

Laurier awash in major water research

"Water is the most important issue of the 21st century," Vice-President: Academic and Provost Deb MacLatchy told a reporter from the *Slave River Journal* a few months ago.

At Laurier, she added, "we're working on some of Canada's most critical questions on water, and how transport, use, and climate change will affect our communities and societies as we move forward."

And now water research at Laurier is about to get a home of its own.

Construction should begin in early 2012 on a new building, The Centre for Cold Regions and Water Science, on the Lodge Street site of the building that used to house the fine arts program.

The building will have a gross floor area of about 14,000 square feet and will cost about \$6.2 million, with another \$5.6 million budgeted for equipment.

"The building will house state-of-the-art equipment, labs, student research space, and meeting areas," says Sally Gray, director of Research Services at Laurier.

The two-storey facility is being funded, in part, by the Canada Foundation for Innovation and the Southern Ontario Water Consortium (SOWC), which is made up of seven universities, plus private sector companies, municipalities, and not-for-profit organizations. The new facility is to be completed by March 2013, says Gray.

Water in its various forms has become possibly *the* ma-

ior research focus at Laurier. And in keeping with water's many forms, uses, importance, and varied plenitude – and its unpredictable future due to climate change – it is not surprising that water research at Laurier is a multidisciplinary endeavour.



Architect's rendering of the Centre for Cold Regions and Water Science slated to open in March 2013 on Lodge Street. Note the Ontario, Canada, and Northwest Territories flags, all major funding partners.

It's also getting difficult to keep track of all the acronyms. There are **CRRC** (Centre for Cold Regions Research); **IWS** (Laurier Institute for Water Science); **CAL-IBER** (Canadian Aquatic Laboratory for Interdisciplinary Boreal Ecosystem Research); and **SOWC** (the Southern

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From the VICE-PRESIDENT: RESEARCH

Looking forward to growing innovation and collaboration

Welcome to the first issue of Research@Laurier since I joined the Office of Research Services as Vice-President: Research on July 1.



Laurier has a strong tradition of participation in collaborative and interdisciplinary research. In our strategic research plan, we have identified four major research clusters that represent these efforts.

In this issue, we are celebrating researchers in the "Environment and Health" cluster.

Within this cluster, water research at Laurier has become an intense and respected research focus. Our lead article documents Laurier researchers' participation

in a variety of water-focused collaborations located at Laurier, including the Cold Regions Research Centre, the Laurier Institute for Water Science, and CALIBER (the Canadian Aquatic Laboratory for Interdisciplinary Boreal Ecosystem Research). Our researchers are also taking lead roles in the Southern Ontario Water Consortium (SOWC) and the Canadian Rivers Institute.

One of the most exciting dimensions of this wide-reaching research is the construction of the Centre for Cold Regions and Water Science on Lodge Street, funded by the Canada Foundation for Innovation, the Government of the Northwest Territories, the Ontario Ministry of Economic Development and Innovation, FedDev Ontario, and Laurier. We're looking forward to our re-

searchers moving into their labs in the spring of 2013.

Environmental and Health research at Laurier crosses disciplinary boundaries. Other environmental researchers that we profile in this issue come from geography, business, philosophy, and indigenous studies. We explore Robert Feagan's research into the local food movement, Barry Colbert's research on the relationships between business and sustainability, Byron Wiliston's focus on the ethics of climate change, and Carole LeClair's research in aboriginal environmental thought.

In the health area, we present work ranging from Lillian DeBruin's muscular sclerosis research to Susan Cadell's palliative care studies to Renée MacPhee's work with Ontario Emergency Medical Services.

We also take time to celebrate our new Canada Research Chairs and Early Researcher Award winners!

As we enter 2012, we look back to the Laurier 100 celebrations in 2011. Last October, we hosted a centennial reception at the Communitech Hub for Laurier's many research chairs, award winners, and centre directors together with members of the community.

We proudly honoured our institution's history of research, scholarship, and creative activity. That history has long been deeply rooted in meeting the needs of our society, our economy, and our community.

I look forward to working with all of you in the next months and years as Laurier continues to build on our traditional strengths to tackle some of today's most challenging issues and find innovative solutions to real-world problems.

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Scholars Commons @ Laurier: Access to open access publishing

"Academics want to be read, to be cited, to be recognized in their field," says Caitlin Bakker, Laurier's new digital projects coordinator. "Electronic dissemination is an important way to meet those objectives."

Part of Bakker's job is to help academics put openly accessible versions of their research online through Laurier's new institutional repository, Scholars Commons @ Laurier. This is not only good for the academics (funding agencies are becoming increasingly insistent on moving research into the broader world) but also for society as a whole. Not every scholar in the world has easy access to academic journals.

Laurier launched Scholars Commons in the fall of 2011. It's a joint venture of the Laurier Library and Wilfrid Laurier University Press, with funding from the Office of the Vice-President: Academic and Provost, and it has ties to the Faculty of Graduate and Postdoctoral Studies and the Office of Research Services.

In the few months since its inception, more than 1,200 items have been filed with Scholars Commons, mostly theses and dissertations, but also journal publications and issues of the student newspaper, *The Cord*, going back to 1926. WLU Press is also using Scholars Commons for some of their digital publishing, including the January launch of the electronic version of *Canadian Military History*, the journal produced by the Laurier Centre for Military Strategic and Disarmament Studies.

The site has had more than 2,500 visitors from 88 countries since opening, and there have been more than 1,300 full text downloads, mostly theses and dissertations. Clearly, there is an appetite "out there" for knowledge created at Laurier.

