis* of long bones, spine; Intussusception; Carcinoma of colon; Bleeding diseases ; Peritonitis; Urinary obstruction; Renal tuberculosis; Sciatica; spinal injury

NOTEBOOK 9

1947 Medicine undergraduate lecture notes and case notes, Edinburgh (volume v)

Surface markings of heart & lungs	Cheyne Stokes respiration	Congenital heart disease	Clinical analysis of heart disease	Haematemesis
Aortic stenosis	Cavernous breathing; pectroliloquy	Lung collapse; hiccough	Mediastinal tumour	Emphysema
Cystic disease of breast	Silicosis	Pleural effusion	Empyema	Tests for sensation
Plantar responses	Brain tumours	Pituitary	Coma	Hyperthyroidism
Fits	Blood clotting	Purpura	Splenectomy	Banti’s syndrome
RES diseases	Diabetes Mellitus	Sprue	Systematic ophthalmoscopy	Ocular palsies; the pupils
Eyelids		Large section on syphilis	Tabes dorsalis	
Subacute combined degeneration	Muscular atrophy	Motor neurone diseases	Cervical rib	Syringomyelia
Neuritis		Jaundice		Tetany
Adrenal diseases	Skin pigmentation		Metazoa	

These notes are followed by a few summary case reports

NOTEBOOK 10

Edinburgh 1949-50. Notes prepared in revising for the examinations for the MRCPed.

Many of the abstracts are summaries of journal articles such as those in the Quart J Med on ankylosing spondylitis by Hart.

NOTEBOOK 11_

Edinburgh 1950. MRCPed examination papers

In preparation for the MRCPed examinations which I sat in the autumn of 1950, I collected old question papers for study. The dates of the questions are shown here:

NOTEBOOK 12

1950 Edinburgh. medicine notes + abstracts

Notes made in 1950 during preparation for the MRCPed examinations

Surgery of lung abscess; Surgery of pulmonary TB; diagnosis of bronchial stenosis; Pharyngeal diverticula; Bronchiectasis; cystic lung disease; Bronchial carcinoma; Bronchial adenoma; Haemangiomas; Lung complications of dysphagia; Recurrent laryngeal nerve paralysis; Pulmonary eosinophilia; Ciliary action; Suppurative pneumonia

Diaphragm: development & hernia; Valvotomy for mitral stenosis; Differential diagnosis of tachycardia; Anatomy of the abdomen; Surface markings of the lung; Some CNS subjects

Heart and circulation

1946 (date of original exam questions)

March Disease pathogenesis and treatment of atrial fibrillation; July Causes + manifestations + treatment of circulatory failure in acute toxic infections; September Causes of pericarditis; December Sinoatrial node disturbances

1947

March Significance + treatment of low blood pressure; June Lesions causing abdominal symptoms; September Signs, course prognosis of aortic coarctation; December Actions of diphtheria

1948

March Treatment + prognosis of hypertension DD retrosternal pain; June Causes of loud 2nd sound in 2nd left space; September Is the heart normal or not? December Acute LV failure

1949

March Acute + chronic heart failure due lung disease; Diagnosis + treatment of intermittent claudication;

June Control of the fetal circulation at term; December Advice to the young female with mitral stenosis during the first trimester of a first pregnancy;

1950

June Diagnosis and significance of slight cardiac enlargement in young men; December Significance of substernal pain in a man of 50 years

1951

June Significance of distended jugular veins

Gastric

1946

September Achlorhydria

1949

June Anorexia

September Indications for surgery in peptic ulcer

December Significance of flatulence

1950

June Signif of variations in gastric acidity

There follow questions on: Intestinal, Kidneys, Liver, Parasites, Blood, CNS, Metabolism, Paediatrics, Skin, General, Occupational, Endocrinology, Anatomy, Psychiatry, Fluid, Infection, Bones + Joints, Intoxications, Pharmacology, Anatomy

