



HERE COMES THE SUN

Zoey Roy has needed hope and resiliency throughout her life, from being homeless to finding success as a musician, social activist and poet. Now a student in SUNTEP, she is finding new ways to share her message of hope and resiliency and becoming a role model for Aboriginal youth. Read the full story on Page 8.

SWEETMOON PHOTOGRAPHY

Innovation, wealth and the role of universities

New managing director steps in at the Industry Liaison Office

MICHAEL ROBIN

As Johannes Dyring explained it, the wealth enjoyed in the modern world comes largely from the resources between our ears.

“Eighty-five per cent of growth in GDP (gross domestic product) is due to innovation, new thinking,” said Dyring, who took the helm as managing director of the university’s Industry Liaison Office in October.

Yet, he explained the vast majority of the inventions coming out of universities are solutions in search of a problem—and that is a problem in itself.

“Most tech transfer offices in the world have technologies, and they need to bring them to market and try and develop products, which is very difficult and expensive,” he said. “Tech-driven innovation means you have to find someone who needs it. I mean, where would you look? The world is huge.”

Instead, Dyring advocates starting the research innovation process by identifying a need, whether it be found in industry, business or any other part of society.

“What I would like to do here is help the university to become yet more active and engaged and realize its role in the economic development of the country and society.”

Dyring, whose academic training is in subatomic physics, was recruited from SLU Holding AB, where he served as CEO. A subsidiary of the Swedish University of Agricultural Sciences, the initiative provides venture capital and innovation support to researchers, employees and students. A



Johannes Dyring, managing director of the university’s Industry Liaison Office

MICHAEL ROBIN

successful entrepreneur, Dyring has launched ventures in the aerospace industry and business consulting. He also served as CEO of CONNECT Eastern Sweden, a privately funded non-profit business network that links entrepreneurs and young companies with growth potential to capital as well as

practical business experience and resources.

Dyring said that a solution-driven approach need not and should not preclude curiosity-driven discovery research. Serendipity remains a rich and unpredictable source of innovation. Rather, he would like to see the invention ratio closer to

50-50—that is, half solutions to yet-to-be-discovered problems, and half solutions developed specifically for identified needs.

He also advocates building bridges among disparate and even unlikely areas of expertise which can also yield novel and unexpected ideas.

Dyring cites an example from the University of Maastricht in the Netherlands, where the chemistry department and law school came together to develop ideas. The result is a forensics company, the Maastricht Forensic Institute, which provides services to police, justice and advocacy groups, and the private sector.

While the word “invention” often evokes images of a new piece of software or high-tech engineering, creativity comes from all disciplines. And, inventions and innovations can come from just about anywhere,

See *Universities*, Page 3

Designing depression diagnosis

Researchers creating a blood test to diagnose mental health issues

KRIS FOSTER

For any number of diseases—think heart disease, cancer and diabetes—there are tests that diagnose and guide treatment. Diseases related to mental health are an exception.

“If you have a lump you think is cancer, you take a biopsy and look for abnormal cells and pathological changes,” said Lisa Kalynchuk, a professor of neurology in the College of Medicine. “The challenge with mental health is we don’t have clear biomarkers that confirm diagnoses of mental health issues or addiction and what’s the best available treatment.”

Typically, someone feels depressed and goes to his or her doctor, and a “subjective diagnosis is made,” explained Kalynchuk, who works with animal models to better understand biological causes of mental health problems.

The next step is to prescribe a drug, wait a few weeks and possibly prescribe a second and third drug option with more time dedicated to the wait-and-see approach.

“It is hit-and-miss and there is no clear pathway based on rationale. It is very tough on the patient and is an inefficient and costly way to deal with mental health.”

Enter Hector Caruncho, professor in the College of Pharmacy and Nutrition, who, in 2006, began collaborating with Kalynchuk.

“I was working with a protein called reelin,” explained Caruncho, whose research focuses on neuropharmacology. “In post-mortem brain samples I discovered a deficit of reelin in those with mental illness like schizophrenia or manic depression.”



Hector Caruncho, left, professor in the College of Pharmacy and Nutrition, and Lisa Kalynchuk, right, a professor of neurology in the College of Medicine.

GORD WALDNER, COURTESY OF THE STARPHOENIX

Caruncho and Kalynchuk started to work together in an animal model of depression that Kalynchuk had developed in an attempt to find a biomarker that could indicate if someone was depressed or not.

“We discovered in depressed lab animals that this reelin protein caused molecules to cluster differently on cell membranes,” said Kalynchuk. “We thought that this cluster pattern could be used to predict patients with depression.”

The team decided to look at lymphocytes, or white blood cells, as changes in the immune system might be responsible for mental health issues, she explained, adding that they enlisted between 50 and 60 patients in Spain who were recently diagnosed as depressed by psychiatrists.

Those patients were given a quick blood test that allowed the researchers to examine how proteins in the white blood cells moved and clustered serotonin on the cell membrane.

“Using fluorescents, we made the patterns glow. We saw two types of protein clustering: fewer clusters of bigger size and more clusters of smaller size.”

The patients with fewer, but larger protein clusters, responded to antidepressants while the other group did not.

“From this we know that it’s possible that this patterning of protein clustering might predict who will respond to treatment,” she explained.

Further yet, Kalynchuk continued, those who are

“The challenge with mental health is we don’t have clear biomarkers that confirm diagnoses of mental health issues ...

Lisa Kalynchuk

unlikely to respond can save the time wasted on the first treatment option and move on to more aggressive drugs or options like behavioural therapy.

Caruncho and Kalynchuk will now attempt to validate the idea and look at other protein clustering—as well as hundreds of additional patients they are recruiting from Spain, the U.S. and Canada—“to replicate and better understand the data so we can validate if we have indeed found a predictive biomarker,”

explained Caruncho.

