Return of the Sun
MANITOBA CRYSTAL PROJECT

INSIDE:

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Welcome to the inaugural issue of ResearchLIFE, the University of Manitoba’s research magazine!

The first major research university in Western Canada, the University of Manitoba has been bringing research to life for more than a century. From the development of canola and advances in wireless communication, to the elimination of Rh disease of the newborn and new strategies for fighting HIV/AIDS, our researchers have made contributions that have had a global impact.

Today, our artists, engineers, scholars and scientists continue this quest for knowledge and its application – by finding new ways to improve our health and protect our environment, developing new technologies that better our lives and the world in which we live, and building civil societies and stronger communities here and around the world.

I invite you to turn the page and step into the exciting world of research at the University of Manitoba. You will be inspired by what you find.

This magazine conveys the amazing passion for discovery of our faculty and students, a passion that I am privileged to share in each and every day.

—Joanne C. Keselman, Ph.D.
RETURN OF THE SUN

For thousands of years the sun has dipped behind the horizon and then returned to bring hope of warmth and spring to the Inuit people of the high Arctic. The roles played by the return of the sun and the importance of light and darkness in everyday life in the Arctic have been incorporated into a teaching resource developed by researchers at the University of Manitoba – with the goal being the improvement of science and math education.

BY JANINE HARASYMCHUK
Happenings

Speaker Series Kicks Off the Year

The Bringing Research to Life Speaker Series features outstanding researchers from the University of Manitoba. Over 200 people came out to hear food scientist Rick Holley and clinical health psychologist John Walker give their perspectives and answer questions. Here’s a synopsis of their presentations.

Tough Choices Made Easier

Why, Clinical Health Psychologist John Walker asks, can we learn about televisions from an unbiased and accurate source before buying one, but when we need medical treatment we have no comparable source to first turn to?

“When it comes to getting help for anxiety there are several different treatments,” Walker said. “They look different and have very different characteristics. But often, people wind up at a treatment not having made a thoughtful decision about what they want to do, and often they don’t realize what sort of commitment a treatment comes with.”

Medical treatments – be it for anxiety or for problems pertaining to the prostate or high cholesterol – should not be decided upon in a cavalier fashion.

Walker has conducted surveys with adults and parents asking them what information they would want to know if they, or someone they knew, experienced anxiety or depression.

“I think the public needs, in the long-run, something like consumer reports. For 30 years I’ve known where to go when I want to buy a car or TV. It’s not perfect, but it’s solid. We need a consumer report for health care. A lot of the information we have is sketchy, not consumer friendly, and produced by people selling a product.”

On the anxiety treatment front, Walker notes that things have improved significantly in recent years. For instance, 20 years ago, it may have taken dozens of therapy sessions to resolve a problem. Today, six sessions can sometimes be all one needs.

“There are a lot of reasons to be positive,” Walker said. “We know more and more about how to treat anxiety and depression. The treatments are getting better and we’re getting better at intervening earlier on.”

Is Our Food Safe?

Food borne illness makes us and our economy sick, and unless major changes take place a healthy future remains precarious, according to food scientist Rick Holley. Holley has lost count of the number of media interviews he has given on the subject in the last several months. At last count it was well over 200.

“I want people to recognize that there are some significant deficiencies in the food system in Canada and there is a need for the government to take some very specific action to address these issues,” Holley said. “I want to put this food borne illness outbreak we recently saw into some perspective in terms of what is down the road for us as a society.”

Holley said we’re too reliant on inspection of food and not food systems (like ensuring pasteurization is properly performed). We’re not gathering and sharing good data about food borne illnesses so our surveillance programs are impotent, and our legislation needs retooling.

Right now the Canadian government is reliant on inspecting food for safety.

“But you can’t inspect safety into food. Anyone who thinks you can is wrong. You have to build safety into food. American car manufacturers learned long ago that you can’t inspect safety into automobiles; you have to build it in. And it’s no different for food manufacturing.”

Rick Holley will have the opportunity to bring his expertise to use with having been recently named to a Canadian Food Inspection Agency (CFIA) external advisory panel. Among the panel’s first duties will be recommending improvements to CFIA’s listeria prevention rules.
PREVENTING AND ALLEVIATING VIOLENCE

National Research Day of the tri-provincial research network Research and Education for Solutions to Violence and Abuse (RESOLVE) was hosted by the University of Manitoba in early November.

The two-day conference provided a look at issues surrounding the causes of violence, and ways to prevent and alleviate that violence. The day also provided an opportunity for researchers and community service providers to continue to work together to make our world a less violent place for all.

“Everyone who works in this field envisions a world of violence-free homes and strongly desires that outcome, but I also think service providers and researchers are realistic,” said Jane Ursel, RESOLVE’s director.

RESOLVE Manitoba partnered with the Canadian Alliance of Research Centres on Violence, and the Canadian Observatory on the Justice System Response to Intimate Partner Violence – an international network of researchers, practitioners and policy-makers from across many disciplines – making the conference a truly international event.

National Research Day

For the 7th Year in a Row, the School of Dental Hygiene continued to reach out to Winnipeg’s inner city residents at Siloam Mission. On November 6, dental hygiene students were making a difference by sharing practical information that can help prevent oral pain and disease, and contribute to a healthier smile.

Interested individuals had an opportunity to have a dental hygiene assessment and oral hygiene consultation on site in the newly established Saul Sair Health Clinic’s dental facility.

All patrons received an oral hygiene product package and entered draws for winter wear, toiletries and other useful items. To further support the event, the students organized a drive at the Faculty of Dentistry for clothing and non-perishable foods.

In 2005, The Canadian Dental Hygienists Association recognized the School of Dental Hygiene’s Soup Up Your Smile student outreach project with the Oral-B Health Promotion Award “for creatively promoting oral health to this underserved population.”

“This was an experience that touched my heart personally and hopefully touched the minds of those that we had the privilege of engaging in conversation with at Soup Up Your Smile 2008.” (student participant)

Immunology Research Expanding

The Immunology Research facility in the Faculty of Medicine recently announced their expansion into new space in the Apotex Centre on the Bannatyne Campus. The expansion comes as a result of an $1.6 million contribution through the Winnipeg Partnership Agreement.

The Department of Immunology has outgrown its current facilities in the Basic Medical Sciences Building. The new facility will lead to the expansion of existing and new research programs and to increased commercialization from these programs.

IMMUNOLOGY RESEARCH EXPANDING

SOUP UP YOUR SMILE

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Dr. David T. Barnard began his term as the 11th President and Vice-Chancellor of the University of Manitoba on July 1, 2008. He is a respected scholar, educator and administrator. Dr. Barnard studied computer science at the University of Toronto (B.Sc., M.Sc., Ph.D.) before joining the faculty of Queen’s University. He also studied theology at Regent College at the University of British Columbia (Dip.C.S.). He then moved to the University of Regina, first as Vice-President (Administration) and then as President (1998-2005) during a period of significant change and growth.
I think there are two aspects of research. I think of the teaching mission as being preserving and passing on what we know. The research mission is expanding the boundaries of what we know but also looking inside what we think is the body of knowledge and challenging it. Asking questions like ‘that’s what the people that came before us thought but is that really true? Are we really sure about that? Maybe we should go back and look at that again?’

Insight is required to know what questions are capable of either pushing the boundary out to something new or going back and reexamining the things we think we know and seeing if there is a different understanding of them. Finding the inspiration to frame those questions is one of the challenges of research and it brings the excitement to research.

Knowledge is like a sphere growing in space. The more we know the bigger the surface is that impinges on what we don’t know. There are lots of questions to ask. I think that when we answer questions that we think are pretty fundamental questions, often we come up with models that have a complexity that was greater than what was anticipated – so you think that here is question ‘x’ and I’m going to answer that question and then I’m going to know. But the answer to that question raises a whole set of other questions. Then we must figure out what the answers to those are. So, it’s not a finite task; or, if it is finite, we don’t see the end of it in sight.

To me, there is also real magic in one of the other major components of university activity – teaching.

