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DEPARTMENT of PATHOLOGY

INSIDE THIS ISSUE:

To be an international leader in pathology education and research while providing the highest quality of diagnostic service.

MESSAGE FROM THE CHAIR

The highlight of this edition is the MUHC Research Awards to 8 recipients in our department. This is a historical accomplishment. Congratulations to all of you! I look forward to seeing the academic fruits over the next few years as a result of these investments.

When I first arrived in September 2012, the Chair's discretionary fund could not support an academic department of over 50 faculty members with a considerable academic mission to support undergraduate medical education, graduate and postgraduate programs, and research. Adding salt to the wound were the simultaneous budget cuts from the MUHC and the University in the year 2013. On the University side, we lost one administrative support position. On the MUHC side, we were asked to cut over $1 million from the clinical operations budget. We were falling rapidly from the rope and being stifled by the financial limitations.

Fortunately, there was a knot at end of that rope. Now we have $3 million from the estate of Dr. Nuns Collins to establish an endowed Chair in Pathology, over $1 million dollars in total from the Foundations of the MUHC to support the academic research activities of our new departmental members. The Cedars Cancer Institute provided funding to support the MUHC Molecular Pathology Lab, and Roche Canada offered support for the scientific lecture series.

More funding was offered from the Rossy Cancer Network to support our annual departmental retreat, and we've received funding from additional sources to support research activities, production of a professional video featuring the department, and support for the resident slides scanning project. We are sincerely grateful to all of our donors for their generous support. It will unquestionably enhance the quality and recognition of our scholarly pursuits and clinical service.

However, we are still far from where we should be if we are going to continue to be an international leader in pathology education and research, and carry on with our goal to provide the highest quality of diagnostic service. What next then?

Establishing an Academic Renewal Fund, which will allow us to recruit two leading research scientists. With the existing six research programs, the recruitment of two leading research scientists, and two additional clinician-scientists, I anticipate our department will have ten leading research programs within the next two years.

With all the clinical operations moving to the Glen, space at the Duff has been secured to establish a "Pathology Research Center". As you can imagine, making this space into a modern research facility with the ability to sustain ten leading research programs requires plenty of funding. Thanks to the support of our Dean, Dr. Eidelman, the fundraising activities for the "Pathology Research Center" have now been officially launched.

Let us keep our fingers crossed…

John McCrae – Pathologist and Poet

by Edith Zorychta

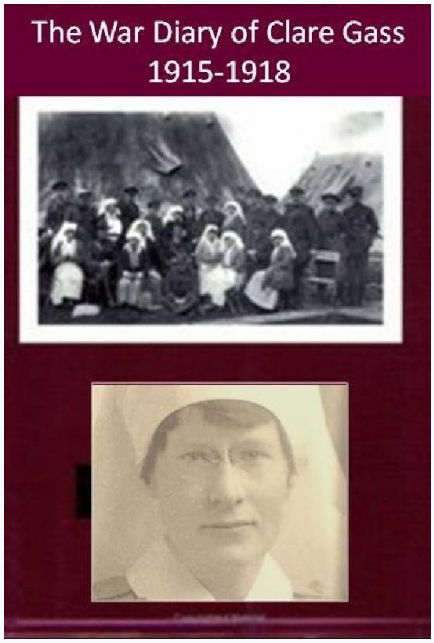
November is the month when we commemorate those who have suffered and died in war, and the annual ceremony took place on our McGill campus, with thousands of us wearing bright red poppies. We all recognize the meaning of this symbol, and most of us know the poem on which it is based, but few realize that it was written by a McGill pathologist, or the circumstances under which he created it.