“From there, we need to develop a kit for primary care doctors that will allow them to administer the blood test in the office and get results back in 24 hours,” Kalynchuk explained, adding that they are currently working

with a finger prick and blood smear test.

The team is also developing an agreement between the U of S and a Spanish institution to collaborate on this work.

“Can we make this work with other mental health issues? Maybe we can find biomarkers for manic depression or schizophrenia. Is there some way to help with addictions? We think this is a concept that can move this field forward,” said Kalynchuk. ■

GETTING SOCIAL WITH MEDIA

Some of the top tweets, posts and pics from the U of S

WCVM Today



@usaskArtSci



@usask



@JackSaddleback



@UsaskPresOffice



Huskies balance sports and studies

U of S student athletes named CIS Academic All-Canadians

✍ JAMES SHEWAGA

It can be a difficult task for any university student taking a full course load, with lectures, labs and lengthy study sessions preparing for that next exam.

For student-athletes, the demands can be doubly daunting, a delicate balancing act as they spend as much time in the classroom as they do on the field, on the ice or in the gym.

However, each year at the University of Saskatchewan, hundreds of Huskies student-athletes like Annie Monteith and Brayden Twarynski—hoping to be a doctor and a chemical engineer, respectively—excel in both academics and athletics.

“Taking engineering while playing sports at the university level is no easy task,” said Twarynski, a starter on the defensive line with the Huskies football team who also posted a 90 per cent average in his engineering courses in 2014-15. “Based on the hours spent on each per week, it is like working two full-time jobs.”

“I’m still trying to find that balance between the two, but for me these are two of the most important things in my life and I do my best to excel at both,” said Monteith, who earned a

silver medal in wrestling at the national championships last year while also posting an 85 per cent average in her classes. “I think sometimes student-athletes don’t think too much about all the work we’ve put in because it’s something we love doing and it’s just part of our life.”

Their efforts, however, have not gone unnoticed on campus, or across the country.

In the 2014-15 season, 183 Huskies—more than 40 per cent of all student-athletes at the U of S—were named to the university’s All-Academic Team by earning a grade point average of at least 74.5 per cent while taking a full course load of 24 credit units per session. In addition, 77 Huskies—including Monteith and Twarynski—were named Canadian Interuniversity Sport (CIS) Academic All-Canadians for posting a grade point average of at least 80 per cent, an impressive record of student and sport success at the U of S.

“The success of our students is an accomplishment Huskies Athletics is very proud of,” said Basil Hughton, Huskies athletic director. “We hope everyone understands how hard these student-athletes, trainers and



Annie Monteith and Brayden Twarynski were named CIS Academic All-Canadians.



managers work to succeed in their respective colleges at the University of Saskatchewan.”

For Huskies like Monteith, earning academic and athletic acclaim requires superb time management and often skipping student social activities. In addition to a full classroom course load, the 21-year-old Regina native spends more than 20 hours a week in the gym training for wrestling, as well as studying for a couple of hours on her own each day. The fourth-year College of Kinesiology student’s track record speaks for itself, garnering great grades while also winning the Canada West Universities Athletic Association (CWUAA) gold medal in her weight class, being named

the CWUAA female wrestler of the year and earning the conference’s Student-Athlete Community Service Award, before going on to finish second at nationals.

“I found I really had to pre-plan almost every hour of my day, I even scheduled in naps,” said Monteith, who has now applied to transfer to the College of Medicine and hopes to become a physician one day. “For me though, this works, and being busy is something I’ve always liked as I feel it focuses me and I get the most out of my day. There are definitely stressful times when you just have to stop studying and go to bed because you have a 6 am workout the next morning, but I think as long

as you enjoy what you are doing, everything falls into place.”

Twarynski has also found a way to successfully juggle a challenging engineering program with the demands of being a veteran starter for the Huskies football program. The roughly 40 hours a week he spends on school work is matched by 40 more hours a week that he spends at football practice, studying game film, working out in the weight room and suiting up in games once a week in the fall semester.

“Initially it seems like there are not enough hours in a day to complete everything that your coaches and professors ask of you, however once you learn to be efficient with your time, things become easier to handle,” said Twarynski, who appreciates being honoured for his commitment on the field and in the classroom.

“It’s a nice way to be recognized for the hard work you put in, and all of the sacrifices that you make in the pursuit of achieving both academic and athletic excellence,” said the 20-year-old Calgary native. “My university experiences both on the field and in the classroom have played a strong role in shaping me into the person I am today, and I look forward to being successful in whichever career path I choose to take upon graduating.” ■

James Shewaga is a media relations specialist.

U of S trains pharmacists to give flu vaccine



Thanks to training done by the College of Pharmacy and Nutrition, more than 800 pharmacists in Saskatchewan will be able to administer injections like the flu vaccine.

Since April, in preparation for the upcoming flu season, the College of Pharmacy and Nutrition’s Continuing Professional Development for Pharmacists (CPDP) office has been training provincial pharmacists. The training program combines online and in-person educational components to ensure pharmacists have the required skills to properly administer medications

and the flu vaccine by injection.

“The Pharmacist Immunization and Injection training program is important because it means an increase in accessibility for patients,” said Lisa Bagonluri, manager of the CPDP at the U of S. “This makes it easy for more people to get vaccinated, which will decrease their risk of getting influenza.”

The Pharmacy Association of Saskatchewan provided \$350,000 in funding to train pharmacists. This training support was put in place to remove any financial barriers and to ensure as many pharmacists as possible are trained to provide injections for the 2015-16-flu season.