Sometimes people will expect that because I’m a computer scientist that I’m going to be heavily biased in favour of information technology based delivery systems for teaching. I think there are some wonderful tools out there. But I often ask in groups “think of your two or three most significant learning experiences in your education background.” How many people are thinking about reading a web page? Probably nobody. I’ve never had anyone say that. Most of us don’t even talk about reading a particular book. Some people can, because sometimes reading a book can be a life changing experience. But for most of us it will be telling a story about a teacher in university – teaching.

Communicating all that magic is our challenge.

For most of us our most significant learning experiences are experiences with other people – usually teachers, sometimes fellow students, sometimes our parents – that have shaped our lives. I think what happens – that’s where the magic happens in the classroom – is that you encounter someone who really cares about a discipline and they can communicate the excitement and the passion about the intellectual content of the discipline to students and say “look what’s happening here and look how amazing this is!” If the person finds it amazing and can communicate his or her amazement in it, that’s where the magic happens in education.

Communicating all that magic is our challenge.

It’s the challenge in our classroom and the challenge of bridging the gap between the very specialized focused research questions that faculty and graduate students and sometimes undergraduates focus their attention on; bridging the gap between that really detailed, specific thing, to the big idea that matters and makes sense to our friends in the community. And we will never run out of work because it’s always going to be a challenge.

With a love for poetry, he likes quoting from one of his favourite poets, W. H. Auden, who wrote that “Those who will not reason, perish in the act. Those who will not act, perish for that reason.” Barnard says, “I like that perspective on life. As a humane person, I believe it is important that we balance our thinking and acting… That is what we are doing here at the University.”
ROCK STAR STRIKES GOLD

GEOSCIENTIST AND DISTINGUISHED PROFESSOR Frank Hawthorne, often described as a ‘rock star,’ struck gold earlier this year when he was awarded the Killam Prize for lifetime achievement in teaching and scholarship in the natural sciences by the Canada Council for the Arts.

Hawthorne’s research combines chemical theory and mathematics with innovative ways of understanding minerals, and has led to groundbreaking research on crystal structures and crystal chemistry of complex minerals, and to advances in a number of topical areas, including environmental mineralogy and the disposal of high-level wastes.

Hawthorne is recognized as one of the world’s leading mineralogists. In 2002, he was listed by Sciencewatch as the most highly-cited mineralogist/crystallographer for the decade 1990 to 2000.

Hawthorne has the added distinction of having had the mineral *Hawthorneite* named after him by the International Mineralogical Association. The mineral is a green coloured crystal, found in Utah.

The Killam Prize is Canada’s most distinguished annual award for outstanding career achievements. Hawthorne was one of only five who received this honour in 2008. The Prizes were inaugurated in 1981 and financed through funds donated to the Canada Council by Mrs. Dorothy J. Killam, in memory of her husband Izaak Walton Killam. Created to honour eminent Canadian scholars and scientists who are actively engaged in research, whether in industry, government agencies or universities, the prize brings with it a $100,000 award to further his research.

Frank Hawthorne, geological sciences, Canada Research Chair, Killam Prize Winner

THE ESSENCE OF DIGNITY

DYING FROM CANCER IS NOT PLEASANT. Doing so with dignity is something that Harvey Chochinov’s research has focused on for more than 20 years. This research has had an impact on cancer control in Canada and has been recognized by the National Cancer Institute of Canada and the Canadian Cancer Society with the presentation of the prestigious Dr. O. Harold Warwick Prize. It is given to a scientist whose research has had a major impact on cancer control or care in Canada.

Chochinov is not only credited with making major contributions to psychosocial oncology and palliative care, but he is a recognized pioneer, whose work has helped define the field. He has been leading a national initiative – dubbed the Canadian Virtual Hospice – aimed at providing information and support for dying Canadians, their families, healthcare providers and volunteers.
The Canadian Virtual Hospice website (virtualhospice.ca) enables the exchange, synthesis and ethically-sound application of new knowledge in the area of palliative care. The result is the acceleration of benefits of palliative care research for Canadians, by both improving services and strengthening the palliative care system nation wide.

Chochinov is a Distinguished Professor of psychiatry, community health sciences and family medicine and a Canada Research Chair in Palliative Care at the University of Manitoba. He directs the Manitoba Palliative Care Research Unit at CancerCare Manitoba.

The O. Harold Warwick Prize is named after Dr. Warwick, a pioneering researcher in cancer control and treatment and the first executive director of both the National Cancer Institute of Canada and the Canadian Cancer Society.

**SCHOOLS ON BOARD GETS AN A+**

**THE UNIVERSITY OF MANITOBA-based Schools on Board** program, an outreach initiative of ArcticNet, won the 2008 Canadian Excellence in Environmental Education Award. The award is given by the not-for-profit Canadian Network for Environmental Education and Communication (EECOM), Canada’s only, national, bilingual, network for environmental education and communication.

*Schools on Board* takes high school students and teachers from across the country and places them on a ship in the high Arctic with scientists conducting research on board. The program began in 2003, under the direction of Lucette Barber in the Clayton H. Riddell Faculty of the Environment, Earth and Resources.

It was created to promote, in an exciting way, Arctic sciences to high schools across Canada while demonstrating the abundance of career options such a field offers. The program is made possible through the support of the University of Manitoba and ArcticNet, a federal collaboration of scientists, managers and Northern residents collectively studying Arctic systems.

*Schools on Board* operates on the CCGS Amundsen, Canada’s premier research icebreaker. During the latest International Polar Year, schools from 11 countries (Canada, USA, UK, Spain, China, Scotland, Sweden, Norway, Germany, Greenland, and Russia) joined Barber onboard the vessel for classes and presentations – upwards of 80 of them – on topics ranging from ocean structures and motions, ecological principles, and Arctic circulation.

(Left) Inuit participant students working in fish dissection lab; (Right) Student collecting samples from box cores
EVERY KERNEL COUNTS

FOR THOUSANDS OF YEARS, grains have formed the basis of the human diet throughout the world. Access to a consistent supply of quality grains and their products is literally the lifeblood for developing and developed countries. Any loss in quality or quantity can have far-reaching effects, yet post-harvest losses continue to range from nine per cent in North America to fifty per cent in developing countries. In the latter, high losses can contribute to famine.

For the past 25 years, Digvir S. Jayas, Distinguished Professor of biosystems engineering, Faculty of Agricultural and Food Sciences, has been working to improve storage of grain. Last year, that work landed him the Dr. John M. Bowman Memorial Winnipeg R.C. Institute Foundation Award for outstanding research by senior university faculty.

As Canada Research Chair in Stored-Grain Ecosystems, Jayas attracted almost $23 million in research grants and contracts for his research that will ultimately lead to improved grain quality for consumers, increased cost efficiency for farmers, and reduced waste product. Indeed, he conceptualized and developed the Canadian Wheat Board Centre for Grain Storage Research, a leading-edge facility that will lead to profound new insights in the area of stored grains.

Jayas’ research team were the first group in the world to develop three-dimensional mathematical models of heat, moisture and carbon dioxide transfer in stored grain as well as the movement of insects in grain. This provided the basis for developing alternatives to pesticides for the control of insects in grain to be used ultimately for human and animal consumption. In reducing spoilage of stored grain, Jayas’ research has increased remarkably the availability of high quality grains to feed the growing population of the world.

Jayas will be delivering a public lecture titled “Making Every Kernel Count” on Tuesday, February 3, 2009 at 8:00 p.m., 343 Drake Centre, University of Manitoba Fort Garry Campus.

Canadian Wheat Board Centre for Grain Storage Research
THE CENTRE ON AGING CELEBRATED ITS 25TH ANNIVERSARY at the University of Manitoba over the past year. Like all true celebrations, there was cake, but more importantly, the anniversary afforded an excellent opportunity to continue the centre’s mission of stimulating and promoting research on aging and sharing what they’ve learned.

The centre hosted a very successful two-day conference, Looking Back to See the Future: What Have We Learned? Where Do We Go From Here? The Centre on Aging was established in 1982 with funding from the Social Sciences and Humanities Research Council of Canada (SSHRC). Dr. Chad Gaffield, President of SSHRC welcomed conference participants on behalf of SSHRC. The three directors of the centre over its history [Neena Chappell (1982-1992), Laurel Strain (1993-2003), Verena Menec (2004-present)] were on hand to provide a retrospective look at where research on aging began and where it has moved to over time.

