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UNIVERSITY OF ALBERTA
ALUMNI MAGAZINE



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YES, FLYING CARS

OF

FUTURE

EVERYTHING

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YOUR
BRAIN**

**HOW
WILL WE
POWER
THE
FUTURE
?**

**SHOULD
WE FEAR
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Our bold prediction: 2115 will bring flying cars at last. Also, robots, drinkable dinners and bionic limbs. But it's what won't change that will truly shape our future. Page 17.
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upfront

One hundred years ago, as the Great War was being fought overseas and women at home were fighting for the right to vote, a group of University of Alberta graduates came together and created a community.

For the past year we have been celebrating the anniversary of that decision, and the positive and progressive impact of that simple, but important, act.

One of the most remarkable things about the early days of our Alumni Association is that its founders thought beyond themselves and their own time. They looked ahead 100 years to envision the day when U of A alumni would be a powerful coalition of leaders and innovators contributing their time, talents and skills to address issues that matter.

In contemplating and celebrating achievements of the past, we build on a solid foundation to create a path for our future. The choices we make today—just as alumni did 100 years ago—help guide our collective destiny, tomorrow and beyond.

It's exciting and daunting to consider the possibilities. When I imagine our bicentennial in 2115, I see recognized and sought-after U of A graduates contributing to local, national and global success. They're young (even now about half our alumni are under 40) and ambitious dreamers who believe in the power and strength of a diverse, inclusive community and society more than ever before.

When I look 100 years out, I see us celebrating our bicentennial in a permanent home on North Campus: a physical space that places alumni at the heart of the university, in surroundings symbolizing the contributions we make to the success of our alma mater; a place that functions to link the experience and wisdom of alumni with the students of the day—effectively creating our leaders of tomorrow.

President David Turpin is articulating a bold vision for our university—one that sees the U of A as a leader in building our community, our province and our nation by tackling complex global challenges. What role will U of A alumni play in this future and in building our university? The answers to those questions begin now.

I'm optimistic. Our track record is inspiring. The tradition of service and excellence continues. The possibilities are limitless. U of A alumni are doing great things and will continue to do great things in the century to come. I can't wait to see what we make happen.



Mary Pat Barry

Mary Pat Barry, '04 MA,
President, Alumni Association

your letters

We would like to hear your comments about the magazine. Send us your letters by post or email to the addresses on page 1. Letters may be edited for length or clarity.

Alumni Respond to Mental Health Story

WE WERE GRATIFIED TO SEE THE REACTION

prompted by our Autumn 2015 cover story on student mental health. Our intention was to get people talking about the topic, and you certainly responded. But mental health issues are much more complex than one magazine story can convey. Many Edmonton-area readers likely heard the family of Evan Tran speaking out about this U of A student's longtime struggle with depression. In October, Evan took his own life. While we rarely highlight such tragedies in the pages of *New Trail*, his family expressed a wish that his death could spur a larger conversation about mental health. Several days after his death, *New Trail* received the following letter, which expresses in a way we never could what it's like to live with mental illness. We remind all readers that talking about mental health is an important part of addressing the issue. If you are in crisis, you can call Adult Mental Health Crisis Response Services 24/7 at 780-342-7777.

A Very Personal Story

I enjoy reading *New Trail* to learn more of the world around me and be informed of what other alumni are undertaking. With the Autumn 2015 edition and its article on mental wellness, the world smashed through my front door, greeting me with my own stark reality.

I stopped and started this letter several times. At times I was writing it solely for my benefit, as an aid in my own healing, and did not initially anticipate sharing it with the world. Following the sad story of Evan Tran's death (in addition to those of "Lucy" and "Nicole" in the article), I felt compelled to share my own story.

I have long suffered from depression. It first appeared in Grade 5 and carried

through graduation at the University of Alberta.

I never thought my depression was anything too serious. It was something that I had to deal with while appearing to be normal in order to fit into society's expectations. However, depression followed and haunted me through my post-university life. It culminated in 1995 with a suicide attempt.

Fortunately I was not successful. Like most who attempt suicide, I did not want to die. I simply wanted the pain to end.

In 1998, thanks to some hard work and support of others, I made some progress in battling my depression. I thought I was rid of this soul-sucking companion. I was wrong. It continues to lurk in the shadows waiting for the right moment to appear. It has done so twice in the

past years, but with the support of close friends I have been able to shove it back into the shadows.

Depression, along with any mental illness, is a scary companion. It is debilitating. It is energy-sucking. It is capable of causing a rational individual to make irrational decisions. I was fortunate to survive my only suicide attempt. It was enough of a wake-up call to get some assistance. I am fortunate that I did.

Self-harm also includes over-indulgence in substances and activities that may seem innocent but can end up hurting others. If one is fortunate, there may be the opportunity later in life to offer an apology. For me, it is the apology to those on (and off) campus that my

goonline
FOR MORE

Keep in touch between *New Trail* issues. Find web-exclusive stories, videos and more online, or sign up for our monthly email, *Thought Box*, by visiting newtrail.ualberta.ca.



Together,
Let US Build
a Better
Community

President David Turpin outlines his vision of the role of universities during his installation as the 13th president of the University of Alberta (page 7).



The Next
100 Years

Our four alumni panellists share their thoughts on the next 100 years in these TED-style talks (page 48).



The Flap
About Duck
Syndrome

They may look happy on the surface, but the constant churn to keep up is taking a toll on students.



5 Video Games
That Won't Turn
Kids' Brains
to Mush

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your letters

actions may have hurt, or that I may have simply used. University should be a time of fond memories. My issues prevented it from being that way for me, and possibly for those I hurt. It was never the intention; one does not always realize what one does. My apologies to all, and to one person in agricultural engineering in particular. I am sorry.

This was not an easy process and even today there are memories surfacing, causing unbearable pain. I am now fortunate to have found a wonderful and loving companion. As happy and euphoric as I am now, it still saddens me to think that I could have had this years ago.

In closing, it is wonderful to see the inspirational efforts of students and staff at the U of A. It makes me proud to be an alumnus. And as a sufferer, it was an easy decision to step up and contribute to the mental wellness programs on Giving Day.

For those that are suffering, I feel your pain. You are not alone. Please do not be like me and waste decades living alone with this burden. Talk to someone. Almost anyone. A classmate. A counsellor. A trusted adviser. Even a stranger. Heck, contact me, *New Trail* has my details. I have been there and can talk about it. This is not a journey that one should go through alone.

For those who are concerned about someone you care about: please, initiate the conversation. It can be difficult but, as stated so eloquently on the cover of the Autumn edition, “one conversation can change everything.”
—John Bulmer, '86 BSc(AgEng), *Medicine Hat, Alta.*

Missing One of the 5 Ws

I was glad to see coverage of mental health in *New Trail*. However, the article did not even consider the obvious question, which is *why* mental health has become such a large issue in North America—so that it “has an earlier onset [here] than anywhere else in the world” (page 22). It certainly can't be just because of “the university experience,” especially since the article concedes that many arrive at university with mental health issues already.

Considering the diverse fields that consider mental well-being at the U of A, this was a major missed opportunity. My own suspicion is that it has to do with the sense of community that our cities do or do not foster. Edmonton, for its part, has developed according to a low-density model and often disregards

“place-making,” which the U of A's City-Region Studies Centre's magazine, *Curb*, has recently covered extensively. An inability to connect with place, or trust in the continuity of place, and participate in a secure community is deeply distressing. —Kristine Kowalchuk, '97 BA, '12 PhD, Edmonton

Gender Fail

I look forward to every issue of *New Trail*, and the one that arrived in my mailbox today is characteristically full of interesting, well-produced content.

