

1991-2002
Department of Pathology:

Introduction:

Paul Manley succeeded Robert Kisilevsky as Acting Chair in 1991 and then as Chair in 1992. He maintained his position his position as Director of Laboratories of the Kingston General Hospital, a position he had held since 1986, and also acquired the Ex-Officio position of Pathologist-in-Chief of the Hotel Dieu Hospital. This was the first time in the modern departments era that the Head of the University and the directorship of a Hospital Laboratory were jointly held.

The 11 years of Dr. Manley's tenure as Chair were marked by funding crises generated by a growing provincial deficit, the dramatic political transition from a New Democrat government unwilling to raise tuitions to a Conservative government cutting taxes. There was intense pressure on the university budgets leading to a multi-year decrease of the university budget by approximately 25% and continuing pressures to maximize efficiency within the hospital budgets. Our Queen's programme chose to cut 1 ½ secretarial positions and 2 technologist positions in order to maintain our complement of fully Faculty funded positions. This transition was facilitated by the increasing use of information technology and word processing by individual faculty members, the phasing out of our specimen container museum and student slide collections and the progressive decline in the use of electron microscopy all of which required significant technological assistance.

The challenge for the department during the 1990's was attracting high quality faculty and providing a workplace in which they could be productive, acquiring the appropriate technology for both research and the Clinical Laboratories and providing the needed renovations for our deteriorating research space in Richardson Laboratory and the hodge-podge of laboratories at the Kingston General Hospital. By 2002 Richardson Laboratory had been totally redesigned and rebuilt, the hospital laboratories at the Hotel Dieu and KGH had been totally integrated into newly renovated functional space on Douglas 1 to 4 and several multidisciplinary research groups initiated by the department in Cancer Biology, Hemostasis, and Amyloidosis were extraordinarily productive in expanded new research space.

The other major current running through the '90s was the forced conversion in Canadian medical undergraduate education from a specialty lecture-based curriculum in which Pathology had a large and visible role to an organ-based, to a more problem oriented curriculum in which the courses in Pathology were limited to general themes in Year 1 and our visibility was dramatically reduced in subsequent years. This coincided with mandated changes and postgraduate education such that undergraduate students were forced to decide on careers in the second and third year medical school. Consequently a variety of specialties, and especially Pathology suffered a marked reduction in applicants. This was exacerbated by a nationwide decision to cut the number of medical training positions in Canadian schools by 10% and at the same time to restrict the entry of foreign-trained professionals through licensure provincially into our health care systems. Our residency programme plummeted from a peak of 21 in the '80s to 2 in the late 1990's. Our recovery has only begun by 2003.

Faculty:

During the 1990s major stalwarts of the department including Drs. David Robertson, Bill Corbett, Alan Giles and Bob Prentice left the department, the latter three taking early retirement. Frank McElligott took a leave of absence to be Medical Director in British Columbia. Their loss was tempered by the wonderful new faculty we hired at a time when the number of pathologists and thus many applicants vying for the available positions. In 1994 we hired John Rossiter in Neuropathology, one of several MD PhD's applying for the position, David LeBrun after several years research experience at Stanford and David Hurlbut after a year of Fellowship training in gastrointestinal pathology in Boston. Caroline Rowlands followed a year later and brought expertise in dermatopathology to replace Dr. Santosh Wasan. Dilys Rapson progressed from a half-time appointment in Hematopathology in 1997 to a fulltime appointment by January 1, 2002. She succeeded Lois Shepherd as the Director of Hematopathology. Both Drs. Alan Fletcher and Sally Ford took early retirement in 2000 and were replaced by Drs Tim Childs and Phil Isotalo. In the Cancer Biology Research Group soft money funding initially through NCI Terry Fox funds and then through a combination of the Cancer Care Ontario, the NCI and MRC provided scholarship positions for a large number of superb scientists who over the 1990s had to be moved from soft money to hard money positions. This was most dramatic in Bruce Elliott's case who maintained a research scholarship support from the NCI for 15 years and then was