John McCrae was an exceptional person. He was born and raised in Guelph, Ontario, and during his adolescence he wrote poetry, was a member of the local Cadet Corps, an avid reader, and an amateur but very capable artist. He maintained both military and artistic activities during his education at the University of Toronto where he received his BA in 1894 and his MD in 1898, publishing poems and short stories while a student. He graduated from medicine at the top of his class, then spent a year as an intern at Johns Hopkins University with Sir William Osler, and in 1899 he was awarded a fellowship in Pathology at McGill. He postponed acceptance to use his military training in the Boer War, and went to South Africa as a Canadian Artillery officer to begin a two-year experience that left him greatly disturbed about the inadequate medical care of soldiers, and with no illusions about the glory of war. Upon his return he withdrew from military involvement and focused on his medical career at McGill, completing his fellowship and joining the staff as a Pathologist at the Royal Victoria and Montreal General Hospitals. He had the usual busy life of a clinician-scientist: working in the hospitals, doing medical research, giving lectures in Pathology, and attending conferences. He also applied his considerable talent and writing experience to the production of scientific articles and medical textbooks, being a major contributor to Osler's *Modern Medicine* (1910) and co-author of the highly acclaimed *A Textbook of Pathology for Students of Medicine* (1912) with McGill colleague George Adami.

Life at McGill was full and rewarding. McCrae was well recognized by his Canadian and international colleagues, he continued to draw, he wrote poetry, and he belonged to a Montreal Club for artists and writers. He enjoyed a love of nature and wildlife, and he even travelled as a physician on the Governor General's canoe trip from Lake Winnipeg to Hudson's Bay in 1910. In all likelihood John McCrae would have remained happily at McGill for the rest of his career – but World War 1 intervened.

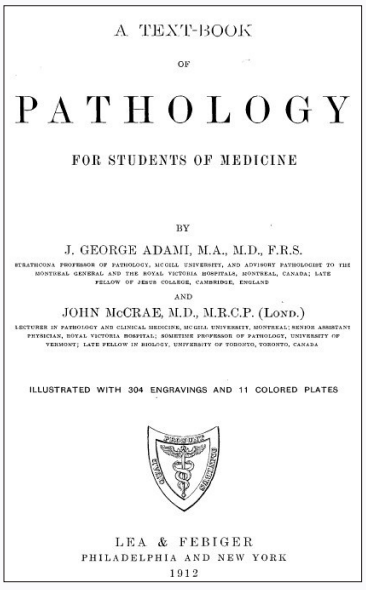
In 1914 at the age of 42, McCrae felt obliged to reconnect with the military, this time as a physician, and he joined the Number 3 Canadian General Hospital regiment, a unit formed by McGill with doctors and nurses from our teaching hospitals. One of these McGill colleagues was to subsequently inspire the creation, and the other, the publication, of his famous poem. They were sent to the Flanders region of Belgium, and in April of 1915 they were at the trenches with McCrae as Lieutenant Colonel in charge of a field hospital treating enormous numbers of casualties from both artillery fire and chemical warfare, dealing with the first use of chlorine gas by the Germans. Surrounded by dead and dying soldiers, McCrae witnessed the horrific death of Alex Helmer, a physician and one of his closest friends, who received a direct hit from an enemy shell. They buried his fragmented body that night in a makeshift grave within a field of poppies, with McCrae reciting what he could remember of a funeral service. The next day he wrote his unforgettable poem.

Clare Gass was a nurse from the Montreal General Hospital who became a Lieutenant in the Canadian Army Medical Corps and worked alongside McCrae as a friend and colleague. She kept a wartime diary in which she copied John's poem, and she encouraged him to send it to *Punch*, the troop magazine, where it was later published to great acclaim, then translated and republished in many languages. Canada advertised the poem to promote sales of the first Victory Loan Bonds in 1917, with remarkable success. With the popularity of the poem the French YWCA suggested that poppies be sold and worn to generate funds for servicemen in need, and the idea soon took hold in much of Europe and North America. Shortly afterwards the poppy was officially recognized by many countries as the flower of remembrance for the casualties of war.