However, pages 10-11 took me aback [Autumn 2015, Degrees of Separation]. It's bad enough that of the five alumni you opt to feature, only one is a woman. But then to have the connections (presumably intended to represent important, influential people/cultural touchstones) include only one woman? A full 21 of the 25 are occupied by a man.

I realize this was all meant as a bit of fun, but the optics are very poor. —Valerie Henitiuk, '85 BA, '88 MA, '00 MA, '05 PhD, Edmonton

EDITOR'S NOTE

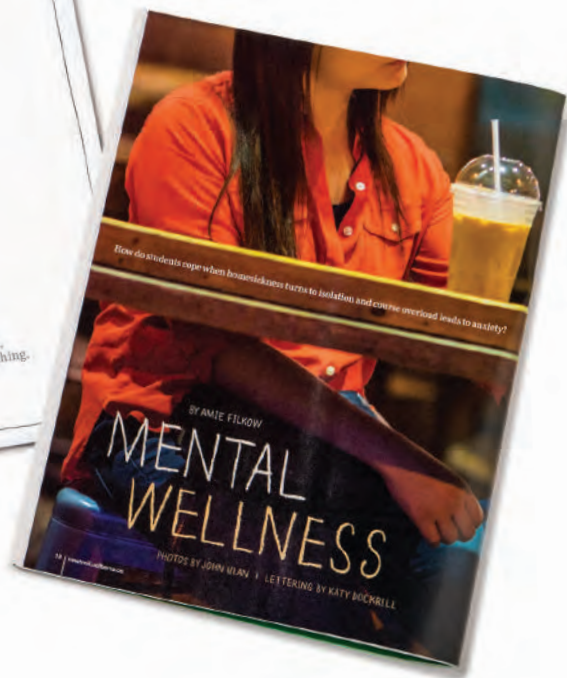
More than one reader pointed out our male-centricity in this story. This was indeed a fail on our part. We try to remedy that here by highlighting an alumna and her remarkable connections—all female.

After university, **Natasha Staniszewski**, '00 BCom, made the jump to sports broadcasting. > In 2013, Staniszewski covered the Ice Hockey Women's World Championships in Ottawa alongside retired Team Canada hockey player Jennifer Botterill. > Botterill and Hayley Wickenheiser were gold-medal-winning teammates at the 2010 Winter Olympics. > Wickenheiser was inducted into the Canada Walk of Fame in 2014 the same year as former Supreme Court of Canada justice Louise Arbour. > When Arbour was president of the International Crisis Group in 2014, she presented Hillary Rodham Clinton with the organization's Pursuit of Peace Award.

Interfaith Chaplains a Vital Resource

I so look forward to receiving *New Trail*: the latest issue, especially, in dealing with mental health issues of university students, is exemplary. I plan to keep it in my office as a reference for students who are hesitant to reach out for help when under stress. I commend Amie Filkow for the quality of the research and reporting that went into this work. However, I do have one concern, which seems to be endemic to the University of Alberta: when listing services under “Where to Get Help” a significant omission occurred.

There are 13 interfaith chaplains on campus who serve students, staff and faculty through counselling, teaching and participating in university life. In April 2015, the Interfaith Chaplains Association received a Wellness Champion Award from the Wellness Project on campus for helping create a healthier campus



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community. Our letter of recognition from the interviewer for the award said, "I can't think of a more important, more meaningful job than helping students who are spiritually and emotionally struggling, whether it be through discussing faith or curating memorials for students who have passed away. I'm in my first year of university and have had a hard time adjusting, but knowing that people like you and the other chaplains exist on campus is an immense comfort."

I am of the opinion that a chaplain should have been interviewed for the article on mental health, with interfaith chaplains contact information also included. In my own practice on campus, I see that students have many "dark nights of the soul."

We are consulted and included by the Dean of Students to join with other student health services during crisis situations; we hold vigils, conduct memorials, meet with students individually when asked, and encourage staff, faculty and ourselves to persevere in difficult times. Our interfaith chaplains come from Christian, Buddhist, Jewish, Muslim, Wiccan and Unitarian faith traditions.

"None of us is an island unto ourselves, we are all part of the whole, If something happens to another, it happens to me also, for we are all one people" (adapted) –*Rev. Audrey Brooks, '73 BEd, '78 Dip(Ed), '81 MEd, Unitarian chaplain, Interfaith Chaplains Association, 169D HUB Mall, 780-492-0339, interfaithchaplains@ualberta.ca*

Your Saturday Morning Read

It's Saturday morning, I'm sipping my coffee and reading your fall edition. I feel inspired, happy and grateful because I see all of the lovely faces in the article "Alumni Awards" (page 31). All of these BEAUTIFUL people making a difference in the world. How wonderful!

Also, I thought this edition was particularly attractive and well presented as far as visuals/graphics are concerned. Thoroughly enjoyed the whole thing. Keep up the good work!
–*Pauline Johnson, '78 BA, Falher, Alta.*

CORRECTION

U of A President David Turpin served as president of the University of Victoria from 2000 to 2013. We listed the dates incorrectly in the Autumn issue and we apologize for the error.

bear country

ALUMNI IN THE NEWS

U of A alumni who made headlines recently



Actor, writer and director **Paul Gross**, '97 BFA, was on the cover of *Avenue Edmonton* in October talking about his latest film, *Hyena Road*. The interview includes memories of his time at the U of A and growing up as a "military brat." Gross now lives in Toronto and owns property in the Alberta Badlands.

Two U of A researchers were credited with rescuing a lost hunter in remote British Columbia after he was separated from his hunting group. Grad student and fish researcher **Tyana Rudolfson**, '14 BSc(Spec), and post-doc Jonathan Ruppert were switching out equipment on the Flathead River when they came across the man, who had run out of food and water and said he was pre-diabetic. The pair gave the man their only Gatorade and drove him to his home in Fernie. Only later did they find how lucky the encounter was. "The chances that we found him where we found him before his health had deteriorated any more ... that's pretty profound," Rudolfson said. —CBC NEWS

Julius Csotonyi, '98 BSc(Hons), '02 MSc, has a job that many kids dream about. The science illustrator draws dinosaurs and other prehistoric creatures. Csotonyi's work was featured in the Ultimate Dinosaurs exhibition at Telus World of Science in Vancouver this summer. Csotonyi has worked with the National Geographic Society, the Royal Tyrrell Museum in Drumheller, Alta., the Royal Ontario Museum and the Royal Canadian Mint. —TECHIE NEWS



Founding Fathers Honoured

A new bronze statue of Henry Marshall Tory, the university's first president, and Alexander Rutherford, the province's first premier, now stands in the heart of North Campus. *The Visionaries*, created by **Barbara Paterson**, '57 BA(SpecCert), '88 BFA, was unveiled during this year's Alumni Weekend as a gift to the university from the Alumni Association to celebrate the association's centenary. The statue stands in the Presidents' Circle at 89th Avenue and 114th Street. Rutherford's great-granddaughter Brenda McLean attended the unveiling, as did U of A President David Turpin, Alumni Association President **Mary Pat Barry**, '04 MA, and Paterson and her family. "This is my last large piece," says Paterson. "The university has meant so much to me and my family, it couldn't be better than to have this as a punchline to my work. It's the biggest thrill of my life."

LEFT PHOTO BY KEN WORONER/ELEVATION PICTURES; RIGHT PHOTO BY LAUGHING DOG PHOTOGRAPHY

New Student Residence and Indigenous Gathering Place Coming to North Campus

President David Turpin announced two major initiatives during his November installation as the 13th president of the U of A.

