

DEPARTMENT OF PATHOLOGY

1980 - 1981

David M. Robertson, M.D.	Professor and Head
G.F. Kipkie, M.D.	Professor
N. Kaufman, M.D.	Professor (On Leave)
R. Kisilevsky, M.D., Ph.D.	Professor
H.D. Steele, M.D.	Professor
T.F. McElligott, M.D.	Professor
A.F. Clark, Ph.D.	Associate Professor
W.E.N. Corbett, M.D.	Associate Professor
R.S. Kerbel, Ph.D.	Associate Professor
S. Ludwin, M.B.	Associate Professor
R.S. Prentice, M.D.	Associate Professor
S.M. Wasan, M.D.	Associate Professor
J.C. Wyllie, M.D.	Associate Professor
A.J. de Bold, Ph.D.	Assistant Professor
B.E. Elliott, Ph.D.	Assistant Professor
W.A. Fletcher, M.D.	Assistant Professor
A.R. Giles, M.B., B.S.	Assistant Professor
A.E. Lagarde, Ph.D., D.Sc.	Assistant Professor
P. Manley, M.D.	Assistant Professor
S. Nag, M.D., Ph.D.	Assistant Professor
M. Raymond, Ph.D.	Assistant Professor
D.F. Dexter, M.D.	Lecturer
R. Bell, M.D.	Lecturer (Joint Appointment)
S.A. Bencosme, M.D., Ph.D.	Sessional Appointment
J.C. Kennedy, M.D., Ph.D.	Sessional Appointment
P.M. Ford, M.D.	Assistant Professor (Cross Appointment)

DEPARTMENT OF PATHOLOGY

HEAD: DAVID M. ROBERTSON

1980 - 1981

PERSONNEL

Dr. R.S. Kerbel and Dr. S.K. Ludwin were promoted to Associate Professor in the Department of Pathology effective July 1, 1980.

Dr. G.F. Kipkie completed thirty concurrent years as Director of Laboratories at Kingston General Hospital, and ended his term as Director in September 1980. Dr. Kipkie continues his appointment as Pathologist at Kingston General Hospital, and Professor of Pathology at Queen's University. Dr. Kipkie was appointed Director of Laboratories in 1950 when it was a fledgling unit of three pathologists. Subsequent rapid expansion, introduction of automation, and acquisition of additional professional and technical staff was all accomplished during Dr. Kipkie's tenure. Today's efficient, well organized clinical laboratories are a legacy to his dedication and skill.

Dr. H.D. Steele became Director of Laboratories at Kingston General Hospital effective October 1, 1980. Dr. Steele held the position of Associate Director since 1957. Dr. Steele, who is also Professor of Pathology at Queen's University, is a skilled pathologist and an able administrator.

Dr. W.E.N. Corbett was appointed Associate Director of Laboratories effective October 1, 1980.

The Cancer Research Group of the Department of Pathology was further strengthened by an additional staff appointment. Dr. Alain E. Lagarde was appointed Assistant Professor in the Department of Pathology Queen's University. Dr. Lagarde has a B.Sc., Ph.D. and D.Sc. from Lyon University, France, and was Assistant Professor in the Laboratoire de Microbiologie at the Institut National des Sciences Appliquées, Lyon, France, prior to this appointment. The addition of Dr. Lagarde has further enhanced the immunology research potential of the Cancer Research Group.

Dr. R.S. Kerbel of the Cancer Research Group was appointed a Research Associate of the National Cancer Institute of Canada.

TEACHING

Undergraduate:

During the year 74 second year medical students were registered in General Pathology and Special Pathology. In addition, two graduate students (Robin Walker and Frederick Nestel) were registered in the General Pathology course, and successfully completed it.

During the academic year the Staff-Student Liaison Committee met once per month. This staff-student liaison group was composed of three senior staff members, and three student representatives chosen by the student body. Student evaluations of the General Pathology and Special Pathology courses were carried out, with students evaluating the objectives of the course, relevance of material covered in lectures and examinations, and an evaluation of each professor's expertise in teaching, covered by sections. Each autumn a meeting of the previous year's Liaison Committee is held. The General and Special Pathology courses are assessed retrospectively, to assist in planning and operating these courses more effectively during the coming year.

Thomas Mainprize, a fourth year medical undergraduate at Queen's University, took an Elective in the Department of Pathology from March 16, 1981, to May 2, 1981.

A total of eight second year medical undergraduates are in the department during the Summer of 1981.

Graduate:

Two M.Sc. candidates were enrolled in the graduate program (Douglas Carlow and Frederick Nestel). One Ph.D. candidate (Robin Walker) was enrolled in the graduate program. In addition, one student (Kim Wong), although registered in the Biochemistry Department as a Ph.D. candidate, was supervised by a senior staff member in the Department of Pathology, Dr. R. Kisilevsky.

Fellows:

Dr. Roger G.E. Palfree was the recipient of a Medical Research Council Fellowship and will spend the time from December 1980 to March 31, 1982, in the Department of Pathology supervised by Dr. Elliott of the Cancer Research Group.

Dr. J.T. Feltis was awarded a Medical Research Council Fellowship for 1981-82, and will spend the period July 1, 1981 to June 30, 1982, in the Department of Pathology, Mount Sinai School of Medicine, New York, under the supervision of Dr. Jacob Churg, in the area of renal pathology.

Postgraduate:

Twenty house staff were registered in the postgraduate training program. In addition, there were two residents on rotation from the Department of Obstetrics & Gynecology, and one resident on rotation from the Department of Medicine (Neurology).

The postgraduate teaching program in the department includes daily and weekly conferences, seminars, quiz and review sessions conducted by members of the department in collaboration with other clinical and basic science departments. Included in the departmental conferences and seminars are the following activities:-

Departmental Conferences and Seminars

Gross Autopsy Conference
Hematology Review Conference
Residents Neuropathology Conference
Clinical Chemistry Review
Departmental Seminar
Hematology Rounds
Microbiology Conference
Ultrastructural Pathology Course
Pathology Tumour Conference
Neuropathology Conference
Completed Case Conference
Surgical Quiz Slides
Clinical Pathological Conference

In addition, members of the Department of Pathology participate in a large number of interdepartmental conferences and seminars.

