

# MATTERS

## Babies

they are what their  
mothers eat

research

youth speak

selling violence

teacher abuse: disturbing truth revealed

Newfoundland: Singapore of the Atlantic

# Letter from the editor

I have a confession to make: I am not a graduate of Memorial University. Unlike most Newfoundland and Labrador university graduates, I did not know the MUN tunnel (MUNnel) system like the back of my hand until I started working here. That was five years ago. I can now find my way to almost any building on this expansive campus without ever stepping foot outside. I've gotten to know Memorial pretty well from the inside out, including many of the researchers and what they do.

Since beginning as communications coordinator with research, I have been continually amazed at the pride with which so many researchers talk about their work and its relevance to the people around them. Memorial is about applied research and finding solutions to issues and problems facing our society — some directly and some indirectly. It's research that contributes to our social, economic and cultural and personal well being. This is a concept I've heard referred to as 'translational' research. In other words, it is relevant to you and your community.

In this issue, you'll find stories about exploring the history of our land and our ancestors, a closer examination our educational system: its downfalls and its potential, what Labrador has in common with the moon, the effects of nutrition on babies and many other stories from researchers who are very passionate about what they do.

This is my first *Research Matters* magazine. I'd be happy to hear your comments about this issue and any ideas you have for future issues. Enjoy.

Michelle Osmond

A handwritten signature in black ink that reads "Michelle Osmond". The signature is written in a cursive, flowing style.

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# curbing obesity

by Jeff Green

**A DRAMATIC INCREASE IN OBESITY RATES IN CANADA**—particularly among young adults—has prompted a team of researchers from Memorial University to look at new ways to trigger weight loss for those battling the bulge.



“We have shown that after being exposed to hypoxia, our body is utilizing more fat.”

Armed with \$10,000 in funding from the Newfoundland and Labrador Centre for Applied Health Research, the team from the School of Human Kinetics and Recreation analyzed whether or not hypoxia can increase basal metabolic rate—an indirect measurement of total energy expenditure at rest—and possibly lead to weight loss.

It's part of a pilot study to understand a complex issue, said Dr. Fabien Basset, an assistant professor in the school and the lead investigator. Hypoxia, he explained, is basically a lower oxygen concentration in air that is breathed in and has mainly been used as a means to improve aerobic capacity in high endurance trained athletes. “Lately, new perspectives have emerged from studies on human hypoxia tolerance showing that the majority of weight loss in lean male subjects was attributed to loss of fat mass.”

Dr. Basset and his team—which included master's student Chad Workman and undergraduate student Jessica Rideout—set out to examine whether the same effect of hypoxia could be triggered in sedentary males. To test their theory, they recruited 11 young men between the ages of 19 and 25 with a body mass index of 25. All but one was considered moderately overweight and unfit. The researchers used a machine that simulated high altitude—4,000 metres above sea level. The participants strapped on a special face mask through which they breathed in a hypoxic air mixture using a piece of equipment known as the Go2Altitude.

Researchers assessed participants' energy outflow before and after the treatment following an overnight fast. The results were interesting. “We have shown that after being exposed to hypoxia, our body is utilizing more fat. Let me put it to you this way, if 55 per cent of your energy was coming from fat before the exposition, you increased this value after being exposed,” noted Dr. Basset. “It is an important start. Our research provides valuable information for future research in the area of hypoxia as a new therapeutic strategy to improve the management of weight loss.” ■



# Between a rock and a hard place:

## STUDYING THE COMMON HISTORY OF GRANITE IN NEWFOUNDLAND AND IRELAND

by Michelle Osmond

**THE CONNECTIONS BETWEEN NEWFOUNDLAND AND IRELAND** have been long documented. Cultural, genealogical, social and geographical similarities have been the subject of much research. In fact, Memorial University is home to a Canada Research Chair in Irish Studies and an Irish Studies Collection, consisting of 15,000 books and more than 60 subscriptions to magazines and scholarly journals, reflecting the richness of Newfoundland's Irish heritage.

Dr. Derek Wilton, professor in Memorial's Department of Earth Sciences, first became interested in the geological similarities between Newfoundland and Ireland in 2006 when Dr. Martin Feely at the National University of Ireland (Galway) contacted him. Dr. Feely wondered if he'd be interested in applying to the Irish-Newfoundland Partnership for a collaborative research grant to compare molybdenite-bearing granites between Newfoundland and Ireland. "I jumped at the opportunity," said Dr. Wilton. "While I had heard that the partnership funded research, I was under the mistaken impression that the program was restricted only to social science and arts projects." They were awarded 10,000 euros and were the first earth sciences project to receive funding in this program.

Dr. Wilton, Dr. Feely and Dr. David Selby from Durham University (UK) completed field work on the Burin Peninsula, the Terrenceville-Rencontre East and south of Buchans areas. "Last October I spent three weeks visiting and sampling various

occurrences in remote areas along the south coast of Newfoundland with Dr. Selby, along with a post doc and grad student from NUIG and Dr. Andy Kerr from the Newfoundland and Labrador Department of Natural Resources," explained Dr. Wilton. "Dr. Selby is world expert on Re-Os dating of molybdenites and a key component of the research will be to date the granites and their mineralization."

They are comparing Newfoundland and Labrador, and Irish molybdenite-bearing granites, because it's been documented that they all formed about the same time in a common continent, and were, at least in part, contiguous. By comparing the chemistries and ages of the granites and molybdenites, the team is hoping to either define similarities or differences between the crusts that underlay the ancient, ancestral (now dismembered) continent. All of which will add to knowledge of how the planet works and how it has changed over time.

"Newfoundland and Ireland were once in proximity as part of the Gondwanan supercontinent. They were subsequently separated 180 million years ago with the opening of the Atlantic Ocean," explained Dr. Wilton. "Just like reconstructing human geography following the separation of Irish and UK people from their descendants in eastern North America, we will attempt to reconnect the family history of granites, and their associated mineral showings, in that ancient continent which existed before the forces of plate tectonic separated them." ■





# Babies

they are what their  
mothers eat

by Kelly Foss





“The message here is when we eat, we’re not just eating for us, we are also eating for the next generation as well.”

**MOTHERS WHO CONTINUE** to eat a diet high in saturated fats while pregnant and nursing are risking the future health of their children. That’s the message from Dr. Sukhinder Kaur Cheema, an associate professor with the Department of Biochemistry.

She has spent years researching nutrition and how it affects health. In particular, she has looked into obesity and diabetes and the cardiovascular troubles they cause. Her current research is based on previous studies which showed that the diets of women who were malnourished during wartime had long-term effects on their children. However, Dr. Cheema notes that little research has been done to see impacts of a high fat diet, until now. Dr. Cheema, along with her PhD student Kanta Chechi, is researching the effects of mother’s diets high in saturated fats on the health outcomes of the offspring.