In recognizing that the university must do more to meet the needs of First Nations, Métis and Inuit students, the university intends to build the Maskwa House of Learning on North Campus. “[It] will be a space where Indigenous students can find and create a home on campus,” Turpin said in his installation speech.

Also, beginning next fall, first-year students admitted to the U of A will be guaranteed a place in residence, he announced. The aim is to help draw students from across the province, the country and the world and “make them feel at home.” Studies show living in residence increases student involvement in the university

community and improves academic success, he noted.

Turpin also outlined his vision of the university’s role. “Our task continues to be to ask unexpected questions, seek truth and knowledge, and help society define, understand and frame its challenges. Our goal for the future is to find new and innovative ways to mobilize our excellence in research and teaching to help municipal, provincial, national and international communities address these challenges.”

Earlier in the fall, Turpin initiated community consultations that will help shape the university’s strategic plan. He invited students, faculty, staff and alumni to participate in the discussion. Input can be provided at uofa.ualberta.ca/strategic-plan/participate-online.

To see the installation speech, go to uab.ca/installation. —AMIE FILKOW



Milk in Tea Can Reduce Teeth Stains

Adding milk to tea helps negate the drink’s tendency to stain teeth, according to Ava Chow, assistant professor at the U of A School of Dentistry.

Chow and a group of students took samples of extracted teeth from the U of A’s oral surgery clinic and incubated them in tea or tea with milk. The results were dramatic — the teeth in the tea with milk showed significantly less staining.

Chow said it’s worth noting that other studies suggest that adding milk to tea could negate the antioxidant and cardiovascular benefits of tea, so adding milk might not appeal to those who drink tea for these benefits.

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bear country

CAMPUS NEWS

A brief look at what's new at the U

» **Faculty, staff, students and alumni came together to raise more than \$61,000 for programs and services that improve student mental health—\$11,000 more than the original goal.** More than 80 volunteers and 403 donors were involved in the Oct. 13 Giving Day campaign. The funds raised will help expand mental health programs, pilot new ones and train more community members to listen and help. Statistics on student mental health, while on par with those of other post-secondary institutions, are disquieting. More than 87 per cent of U of A students reported feeling overwhelmed by the pressures of university life, according to a 2013 survey. More than half experienced hopelessness and anxiety, and the equivalent of 3,000 had seriously considered suicide.

» **The U of A again placed among Canada's top five universities in the Maclean's 2016 university rankings.** In a new survey measuring student satisfaction, the university ranked second for mental health and fifth overall. In overall rankings, it placed first for total operating budget, third for faculty awards, fourth for research citations and fifth for total research dollars among Canada's 15 medical-doctoral institutions.

» **A new research station in Miquelon Lake Provincial Park will help further the U of A's scientific contributions to the world.** The research station, 65 kilometres southeast of Edmonton, will welcome undergraduate researchers from multiple disciplines from the U of A's Augustana Campus, as well as researchers from other universities around the world. "Augustana has a long history of both undergraduate and environmental research," says Glen Hvenegaard, professor of environmental studies. "With the Augustana Miquelon Lake Research Station, we have the unique opportunity to combine the two within an ecologically significant area of Canada." A high level of biodiversity and unique geological features, plus nearby residential, agricultural and oil and gas usage, make it a valuable research setting.

RESEARCH IN THE NEWS

U of A research is always garnering media attention. Here's the lowdown on what's been causing a buzz.



It's Harder to Stay Slim These Days

Given an identical caloric intake, a person today would be 10 per cent heavier than three decades ago, according to researchers at the U of A and York University. The study, published in the journal *Obesity Research and Clinical Practice*, compared the body mass index and dietary data of 36,377 adults in the U.S. between 1971 and 2008. The researchers concluded that factors other than diet and physical activity might be contributing to the increase and called for further research. They point out other research suggests weight can be affected by pollutants, lack of sleep, prescription drugs, chronic stress and a highly processed, low-fibre diet. —THE GLOBE AND MAIL

Gene Therapy Could Treat Inherited Blindness

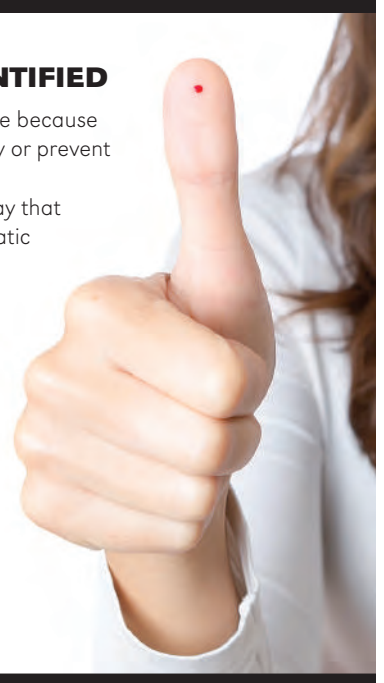
Canada's first human gene therapy trial for eyes is underway in Edmonton. The therapy is the transfer of a healthy human gene to replace a gene that is missing or not functioning. The treatment could help patients who have choroideremia, an inherited genetic disorder that causes progressive blindness. Ian MacDonald, a professor of ophthalmology with the Faculty of Medicine & Dentistry at the U of A, says the gene replacement therapy could become a standard treatment within five years. —THE EDMONTON SUN

DIABETES DIMMER SWITCH IDENTIFIED

People with Type 2 diabetes have new cause for hope because a U of A study could lead to new ways to treat, delay or prevent the disease.

Researchers have found a new molecular pathway that manages the amount of insulin produced by pancreatic cells. They liken it to a dimmer switch that regulates how much insulin is secreted when blood sugar increases. In Type 2 diabetes, the dimmer switch appears to be lost, but Patrick MacDonald, senior author of the study, says it can be turned back on and thus revive proper control of insulin secretion.

"We don't know enough to stop Type 2 diabetes yet, but this is a large step toward understanding what's going on in the first place," says MacDonald, who holds the Canada Research Chair in Islet Biology. He is an associate professor in the U of A's Faculty of Medicine & Dentistry and a member of the Alberta Diabetes Institute. —CBC NEWS