John McCrae lived long enough to realize the impact of his poem, but he did not survive the war. He was transferred from the battlefront to the Canadian General Hospital in Boulogne, France - a unit with over 1,500 beds run by McGill with the Dean of Medicine in charge. In January of 1918 he became seriously ill with pneumonia and meningitis and he died within a few days, being buried in a military cemetery in France. To commemorate the sacrifices of their colleagues, in 1919 the teaching staff in the Faculty of Medicine gave a memorial gift in the form of a beautiful stained glass window installed in the Strathcona building, which at that time housed the Faculty of Medicine. Fittingly, the memorial was designed by McGill architect Percy Nobbs, who also designed the McGill Pathology Building (now the Lyman Duff). The center panel displays the crosses and poppies from McCrae's poem, describing him as "Pathologist, Poet, Physician and Soldier, a man among men."

John McCrae has been recognized in various ways for his poem, which for understandable reasons has tended to overshadow the recognition of his contributions as a pathologist – an oversight that is currently being addressed by the Canadian Medical Hall of Fame. On October 7 the CMHF announced that McCrae will be posthumously inducted for his scholarly work involving the textbook of Pathology and his many research papers advancing the understanding of major diseases including tuberculosis, scarlet fever and renal disease. He was one of the most highly trained and respected physicians of his era, and will now be appropriately acknowledged as one of the "Canadian heroes whose work has advanced health and inspired others to pursue careers in the health sciences". The ceremony will be held in the spring of 2015 – 100 years after John McCrae wrote *In Flanders Fields*.


A TEXT-BOOK
OF
PATHOLOGY
FOR STUDENTS OF MEDICINE
BY
J. GEORGE ADAMI, M.A., M.D., F.R.S.
AND
JOHN McCRAE, M.D., M.R.C.P. (Lond.)
ILLUSTRATED WITH 304 ENGRAVINGS AND 11 COLORED PLATES
LEA & FEBIGER
PHILADELPHIA AND NEW YORK
1912

More than $3 million awarded to MUHC Clinician/Researchers

Dr. Zu-hua Gao and Louise Fast (Benefactor)

Top Right:
Dr. Oluyomi Ajise and Dr. Vassili Papadopoulos

2nd from top:
Dr. Fadi Brimo and Dr. James Martin

3rd from top:
Dr. Andrea Gomez and David McAusland

Bottom:
Left to Right:
Dr. Roger Tabah, Dr. Sungmi Jung and Jane McGarrigle

Top Left:
Dr. Sophie Camilleri-Broët and David McAusland

Top Right:
Dr. Lili Fu and David McAusland

Bottom:
Dr. Qin Shao and Dr. Gerald Fried

More than $3 million was awarded to some of the most promising clinician/researchers at the annual Research Awards Dinner on October 22, 2014.

The MUHC Research Awards are a collaboration between the Research Institute of the McGill University Health Centre (RI-MUHC), the Montreal General Hospital Foundation, the Royal Victoria Hospital Foundation, the Montreal Children's Hospital Foundation and the Cedars Cancer Institute. The Awards were presented to more than 80 clinician/researchers who have demonstrated exceptional promise in the work they are undertaking, in a variety of disciplines. The Awards are made possible through the leadership support of Foundation benefactors. The recipients are selected by the Scientific Awards Committee, comprised of Hospital Chiefs and chaired by Dr. Joseph Shuster. Each award has unique criteria established by the Foundations, the Awards Committee and the benefactors.

Congratulations to all our members in Pathology on receiving their awards: Drs. Oluyomi Ajise, Fadi Brimo, Sophie Camilleri-Broët, Lili Fu, Zu-hua Gao, Andrea Gomez, Sungmi Jung and Qin Shao.

Ocular Path: A Journey through Blindness and Research

by Shawn Maloney, MSc, PhD
President of Journal Prep, www.journalprep.com

At the age of five, my ophthalmologist told me that I would be blind when I was older.