“The Western diet is very high in fat,” she said. “We also eat the wrong kind of fat in our diet, saturated fat, which can have a damaging effect on your health versus unsaturated fat which is considered beneficial. That’s where a lot of today’s health problems are coming from.”

Dr. Cheema conducted her study on a mice species that is prone to atherosclerosis, a common arterial disease in which raised areas of plaques form on the inner surfaces of the arteries obstructing blood flow. She fed the mice a diet rich in saturated fat, which reflects the typical diet of the North American population. The offspring of these mice were fed regular diets after their birth, modeling the societal norm of feeding children healthy foods.

“We found major effects,” she said. “By feeding this diet to the mother, the offspring of those mothers had high cholesterol, lipid and triglyceride levels in their blood, even after they only ate a good diet during their lives. We also found that certain genes that control those parameters were changed in the offspring. So we certainly found long-term effects. In addition, we found if these mice continued on a post-natal diet that is high in saturated fats, then the detrimental effects of the mother’s diet got even worse,” she added. “But if the offspring went on a healthy diet then they could partially divorce themselves from the negative effects of the mother’s diet. So eating healthy for these offspring is especially important.”

Dr. Cheema looked at the animals aortas, how they contracted and relaxed and how they pumped blood to the body to see if that had changed at all. “These functions control blood pressure and reflect the onset of atherosclerosis,” she said. “We found the aortic function was different in the offspring from mothers fed a saturated fat diet when compared to the mothers fed a normal diet.”

Dr. Cheema says this might explain why some people still have problems even if they eat well and exercise. She adds that the research does indeed prove that people are born with certain genes, passed on to them by their mother and grandmother, which control their health outcomes.

“The message here is when we eat, we’re not just eating for us, we are also eating for the next generation as well,” said Dr. Cheema. “So it’s not just your own health, but also the health of your children that is in your hands.” ■

# Birds of change

by Kelly Foss



**THE COMMON MURRE** may only weigh a kilogram, but researchers at Memorial University consider these seabirds to be comparable to Olympic athletes. They are watching the species carefully, in particular to see what they can learn about the impacts of climate change.

Dr. Bill Montevecchi of the Department of Psychology has been studying the behaviour of seabirds for more than 30 years. In that time, technology has made major changes to the kinds of information he, his post-doctoral researchers and graduate students can now track.

“We have always worked on seabird islands where we could get really close to the birds and watch them, weigh them, measure them, measure their chicks, get fish from them and figure out what they were eating,” said Dr. Montevecchi. “Yet we were not able to integrate that information with what the birds were doing at sea. We simply could not track free-ranging seabirds.” But in 1999 everything changed. That’s when Dr. Montevecchi and his team started using small light-weight bird-borne devices with which they could track birds and directly assess their foraging tactics at sea, taking their research to a new level.

“Now we can ask what individual free-ranging birds do at sea, what kinds of decisions they make, where they go and how they are affected by changes in water temperature, fish distributions and ocean climate in general,” explained Dr. Montevecchi. “These micro-technology devices allow us to now interrogate free-ranging seabirds in ways that were not previously possible.”

Dr. April Hedd, a teaching post doctoral fellow in the Department of Psychology, and Paul Regular, one of Dr. Montevecchi’s graduate students in the Cognitive and Behavioral Ecology Program studied murre on Gull Island in Witless Bay and on Funk Island for much of the summer in 2007 and 2008. Mr. Regular says the insight gathered from these devices was nothing short of incredible, particularly the lengths to which the birds would go to find food.

“The birds we are studying on Funk Island fly 60 kilometres, and dive to a maximum of 150 metres

for up to three minutes to find fish,” said Mr. Regular. “They feed themselves, get some for their chicks and then fly back 60 kilometres—and they do that twice each day!”

According to Dr. Montevecchi, their studies of the birds’ eating patterns have shown some clear indicators of the impacts of climate change. “Cold blooded animals like capelin, which murre feed on, are going to be pushed around if the Labrador Current gets warmer or shifts offshore or inshore,” he said. “If the ocean temperature changes, those fish could be in very different places horizontally or at deeper depths. The birds that eat them will have to solve that problem. For these seabirds there is no breakfast, lunch or dinner—there are just varying and transient degrees of satiation or hunger depending on whether or not they have the physical and mental abilities to find and catch fish.”

“The seabirds and our ever-increasing capabilities to investigate their behaviour at sea are providing a real-time assessment of what is actually happening in the ocean.”

Dr. Montevecchi added that such changes in seabird activities and diets have already begun to appear. “The murre are now often diving over 100 metres to get capelin, whereas before they might seasonally get them inshore by diving down 10 or 20 metres,” he said. “The seabirds and our ever-increasing capabilities to track them and investigate their behaviour at sea are providing a real-time assessment of what is actually happening in the ocean. The seabirds are ultimate fishers, they have to find fish. If they don’t get it right, if they don’t eat for three or four days, they die. Mother Nature can be very generous, but she can also be unforgiving and doesn’t take any prisoners.” ■







// It could be as simple as dipping a chip into the well or other drinking water source and getting an instant, easy-to-read response. //



## STUDYING THE ENVIRONMENT and the future of the most important river in Western Newfoundland

by Michelle Osmond

**EARTH SCIENCES, CHEMISTRY AND ENGINEERING RESEARCHERS** are collaborating on a project that will help determine what happens to the future of the Humber River. The results could have an impact on how the river will respond to anticipated changes in climate, tourism, aquaculture, agriculture and local industry.

Dr. Sue Ziegler with the Department of Earth Sciences, who is the principle investigator in the project, Drs. Erika Merschrod and Christina Bottaro from the Department of Chemistry, and Dr. Kelly Hawboldt from the Faculty of Engineering and Applied Science, have received roughly \$60,000 per year for the next three years to launch this multidisciplinary research program to study the effects of human impact in the Humber River Basin.

"What's really exciting about this project is that we can take a very comprehensive 'source-to-sea' view of the river basin, because of the wide expertise of the researchers," said Dr. Merschrod. "We can track the human impact from its source to its eventual fate downstream. From large-scale biogeochemical processes, which can be connected to phenomena such as climate change, to the more local effects of human impact such as industrial contaminants or human waste."

The "wide expertise" means a chemical engineer to identify the source of human based discharges into the water body (e.g. sewage outfalls) and what needs to be measured, chemists who will conduct the measurements, and an earth scientist who will

determine how all of these things flow through the river and impact the wider environment. The information can then be used by the engineers and chemists to identify the sources having the most significant impact and developing technologies or methods to minimize this impact.

The researchers will also be developing new environmental monitoring technologies making this type of work more efficient and accessible in future. For example, microfluidic technology (very tiny tubes embedded in a small chip) will enable researchers to assess water quality in remote areas at lower cost and without complicated equipment. As Dr. Merschrod puts it, "it could be as simple as dipping a chip into the well or other drinking water source and getting an instant, easy-to-read response."