Scholars Commons is useful for Laurier researchers because Canada's major research funders, such as SSHRC, CIHR, and NSERC, are now encouraging researchers to include the costs of providing openly accessible electronic dissemination in their budget requests. Academic journal publishers are often willing to permit this immediately upon publication, for a fee, which has typically been around \$3,000.

Although authors often sign copyright transfer agreements with publishers, "many publishers still allow authors to self-archive either draft versions or the final PDF in an institutional repository" such as Scholars Commons, says Bakker.

There are advantages here for academics:

- Scholars Commons helps you make your research publicly accessible, thus keeping funding agencies happy.
- You will receive monthly download reports and a permanent URL for each of your items on file with Scholars Commons, which can be included on your CVs and websites.
- You can include multimedia and supplemental data files.
- *Scholars Commons provides a secure digital archive of your articles*

More information on Scholars Commons can be found at <http://scholars.wlu.ca>

Uncertain about how to deal with copyright issues and self-archiving?

"I'm more than happy to look into it (with publishers)," says Bakker, "I also recommend that faculty refer to the Canadian Association of Research Libraries' Author Addendum—it's an excellent way to ensure that authors retain select rights."

Books, she adds, are currently not being considered for Scholars Commons.

"The publisher restrictions are usually quite a bit different. At the moment, we're focussing on articles simply because it's a bit more straightforward, but books and book chapters are something that the Scholarly Communication Committee is considering in the future."



Caitlin Bakker, Laurier library's digital projects coordinator.



WATER research

Laurier water researchers > Continued from page 1

Ontario Water Consortium). Not to mention CRI (the Canadian Rivers Institute).

Here's an update on what they all do and some of the many people involved.

The Cold Regions Research Centre is based in the geography and environmental studies department and began in 1988. It evolved from a large multidisciplinary research and training project on snow and ice hydrology in the Karakoram Himalaya of Pakistan. Today, the CRRC's focus is on mountain and northern cold regions and covers areas such as hydrology, climatology, glaciology, resource management, parks planning and biogeochemistry.

"We have ten active members," says CRRC director Rich Petrone, including the current president of the International Association of Hydrological Science, Gordon Young, who was a founding member of the CRRC when he was at Laurier.



View of a Greenland Icesheet, near Kangerlussuaq, Western Greenland.

"We have a focus on environmental issues and resource issues in cold regions," says Petrone, a professor in geography and environmental studies. "More than half of our members are involved in water and climate change issues, such as securing water resources in a changing environment, the effects of melting permafrost, and the effects of climate variability and human disturbance (including resource extraction and forestry operations) on the boreal plain." CRRC members involved in cold regions water research include Derek Armitage, Mike English, Bill Quinton, Brent Wolfe,

Jody Decker, and Rich Petrone.

The **Laurier Institute for Water Science (IWS)** is a multi-disciplinary, collaborative undertaking among faculty members with a variety of interests, including climatology, hydrology, geochemistry, ecology, toxicology, risk assessment, and public policy development. It includes many of the members of CRRC with an expanded membership that draws from expertise in chemistry, biology, and math as well as economics and the social sciences.

IWS is focused on addressing water issues that matter most to Canadians and the global community in general, including the effects of climate change, the sustainability of healthy aquatic and coastal ecosystems, and the development of regulations and policy related to water use.

It is structured into three areas of research: Public policy and management, Ecological and biogeochemical sciences, and Hydrological sciences.

IWS members include geographers Derek Armitage, Mary-Louise Byrne, Mike English, Rich Petrone, Brent Wolfe and Scott Slocombe, chemists Hind Al-Abadleh and Scott Smith, biologists Stephanie DeWitte-Orr, Kevin Stevens, Jennifer Baltzer, Lucy Lee, Jim McGeer, Gabriel Moreno-Hagelsieb, Jane Rutherford, Deb MacLachy, Robin Slawson and Mike Wilkie, and economist Frank Millerd as well as Kristen Porritt from the Development Office.

IWS joined the **Canadian Rivers Institute** in 2011. The CRI is a network of researchers with common interests in aquatic science from across Canadian universities, government and industry, and membership will allow IWS researchers to expand their capacity for collaborations at the national level.

Internationally, IWS, together with Laurier International, is playing a part in the multi-university proposal for research programs directed at environmental issues in the Yangtze River/Three Gorges Reservoir area of China. If successful, the program (which would have several Chinese partners) would lead to a better understanding of water issues on a global scale and enhance Laurier's ability to provide leading-edge research opportunities for graduate students.

IWS and CRRC worked together to develop the **Canadian Aquatic Laboratory for Interdisciplinary Boreal Ecosystem Research (CALIBER)**. The boreal forest stretches from Yukon to Newfoundland and takes in about 35 percent of Canada's total land area. Boreal aquatic ecosystems make up Canada's largest

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freshwater reserve. CALIBER applies a holistic, interdisciplinary and ecosystem approach based on watersheds, responding to the urgent and serious concerns over the flows and storage processes, and the effects of nutrients and contaminants on boreal freshwater.

Hydrologists Bill Quinton, Mike English, Brent Wolfe and Rich Petrone have considerable experience in Canada's north. Quinton's research has included studying deteriorating permafrost around Fort Simpson and Inuvik in the Northwest Territories, and English has been researching the retreating permafrost along the treeline north of Tlicho territory. Wolfe's research has focused on quantifying historical hydrologic and climatologic regimes in the north using state of the art palaeohydrological techniques, while Petrone's research has focused on the role of ground ice in atmospheric fluxes and feedbacks with anthropogenic disturbance along the transition zone from permafrost-free to discontinuous permafrost.