To receive the flu vaccine from a pharmacist, members of the public—with a valid Saskatchewan health services card and at least nine years old—can visit a nearby participating pharmacy. For a list of participating pharmacies, visit: skpharmacists.ca/patients/flu-shots. ■

Universities need to apply knowledge

From Page 1

from just about anyone, faculty, administration, and, not the least, students.

“There’s an interesting young company in Sweden using nature in treating people suffering from exhaustion syndrome and stress-related disorders,” Dyring said. “They have developed a multidisciplinary method to treat and rehabilitate people.”

The company uses horticulture, specifically gardens divided into different spaces. Each is designed to evoke a therapeutic response through shapes, textures of plants, colours of flowers and the like.

“They designed nature and treated and rehabilitated people—really, really sick people there—with great success. That’s an innovation. Not high tech, but lots of knowledge, know-how and psychology.”

Dyring also names banker, economist and Nobel laureate

Muhammad Yunus as an example of an innovator who has made an enormous difference in the world. Yunus founded Grameen Bank in Bangladesh, based on the pioneering concepts of microcredit and microfinance to give poor people the capital to lift themselves out of poverty through entrepreneurship.

This is the type of knowledge-driven benefit that universities can and should be delivering to the societies they serve, Dyring explained, arguing that over the centuries, their role and function has evolved.

At first, universities were devoted to education, passing on, for example, the wisdom of the classical Greek scholars. Later, they took on the role of knowledge creation through research. Today, the challenge is to spread this knowledge and help apply it.

“Now I believe we are in an age where universities have to have three fields of operation: education, research and impact,”

he said.

“Universities will become much more involved in economic development and improving welfare in countries than before, because they are true creators of new knowledge that’s necessary for vital, sustainable development.”

It will take a change in how universities see themselves and their role in society, a cultural shift that Dyring concedes will take time. In the meantime, the Industry Liaison Office will be working to help this process at the U of S.

“In addition to the exciting inventions and innovations that already come from the university, we can identify needs in society and industry,” he said. “We can start an initiative, we can start a company, we can start an innovation process, because we know where to find the brightest brains in the university that could be part of developing a solution to a need or to a problem.” ■

NEW TO US



Fabienne Uehlinger

When Dr. Fabienne Uehlinger set her sights on becoming a veterinarian, it was not to treat pets or companion animals such as horses. She chose cattle.

"I think farmers are such a great clientele to work with," she said. "They have a natural approach I think, with a level head on their shoulders. I like supporting their livelihoods in my role as a veterinarian."

Uehlinger discovered Canadian veterinary medicine during a high school exchange to Prince Edward Island, home of the Atlantic Veterinary College (AVC). While completing her DVM in Switzerland in 2002, she did an externship at AVC, and later returned to work on her PhD, which she completed in 2007. She completed a large animal internal medicine internship and residency on PEI in 2011 before travelling to Laos to work with Veterinarians Without Borders Canada. She arrived at the U of S in November 2014.

While bovine health is a male-dominated field, Uehlinger is adamant with her students that this should make no difference.

"There is very little that you cannot do as a woman, just because you're small," she said, explaining much of the job is technique, properly applied. It is essential for workplace safety when working with animals many times human weight and size.

A bigger challenge is ethics, and she advised her students to lean towards evidence-based care.

"A food animal vet is very frequently challenged with finding that balance between economic bottom line for the producer and best animal welfare as well as evidence-based practice," she explained. "These ethical decisions are never, ever black or white. When you're actually out there talking to the producer, it's very grey most of the time."

Economics and health also factor into Uehlinger's research interest in parasitology, specifically worms and their growing resistance to deworming agents.

"It's a large and emerging issue that deserves further attention in Western Canada," she said.

Uehlinger is also acutely aware of the economics of cattle in the developing world. While a Canadian producer with a large herd might absorb the loss of an animal without losing their livelihood, for a producer in the developing world, that animal might represent most or all of the family's wealth. Protecting the health of these animals—and the people that depend upon them—is a priority.

To this end, Uehlinger continues to work with partners such as Veterinarians Without Borders on a study in Laos comparing veterinary interventions among villages to see how they affect animal health and productivity. Another collaborative effort in Kenya is looking at cow-calf nutrition and welfare.

"My motivation for doing research is to work with producers to find ways to improve animal health and welfare and productivity," said Uehlinger. "For me, this is really, really important."

U of S to host national forum on reconciliation and universities

On Nov. 18-19, the University of Saskatchewan will host a two-day national forum—"Building Reconciliation: Universities Answering the TRC's Calls to Action."

Co-hosted by Chancellor Blaine Favel and President Peter Stoicheff, the forum will bring together more than 100 Canadian university presidents and their leadership teams, First Nations and Métis leaders, Aboriginal scholars and student leaders, and other scholars dedicated to research that is meaningful to Aboriginal peoples.

"In response to the calls to action of the Truth and Reconciliation Commission, universities across the country are examining how they can make meaningful changes within the core of their institutions, engage more effectively with Aboriginal communities, and become leaders and partners in building reconciliation," Stoicheff said.

He noted that as a first step, the 97-member Universities Canada organization, working in close consultation with Aboriginal communities, has developed a set of principles for enhancing educational opportunities for indigenous students.

"Our forum will now build on this work by creating a respectful dialogue between university and Aboriginal leaders on identifying how to move forward in building reconciliation and addressing the calls to action directed at post-secondary education," Stoicheff said.

Justice Murray Sinclair, chair of the Truth and Reconciliation Commission of Canada, and Perry Bellegarde,

"This nationally focused forum will help set the stage for a series of U of S internal conversations around reconciliation that are being planned for the new year."

Peter Stoicheff

national chief of the Assembly of First Nations, will address the forum during the opening plenary session, which is open to all members of the university community, the general public and media.

"I believe that this forum—which will bring together university leaders and Aboriginal leaders—is a good starting point for the type of honest and respectful discussions that are urgently needed," Bellegarde said in a letter sent to chiefs invited from across Canada.

