
Pathology News

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December 1999

End of the 1900s

Publishing Info

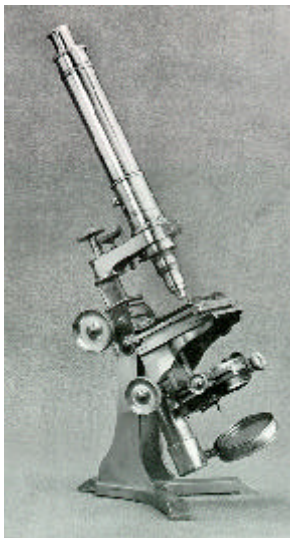
Pathology News
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For article submissions please see last page

We publish only that which is submitted! (There are no expense accounts and no reporters) If there is no news about your area that means we haven't received any!

21 days until 2000 January 01



From The Head

F Governments now believe that education and research are critical investments for future prosperity. They are spending more dollars with much more publicity, often focussed on multidisciplinary team research. Industry is a preferred partner with the expectation that basic research insights will be guided more efficiently into useful products and viable companies.

Given the extra infusion of funds into infrastructure through the Canadian Innovation Fund, graduate and postdoctoral support through the Premier's Research Excellence Award and the restitution of prior year funding to our major national research funding agencies, it seems impolitic to be critical. Not so for our most respected and secure scientists, Michael Smith, John Polanyi and Ursula Franklin. In the last few months they have argued forcibly for much more peer reviewed operational and personnel support funded through our major funding agencies. Michael Smith is concerned about the "tremendous naivete and boosterism" from politicians about industrial contributions to university based research in biomedicine.

On the same day, Thursday, November 25th, that a variety of our new funding awardees were celebrated at the Queen's University Club, the following appeared in the Business Report of the Globe and Mail. Two biotech companies are mentioned - Neurochem and Dusa.

CANADIAN BUSINESS

B12 - Thursday, November 25, 1999

THE GLOBE AND MAIL

PHARMACEUTICALS

Neurochem links with Danish Firm

Neurochem Inc. of Montreal has signed a research deal valued at up to \$24.5-million (U.S.) With **H. Lundbeck AS**, a Danish drug company, to develop therapies to treat Alzheimer's disease. The three-year accord also provides for equity investments in Neurochem and royalties based on product sales. Alzheimer, Neurochem's lead product for Alzheimer's, began Phase I clinical trials in June.

Dusa, Schering in Marketing Pact

Dusa Pharmaceuticals Inc. has granted exclusive marketing and distribution rights for its Levulan dermatology product to **Schering AG** of Germany. The companies said Schering will pay milestone and other payments totalling \$23.75-million (U.S.) On the first commercial sale, plus a \$6.25-million equity investment, to Toronto-based Dusa. Schering plans to release Levulan Kerastick for the treatment of actinic keratoses, a common sun-induced pre-cancerous skin condition, during the first half of 2000.

Both projects began as curiosity driven research work, by Bob Kisilevsky and Jim Kennedy respectively, within our department 20 years ago. They were then essentially solitary researchers working outside the mainstream of contemporary research interests and funded by the MRC and NCI/MRC. Their research took ten years and some later multidisciplinary involvement to reach the stage where independent venture capital through the facilitation of PARTEQ, a Queen's Technology Transfer Group, became interested. Any reflections on biomedical research? Curiosity driven public funded basic research by individuals alone or in small groups provides our most critical scientific insights. These insights attract multidisciplinary collaborators and occasionally private venture/industrial capital. Our best investment is in more unfettered public

funding for operation, personnel and equipment, focussed by an apolitical scientific peer review process.

For Your Information

15 years - Susan Thompson, Chemistry
30 years - Dr. J. Kennedy, Cancer Clinic

Holiday Closing

Normal University operations for most (but not all) departments will close at **noon, Friday, December 24**. Regular university operations resume **Monday, January 3rd**. (Yep... Monday)

Congratulations go out to Tim Childs (Pathology Resident) and his wife on the birth of their second child, Andrew, born at home on November 5, 1999 weighing 6 lb 14 oz. A brother for Ben.