funded through hard departmental Queen's money support derived from a sharing of Faculty of Medicine resources and Queen's MD salary segregated for that purpose during Bob Kisilevsky's era. Peter Greer, hired in 1991, was given tenure-track hard money, again by the Department of Pathology 10 years after his initial appointment in the Department in 1991. Two primary appointees in our Department, Martin Petkovich and Chris Mueller left the department to acquire tenure-track positions in Biochemistry. Roger Deeley left Biochemistry as a primary appointment to acquire the Joseph Stauffer Chair in 1987 and has maintained his primary in Pathology since then as a matter of choice. Susan Cole switched her primary from Pharmacology to Pathology in 1996, all the while being supported by CCO.

Dr. Alan Giles through a scholarship from the Heart and Stroke Foundation of Ontario was able to attract and fund Don Maurice from his scholarship funds. Our Department provided support for two years and then Don acquired the highly competitive Pharmaceutical Association of Canada/MRC scholarship providing salary support for 5 additional years. To maintain his position in the Faculty, Don had to switch his primary to Pharmacology where he acquired a tenure-track position. During that era, Alan also supported Mary Richardson, a PhD with expertise in hemostasis and electron microscopy, for approximately 7 years. Alan was also critical in attracting other members of the hemostasis group including world renowned Mike Nesheim from the Mayo Clinic and Marlys Koschinsky from Genentech. Both found homes in Biochemistry. Most important to the Department of Pathology, Alan was an extraordinarily important mentor and supervisor of David Lillicrap who has gone on to effectively utilize our hemophilic dog colony at Queen's and to develop a world renown programme in Von Willebrand's disease and the genetics and potential gene therapy of hemophilia. The Department has thus been an important nucleus of evolving multidisciplinary groups in research. Our major strength was to attract and support brilliant and entrepreneurial investigators and not to stand in their way as they acquired resources and space. We tried to minimize our departmental parochialism as much as possible while evolving a relationship with groups that were appropriately more focused on the groups productivity rather than the department's parochial interests. Our model was based on Canadian federalism with a strong but flexible central authority that recognized the need for responsible and effective regional autonomy.

Lastly Dick Zoutman replaced Paul Chadwick whose primary was in Microbiology as Director of the KGH Microbiology lab. Dr. Zoutman's primary shifted to Pathology in 1994 with a cross-appointment as an Infectious Disease physician in the Department of Medicine and the Head of the KGH Infection Control Service. Gloria Delisle retired early from our Department retiring as Head of the Combined KGH/HDH Microbiology Lab and was finally replaced by Tim Karnauchow and then Michael Liao.

In 2001 the Faculty and the University and KGH implemented the recommendations of a Genetics Review Team chaired by Dr. David Lillicrap. Clinical Genetics, which initially had a pediatric focus, soon encompassed a variety of adult diseases and expanded into predictive cancer counseling. With a decision to integrate both clinical and laboratory genetics within the Department of Pathology, which was the focus of the major academic effort in genetics, Mohamed Khalifa, a clinical geneticist and Lois Mulligan, a PhD researcher with expertise in the RET oncogene transferred their appointments to our department. We also acquired the administrative responsibility for the entire clinical genetics unit including 4 genetics counselors. This integrated clinical/laboratory group was seen as an appropriate seat for a newly endowed Bracken Chair in Genetics with a capital endowment of \$3.2 million. Harriet Feilotter, a clinical molecular geneticist/researcher joined the department in 2001 and her appointment was made permanent when she formally replaced Jenny Raymond who took early retirement. Harriet is focusing on predictive cancer testing in the Molecular Diagnostics Laboratory and developing our Microarray Laboratory.