The project, titled Development of a Source-to-Sea Understanding and Monitoring Capabilities for Assessing Human and Climate Change Impacts on Water Resources in the Humber River Basin, is funded through the Humber River Basin Project (HRBP).

As recently reported in the 2008 Research Report, the HRBP is an umbrella network of researchers working out of Sir Wilfred Grenfell College's Centre of Environmental Excellence. From environmental studies focusing on the river's potential as a drinking water source, to historical analysis of how the people have used this river to help them survive, the project is an integrated approach to ecological assessment and long-term monitoring. ■



# SPECIAL ED

by Heidi Wicks



▲ Dr. Dale Kirby

**“I think it’s important for academics to bridge the ivory tower/real world divide and reach out to people outside of the immediate academic community.”**

**DR. DALE KIRBY EDUCATES PEOPLE ON...** well, education. His job is to look at why some groups in Canada run into barriers when it comes to learning. That’s why this Faculty of Education professor has been chosen by The Canadian Council of Learning as a Minerva Scholar for 2007, a travelling, national forum through which the work of six prominent Canadian learning researchers can be celebrated each year and shared with Canadians from all walks of life.

“I think it’s important for academics to bridge the ivory tower/real world divide and reach out to people outside of the immediate academic community,” said Dr. Kirby, “Certainly if you look at the CURA [Community-University Research Alliance] research, it’s an embodiment of the whole Wisconsin idea of bringing academic research and the work of academics to the general public.”

Though today he is an acclaimed scholar, Dr. Kirby doesn’t forget his days as a student activist, where he enthusiastically (he’s a self-professed former rebel) argued that financial blockades were the main deterrent from gaining post-secondary education. He recognizes more than just a green obstruction in today’s educational barriers.

“The institutional, situational, dispositional and academic barriers, what they are and why they are barriers for certain groups in Canadian society,” he identified as some of the areas he is interested in, adding, “What we can do to encourage more people to participate in post-secondary education is another important part of my research. I hope my research will help spread the word about the importance of lifelong learning, especially to the people who hold the reigns of power. I hope they’ll be encouraged to step up and help provide these solutions that we need so desperately for many reasons.”

The Minerva Scholar lecture series is a unique opportunity to understand how research can inform and affect learning for all Canadians. The tremendous acclaim sent Dr. Kirby across the country in February and March to deliver lectures on his research. ■

# WHAT PIGS REMEMBER

by Kelly Foss

// Pigs are great for psychological research and neuroscience because their brains are arguably more similar to human brains than rats. //



## THE AVERAGE PERSON HAS PROBABLY NEVER

wondered about what a pig remembers. But researchers at Memorial University have a good reason for wanting to find out.



▲ Amy-Lee Kouwenberg

Amy-Lee Kouwenberg is a graduate student in the Department of Psychology's Cognitive and Behaviour Ecology Program (CABE). She is currently doing her master of science thesis on whether or not pigs have episodic-like memory.

"Pigs are great for psychological research and neuroscience because their brains are arguably more similar to human brains than rats," said Ms. Kouwenberg. "They are thought to have highly developed mental abilities, but there hasn't been a lot of actual research on their brain function and learning."

Under the supervision of Dr. Carolyn Walsh and Dr. Gerard Martin, Ms. Kouwenberg has spent time conducting a series of tests on Yucatan miniature pigs being raised in a specialized breeding facility to determine exactly what pigs do remember.

"Episodic memory is basically remembering the what, when and where aspects of a previously experienced event," said Ms. Kouwenberg. "We know that it happens in humans because they can tell us, but obviously animals can't do the same. It also requires a sense of self and the ability to move mentally in time, which is difficult to show in animals."

"Episodic-like memory loosens that definition—so if we can get the animals to show an integrated memory of what: an object; where: its location in a test pen; and which: the context in which it occurs, that's a pretty good step towards showing they have episodic-like memory and until now, that's never been done in pigs. It's been done in rats and primates, but nothing in between."

Because pigs have a natural tendency to prefer items they have never seen before, Ms. Kouwenberg was able to expose the pigs to different objects in

different locations and contexts and measure the length of time the pigs spent with each object.

"In order for the object to be familiar or unfamiliar, they had to remember the object, where they had seen it before and in what context it occurred," she said. "The only way the object would be less familiar is if they remembered all three of these things together and we actually found that they did. So we were able to conclusively show the first evidence of episodic-like memory in pigs."

"It's quite exciting because human episodic memory is considered a part of consciousness, and of course there's the big question, are animals conscious or are they not," said Ms. Kouwenberg. "So in the huge picture it has some implications in that if we can show this, maybe we can show further evidence of the kinds of memory which indicate consciousness. Having a test for cognitive function is also quite handy for people who work on physiology and nutrition, to see if, for example, the starvation of a certain nutrient affects their episodic memory."

Ms. Kouwenberg believes her study could be just the beginning of this particular line of pig research at Memorial. There have already been a number of potential follow-up studies identified. "We'd like to look into the differences we found between males and females," she said. "Females seem to respond to tests differently in much of the pig research that has been done, but it may just be that they're more intimidated by the testing arena. We'd also like to look into varying the delay between the exposure to the object and the test to see if the pigs remember the objects over a longer time. Episodic memory also depends on the hippocampus, and impairment of the hippocampus appears to reduce ability for episodic-like memory. So we could also look into how that might affect the pigs' memories."

"This is something that definitely has potential for further study," she added. "These were pretty exciting results to get. Now that we have that answer, there are so many more questions we could ask." ■



# NEWFOUNDLAND: Singapore of the Atlantic?

by Heidi Wicks

**THE FATE OF RURAL NEWFOUNDLAND AND LABRADOR** has been a sore spot in this province for many years. However, Dr. Ken Stevens, professor and researcher in the Faculty of Education, may have a remedy.

Dr. Stevens is a New Zealander and has given advice on rural education and e-learning to the New Zealand Minister of Education, the Department of Education of Newfoundland and Labrador, and Industry Canada in Ottawa, among other organizations.

“E-teaching has paralleled classroom teaching, and online classes have equalled physical classes in this province,” he said. “There are more students being taught by teachers in other places, and students in high schools in small communities now have pathways to places like Memorial University and College of the North Atlantic and an expanding range of subjects taught to them. That has been a success story.”

Dr. Stevens, who came to Memorial as Chair of Tele-learning, has helped the system become more sophisticated, and has also suggested that the e-learning that is happening in schools here could reach beyond that.

“What we’ve got in this island economy is a sophisticated communications network, and what we’ve achieved is collaborative electronic structures to enhance the capacity of the schools and to considerably extend the opportunities for young people. There is the question of how this high-tech infrastructure (in the schools) could be used more effectively. It’s there, and only used for the school day right now, when the hope is that it will reach out into the rest of the community.”

According to Dr. Stevens, this province could be a world leader in e-learning in terms of training other countries to set up learning opportunities beyond urban centres. He adds that countries like Africa, Ghana and many others could benefit from observing Newfoundland’s system.