Alumni Award for Excellence in Teaching

Any teacher at Queen's University who has the primary responsibility for organizing and presenting the material for a course offered to registered Queen's students may be nominated for this award. You are encouraged to nominate a member of the department with superior teaching skills for this Award. The deadline for nominations is **January 31, 2000**. For a nomination form see Barb in Dr. Manley's office.

Date: Mon, 22 Nov 1999 20:10:11 -0500

From: Campus Security/Stephen Gill
<Stephen_Gill@NOTES.QUEENSU.CA>

Subject: UPDATE to Sexual Assault near Campus incident

During the late evening of Thursday November 18th, a female student was followed and intimidated by a suspicious male. His description was similar to the brief description provided of the suspect in the November 15 off-campus sexual assault incident. For more details on this and the earlier alert, check out the ALERTS link on

the Campus Security website at:
<http://www.queensu.ca/security>

The description of the male in this latest report is as follows: 25-30 years old, tall, thin build, clean shaven, no glasses, no distinguishing marks, short dark hair, and he was wearing a long dark coat (possibly a trench coat) and dark pants. He was riding an older model 10-speed style bike with curved handle bars, no light, no carrier, and with a Kryptonite-style lock attached to the frame.

Jobs Available **Ottawa Hospital**

The Department of Pathology and Laboratory Medicine of the Ottawa Hospital and the Eastern Ontario Regional Forensic Pathology Unit invite applications for a full-time experienced forensic pathologist. The Forensic Unit receives approximately 450 cases annually. This task will be shared with another full-time pathologist. Weekend autopsy coverage is shared with other hospital pathologists. The Ottawa Hospital is a tertiary care teaching hospital affiliated with the University of Ottawa Faculty of Medicine. Academic teaching is part of the job description and include teaching of high school cooperative program students, paramedical personnel, undergraduate medical students and pathology residents. Research activities, individual or collaborative, are encouraged. The candidate must have an MD degree, be eligible to practice in Ontario and have a Royal College of Physicians and Surgeons of Canada certification in either Anatomic Pathology or General Pathology or the equivalent. Salary and academic ranking would be commensurate with experience and qualifications. The closing date for receipt of applications is **December 31, 1999**. Interested applicants should apply in writing, enclosing a curriculum vitae with names of three referees to: Dr. Jean Michaud, Head, Department of Pathology and

Laboratory Medicine, The Ottawa Hospital, General Campus, 501 Smyth Road, Ottawa, ON K1H 8L6.

The Department of Pathology and Laboratory Medicine of the Ottawa Hospital invites applications for a full time staff position in Anatomical Pathology. The Ottawa Hospital is a tertiary care teaching hospital affiliated with the University of Ottawa Faculty of Medicine. The successful candidate would join a division with very busy surgical pathology and cytology services and an affiliation with a very active Forensic unit. She/he would be expected to participate in the service work of the division as well as undergraduate and resident teaching and to engage in either individual or collaborative research projects. A developed subspecialty interest would be an asset or alternatively a willingness to develop one according to the needs of the Division. The candidate must have an MD or equivalent medical degree, be eligible to practice in Ontario and have a Royal College of Physicians and Surgeons of Canada certification in either Anatomic Pathology or General Pathology or the equivalent. Salary is currently under negotiation, but it and academic rank would be commensurate with experience and qualifications. The closing date for receipt of applications is **December 31, 1999**. Interested applicants should apply in writing, enclosing a curriculum vitae with names of three referees to:

Dr. Bruce Burns, Acting Chief, Division of Anatomic Pathology, The Ottawa Hospital, general Campus 501 Smyth Road, Ottawa, ON K1H 8L6.