NOTEBOOK 13

1950 Medicine notes, volume I: extracts from the literature

GI secretion	Medical sympathectomy	Respiratory studies in poliomyelitis	Intermittent claudication
Idiopathic thrombocytopenic Purpura	Dysarthria	Meningococcal fever	Demyelinating diseases
Regulation of blood acid/base balance	Base conservation by kidney	Mode of action of salicylate in rheumatic fever	Actions of compound E (dehydrocorticosterone)
Polycythaemia vera	Ophthalmoscopic grading of hypertension	Prognosis of bronchial carcinoma	Castle's intrinsic factor
Porphyria	Lead poisoning	Classification of dust diseases	Xanthomatosis

Blood coagulation (<i>long section</i>)	Pruritus	Lung disease due metals	Electrolyte depletion in pyloric stenosis
Haemolytic anaemias	Unipolar lead patterns	Ventricular hypertrophy	Isotopes
Gastric secretions	Pancreas	Anoxia	Dyspnoea
Splenomegaly/ Splenectomy	Hepatic fibrosis	Vesicular emphysema	Tests of thyroid function
Purpura	Addisonian crisis	Cerebral arterial disorders	Thyroid activity
Suprarenal cortex	Pathology of thyroid	Pathology of anterior pituitary	Congenital dyslexia
Uraemia	Metabolic defects in proximal tubular disease	Optic Nerve	Hypokalaemic syndrome; liver function tests
Fungi in tissues	Diabetic ketosis	Treatment of anuria	Hepatic coma
Innervation of eyelids	Innervation of bladder	Phaeochromocytoma	Extrinsic ocular muscles
Pupillary reflexes	Dysarthria	Optic atrophy	Headache
Lung nomenclature	Dinitrophenol poisoning		

NOTEBOOK 14

Medicine notes 1950 volume II, part 1: Fevers & infectious diseases

Scarlatina	Erysipelas	Diphtheria	Measles	Rubella
Whooping cough	Mumps	Smallpox	Vaccination	Chickenpox
Meningococcal infections	Typhoid	Paratyphoid	Suipestifer	Dysentery
Brucellosis				

NOTEBOOK 15

Medicine notes volume III: Notebook inscribed 'Helen Harrower, Hygiene (Linklater)

Neuroses of larynx	Functional examination of the ear	Schick test – diphtheria immunization	Tuberculin tests	PAS
Blood CO ₂	Some congenital syndromes	CDH	Insulin test in vagotomy	DDT poisoning
Pituitary adenoma	Facial nerve lesions	Pulmonary infarction	Pulmonary atelectasis	
Lung gangrene	Pneumoconiosis	Pneumothorax	Empyema	Examining the CNS
Gynaecomastia	Phenergan (antihistamine)	Thymectomy for MG	Hypothalamus	Leprosy & sulphones
	Nitrites in angina	Parathyroids		Adrenalectomy
Adrenal cortical compounds	Eczema	Psoriasis	Impetigo	Scabies
Tinea	Myopathies	SLE	Refractory anaemias	Sympathectomy; Glycogen storage disease
Cirrhosis	Triple heart	Reticuloses	Diaphragmatic	Blood coagulation

	rhythm		hernia	
Constrictive pericarditis	Malaria	Brachial plexus lesions	Wasting of hand	Miliary TB

NOTEBOOK 16

1949 LOUTH. Records of fatal medical cases. Postmortem reports not inserted – not available from Grimsby
Detailed clinical notes are given of diagnosis treatment and outcome

Case 1	26.10.49	F 4	Diabetic coma
Case 2	2.11.49	F 65	Carcinoma of rectum
Case 3	26.9.49	F 65	Ruptured aneurysm Circle of Willis, subarachnoid haemorrhage
Case 4	10.11.49	F 65	Acute gastric ulcer, haematemesis
Case 5	17.11.49	F 65	Hypertension, cardiac failure, diabetes mellitus

NOTEBOOK 17

1953 Cambridge. Studies of platelets and white blood cells

It is probable that this work was to form the basis of a thesis. The origin of the idea stemmed from DLG' study of the case in Edinburgh in 1948-49 where he recorded the effects of pneumonia on the white blood cell counts in a case of lymphocytic leukaemia.