Their research resonated with Northwest Territories' Environment Minister Michael Miltenberger, who has had a long-standing interaction with Bill Quinton, and brought CALIBER into the headlines in 2010 when Laurier entered into a \$6.3 million partnership agreement with the NWT. The territorial government will provide \$2 million over five years to support CALIBER's research activities. The NWT in particular wants to advance research on water stewardship, including research on basin-scale drainage and energy flow processes in the boreal environment, and to develop laboratory and field methodologies to improve assessments of the effects of contaminants.

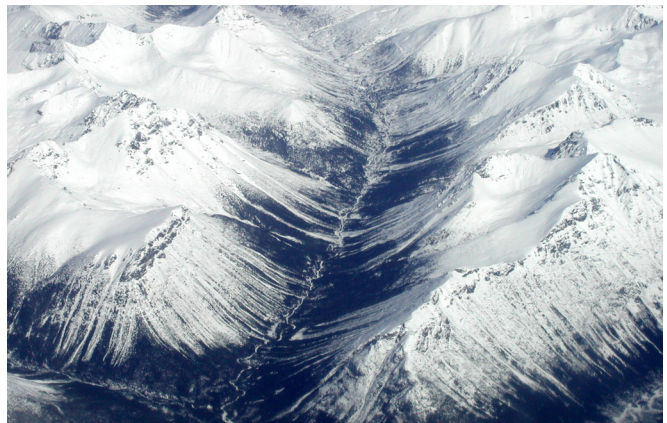
Laurier undergraduate and graduate students are being trained to conduct research in the north, but training Northerners to also conduct research is part of the project.

The **Southern Ontario Water Consortium**, meanwhile, also created headlines a few months ago. In August, the Federal Economic Development Agency for Southern Ontario (known to everyone as FedDev Ontario) announced an investment of \$19.5 million in the consortium, which is made up of universities, private sector companies, municipalities, and not-for-profits. IBM is contributing another \$20 million.

The consortium, Kitchener-Waterloo MP Peter Braid said at the time of the announcement, "will be a superlab for research into new technology to treat water and wastewater."

Laurier researchers involved in the consortium

include Mike English and Rich Petrone (Effects of urbanization and landuse change on water integrity), Deb MacLatchy and Jim McGeer (Wastewater and water re-use), and biology professor Robin Slawson (Safe drinking water/pathogen analyses).



Top and bottom photographs, Scotty Creek, Northwest Territories; centre photograph, south-central Yukon. All are field sites for Laurier water and cold regions researchers.



WATER research

profile: Jennifer Fresque-Baxter

Water and the community in Fort Resolution, NWT

Great Slave Lake in the Northwest Territories is the 12th-largest lake in the world and, with a maximum depth of 614 metres (Lake Superior's is 406 metres), it is the deepest lake in North America.

Its primary sources are the Hay and Slave rivers, and it is the headwater of Canada's longest river, the Mackenzie. There are no major population centres on Great Slave Lake. The largest is Yellowknife, with about 20,000 people, which is about half the territory's total population.

The Northwest Territories is one of the two jurisdictions in Canada where Aboriginal peoples form the majority.

In Fort Resolution, a Dene and Métis community where Geography and Environmental Studies PhD student Jennifer Fresque-Baxter conducts her research, the population is about 500. The predominant languages are English, Chipewyan and Michif.

Fresque-Baxter has spent seven months in Fort Resolution over the past 2-1/2 years, working with the community on water issues.

"Water is a huge concern" there, she says. People get their drinking water from the lake, and the nearby Slave River delta is important for hunting as well as culturally. The lake provides whitefish, burbot, gold-eye, walleye, lake trout and pike. A 2008 study found that 69.4 percent of the households in Fort Resolution obtained at least half their meat and fish from the land.

"There are concerns about changes to the water," says Fresque-Baxter. Water levels are dropping, navigability of waterways is threatened, and the quality of the water is being questioned. There are worries about animal and fish health.

Fresque-Baxter's research (Dr. Derek Armitage is her advisor) is following up on research done by another of Armitage's students, Sonia Wesche.

"It's primarily oral at this point," she says, "incorporating traditional and local knowledge when looking at how the water is changing, people's thoughts on that, and how it should be managed. We are also looking at how people are adapting to change."

One of the key aspects of her research is examining sense of place, the relationships local people have with the land and the water, "and also what happens to those relationships when things change as rapidly as they have been".

"The water in the lake dropped quite a few inches



in 2010," and some "abnormal" fish with tumors or cysts have been caught.

Fresque-Baxter has also been involved in early efforts in the development of a community-based water monitoring program, called the Slave River and Delta Partnership. "It's a unique collaboration between Aboriginal organizations, government agencies, and universities to assess the health of the Slave River and the Delta."

Fresque-Baxter's research program has been developed in close partnership with the community, and she has enjoyed the opportunity to become actively involved in the community. She has learned how to set fish hooks, participated in hunting trips and fished, and spent considerable time on youth programs such as a Halloween haunted house and video dances.

She is also doing a photography project at the local school.

"I brought up a ton of digital camera equipment, and we've integrated photography into the Grade 7 and Grade 12 curriculum. Students take pictures of plants and ice and whatever, and then write stories to accompany the photos. The essays and photos will be put together as a book. It was a neat way to jumpstart the (research) program."

Living in Fort Resolution for six months has had an unexpected impact on the Ottawa native.

"I connected with Fort Resolution in a way I hadn't expected," Fresque-Baxter says.

"I have an adoptive family there and it's home to me now. I want to keep working in the north."

profile: Robert Feagan

“People need better access to food”

“One of the most difficult things I’ve tried to do is to define ‘local,’” says Laurier Brantford geographer and environmental researcher Robert Feagan.

Defining “local” is apparently trickier than your Oxford dictionary would have you believe.

“A lot of geographers,” says Feagan, “have been working on ideas of local and place and community for many years – and it seems to have special significance these days in a global world.”