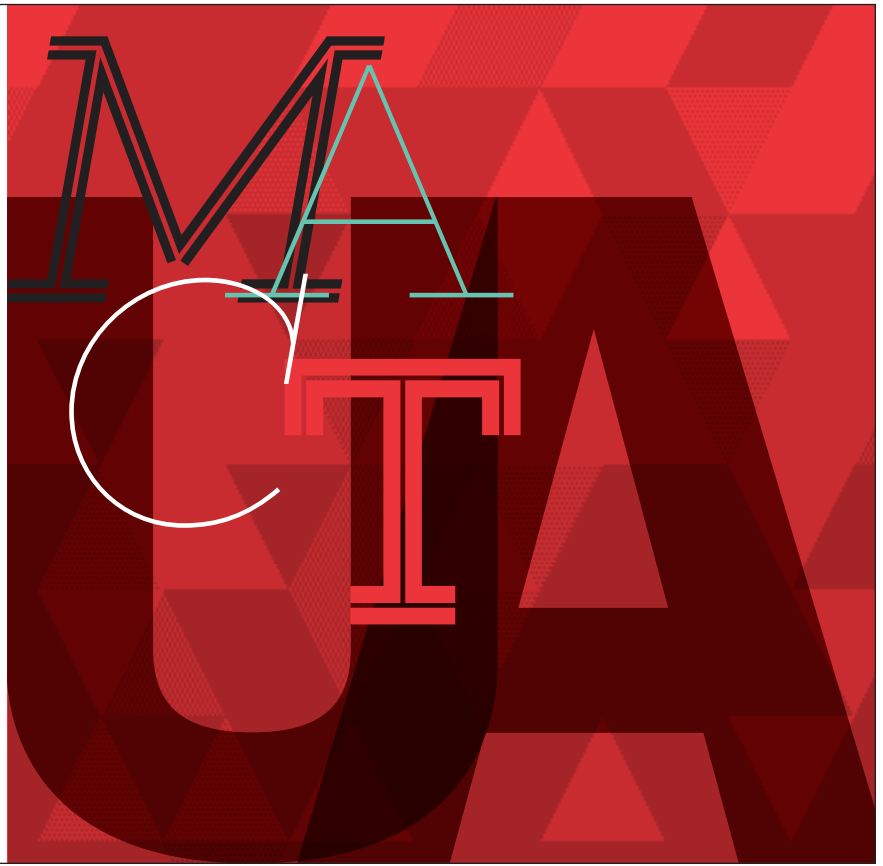


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YOUR GUIDE
TO

WINTER SURVIVAL

HOW TO SURVIVE THE GHASTLY COLD, BUT GREAT, OUTDOORS

by JEN JENSEN

AROUND THIS TIME EVERY YEAR, a raging case of cabin fever gets me thinking I should shake off my electric blanket, grab some granola and head for the mountains. But then I think of how fond I am of my fingers and toes and how I'd hate to lose any of them to frostbite. Like many people, I prefer my great outdoors sunny and warm. But after decades of living in a winter climate, I came to realize I'd been missing out on some cool chances to enjoy nature's chill.

Determined to make the most of the winter wilderness without making the local news, I joined 50 U of A alumni, volunteers and guides from Discover Banff Tours to learn some important survival tips. We met in Banff, Alta., on a frosty Saturday morning. A short time later our bus spat us out in Marble Canyon in Kootenay National Park, B.C., where we strapped on some snowshoes, and over the next few hours we trekked through the woods and learned how not to die in them. We built shelters, got advice on what to pack, probed the ground in search of pretend avalanche victims, were taught how to keep warm and stay hydrated, and much more. Here are some of the tips we learned.

What to Pack

Along with the maps, mitts and other must-haves (snacks!), here are a few other essentials to bring along.

1/ Small shovel:

Handy for making an emergency shelter or digging someone out of an avalanche.

2/ Boiling water: Fill your vacuum bottle with hot water to avoid trying to drink an ice cube later.

3/ Tarp: Use it for respite from the wind and anything else the skies throw at you.

4/ Small first aid kit: Use a plastic bag to keep this and other emergency supplies, like matches, dry.

5/ Seat pad: Sitting on snow or ice to eat your granola will quickly

chill you out, and not in the good way.

6/ Whistle: It lets your buddies or rescuers know where you are.

7/ Locator beacon: Get a real one, not some app on your smartphone.

8/ Extra layers of clothing: Don't wear cotton, because it retains moisture, and once it's wet you'll never get dry again. Bring clothes made of synthetic fabrics that wick away sweat, such as polyester blends.

9/ Headlamp: When the sun goes down, visibility in the mountains drops dramatically.





Have Snowshoes, Will Travel (Eventually)

Our guides said the great thing about snowshoes is you can go anywhere in them. I suppose that's true if you manage to stay upright for more than a few minutes at a time. I could not. And, once down, I always needed a friendly hand to get me back up. Watching me flail around helplessly yet again, our guides hollered out this helpful advice:

- > You can't walk backwards in snowshoes without falling. (D'oh!)
- > If you try to stand up from a sitting position, you'll just fall down again. (Very true.)
- > Instead, throw yourself forward and push yourself up from a crouched position. (It works!)

Cold Hard Truths

The Rule of 3 means you can survive:



- 3 minutes** without air
- 3 hours** without heat or shelter
- 3 days** without water
- 3 weeks** without food

Lost

If you think you are lost:

S

Stay Put

If you wander around you'll end up even more lost.

T

Think

When was the last time you saw something familiar?

O

Observe

What are your surroundings? Are there signs of other people?

P

Plan

When is the sun going down? Do you need to start setting up a shelter?



Helter Shelter

The weather has closed in and it's just you, a tarp and some rope against the elements. Here are three important things to consider when building an emergency winter refuge.

Wind

Which way is it blowing and how hard? You might be more visible to rescuers out in the open, but in extreme temperatures, a treed area is probably the better option.

Entrance

Is it away from the wind and easy to access? If it requires the flexibility of a Cirque du Soleil performer to get in and out, you might want to renovate.

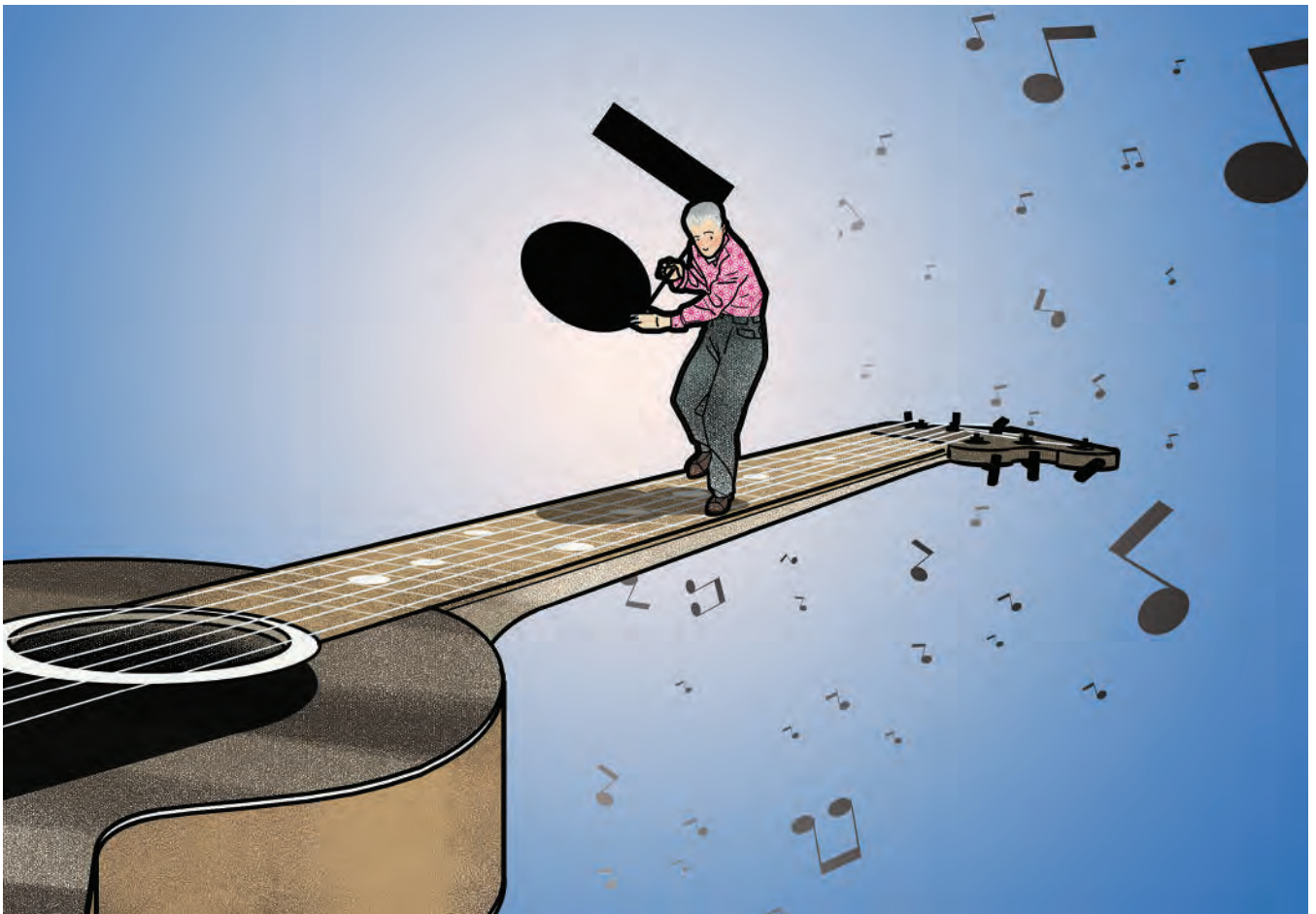
Fire

Where will you put it? If it's inside the shelter, keep it low so the roof doesn't melt and be sure to keep the shelter ventilated.