The Centre on Aging has a three-fold mandate: firstly, to conduct, stimulate and promote research on aging; secondly, to foster an interdisciplinary focus for these research activities at the universities in Manitoba; and thirdly, to support the teaching of students in aging. The centre also serves as the hub for the integration and dissemination of research on aging in Manitoba.

The centre’s research has had a long-lasting impact on how programs are delivered in Manitoba and beyond. Some examples of how this research has been implemented include: a new seniors strategy developed and implemented by the Manitoba government (Advancing Age: Promoting Older Manitobans), Winnipeg Regional Health Authority (WRHA) educational programs and workshops for hospital staff to create more elder-friendly hospitals, participation in the World Health Organization’s (WHO) Age-Friendly Cities Project which resulted in the development of a WHO guide for cities around the world to become age-friendly.

Over the past 25 years, the Centre on Aging has earned an international reputation for its rigorous standards of excellence in research on aging. When the centre’s 50th anniversary roles around, nearly one in five people in North America will be over the age of 65. The body of research on aging already conducted provides a head start to finding answers to the questions of how to make our communities more age-friendly and what resources need to be in place before that milestone occurs.

To learn more about the Centre on Aging, visit their website at umanitoba.ca/centres/aging
For thousands of years the sun has dipped behind the horizon and then returned to bring hope of warmth and spring to the Inuit people of the high Arctic. The roles played by the return of the sun and the importance of light and darkness in everyday life in the Arctic have been incorporated into a teaching resource developed by researchers at the University of Manitoba – with the goal being the improvement of science and math education.
Brian Lewthwaite, CRYStAL co-director, and colleague Barbara McMillan are working with Inuit and non-Inuit teachers to develop specialized teaching resources for use by elementary teachers in Nunavut schools. Aptly named, Return of the Sun, is a two-way science learning unit for Qikiqtani Grade 2 students developed by the Manitoba Centre for Research, Youth Science Teaching and Learning (CRYStAL) and an Inuit teacher, Louise Ugarak of Igloolik. McMillan and Ugarak suggest:

“Light has always been a source of wonder and a fascinating phenomenon to explore whether the explorer’s age is one or one hundred. We hope this sense of wonder and curiosity is captured in the science lessons you will be teaching and in the first-hand investigations of light that your students will be carrying out. We suggest that you begin teaching this unit two to three weeks before the dark period begins when the decreasing period of daylight is evident to young learners. In this way children will become familiar with our dependence on light and understand the joy expressed by their ancestors when the Sun first appeared about the horizon and indicated the end of the dark months and the passing of the worst of the winter season.”

Excerpt from Overview, Light, A Two-Way Science Unit for Qikiqtani Elementary Students

The teaching unit is a model for the use of ‘everyday’ parts of life that can add context to the teaching of science and mathematics. It is a masterfully built tapestry of experiences that weave in the cultural stories and traditions of the Inuit. It provides so much more than practical contexts that are needed for teaching; it also emphasizes culture-based education identified by the territorial government as one of the foundational principles for school development in Nunavut.

The Return of the Sun teaching resource is one amazing example of the resources and tools that have come out of the larger project – the CRYStAL project.

WHERE DID THE CRYSTAL BEGIN?
The University of Manitoba led Manitoba CRYStAL project was launched in 2005 by the Natural Sciences and Engineering Research Council (NSERC), along with four others at the Universities of New Brunswick, Sherbrooke, Alberta and Victoria. The Manitoba CRYStAL is directed by Gordon Robinson (Faculty of Science) with the assistance of co-director Brian Lewthwaite (Faculty of Education). The Manitoba CRYStAL includes some twenty-four other co-applicants from the three Manitoba universities (Brandon, Winnipeg, Manitoba), the Collège universitaire de Saint-Boniface, the Universities of Regina and Saskatchewan, and Lakehead University.

The acronym CRYStAL (Centres of Research in Youth, Science Teaching and Learning) was not chosen by chance. It grew out of William (Bill) Coderre’s imagination. Coderre is NSERC’s Director of Corporate and Regional Development and has an academic background in solid state physics.

“A large crystal can rapidly grow from a small seed-crystal, if the environment it is placed in is ready for that growth. The NSERC CRYStALs represent the seeding of an idea. The idea being that research can identify best practices in teaching science and math and why some work better than others – from how students learn and what are the most effective ways to teach them; and with this knowledge we can grow dramatic changes in the outcomes of our school systems in effective science and math learning,” said Coderre.

NSERC seeded five university-based CRYStALs across Canada to the tune of $1 million per year for five years. Each centre received $200,000 each year of the five years funded. The project is currently in year four of their five-year run.

WHY SCIENCE AND MATH?
Our country’s economy depends on it. Technologically developed countries prosper in the current global economy. For Canada to continue to grow and prosper today’s children need to be tomorrow’s scientists and engineers. And, the more concrete concern, students are not entering post-secondary education in the fields of science and mathematics. Where will our future scientists and engineers come from?
How can we change this? The answer is at the fundamental level.

The Canadian Council on Learning released *State of Learning in Canada: Toward a Learning Future* in July 2008. In this report it states that “how young learners (in the elementary and secondary school years) perform in mathematics, problem solving, reading comprehension and other competencies is a strong predictor of later performance. Students who perform well in these areas are also more likely to participate in post-secondary education and in the knowledge economy."

"There is rarely attention given in education to finding out what learners say about what contributes to their learning. Several of the projects are trying to find out what is influencing their success," said Lewthwaite. "I ask myself, have we really not taken the time to find out from the learner? The learner can be an early, middle or senior years’ student and in many of the projects the learner is actually the teacher. That is at the heart of it. Trying to find out what the learner is saying.”

**WHAT AFFECTS THE LEARNER?**

The Manitoba CRYSTAL research has focused on the central theme of success in the teaching and learning of science and math as an emergent property of a number of interacting systems. Four of these systems were selected for investigation: that of the individual learner, that of the interaction between the learner and his/her immediate environment (the classroom), that of the interaction with the community in which any school is situated, and that of the interaction with the global environment.

Within each system reside factors that have negative and positive impacts on student success. These two factors combined result in resiliency. The need is to first identify these risk and protective factors within each system, but then find strategies to mitigate the former while optimizing the latter. Increased resiliency is the ultimate goal, recognizing that the four systems are interactive, with each affecting the other and impacting on the success of the student.

"In each [of the systems], we are dealing with four systems that when we began, became more than we first expected," says Gordon Robinson. “These aren’t separate
systems. They are interconnecting systems. The lines between each began to blur. You can start off doing research in System A, maybe find you should be in System B. It just speaks to the fact that everything has an impact on student success and that it isn't a simple matter to pin down.”

In the Qikiqtani (Baffin Island) region of Nunavut, a five-year school community science development project was undertaken by CRYStAL in three schools: Pond Inlet, Clyde River and Igloolik. This process applied the guiding principles of Inuit Quajimajatuqangit (IQ) to the improvement of science curriculum delivery. The approach honours the knowledge, principles and values the communities see as fundamental to defining who and what they are.

As part of the development project, extensive consultations were held with teachers, principals, education authorities, parents and students. The need to incorporate the traditional teachings alongside the ‘western’ method of science teaching came out as a resounding priority for all those consulted. An assessment tool was developed in order that the science delivery methods could be evaluated after implementation.

Developing learning materials for use in these Nunavut schools does not happen in isolation. Lewthwaite says, “We are very closely connected to teachers and students in the schools, the community members, and the school and territorial administrations. These resources have been developed collaboratively.”

The evaluation tool is now being used to monitor progress in the three schools. The results are positive in two out of three of the schools. One school was not seeing positive progress. Why? The high turnover of staff in northern schools is a major contributing factor.

“The problem is the turnover in education is a major impediment to success. If you can have the same team and the same game plan it is much easier to accomplish goals. If there is going to be changeover bring someone in that has the same mindset and capability. You need people that can fulfill the capacity.”