The Departmental Postgraduate Education Committee, composed of the Head of the department, six senior staff members, and one resident representative, meets at regular intervals. Its function is to develop and carry out departmental and faculty policies on in-training evaluation, resident program evaluation, and other matters relating to the post-graduate training program in the department.

VISITING LECTURERS

An impressive list of Visiting Lecturers presented seminars and lectures in the department during the year. A list of the Visiting Lecturers is appended (Appendix I).

CLINICOPATHOLOGICAL CONFERENCES

A total of twenty-two Clinicopathological Conferences were presented. There were twelve Clinicopathological Conferences from the Department of Medicine; four from the Department of Surgery; two from the Department of Pediatrics; two from the Department of Obstetrics and Gynecology; one from the Division of Gastroenterology, Department of Surgery and an unusual helminthology puzzle presented by Drs. Bird and Kisilevsky.

RESEARCH GRANTS

Research grants held by senior members of staff for the current academic year are listed in Appendix II. Operating grants during 1980-1981 totalled \$ 957,093 and direct, competitive personal support was \$ 90,975.

PATHOLOGY COURSE - REHABILITATION SCIENCE

Several members of the Department of Pathology again participated in the lecture schedule of the School of Rehabilitation Therapy. Forty-eight School of Rehabilitation Therapy students received a total of eleven lectures in the Pathology Course for Rehabilitation Science. Dr. Dexter and several residents shared the lecturing responsibility for this course, and Dr. Dexter was responsible for the organizational aspect.

FORMER HEAD - DEPARTMENT OF PATHOLOGY

Dr. Nathan Kaufman, Head of the Department of Pathology from 1967 to 1969, was honoured in May 1981 by the Board of Governors of Kingston General Hospital by being appointed to the Honorary Staff of that institution.

Dr. Kaufman, who now lives in Augusta, Georgia, where he is Secretary-Treasurer of the International Academy of Pathology, United States - Canadian Division, was also appointed Professor Emeritus at Queen's University effective July 1, 1981.

PAPERS AND ABSTRACTS

During the year 30 papers and 4 abstracts were published. These are listed in Appendix III.

PAPERS DELIVERED AT CONGRESSES, INVITED LECTURESHIPS, AND OTHER ACTIVITIES

During the year several members of staff delivered papers at meetings, were Invited Lecturers and Visiting Professors at various universities. This information is contained in Appendix IV and Appendix V.

EXTRAMURAL ACTIVITIES OF NATIONAL AND INTERNATIONAL IMPORTANCE

Dr. A.F. Clark:- Dr. Clark is Chairman of both the Ontario Cancer Treatment and Research Foundation Biochemistry Review Panel and the Ontario Ministry of Health Committee on Research Grants. He is a member of the Ontario Council of Health Joint Research Task Force. Dr. Clark is also Scientific Officer of the Equipment Maintenance Grants Committee of the Medical Research Council. Dr. Clark is also a member of the Queen's University Faculty of Medicine Student Appeals Committee and Chairman of the Principal's Advisory Research Committee, Subcommittee I.

Dr. W.E.N. Corbett:- Dr. Corbett is a Consultant Pathologist for the Canadian Tumour Reference Centre of the National Cancer Institute of Canada, on the diagnostic panel for lymphoreticular malignancies. Dr. Corbett is also a member of the final review committee for diagnostic classification of lymphomas for the National Cancer Institute of Canada lymphoma trials. Dr. Corbett is a member of the Residency Training Committee of the Canadian Association of Pathologists.

Dr. D.F. Dexter:- Dr. Dexter is a member of the Soft Tissue Panel of the Canadian Tumour Reference Centre. Dr. Dexter is a member of the Curriculum Committee, Faculty of Medicine.

Dr. B.E. Elliott:- Dr. Elliott is Chairman of the Animal Care Committee of Queen's University Faculty of Medicine.

Dr. W.A. Fletcher:- Dr. Fletcher is a member of the executive of the Canadian Society of Cytology. He is a member of the Canadian Association of Pathologists Commission on Continuing Education. Dr. Fletcher is also a member of Council of the Section on Laboratory Medicine, Ontario Medical Association. He is also a member of the Perinatal Mortality Committee, Moose Factory General Hospital, and Chairman of the Tissue Committee at Kingston General Hospital.

Dr. A.R. Giles:- Dr. Giles is a member of the Canadian Plasma Exchange Group, sponsored by Health and Welfare Canada; a member of the International Society of Thrombosis and Hemostasis; co-authored a booklet entitled, "Clinical Guide to Blood Transfusion" edited by R. Herst, M.D., and published by the Canadian Red Cross Society Blood Transfusion Service.

Dr. R.S. Kerbel:- Dr. Kerbel is a member of the Immunology Grants Panel, National Cancer Institute of Canada, and a member of the Editorial Board of the journal 'Invasion and Metastasis' published in Basel, Switzerland. Dr. Kerbel was also the co-organizer, with Dr. Ian Carr, of the Symposium "Tumor Heterogeneity, Invasion and Metastasis" sponsored by the National Cancer Institute of Canada at the University of Saskatchewan, Saskatoon, in June 1981.

Dr. G.F. Kipkie:- Dr. Kipkie continues as a member of the Medical Advisory Board of the Ontario Cancer Treatment and Research Foundation. He is a member of the Consultant Pathologists group of the same Foundation, and is a member of their Diagnostic and Treatment Committee. He serves as a consultant in urinary tract tumours for the Canadian Tumour Reference Center.

Dr. R. Kisilevsky:- Dr. Kisilevsky is Scientific Officer, Grants Committee for Pathology and Morphology, Medical Research Council of Canada. He is Past Chairman of the Section on Experimental Pathology, Canadian Association of Pathologists. Dr. Kisilevsky is also a member of the Research Grants Panel of the Medical and Scientific Committee of the Canadian Arthritis and Rheumatism Society. Dr. Kisilevsky is also Chairman of the Committee on Research and Graduate Studies, Faculty of Medicine, Queen's University.

Dr. S.K. Ludwin:- Dr. Ludwin is Secretary-Treasurer of the Canadian Association of Neuropathologists, and a member of the Medical Advisory Board of the Multiple Sclerosis Society of Canada. He is also a Nucleus Member of the Royal College Specialty Committee in Neuropathology. Dr. Ludwin is Canadian representative to the International Society of Neuropathologists. Dr. Ludwin is a member of the Admissions Committee, Faculty of Medicine, Queen's University.