Major Faculty Accomplishments:

Roger Deeley, Susan Cole, David Lillicrap and Bob Kisilevsky were all awarded the Queen's University Prize for Excellence in Research. Six researchers have won this award in our department, more than any other department in the entire University. David Lillicrap and Susan Cole were amongst the first at Queen's University to receive a Tier I Canadian Research Chair. Robert Kisilevsky was awarded the Boyd Lectureship Award in 1992, the highest honor bestowed by the Canadian Association of Pathologists and also the Annual Research Award of the Alzheimer's Society. Many members also held major leadership positions. Sam Ludwin served as the President of the International Society of Neuropathology, Sandip SenGupta as the

President of the Canadian Association of Pathologists, Paul Manley as the Head of the Canadian Chairs of Pathology, Roger Deeley as the Research Director for Cancer Care Ontario.

Individual and group research accomplishments included the discovery and characterization of MDR1, a major transmembrane transporter that confers drug resistance by Roger Deeley and Susan Cole, and the founding of Neurochem, Canada's largest biopharmaceutical IPO based on the work of Bob Kisilevsky. Equally importantly was the progressive success amongst all the active researchers in our department. At the time of our Internal Academic Review in 1997, Queen's University provided the following calculated data which is self-explanatory.

	Average Yearly Funding/ Funded Faculty		6 year (92-98) Total \$ Funding
Pathology	172,948	Pathology	14,658,079
Biochemistry	120,839	Biochemistry	11,170,132
Pharmacology	94,353	All Clinicians	10,203,099

We had by far the highest total departmental funding and the highest per funded medical faculty member during the period 1992-98. According to our departmental survey amongst Departments of Pathology in the country, our funding was the highest per faculty member in Canada. This is of course reflects the aggregate achievement of multiple individual members of the department. Its also an affirmation of the departmental policy of focusing research expectations on a limited number of extraordinary individuals and granting them the time and some of the tools to succeed.

Education:

Our major challenges in the 90s were undergraduate and postgraduate education in which we had limited success. Sam Ludwin, as the Vice-Dean focused on research, had to grapple with the problems common to most Canadian and US Departments of Pathology, underlying the de-departmentalization of the curriculum into a decentralized problem oriented organ-based approach, and the decreasing residents within the postgraduate programs.

Our involvement in undergraduate education was defined extradepartmentally by organ-based groups setting their own curriculum for their system and then deciding who would be involved in their lecture and seminar programs. In some systems such as neuropathology we had a large role and in others a minimal one. This Faculty curriculum effectively took the organization of a major part of the undergraduate program out of the hands of the department and placed it ad hoc into groups of diverse different departmental members. Some of our successes within the program include organ-based seminar teaching using plastinated specimens and Medical Science Round integrated Basic Science and Clinical Medicine for first year students. The breadth of our curriculum was maintained with teaching in Rehab Medicine, Nursing and especially the Life Science and Graduate Programs. An extraordinary continuing success was the development of an enrichment program for exceptional high school students with a one week course in introduction to Pathology and Molecular Biology given by a graduate student and occasionally resident which proved the most highly subscribed in the entire university.

Our Postgraduate Education Program suffered more than many in the country. Our positions decreased from approximately 20 down to a low of 2 reflecting the decreased number of medical students, the exclusion of foreign medical graduates with access to pathology programs, the perceived lack of jobs and income in pathology in the later 1990s, and the aforementioned reduction in postgraduate training positions and change in licensing requirements. Decision on a specialty were usually made by students in their second and third year and restriction of a license to practice medicine until successful completion of the Royal College specialty examination.

Our Graduate Program evolved through the success of our researchers with graduate students increasing from 10 in 1990 to 26 in 1997. They are focused predominantly in the Cancer Research and Hemostasis groups.