Another factor is the ‘southern’ teaching methods that come with teachers imported from southern Canada. Lewthwaite says, “The southern way of teaching in northern communities doesn’t always work. You simply cannot take Western science and southern teaching practices and deliver it to northern communities as you would in an urban school in Winnipeg or Vancouver. It just won’t work.”

“Teaching about life and talking about the return of the sun provides a beautiful context for learning science and mathematics,” says Robinson. “How can you show the importance of light unless you use the example of the difference between clear ice and ice that has snow on it? And then look at how light enters through the ice?”

WHERE DO WE GO FROM HERE?
The heart of the Manitoba CRYStAL is the learner and their experiences. The work done so far has built a foundation for what is to come. The resources that have come out of this project are extensive and differ significantly from materials used readily in Canadian classrooms.

“A lot of resources that go into schools don’t come with the research and evaluation that the Manitoba CRYStAL resources have built in. They don’t come with research about what contributes to best practice. This strong evaluation component and validation of the resources ‘working’ in the classroom is key to student success. It’s important for users to understand that with a resource like Return of the Sun, they are unlikely to see anything better than this in their lifetime, because of the research work we’ve done alongside the resource development. It’s like a once in a lifetime opportunity provided for them. It’s now up to the users as to how they move forward with what we’ve given them,” says Lewthwaite.

Knowledge translation is a key component of what comes out of the CRYStAL projects. The resources developed need to be put into use in classrooms across the country. To this end, they are made freely available on the Manitoba CRYStAL website. These have been widely used resources. One website – sci-ed.org – has recorded up to 2,000 downloads, not hits, per month of these resources.

Another translation activity happened at the Second International Conference on Stories in Science Teaching, held in Munich, Germany in July. The theme was “Stories from the history of science: Knowledge translation for the science classroom.” This conference brought together researchers, scholars, and educators from twelve countries to present and discuss stories relating to the history of science and how to use those stories in the classroom, to educate students. The Maurice Price Foundation under the umbrella of the Manitoba CRYStAL grant provided significant funding to the conference.

“There is an international cry for educating for a sustainable future. There is good context for teaching science in sustainability,” said Robinson “so this is one other area of focus.”

“Most surveys suggest that students optimum interest in school science is around the grade 5/6 level. Their perception of science as a subject – in the learning – peaks around grade 5/6,” said Lewthwaite.

“There has to be changes in the orthodoxy of curriculum and the way in which science is taught in order to upset the applecart – because the apples are spoiling. We’re really trying to foster a more positive attitude shift in students. These shifts are likely to come from changes in curriculum, changes in assessment and changes in teaching practices. If we do that, we’ve been successful.”

“The heart of the Manitoba CRYStAL is the learner and their experiences.”
WOLF TREE
(Coteau Books)
Alison Calder
English, film, and theatre

A FIRST COLLECTION of sharp, clever, wicked poems that range from images of circus freaks and two-headed calves to snow geese and wind in the pines. A wolf tree is a tree in a bush or a thicket which is different in shape from those around it; a tree whose broader trunk and spreading branches indicate that it once grew alone but is now surrounded.

Alison Calder’s poems shine the light of a poet’s curiosity on all manner of “natural occurrences,” which nevertheless stand out. The book opens with an examination of the extreme forms this nature may take – from the Dutch legend of the false child Sooterkin, to two-headed calves, Zip the Pinhead, and other medical curiosities, particularly those captured by 19th century photographic techniques.

The disquieting feelings created by these subjects persist, causing the reader to proceed watchfully, even when the poet’s attention switches to more common themes and images – plastic clotheslines, wildflowers of western Canada, snow geese, the Porta Nigra in Trier, Germany.

A selection of poems from this manuscript, Sexing the Prairie, was published in the journal Open Letter in Fall 2006.

THE RED INDIANS: AN EPISODIC, INFORMAL COLLECTION OF TALES FROM THE HISTORY OF ABORIGINAL PEOPLE’S STRUGGLES IN CANADA
(Arbeiter Ring, 2007)
Peter Kulchyski

THE RED INDIANS is a theoretically nuanced, frank, and accessible book about Aboriginal resistance in Canada, historical and contemporary. In the manner of Eduardo Galeano’s famous trilogy Memories of Fire, the book uncovers a critical, living history of conflict.

The Red Indians, with its polyvalent title that points to the many issues covered in the text, introduces readers to the history of colonial oppression in Canada, and looks at contemporary examples of resistance. Kulchyski clarifies the unique and specific politics of Aboriginal resistance in Canada.

Peter Kulchyski is a leading Canadian Native Studies scholar and has published numerous books on Aboriginal issues, including Like the Sound of a Drum: Aboriginal Cultural Politics in Denendeh and Nunavut, which won the 2005 Alexander Kennedy Isbister Award for Non-Fiction.

INFLUENZA 1918: DISEASE, DEATH AND STRUGGLE IN WINNIPEG
(University of Toronto Press)
Esyllt Jones

INFLUENZA 1918 uses Winnipeg as a case study to show how disease articulated and helped to re-define boundaries of social difference. Esyllt W. Jones examines the impact of the pandemic in this fragmented community, including its role in the eruption of the largest labour confrontation in Canadian history, the Winnipeg General Strike of 1919. Arguing that labour historians have largely ignored the impact of infectious disease upon the working class, Jones draws on a wide range of primary sources including mothers’ allowance and orphanage case files in order to trace the pandemic’s affect on the family, the public health infrastructure, and other social institutions. This study brings into focus the interrelationships between epidemic disease and working class, gender, labour, and ethnic history in Canada.
Influenza 1918 concludes that social conflict is not an inevitable outcome of epidemics, but rather of inequality and public failure to fully engage all members of the community in the fight against disease.

SOCIAL MURDER
(Arbeiter Ring, 2007)
Robert Chernomas, Ian Hudson

CORPORATE POWER IS one of the strongest forces shaping our world. More than half of the top 100 economic entities today are private corporations. With their immense size comes commensurate influence, to the point where corporations are able to wreak social and environmental destruction with few serious consequences. Yet, amazingly, this subject is essentially absent from the study of economics.

The conservative economic theory that dominates the profession is based on the core belief that as little as possible should interfere with businesses’ pursuit of profit. This approach to economics ignores history, politics, poverty, the natural environment, and social class, among other inconvenient realities. Conservative economics would almost be laughable – were it not for the fact that this way of thinking helps prop up the worst excesses of capitalism.

Social Murder examines the connections between the destructiveness of global capitalism and the professional economists who help keep it that way.

OUT THERE / IN HERE: MASCULINITY, VIOLENCE AND PRISONING
(Fernwood Publishing)
Elizabeth Comack • sociology

ELIZABETH COMACK EXPLORES the complicated connections between masculinity and violence in the lives of men incarcerated at a provincial prison. Moving between the spaces of ‘out there’ and ‘in here,’ the discussion traces the men’s lives in terms of their efforts to ‘do’ masculinity and the place of violence in that undertaking. In drawing out these connections, similarities with the lives of other men become apparent. In the process, we also learn that prisons are not a solution to public concerns about crime and violence. Prison is a gendered space in which violence is a systemic feature and the pressures on men to ‘do’ masculinity are even more pronounced. Sending racialized and economically marginalized men to prison only encourages and reaffirms aggression, dominance and the exercise of brute power as legitimate social practices.

WOMEN IN BRITISH IMPERIAL AIRSPACE, 1922-1937
(McGill-Queen’s University Press)
Liz Millward

THE ROMANCE OF FLYING the airways that developed above the British empire between the two world wars seduced young women with the promise of independence, glamour, and adventure.

Using a wealth of archival material, including government documents, Liz Millward investigates the very idea of airspace. She maps the contours of five forms of civilian airspace – the private, the commercial, the imperial, the national, and the body of the pilot herself – as concrete places through which social differences such as gender, class, race, and sexuality were reproduced and challenged.

Women in British Imperial Airspace is a provocative exploration of the often difficult and rebellious struggle of women pilots as they attempted to produce, define, and gain access to the spaces created when popular and commercial flying took off.