Dr. P.N. Manley:- Dr. Manley was appointed to the Canadian Tumour Reference Center Gastrointestinal and Liver Tumour Panel; and is Chairman, Commission on Continuing Education, Canadian Association of Pathologists. Dr. Manley is also a member of the Awards Committee, Faculty of Medicine, Queen's University.

Dr. T.F. McElligott:- Dr. McElligott is President, Ontario Association of Pathologists; Member, Standing Committee on Records and Statistics, Ontario Cancer Treatment and Research Foundation; Member of Advisory Medical Board, Ontario Cancer Treatment and Research Foundation; Representative of the Canadian Association of Pathologists to the International Council of Societies of Pathology; Examiner in Pathology for the Examinations in General Surgery for the Royal College of Physicians and Surgeons of Canada; Assistant Secretary of the Canadian Association of Pathologists; and a member of the Council of Ontario Faculties of Medicine Subcommittee on Occupational and Environmental Health. Dr. McElligott is also a member of the Council of Ontario Faculties of Medicine Subcommittee on the International Task Force; and a member of the Faculty of Medicine Curriculum Committee. He is also a member of the Vice-Principal's Committee on Occupational and Environmental Health.

Dr. R.S. Prentice:- Dr. Prentice is a consultant in tumours of skin and adnexal for the Canadian Tumour Reference Center. Dr. Prentice is a member of the Senate Library Committee, and Chairman of the Task Force on Libraries, Health Sciences Complex Council.

Dr. D.M. Robertson:- Dr. Robertson is a member of the Editorial Board of Laboratory Investigation; Vice-President (North American Division) of the International Academy of Pathology; and Reference Pathologist of the National Cancer Institute of Canada Brain Tumour Therapy Trial. Dr. Robertson is a member of the Ontario Council of Health Committee on High Technology Health Procedures and Equipment and the Council of Ontario Faculties of Medicine Postgraduate Manpower Committee. He is Chairman of the Committee in Neuropathology of the Royal College of Physicians and Surgeons of Canada, and Chairman of the Committee in Laboratory Medicine of the R.C.P.S. He is a member of the Research Advisory Committee of the Ontario Cancer Treatment and Research Foundation, and Scientific Officer for the Neurosciences Committee, Medical Research Council of Canada. Dr. Robertson is Chairman of the Biohazards Committee of Queen's University. He is also Chairman of the Postgraduate Education Committee, Faculty of Medicine.

Dr. H.D. Steele:- Dr. Steele is a corresponding member of the Test Committee in Anatomical Pathology for the Royal College of Physicians and Surgeons of Canada, a member of the Nucleus Committee on Anatomical Pathology for the Royal College, and a member of the Study Group on Laboratory Medicine, Postgraduate Manpower Committee, Council of Ontario Faculties of Medicine.

Dr. S.M. Wasan:- Dr. Wasan is a member of the Awards Committee, Faculty of Medicine, Queen's University.

RESEARCH

Dr. A.F. Clark:- Dr. Clark's research is concerned with androgen and estrogen metabolism. He has been studying androgen metabolism in the rat especially as it relates to the prostate gland. Prostatic enzymes involved in androgen metabolism are being studied so as to understand their role in controlling the expression of androgenic activity. The androgen dependence of the prostatic enzyme acid phosphatase is being studied. Prostate cell culture studies are being initiated to investigate androgen metabolism, indicators of androgen actions and the mechanism of androgen actions in normal cells and ones treated with carcinogenic compounds. In collaboration with the Department of Medicine he is conducting studies on the kinetics of androgen metabolism in humans and the role of serum binding proteins in controlling androgen metabolism.

Dr. A.J. de Bold:- Dr. de Bold's research has continued mainly on functional morphological aspects of the pituitary gland and of the heart. An investigation of a naturally occurring natriuretic and diuretic substance isolated from the heart is proceeding with particular success. Collaboration work has been established at the national and international levels. Dr. de Bold's research effort has been funded this year by four different extramural sources.

Dr. D.F. Dexter:- Dr. Dexter is collaborating with Dr. J.A. Carmichael and Dr. H.D. Steele in a review of cone biopsies with subsequent hysterectomy as therapy for carcinoma in situ of cervix. He is also collaborating with Dr. E. Sterns in a review of breast carcinoma pathology of patients entered on lymphatic clearance studies. In collaboration with Dr. C. Bird and Dr. A. Clark, Dr. Dexter is assessing the estrogen status and estrogen receptor protein in patients with carcinoma of the breast, and currently is investigating the potential of the demonstration of estrogen receptor binding sites on tissue by fluorescent techniques.

Dr. B.E. Elliott:- Dr. Elliott's major activity has been in the field of recognition structures on various host cell defense systems involved in defence against neoplasma and foreign pathogens. The initial aspects of this project involved thymus-derived (T-cell) responses against major histocompatibility antigens. The past year has seen a shift in emphasis toward new methods for studying T cell responses against foreign antigens and tumor antigens which require presentation to the host immune system in association with self-major histocompatibility gene products. These new methods involve preparation of vesicular and soluble glycoproteins prepared from plasma membrane, and detection of binding of this material to recognition structures of T cells. Another aspect of the work is the development of a number of monospecific T cell clones which are recognizing determinants on allogeneic or autologous target cells. A system is being established to study tumor specific antigens on metastatic and non-metastatic tumor variants, recognized by the immune T cells.

RESEARCH (continued)

Dr. A.R. Giles:- Dr. Giles research activities are as follows:-
(i) investigation of the thrombogenicity of prothrombin complex concentrates (2) investigation of the association between thrombocytopenic bleeding and antibiotic therapy and (3) development of a Factor VIII bypassing therapy for hemophilics with a Factor VIII inhibitor and (4) investigation of the role of plasmapheresis in the treatment of severe rheumatoid arthritis.