Pour it On

I always thought that if I got stuck in the wilderness in winter and ran out of water, I'd melt snow for drinking. Nope. It turns out it takes water to make water, so be sure to pack extra. If you just dump some snow in a pot and stick it on your campfire it will only overheat and begin to scorch. So pour a bit of good old H₂O into the bottom of your metal pot first. Now add your snow and more water if needed.





Strung Along

'I'LL NEVER BE JIMMY PAGE AND THAT'S OK.' WHEN OUR COLUMNIST PICKS UP THE GUITAR FOR THE FIRST TIME, HE FINDS A NEW KIND OF SATISFACTION

Learning doesn't end when you accept your degree. We are all lifelong learners, whether we pursue lessons in a class or a lecture hall—or these lessons pursue us. Curtis Gillespie, '85 BA(Spec), reflects on the continuing opportunities for education that life throws our way, sometimes when we least expect them.

I WAS ONSTAGE at a cozy little club in Manhattan's East Village. It was dark toward the back and I could only see the first few rows. The smallish crowd seemed to know a few of my tunes and appreciated my idiosyncratic voice and soul-with-bite guitar work. I felt good; I wasn't there to funnel dry ice fog over the crowd. I was never going to be arena-big and I was OK with that. It was all about the music. There was no money in it, but I didn't have a choice—my guitar isn't just part of me ... it *is* me. The struggle of the road is a badge of honour I wear with pride. I'm just a musician, no more and no less, and that's enough for ...

Huh ...? Wha ...?

Oh, was I mumbling again, half-asleep at my desk? Sorry about that. I guess I was inside the recurring dream I've been having since I started guitar lessons a couple years ago, though delusional fantasy might be the appropriate term.

Music has always been a substantial part of my life. I listen to music when I drive, when I cook, when I work, when I work out, when I vacuum, when I mow the lawn. I crave the simple pleasure of sitting in a small club listening to live music. I was in Austin, Texas, recently and caught Kevin Gordon playing in front of a crowd of 80 at the Continental Club. Sitting nine metres from the stage, a local IPA in my hand, catching one of the world's better songwriters ... well, that's about as good as it gets.

ILLUSTRATION BY JASON SCHNEIDER; PHOTO BY JOHN ULAN

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Yet even though music has been a key part of my existence since I got my first Simon and Garfunkel cassette tape when I was 10 years old—which was *damn good*, by the way—I had never attempted to learn an instrument (well, except for the didgeridoo ... but that strikes me as a whole other column on impulse buying rather than lifelong learning).

In any case, I have always considered not being able to play an instrument a flaw in my makeup, somewhere on the spectrum between tardiness and chewing gum too loudly. Why did I never rectify this and learn to play the guitar? It's a good question, one for which I don't have a good answer. Perhaps because, like many things in life for many of us, the price of failure seemed too great, so I nurtured the fantasy instead. Actually, failure is too harsh a word, because even when we do reach incredible heights with our pursuits and dreams, they still might not match the empyrean perfection they achieved in our heads. That's a dangerous place to live in.

What finally moved me to action was that my older daughter, Jessica, began taking guitar lessons from a fellow who had taught many of the children in our neighbourhood. Daron seemed like a gentle soul every time he entered our house, and one day I just figured, well, if he has enough patience for teenagers then he probably would have enough patience for an aging wannabe. As it turned out, he is patient, indeed, but I have come to feel that his preternatural calm in the face of my plonking and twanging is simply proof that blind positivity is nothing but a life sentence of being forced to encourage the hopeless. I remember the first time I put my fingers on the guitar neck, Daron said, "Hey, that was really natural." He might as well have told me I was Gordon Lightfoot. I had been discovered! And all I had to do was just pick up the guitar. The rest would be pretty easy, I figured.

That was two years ago and my gift for holding the guitar remains the only natural thing I've accomplished.

The aging process (no matter your age) is fascinating if not a little sobering

because it's essentially a cost/benefit analysis you compute daily between time left and outcome value. What's the benefit of learning the guitar, as opposed to, say, working with refugees? Where is the value in studying Spanish as opposed to keeping my neighbourhood ravine trash-free? Is there any worth in sitting in front of a Jays game holding a beer and eating popcorn, as opposed to sitting in front of an Oilers game holding a beer and eating popcorn?

Which makes it hard to assess the value of learning the guitar at my age. I mean, the "how" is hard enough, though Jimmy Page sure made it look easy. But the "why" is even harder to parse out. Why not just consolidate what I already know I'm good at (raising an entirely new question bog I won't even bother to sink a foot into), instead of playing the dilettante? In some ways, taking guitar lessons at my age is a fool's errand. I might as well take up pediatric heart surgery or nuclear physics. The odds of becoming a professional in any of the three are about the same.

But is that the point? Were I to take up amateur pediatric heart surgery, it's possible—even desirable—that the authorities would become immediately involved. Yet taking up the guitar in my middle years is actually significantly more satisfying than I imagine it would have been when I was in my 20s or 30s. At that age, I probably would have fantasized about my East Village gig and thought it was still possible. Today, there is a dreamy deliciousness to the impossibility of it. I'm in no hurry. I'm never embarrassed. I don't have any apologies to make, to myself or anyone else. I am simply doing it for the occasional pleasure of hearing a chord or a few lines sound like an actual song that I like. And trust me, the pleasure is real.

The learning might just be real, too. I didn't play for a good six or eight weeks over the summer, due to travel and work and a bad neck. But when I picked it up again this fall I surprised myself when my fingers automatically found a few of my favourite chords and could half play a couple of easy tunes. I could

even read some of the music I'd been peering at for a year or two. Not all was lost, and that in itself counts as a major victory. Of course, there is also the added advantage of keeping one's brain nimble. Every time I trip over a new chord or passage, I don't get frustrated; I tell myself instead that I'm staving off hippocampal deterioration. My wife or kids might justifiably want me to quit plunking away at my bastardization of *Forever Young*. Fair enough ... but then don't expect me to remember the dog's name tomorrow.

As with so many things, the real learning tends to arrive through the side door. Sure, I'm picking up a few chords. Every now and then, I manage a simple rendition of a song that actually sounds like a song (if not always the one I'm playing). I'm learning that my daughter has things to teach me and that I have a good ear. But mostly, despite the fact that my grappling with the guitar must look as if I'm trying to prevent it from eating me, taking guitar lessons has extended my already-deep appreciation for the talent humans have inside them. There are simply so many staggeringly gifted and talented people out there, and attempting to do what they do makes me love them all the more.