Or, as he put it in the abstract of a paper titled “The place of food: mapping out the ‘local’ in local food systems” published in 2007 in the journal *Progress in Human Geography*: “Being conscious of the constructed nature of the ‘local,’ ‘community’ and ‘place’ means seeing the importance of local social, cultural, and ecological particularity in our everyday worlds, while also recognizing that we are reflexively and dialectally tied to many and diverse locals around the world.”

Though he doesn’t want to hazard a one-sentence definition of “local”, in the spirit of that difficult geographic idea, Feagan has been working tirelessly on local food initiatives.

“I try to act locally, while thinking globally,” he says. “My research among many things has to do with community-supported agriculture, farmers’ markets, community gardens, and local food maps. For instance, in the last two years I’ve been involved in a partnership with the Brant County Federation of Agriculture working on a ‘buy local, buy fresh’ food map.”

With the assistance of a grant from the Ontario Market Investment Fund through the Ministry of Agriculture, Food and Rural Affairs, Feagan, with some administrative help from a

student assistant, interviewed about 40 Brant County producers of products like beef, honey, vegetables, lamb, and blueberries.

The map, now in its second edition, helps consumers to purchase agricultural products right from the source, benefiting both the producer and the consumer in this county.

Another initiative Feagan is involved with is community gardening.

“The Grand River Community Health Centre has an alternative focus on health,” he says. There are “many people with poor access to food in Brantford,” and setting up gardens – there are now about a dozen in operation – on church properties, apartment building sites, or schoolyards not only provides better access to food, but also “people will see a connection between health and food, and maybe kids will learn where food comes from.”

That, he says, is all part of a bigger picture: food security. “People need better access to food.”



Robert Feagan (left), serving as “Celebrity Chef” on the Brant County Federation of Agriculture’s “Bountiful Brant” local food website.



ENVIRONMENTAL research

profile: Barry Colbert

Starting conversations on business & sustainability

Barry Colbert, associate professor of policy and strategic management in the School of Business and Economics and director of the CMA Centre for Business and Sustainability, counters the opinion that business should be values-free with a concerted effort toward “trying to make values explicit.”

The main question he has been working on is “what does sustainability mean to Canadian business?”

His research has focused on the importance of conversations about sustainability as a key driver of change.

A SSHRC special call research grant has funded research into the role of those conversations in collaborative environmental non-profit organizations, what is turning out to be a new institutional form.

This research is raising interesting questions about the roles of institutional partners in the conversation. Is there such a thing as a neutral role? What is the identity of these collaborations: primarily industry organizations or arms-length resources and services?

The next stage of his research is looking at the education side, at how these ideas about sustainability can find their way into management education. Last year, together with Elizabeth Kurucz, assistant professor of organizational behaviour and sustainable commerce at the University of Guelph, they convened a workshop at Guelph for post-secondary education faculty from 16 institutions, all about integrating sustainability into the business curriculum.

Looking beyond curriculum, they also asked the questions “how can applied research centres act as facilitators for conversations in the larger community? Can research centres function as a hub, creating sustainability focused learning networks?”



“Our method,” Colbert said, “is, as Gretzky would say, to skate to where the puck is *going* to be” when looking at the relationship between business and environmental sustainability.

Colbert speaks strongly of the important role of research in business education. “Researchers help keep track of the real world,” he says. “And research helps inform teaching as well as management practice, especially in business and other applied disciplines.”

Colbert serves as director of the CMA Centre for Business and Sustainability, a Laurier centre with 25 affiliated faculty members. The goal of the centre is fostering sustainable management by developing and mobilizing knowledge on the integrations of business and a sustainable global society. The centre serves as a catalyst to bring together faculty researchers, students, and leaders from industry and civil society to build capacity for progressive, socially, and environmentally engaged management practice.

A practical spin-off from Colbert’s research came on the heels of a directed reading course he designed with two students interested in business and the environment. One of their tasks was to create a business plan for “Sustainable Waterloo,” investigating the viability of establishing a not-for-profit in Waterloo Region that would help organizations achieve carbon reductions through collaboration and education.

The CMA Centre for Business and Sustainability helped fund start-up research tracking how such an organization can shift community conversations about sustainability. With the Centre as one of its founding partners, Sustainable Waterloo was incorporated as a not-for-profit in 2008, expanding its identity to Sustainable Waterloo Region in 2011.

Mike Morrice, one of the students in that directed reading course, now serves as Executive Director of Sustainable Waterloo Region. He and Chris DePaul, the other student in the original project, both serve on the board of directors, of which Colbert is chair.

Colbert continues to work with what he calls the “narrative arc” of conversations about sustainability between business, civil society, and academe. How do we generate inclusive, meaningful conversation for positive change?



profile: Byron Williston

Climate change is “inescapably an ethical question”

Byron Williston, associate professor in Laurier’s philosophy department, focuses broadly on environmental ethics, but very precisely on the ethics of climate change.

Right now, he’s particularly excited by the fact that his book, *Environmental Ethics for Canadians*, has just been published by Oxford University Press.

Having taught environmental ethics off and on for many years, he was startled by the latest textbooks that included only material that was in a US context. Since, obviously, this is not just a US issue, he set out to rectify this problem. He put together a book from a Canadian perspective, combining an anthology of classic articles with his own commentary and numerous case studies from the Canadian environmental scene.

Parallel to his pedagogical concerns is his work as a philosopher and researcher. Working in the field of climate ethics, his focus is on how exactly to define climate change as an ethical issue.

Climate change is firmly interdisciplinary, of course, with a broad range of people writing on the issue, including political scientists, economists, scientists, and novelists. The philosopher brings a particular point of view to the mix, maintaining that climate change is fundamentally and inescapably an ethical question.