Dr. R.S. Kerbel:- Dr. Kerbel's research activities are in the area of tumor biology and immunology, with his main interest continuing to be experimental metastasis. Previous work has concentrated on various aspects of the membrane biology and cell biology of metastatic tumor cell populations, and current work has an emphasis shift towards new methods of treating established metastatic disease, using modifications of existing immunological or immunotherapy techniques. Studies have also continued in the area of analyzing the characteristics and implications of tumor cell heterogeneity. A very promising experimental model has been developed in which metastatic progeny of tumor cells injected subcutaneously into an animal were found to have revertant phenotypic characteristics for several different membrane-associated properties. The results have important implications for the study of the relationship between membranes and metastasis, as well as for the factors which contribute *in vivo* to the generation and maintenance of the heterogeneous state. Dr. Kerbel has also continued his studies in several other areas, namely, analysis of lymphocyte-associated receptors (in particular Fc receptors) and secondly, the role of natural killer cells in the tumor-host relationship. The latter study is being undertaken in collaboration with Dr. John C. Roder and Dr. Hugh Pross.

Dr. R. Kisilevsky:- Dr. Kisilevsky's research concerns (1) the protein synthesizing apparatus of liver cells, and the manner in which this apparatus is upset in induced disease states. The particular problems at the moment are:- (a) modulation of ribosome structure (b) an examination of several enzymes involved in ribosomal protein phosphorylation (c) mRNA metabolism (d) initiation factor phosphorylation - all induced during cell injury; (2) Pathogenesis of experimental murine amyloidosis.

Dr. S.K. Ludwin:- Dr. Ludwin's project deals with the mechanisms of remyelination in the central nervous system. This study involves the use of Cuprizone to cause demyelination in the central nervous system of young mice. Through the use of electron microscopy, radioautography and immunohistochemistry, Dr. Ludwin is attempting to elucidate the cellular mechanisms involved in remyelination. As remyelination with the central nervous system is a rare phenomenon, this model may help to understand some of the limitations of remyelination which may be applicable in some cases of human disease.

RESEARCH (continued)

Dr. P.N. Manley:- Dr. Manley's research activities involve (1) Immunohistochemical demonstration of antigen in tissue sections with particular interest in the investigation of the specificity of prostatic secretory acid phosphatase and its ultrastructural localization (2) The relationship between catheters in central vascular spaces and right-sided endocarditis and (3) A study of gastric biopsies in hospitalized Ethiopian patients.

Dr. T.F. McElligott:- Dr. McElligott continues to study the morphologic aspects of hepatotoxicity of drugs with the support of the Canadian Liver Foundation.

Dr. S. Nag:- Dr. Nag's research concerns the following:- (1) Studies on cerebral findings in experimental acute hypertension and (2) Studies on markers suitable for identification of endothelial cells of cerebral vessels *in vivo* and *in vitro*.

Dr. M.J. Raymond:- Dr. Raymond has continued the development and improvement of the methodologies employed in the clinical chemistry laboratory. His research interest is the investigation of the potential applications for computers within the clinical laboratories. This ongoing study is concerned with the possible impact of computerization on the handling of patient data, laboratory management and resident teaching programs within the department.

Dr. D.M. Robertson:- Dr. Robertson is studying models of experimental diabetic neuropathy. In collaboration with Dr. H. Dinsdale of the Department of Medicine, Dr. Robertson is studying the effects of acute and chronic hypertension on cerebral blood flow and permeability.

Dr. H.D. Steele:- Dr. Steele continues a correlative cytologic, colposcopic and biopsy study of the therapy of early malignant lesions of the cervix in collaboration with Dr. Carmichael of the Department of Obstetrics and Gynecology and Dr. Dexter of the Department of Pathology at Hotel Dieu Hospital. A study of cases of carcinoma of cervix undetected by exfoliative cytology is continuing to try to determine the factors responsible. Dr. Gorwill of the Department of Obstetrics and Gynecology and Dr. Steele have developed and utilized a model for the study of developmental abnormalities in the mouse cervix in relation to certain hormones. Part of this work is completed and has been presented to several scientific meetings.

Dr. S.M. Wasan:- Dr. Wasan's research involves the following areas: (1) Study of Corneal lesions by light and scanning electron microscopy in association with Dr. W.E. Willis of the Department of Ophthalmology Hotel Dieu Hospital and (2) Study of contact lens and Timolol induced corneal lesions in rabbits, in collaboration with Dr. W.E. Willis.

RESEARCH (continued)

Dr. J.C. Wyllie:- Dr. Wyllie is investigating haem absorption by the intestinal mucosal cell using electron microscopy coupled with the diaminobenzidine reaction, in order to identify peroxidase activity; endogenous peroxidase activity is not present in the small intestine. The nutrient absorbing surface of the mucosal cell is increased by numerous microvilli which form the brush border. Pits are noted in the apical cytoplasm at the base of the microvilli; apical vesicles, derived from these pits, become intracellular in location. Both the pits and the vesicles have a trilaminar unit membrane because of their origin from the plasma membrane. Haem, identified by peroxidase-positivity, was observed in both apical pits and vesicles; it was not seen in the microvilli nor was it found free in the cytoplasm. Haem-containing vesicles were frequently encountered in the apical cytoplasm; these vesicles did not contain acid phosphatase. Haem was not observed in occasional multivesicular bodies (regarded of lysosomal origin), nor were primary lysosomes present in close proximity to haem vesicles. It appears that haem is not degraded by lysosomal enzymes in this cell type. Haem vesicles were seen in the cytoplasm as far as the supra-nuclear region (where various organelles-mitochondria, the Golgi complex, rough and smooth endoplasmic reticulum and polysomes are numerous). Peroxidase-positivity was noted in the vesicles in this region indicating that the haem molecule was still intact. However, there were also morphologically-identical vesicles which lacked peroxidase activity. This observation suggests that haem degradation is taking place in this region of the cell. Haem vesicles were not seen in the basal part of the cell nor immediately adjacent to the lateral and basal plasma membranes; haem was not identified in the cisterns of the rough endoplasmic reticulum or in smooth endoplasmic reticulum. Haem was occasionally observed in Golgi saccules; this localization has not been explained. Dr. Wyllie's findings suggest that MHO crosses the limiting membrane of the haem vesicle, resulting in cleavage of the porphyrin ring and the release of iron.