Robert Doucette, president of the Métis Nation of Saskatchewan, and Jack Saddleback, U of S Students' Union (USSU) president, will also speak at the opening session.

Other sessions will be limited to invited participants so as to enable small group discussions and dialogue among Aboriginal and non-Aboriginal participants from across Canada. A news conference involving university presidents will cap off the forum.

"This nationally focused forum will help set the stage for a series of U of S internal conversations around reconciliation that are being

planned for the new year," Stoicheff said.

"Over the coming months, members of the broad U of S community, in consultation with Aboriginal communities, will have the opportunity to provide extensive input into developing a blueprint for how the U of S can move forward in closing the education gap."

Co-chairs of the forum's 12-member steering committee are Margaret Kovach, associate professor of education whose work focuses on indigenous education, and Keith Carlson, a history professor and Research Chair in Aboriginal and Community-Engaged History.

The forum will examine how universities can respond to the TRC calls to action in four areas: teaching and learning, research, the Aboriginal student experience, and governance and structures.

On Nov. 16, Louis Riel Day in Saskatchewan, the USSU will launch a 24-hour social media campaign to ask students across Canada: "What does reconciliation mean to you?" Selected answers will be made into a video clip to show at the U of S national forum. ■



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On Campus News aims to provide a forum for the sharing of timely news, information and opinions about events and issues of interest to the U of S community.

The views and opinions expressed by writers of letters to the editor and viewpoints do not necessarily reflect those of the U of S or *On Campus News*.

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CORRECTION

In the October 23 issue of *On Campus News*, it was reported that the D- and E-wings in Health Sciences Building have achieved silver and gold Leadership in Energy and Environmental Design (LEED) certification status, respectively. This status has not been granted, however, both wings are currently in the process of document submittals to achieve this certification.

Labour of love takes centre stage

Curtain to raise on historical play about women's auxiliaries

 KIRK SIBBALD

A study examining the central role women played in forming Canada's mid-20th century labour movement is set to wrap up next year in a very dramatic way.

Elizabeth Quinlan, associate professor of sociology, has long been interested in the work conducted by women's auxiliaries of the International Union of Mine Mill and Smelter Workers (IUMMSW). Comprised of the wives and mothers of miners, these groups were formal organizations with their own constitutions and bylaws, united by a desire to usher in more fair and humane working conditions for

all workers.

"These were women who were inspired by a vision of a better world. A world that was more just, where people had enough to eat, and the working conditions for their husbands, fathers, brothers—and everyone, for that matter—were safe," explained Quinlan. "Their work was driven by a vision as opposed to a paycheck."

Quinlan first began looking into the women's auxiliaries after receiving a Social Sciences and Humanities Research Council (SSHRC) grant in 2011. For this project, she and her research team travelled to eight archives across the country to collect historical data about the auxiliaries. The aim of her most recent SSHRC-funded project, which officially began this past July, is to take what was uncovered during the first grant and present the findings theatrically.

To accomplish this, Quinlan has teamed up with Julia Jamison, an assistant professor in drama, and Jennifer Wynne-Weber, playwright and community fellow, Interdisciplinary Centre for Culture and Creativity. The script for the play is in final stages of drafting. Auditions and the hiring of

undergraduate drama students will begin next spring.

The play's first performance will take place during the National Day of Mourning, April 28, sponsored by the Saskatoon District Labour Council. Next the students will perform the play during Saskatoon's annual Fringe Festival. Lastly the play will be performed at the Saskatchewan Federation of Labour conference on occupational health and safety in September 2016.

The team has hired an undergraduate student to compile findings from the first study for donation to a selected archive. They will also hire a graduate student who will be producing a video on the play's development.

Women's auxiliaries existed for about two decades, from the 1940s to the '60s. In addition to advocating for labour-related issues such as higher wages and safer working conditions, said Quinlan, the auxiliaries were also central to the social life of their often-isolated communities. "They would host Christmas parties, organize community

Two-mile long demonstration of support by wives and children of striking Kirkland Lake miners. Kirkland Lake, Ontario, winter 1941. Ref: Jim Tester collection, Laurentian Archives.

dinners, put on plays ... really a whole array of activities."

The SSHRC-funded theatrical production is meant to shed light on the historical role women have played as labour activists and make Quinlan's scholarly research on this subject more publically accessible.

While there were many challenges faced by women's auxiliaries—such as being held under surveillance by the RCMP and, often, being restricted from travelling to the United States—Quinlan said these groups of women showed incredible perseverance.

"The Cold War was very hot. Any group or individual who had been identified as left-leaning faced serious repercussions ... You could very easily be labeled a communist when in fact you weren't, and as a result lose your job and be blacklisted from your community," said Quinlan. "Despite the risks, these women were committed to building a better world. Today, workers in Canada continue to benefit from the fruits of their efforts." ■

Kirk Sibbald is a communications officer in the College of Arts and Science.



Quinlan uses theatre in several of her research projects on workplace harassment, breast cancer survivorship, and women's auxiliaries.



Canada's first Aboriginal theatre program launched

Carol Greyeyes (left) and members of the first class in wichehtowin.

A new drama program focused on Aboriginal students at the University of Saskatchewan (U of S) is the first of its kind in Canada.

The wichehtowin Aboriginal Theatre Program is a two-year certificate program offered by the Department of Drama that trains students for careers in theatre, television, film and related industries. In Cree, wichehtowin means "we live together in harmony; we help each other; we are inclusive."

The first group of eight students began the 30-credit program this fall. U of S assistant professor Carol Greyeyes, an award-winning actor, writer and director, co-ordinates the new program. She wanted to design a learning environment that would help students build confidence

and express themselves while also affirming their identities as Aboriginal people.