“Most African communities have vast rural communities as does Newfoundland. From Somalia to Capetown, there are cables right now being laid under the sea. And they are being hooked up with places like Kenya, Uganda, South Africa—all these places where they are mostly rural populations. So it makes no sense for them to go to Toronto or Vancouver, which are cities that don’t really deal with rural population issues. They need to come here to Newfoundland. And e-teachers here then could have a whole other life advising people who really want their skills and information. Then adapt what Newfoundland has done to their own conditions.”

Dr. Stevens also believes that e-learning and e-living could help strengthen the province’s place on the world map. “Since the time I got here (to Newfoundland and Labrador) there have been more and more technological advances. It reminds me of Singapore, which is a high tech society, but has very few resources. They have nonetheless become one of the richest societies in the world by becoming a very serious trading place. Newfoundland is a little like this—but you’ve got far more resources, hard working and well educated people and a lot of technological infrastructure.

“We’ve got something we can train and trade here,” he continued, “that practically every country in the world would be interested in.”

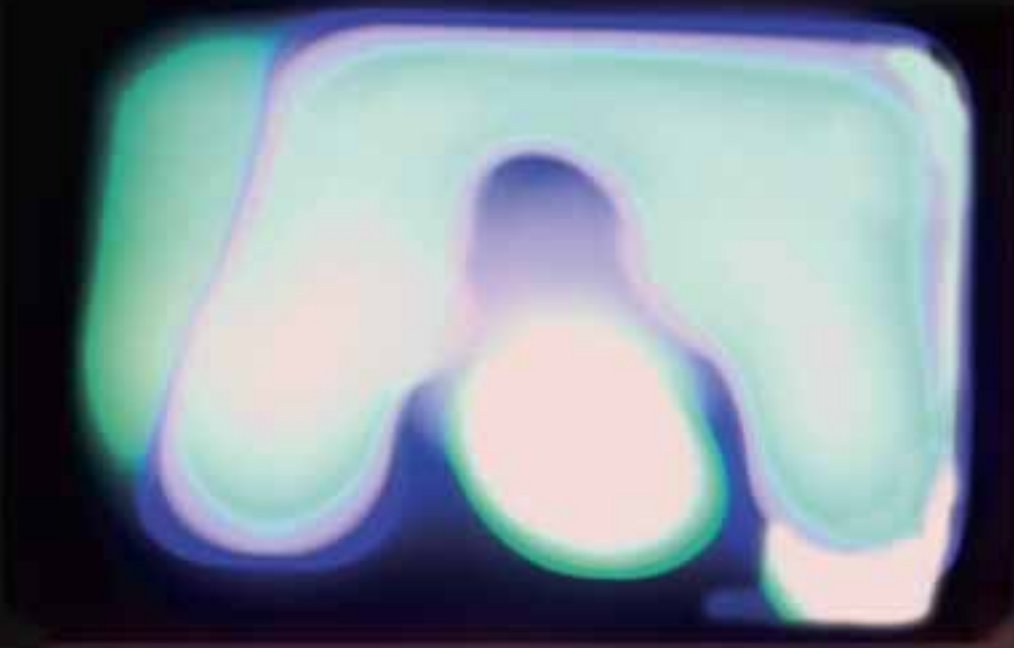
This province also boosts the almighty island mentality, which Dr. Stevens suggests, is partially why when Newfoundlanders and Labradorians decide to do something, it gets done quickly.

“I think it’s because a lot of the people with influence know each other,” he chuckled. “So in all seriousness, it is a good place to get things going. Where I see the real opportunities here is being small and efficient and having record uptake, I don’t know any place better.”

Dr. Stevens’ most recent research includes the Study of the Relationship Between Aspirations and the Realization of Post-Secondary Choices by Rural Newfoundland Youth, as well as \$1,000,000 over five years from the Social Sciences and Humanities Research Council to study the Effectiveness of New Learning Technologies in Providing Education to Rural and Isolated Communities. ■



“We’ve got something we can train and trade here that practically every country in the world would be interested in.”



# SELLING

by Meaghan Whelan





**“I NEEEEEEEEED IT!!”** It’s a familiar refrain to parents whose children are sitting in front of the television, seeing the newest, coolest toy being advertised. And not just children, many adults get swept away by commercials touting the next big got-to-have-it item.

It’s been proven that advertising influences behaviour, which led Faculty of Business professor Dr. Tim Jones to investigate how much violence is used to influence our buying behaviour.

Previous media research shows that Canadians witness about 18 instances of violence per hour of television programming. While there has been a great deal of research into violence in media, there is very limited information about violence in advertising.

“Unlike programming that is designed to entertain, advertisements, by their very nature, are designed to be memorable and persuade,” Dr. Jones explains. “Thus, behaviours depicted in ads are often put forth as something to aspire to or emulate.”

When it comes to advertising, Dr. Jones discovered that in a two-week period, 13 per cent of the 7,717 advertisements shown in 200 hours of weekday, prime-time Canadian television showed a violent behaviour.

For parents who monitor what their children watch, violence on television is troubling. Erin Follett of Harbour Grace has three children ranging in age from two to eight.

“Certain shows and channels are allowed, but my husband and I watch anything new before the kids see it to make sure it is appropriate,” she explained. Ms. Follett

admits she wasn’t as aware of violence in advertising. “I knew there was a lot of violence on television, but I didn’t realize that so many commercials are violent in some way.”

# VIOLENCE

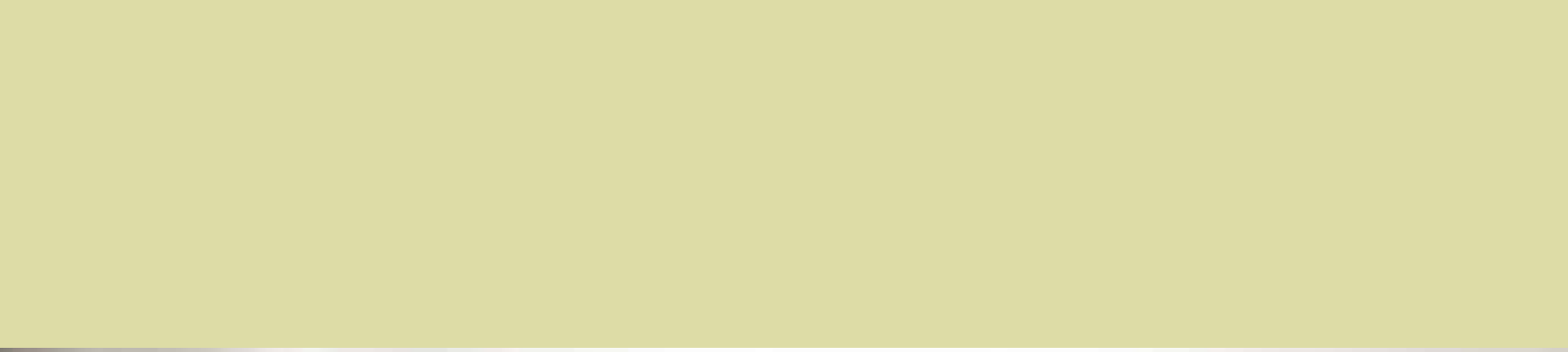
“I knew there was a lot of violence on television, but I didn’t realize that so many commercials are violent in some way.”