VISITING LECTURERS
DEPARTMENT OF PATHOLOGY
1980 - 1981

Dr. Francis Choy, Research Associate, Department of Neurobiology, Montreal General Hospital Research Institute and McGill University, presented a seminar entitled, "The biochemical genetics of Gaucher's Disease".

Dr. W. van Aken, Medical Director, Netherlands Red Cross, Blood Transfusion Service, Amsterdam, The Netherlands, presented a special seminar entitled, "The Interaction of Blood Cells with Vascular Endothelium".

Dr. G.N. Smith, Consultant Hematologist, Northwick Park Hospital, Clinical Research Center (MRC), London, U.K., presented a seminar entitled, "Cyclosporin A: A Benign Agent for Suppressing Red Cell Alloimmunization?".

Dr. Peter C. Burger, Department of Pathology (Neuropathology), Duke University Medical Center, Durham, North Carolina, gave a lecture to members of staff and residents. Dr. Burger also presented a Neuropathology Slide Seminar to the Ontario Association of Pathologists.

Dr. M.C. Hatton, Associate Professor, Department of Pathology, McMaster University, presented a special seminar entitled, "The Role of Heparin in the Inactivation of Proteases by Antithrombin III".

Dr. Mary Ambler, Assistant Professor of Pathology, Brown University and Associate Pathologist (Neuropathologist), Rhode Island Hospital, Providence, Rhode Island, visited the department and participated in the Neuropathology Conference and Neurology Rounds. Dr. Ambler also presented a Neuropathology Slide Seminar to members of staff and residents.

Dr. Ian Carr, Department of Pathology, University of Saskatchewan, Saskatoon, Saskatchewan, presented a special seminar entitled, "Experimental Lymphatic Metastases".

Dr. Reg Gorczynski, Ontario Cancer Institute, Toronto, presented a special seminar, sponsored by the Cancer Research Division and the Department of Microbiology and Immunology, entitled, "Germ Line Inheritance of Acquired Immunological Tolerance: A Contravention of Darwinian Laws of Evolution?".

Dr. L. Routledge, Research Officer, Microbiological Chemistry Research Laboratory, University of Newcastle Upon Tyne, presented a departmental seminar entitled, "What are the functions of the external protein layers in bacteria?".

Dr. Robert Burton, Massachusetts General Hospital, Boston, Massachusetts, presented a special seminar, sponsored by the Cancer Research Group and the Department of Microbiology and Immunology, entitled, "NK Specific Alloantigens".

Dr. Bent Rubin, Centre d'Immunologie, INSERM-CNRS de Marseille-Luminy, France, presented a seminar entitled, "Specificity of Xenogeneic Antibody Against the T Cell Antigen Receptor".

Dr. Lola Reid, Department of Molecular Pharmacology, Albert Einstein College of Medicine, New York, N.Y., participated in a Mini-Symposium, sponsored by the Departments of Pathology and Microbiology and Immunology. Dr. Reid's talks were entitled, "Genetically Immunodeficient Mice as Tools in Tumor Biology" and "Host Factors (NK Cells) limiting the Growth of Human Prostatic Tumors in Nude Mice".

Dr. R.A. Phillips, Ontario Cancer Institute, Toronto, Ontario, participated in a Mini-Symposium, sponsored by the Departments of Pathology and Microbiology and Immunology. Dr. Phillips' talk was entitled, "Analysis of Potential Oncogenes in Human Retinoblastoma".

Sir Roger Bannister, CBE, DM(Oxon), FRCP, Consultant Physician at the National Hospital for Nervous Diseases, London, England, was the 1981 Brockington Visitor to Queen's University. Sir Bannister participated in the department Neuropathology Conference.

Dr. Zoltan Nagy, Department of Immunogenetics, Max-Planck Institute of Biology, Tubingen, West Germany, presented a seminar entitled, "T Cell Responses to I-Region Gene Products: Towards a Simplified View of the I-Region".

Dr. R.B. Herberman, National Institutes of Health, Bethesda, Md., participated in a Mini-Symposium sponsored by the Departments of Pathology and Microbiology and Immunology. Dr. Herberman's lecturer was entitled, "Immunity Against Tumors in Man".

Dr. E. Potworowski, Armand Frappier Institute, Montreal, Quebec, presented a seminar entitled, "Possible role of Two Distinct Thymic Stromal Fractions in AKR Leukemogenesis".

Dr. Derrick Dexter, Chief Pathologist, Plains Health Centre, Regina, Saskatchewan, and Professor of Pathology, University of Saskatchewan, presented a special seminar entitled, "Mitral Valve Disease".

Dr. Nathan Kaufman, Professor of Pathology, Queen's University and Secretary-Treasurer, United States-Canadian Division, International Academy of Pathology, Augusta, Georgia, presented a special seminar entitled, "Future Directions in Pathology".

RESEARCH GRANTS IN PROGRESS
1980 - 1981

April 1/80 - Mar. 31/81

<u>TITLE</u>	<u>GRANTING BODY</u>	<u>INVESTIGATOR</u>
Hormones in the control of growth and function of normal and malignant prostate cells	National Cancer Institute	Dr. A. Clark
Steroid Metabolism and Actions	Medical Research Council	Dr. A. Clark
Studies on the Functional Morphology of the Heart	Ontario Heart Foundation	Dr. A. de Bold
A morphological study of the pars intermedia of the adenohypophysis	Medical Research Council	Dr. A. de Bold
The isolation of a new natriuretic factor from heart atria	Banting Research Foundation	Dr. A. de Bold
Activated cytotoxic macrophages in host defence: Physiology, serology and biochemistry of interacting target and effector cell surface determinants	Medical Research Council	Dr. B.E. Elliott
Cell Interactions in Regulation Lung Maturation	Medical Research Council	Dr. W.A. Fletcher (Dr. B.T. Smith)
Development of Factor VIII Bypass	Alpha Therapeutic Corp.	Dr. A.R. Giles
An investigation of mechanism responsible for the thrombogenicity of prothrombin complex concentrates in patients with liver disease	Health & Welfare Canada; Health Programs Branch	Dr. A.R. Giles
Antibiotic therapy to bleeding in thrombocytopenic states	Ontario Ministry of Health	Dr. A.R. Giles
Detection, significance and applied use of membrane-associated antigen and receptor alterations on activated lymphocytes and macrophages	Medical Research Council	Dr. R.S. Kerbel
The Study of Human Cancer Metastasis in Congenitally Athymic "Nude" Mice	Dean's M.R.C. Account	Dr. R.S. Kerbel
Molecular Pathology - the protein synthesizing apparatus of liver cells in an induced pathological state: A biochemical dissection of pathological reactions	Medical Research Council	Dr. R. Kisilevsky