Book contains detailed records of sequential counts made on blood of 134 patients from Addenbrookes Hospital in June 1953.

From 1 to 18 counts were recorded for each case, over a period of days. The dates are not recorded
It is stated that graphs were made of 44 cases but the graphs are not contained in the book.

NOTEBOOK 18

Cambridge 1953-54

Proposal for work on platelet counts in patients receiving wide-field irradiation, not necessarily for metastatic carcinoma.. Notebook contains summaries of 22 methods describing methods of platelet counting and related methods, and referring to 100 titles of other direct and indirect techniques.

NOTEBOOK 19

Edinburgh 1954-55. Bone marrow + blood cell in rheumatoid arthritis

At the Northern General Hospital Edinburgh, Prof JJR Duthie was studying anaemia in rheumatoid arthritis. With Dr. Now Prof John Richmond, DLG made counts of the bone marrow cells in 33 cases of RA, in a further 'old' case of RA and in one earlier case of rheumatic fever.

Particular attention was given to the iron content of the marrow and the specimens were stained for iron, the quantity present graded as large (100 u +) aggregates (10), medium-sized (30-60 u) aggregates (5), small (5-10 u) aggregates and crystals, and minute (0.5 – 1.0 u) grains.

There were 5 control cases. The conclusions were published in *Ann Rheum Dis.*(see my C.V.)

NOTEBOOK 20

Edinburgh April 55. Bone marrow + blood cell in rheumatoid arthritis

This notebook contains the records of a further 35 cases of rheumatoid arthritis and of 3 normal control cases in which the bone marrow cells and peripheral blood were studied in the same way as those recorded in Notebook J.

The work concluded at the end of September 1955 when DLG moved to a Lectureship in the Department of Pathology of the University of Edinburgh.

NOTEBOOK 21
EDINBURGH 1955

Notebook is entitled “Observations on the architecture, cytology and mineral content of the bone marrow in rheumatoid arthritis”

Covers literature review and experiments to be part of the paper/report on ‘Anaemia in Rheumatoid Arthritis’. This was also incorporated in DL Gardner’s 1957 Edinburgh University PhD Thesis. Among the histochemical methods tested was the rubeanic acid method for copper in which DLG had become interested in Cambridge in 1953-54.

NOTEBOOK 22

Edinburgh (Teviot Place) 1955. Experimental hypertension; Experimental adjuvant arthritis

Note: At least half the pages of this notebook have been cut out. Their present location is not known. Contents are therefore restricted to a list at the beginning of the book, and a few scattered pages of notes later in the book.

P 25 Preparation of hypertensive rats

P 40 imi of rats with Imferon (iron dextran)

P 45 Experiment 19 – Injection of rabbit with extract of rat synovia (see Favour et al 1955) Required: synovial tissue from 6 rats; adjuvant (oil, tubercle bacilli etc\ \ \ \ 0 \ gauze, instruments, blender, emulsifier, syringes

p 46 Injection of rats with homologous muscle + adjuvant

26.9.55 As stock tissues, normal g pig spleen, liver, muscle, suprarenal, heart, kidney and lung were rapidly frozen and stored. Some tissues were simply held in the deep freeze.

p 48 Rat homologous muscle/DD

p 50 Reinjection of rats (AA) (see p 18) with homologous spleen + adjuvants

p 51 Injection of g pigs (A) with homologous synovia + adjuvants

p 53 Rabbit (A) Intraarticular typhoid antigen

p 54 Rabbit (B) Iron

p55 G pig (B) Injection of homologous spleen

p 56 G pig (D) Caragheenin expts

p 58 Rabbit (C) Caragheenin expts

p 61 G pig E Mucopolysaccharide expts; G pig G Synovial fluid injections + biopsies

p 65 Hydralazine admin to dogs (A)

Response of the dog to oral hydralazine

The American description of the ‘hydralazine syndrome in patients with systemic hypertension, with its similarities to SLE, led to extended tests of the reaction of the normotensive dog to this antihypertensive drug. With the support of Professor Sir James Learmonth, I was allowed access to a small colony of dogs housed in the animal house located at the top of the Wilkie Research building of the Medical School

This and the subsequent work on hypertension, was incorporated in DL Gardner’s 1958 MD thesis.