University of Toronto

Anatomic Pathology - Physician /Scientist
Applications are invited for a Physician/Scientist within the University Health Network site and the University of Toronto, Department of Laboratory Medicine and Pathobiology. The successful candidate will have 80% of his/her time protected to sustain an independent research program and is expected to collaborate with both basic science and clinical colleagues. Interest and experience in the molecular pathology of cancer is required and an emphasis on breast cancer, is desirable. Appropriate research space at the Ontario Cancer Institute and start-up funds will be included in the appointment package.

Applicants must have an MD and a PhD, or equivalent, Royal College Certification in Anatomic Pathology and be eligible for licensure in the Province of Ontario. The successful candidate will be involved in managing a core molecular pathology facility within the research institute and management training or experience will be considered an asset. Documented evidence of training in teaching is needed given the commitment of the University of Toronto and the University Health Network to excellence in education. This position carries an academic appointment at the University of Toronto at a rank commensurate with the individual's background and experience, at the Assistant or Associate Professor level. Position available March 1, 2000. Applicants should send a CV, statement of research and educational interest and experience, and names and addresses of three referees by January 13, 2000 to: Dr. J. Woodgett, Head, Division of Experimental Therapeutics, Ontario Cancer Institute, Princess Margaret Hospital, 610 University Avenue, Toronto, ON M5G 2M9. (We thank all applicants, but only those who are qualified will be contacted.)

Jobs Wanted

Linda Cameron is looking for a Research Assistant position in Pathology. She is a chemistry PhD with biochemistry experience, most recently as a postdoctoral research associate at Oregon State University. She was trained in the use of EPR, protein purification methods and enzyme activity assays to investigate the mechanism of activity of metalloenzymes. If you would like a copy of her CV see Barb in Dr. Manley's office, or you may contact her at: Tel: 531-0047 or e-mail: <lmcam429@yahoo.com>

Dr. Dexter's Corner

THE CHALLENGE OF TURNAROUND TIME

If one was to observe the swirls of activity around a patient's care, one might pause to reflect on the factor of time. From the patient's perspective, time is measured from those first moments of disease, that realization that all is not well. The location of this process may be anywhere from home to work, from a summer cottage to a foreign land. It is most probably the rule that it did not begin particularly close to a source of medical care. For many, then, begins a period of festering. This varies reflecting cultural diversity and health insurance plans. For some, the maxim of "Grin and bear it!" is applied. This has the advantage of those early signs and symptoms maturing and, for the index of diagnostic certainty to be immeasurably higher at the final reluctant presentation. Others, faced with a whiff of fleeting ill defined symptoms, present at the physician's door with abject affect and in a perimortal belief, demand attention. A frustrating task! An impossible task! It is akin to that odd annoying electrical problem in your car. It misbehaves in the driveway, the car park, the highway, but never at the garage. Shaken, one's sanity challenged, you drive away from the dealer, the car bucking, blinking, and hiccupping as was its wont.

The endpoint is clear. It is a return to perfect health. Alas, this is not achievable and, unlike the warranty on your dishwasher, things biological ignore such expectations. That extended extra year provided by your VISA and American Express also does not apply. No free air miles either!

So where do we fail?

There are many definitions of turnaround time. One supposes, when dealing with laboratory testing, it is the time from taking the sample to the result being available at the bedside. Having said that, it is obvious

that the concept is completely wrong. From the physician's viewpoint, it is the time of the initial birth of the idea that a laboratory test may help, to the time of the result being available. This, of course, may be out by minutes (these units of time equilibrate to hours in a physician's mind) as the order has to be verbalized, written, transcribed, blessed, and then acted upon. Telephone calls, shift changes, other emergencies, coffee breaks, business, and triage influence action and this whole process is reenacted in glorious technicolour in the central laboratory. Finally, a result is generated and the report wings its way back by telephone, printout, cable, or bongo drum to the site of sample taking. There too, it may linger gathering electronic dust, but let us assume the report is given to the physician. There may not be a reflexive response, but one hopes a reflective one. For now, one can combine the physical findings, the results of imaging studies, of ECGs, and of laboratory data into patterns of known associations. Does it fit? Then is action necessary - and what action is necessary? Are antibiotics required? If so, the same crazy gavotte begins and time passes as orders are generated, transcribed, acted on, portered, documented, and administered.