DISCOURSE, DESIRE, AND FANTASY IN JÜRGEN HABERMAS’ CRITICAL THEORY
(Routledge Press)
Kenneth MacKendrick

THIS BOOK ARGUES THAT Jürgen Habermas’ critical theory can be productively developed by incorporating a wider understanding of fantasy and imagination as part of its conception of communicative rationality and communicative pathologies. Given that meaning is generated both linguistically and performatively, MacKendrick argues that desire and fantasy must be taken into consideration as constitutive aspects of intersubjective relations. His aim is to show that Habermasian social theory might plausibly renew its increasingly severed ties with the early critical theory of the Frankfurt School by taking account of these features of practice life, thus simultaneously rekindling the relevance of the nearly forgotten emancipatory intent in his earlier work and rejuvenating an emphasis on the contemporary critique of reason. This innovative new study will be of interest to those focusing on the early writings of Habermas, the writings of the Frankfurt School, and the relation between critical theory, hermeneutics, and psychoanalysis.
There are two kinds of entrepreneurs in this world. Those with business and managerial training and experience, and those with technical knowledge of the product or service. This is where the eureka project—Smartpark’s Incubator—comes in.

Gary Brownstone, resident director of the eureka project and a University of Manitoba graduate himself says, “We can help both types of entrepreneurs.”

The eureka project helps develop the business skills needed to succeed. In the current economic times, incubators are that extra insurance needed to ensure new start-up companies are on the road to success.

The eureka project was launched in 2007 and has already produced exciting results, as measured by revenues, number of employees, and technologies developed within the client companies. Its location in Smartpark, adjacent to the University of Manitoba Fort Garry Campus, provides a source of seemingly limitless benefits. Eureka project clients collaborate with researchers, employ students, teach courses, and are often mentored by faculty and staff at the U of M.

Currently, the eureka project collaborates with eleven client companies in sectors such as functional foods, agricultural technologies, structure monitoring, and software and new media development.

“We focus on companies with at least a North American market, but preferably a global market”, says Gary Brownstone, director of the eureka project. “We are working with four of our clients to secure financing in the $2 to $5 million range which will enable them to accelerate their growth to the next level,” says Brownstone.

The power of the location can best be exemplified through the story of one eureka company’s experience. When the company (of three people) was meeting with a multinational client who was bringing fourteen experts to the meeting, they were able to create a team of equal heft and knowledge to assist them in the meeting. Professors and directors from the U of M, and government representatives were able to generate confidence in the relationship by demonstrating that the company had access to a wealth of talent. There are several similar examples.

The eureka project seeks clients that have developed intellectual property and are ready to launch or accelerate their marketing. In addition to marketing, clients receive advice on strategic planning and accessing financing. Like the training wheels on a bicycle, the goal of the eureka project is to ultimately help grow companies to financial self-sufficiency, and then wean them from incubation.
BIOPSIES
BEWARE

They made the world take note when they began biopsying every patient despite what blood tests said, and now they are on their way to making biopsies a thing of the past.

BY SEAN MOORE
It was a good match. It was 15 years ago when a Winnipeg man in his 40s received a kidney with blood and tissue types similar enough to his own that his body was unlikely to reject it. Indeed, if things went the way textbooks suggested, this allograft would still be employed as his body’s full-time chemist and maid. A long career to be sure, but one that appeared possible in the first few months following surgery when his blood tests continually had fine results. But then something peculiar happened. So some University of Manitoba researchers began asking some questions. The answers were difficult for many to first accept, but textbooks have nevertheless since been revised.

“How did the complete scarring of the kidney tissue take place without any clues?”
“Let’s say your car is running beautifully and then one day you take it for a routine checkup to the mechanic,” internal medicine’s David Rush said. “And the mechanic says this car is completely destroyed and you have to sell it. And you say, ‘what? But it’s running fine. There was no indication there was something wrong.’”

“Well, that is what happened here,” the patient’s doctor said.

For years blood tests were used to determine if the grafted organ was getting rejected or working improperly. It seemed a good indicator since our muscles release a substance called creatinine and this gets filtered by kidneys. So the issue is simple: when creatinine levels increase in the blood, kidney function is likely waning.

But as Rush and his colleague Peter Nickerson observed, the anatomy of the kidney ensures blood tests are far from foolproof because, like a car’s engine, the kidney consists of many compartments performing independent tasks. Parts may fail, but overall it still runs. Indeed, you only need about 30 per cent of your kidneys to function properly before you start feeling sick.

An adult has about five litres of blood, yet its kidneys filter about 180 litres of blood a day. The two fist-sized organs exquisitely control salt and water levels, discarding whatever is in excess via the urine and reabsorbing whatever is needed through tubules, a network of small tubes some 80 kilometers long. Nested among these tubules are the glomeruli, tufts of capillaries that do the actual filtering.

The index case had blood tests showing perfect levels of creatinine. But doctors also measure levels of serum albumin, a protein floating around blood in abundance. When its levels drop, the sieve-like structures of the glomeruli are likely letting it slip past, and if that’s the case, urine becomes frothy – a symptom the index case had.

“There was no question this man was sick,” Rush said. “The issue is when we did the biopsy we were expecting to find a problem in the compartment containing the glomerulus, the filter. But what we found was the compartment with the tubules was completely scarred.”

To understand his surprise, imagine you’re reading in bed one night when suddenly all the lights go out. You suspect something is wrong with the breaker and go to check on it. Sure enough, the fuse blew, but the basement has flooded too.

“And so you ask, ‘Well, when did this happen?’ It was completely unexpected,” Rush said. “There were no clues to the other processes. We expected to find something wrong, but how did the complete scarring of the kidney tissue take place without any clues? It was mind-boggling. That is the best way to put it. And that’s when we decided we had to do biopsies at regular, scheduled intervals despite what blood test showed.”

This idea, although straightforward, was a paradigm shift. Rush and Nickerson began their program of “protocol biopsies” and discovered that 20-30 per cent of kidney transplants quietly succumb to “subclinical rejection”, a term they coined. In short it means the body’s immune system acutely rejects the kidney without giving much evidence of it.

Ideally, each graft should last as long as possible to ensure effective use of limited resources. About 500 Manitobans are living with a transplanted kidney; many more are awaiting one. A kidney transplanted from a deceased donor, on average, will last 12 years. If it’s from a living donor it’s 16 to 20 years. But that...
20-year lifespan hasn’t changed much in the last 20 years, even with the new drugs added to doctor’s arsenals.

“Part of the reason for this, we feel, is that we aren’t being aggressive enough and looking for these early rejections. If we could detect them and change our drug therapies early and accordingly, we could prolong our grafts. And that’s the whole focus of our research,” Nickerson said.

Nickerson is currently developing a tool to replace biopsies (more on this later) because biopsies are an unpleasant, and somewhat expensive, necessity. Minor complications from a biopsy include blood in the urine. This happens five percent of the time. Major complications involve internal bleeding, resulting in clots and the stoppage of kidney function. One in 2,000 patients will die.

“It’s nothing to be scared of,” Marlene DeFoort, a 65-year-old mother of three and one of Rush’s patients said. She received a kidney from one of her sons in January of 2008 and has had three biopsies since, her most recent one in October.

“The whole process takes about five minutes for them to use an ultrasound to find your kidneys, and then a long needle is used to take the kidney sample. And if they need to take another sample, they poke you a second time. You don’t feel anything because you are anesthetized locally. And when it’s done, you lay on the table for three or four hours, keeping very still, and then you go home and you’re not supposed to do anything for 24 hours,” she said.

In 1984 a research team from John Hopkins University published a paper in the journal Transplantation that reported on their findings garnered from a series of unsystematic biopsies. They found white blood cells in some transplanted kidneys. These do not reside in properly functioning kidneys, but the researchers nevertheless dismissed them because they found that some of these kidneys worked well later on.

“I think that paper did a disservice to the follow-up of patients with transplants because it was quoted a couple of times,” Rush said. “And, in fact, when we started publishing our stuff the authors of this paper said, ‘What are you doing, this is silly. Why are you paying so much attention to this?’ And the first few times we sent our work to international meetings we were refused because they thought our work was unimportant.”