"We're trying to create a strong circle of support where our students feel they belong," said Greyeyes, a member of the Muskeg Lake Cree Nation.

Students proceed through the two-year program with a single cohort of their peers, learning skills such as acting, traditional dance, set design and stage management as a group. The program culminates in the world premiere of a new theatrical work written, designed and performed by the participants.

The certificate can be obtained alongside another degree or completed separately. First-year student Kayla Peters is one of the individuals pursuing

the certificate in combination with an English degree.

"There's a lot of places in mainstream society where as Aboriginal people you don't feel comfortable going, because they don't understand," Peters said. "But I feel very at home here (in the program). It's like having another family."

The Aboriginal Theatre Program is another step for the U of S College of Arts and Science in its mission to become a welcoming place for Aboriginal students, said Gordon DesBrisay, the college's vice-dean academic.

"This is a flagship enterprise for us," DesBrisay explained. "This is who we are, what we stand for and what we aspire to be. We're extremely proud to host this program." ■









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The burning issues

Ecological, economic and social perspectives on Saskatchewan

LESLEY PORTER

The visuals from a forest fire can be startling, or even disturbing. Seemingly destructive in nature, they can grow higher than 50 metres and burn hotter than 1,000 degrees Celsius.

Such was the case this past summer, when Saskatchewan experienced some of its worst forest fires on record. Approximately 13,000 people from Northern areas of the province were evacuated from their homes, while heavy smoke left a haze across Western Canada, parts of the Northern United States and as far east as Quebec.

"Fires are simply a function of the conditions and fuels—those two ingredients," said Jill Johnstone, associate professor of biology in the College of Arts and Science. "There are always fuels available—fine mosses and lichens and pine needles and twigs from the trees. Those dry out fairly quickly and you just need a period of warm weather without rain, and then the ignition—that's lightning."

Those two simple ingredients have complex effects.

ECOLOGICAL EFFECTS

While the images of forest fires look bad, some of the outcomes can be positive. In the thick northern boreal forests, fires are essential for restimulating plant growth and ensuring germination of certain vegetation, said Johnstone, adding that in Saskatchewan, "all of our tree species are well-adapted to regeneration after a fire."

A good example of this is the serotinous cone, a species of pine covered in a resin that can only be melted off by heat from fire. "The cones are totally sealed closed, but once the fire goes through, the

seeds are released and spread all around. It's perfectly adapted to regenerate after fires," she said, adding that the vegetation that future generations will one day see has already started to develop.

Also, once a fire passes through an area, there is a flush of productivity that can last for several decades, she explained. Thanks to increased light from the sun, the soil temperature rises, and there is a pulse of nitrogen and phosphorus—macronutrients that cause plants to grow very quickly. This sudden thicket attracts herbivorous animals (such as moose and deer), as well as predators (such as wolves) that feed on the former.

As a result of all the healthy activity, those areas remain less prone to fires for quite some time. "The fires we let burn today become the fire breaks of tomorrow and reduce the flammability of those areas."

Looking back at the past summer's wildfires, Johnstone noted that there was nothing unusual about them, except that they are consistent with a growing trend of more frequent fire activity. "We're pretty sure the big fires are happening more often," she said, adding that unusual interactions between fire and the warming climate could interrupt the forest regeneration cycle.

"That's an issue Saskatchewan is concerned about. Some forests could burn and not regenerate again. If the climate is changing and becoming warmer and drier, then it's the seedlings

that are really vulnerable."

ECONOMIC EFFECTS

While last summer's fire may have served a purpose to the surrounding ecosystem, it did not spare the province's economy, according to Greg Poelzer, political studies professor in the College of Arts and Science and the Johnson-Shoyama Graduate School of Public Policy.

The province's resource sectors were hit hard, including mining operations—the main economic driver of the North. While many companies can stockpile and recover quickly, others—such as those in the forestry industry—simply could not, said Poelzer, an expert in Northern governance and policy matters.

"It's just dollars going up in smoke. It's unfortunate because over the past few years we've had a rebound in the forestry sector in

the province," he explained, referencing the financial crisis of 2008 and softwood lumber dispute of the early 2000s which brought the sector to a heel. "The timing was not great."

Small businesses in Northern communities, especially those in the tourism sector, also took a hit. "In places like La Ronge, summer tourist traffic is really important. They provide a year-round service for communities but are less profitable in the off-season," said Poelzer, adding that some outfitters have reported as much as 50 per cent losses.

Many Northern fishing camps were also destroyed. The camps, which serve as food sources for adjacent communities, are difficult to replace, said Poelzer. "We're (not) talking commercial fisheries—they're not millionaires."

As with anything, it costs money to fight fires. The province projected a \$107-million surplus in its spring budget, a tune that quickly changed to a \$292-million deficit in August's first-quarter financial report. Poelzer explained that while most of the decline can be attributed to falling oil prices, a lot of that also came from the sudden cost of fighting

“ To go back and see what we lost and loved, to see that what has changed is also very important.”

fires—\$100 million, the most costly in the province's history.

"It's not just the water bombers and the firefighting crews, but the cost of the largest evacuation in Saskatchewan's history," he said.

SOCIAL EFFECTS

A common sentiment, when seeing images of fires approaching communities and cityscapes draped in smoke, is that more should be done to alleviate the situation.

But when it comes to fighting fires, only so much can be done, said Toddi Steelman, executive director and professor at the School of Environment and Sustainability and expert in environmental and natural resource governance.

"In any year we're going to have wildfires, but this year we had a lot of them," she said. "You can't protect everything, so it means making strategic decisions about where and what we want to



Johnstone



Poelzer



Steelman



Saskatchewan forest fires of 2015

...see the place you lived and loved and the landscape completely and emotionally devastating.