How simplistic it is to measure intralaboratory TAT? The best reason is that it can be done and done reliably and repeatedly. From receipt at the tube system to an authorized report into the LIS and through it to the PCS, it can be measured easily and automatically. By these criteria, we do well, although there are peaks and valleys of volume set by the "routine test" sample harvest periods.

Ideally, the JIT* approach is the most appropriate. It should reflect real or current patient status. It should integrate into a patient care algorithm where it acts as a critical signpost or fork in the road. In other words, the result leads to an action or a decision. We are not perfect in attaining these goals. Often the result is not timely and may be far too early or equally frustratingly far too late. The latter is a common issue in critically ill patients where Central

Laboratory Processing is usually at least 30 minutes to an hour behind and the clinician has performed several critical therapeutic manoeuvres in the interim. Perhaps it is here that near patient whole blood Point of Care Testing can contribute most to patient care.

Most of these activities are going on behind the scenes and out of sight of the patient. Speedy analysis with rapid therapeutic steps may optimize patient care, and such disturbing themes as client put-through and turn-over.

Unfortunately, the days of patience are gone. We are bombarded with tales of efficiency. We have, through the muddled media, established new levels of expectation as a society. The issue at hand is Instant Gratification. Like the Scarlet Pimpernel, we seek it here, we seek it there, we seek it everywhere. Thus, we carry the cross of unrealistic expectation, doomed forever to fail to actually achieve goals set for us by a rather unsympathetic society.

And as for the patient, we probably fare best with the tyro and fail most apparently with the "old hand" patient.

What initiated this diatribe was a recent report in the *Lancet* of September 25, 1999, vol:354, pp 1115-1116. The title was, "The Hunt of *Clostridium difficile*: 21 Year Follow Up of a Stool Specimen Sent for Culture". Briefly, a stool specimen on a patient with antibiotic mediated diarrhoea was sent for analysis and was "lost". In the end, it was not. A report was generated and sent in error to the wrong location and so for 21 years the Medical Record was incomplete. The specimen itself was subcultured and referred to the CDC Atlanta where it was classified as *Clostridium difficile* and was their first isolate of that organism received. Further, the organism had been held in storage, was viable, and had been recently reconfirmed in 1998. A copy of the 1977 report was, with pomp, ceremony, and satisfaction, inserted into the patient record in 1998, some 21 years later.

One can only hope that a TAT of 21 years for a laboratory report represents an out-rider. No word as to how the patient felt, although a full recovery was made.

*JIT: Just In Time: a manufacturing innovation pioneered by the Japanese. A common application is in automobile manufacturing.

ON VIRTUE

Virtue (n)	1.	Moral excellence
	2.	Uprightness
	3.	Goodness

Definition: Concise Oxford Dictionary

The application of virtue as a component of definition of the work of a pathologist or, indeed, anyone in the medical trade, seems apt and indeed assumes the status of a badge of honour. While virtue may be intrinsic to the work we do and to the intensity of investigation and analysis, there is something afoot which is a touch alarming.

On a basis of virtuosity, our virtuous approach to things diagnostic is being replaced by virtuality. To understand all this verbosity, one has to refer to Concise Oxford for, as ever, clear concise clarification.