But here's the kicker. We *all* have that inside us. We all have *something*. Each one of us is a kind of swimming pool, and our powers and abilities and creations are not external elements we use to fill the pool. The pool of who we can be is already full, just waiting for us to dive in and splash around and make some noise and do some laps. Sure, there are people who stop learning. But that don't mean the pool's gone dry and it don't mean they don't have time. They just gotta travel from *why* to *try* and the trip won't cost them one thin dime.

Hey ... is it me or does that kind of sound like a song? ■

Curtis Gillespie has written five books, including the novel Crown Shyness, and has earned seven National Magazine Awards. He lives in Edmonton with his wife and their two daughters.



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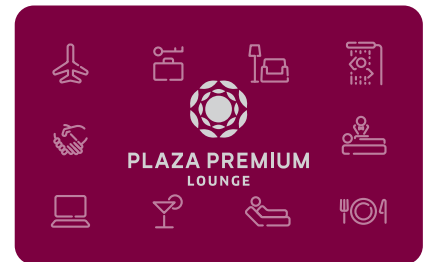
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Cultural Diplomacy and the Art of Identity

WE'VE BEEN TRYING TO SELL 'PRODUCTS' TO THE WORLD WHEN WE SHOULD HAVE BEEN SELLING WHO WE ARE

THE SYMBOLS OF HOLLAND ARE EASY TO IMAGINE, even to draw: a bicycle, a tulip, a drop of water, a wooden clog. They're on every bottle of water on a KLM flight.

While symbolism isn't diplomacy, it doesn't hurt to have a few visual representations of a place. The symbols of Holland are alive: we can see fields of flowers, the bicycles ringing through Amsterdam, over the canals, past the tall houses. One of the riders is surely wearing enormous white and blue clogs.

These traditional images lead to new ones—the wind turbines generating electricity in the North Sea and on the margins of the farms—and other images, not so pure: marijuana leaves and undergarments, the legalized and regulated vices of the Red Light District.

Albertans have been talking about diplomacy more than usual, as the new provincial government explores our images—and our reputation. You can imagine an Edmonton-based airline using a magpie, a teepee, a snowflake or a hammer as potential symbols.

But the more you travel, the more you speak to people outside this country, the more you understand the dearth of symbols is a national problem.

Outside Canada, people would be baffled by the battles for civic supremacy between Vancouver and Toronto, Montreal and Ottawa, Edmonton and Calgary. As a country, we've made ourselves easy to forget. We're America-only-not-quite, colder and quieter ... and isn't that where Justin Bieber comes from?

There's more to our international presence, of course. Our diplomatic service does a lot of fine work that we do not see. Mohamed Fahmy was released eventually, though it was eight months after our foreign affairs

minister used the word "imminent" and Fahmy's Australian co-accused went home. Thanks to someone's good work, I didn't have to carry a visa when I recently did work in South Africa.

But when someone says yes or no to a pipeline, or to a meeting, or to our standing in the United Nations, or even to an investment, there is an intangible quality to that decision.

What we no longer do is what other countries call "cultural diplomacy." We're no longer in the business of selling the idea of Canada through art, through image, through ideas. This makes us unique in the G8. And I understand the rationale. Cultural diplomacy sounds like a waste of money when there are tanks to buy, highways to build and pipelines to sell.

We see leaders of other countries in the international news every week. This isn't a fluke. It isn't only because they lead economic powerhouses or boast glittering cultural attractions. It's because countries such as the United States and Russia, Germany and Australia and New Zealand have deliberate, long-standing, carefully considered strategies to promote the *idea* of their countries (go All Blacks!)

This has enormous implications for the economy. We've heard the phrase

"get our product to market" endlessly in the last 10 years, but the first and most important product we should be selling is Canada. What is this product? What problem does it solve for the world?

Once we sell it, the oil and gas, the trees, the food and—we hope—all those resources that come from our heads and hands will be much harder to reject.

And it's crucial for our university. Edmonton is a few years into this image-building work. One way to test the city's image and reputation strategy is to ask: will this work for the University of Alberta? Will this work for international students? Will this help convince researchers and professors and doctors to put Edmonton on their list? The city isn't for everyone. But for some people, it's exactly what they want—a place for builders.

I have been lucky enough to travel for work recently and, since it's an obsession, I ask about Edmonton, about Alberta, about Canada. Edmonton, Alberta, Calgary, even Toronto—really anywhere but Montreal, Vancouver and the Rocky Mountains—fit, at best, into "I might have heard that word somewhere."

There is a small, atmospheric pub in the centre of Amsterdam called Gollum. The signature beer is the Precious IPA. It's the sort of place where tourists put a piece of their currency on the wall. There were no Canadian \$5 bills. When the bartender asked where I was from and I told him, he said he once had a definition for Canadians.

I asked him what it was.

"An American with a Dutch phrase book."

I showed him mine, and he laughed. Then I asked why it was "once" a definition for Canadians.

"It all just sort of stopped," he said. "You people just ... disappeared." ■

Todd Babiak, '95 BA, co-founded the company *Story Engine* and has published several books, including *Come Barbarians*, a national bestseller.



A wide-ranging, sometimes surprising and (mostly) optimistic guide to living through the next century.

A NEW AND IMPROVED YOU

Need an extra hand? Picture a future where you can buy bionic limbs and upgrades for your brain.

Page 22

Page 20

WORLD WAR III OR GALACTIC PEACE?

MARS

THE HOME OF THE FUTURE, TODAY!

The Jetsons have nothing on us. Today's technology fits perfectly into tomorrow's homes.

Page 32

OUR BODIES, OUR HEALTH

From instant diagnosis to genetic prevention, the way we care for our bodies is in for dramatic change.

Page 42

OF THE FUTURE OF EVERYTHING

ILLUSTRATIONS BY GWEN KERAVAL

THE SHAPE OF EDUCATION

What is the role of teachers in a world where all information is instantly available?

Page 46

GRASSHOPPERS AND SORROW

What will we eat in the future? Our experts offer some thoughtful and unusual predictions.

Page 31

HOW WILL WE POWER THE FUTURE?

SHOULD WE FEAR THE ROBOTS?

SOYLENTIA BAR

Page 24

Page 34



HUMAN POSSIBILITIES

ONE GIANT LEAP FORWARD



What good is it to ask the big questions like ‘Who are we’ and ‘Why are we here’? Because curiosity is the catalyst that creates a better future. **BY LISA COOK**

In one of the best speeches ever written and never given, U.S. President Richard Nixon tells the world that Neil Armstrong and Buzz Aldrin died in their quest to stand on the moon — and the price was worth it.

The White House had prepared the speech for the president to deliver in the event that Armstrong and Aldrin were killed or stranded during their 1969 attempt to land on the lunar surface — a very real possibility given the magnitude, the audacity, of what the Americans had set out to achieve.

Neil Armstrong himself said many years later that he’d figured their odds of successfully landing on the moon were only about 50 per cent (though he had much higher hopes for a successful return, placing those odds at 90 per cent).

Thankfully, that speech, “In Event of Moon Disaster,” has become nothing more than a bit of moon landing trivia. But in its 233 words, speechwriter William Safire lays out exactly why humanity’s quest to break our earthly bonds and explore the lunar

surface would have been worth the cost. “These two men are laying down their lives in mankind’s most noble goal: the search for truth and understanding.”

What else propels us toward the future if not the quest to uncover truth? The need to understand? Necessity might be the mother of invention but curiosity, dreams, the desire to know ... these give birth to innovation.

The moon landing punctuated a period of wide-eyed optimism about what the future would hold. In fact, when *New Trail* set out to uncover predictions for the next 100 years, we began by looking back at some of the predictions of the past century. In particular, we were drawn to the futuristic art created in the 1950s and ‘60s when shiny, egg-shaped cars zipped through sunny landscapes of reds and oranges and bright yellows. (You can find examples on the *Paleofuture* blog,

which rounds up some of those past predictions and trots them out for your amusement and secret wonderment.)