But in 1997, renal pathologists, nephrologists and transplant surgeons from around the world gathered in Banff, Alberta, for a conference that has since been held every two years. Here the experts developed a working classification of renal allograft pathology. “This,” Rush said, “was fortuitous.”

The subclinical rejections Rush and Nickerson found were all, according to the Banff 97 schema, officially rejection. “So when we showed our results to our colleagues, they scratched their heads and said ‘no.’ They intended for this Banff criteria to apply only to kidneys that weren’t working properly. But here we were telling them we had a seemingly healthy kidney that met their criteria. They did not like this,” Rush said.
The following year Rush and Nickerson completed a randomized study to provide more robust insights. In the paper, which has since been cited over 100 times, Nickerson and Rush followed two patient groups with 36 Manitobans in each. Group A received biopsies one, two, three, six and 12 months after the transplant, with blood tests throughout, while Group B had only the blood tests and a biopsy at the six and 12-month mark.

The groups showed similar results on the blood tests, but fared very different otherwise. Group A had no scarring – the biopsies gave doctors the information they needed to deliver the Goldilocks-degree of immunosuppressant drug therapy. But Group B’s first biopsy revealed scarring in the tubulointerstitial compartment. The glomeruli, however, looked and filtered fine.

Between six and 12 months, Group B’s creatinine levels spiked. Scarring increased to the point where most kidneys were significantly less functional than their counterparts after 24 months. A more recent study of recipients of living donor allografts showed the same findings: Rejection, like an iceberg, exists mostly below the surface. Or, in a word, subclinically.

“So function doesn’t distinguish between healthy and unhealthy grafts, at least early on. But pathology does. And since we’re one of the few centres in the world that do these routine biopsies, we have the data to show that these subclinical rejections are real, a concept that now is accepted by many centres,” Nickerson said.

Using this data, Nickerson is now developing a non-invasive tool that can replace the need for protocol biopsies. The means to this end is urine, more specifically, the proteins in it. Working with John Wilkins, professor in internal medicine and director of the Manitoba Centre for Proteomics and Systems Biology, he began examining proteins in the urine of four groups of people – those with clinical rejection, subclinical rejection, healthy transplants, and people without transplants.

Biopsies are very informative, but a problem with them, besides their $1,000-price tag in Canada, is that rejection can be spotty at the outset, so the first biopsy may not tell the whole story. By the time the next biopsy finds evidence of rejection, scar tissue may have already irreversibly developed. Urine, however, represents the whole kidney right off the bat because it travels throughout the kidney, and like most travelers it has a story to tell. The challenge is getting that story in a meaningful and accurate way. One way is to use genomics, but it’s expensive and involves complex processes (it’s not, in other words, readily mass produced).

What Nickerson is after is something as simple as a home-pregnancy test: pee on a stick to see if you’re sick. Proteomics – the study of proteins – offers a good chance of achieving this.

“We were the first to say you had to go beyond blood tests and do biopsies if you really wanted to know what’s going on in the kidney. But now,” Nickerson said, “we’ve gone further to say biopsies aren’t good enough because you can’t do one everyday. But you can do a urine test everyday.”

To understand urine’s makeup, the team uses a mass spectrometer to separate proteins into distinct groups. The data is made more user-friendly by converting it into a barcode-like picture. The team then compares patterns between all the samples and hone in on the anomalies.

Unlike serum albumin, which makes urine frothy and has been known about for centuries, Nickerson is learning about a bevy of proteins previously unknown to leak out of the body in urine.

“It was a bit of a surprise to find 600 proteins in urine. A lot of people thought that the kidney’s filter system would prevent proteins from getting into the urine,” Nickerson said.

Of those 600, 64 are unique to clinical and subclinical rejection patients, and 61 are unique to subclinical and healthy transplant patients. It took the team a summer to learn about just one particular protein, a type of chemokine that shows up in clinical and subclinical rejection urine, but not in urine from histologically normal kidneys.

“Ultimately,” Nickerson said, “we would like to get to the point where we can develop a tool so that people can test themselves to see if they have these biomarkers in their urine, and if they do, they can call the clinic and get their drugs adjusted. It would be cheap, but more importantly, fast. And ideally we could do it all without biopsies.”

To lower the risk of rejection, doctors match tissue types between donor and recipient as best they can. A 6-antigen matched kidney is the best possible match, and it’s what the index patient originally had. It means the six principle bits of protein responsible for identifying foreign tissue, and therefore stimulating an immune response towards it, were unlikely to become alarmed when cross-examining his graft. It’s the lottery winner of kidney matches and it should have lasted upwards of 15 years.

But it failed after only three.

In 1999, the man got a 3-antigen matched kidney from his wife. Far from ideal, yet with the vigilance provided by protocol biopsies he still has it and is living a productive life, Rush said.

But as DeFoort said, “If Dr. Nickerson could replace biopsies with anything else, that would be great. It would be fantastic. It would really change my life.”
Juan José Aveiro-Talavera

**environment and geography**

**HOW DO YOU** create better health, nutrition, and reduce the population’s vulnerability in Paraguay? Just ask Juan Jose Aveiro-Talavera. Juan is conducting research to determine the environmental impact associated with human livelihoods in the Ñeembucú wetlands ecoregion, Paraguay. He is working in partnership with the stakeholders (farmers, ranchers and the community) in order to balance production and environmental priorities.

The results of his research study will show us the connection between changes experienced in this ecoregion related to human activities in agriculture (farming and ranching), industry, communications (roads), energy (hydroelectric dams) and also sociodemographic tendencies.

Caroline Peters

**social work**

**AFTER 22 YEARS** as a field social worker Caroline Peters decided to step it up a notch. She is currently in the PhD program in social work, studying social service systems that provide services to lone mothers in poverty by exploring the relationships between mothers and their former social workers (with interviews).

Misunderstandings, judgment, confusion and mistrust are just a few of the negative experiences mothers described. Therefore, her analysis had to go beyond the experiences and practices of the individual social workers and explore the high caseloads, the funding cutbacks, and the mandates of the agencies.

The whole process resulted in a multi-level analysis of women’s and social worker’s experiences, a critique of systems that offer services to low income lone mothers, and also an exploration of the broader issues of racism, sexism, and classism.

Jamie Penner

**nursing**

**JAMIE HAS A** passion for oncology nursing. She is a graduate student in the master of nursing program. She is studying in the evidence-based nursing practice in cancer care, palliative care, and cancer prevention stream. She is developing a program of research in the area of advanced head and neck
oncology with an emphasis on psychosocial issues that arise for patients and families dealing with head and neck disease. Jamie’s thesis project examines the experiences of family caregivers of patients with advanced head and neck cancer receiving enteral tube feeding.

The findings from such work will provide evidence-based guidance to clinicians that will enable them to better meet family caregiver needs regarding the care of the tube-fed patient, and provide the foundation for future psychosocial/educational intervention studies in the context of a randomized controlled trial.

THE THIRD ANNUAL STUDENT POSTER competition was an oasis for science buffs wanting to know more about, say, alkyl thiol-capped nanoparticles, or mathematical modeling of climate change’s effects on whale sharks.

Over the summer months 56 undergraduate students conducted research in one of three scientific fields – applied, biological or physical sciences – to discover facts about nature and perhaps even their passion for research, to learn about the research process, and to get a chance to win some money.

On October 10, the research posters resulting from this scientific toil were reviewed by 30 judges drawn from the university community, industry and the Natural Sciences and Engineering Research Council of Canada (NSERC) Prairies Regional Office in Winnipeg. Prizes of $500, $300, and $200 were awarded to the top three posters in each category.

“Fundamentally, it exposes undergraduates to what the research experience is, which you can’t translate in a classroom or through a textbook,” Guy Levesque, judge and NSERC-Prairie manager, said.

“This is about feeding the pipeline of the next world-class researchers. These students were already sold on science, and this competition hooks them in – it hopefully confirms to them that this is what they want to do.”