Kingston Hospital Clinical Laboratories:

Critical to the success of any clinical laboratory are the number and quality of its staff, the instrumentation, and the layout of the space to enable industrial process efficiency and a pleasant working environment. My major goal as Director of Laboratories at KGH from 1986 was to transform the laboratories from its hodgepodge of isolated space with no clear functional relationships amongst the lab, Department of Pathology Faculty, Clinical Services in the hospital and Richardson Laboratory. By 1999 both HDH and KGH hospital laboratories had been integrated into totally renovated space on Douglas 1 to 4 with most floors in very close functional relationship to pathology faculty and to the clinical services. This plan was broadly developed in the late 1980s as a functional space plan with no hope at the time of completing it. We sited Anatomic Pathology on the second floor in close relationship to the KGH Operating Room with faculty offices between the OR and the combined Cytology/Histopathology laboratory with easy access to disciplinary clinical colleagues and cytotechnologists. Microbiology Lab was sited on the 3rd floor with clinical microbiologists and all infection control again between the laboratory and the hospital. The corridors were so planned with no real architectural or perceived decorating barriers between our department and the rest of the hospital. Clinical Genetics and Laboratory Genetics including Cytogenetics, DNA, and Biochemical Genetics was to occupy the entire 4th floor again with both easy access to the hospital and to the research space in Richardson.

During the early 1990s we repeatedly had laboratory rationalization meetings between the Kingston General Hospital and the Hotel Dieu Hospital. In spite of the title of Pathologist-in-Chief bestowed upon the Head, the authority at the Hotel Dieu was firmly held by the hospital administration and these joint talks were endlessly frustrating with minimal tangible successes. The Outreach Programme was run out of the KGH, with no initial involvement by choice of the HDH faculty, of the Hotel Dieu. The Outreach Program at that time was expanding rapidly as detailed in a prior report. We won competitive contractual bidding for Smiths Fall, Correctional Services, Kingston Psychiatric and reference work for the Oshawa/Peterborough hospitals. Correctional Services and KPH were later lost to private industry in subsequent competitive bidding. But our volumes continue to increase from our largest client/partners, the regional hospitals, and later MDS, Ongwanada and the Canadian Forces Base Kingston. The success of our program was due to the value that we delivered to these hospitals. We offered them a

reference laboratory service at a price equal to or better than that offered by competitors, and departmentally administered a daily courier system, and included rapid report delivery system which evolved with some difficulty into on-line computer reporting. The hospital wisely devolved entire responsibility to us for regular meetings with regional hospitals including their chief administrators, the development and signing of the contracts, and the managing of the entire program and courier system. The major strength of our program, considered the best in Ontario, was our on-site visit by Pathologists, Clinical Chemists and in the last few years by Hematopathologist's to provide significant on-site subspecialty expertise. At the same time surgical specimens from Napanee, Picton, Perth/Smiths Falls and the Canadian Forces Base and area dermatologists were given rapid turnaround time and focus subspecialty expertise. Dr. SenGupta provided overall strong administrative support for this program and has recently further enhanced its subspecialty focus. The program delivered multiple benefits to the technical hospital laboratory by enhancing the volume of our industrial plant by approximately 20% while requiring no change in instrumentation and relatively little increase in staff. As pathologists we acquired 15% more surgical pathology work volume and larger increases in Cytology from MDS, which allowed us to further enhance our subspecialty expertise and a fund also accrued both the Department and the KGH. The major change in this program post 1986 was billing at market rates for our faculty time spent as directors on site and per specimen for both the technical and the professional work. Prior to 1997 the remaining net profit was shared equally between the department and the Kingston General Hospital. This concession on profit sharing by the hospital required multiple high level administrative meetings and then direct politicking with Board members to get the administrative refusal to grant us any funds overturned. We then shared the net Outreach income with the hospital. But until 1997 the VP Operations in charge of our laboratory refused to relinquish any of it to the department. In 1994 a similar relationship evolved more smoothly with HDH and we were allowed to bill OHIP for professional and technical fees in external dermatology and cytology for anatomic pathology consultations. After persistent administrative wrangling KGH agreed that the retained departmental share of \$1,000,000 be turned over to the department and form the basis of our Clinical Research Trust. After 1997 we developed a new fiscal relationship such that KGH kept all of the technical fees and we had full discretion of all of the professional and directorial fees while we continued to administer the program. Queen's Hospital Pathology Associates, a clinical practice group similar

to those in most departments of the United States, was constituted to recommend on use of these funds.