RESEARCH GRANTS IN PROGRESS
1980 - 1981

<u>TITLE</u>	<u>GRANTING BODY</u>	<u>INVESTIGATOR</u>
Amyloidogenesis: An analysis of the causative factors in an experimental murine model	Medical Research Council	Dr. R. Kisilevsky
Remyelination in the central nervous system: an ultrastructural, autoradiographic and immunohistochemical study in animals treated with Cuprizone	Medical Research Council	Dr. S. Ludwin
An immunohistochemical study of prostatic secretory acid phosphatase. Its specificity and ultrastructural localization in benign and malignant human tissues	Clare Nelson	Dr. P. Manley
Morphological aspects of drug-induced hepatotoxicity	Canadian Liver Foundation	Dr. T.F. McElligott
Mechanisms of cerebral damage in hypertension	Medical Research Council	Dr. S. Nag
Neuropathological studies in experimental diabetes mellitus	Medical Research Council	Dr. D. Robertson
Maintenance cost of electron microscope unit for the study of molecular pathology	Medical Research Council	Dr. D. Robertson
Research in cerebrovascular disease	Medical Research Council	Dr. D. Robertson (Dr. H. Dinsdale)
A program in tumor biology and immunogenetics	National Cancer Institute	Dr. D. Robertson (Dr. R. Kerbel, Dr. B. Elliott)
Liquid Scintillation Counter	Medical Research Council	Dr. D. Robertson
An investigation of the uptake of haemoglobin and ferritin by the mouse alveolar macrophage in vivo using electron microscopy and (2) of the loss of ^{59}Fe from mouse alveolar and peritoneal macrophages in culture, following ingestion of ^{59}Fe -erythrocytes and ^{59}Fe -haemoglobin	Medical Research Council	Dr. J. Wyllie

RESEARCH GRANTS IN PROGRESS
1980 - 1981

<u>TITLE</u>	<u>GRANTING BODY</u>	<u>INVESTIGATOR</u>
Studies of iron uptake by the rabbit alveolar macrophage; (a) interaction between iron and mitochondria and (b) ferritin as a cytosol iron transport protein	Medical Research Council	Dr. J. Wyllie

PUBLICATIONS 1980 - 1981

1. Increased Sensitivity of Rosetting Assay for Fc Receptors Obtained by Using Non-Hemmagglutinating Monoclonal Antibodies
R.S. Kerbel
J. Immunol. Methods 34:1, 1980
2. Surface receptors on lymphoreticular cells: sensory devices for host recognition of foreign antigens and neoplasia
B.E. Elliott, R.S. Kerbel, Z.A. Nagy
CMA J. 122:1361, 1980
3. Host Cell Analysis of a Rapidly Metastasizing Mouse Tumor and Derived Low-Metastatic Variant Lines
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ABSTRACTS 1980 - 1981

1. Lack of Evidence for an Activator of Factor V in Thrombogenic Extracts of Platelets
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3. Thrombogenicity of Prothrombin Complex Concentrate (PCC) In Vivo
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4. Accelerated Amyloid Deposition: the Effect of DMSO or Colchicine Treatment
R. Kisilevsky
Lab. Invest. 44:34A, 1981

PAPERS DELIVERED AT CONGRESSES
AND MEETINGS

Dr. A.F. Clark:- Dr. Clark (with Drs. D.E. Mahan and A.W. Bruce) presented a paper at the American Association for Clinical Chemistry meeting in Boston entitled, "Clinical Evaluation of Radioimmunoassays (RIA) for prostatic acid phosphatase". He also presented a paper (with Drs. T.G. Flynn, J. Downey, C.E. Bird, D. Mahan and M. Tenniswood) at the Second Pan American Congress of Andrology meeting in Mexico City, entitled, "Androgenic Control of Characteristics of Rat Prostatic Acid Phosphatase (PAP)".

Dr. W.E.N. Corbett:- Dr. Corbett (with Dr. T. Feltis) presented a paper entitled, "Bald Hairy Cell Leukemia" at the annual meeting of the Canadian Association of Pathologists in St. John, Newfoundland.

Dr. D.F. Dexter:- Dr. Dexter presented a paper entitled, "Pancytopenia due to Marrow Infiltration by Foam Cells in a Case of Familial Hyperlipidaemia" at the annual meeting of the Ontario Association of Pathologists in Kingston.

Dr. B.E. Elliott:- Dr. Elliott presented a paper at the International Immunology Conference in Paris, France, entitled, "Specificity and Affinity of T Cell Recognition Structures for Self- and Foreign Determinants". He also presented a paper entitled, "Co-Existence of Clones with Distinct Receptor Specificity in a Highly Selected Allo-activated T Cell Line" at the Conference on Immunoglobulins in Salt Lake City, Utah.

Dr. P.M. Ford:- Dr. Ford presented a paper entitled, "A Study of the Effect of Human IgM Rheumatoid Factor on Glomerular Deposits Following In Situ Immune Complexes Formation and Passive Serum Sickness in the Mouse" at the VIIIth International Congress of Nephrology in Athens, Greece.

Dr. A.R. Giles:- Dr. Giles (with Drs. K.G. Mann, M.E. Nesheim, P.B. Tracy, H. Hoogendoorn, M.A. Blajchman) presented a paper entitled, "Potentiation of In Vivo Thrombogenicity of Purified Xa by Platelet Derived Phospholipid" at the 18th Joint Congress of International Societies of Hematology and Blood Transfusion in Montreal, Quebec. Dr. Giles (with Drs. M. Nesheim, P. Tracy and K. Mann) presented a paper entitled, "The Coagulant Active Phospholipid Content of Prothrombin Complex Concentrates is a Critical Determinant of Their In Vivo Thrombogenicity" at the International Society of Thrombosis and Hemostasis. He also presented a paper entitled, "Significant Differences in Bleeding Time and Blood Loss Between Males and Females Following Aspirin Ingestion" (with V. Young, J. Pater and W.E.N. Corbett) at the International Society of Thrombosis and Hemostasis. At the XV Canadian Congress of Neurological Science Dr. Giles (with Drs. H. Abpollah, D. Howse and R.J. Riopelle) presented a paper entitled, "An Unusual Case of Acute Inflammatory Polyneuropathy".