The researchers defined violent advertisements as those that contain any implied or explicit behaviour that is performed with the intent to cause direct or indirect harm—either physical or psychological—to an individual or group.

Past research has proven that advertising does have a strong influence in shaping some beliefs and behaviours relating to certain products, notably tobacco and alcohol. According to Dr. Jones, it is therefore possible that advertising containing violence can influence beliefs and behaviours related to violence.

“The effect of violent advertisements on both viewers and brands is a complex issue,” said Dr. Jones. “On one hand, the inclusion of violent content may increase viewer attention and make the ads and their messages more memorable, but on the other hand violent content may offend some viewers, resulting in negative perceptions about the brand. It could also lead to negative effects on viewers such as heightened tolerance for violence and violent behavioural intentions.”

This study was done in collaboration with Dr. Peggy H. Cunningham, professor and Marie Shantz Teaching Professor of Marketing, with the School of Business at Queen’s University. It will be published in the Fall issue of the Canadian Journal of Media Studies. ■



# NEW ALLIANCE STUDYING GLOBALIZATION, YOUTH AND HABITAT IN COASTAL COMMUNITIES

by Janet Harron

**THE CONSEQUENCES OF GLOBALIZATION**, youth out-migration, resource depletion, habitat degradation and governance issues are just some of the challenges that face many coastal communities.

A new alliance of researchers at Memorial are undertaking an innovative program of community-based research that will support regional efforts to devise and implement a recovery strategy for fish stocks and fishing communities on the west coast of Newfoundland.

The Community-University Research for Recovery Alliance (CURRA) spearheaded by Dr. Barbara Neis, Department of Sociology, which includes faculty from the St. John's campus and from Sir Wilfred Grenfell College, will engage many community partners and be housed at Memorial's Bonne Bay Marine Station.

Research teams lead by researchers and community partners will look at the relationship between globalization and local communities including associated threats and opportunities. As part of the project, a photographic essay will document the cultural significance of fish plants to fishery communities, helping to initiate discussions about alternative uses for these important industrial structures.

A play capturing the central themes of the project will be mounted by Theatre Newfoundland and Labrador. Community radio broadcasts, educational programming for youth and harvesters, as well as an interactive website will be used to promote community engagement with the project and with the Bonne Bay Marine Station.

The project is one of 13 that have been awarded up to \$1 million each by the Social Sciences and Humanities Research Council (SSHRC), under its Community-University Research Alliance (CURA) program. ■





# teacher abuse

## DISTURBING TRUTH REVEALED IN NEW REPORT

by Heidi Wicks

**BULLYING IN CLASSROOMS** is commonly debated in the media. However, what most don't realize is that teachers are bullied as much as students. Dr. Lynda Younghusband, assistant professor in Memorial University's Counselling Centre, completed a province-wide survey confirming that violence against teachers is a serious issue in classrooms from the east to west coast.


Based on this survey, Dr. Younghusband wrote a thesis on the stress teachers experience because of this bullying. "One of the stressors for teachers is the behaviour of some students. They are afraid that some classrooms are going to be violent. So that led me to wonder what kind of threats teachers experience," she explained.

"Four-letter words, all kinds of derogatory names, face-to-face, in class, over e-mail, by students, threats from parents that they'd better watch out and not go into the parking lot alone, that they know where they live, they'd better watch their kids, it's unbelievable," Dr. Younghusband explained.

"Cyber-bullying I keep hearing from teachers," she continued. "I was taken aback when I first heard it, because I thought, 'Who in the world would put in print such a threatening note?' But then I realized when teachers wrote on surveys and added very vicious e-mails that they'd received."

The survey revealed that 72 per cent of teachers had received personal insults, over 34 per cent of teachers were victims of attempted physical abuse, and eight per cent of those cases involved a





“Four-letter words, all kinds of derogatory names, it’s unbelievable”

weapon. Even more disturbing, more than 26 per cent were victims of actual physical violence, and four per cent of those involved weapons.

“Anything from kicking, hitting, biting, scratching, punching, using pens, rulers, hockey sticks— those are just what come to mind right away,” she said. “A lot of teachers have been physically violated by a weapon, and you’ll see that students are responsible for 100 per cent of physical violence with a weapon. But in the physical violence without a weapon category, 67 per cent of the aggressors were parents and 13 per cent of the threats against a member of the teacher’s family were made by parents.”

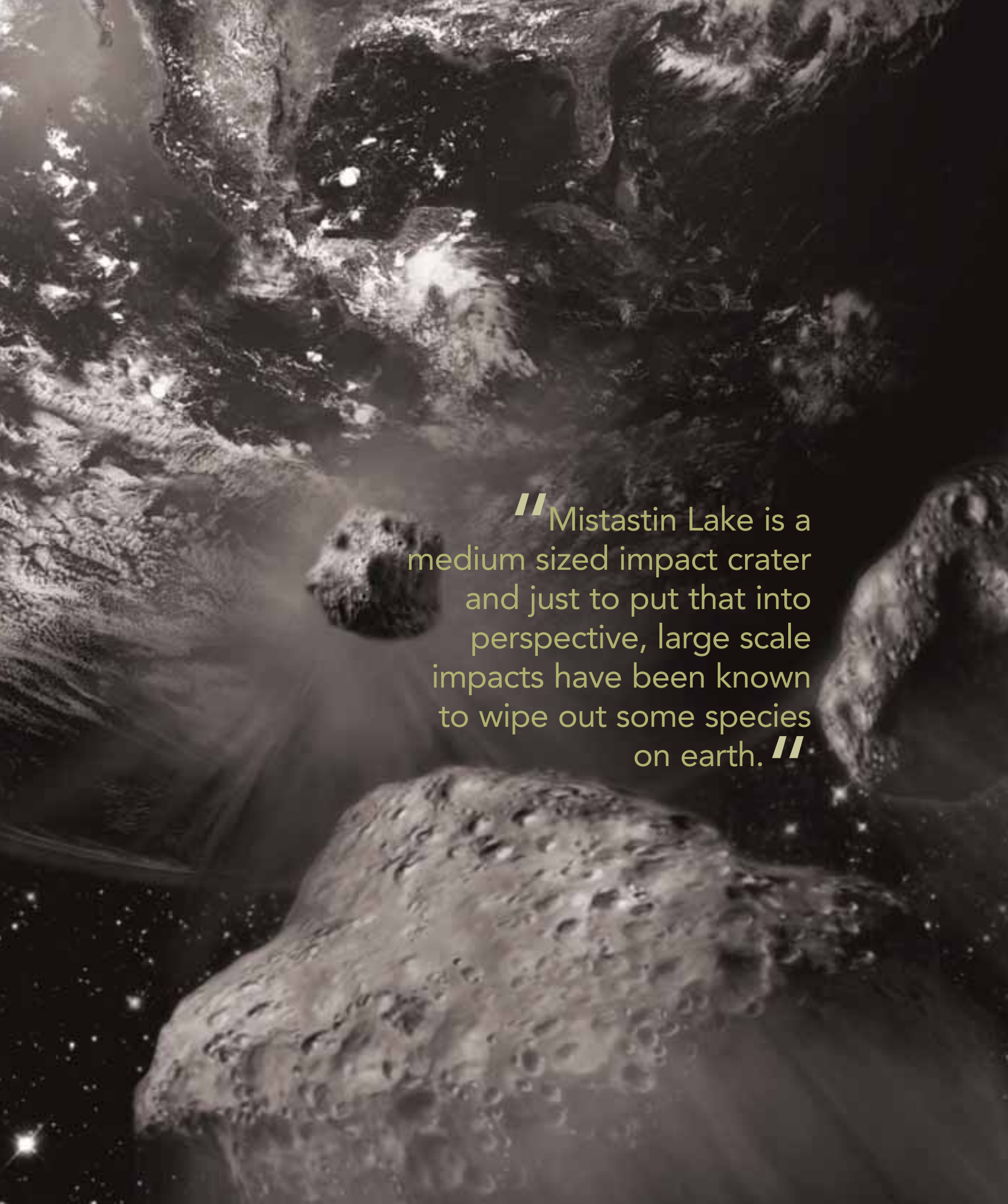
“I heard horrific stories— ‘watch your kids, lady, we know you have two children, I know where your children go to school’. There was one teacher who was terrified because of the threats her children were receiving,” Dr. Youngusband added.