21.3.56 Oral administration of hydralazine to dogs (p 85)

Dogs were fed aliquots of hydralazine daily. They were weighed, the diet monitored. Plasma protein levels, haemoglobin, white blood cells, ESR and cholesterol were measured, and LE cells searched for.

Response of the hypertensive rat to hydralazine

Since it was impracticable to induce hypertension in dogs on a sufficient scale, a second large series of experiments was made with rats in which hypertension could be induced more readily in sufficient numbers of animals to allow hydralazine to be evaluated

NOTEBOOK 23

Extensive experimental results 1955 and histology

Anti-collagen arthritis	Synovial fluid studies	Hydralazine	Imferon
Homologous muscle, spleen and synovia arthritis	i.a typhoid O in rabbits	G. pig i.a.i Caragheenin	Marrow punctures for iron
Iron content of tissues	Histology of RES	i.as. caragheenin in rabbits	i.a. bacterial extract in g. pig
Feeding of hydralazine in dogs	g. pig synovial fluid		

NOTEBOOK 24

Notebook, beginning 10.10.55 and extending into 1956, contains basis of DLG's PhD studies on experimental arthritis. It contains 331 pages summarizing 225 abstracts of relevant papers from the literature, plus 50 abstracts on the hydralazine syndrome.

NOTEBOOK 25

Notebook devoted to the details of experiments on the hydralazine syndrome in rats and dogs, 1955 - 1956

NOTEBOOK 26

Notebook starting 22.8.57, entitled hypertension, hormones, renal structure and hydralazine. Contains abstracts, a few comprising title only of papers on these subjects. Includes paper by Floyer, Wilson & Byrom, Ledingham, Koletsky & Gardner.

NOTEBOOK 27

Experimental observations, volume 4. Starts 31.1.58 with Edinburgh work on hydralazine model. Continues at page 33, with 'Preliminary program for experiments at WRU. Goes on to page 141 at 29.6.60, including studies with IIS. 1960 experiments include trials of methoxamine on rat vascular structure, some using autoradiography.

NOTEBOOK 28

Cleveland Ohio: experimental vascular studies, from 6.3.59

Experiments made in the laboratory of Dr EH Bloch, Physiology Department WR, Cleveland Ohio Head: Dr George Sayers), March-April 1959 + July-August 1959

6.3.59 Mesenteric arterioles in rat renal HT

Mesenteric arterioles in normal Rat

11.3.59 Mesenteric arterioles in steroid HT

18.3.59 Effect hydralazine on carotid BP and on mesenteric arterioles in normal rat

1.4.59 Effect hydralazine on carotid BP and on mesenteric arterioles in steroid HT

8.4.59 Effect of applying Goldblatt clamp to renal artery, on mesenteric arterioles and on carotid BP

6.7.59 Measurement of renal artery pressures in normal rat

7.7.59 Effects of insertion microcanula into rat renal artery + recording of renal artery BP without interrupting blood flow; effect of hydralazine on renal artery BP

Microcanulation of mesenteric arterioles

10.7.59 Effect of repetitive intraarterial injection of saline under high pressure, on mesenteric arterioles and on systemic BP

NOTEBOOK 29

Institute of Pathology, WRU, Cleveland Ohio 1958-59

Material seen at the Institute of Pathology, Western Reserve University graduate teaching sessions – pathology + histopathology with notes on organization, techniques, preservation, collection, reporting of the cases etc., starting 13.9.58. The number of cases is approximately, the notes very extensive

Details of teaching, classes, training of residents, supervision of research etc given in separate book
Teaches included Drs. Moritz (Chairman), Reagan (gynaecological pathology), Bolande, Koletsky, Ebert, Ivemark, Moore, McCorquadale (?McQuorqyal), Peterjohn, Lapham (neuropathology). On Sept 27th Alistair Currie, at that time Head of Pathology at the Cancer Institute, London, was a reluctant visiting speaker.