Dr. R.S. Kerbel:- Dr. Kerbel presented a paper entitled, "Implications of Tumor Cell Heterogeneity" at the Gordon Research Conference on "Cancer". At the American Association for the Advancement of Science meeting he presented a paper entitled, "The Cell Surface Cancer Metastasis". He presented a paper entitled, "Cancer Metastasis" at the Sixth Canadian Science Writers Symposium. Dr. Kerbel presented a paper entitled, "Eradication of Established, Widespread Visceral Metastases from a Poorly Immunogenic Tumor Using T Cell Sensitized Against Highly Immunogenic Tumor Variants" at the annual meeting of the Federation of American Societies for Experimental Biology. At the XIVth International Leucocyte Culture Conference Dr. Kerbel presented a paper entitled, "Syngeneic CTL Responses of Allogeneic Magnitude Induced Against Membrane Mutant Sublines of a Poorly Immunogenic Tumor".

Dr. R. Kisilevsky:- At the Canadian Federation of Biological Sciences meeting in St. John's, Newfoundland, Dr. Kisilevsky (with F.W.G. Kaifosh) presented a paper entitled, "A Precursor-Product Relationship Between the SAA (SAAL) and AA Protein of Secondary Amyloidosis". Dr. Kisilevsky presented a paper entitled, "Accelerated Amyloid Deposition: The Effect of DMSO or Colchicine Treatment" at the International Academy of Pathology (U.S.-Canadian Division) meeting in Chicago, Ill. At the 1981 meeting of the Canadian Federation of Biological Sciences Dr. Kisilevsky (with R.P. McGuire and B.T. Eaton) presented a paper entitled, "Ribosome Topographical Changes in Sindbis Virus Infected Cells". He also presented (with R.P. McGuire and B.T. Eaton) the same paper at the Fifth International Congress of Virology in Paris, France.

Dr. A. Lagarde:- Dr. Lagarde presented a paper entitled, "E. Coli pH-conditioned Growth Mutants on 3-deox-2-oxo-D-Gluconate: altered transport properties" at the meeting of 'Cation Translocation', Societe de Chimie Biologique, Clermont-Ferrand, France.

Dr. S.K. Ludwin:- Dr. Ludwin presented a paper entitled, "Leptomeningeal Striated Muscle Heterotopia" at the American Association of Neuropathology meeting in New Orleans. At the Canadian Association of Neuropathologists meeting in Saskatoon Dr. Ludwin (with Dr. E.S. Johnson, Dr. R.J. Riopelle, and Dr. R.A. Bell) presented a paper entitled, "Opsoclonus polymyoclonus and delirium as a remote effect of carcinoma in an adult". Dr. Ludwin presented a paper entitled, "Leptomeningeal and Subpial Hemosiderosis Complicating Cerebrovascular Amyloidosis" (with Drs. G.R.W. Moore and S. Nag) at the Canadian Association of Pathologists meeting in St. John's Newfoundland.

Dr. T.F. McElligott:- Dr. McElligott (with R.M. Walker) presented a paper entitled, "Acetaminophen Toxicity in Fed and Fasted Mice" at the Canadian Federation of Biological Societies meeting in Montreal, Quebec.

Dr. S. Nag:- Dr. Nag presented a paper entitled, "Cerebrovascular Permeability in Mechanically Induced Hypertension" at the Canadian Congress of Neurological Sciences in Ottawa. At the Ontario Association of Pathologists meeting in Kingston she presented a paper entitled, "Cerebrovascular Permeability in Mechanically Induced Hypertension". Dr. Nag presented a paper (with Drs. H.B. Dinsdale and D.M. Robertson) at the American Association of Neuropathologists meeting in Vancouver entitled, "Intracerebral Arteriolar Permeability to Lanthanum in Hypertension". Dr. Nag presented a paper entitled, "Permeability of Intracerebral Arterioles to Lanthanum" (with Drs. H.B. Dinsdale and D.M. Robertson) at the 10th International Symposium on Cerebral Blood Flow and Metabolism in St. Louis, Missouri.

Dr. D.M. Robertson:- Dr. Robertson presented a lecture to the London Neurosciences Association entitled, "Experimental Diabetic Neuropathy - a valid model?".

Dr. H.D. Steele:- Dr. Steele (with Drs. R.H. Gorwill, and I.R. Sarda) presented a paper to the annual meeting of the Canadian Fertility and Andrology Societies in Val David, Quebec. The title of his paper was "The Effect of Clomiphene Citrate on the Developing Mouse Vagina".

Dr. S.M. Wasan:- Dr. Wasan (with Drs. A.F. Cruess and W.E. Willia) presented a paper entitled, "Corneal Epithelial Dysplasias and Carcinoma-in-Situ" at the Canadian Ophthalmologic Society meeting in Vancouver, B.C. Dr. Wasan (with Dr. L. Dragovic) presented a paper entitled, "Osteogenic Sarcoma in Cystosarcoma Phylloides" at the annual meeting of the Ontario Association of Pathologists in Kingston.

INVITED LECTURES

Dr. A.F. Clark :- Dr. Clark presented an invited lecture entitled, "Androgenic Control of Characteristics of Rat Prostatic and Phosphatase (PAP)" at a Symposium on Biochemical and Pathobiological Aspects of Male Accessory Sex Organs at the Second Pan American Congress of Andrology in Mexico City in 1981.

Dr. B.E. Elliott:- Dr. Elliott presented an invited lecture entitled, "Specificity and Affinity of T Cell Receptors for Self- and Allo-MHC Antigens" at the Karolinska Institute, Stockholm, Sweden, August 1980; at the Immunology Institute, Marseille, France, July 1980; at the Basel Institute for Immunology, Basel, Switzerland, September 1980; at the Department of Genetics, Max Planck Institute, Tubingen, West Germany, September 1980, and at the Cancer Research Institute, Heidelberg, West Germany, September 1980.