In some ways, he maintains, we wouldn’t need environmental ethics if the issues involved weren’t practical dilemmas. However, for the philosopher, it’s not just a cost/benefit analysis. The ethicist, Williston says, is also concerned with “what is right and just, with looking for ways to resolve ethical conflict in rationally satisfying ways.”

“Take for example the recent climate talks in Durban. The position of the Canadian government on this issue is that the only thing that matters is absolute levels of emissions, and this is why China and India ought to bear just as heavy a burden as developed countries should.

“So Canada explicitly rejects the per-capita emissions statistic, which they think is meaningless. But it’s not because it defines the equity issue. Developed countries have gotten rich using more than their fair share of a limited resource—the atmosphere’s absorptive capacity—and this places a moral burden on us to do more than developing countries to alleviate the



problem, at least in the short term.”

Acceptance of climate change as a real problem varies widely, however. The 5th assessment report by the international Intergovernmental Panel on Climate Change (IPCC) is due to be released in 2013/14. With each successive report, the sense of urgency has grown more pronounced and the language has grown stronger regarding the solidity of science behind climate change assessment.

“Skeptics are on shaky ground” these days, says Williston, “yet the power of vested economic interests is strong.”

“The world is amazingly complex,” he says. “Any solution we come up with will impose costs in other areas. This is a classical practical dilemma. No matter which direction we go, there may be rational regret, but that doesn’t mean we did wrong.”

He adds, “from the standpoint of environmental and social sustainability, we can’t always do what is strictly best, so sometimes we have to be satisfied with the least unsustainable course of action.”



INDIGENOUS research

health RESEARCH

profile: Carole LeClair

“Environmentalism is the story of how we are all related”

Dead Skunk was a big hit for Loudon Wainwright III in 1972. All over North America, people were singing along with the radio, “Dead skunk in the middle of the road, stinkin’ to high heaven.” It was considered a cute song.

Would it be a hit today? Maybe. But Dr. Carole

Leclair wouldn’t be singing along.

Leclair, a professor of Indigenous and Contemporary Studies at Laurier Brantford, would stop her car beside the dead skunk, dog, cat, rabbit, or whatever. She carries tobacco in her car, and she would offer a gift of tobacco to the animal as a way of remembering it, of



thanking it, of recognizing that this was a being with whom we shared oxygen on our planet.

Certainly, the indigenous way of viewing and experiencing the world around is different than the majority view.

To a non-indigenous person, a tree is a tree, a rock is a rock, a dead racoon is roadkill, and oil sands are a valuable resource to be exploited.

To an indigenous person, “Everything is alive,” says Leclair, a Métis from Manitoba. “Everything is energy.”

Indigenous people are “intuitive, experiential, and skilled at acknowledging energy.”

“The rational mind excludes the whole legitimacy of indigenous thinking. The rational mind denies that this stone is a grandmother or a grandfather. There are energies beyond human understanding. The oil sands are organic...you scar the earth and you pull that stuff out and you think there are no consequences?”

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profile: Susan Cadell

The “positive aspects of stress” and adverse health circumstances

Susan Cadell is a professor in the Faculty of Social Work: “my work is all in health” which she sees as an integral part of her profession.

Cadell started researching “the positive aspects of stress” several years ago. Her area of inquiry generally concerns people dealing with adverse health circumstances.

“The parents of a child with a life-limiting illness will suffer from stress and grief and bereavement, but there will be positive aspects to their circumstances, as well,” she says. Cadell is currently working with families whose child has a condition such as spinal muscular atrophy (SMA), a group of inherited diseases that cause weakness and muscle degeneration. All of the conditions the children have eventually lead to death of the child before or during early adulthood.

In her current research, Cadell is working with families of children with life-limiting illnesses in Canada and the United States. There are 11 institutions involved in the research, including children’s hospitals and hospices, and the purpose of the research is to improve the care the children receive.

“Palliative care is about the individual and the family,” Cadell says.

“It’s about caring for people holistically. Not to minimize the pain or stress or awfulness of the situation, but there can be positive aspects” in caring for a dying child.

“Parents find themselves having enriched relationships with the ill child and with their children who are well. Some friends fall by the wayside,” but new connections are made because so many parents in similar circumstances talk to one another or they find those who can fully engage with them.

“Parents also learn new things. They speak the language of their child’s illness. They



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profile: Lillian DeBruin

Multiple Sclerosis research at the molecular level

At a very basic level, researchers know that the myelin sheath wraps around nerve axons, protecting and insulating them. They also know that in diseases such as multiple sclerosis (MS), the myelin membrane has become damaged.

Over the years, researchers have identified some of the processes involved in that damage, but haven't yet identified the causes. And if a cure for MS is to be found, they need to find a way to stop that damage.

Lillian DeBruin, Laurier assistant professor in chemistry and health sciences, is a biochemist looking at the roles of proteins and lipids in health and disease.

Specifically, her lab is at work isolating membrane microdomains to determine what proteins exist within the myelin. So far, they've found some proteins of interest. The process is to look first at the proteins in healthy tissue, then at diseased tissue, trying to establish the differences.

DeBruin is committed to the discovery approach to research, while other scientists work at translational or clinical research. The discovery approach is basic research – and in DeBruin's case, it's molecular research.

She has "always been interested in looking at diseases on a molecular level," and her post-doctoral fellowship at the University of Guelph gave her the opportunity to get involved in multiple sclerosis research.

MS is a complex disease, and there is still a great deal to be learned. DeBruin says, "I remember meeting a researcher at Sick Kids hospital who has been involved in myelin research for more than 40 years. He had the choice, when young, to specialize in cancer or MS research. He figured cancer would be cured by now, so he chose MS."