NOTEBOOK 30

Boston meeting of the American Association of Pathologists, April 1959

The meeting cost me \$32.70: 4& for breakfasts, \$5.20 for lunches, \$20.50 for suppers of which \$6.75 was for the official dinner

The Lymphocyte course was \$10.00, registration for the whole meeting \$3.00.

A bus tour was \$2.75, a film \$5.80.

Lymphocyte Course 2.4.59

Gross	Effects of α amino propionitrile
Bloom	Lineage of cells like micromyeloblast
Sundberg	Origin of lymphocytes
Ackerman	Phase contrast and histochemical studies of nucleic acids, enzymes, lipids and other molecules
Low	EM of monoblasts, myeloblasts, lymphoblasts
Hamilton	Nucleic acid metabolism of lymphocytes
Bollman	Older techniques for measuring output of lymphocytes
Harris	Tissue transplantation ('incoherent')
Dougherty	Lymphocytes and the endocrine system
Schrek	Effects of irradiation
Jones	Lymphocytes malignancies in animals
Schwartz	Murine leukaemia
Custer	Changing pattern of lymphoma
Brewster	Enzymes of lymphocytes

NOTEBOOK 31

Brief, roughish notes on blood pressures and salt intakes referring to DOCA hypertension and others with unilateral nephrectomy. Most of notebook unused.

NOTEBOOK 32

June – August 1967. Results of 9 groups of experiments on Adrenal Regeneration Hypertension (ARHT), with Dr. P Gorevic, and DOCA hypertension. – 84 rats.

Bone marrow cytology in rats 1-55

NOTEBOOK 33

Brief (8 pages) student records of renal and DOCA hypertension in April 1965

NOTEBOOK 34

Notebook starting April 1965, written in firm, clear hand, not mine. Studies of tissue culture, EM + histochemistry. In response to unilateral renal artery ligation. Gives blood pressures, water intake, changes in kidney.

On 18.1.66, writing changes. Extends to 21.3.66.

NOTEBOOK 35

Records of

2.8.67 Turkey joint structure	Rheumatoid synovia, from Helsinki; 6 cases
10.9.70 Experimental production of Caragheenin lung;	Tissue responses to caragheenin;
Histology of tissues responding to rubidomycin in adjuvant arthritis, experiments 127 + 128	1.3.70 Ext 148 Pig cartilage structure
23.7.70 In vivo observations of human cartilage structure	

NOTEBOOK 36

Notebook kept by Dr. DC MacGillivray, visiting Canadian Research Fellow, Kennedy Institute, London, October 1969-October 70. I was Director of the Institute and Head of the Division of Experimental Pathology.

Experimental studies of the bearing surfaces of pig knee joints and of turkey joints. The pig joints were collected from the Progeny Testing Station of T Walls & Sons, Hastoe, Tring, Herts.

The notebook gives other telephone numbers and addresses of people who took part in the work. Specimens were collected for Dr Helen Muir (Biochemistry) as well as for Pathology.

The book also lists the apparatus and equipment needed for each day's work. The team, including Dr MAHA El Maghraby, was carried to Tring by minibus.

NOTEBOOK 37

Course attended by DLG in Glasgow on radioisotopes. 28.3.60 – 8.4.60. 50 pages of lecture and demonstration notes.

NOTEBOOK 38

Studies (1977) of rat cartilage surfaces, with Nairn Wilson, now Professor N Wilson. Later investigations of permeability of baboon cartilage using LTSEM – low temperature scanning electron microscopy.

NOTEBOOK 39

Studies (1970-1973) in the Pathology Department of which I was the Head, of the Queen's University of Belfast, with Dr Barry Longmore PhD, of effects of mechanical pressure on structure of articular surfaces.

NOTEBOOK 40

Research 1979 in Department of Histopathology of the University of Manchester, where I was Professor of Histopathology, with Mr. Bland, on the effects of aortic constriction on the evolution of rat adjuvant arthritis