In the 1990s the frailties of the Kingston Joint Liaison model became much clearer when our two major hospitals, the Hotel Dieu and the Kingston General Hospitals, were unable to define any further meaningful rationalization of services. By 1997 however, the funding pressures, and a change in the political environment such that a recently constituted restructuring commission could potentially mandate changes caused our two hospitals to reach an agreement, KGH would become the acute care in-patient facility and Hotel Dieu an ambulatory facility; while both would maintain their integrity and administrative authority. Prior to any mandate delivered by the restructuring commission or Provincial lab review the Hotel Dieu decided to proceed with lab restructuring. We quickly put into place our 1980s functional plan and with the uncharacteristically extraordinarily rapid and full support of the KGH proceeded initially without architectural plans to develop our clinical laboratories from floors 1 to 4 progressively while keeping full clinical services intact. The major planning direction and project management of this fell to David Piper; all of the reconstruction funds were provided by the KGH and indirectly the Hotel Dieu through significant savings in the lab budget which amounted to approximately 18% over three years or 2.5 million dollars. Unions agreed to merge their seniority lists so that all members were treated fairly. Management was merged and rationalized. Although the number of part-timers significantly decreased, no fulltime members were terminated. Some staff took early retirement with the aid of a generous HOOOP early retirement benefit package. The laboratory at the Hotel Dieu constructed for 2.5 million dollars in 1993 without any planning input or discussion with KGH provided a source of superb laboratory equipment. Over the next 2 years we developed excellent functional space on our upper floors and a compromise in the Douglas 1 Core Laboratory due to a tight space. Our efficiency became the best in the country for any academic health science centre and our work places in Histology, Microbiology and Genetics better equipped and much more pleasant. The laboratory at the Hotel Dieu was reduced from 50 staff to 1 and became an appropriate STAT testing lab to meet the needs of the clinics at the Hotel Dieu.

This consolidation also allowed our faculty, especially those in Anatomic Pathology to further focus their subspecialty grouping and enhanced their expertise and efficiency. Hotel Dieu

faculty were now fully involved in the Outreach Program and in the managerial direction of portions of the Anatomic Pathology laboratory with Caroline Rowlands acting as the founding director of Cytogenetics, David Dexter succeeding Sally Ford as the Head of our Regional Forensic Pathology Group and David Hurlbut acting as the lead in GI Pathology, and Gloria Delisle as director of the combine Microbiology laboratory. Our success in the late 1990s was a balm to soothe the acrimony of the preceding 10 years which saw the firing of a KGH President and VP Operations and the suggestion in 1996 by Hugh Graham, the Executive Director at Hotel Dieu, that Paul Manley be terminated as the Head. In 2000, along with London and Ottawa, we joined Hamilton and Toronto as Regional Forensic Centres. In our negotiations with the Ministry we acquired \$150,000 per year. Some of this provided the source of funds for a major new renovation of the morgue. Other funds support the running of the unit and the enhanced focused forensic expertise within the department.

The acquisition and use of information technology was critical to the success of the clinical department during this period. The first Laboratory Information System was bought in the 1980s and upgraded in the 1990s. With the continual involvement of a team including David Piper, Mike Raymond, Sandy Boag and Kevin Kell, we have been able to introduce and maintain modifications to provide a variety of sophisticated desktop aids to the department including Web Imaging and our own Network, the first departmental one in the University. It is important to emphasize many of the special qualities of our staff who were critical to our success. I especially think of David Piper in the development and planning and hands-on management of both the Richardson Laboratory, the Kingston General Hospital laboratories, the finances of the department and our evolving computerization, Kevin Kell in extraordinary computer support, Lloyd Kennedy, Canada's first and best Pathology Assistant, in digital imaging and and Blake Gubbins in the development of Canada's first plastination lab, the host of the International Plastination Conference at Queen's and the recipient of the Queen's University Staff Award.