There are still a lot of questions in figuring out the complexity of the disease:

- What are the possible mutation points in this multifactorial disease?
- How do you correct a nerve pathway that's gone awry?
- Why does the disease progress as it does?

DeBruin's specialty:

- What changes occur at the molecular level?

- Why do these changes happen?
And key to finding a cure for MS:
- How do you trigger new myelin growth and repair?

DeBruin is interested in health research, and her work has the potential to have a real impact on health



Lillian DeBruin's research team: (from left) Vatsal Patel (M.Sc. Student), Maryam Rassam (4th year project student), Dr. Lillian DeBruin, Petrease Patton (M.Sc. student), Baindu Kosia (summer student), Ashtina Appadu (M.Sc. student), Alina Reid (NSERC USRA student), and Tianna Costa (4th year project student).

and on health care.

Her research team is a "good group," made up of three MSc students, two summer students, and several fourth year honours students. She finds that most students in the Biochemistry/ Biotechnology and the new Health Sciences programs at Laurier are headed either to medicine or to health research. She encourages her students to go for research and suggests the brightest should aim for a combined PhD/MD.

Her research is funded by both NSERC, where she is doing basic myelin membrane research, and the MS Society of Canada, for whom she has just finished a project that identified a few interesting proteins that haven't been characterized in myelin before.

Her work in what she sees as essential basic discovery research is a challenge, and one with important implications for people suffering from MS and similar diseases.

The challenge, she says, is "first, how to find the pieces and then figuring out how you put them together – especially if you're not sure what you're looking for" since so much of the molecular world is uncharted.



HEALTH research

profile: Renée MacPhee

Helping paramedics avoid injury and stay healthy

It all started with a part-time job as a clerk in St. Mary's emergency department during graduate school. Renée MacPhee, assistant professor in the department of Kinesiology and Physical Education, came to know many of the Waterloo Region EMS paramedics as they brought patients in by ambulance.

Many years later, the Association of Municipal Emergency Medical Services of Ontario (AMEMSO) assembled a working group to look at injury among paramedics.

They were seeing young paramedics who were healthy and vibrant with career-ending back injuries, and on the other end of the spectrum, experienced medics, with fifteen or twenty years service, were all of sudden being injured.

Why?

MacPhee received a seed grant in 2010 from the UW Centre of Research Expertise for the Prevention of Musculoskeletal Disorders to mount an "Investigation of injury rates and causes of injury among Emergency Medical Services (EMS) Paramedics."

The project is a longitudinal study. In the first phase, a literature review revealed that there are no clear numbers on how many paramedics have been hurt on the job.

Phase 2 involves a survey of 7800 paramedics, the largest study of EMS personnel in the province.

The pilot study asked about injuries at work over the years. This resulted in more questions being suggested by the responding paramedics themselves.

The current state of the questionnaire will look at measures of comprehensive health status, lifestyle factors, and injuries both on and off the job.

One of the challenges has been ensuring the questionnaires get to EMS paramedics throughout Ontario, including the far north.

Phase 3 of the study will be lead by MacPhee's co-investigator from Queen's, Joan Stevenson. Based in part on results of Phase 2 data, this stage will look at what physical tests need to be devised to measure the ability to do the job in EMS.

MacPhee says that this is "landmark research in that no one in Ontario has done such a comprehensive study."

And the paramedics she works with have told her "it's about time!"

As academics, MacPhee and Stevenson can work at arms-length from the actual job as they investigate paramedics' health and injuries. Their goal is "to get a comprehensive picture of paramedics and how we can help them stay healthy and do their job."



Laurier Kinesiology professor Renée MacPhee (right) with Gary Mifflin, a Region of Waterloo EMS paramedic.

Like many researchers, MacPhee has more than one research project on the go. She is also part of the Resuscitation Outcomes Consortium (ROC) at the University of Washington.

The international cardiac arrest research group includes scientists and researchers at seven Ontario sites as well as British Columbia in Canada. MacPhee is the study coordinator for the Waterloo site, and is beginning a new CPR study on continuous compression this month.

award ANNOUNCEMENTS

External grants, Canada Research Chairs, Early Researcher Awards announced

Since the last newsletter, official announcements were made of a number of external grants, including SSHRC Standard Research Grants. These have been added to the electronic copy of the Spring 2011 newsletter on our website.

In August, Hind Al-Abadleh and Kenneth Maly,

both from Laurier's chemistry department, were awarded prestigious Early Researcher Awards by Ontario's Ministry of Research and Innovation.

In October, Laurier officially welcomed three new Canada Research Chairs and the re-appointment of a fourth (see below).



Left, Hind Al-Abadleh, top, and Ken Maly, bottom, 2011 Early Researcher Award recipients

Above, from left, Alison Mountz, Canada Research Chair in International Migration (tier 2); Jennifer Baltzer, Canada Research Chair in Forests and Global Change (tier 2); Tripat Gill, Canada Research Chair in Market Insight and Innovation (tier 2). Right, Roderick Melnik, Canada Research Chair in Mathematical Modeling (tier 1, renewed)



Carole LeClaire > Continued from page 10

Indigenous Studies, she says, is "a discipline that enables people to explore traditional cultures, to explore what it means to think about the world from a different cosmology. Indigenous Studies examines the cosmologies of tribal peoples," and not just from North America. "There is a similarity globally between indigenous peoples."

From an indigenous perspective, Leclair says, "environmentalism is the story of how we are related to each other and how we live out our original instructions."

"For some, those instructions came from our creator. For others, it's from our DNA. It's that simple."

In addition to teaching and writing, Leclair, like other Aboriginal scholars, is an active participant in the community.