Toddi Steelman

protect.”

The province employs a robust Wildfire Management Act, Steelman explained, which directs the efforts in responding to fires in certain geographical zones. The Full Response Zones include areas within 20 kilometres of towns and communities, as well as timber-rich areas. In the Modified Response Zone, fire protection is initially done and then evaluated based on resources available. Finally, in the Observation Zone, where both timber and human activity is scarce, fire typically burns and plays its natural role as a shaper of the boreal forest.

While many have called for changes to this policy, Steelman said that it has worked effectively, “even in this year when we had pretty extraordinary resource demands.

“Every fire is monitored,” she added, “but there may be more or less active suppression activity identified with it.”

In the end, it all comes down to resources. “We could spend millions upon millions every year but still run into the same problem,” she said, adding that in a constrained budget year other agencies and offices could be forced to pick up the slack for the overspending. “Where do we draw the line in terms of what we’re going to do?”

However, it was still hard to witness the destruction caused by the summer fires.

“It’s such a traumatic experience,” she said. “To go back and see the place you lived and loved, to see that landscape completely changed is also very emotionally

devastating.”

Outside of the immediate danger zones, the effects of the fires—thick, noxious smoke—blanketed much of the country, causing a health concern for many. “It was atrocious,” said Steelman, adding that the microscopic particulate matters in the smoke are especially harmful for the elderly, young, those with asthma and anyone doing any sort of outdoor activities.

GOING FORWARD

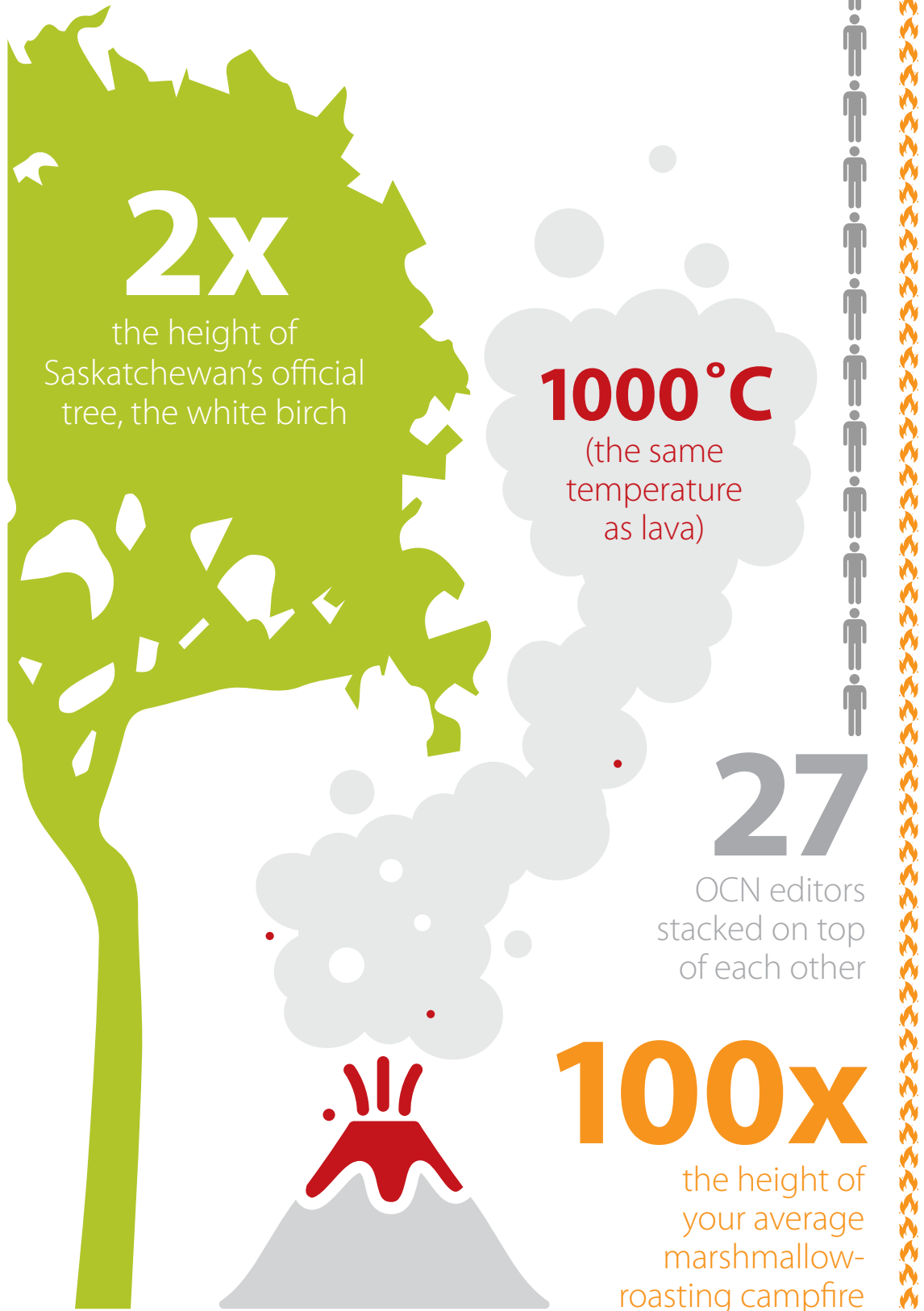
Given the trajectory of climate change, Steelman explained, fires such as those seen this year are destined to become the new normal and communities should not be surprised when they return next year.

“Thinking about what happened this year is really short-sighted,” she said, adding that severe fires were seen this year across Canada and the United States, particularly in Alaska, and that many parts of Australia, Europe and South Africa are headed for the same fate. “This is not just an anomaly in Saskatchewan. We have to understand how we’re fitting into the global trend of megafires.”