Virtual (a): that is such for practical purposes though not in name or according to strict definition (sic)

Our new Electronic Environment is a powerful medium with untapped creative potential. Our daily lives have been enhanced and gifted by a virtual bank and a virtual shopping mall. We may shop and buy everything from drugs to books to food to cars (BMW X5 SUV, approximately \$400,000 US) to aircraft (x million US) - although some of these purchases may stretch our credit line. Virtual libraries provide knowledge sources and Search Engines, (unspecified markers - some are Rolls Royce derived, others are Ladas), make it easier.

The November 2, 1999 issue of CMAJ provides us with a virtual psychiatrist. This is but the tip of the iceberg for we already have Virtual Hospitals. The recent Toronto Critical Care Medicine Symposium (October 1999) raised the spectre of the Virtual Laboratory. Gone are the core laboratories and fading fast are the bedside testing equipment of Istats, Nova's, and glucometers, all to be replaced by test specific sensors and electrodes. These would be placed appropriately (who knows where!) on the patient generating continuous readout of multiple parameters spewed relentlessly into the maw of electronic computerization. No actual specimen was taken and the so-called "laboratory" data resides deep in some data bank as a collection of bytes historically linked as data generated years previously in a Clinical Laboratory.

Algorithmic Smart Systems provide interpretations and are fondly known as VTs (not video-terminals, but Virtual Technologists) and VPs (not Vice Presidents, but Virtual Pathologists). If the truth be known, we do not have to be here - we could be there!

On the clinical side, we now have Virtual Colonoscopy: a kinder, gentler colorectal cancer screening test brought to you by researchers at Harvard (Lancet, September 25, 1999, pages 1048-1049). Using high powered computers, abdominal CAT scans are converted into high quality two and three dimensional images. The technique has a sensitivity of 80% and a specificity of greater than 90% for detecting colorectal cancers and polyps of more than 10 mm. The obvious next step is a virtual polypectomy, virtual tissue processing, and a rapid virtual diagnosis generated in record time (TAT measured in virtual nanoseconds) by a virtual pathologist. NOTE: this pathologist is of course not an individual, but an amalgam of skill, intuition, and experience distilled from Galen, Harvey, Osler, a mish-mash of Nobel Laureates and with an uncanny prescience of future developments in Molecular Diagnostics. With these skills, it is a wonder that this polymath has not activated a therapeutic plan and discharge for our virtual patient. All done under the AFP too!

Even the Medical School has joined the circus for now, we have Virtual patients (real ones are so hard to come by), for the Medical Students to test their skills. Indeed, the complex of functions spread as it is today amongst the sites of KPH, KGH, HDH, and SMOL, together represents a Virtual Hospital as none of the component parts do it all.

As closure, we come to thanatology. Yes, Virginia, there is a Virtual Autopsy. The fiscal savings are significant. No morgue is required. The issues of biohazards, infections (controlled or otherwise) are resolved. The Virtual Autopsy exists as one might have guessed in the ethereal domain of the Internet (www.le.ac.uk/pathology/teach/VAtitlpag1.html). Of course, if you do require an actual autopsy, you can call 1-800-Autopsy. The service is a mobile one where a skilled Diener can provide on site autopsies at a cost of around \$2,000 US. The service is based in California and, as a business venture, is doing very well (www1800autopsy.com). Franchises are available.

What is the Lesson?

Virtue has become a power into itself and, scattering all before like a juggernaut, is forging new linkages, new definitions, and new challenges.

I think I am scared of Virtue - perhaps we all should be, for it is all powerful and life-altering. Could I swap some for Reality?

My relationship with my computer has further soured. It has just informed me that it is "Out of Virtual Memory"! It is enough to drive one to Virtual drink.

CURRENCY

SELECTION COMMITTEE FOR REPLACEMENT FOR DR. WASAN

This is underway and the position will be advertised by the time you read this. We are optimistic for applications by excellent candidates.

PATHOLOGIST PROLIFERATION PROGRAMME (PPP)

Radical new techniques to increase the numbers of pathologists have been successful locally. Dr. T. Childs is to be congratulated on a new addition to his family - Andrew, a brother to Ben. Andrew will be a PGY1, while his brother is a year ahead! ITER's to date show excellent progress. Many congratulations to you and your family.