She works with inner city aboriginal students, helping them to meet their educational goals through the non-profit Métis Women's Circle.

Susan Cadell > Continued from page 10

find a purpose in their own lives. It may be religion, or a sense of connectedness to something larger than oneself. People often find they fear death less, but they are cognizant of their own mortality."

There are few things scarier to a parent than the thought of a child dying.

"It took 18 months to get all the ethics approvals," she says. The families, she explains, "are seen as a vulnerable population," so great pains were taken to make the research sensitive to their perceived state of mind.

To the researchers' surprise, however, "when we asked the parent caregivers if they were open to follow-up research, over 90 percent said yes."

"It's not depressing," she says of her work. "In my naïveté, I thought it would be depressing. But it's about living...it's working with life. As one parent said, 'This is not a place of death. It's a place of life and joy. It's about living'. It's really affirming, and not depressing."



Two history books mark Laurier100 celebrations

Two new publications distributed by WLU Press tell the history of Wilfrid Laurier University from a variety of perspectives. Both were published with support from the Laurier 100 centennial committee.

I Remember Laurier is the story—actually, thirty-seven stories—of the little university that could, told by some of those who devoted themselves to transforming the school from its modest beginnings into a superb small liberal arts college, and in turn to the university whose growth, diversification, research, and partnerships characterize it today.

Included are reflections, sometimes bemused and sprinkled with humour, on professors, administrators, and students, the “Laurier Experience,” and significant events such as “WLU” becoming “WLU.”

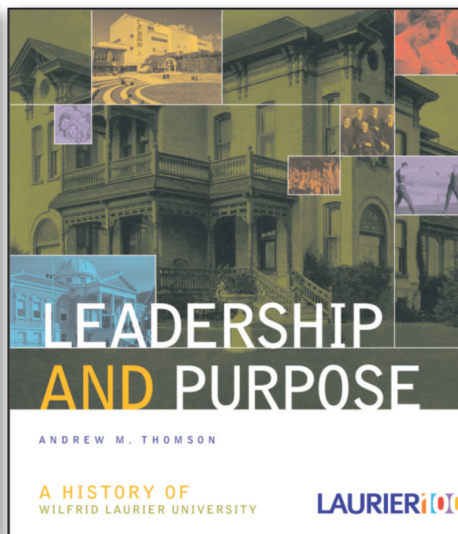
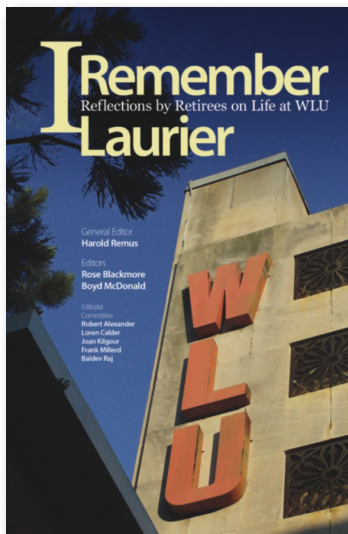
Evident throughout is the pride of the contributors in the development of the university to its current

status and in having played a role.

On October 30, 1911, a jubilant crowd of nearly 1,500 people gathered in their Sunday finest on the lawn of a large home on the rural outskirts of Waterloo, Ontario. They were there to mark the opening of the Evangelical Lutheran Seminary of Canada.

Even the most optimistic supporter could not have foreseen how this small religious school would evolve over the next 100 years into a thriving public university with 17,000 students and a national reputation for teaching and research excellence.

In *Leadership and Purpose: A History of Wilfrid Laurier University*, historian Andrew Thomson tells the remarkable story of an academic community whose vision, determination, and perseverance are a testament to the transformative power of education.



Harold Remus, Rose Blackmore, and Boyd McDonald (all Laurier retirees), editors, *I Remember Laurier: Reflections by Retirees on Life at WLU*. Wilfrid Laurier University Press, 2011.

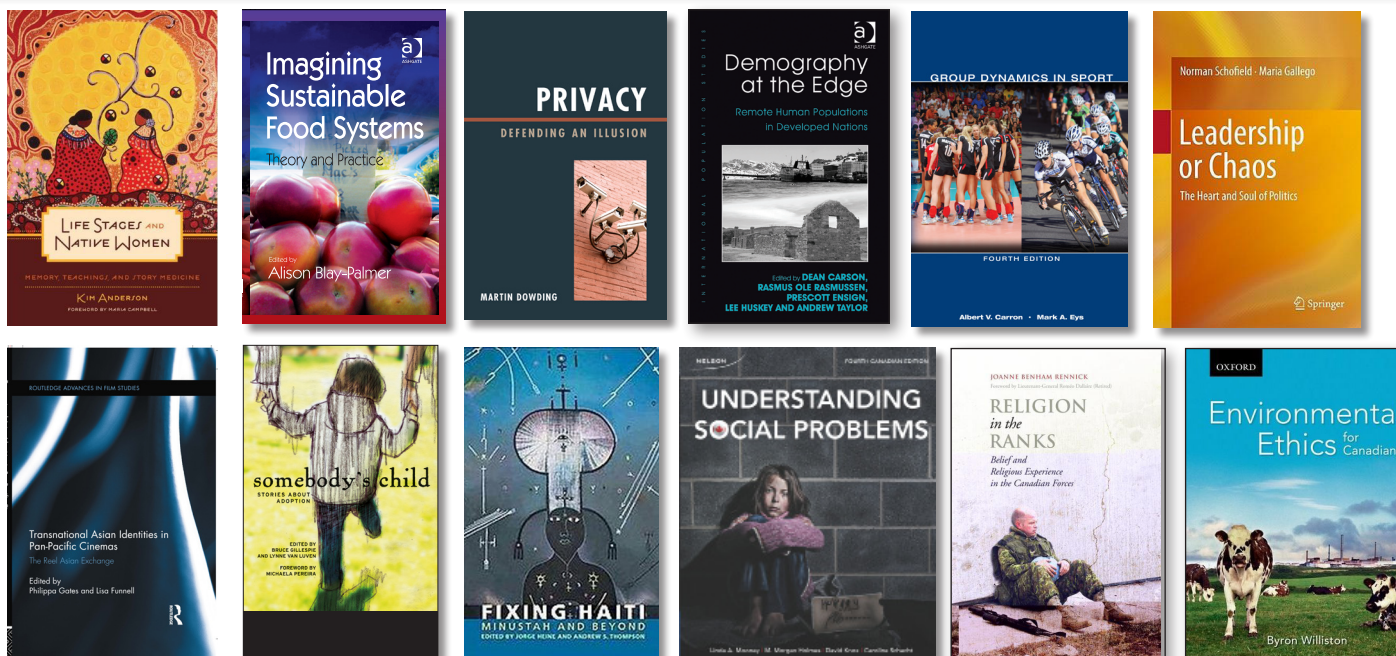
Andrew Thomson (History), *Leadership and Purpose: A History of Wilfrid Laurier University*. Wilfrid Laurier University, 2011.