Preparation is key, added Poelzer, adding that many communities may benefit from infrastructure such as fire breaks, which create a perimeter around the vital resources in fire-prone centres. “It costs a lot more to rebuild a whole town than to build a fire break,” he said.

Johnstone agreed. “We can’t fight our way out of large fires,” she said, adding that a fire cannot be stopped once it is larger than four hectares in size. “It’s hard to talk about people losing areas of forest around them or structures, but it’s a reality that we can’t avoid those losses so we have to be strategic.” ■

A 50-metre forest fire is ...



Committed to community

With a message about hope and resilience, Zoey Roy sets an example for Aboriginal youth

KRIS FOSTER

From being homeless, to finding a home at the U of S, Zoey Roy's path has had its share of twists and turns, and she hopes it can be an example for other Aboriginal youth to follow.

A few years ago, Roy, now a fourth-year student in the Saskatchewan Urban Native Teacher Education Program (SUNTEP), found herself on the street after her home had been shot up.

"I was at rock bottom when I was 19," said Roy, a self-described "military brat," who lived in 16 different communities in Canada before leaving home at 13 and being incarcerated at 15. "I had two choices: I can give up, or realize I have nothing to lose and everything to gain."

She knew that education was the best way to making those gains.

"I knew I had to change and I knew I had to finish my Grade 12 education and be involved in my education," explained

Roy, who most youth know better by her hip-hop name Pricelys. "So I volunteered at the school in the breakfast program. I was there from 7 in the morning to 6:30 at night."

It was during that time when Roy, who was also working for two local youth organizations, found her voice as a spoken word artist. So after finishing Grade 12 at Nutana Collegiate

in Saskatoon, she moved east to Toronto to pursue a career as a performing poet. "I found a source of healing. I was a young, poor Aboriginal girl. I needed to express myself."

Her message in poetry and music, she continued, is "about hope and resilience. But it is also about just looking for a place to belong and that can be treacherous, especially for indigenous youth because voices of our

“ My narrative is common to a lot of indigenous youth. I think that’s why I’m relevant. What keeps me going now is seeing youth challenging themselves as a result of conversations we have.

Zoey Roy

ancestors have been oppressed by the people who wrote our stories."

Roy was on a good path and she was gaining recognition for her art, but something was still missing for her. "I was working for myself in Toronto and I realized that my success was just mine. It wasn't fruitful in the sense of building community."

It was then, in 2011, when Roy headed back to Saskatoon

and reached out to SUNTEP. "I had to convince them to take me into the program," she said with a laugh, adding that she started classes in fall 2012. "But this has been the best decision I ever made in life."

The program, she explained, has helped her find her identity. "To be a Métis woman means that I, too, have responsibility to care for children in our communities and the environment that can't speak for itself, so naturally teaching is a good path for me."

Roy sees her role as a being a "bridge between two worlds: the colonized Canadian nation and the Indigenous nation. As a Métis woman I empathize with both perspectives and can help formulate and understand where we can coexist."

For Roy, coexisting meant getting involved in numerous social and artistic movements. Most notable was in April 2011 during the federal election when Roy founded Rock the Vote—a movement that started in Saskatchewan and spread across Canada as a way to engage marginalized communities. Roy also became involved



Zoey Roy, fourth-year student in SUNTEP.

SWEETMOON PHOTOGRAPHY

with National Youth Arts Week and Write Out Loud: Building Community through Spoken Word. Her work as an artist, social activist and role model for Aboriginal youth has not gone unnoticed as she received the Queen Elizabeth II Diamond Jubilee Medal in 2012, a YWCA Women of Distinction nomination in 2013 and most recently the Inspire Métis Youth Award.

"I'm a survivor, I've faced every violence you can think of and my spirit has been broken so many times. I was a hood kid, but a strong girl and I wouldn't be here without her. Now it seems like such a different life," said Roy.

"My narrative is common to a lot of indigenous youth. I think that's why I'm relevant. What keeps me going now is seeing

youth challenging themselves as a result of conversations we have. Watching young people be resilient and hopeful will always give me purpose," said Roy, adding that she feels that Saskatoon is home because her spirit is fulfilled here.

Roy plans on staying in Saskatoon after finishing her SUNTEP degree, and hopes to teach children "how they learn in a learning environment that nurtures all learning styles. I'm going to pursue alternative experiential learning. It is tough on the street and I've developed curriculum on life skills. How to find a home, get bank and SIN cards. That's what I want to do."

Indeed, Roy has learned a lot on her path so far and has no doubt others can learn from it as well. ■

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LARRY KWOK

MONEY MAKERS

On Oct. 29, it was announced that the George S. Dembroski Student Managed Portfolio Trust is valued at close to \$1.4 million, making it one of the largest portfolios in Western Canada. Launched in January of 2012 in the Edwards School of Business, Dembroski and other donors have provided more than \$1 million to support the trust, which allows senior-level students to invest real money in Investment Practicum courses. Announcement attendees, pictured (l to r), include Daphne Taras, (dean of Edwards), George Dembroski, George Tannous (professor of Student Managed Portfolio Trust course), Callan Kimber (Edwards Business Students' Society president) and Dev Mishra (head, Department of Finance).

School of Public Health Poster Day

MICHAEL ROBIN

Michael Szafron likes to share an anecdote from one of his students who was intimidated by attending a course at Johns Hopkins, one of the top medical schools in North America.

“He said, ‘I don’t know if I should go, I’m from the U of S, there’s going to be people from Harvard there, I won’t know anything,’” recounted Szafron, an assistant professor in the School of Public Health and director of its collaborative biostatistics program.