THE PERFECT AFTERTHOUGHT

For those tardy people who missed the holiday gift giving time lines, a small insert in the National Post of November 22, 1999 provides the perfect Pathologist's gift. Developed by Mattel and Intel is the Play QX3. This is a computer microscope which plugs into an IMB-PC (not MacIntosh - compatible though). It requires Windows 98, a Pentium chip of 200 megahertz or faster. Pathologists can create slide and video shows and make time-lapse movies. From an administrative perspective, it offers dramatic savings over current technology by a factor of 10. It is offered at \$149.00 at stores across Canada.

I wonder how much (or how many) I could get on a trade-in for my microscope?



CASE PRESENTATIONS: QUIBBLE'S CLASSIFICATION

- The Medical Student:*** Presents too much information, only half of which is relevant, and does not know what any of it means.
- The Intern:*** Obtains most of the information and probably knows what most of it means, but falls asleep presenting it.
- The Resident:*** Presents all of the information and knows what most of it means, but prefers arguing about the call schedule.
- The Chief Resident:*** Obtains all of the information, and knows what all of it means, but is too busy making out schedules to present it.
- The Research Professor:*** Has forgotten what a case presentation is, but will find a reference and will get back to you.
- The Clinical Professor:*** Could obtain all the information if she wanted to, but prefers to have others do it for her. Yes, she knows what all of it means too.
- The Department Chairman:*** Does not have time for case presentations. She is too busy editing her latest and definitive treatise on Colonic Macrophage Activity in alpha-mannosidosis.
- The Audience:***
- One third are awake under the influence of caffeine
 - One third are asleep under the influence of caffeine
 - One third are awake and signal this fact by numerous irrelevant questions (due to misreading the topic and failing to listen to the presenter)

Adapted from Chest 88:p292-294, 1985

COMPARATIVE SUCCESS RATES OF SYB* TECHNIQUES**TABLE 1**

<i>Missing Case Data</i>	<i>Suggested Response</i>	<i>% Success</i>	<i>Alternative Response</i>	<i>% Success</i>
Anything (Med Mort Rounds)	Faint	14	Set off frozen beeper	18
History of present illness	Patient argued all history is in the past by definition	58	Patient speaks only English	74
Past medical history	Patient says she has aphasia	82	Patient said to get old chart (might have aphasia as well)	79
Family history	Patient is adopted	47	Patient has no offspring, but has a small dachshund	88
Physical exam	Findings are equivocal; patient refused rectal	41	Area in question is missing or congenitally absent; you are not sure which	62
Laboratory data	Test is only run on every 5 th Tuesday	61	Patient exsanguinated waiting for the phlebotomy team	27
Imaging data	Its on the PCS	38	Your password expired or Why two Cay	90
Consultant's report	Rounds went overtime, patient transferred off service	51	Your pet turtle ate it	99

*SYB - Save Your Behind

Data extracted from research study(+) published in: J Med Dogma 210, pp 4-17, 1988.

Authors: Shyster B., Terse I.M., Ty M., and Hume R.

Competing Interests: Innumerable

This article could not be reviewed as no satisfactory peers could be identified.

(+) Research supported by ICES, funds sourced from grants from Health Care Canada, assorted Department Slush Funds, Transportation by ONYX, Statistical Analysis by CHAOS (Canadian Hosted Academic Organization of Statistics).

Grants and Such

Grants have grown to such a huge page of the newsletter that we have split them off into a **separate supplement** to the newsletter. All researchers & faculty will receive the supplement as well as any one else who wants it. Otherwise the rest of the subscribers get everything but.

There are 9 pages for December.

Graduate News

No news is good news!