What strikes you most about these images of jet packs, video phones and the rather dangerous-looking robotic barber, is not so much what that generation envisioned for the future but how they felt about it. For those who occupied the mid-century, the next 100 years was a time of optimism and achievement, the fulfilment of a promise that began with the defeat of Nazism and that crested when Armstrong set foot on the moon.

As *New Trail* looks at the next 100 years, we, too, are optimistic.

A year ago, we celebrated the centenary of the Alumni Association by looking back at our accomplished alumni from the past 100 years. So then, how better to tie off the celebration than to look forward to the next 100 years. What kind of world will we help create?

Talking to U of A alumni, researchers and faculty about their vision for the future, we had the kinds of conversations we’d expected: all about robots and colonies on Mars, body augmentation and the end of disease. What we slowly started to realize, however, was that it’s not technology driving the future; it’s the communities behind the technology. We humans are the variable, both propelling us into the next century and holding us back from our own promise.

The future is in our hands, and the best tool we hold for building that sunny tomorrow is something called curiosity-driven research. Also sometimes called blue-sky research, it’s the idea that there is merit in asking questions, even when there is no obvious application for the answer.

When **Arthur B. McDonald**, ’11 DSc (Honorary), won the Nobel Prize in physics earlier this year for his work in neutrinos, the science behind it prompted a collective head scratch from the general public. (Though his turn on *This Hour Has 22 Minutes* explaining neutrinos using Timbits was a lot of fun.) Neutrinos are one of the fundamental particles that make up matter, and

So what are neutrinos, anyway? They are subatomic, nearly massless and the second-most-abundant particle next to photons, or light. Billions of neutrinos pass through us every second and we don’t even notice. Studying them can give us better information about the sun, stars, the core of the Earth and galactic events. In October, Arthur B. McDonald, was named co-recipient of the Nobel Prize in Physics for his work that conclusively discovered neutrinos have mass. Two members of his initial team for that project have since gone on to join the U of A faculty.

research into neutrinos has brought us closer to understanding the very nature of the universe.

So what? Understanding the universe won't help us live longer. We can't pull it out of our back pockets to call our friends. You can't feed the hungry or stop wars by answering the big philosophical questions like, "Who are we?" "Why are we here?" "What is the universe made of?"

Or can we? The space program famously gave us Tang, but it also led to the development of ear thermometers, artificial limbs, anti-icing systems for aircraft, modern-day firefighting gear, portable cordless vacuums, enriched baby food and, for those of you who like a good night's sleep, memory foam.

The future doesn't come all at once, landing on our driveway in a flying car. (Unless you're Marty McFly.) The path forward is slow and halting and sometimes doubles back on itself, but it's the big questions that continue to propel us forward. *Homo sapiens* are constructed to be curious. It's how we evolved, how we spread out and dominated the planet like no other species before us and how we sprang free from our own atmosphere.

Think about it this way: How would human beings conceive of themselves if we had never reached the moon? Wouldn't we think of ourselves differently? Wouldn't our children be born into a world where the stars were out of reach and there were limits to what we could accomplish? Didn't that "one small step" allow us to leap ahead to the next stage of evolution or, at the very least, to the next age of humankind? We've lived through the space age. How can that not change how we think about ourselves?

If the Age of Enlightenment taught us anything, it's that the freedom to ask questions — no matter how seemingly esoteric or in contravention of kingly edict or church doctrine — is key to lifting our species out of superstition and fear and setting us down the path of progress. In the 1620s, when Francis Bacon envisioned utopia in

Homo sapiens are constructed to be curious. It's how we evolved, how we spread out and dominated the planet like no other species before us and how we sprang free from our own atmosphere.

his unfinished novel *New Atlantis* — a science fiction book that predated the genre — he imagined an ideal society whose crowning achievement is a very familiar idea to those of us who attended university. Bacon envisioned a dedicated home for unfettered thought, reason, discovery and research. For the fathers of the Enlightenment, progress demanded a safe space where scientists, philosophers and artists could come together to ask questions about the nature of the universe and our place in it.

The world would progress without dedicated corners of academy — we here at *New Trail* have faith enough in human nature to believe that — but it wouldn't progress as quickly or as deliberately. Universities are unique institutions where human beings can wonder what might happen if we add computers to our brains (page 22) or consider our fate when artificial intelligence reaches singularity (24) or imagine a future where dolphins and robots explore the universe together (40) or what physicians will do once disease is a thing of the past (42). At universities we discuss the ethical implications of our own progress and help solve the problems spawned by it. It is here, where the life of the mind is permitted to be foremost, that we will continue to wonder what it is to be human and why it matters.

Yogi Berra, in his infinite witticisms, once said, "The future ain't what it used to be." With respect to the recently departed Berra, it seems the future is exactly what it used to be. It's us. ©





HUMAN POSSIBILITIES

The Next 100 Years

What do you see when you look into the next century? Well, **Shawna Pandya**, '06 BSc(Hons), '12 MD, has put a lot of thought into the future. As a doctor and graduate of the International Space and Singularity universities, Pandya's approach to prognostication is multi-faceted, to say the least. She shares her vision of the next 100 years. (More on page 48.)

2115 LIFE, AT LAST

Our 150-year quest to look for life in the universe is answered with contact from our nearest stellar neighbour at Alpha Centauri, a mere 4.36 light-years away.

2108 THE ROBOTS UNIONIZE

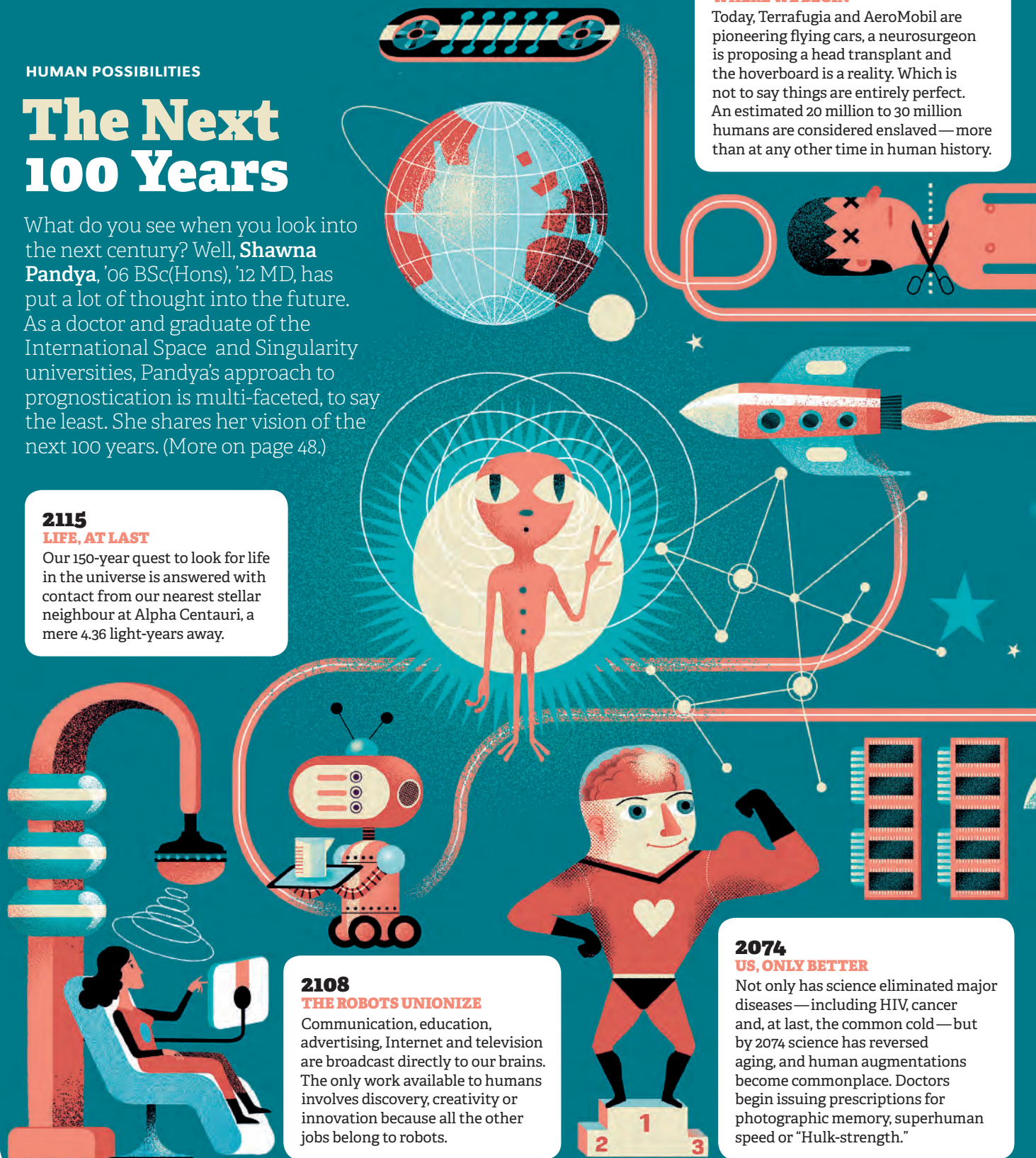
Communication, education, advertising, Internet and television are broadcast directly to our brains. The only work available to humans involves discovery, creativity or innovation because all the other jobs belong to robots.