Dr. P.M. Ford:- Dr. Ford was an invited lecturer at McMaster University in Hamilton in September 1980. His talk was entitled, "In Situ Immune Complex Formation in the Kidney".

Dr. A.R. Giles:- Dr. Giles presented a lecture entitled, "Theoretical Possibilities for Factor VIII Bypassing Activity by a Combination of Phospholipid and Xa" to the Scientific Directorate of Alpha Therapeutic Corporation, Los Angeles, California, February 1980. He was also an invited lecturer at the National Canadian Plasma Exchange Group in Ottawa in December 1980, presenting a lecture entitled, "A Double-Blind Control Study of Plasmapheresis in the Treatment of Severe Rheumatoid Arthritis". Dr. Giles was an invited lecturer at the Subcommittee on Factor IX and Factor IX Concentrates of the International Society of Thrombosis and Hemostasis in Boston in July 1980. His lecture was entitled, "Correlation of Coagulant Active Phospholipid Content of Factor IX Concentrate with *In Vivo* Thrombogenicity".

Dr. R.B. Kerbel:- Dr. Kerbel was an invited lecturer on the following occasions:

1. "Immunological Aspects of Tumor Heterogeneity" Gordon Conference on Cancer, New London, New Hampshire, August 1980.
2. "Implications of the Cellular Heterogeneity of Tumor Cell Populations" Ontario Cancer Foundation Lecture, annual meeting of the Ontario Association of Pathologists, Kingston, September 1980.
3. "An Immunobiological Approach to the Study of Cancer Metastasis" Department of Microbiology, University of California, Irvine, California, November 1980.
4. "Tumor Heterogeneity: Characteristics and Implications", Veterans Administration Hospital, Long Beach, California, November 1980.
5. "Eradication of Established Visceral Metastases of Poorly Immunogenic Tumor Using Killer T Cells Sensitized Against Highly Immunogenic Tumor Variants", Basic Cancer Research Centre, Frederick, Maryland, December 1980.

Dr. R.B. Kerbel:-

6. "Eradication of Established Visceral Metastases of Poorly Immunogenic Tumor Using Killer T Cells Sensitized Against Highly Immunogenic Tumor Variants"-- Dr. Kerbel presented this lecture at the Manitoba Institute for Cell Biology, Winnipeg, February, 1981; at the University of Saskatchewan, Saskatoon, February, 1981; and at the University of Alberta Departments of Biochemistry and Immunology, Edmonton, February 1981.
7. Dr. Kerbel was an invited lecturer at the Sixth Canadian Science Writers Symposium, Toronto, March, 1981, and presented a lecture entitled, "Cancer Metastasis".
8. Dr. Kerbel was an invited lecturer at the Symposium on Tumor Heterogeneity, Invasion and Metastasis, Saskatoon, June, 1981.
9. Dr. Kerbel was an invited lecturer at Villejuif, France, June, 1981, and presented a lecture entitled, "An Approach to Studying the Genetics and Cell Biology for Tumor Heterogeneity and Cancer Metastasis Using Lectin-Resistant Tumor Variants".
10. Dr. Kerbel was an invited lecturer in the Dept. of Genetics, Ludwig Institute for Cancer Research, Brussels, Belgium, in June, 1981, and presented a lecture entitled, "An Approach to Studying the Genetics and Cell Biology of Tumor Heterogeneity and Cancer Metastasis Using Lectin-Resistant Tumor Variants".

Dr. R. Kisilevsky :- Dr. Kisilevsky was a Visiting Professor at the University of Montreal, Department of Biochemistry, in January, 1981, and presented a lecture entitled, "From Foie Gras to Spaghetti". Dr. Kisilevsky was also a Visiting Professor at the Department of Pathology, Dalhousie University, Halifax, in May, 1981, and presented a lecture entitled, "Some Thoughts on the Pathogenesis of Amyloidosis".

Dr. S.K. Ludwin:- Dr. Ludwin was a Visiting Lecturer at Wayne State University, Detroit, Michigan, in October, 1980, and presented a lecture entitled, "Studies on Central Nervous System Remyelination". At the Workshop on Myelin Assembly, in Colorado, January, 1981, Dr. Ludwin presented a lecture on "Remyelination", at the Winter Conference on Brain Research. Dr. Ludwin also presented a lecture entitled, "The Pathology of Demyelination and Remyelination" at an International Symposium on Multiple Sclerosis in Vail, Colorado, in January 1981.

Dr. P. Manley:- Dr. Manley presented a lecture on "Non-Ulcer Dyspepsia" at the International Conference on Gastritis in Addis Ababa, Ethiopia, in January, 1981.

Dr. S. Nag:- Dr. Nag presented a Neuropathology Slide Seminar and a Research Seminar on "Cerebrovascular Permeability in Acute Hypertension" at G.S.V.M. Medical College, Kanpur, India, in August, 1980. She also presented a Neuropathology Slide Seminar at King George Medical College, Lucknow, India, in August, 1980. In addition Dr. Nag presented a Neuropathology Slide Seminar and a Research Seminar entitled, "Permeability Mechanisms in Cerebral Vessels Under Normal and Abnormal Conditions" at the India Institute of Medical Sciences, New Delhi, India, August, 1980.

INVITED LECTURES

Dr. M. Raymond:- Dr. Raymond attended a meeting at Wilmington, Delaware, as a guest of Dupont of Canada to discuss future plans for Dupont's research and development in Clinical Chemistry. Dr. Raymond was invited as an experienced user of the current Dupont ACA Analyzer.

Dr. D.M. Robertson:- Dr. Robertson was an On Site Visitor at the University of Saskatchewan, Saskatoon, November, 1980. Dr. H. Barkun, Montreal General Hospital, and Dr. Robertson conducted a site visit of the Department of Pathology, University of Saskatchewan. Dr. Robertson was a Visiting Professor at the University of Western Ontario December, 1980. He presented a lecture entitled, "Experimental Hypertensive Cerebrovascular Disease". Dr. Robertson was a Visiting Lecturer at the Montreal General Hospital in May, 1981. Dr. Robertson presented a talk entitled, "Experimental Diabetic Neuropathy".