She also revealed that the fact that teachers no longer have as much authority in or outside of the classroom could be a factor for this violence. She said this may be due to the rules made by the judicial system involving what teachers can and

cannot do regarding children in their classrooms— some of which make more sense than others. “I’m not trying to start alarm, but I think we need to recognize that it’s a problem. Teachers are isolated in a room with kids. Yes, there’s usually an intercom, but not always,” she said.

“Teachers have told me that they have been prevented from getting to the intercom. We can’t expect students to stand up and run to the teachers help. I’d like to think that high school students would, but they are often threatened by these highly aggressive, violent students too.”

She added that these aggressors are in the minority, and most students are good kids. But there’s still a percentage that can be very violent and the fear of that is difficult to teach under. “What always happens is that some big incident happens, it’s reported in the media, and then the reaction is that it’s a rare occurrence. And then nothing else happens,” she said. “How does that make the child who was physically beaten until he was in the hospital feel? It helps you understand why people don’t report it— teachers feel nothing will be done.” ■



“Mistastin Lake is a medium sized impact crater and just to put that into perspective, large scale impacts have been known to wipe out some species on earth.”



# Studying the MOON... in LABRADOR

by Michelle Osmond

**THERE IS A LAKE IN NORTHERN LABRADOR** that has more in common with the moon than any other place on earth. The lake was formed by a crater about 35 million years ago and, according to researchers, it's an impact crater that is very similar to craters on the moon.

Mistastin Lake (or Kamestastin Lake, as the Innu call it), measures 16 km wide, and sits inside a 28 km wide crater about 120 km inland from Nain, close to the Quebec border. Most lakes were produced by glaciers about 10,000 years ago but the fact that this is an impact lake makes it one of the oldest lakes in Labrador. And for most of September, Dr. Paul Sylvester of the Department of Earth Sciences and his team were in Labrador studying it.

"Mistastin Lake is a medium sized impact crater and just to put that into perspective, large scale impacts have been known to wipe out some species on earth," explained Dr. Sylvester. "It was formed by a meteorite impact into rocks called anorthosites which are rare on Earth but common on the moon."

In fact, scientists believe that a huge number of meteorites intensely cratered both the moon and Earth some 4 billion years ago. The moon's surface preserves a record of this intense bombardment but little evidence of this is preserved on Earth because its surface has been continuously worn down by wind and water, and other processes. Researchers, such as Dr. Sylvester, believe a lot can be learned about the origin and diversity of anorthosite impact melts from studies of melt

rocks at Mistastin Lake. "Rocks that formed by total melting of anorthosites may be more similar to impact melt rocks on the moon than any others on Earth, and provide the best opportunity to understand how meteorite impacts produced such lunar formations," explained Dr. Sylvester.

Mistastin Lake is known as the last lake in Labrador to freeze and thaw but no one knows exactly how deep it is. So, Dr. Sylvester and his project team, which includes master's student Cassandra Marion, and field assistant Marc Beauchamp dove to the bottom, and measured the depth, trying to understand more about the geology of lunar craters by studying the impact rocks at the bottom. They also looked at the rim of the crater to study how the melt rock was distributed when it was thrown out of the crater during impact, as well as the structures and how they formed. Another goal for this trip was to get a very large sample (20 gallon drum) of melt rock from the thickest exposure. Among other things, they are looking for zircons which record the solidification of the melt so they can date the impact more precisely (there is an eight million year uncertainty in the best existing date).

Dr. Sylvester's project is partly funded by the Canadian Space Agency which sees the site as a lunar analog. Other researchers are interested in the area's cold temperatures, archaeological history and fauna and flora. Dr. Sylvester would eventually like to develop a weather station there and a research station to see it used as a training ground for Canadian astronauts and lunar robots. ■



**THE KILLICK CENTRE FOR E-LEARNING RESEARCH** is creating quite a buzz in Memorial's Faculty of Education. In a world bursting with YouTube, MySpace, Facebook, iTunes, Apple, eBay and thousands of other brands, new and emerging technologies play a vital role in helping educators speak and understand the language of youth.

Dr. Jean Brown, principal investigator of the Killick Centre for E-Learning Research, and her team are striving to reach beyond the walls of the university to work with partners in the education system in order to research how new technologies are used by students for learning.

Projects, such as this one, funded through the Community-University Research Alliance (CURA) are examining youth entering the workforce, changes in the workforce pattern and e-learning. Dr. Brown said that for this research to be completed, the gap must be bridged between scholars and community members, and she called for strong alliances between community organizations, the K-12 education system and post-secondary institutions. "This will inevitably lead to new knowledge, tools and methods to develop the best strategies for creative e-learning," said Dr. Brown.

An essential theme of the Killick Project is that e-learning is not only important to rural communities, but also to urban areas of Newfoundland and Labrador. "Learning is lifelong," added Dr. Brown, "and can extend to children and adults of all ages, in all facets of the population." So, although the main focus is on kindergarten to Grade 12, it also extends to post-secondary education. Both collaboratively and individually, project participants are engaged in collaborative research, teamwork, and communications (known within CURA as 'knowledge mobilization') as they explore modernized, technical and self-motivated learning through the web.