Construction of Richardson Laboratory:

The structural problems with Richardson Laboratory were granted high priority for renovation in the early 1990s. But how could this be accomplished with a limited renovation project budget? The University, at Dean Sinclair's urging, came up with an innovative proposal of bringing forward renovation funding from subsequent years into the year 1992 and to totally renovate the

building at one time rather than initially planned, one floor at a time. We worked extraordinarily closely and firmly with the architects and with departmental members to develop functional office and, research and teaching space that would meet the needs of existing members. The department was decanted into the old renal unit space now occupied by the Anatomic Pathology Laboratory and researchers were focused in temporary space in Etherington Hall, the LaSalle Building while research work expanded in the Syl and Molly Apps KGH research wing and at Botterell Hall. At its completion we had extraordinarily functional well equipped open laboratories utilized predominantly by the Genetics group. The increased Richardson research space allowed us to provide research facilities for cross-appointees in the department from Paediatrics as members of the Genetics Group, including Lois Mulligan and Mohamed Khalifa, who were later to be integrated into our department, and to the Neuropathologists and David LeBrun. The new facility was formally opened with the Richardson reunion in a joint meeting in 1992 with the Ontario Association of Pathologists and provided a focus for the evolving Queen's Alumni Group.

The opening of Richardson Laboratory provided the impetus to begin a formal program of celebrating the contributions of past departmental members. Our specially designed library which encompassed quiet reading areas and well equipped computer facility for students and staff was named for Dr. Robert More. Lectureships were set up, first for Dr. Nathan Kaufman and then Dr. Daria Haust. Eighty-fifth and eightieth birthdays were used as occasions to celebrate with Drs. Bud Kipkie and Howie Steele. The work of the Alumni Group stimulated by Dr. Daria Haust began to publish appropriate biographies and histories of the department and its major divisions. During the periods of significant funding shortfalls in Ontario in both the university and hospital budgets, the department was able to accumulate discretionary funds. Our sources included overhead from a small group of very successful researchers, predominantly Alan Giles, Bob Kisilevsky and David Lillicrap, and the NCI Tissue collection contract competitively won in bidding from the University of Ottawa. This money was segregated within our Queen's budgets. Through the hospitals the trust funds begun at the KGH had accumulated one million dollars by 1997. This was endowed as a Clinical Research Trust to fund clinical faculty. The Hotel Dieu Clinical Research Trust Fund by 1999 had accumulated \$500,000 and this recently was transferred to a Pathology Heads' Trust Fund for discretionary support of departmental activities. In addition a small number of donors, especially Dr. Daria Haust who

endowed our first trust fund have been very generous to the department,. Through the aid of the investment success of Queen's and some small additional donations, the Haust Fund capital in 2002 was \$200,000. By 2002 the Department had approximately three million dollars in Queen's endowed Trust funds used to support a wide variety of scholarly activities in the department.

The Department has continued its tradition of focused expertise in basic research, now more than ever focused in multidisciplinary groups. Our university and Hospital facilities were totally renovated and functionally integrated. Our professional inter-relationships continue to deepen throughout the region where we are increasingly utilized as subspecialty experts in all the laboratory disciplines and for managerial and technical support. Throughout this period our management structures had become significantly devolved such that the Head may have sat Ex-Officio on many committees but responsibility was devolved onto committee chairs along with defacto authority. In the hospital a formal divisional structure was implemented in 1991 with Divisions of Clinical Chemistry, Hematopathology, Anatomic Pathology, Microbiology, and Laboratory Genetics. Each of these Divisions had their own medical/PhD director and manager. The number of formal divisional meetings increased while there was a dramatic decrease in the overall departmental Queen's and Hospital meetings. More useful business was accomplished in focused meetings and information was made available by e-mail or through the development of our Pathology Newsletter. The structure allowed us to accomplish much more within Divisions and thus collectively as a Department but also contributed to divisionalism, a formal bureaucratic manifestation of the normal parochial human response to complexity. We've become larger, more complex, and expert but less intimate.

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