This year’s first prize winner in the applied sciences category was human ecology student Danielle Durston for her project, “The effects of dietary n-3 on triglyceride and phospholipid fatty acid composition of hepatic and adipose tissue in fa/fa Zucker rats.”

Medicine student Miten Dhruve took top honours in the biological sciences category for his project, “DLX Transcriptional Regulation of Insulin Expression during Pancreatic Development.”

In the physical sciences category, science student Erica Franzmann won first prize for her project, “Explosions in Space! An analysis of an intriguing Supernova Remnant using X-ray data from European Satellite XMM – Newton.”

The competition, sponsored by the Office of the Vice-President (Research) and NSERC, provides opportunities for undergraduates to get exposure to, and gain an appreciation of, research.

“We host the competition to encourage as many students as possible to pursue their curiosities and then offer them a venue where they can display their work and gain a sense of pride for it,” said event organizer Digvir Jayas, associate vice-president (research).

“It’s obvious to students that they come to university to learn in a classroom, but the laboratory is a wonderful teacher and many students may not appreciate how much they can learn – about a topic and themselves – by doing research until they actually do it.”

Chemistry student Efekhi Ogbomo agrees.

“It’s hard work doing research. It takes a lot of determination, so you have to find something you’re curious about, something you want to learn more about. For me, I love crystallography.”

Ogbomo’s project was titled, “Expression, Purification and Mercury Binding Properties of Right Handed Coiled Coil.” The significance of his findings is that these could be used in a process to take mercury out of waterways.

“I like to look at the big picture. I like to see how this small thing can impact the larger world. I don’t see myself as stopping here at this poster either. I’m going to take this and go beyond, and really make an impact with my research.”
A JEWISH SAYING ASKS WHAT IS TRUER THAN THE TRUTH? AND IT ANSWERS: THE STORY.

BY SEAN MOORE
Everyday people invent narratives, repackage old ones, corrupt others, and preserve, by various means, those narratives that matter most to them, because, perhaps, they provide that otherwise unobtainable quality accurate self-definition requires. Stories abound because humanity seems to depend on them. Such fundamental things need study; the University of Manitoba has a scholar dedicated to understanding them – or some of them at least.

Warren Cariou is the university’s newest Canada Research Chair (CRC); his Chair in Narrative, Community and Indigenous Cultures began on April 1, 2008. His role as such will be to foster respect for cultural differences by re-evaluating what “Canadian community” means and how this is done by examining the stories and stereotypes people tell and hold onto. By looking at these narratives, Cariou finds effective ways to accommodate different communities within our understanding of a multicultural Canada.

“I’m interested in smaller communities, in particular the ones where storytelling is important,” Cariou said. “So my own focus is on Aboriginal cultures and the ways oral storytelling has really preserved and been, in effect, their culture, because so much of Aboriginal culture is contained in the stories – so much teaching, so much philosophy, so much practical knowledge of how to be on the land is contained in their stories.”

As CRC, Cariou will approach his task from various angles, one of which involves resuscitating books Aboriginal authors penned without much fanfare in the publishing world.

“I would really like to bring them back to the public eye,” Cariou said. Many publishers prior to the 1980s had interests in printing Aboriginal books, but the editors (not used to dealing with authors who were rooted in oral traditions), and the writers (who were better oral than textual communicators), did not find the success they both hoped for. As a result, the stories fell to the wayside.

“There are a lot of stories that get left out or marginalized. But these stories have a lot of powerful, positive ways to tell people who they are and it’s not a negative thing. It’s something they can be proud of.”

“I don’t see it as a straightforward ‘here, teach these people these stories and they’ll be well-adjusted and able to shed stereotypes.’ But by reevaluating and giving more attention to Aboriginal peoples, it gives a validation to those stories that they didn’t have in academic culture before.”

Academia, Cariou said, has historically treated Aboriginal stories as something akin to gallery pieces – quaint relics good for admiration, but not necessarily as valuable ways of interpreting the past and present. Since many stories weren’t written down they were viewed as having little value.

“But I think it’s really been discovered in the last generation or so, that there is just so much important knowledge embedded in these stories from all First
“We define ourselves by our stories, and in so doing, define who we are not.”

Nations and Métis that we all can – everyone – learn from them. And I think from evaluating them and trying to understand them from an academic perspective, and from trying to be as respectful as we can, it gives them a kind of power that they deserve. Our academic community gives them the credence they deserve in the larger community. And I think that can have effects; it will take time but it will have effects for individuals and their lives.

Many of the stories people tell are about belonging; belonging to just about anything. We define ourselves by our stories, and in so doing, define who we are not. Instantly, we have created “the other”. This opens the door to stereotyping – about ourselves and others – and we may then find ourselves uttering statements like, “I don’t belong in that neighbourhood because…,” or “All [fill in the ethnicity] are….” Suddenly barriers in our otherwise free society have been erected. But as Cariou discovered in writing his award-winning book, Lake of Prairies, that sense of differentiation is overwhelmingly unsubstantiated yet often inherited without question.

CARIOU

will approach his task from various angles, one of which involves resuscitating books Aboriginal authors penned without much fanfare in the publishing world. “I would really like to bring them back to the public eye.”

“A couple of texts we are working on right now are George Cluetsi’s Potlatch (1969) and Anahero’s The Devil in Deer-skins (1972). We are focusing on texts from before 1980, though we are not entirely exclusive about dates.”

Clutesi describes the last Tloq-wah-nah, or Potlatch, the gift-giving feast that was traditional among First Nations but then banned by Canada’s “Indian Act.” He participated in the potlatch he describes and says he writes this account with considerable trepidation, omitting names of those involved, because some of his own family had been arrested for having staged a similar ceremony.”

Source: www.antiqbook.com

“By writing a novel or critical study, or doing a documentary film, I think it can get people to think differently about those negative, stereotypical narratives that we have been accepting or just not thinking about.”

“I think my role is to ideally make people think about these things. If I can get people to be critical about those stories they received about who they are, where they belong, and where other people belong, then we’ll be able to move forward as a community.”
CAN YOU REMEMBER HIGH SCHOOL and how great times were back then? You probably had valuable friendships, more leisure time to watch television and perhaps you were even valedictorian. But, was the past really as good as you remember it? Research by Jason Leboe in the Department of Psychology suggests that our perceptions of the past are influenced by the ease with which these thoughts come to mind. In fact, Leboe’s research indicates that the mere ability to remember seemingly mundane details from our past may produce positive feelings for past events, even when those events were neutral or even somewhat negative. As a consequence, if upon thinking back on your high school years you are able to produce a surprising amount of detail about your old chemistry teacher; you may find yourself feeling strangely nostalgic for your old chemistry class, irrespective of how you actually felt about chemistry at the time!

This finding is one example of a bias that occurs from the use of rules in remembering tasks. For example, people often use the amount of detail remembered about a past event as evidence of the authenticity of the event. Although the use of this rule generally leads to correct remembering judgments, it can also lead to systematic errors, like the perception that the past was more positive than it actually was.

Similarly, other attributions influence how we experience the world. For example, imagine solving a crossword puzzle that appears in Saturday’s newspaper. To what extent do you feel that you solved the puzzle through your own skill, as opposed to some external source, such as luck? According to Leboe’s research, the answer depends on the amount of effort you believe you have put into generating the answer. Counter-intuitively, however, the more effort people put into solving an answer, the more likely they are to conclude that the answer came from some external source, and not from their own ability to generate the correct answer!

Together with his team of graduate and undergraduate students, Leboe is examining these and other perplexing errors that occur during remembering and perceptual tasks. By determining the rules that govern these errors, they hope to uncover a common set of principles that lead to both correct and incorrect recollections of past events and perceptions of our current environment.

**TAMARA ANSONS**

Tamara is a student in the Department of Psychology studying in the brain and cognitive sciences area under the supervision of Jason Leboe.
BY GUY MADDIN

**GUY MADDIN** became the University of Manitoba’s distinguished film maker in residence in July 2007. The position is a joint position within film studies and the Department of Icelandic. He is collaborating with George Toles, chair of the film studies program, on the new feature film **KEYHOLE**.
The KEYHOLE PROJECT started out of frustration I experienced trying to find within any of my movies a single central image strong enough to go directly onto a movie poster. I was always happy with the overall look of the films, but I began to lament the absence of an iconic, unforgettable shot within them. So, I promised myself I would start my next script, not entirely with words, but with images – strong, original compositions – instead.