"I think in the past we were not challenged to think creatively, and we have to consider new ways to relay our research findings," she said. "I'm looking forward to finding out what those ways are." ■

youth  
speak  
by Heidi Wicks



# amazing STUDENTS



## born explorers

TWO GEOGRAPHY STUDENTS HAVE BEEN SELECTED AS CANADIAN NORTHERN STUDIES TRUST RECIPIENTS FOR 2008-2009. Dominique

St. Hilaire, a PhD candidate, was awarded a \$40,000 Garfield Weston Award for Northern Research for her doctoral project titled Arctic Coastal Dynamics under Changing Relative Sea-level and Environmental Forcing. Melanie Irvine's project, Assessing Community Scale Vulnerability in Nunavut, was awarded a \$15,000 scholarship in the master's category.

"I felt very fortunate to be able to carry out my research in a very exotic and challenging environment such as the Canadian Arctic. The Garfield Weston Award for Northern Research allows me to focus on my research and provides me with new and exciting opportunities. I am very thankful to ACUNS and the W. Garfield Weston Foundation for their generosity and support," said Ms. St. Hilaire.

Ms. Irvine echoed Ms. St. Hilaire's sentiments, saying that she is honoured to receive the Garfield Weston Award which allows her to continue her research into landscape hazards in the Canadian North.

The Garfield Weston Awards mark the second of a three-year, one-million-dollar scholarship program initiated to encourage Canada's leadership in northern studies during the International Polar Year.



*Dominique St. Hilaire*



*Melanie Irvine*



## ★ rising star

Sylvia Reitmanova, a PhD student in the Division of Community Health and Humanities, was one of five Canadian graduate students to receive a Rising Star Award from the Institute of Health Services and Policy Research, Canadian Institutes of Health Research. The awards are given to students studying health services and policy research for demonstration of excellence in research and knowledge translation, the innovation of their work and its potential impact.

The award recognizes Ms. Reitmanova's work on increasing awareness of local immigrant's mental health, in particular the needs and the barriers they face with access to health services in Newfoundland and Labrador.

Ms. Reitmanova told stakeholders what she found. "If you really want research to be taken seriously, you need to employ different strategies to disseminate it," she said. She also presented her work to mental health and immigration policy makers and prepared two reports. Ms. Reitmanova plans to take her dissemination initiatives one step further by publishing them in local immigrant newspapers and mailing lists and by offering an in-kind workshop to a clinic team that provides health services to immigrants.

These initiatives have had an impact. Policy makers in Newfoundland and Labrador have since implemented several recommendations for developing more socio-culturally responsive services that take into consideration the unique health needs of immigrants. Additionally, Ms. Reitmanova's results were used in the development of a new Immigration Strategy released by the provincial government in 2007. Also, the Canadian Mental Health Association released a mental health brochure addressing some of the needs of the local immigrant community that Ms. Reitmanova identified in her research.

## ★ award winning research in unknown area of Labrador

Scott Neilsen's PhD studies combine an odd mix of interests: archaeology, Northeastern First Nation and Innu culture and history, and lakes. But it works for him and having recently won the Robert McGhee Award from the Northern Scientific Training Program, he'll be spending a lot more time exploring those interests. Mr. Neilsen's research builds directly on the pioneering research undertaken in Labrador during the 1970s by Dr. Robert McGhee, for whom the award is named, when he was a young professor at Memorial University.

Mr. Neilsen's project is titled *Archaeology Beyond the Horizon: Innu Land Tenure in Labrador West*. It's a multi-year project documenting the archaeological record of the Labrador interior—an area which has never been the subject of archaeological research—and to interpret the cultural history of the region. To date, only coastal sites have been used to interpret the region's cultural history. The research also draws on archaeological literature from neighbouring Quebec to develop a better context of prehistoric cultural events predating provincial boundaries.

Mr. Neilsen, who is in the third year of PhD studies, came to Memorial from New Brunswick in 2003 for MA research in Labrador and his love of the place and its people compelled him to continue in the PhD program. "I chose Memorial because of its reputation as the best archaeology school in Atlantic Canada. Plus it gave me an opportunity to do fieldwork in Labrador," he said. "The MA and PhD program at MUN are both very good. They give students the opportunity to learn a variety of archaeological theories and methods, and don't force students into a single vein. In other words students are free to come to their own stance or view point." ■





# WINNING RESEARCH

## MEMORIAL RECEIVES MORE THAN \$1.5 MILLION IN SSHRC FUNDING

The Government of Canada announced a \$202.2 million investment in research by the Social Sciences and Humanities Research Council (SSHRC). Of the \$1,653,792 awarded to Memorial University, \$826,896 will support the work of 11 researchers through SSHRC's Standard Research Grants Program, and \$187,462 will specifically support research in the areas of management, business and finance over the next three years.

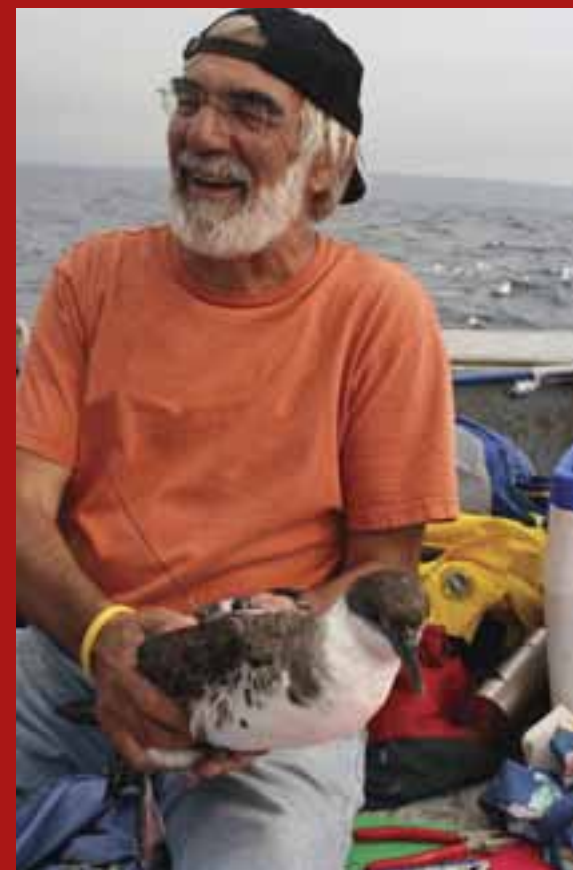
The Standard Research Grants include projects such as Youth Engagement in Educational Change, with Drs. Morgan Gardner and Ursula Kelly of the Faculty of Education, Urbanization and Rapid Change in Newfoundland English, by Dr. Gerard Van Herk with the Department of Linguistics and Multiple Large Shareholders and Corporate Governance, with Dr. Omrane Guedhami with the Faculty of Business Administration.