Above: WLU Press Director Brian Henderson (right) in conversation with Carolyn Arnason (Music Therapy) at the Research Office's “Celebrating 100 Years of Research” event on October 3.

Left: WLU Press book display at the Research Office's Laurier 100 event.

faculty BOOKS & CDs



New books by Laurier faculty

Kim Anderson (Brantford). *Life Stages and Native Women: Memory, Teachings, and Story Medicine*. University of Manitoba Press, 2011.

Alison Blay-Palmer (Geography and Environmental Studies), editor. *Imagining Sustainable Food Systems: Theory and Practice*. Ashgate, 2010.

Martin Dowding (Communication Studies). *Privacy: Defending an Illusion*. The Scarecrow Press, 2011.

Dean Carson, Rasmus Ole Rasmussen, **Prescott C. Ensign** (SBE), Lee Huskey, and Andrew Taylor, editors. *Demography at the Edge: Remote Human Populations in Developed Nations*. Ashgate, 2011.

Bert Carron and **Mark Eys** (Kinesiology and Physical Education). *Group Dynamics in Sport*, 4th edition. Fit Information Technology/ West Virginia University, 2011.

Maria Gallego (Economics) and Norman Schofield. *Leadership or Chaos: The Heart and Soul of Politics*. Springer, 2011.

Philippa Gates (English and Film Studies) and Lisa Funnell, editors. *Transnational Asian Identities in Pan-Pacific Cinemas: The Reel Asian Exchange*. Routledge, 2011.

Bruce Gillespie (Brantford, Journalism) and Lynne Van Luven, editors. *Somebody's Child: Stories about Adoption*. Touchwood, 2011.

Jorge Heine (Political Science) and Andrew Thompson, editors. *Fixing Haiti: MINUSTAH and Beyond*. United Nations University Press, 2011.

Linda A. Mooney, David Knox, Caroline Schacht, **Morgan Holmes** (Sociology). *Understanding Social Problems* 4th edition. Nelson, 2012.

Joanne Benham Rennick (Brantford). *Religion in the Ranks: Belief and Religious Experience in the Canadian Forces*. University of Toronto Press, 2011.

Byron Williston (Philosophy). *Environmental Ethics for Canadians*. Oxford University Press, 2011.

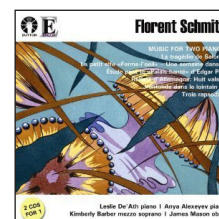
Forthcoming book or CD?

When you have a book come into print or a CD released, please let us know so we can feature your work here.

Send the publication information and a high-resolution cover image to research@wlu.ca.

New faculty CD

Leslie De'Ath, **Anya Alexeyev**, **Kimberly Barber**, **James Mason** (all Faculty of Music), **Florent Schmitt**: *Music for Two Pianos* (two CDs) Dutton Epoch, 2011. [note: the recordings were made in Laurier's Maureen Forrester Recital Hall.





LAURIER100



Carl Klinck received his BA from Waterloo College, then returned to teach in the English Department in 1928. He was Dean of Waterloo College from 1943 to 1948. He is best known as a pioneer in the field of Canadian literature, editing the first edition of the *Literary History of Canada* in 1965. In 1973, he was made an Officer of the Order of Canada.



Marion Axford (second from left) was a professor of mathematics, Dean of Women, and Registrar at Waterloo College starting in the 1940s. She played a key role as advocate for female students at the university and was active in university administration at a time when senior roles for women were rare. She is shown here with students in the Waterloo College women's residence in 1949.



In 1945, Ulrich Leupold (sitting at the organ), one of the first trained musicologists to settle in Canada, came to Waterloo Lutheran Seminary to teach New Testament theology and church music. He is shown in this 1956 photo with Nils Willison, the first WLS graduate in 1914 and Waterloo College professor, 1918-28.

Research Office Celebrates 100 Years of Research at Laurier



(Top) On October 3rd, Abby Goodrum, Vice-President: Research, brought together Laurier research chairs, research centre directors, and award winners along with Laurier staff and invited members of the public to celebrate "100 Years of Research at Laurier" at the Communitech Hub in Kitchener.



Left photo: Marc Kilgour, Abby Goodrum and Barbara Carmichael.



Right: Alison Mountz, Margaret Walton-Roberts and Sukhvinder Obhi.

LAURIER100 OFFICE OF RESEARCH SERVICES