My Collage Party doyen friend Paul Butler assembled for me an exciting group of extremely gifted Canadian artists – Michael Dumontier, Shary Boyle, Simon Hughes, Brad Phillips, Jeff Funnell, Caelum Vatnsdal, Krisjanis Kaktins-Gorsline, Alicia Smith – and with them we set out to make collage pieces based on a simple two-sentence outline of my next movie's story. A collection of gallery-worthy work was the delightful result! The work has already shown at Montreal's Dazibao Gallery and University of Manitoba's Gallery 111.

Not only have these new works from other, brilliant sensibilities thrilled me, they have actually steered my story into important new directions. Now, images, not just words, are nudging, bumping, influencing and sometimes even wrenching the steering wheel of the new narrative!

The new feature film, co-written by George Toles and myself, is itself called KEYHOLE, and it will be ready next fall. During its projection it will be accompanied by live performance elements – live music and sound effects, holographic projections of a naked ghost wandering throughout the theatre, perhaps gunfire, and, going wholly Grand Guignol, maybe even that old William Castle prostate-tingler will be dusted off for long-overdue use!

I’m determined to throw the kitchen sink – tastefully, innovatively – at this cinematic happening.

I’m also determined to gather as much of the movie’s fascinating collateral material as I can and organize it into a show which will be installed at a gallery near the movie’s exhibition venue. This will include all the collage work, the film’s unique mono-edition props and jewelry, courtroom sketch artist accounts of the shoot, even some on-set composed poetry, and both written and filmed diaries.

I’m also going to make a series of 13 four-minute films, which I’m calling Parallels, with the collaboration of poet John Ashbery. These films are little parallel universe narratives that use the same settings and characters as the feature-length KEYHOLE, but offer little narrative core samples of the same world, but altered by the removal or radical alteration of certain important story elements - intriguing little what-if glimpses into a conjectured, conditional, film universe, one in which the feature’s main premises are turned upside-down.
STUDENTS IN THE UNIVERSITY OF MANITOBA FACULTY OF MEDICINE expressed the humanistic side of medicine through art at the 7th annual Medical Art Show focusing on the theme The Art of Innocence: Children in Medicine held in February 2008.

The exhibit featured poetry, sculpture, painting, sketch and photography – including a powerful collage by a medical student about her own experiences as a child with an illness.

“Children perceive caregivers differently...how will we as physicians demonstrate care, empathy, compassion to children and reach out as clinicians?” asked senior coordinator Laura Kravetsky, Med II student.

“The goal of the art show is to give medical students an opportunity to explore the humanistic and caring aspects of medicine,” added senior coordinator Deanna Klassen, Med II student. “We are cognizant that our responsibility as doctors is not just about diagnosing and treating the illness or disease, but treating the patient as a whole. It’s an important part of practicing our profession.”

Medical students participating in the art show gained insight into the issues faced by pediatric patients, their families and health care professionals treating patients. Interpretations of the theme ranged from how children react to illness to how parents and families feel at time of diagnosis.

Inspiration for their original art works came from learning about how the Children’s Hospital Child Life Department helps children deal with hospitalization and meeting photographer Keith Levit regarding capturing images of children in art.

Future doctors and health care professionals must demonstrate competence, compassion, and a high level of consistent quality care to children. Through art, the students were able to explore the emotional, physical and spiritual impact of illness on children.

ARTISTIC IMAGES IN DENTAL RESEARCH

THE FACULTY OF DENTISTRY recently presented Artistic Images in Dental Research, a display of vibrant and colourful images derived from dental research. Close to 50 images were on display at this unique exhibition. Titles included Silhouettes, The Ocean at Night and Silicon Drop. The exhibit followed the faculty’s first Research Day that featured the work of faculty and student researchers. Research Day and the Art in Science exhibit are all part of the Faculty of Dentistry’s 50th year Anniversary Celebration and 2008 Drive for Top Five. (see back cover for more images from this exhibit)

THE UN/RE-BUILD STUDIO?

THE CURRENT TREND of the building industry to move towards “sustainable” construction practices is an important step toward achieving a meaningful and balanced relationship with the environment. The focus of this movement is based on new architecture and construction projects. What is not being discussed, however, is the hidden potential in existing buildings in our urban and rural landscapes.

In rural Canada, there are many abandoned buildings left behind in the wake of the depopulation of farming communities over the last several decades. The buildings that have no further use are most often left to decompose in the weather or burned and then buried or sent to a landfill. In the fall of 2007, an architecture studio led by professor Lancelot Coar, worked with a rural farming community in Clearwater, Manitoba and a non-profit organization, the Harvest Moon Society, to test the ability of abandoned buildings to provide material to promote new architecture.

In this studio, fourteen undergraduate and masters level students worked closely with both groups in Clearwater and deconstructed a 106 year-old one-room-schoolhouse that had been abandoned for over 50 years. The material from
this building proved to be valuable 'old growth' lumber, rich in colour, strength and sizes. This 'saved' lumber provided the material for three new projects aimed at helping serve this 68-person farming community. Two projects were designed and built on the newly developed interpretive trail in Clearwater; a thirty-foot long pedestrian bridge and a lookout platform that overlooks the stunning Pembina Valley Watershed. The third project was the development of a community resource centre located within the Harvest Moon Centre. This room will provide the opportunity for the farming community, members of the Harvest Moon Society and visiting classes to engage and learn from each other.

The impact of this project has been significant to the community of Clearwater as well as the Harvest Moon Society. It has also provided many valuable learning opportunities for the students involved in the projects: working with inspiring and visionary clients, hands-on experience at 'real' sites with materials, and giving a deeply meaningful lesson to students on the role architecture can play in supporting sustainable building practices and in developing communities.

This positive experience has resulted in the Harvest Moon Society nominating the University of Manitoba – Faculty of Architecture – for a Manitoba Excellence in Sustainability Award. This project was also awarded a grant by the Waste Reduction and Pollution Prevention fund offered by Manitoba Conservation.

This year Coar is leading a new studio group to Clearwater and is working to deconstruct a century-old barn to provide material for new structures to be designed by the students for Clearwater.
Remember when you used to spend untold hours sitting around a table over a beer or coffee with your friends, solving all the problems of the world, debating all the “big questions” of the day? That’s what a Café Scientifique is all about. Simply put, it is a larger and slightly more organized version of those conversations. It’s an opportunity to bring together researchers with members of the public to spark a discussion about some of the most interesting—and sometimes contentious—research currently underway in Canada.

Come out and participate in discussion at our next two Café Scientifiques:

Where: McNally Robinson Polo Park – Event Alcove
When: March 4, 2009 – 7-9 p.m.
Topic: Could keeping kids too clean make them sick?
Asthma, allergies & chronic diseases
Panelists: Allan Becker, Charles Bernstein, Carla Taylor
Facilitator: Kent HayGlass

When: April 20, 2009 – 7-9 p.m.
Topic: What affects your mental health?
Panelists: Harvey Chochinov, Patricia Martens, Jitender Sareen
Facilitator: John Arnet
BY THE NUMBERS:

- 71 endowed & sponsored research chairs – including 48 Canada Research Chairs
- 37 research centres, institutes & shared research facilities
- 8 National Synergy Awards for Innovation
- 31 tenant companies in Smartpark, the university's research and technology park

- 7,758 staff (2008) – 3,363 academic staff, 4,395 support staff
- $460.4 million annual operating budget (2008/09)
- $1.2 billion in building assets

JUST THE FACTS

SPONSORED RESEARCH INCOME, 2004 TO 2008 ($ MILLION)

TECHNOLOGY TRANSFER OFFICE INVENTION DISCLOSURES

RESEARCH FUNDS BY SOURCE 2007-08

TOTAL: $161.7 MILLION