Richardson Research Seminars

Tuesdays at 4:00 pm in Richardson Amphitheatre

January 4	NONE
January 11	Ms Deb Greer, Mr. Martin Kang
January 18	Mr. Glenn MacLean, Ms Jennifer Struthers
January 25	Life Sciences Eve. - No Seminar
February 1	Ms Melissa Carter , Mr. Jordan Hansford
February 8	Mr. Yotis Senis
February 15	Dr. E. MacNamara, Jewish General. Hospital
February 22	Reading Week
February 29	Ms Brandy Hyndman, Ms Eva Lin
March 7	Dr. Valerie Wallace, Ottawa Gen. Hosp. Res. Inst.
March 14	Dr. J. Koland, University of Iowa
March 21	Dr. Kathy High, University. of Pennsylvania
March 28	Ms Adina Vultur
April 4	Mr. P. Truesdell
April 11	Dr. M. Khalifa
April 18	
April 25	Mr. Kevin Weigl

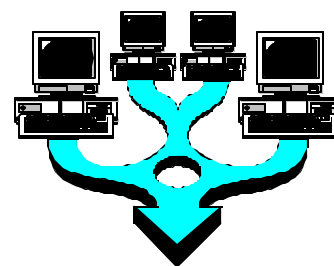
Buy, Sell & Trade

For Sale: a 200 Disc CD Changer. JVC XL MC222 \$225

Comes in original box, remote control and 10 CD's of your choice from my collection. I'm selling it because I can't afford to buy enough CD's to fill it up! You can view the manual outside my office if you have any questions about it and I'm not around.

Kevin Kell (Richlabs411) Q-74901

Network News



Talk about a busy time of year!

In late November the locking-up-too-often-file-server, Richlab1, had a major operation and had it's hard drives replaced.

That solved (we hope) the more and more frequently occurring lockups. To date since the fix, we've had 2 in 14 days.

The Web server now has a twice-updated-daily stat on the uptime of the various computers we have.

Microsoft Outlook and Exchange Server are almost ready to go. Microsoft Outlook is a personal information manager program on your workstation that will also communicate with other people in the department, replacing the ONTIME calendar program that we have had for 6 years (or is it more?).

Network Backups:

Often people ask what our backup system is like, so here is the short of it:

Richlab1:

In the past this was a simple, make-a-copy-and-store-it-offsite every night. If you deleted a file and wanted it back 2 days later, this was not possible in most cases.

Now we have a tape drive and enough tapes to do a complete backup every night for 10 business days (archiving if you will). Note we do not do backups on weekends! A change in tape rotation may give us restore capability back for a month... when implemented in the New Year.

Richlab2:

This is the new Calendar (or Exchange) Server. It also has a tape drive and full backups are done every night with enough tapes to archive up to 5 business days (we don't do backups on weekends)

About half the workstations use the Queen's ADSM backup service under a free "grandfathered" clause. New users are required to pay \$\$\$ so we haven't expanded this service at all.

If you have **ANYTHING** that you consider irreplaceable make arrangements to **BACK IT UP!**

Some of your choices are:

-you may have a ZIP drive on your system. Use it (100 Mb capacity)

-we can "burn" a CDROM of your data (650 Mb capacity)

If you have a **LOT** of data (eg 4-20 Gb) we could arrange to dump it onto a tape (which you provide)

Y2K

The final report went into the Queen's Y2K project back in November and as far as I can tell, we're ready. Problem is, there is never a definitive "end" of the project as there is always new hardware and new software coming online constantly.

Worse yet, some vendors discover new problems in previously certified hardware or software and revoke their compliancy claim.

Article Submissions

SUBMISSION DATE: Pathology News will be mailed to all faculty, housestaff, graduate students, and anyone who requests it on the Friday following the first Monday of the month. The next deadline date for submission will be *Monday, January 4th, 1900*

Send items (in order of preference) by: 1) email, 2) floppy disk, 3) paper mail, or 4) FAX.