Now, twenty-seven years later, his prediction has come true. I recently sat down with my "new" ophthalmologist, Dr. Miguel Burnier, who confirmed that I was now legally blind, despite still having the capacity to see many things in my environment. I was not alarmed, nor was I scared, for it was Dr. Burnier who had, over the previous nine years, helped me to accept — and even embrace — my diagnosis. In 2004, I was an undergraduate student at Queen's University who was searching for a way to make an impact on the research being conducted for my eye disease, retinitis pigmentosa. One year later, Dr. Burnier granted me the opportunity to do just that when he accepted me as a Masters student in his lab. That is when my journey began.

During the eight years that I had worked in the "Burnier lab", I acquired skills and knowledge that will forever serve me, regardless of the pursuit. Sure, I learned a great deal about science and medicine, but what I learned about myself has ultimately had the greatest impact on my life to date. One of the first lessons I learned is that you should never say "it can't be done" in a lab meeting. Dr. Burnier has always heard this phrase as "it hasn't been done", and he would then challenge his team to do "it" — whatever "it" was. His anything-is-possible mindset is one that I have tried my best to adopt throughout my life and in my career, and I think it is this mindset that, among other things, had led me to contact — and subsequently interview — four Nobel Prize winners about a book I was aiming to write called *The Discovery Mindset*.

Along the same vein, I learned that there are often simple solutions to seemingly large obstacles. When I told Dr. Burnier that the most promising avenue for treating my disease was stem cell therapy, he shipped me to Harvard for four months to learn from a world-class retinal stem cell research group. When I told him my decreasing vision made it difficult for me to continue cell culture work, he focused on my strengths and put me in charge of study design and troubleshooting. When my vision decreased even further, he gave me a 27-inch Mac with built-in adaptive technology. He always had a solution.

Gratitude was another thing I learned, and am still feeling to this day. I am grateful for the opportunities, friendships, and experiences that I had encountered during my time in the Burnier lab. My gratitude also extends beyond the walls of the Burnier lab to other members of the Department of Pathology — particularly to those who knew of my disability and who helped me in some way. There was Dr. Zorychta who was standing there at convocation to ensure that I could navigate my way across the dimly lit stage. There was also Dr. Gao who, during a face-to-face meeting to discuss future opportunities for me in research, told me that he saw a leader in me; he reassured me that it was my ideas, and not my eyes, that would guide me in research and through life.
These life lessons were, of course, accompanied by scientific study. I must admit that there is something amazing, perhaps even romantic, about researching your own disease. It gives you a deeper understanding of the disease itself, and it equips you to better accept it for what it is. I am truly grateful to have had this opportunity.

In February 2014, I left academia to contribute to research via another avenue: a four-year-old company I co-founded called Journal Prep. However, as my "ocular path" continues beyond McGill, I will always remember the lessons that I have learned during my time here, as well as the leaders who taught them to me.

Founding a Fund: Student Vision Canada

by Patrick Logan, MSc, PhD

Roughly five years ago, I was deep into my PhD at the Henry C. Witelson ocular pathology laboratory when a summer student made a comment that strangely resonated with me and had lingering effects beyond its simple meaning.

"I can't come in tomorrow, because I have to work," the summer student said, "But I can come in Monday or Tuesday afternoon."

I wanted to tell the student that "PCR doesn't wait until Monday," or "Western blots don't take weekends off," but the student was a volunteer, trying to learn on their summer 'holiday' while also working a part-time job to acquire enough money to pay for their tuition and board.

I approached a colleague, Shawn Maloney, also pursuing his PhD in the same lab at the time, and he reiterated that several other students had mentioned the same thing to him. It seemed that this was a recurring theme: many students *wanted* to learn about basic research, and would reach out to our lab to see if they could come and observe or gain some valuable knowledge or skills. Some might have gotten a small taste – an hors d'oeuvre, if you will – of basic research from one of their undergraduate lab classes, and wanted to know if what they had savored matched their palate. However, the obstacle was always the same: despite their eagerness and overachieving tendencies, they were bound by fiscal responsibilities.

Together, Shawn and I searched for ways to unburden them of their part-time jobs, but there was an paucity of grants or awards for summer students to apply for, be they undergraduate, high school, or medical school students.