“I said, ‘I guarantee if you go, you will be fine,’” Szafron said. “Thankfully, he took my advice. He came back and said, ‘I’m so glad I went! Not only did I know as much as they knew, I ended up helping people who were in Harvard, Johns Hopkins, or Yale. They were just shocked that they had never heard of where I was from, yet I knew more than them.’”

“That’s the quality of our students.”

As Master of Public Health (MPH) practicum co-ordinator, Szafron was one of the faculty presiding over and judging the School of Public Health Annual Poster Day held in the D-Wing Atrium of the Health Sciences complex on October 23. The event featured 59 posters from MPH practicum students as well as two dozen posters from the thesis-based graduate programs.

Thesis-based graduate programs (epidemiology, vaccinology and immunotherapeutics, and collaborative biostatistics) projects covered a wide range of public health issues. A few examples were lifestyle factors contributing to heart disease, risks of petroleum contamination of soils, economic burden of dental care on families, and the challenges of delivering cervical cancer screening and prevention programs in rural Colombia.

“I am happy to see the dedication and the hard work our graduate students have put in conducting and communicating their research findings,”

said Dr. Suresh Tikoo, professor in the School of Public Health and interim assistant executive director (research) at the school.

Zhubing Li, a PhD student in vaccinology and immunotherapeutics, is looking at how the body tries to defend itself against the hepatitis C virus (HCV), under the supervision of VIDO-InterVac research scientist Qiang Liu. HCV is a chronic liver disease that afflicts about 250,000 Canadians. Specifically, Li looked at a protein called PCSK9 which is naturally produced in the body.

The good news: PCSK9 helps protect cells by deactivating the receptors the virus uses to grab a hold of the cell before it invades. Plus, the body can be induced to produce more PCSK9. The bad news: this is probably not a good idea.

“Actually the upregulation of this protein is kind of harmful to your body, because if you upregulate this protein, it will downregulate the low-density lipoprotein receptors, and that will increase the plasma cholesterol level,” Li said, explaining hers is basic research to find out what is happening and how.

“So far we have shown that PCSK9 can inhibit HCV replication and now we want to identify the mechanism involved,” she said. “It’s still a long way to go to an actual anti-HCV therapeutic.”

Master’s student Xueying (Elsie) Zhang, also in the vaccine and immunotherapeutics program, is working on another high-profile disease, HIV, the virus that causes AIDS. One of the challenges in research to develop vaccines against the disease is to come up with a safe, economical, non-human model to study the virus over time.



Vaccinology and Immunotherapeutics PhD student Zhubing Li explains her research on hepatitis C at the School of Public Health Annual Research Poster Day on October 23.

MICHAEL ROBIN

“HIV-1 is a chronic infection in AIDS patients, so we want to build a chronic infection model in mice,” Zhang said. She explained initial results testing a vaccine on these mice are promising, and should help contribute to efforts to eventually develop a human vaccine.

Other Research Day projects focused on people’s behavior, such as how they get around. Epidemiology graduate student Dana Ramsay is taking advantage of a lucky accident in the Saskatoon Household Travel Survey, commissioned by the City of Saskatoon, Warman and Martensville.

“They were looking at different travel behaviours, how different people take the bus, what routes, how long, but what they did is also collect information on health,” Ramsay said.

This made the survey a rich source of data for studying active transport—that is, walking, bicycling and transit—and its effect on people’s body mass index (BMI) as a measure of health. Ramsay uncovered that, as one might expect, active travel was favourably associated with BMI.

However, a different picture emerged once she looked, not only at income, but also

education, employment levels and social deprivation (e.g. single parents and people living alone). Once these factors were considered, Ramsay found active travel had a beneficial association with BMI—but only for higher income groups.

“For the three highest income categories, we see lower BMIs, so active travel appears to confer a benefit,” she said. “The lowest income category—that’s below \$25,000 in household income—the data show they are not benefitting from using active travel.”

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8	Dec. 4, 2015	Nov. 26, 2015
9	Jan. 15, 2016	Jan. 7, 2016
10	Jan. 29, 2016	Jan. 21, 2016
11	Feb. 12, 2016	Feb. 4, 2016
12	March 4, 2016	Feb 25, 2016
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Friday night lights

Andrea Eccleston has seen a lot of changes with the Huskies football team over the past 16 years, including the field's conversion from grass to turf, and the evolution of no fireworks to, well, plenty of fireworks.

By day, she serves as the environmental programs co-ordinator at the School of Environment and Sustainability, working with prospective and current students, and faculty in the eight environmental undergraduate degree programs on campus.

After hours, however, she hits the turf as equipment manager for the Huskies football team—a volunteer opportunity that came her way in 2000 after working a similar gig with her high school team in Maple Creek, Saskatchewan.

"They were looking for a new equipment manager with the Huskies," she said, "and I was already planning on moving here to go to university."

She made the move to Saskatoon a month early so she could assist with the Huskies' August training camp. "Sixteen years later, I'm still working with the team, so it must have been a good fit."

In her role, she ensures the athletes are properly fitted with their equipment and that it is functioning properly—from helmets to shoulder pads, knee pads to cleats. This also includes ordering the equipment and managing anything that requires repair. She also works alongside medical staff to make sure injured athletes are fitted with the appropriate pieces to avoid further injury. Oh, and laundry—"lots and lots of laundry," she said.

Eccleston enjoys making a difference with the team, "not only with the equipment part of it, which helps them to excel on the field, but also as a support to the athletes." She has furthered that sense of community by volunteering more of her time with Football Saskatchewan and Football Canada, and was even certified this year as an athletic equipment manager.

Still, Eccleston does not consider herself too much of a sports buff.

"I'm a fan in a different way," she said. "It's tough to watch sports when you've been so heavily involved in a different aspect. Even watching football games, my friends will laugh because I'll be watching what I'm used to seeing on the sidelines rather than the game itself!"