## ★ MEMORIAL RESEARCH ON SEA BIRD TRACKING, CHILDHOOD AMNESIA AND MICROFLUIDIC COOLING DEVICES ARE TARGETED IN THE LATEST ROUND OF NSERC FUNDING

Memorial researchers are receiving \$7,019,244 for 59 grants in the latest round of NSERC funding. In addition, 83 scholarships worth \$1,304,700 were allocated to Memorial students. Funds will be distributed to several faculties and departments including the Faculties of Science, Engineering and Business Administration as well as the Departments of Earth Sciences and Computer Science, and the Marine Institute.

Dr. Bill Montevecci from the Department of Psychology is receiving \$33,680 for a project titled Foraging and Migratory Ecology of Eastern Canadian Seabirds. His research focuses on tracking free-ranging seabirds to see how they provision themselves and their offspring. "Seabirds are Olympian fishers and survivors in the world's oceans. We have found some incredible deep diving and long-range foraging efforts by murre and gannets," explained Dr. Montevecci. "We have also learned that seabirds, like human fishers, can exhibit remarkable flexibility when fish conditions change as they often do in dynamic ocean environments... My aim is to understand how seabirds meet daily challenges in a bountiful but often unpredictable and unforgiving ocean that changes seasonally, annually and over their lifetimes. This information provides powerful natural indicators of the changing states of the marine environment and of conservation needs." He and his team also track birds over the North and South Atlantic Ocean in migration studies. In fact, they have found that some Newfoundland gannets are migrating to West Africa and mixing with European gannets there.





Dr. Carole Peterson, also from the Department of Psychology, will receive \$36,745 for her research project Eyewitness Memory and Infantile Amnesia in Children, a project that has been growing for more than a decade. She has been studying children's eyewitness memory for stressful events and whether children, who are extremely upset by an event, remember or describe it differently than children who are less upset, how the interviewer's questions can alter the child's recounting of what occurred, and what other individual difference variables (e.g., language skill, temperament, attachment) affect long-term memory. All of these have implications for children's reliability as witnesses in forensic situations. As well, Dr. Peterson is studying infantile amnesia, or the age of earliest memory and exploring the factors that affect when and what gets remembered years later.

Dr. Yuri Muzychka, Faculty of Engineering and Applied Science, along with co-applicants Drs. Christina Bottaro and Erika Merschrod from the Department of Chemistry, received \$150,000 under NSERC's equipment grants program for their project A System for Rapid Prototyping of Microfluidic Devices. This special equipment will allow the researchers to shrink down large scale lab processes onto chips with a very diverse range of applications from drug testing to cooling of computer chips. The small scale devices can also be applied to environmental monitoring for tasks such as detecting well contamination. These micro-fluidic devices can be made from a variety of materials (from plastics to metals) and with a wide range of channel sizes (down to micrometres) and geometries.



## CFI AWARDS MORE THAN \$600,000 TO MEMORIAL RESEARCHERS

Several Memorial researchers have received more than \$600,000 in funding from the Canada Foundation for Innovation (CFI) for a series of diverse projects. In total, five Memorial researchers received \$618,284. They include:

**DR. IVAN SAIKA-VOIVOD**, Department of Physics and Physical Oceanography, received funding for a project entitled Computer Simulation of Liquids, Soft Systems and Biomaterials.

**DR. JOHN WEBER**, assistant professor, School of Pharmacy, will develop a neuroscience laboratory.

**DR. THOMAS CHAPMAN**, Department of Biology, will set up an Insect Behaviour/Molecular Biology Research Laboratory.

**DR. BING CHEN**, Faculty of Engineering and Applied Science, is establishing a Northern Region Persistent Organic Pollution Control Laboratory.

**DR. MARIA MATHEWS**, Division of Community Health in the Faculty of Medicine, will set up a Physician and Medical Practice Registry.

In total, the CFI announced \$28 million in new funds to support 149 projects at 35 institutions across Canada. A total of \$23.3 million was awarded under the Leaders Opportunity Fund and \$4.6 million under the Infrastructure Operating Fund. At Memorial alone, the CFI has invested more than \$31 million in 91 projects, helping the university gain an international reputation for excellence thanks to projects such as the Atlantic Computational Excellence Network, Landmark Graphics Visualization Laboratory, Digital Research Centre for Qualitative Fieldwork, Ocean Observatory at Bonne Bay Marine Station and the Dr. Joe Brown Aquatic Research Building.



## MAJOR INVESTMENT FOR GENETICS RESEARCH

Newfoundland's unique gene pool and the presence of excellent researchers at Memorial University and Eastern Health convinced the Canada Foundation for Innovation (CFI) to select this province for one of only eight projects to be funded under the Research Hospital Fund.

Funding of \$11.2 million was announced this past summer to support the Newfoundland and Labrador Centre for Interdisciplinary Research in Human Genetics to be constructed close to the Health Sciences Centre. This represents about 40 per cent of the financial support needed for the centre, a joint project of Memorial's Faculty of Medicine and Eastern Health. CFI is providing the funding for research in founder population effect, in Newfoundland with a focus on human genetics research.



## \$5 MILLION INVESTED IN INSECT BEHAVIOUR, POLLUTION AND PHYSICIAN RETENTION

Researchers at Memorial University of Newfoundland have received \$5,073,122 from the Provincial government's Industrial Research and Innovation Fund (IRIF). Investments in these research and development projects include research on insect behaviour, ocean habitats, pollution in the far North, physician retention in the province, bone implants, the effects of nutraceuticals, birth defects, hypertension and neural regeneration. Some examples of projects include:

**DR. PAUL SNELGROVE** who has received over \$1.1 million towards two research projects. He has received \$1,002,517 towards a \$9,266,517 Canadian Healthy Oceans Network (CHONe). A partnership of 12 Canadian universities and levels of government, CHONe helps mobilize Canadian science capacities to respond to research challenges and knowledge gaps in ocean environments. Dr. Snelgrove received an additional \$97,988 to help investigate biodiversity loss and the deterioration of oceans.

**DR. PATRICK PARFREY** of the Faculty of Medicine, has received \$270,800 towards a \$3,270,800 project developing a Newfoundland and Labrador inter-disciplinary research centre in human genetics. The goal of this project is to initiate a database management program.

**DR. STEVE BUTT**, Faculty of Engineering and Applied Science, received \$650,000 towards a \$3.7 million project on advanced exploration drilling technology. The research will develop and commercialize a vibration-assisted rotary drilling tool.

The 20 research projects aided by the IRIF have a total value of more than \$26 million leveraging \$5.14 for every dollar invested by the provincial government. ■



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St. John's campus



Harlow campus, UK



Sir Wilfred Grenfell College,  
Corner Brook



Marine Institute campus,  
St. John's