After much discussion, Shawn and I approached our supervisor, Dr. Miguel Burnier Jr, to ask his advice. About ten minutes into our diatribe about the inability to satisfy the intellectual lust of these students, he cut us off.

"So there are no grants for these students? No awards?"

We both shook our heads.

"Then why don't we make one?"

And so we did. Together, the three of us approached the MUHC foundation and set up a fund: Student Vision Canada. Our mandate was, and still is, simple: to offer a scholarship to a student from Canada to spend 4 months in the Henry C. Witelson Ocular pathology laboratory, learning about basic research, science, and pathology.

It was difficult, at first, trying to raise money at a time when it seemed that people either didn't have any or were trying to raise money for their own causes. Six months later, after a dodgeball tournament, poker tournament, and hosting numerous fund raisers, Student Vision Canada had finally amassed enough money to host our first scholarship competition.

We were different; we were a scholarship fund that was founded by two PhD students and their supervisor, and we wanted our scholarship competition to be different, too. We were Student Vision Canada, and we didn't care about grades or recommendation letters or even awards. Buried in the midst of our PhD's, Shawn and I knew what it took to be a good scientist: it took (and still takes) problem solving skills, creativity, the ability to communicate, and, most of all, it takes patience. In order to gauge these skills in applicants, we created a short, three question questionnaire, none of which had anything to do with science, or medicine, or how many years you spent

...continued on next page

as a camp counsellor or swimming instructor. In fact, the questions weren't really questions at all; instead, they were more riddles or impossible scenarios that required the applicant to think about the answer – really think about it – and come up with a creative solution. We did one more thing: if an applicant completed all three questions, irrespective of their answers, they got an interview. It was our experience that people can often be misrepresented in text communications, and we wanted to get to know who the *real* applicant really was. If it seems like a lot of work to offer a paltry sum to a summer student, it was. But it was never really about the money; it was about choosing the best applicant, the one that would gain the most from their admittedly short time in the lab. And it worked.

Tammer Granner was our first award winner, a local McGill undergraduate student. She enjoyed basic science and her time in the lab so much that she went on to complete a Master's degree in Pathology. She is now partway through obtaining her Optometry training in Boston. Lisa Jagan was our second winner, a third year medical school student from Queen's University. She recently presented her work at the Association for Research in Vision and Ophthalmology (ARVO) in front of hundreds of people in Florida, and her work is currently *in press* in a prestigious academic journal. This year's winner was Juliana Portela Passos, and she too is going to present her work at ARVO. It is our hope that she will continue in the footsteps of the previous awardees.

Raising money is hard, especially if you are two oft-bearded PhD students. But with the support of a select few, not the least of which was Dr. Burnier, we are very proud of having given out three Student Vision Canada scholarships to date. Both Shawn and I have since finished our PhD degrees, and even though Shawn has moved on from McGill, he always makes a point to come back to hand out the Student Vision Canada Scholarship at the MUHC Research Institute annual awards dinner. It is our hope to continue to offer these scholarships indefinitely, exposing young and inquiring minds about what it is *really* like to work in a lab and perform basic research.

Thank you to all of the volunteers and everyone who has helped Student Vision Canada become what it is today.

If you would like to learn more about Student Vision Canada, please visit our website (www.studentvision.ca) or email patrick.logan@mail.mcgill.ca or shawn.maloney@mail.mcgill.ca

"Development Gone Awry" – a new exhibit from the Maude Abbott Medical Museum

An exhibit entitled "Development Gone Awry" opened in the Strathcona Anatomy and Dentistry Building on Wednesday October 8. This is the first exhibit to be mounted at this site by the newly reopened Maude Abbott Medical Museum and likely the first such presentation since Abbott's Museum was moved from the Strathcona Medical Building to the Pathological Institute (currently the Lyman Duff Building) in 1923.

The artifacts displayed include 44 fluid-preserved specimens illustrating cardiac, genitourinary and gastrointestinal anomalies acquired in utero. Many of the cardiac specimens come from the personal collection of Abbott, author of the groundbreaking *Atlas of Congenital Cardiac Disease*. Descriptions of relevant normal developmental stages as well as explanations of the pathogenesis of the anomalies are available from a printed handbook and via QR images that direct the visitor to the Museum website. Included in the exhibit are a number of Adolf Zeigler wax models dating from the early 1900s. Diagrams depicting both normal and abnormal development are reproduced from former McGill professor Jan Langman's Textbook of Embryology to help the visitor understand the specimens and the anomalies they depict. To visit online, go to: http://www.mcgill.ca/medicalmuseum/exhibits/development-gone-awry.

The exhibit was developed by Véronique Lefrancois (student in the Master of Museology program at UQUAM), Lily Martin (volunteer and BA graduate McGill Art History), Joan O'Malley and Rick Fraser.

News & Notes

Congratulations to **Dr. Manon Auger** on the publication of her article, "*An historic step for advanced cytopathology training in Canada*" that focuses on the newly recognized Area of Focused Competence in Cytopathology in Canada. As a leader in the field of cytopathology, Dr. Auger continues her service as a member of the Editorial Advisory Board for Cancer Cytopathology for which she was offered a two-year appointment.

Auger, Manon, Shahidul Islam, and Michele Weir. *Cancer Cytopathology* 2014
http://onlinelibrary.wiley.com/doi/10.1002/cncy.21485/full

The Dept of Pathology hosted its first annual **CaRMS info session night** on October 16th 2014 for 3rd and 4th year McGill medical students who are considering applying to the pathology residency program. A total of 5 students (with many others unable to attend due to scheduling) attended the session hosted by the Chief residents for a formal presentation highlighting our McGill program, followed by a question and answer period. We thank Jennifer Pors & Lara Richer (Med4s) for their help in organizing the event and for also establishing a McGill Medical Student Pathology interest group.

Dr. Gao recently celebrated his birthday on November 4th. It's not polite to mention age *but* he continues to maintain his youthful appearance and positive spirit - in spite of the daily challenges he faces as the Chair ;-)

Jeffrey Downey has been fast-tracked into our PhD program as of this term – Fall 2014. He is currently investigating susceptibility mouse models to influenza A virus infection, using genetic knockout mice. Under the direction of his supervisor Dr. Divangahi, his research primarily focusses on macrophage-mediated immunity, as macrophages are the first immune cell responder to the virus and modulation of their function can drastically change the course of infection, in terms of both morbidity and mortality. The lab extensively uses both *in vivo* and *in vitro* techniques to study a vast array of host responses to influenza A virus infection, on both the whole scale and cellular level. Jeffrey is drawn to this type of research because despite relative control of the seasonal flu in North America, influenza is still responsible for approximately 500,000 deaths globally each year. Additionally, the 2009 Swine Flu pandemic, which Jeffrey experienced first-hand as a freshman undergrad living in residence, highlighted the growing threat of a highly pathogenic influenza virus infecting North Americans. His hope is that his research may in some way contribute to preventing such events and, at the basal level, provide a better understanding of influenza A pathogenesis and host-pathogen interactions.

Pathology Scientific Lecture

Sponsored Roche

November 19, 2014
4 PM
Lecture

"Reporting Biopsies in IBD - Is there light at the end of the scope?"

Dr. Robert Riddell
Head of the Sections of Gastrointestinal Pathology & Immunopathology

Professor of Laboratory Medicine and Pathobiology
University of Toronto

Duff Medical Building
Room 112
3775 University Street

Do you have a news story?
The McGill Department of Pathology Newsletter is published four times a year. It is available by email and on the Department webpage at http://www.mcgill.ca/pathology/newsletter
If you would like to submit an article or receive the newsletter by email, please contact the Editor at carolynna.olha@mcgill.ca
Deadline for submissions to the Winter issue is January 31st, 2015

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