2074 US, ONLY BETTER

Not only has science eliminated major diseases—including HIV, cancer and, at last, the common cold—but by 2074 science has reversed aging, and human augmentations become commonplace. Doctors begin issuing prescriptions for photographic memory, superhuman speed or "Hulk-strength."

2015 WHERE WE BEGIN

Today, Terrafugia and AeroMobil are pioneering flying cars, a neurosurgeon is proposing a head transplant and the hoverboard is a reality. Which is not to say things are entirely perfect. An estimated 20 million to 30 million humans are considered enslaved—more than at any other time in human history.



2019-2024
THE THIRD WORLD WAR

Realizing the Middle Eastern conflict already involves at least 15 nations, we finally name it the Third World War. Unbelievably, we avoid nuclear holocaust as Iran tries to abide by the 2015 U.S.-Iran nuclear disarmament deal. So, thanks, Obama. The turning point comes when the women of Islam refuse to see their rights taken away, their husbands and sons killed and daughters abducted or worse. The world enters a new era of peace.

2024
FINALLY! FLYING CARS

The first flying cars are sold as the 3D traffic grid reaches new heights. On terra firma, autonomous vehicles make it possible to drive to work, fit in a morning snooze, get in a little reading and—if you own the deluxe model—work out in the gym at the back.

2029
ASCENT TO ORBIT

When the Chinese Space Station becomes stranded in Low Martian Orbit, the private space sector and major space agencies mount an unprecedented rescue. Not only are they successful but as they step onto Mars their first words are in both Mandarin and English: together we achieved.

2034-2042
THE FINAL FRONTIER

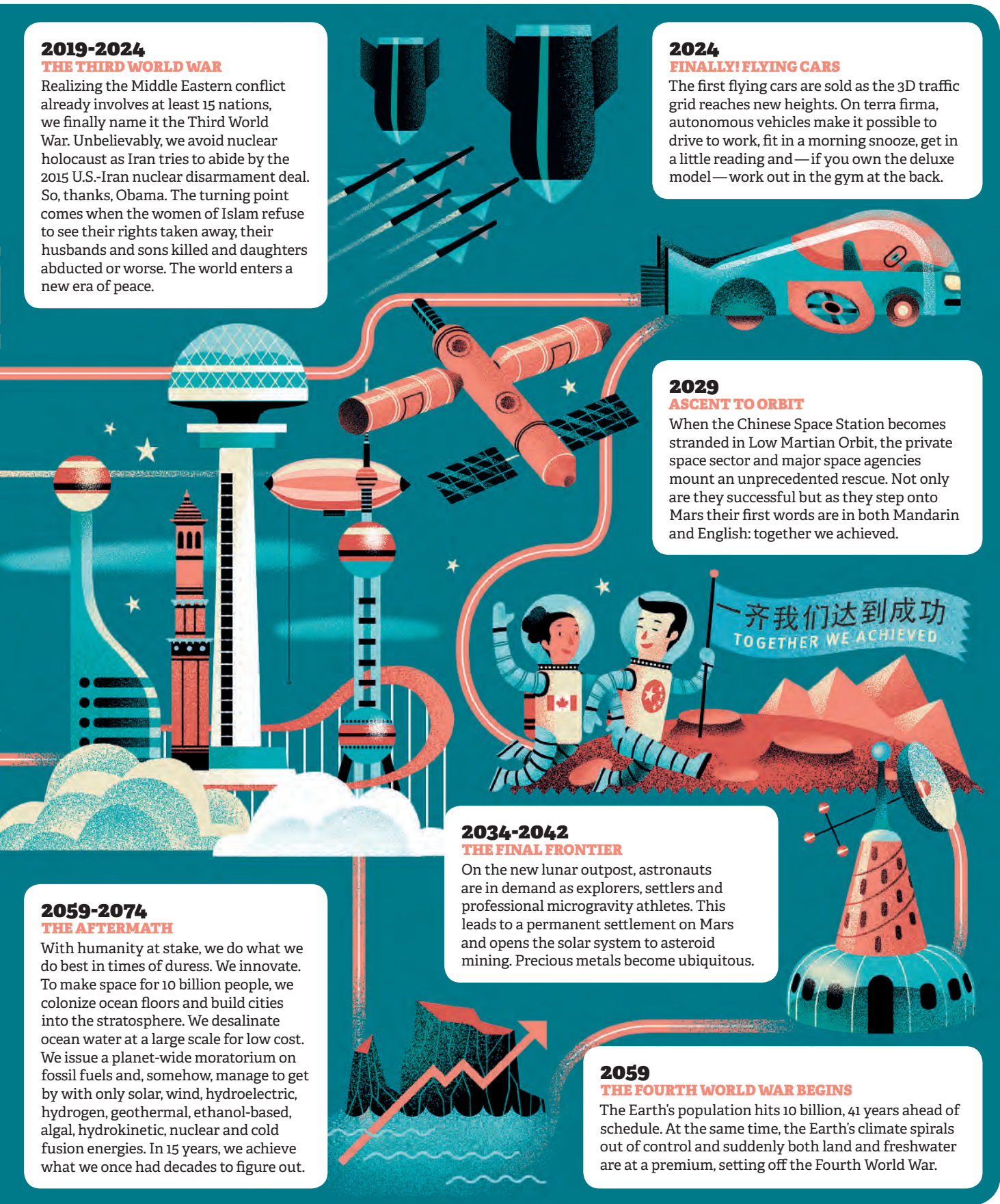
On the new lunar outpost, astronauts are in demand as explorers, settlers and professional microgravity athletes. This leads to a permanent settlement on Mars and opens the solar system to asteroid mining. Precious metals become ubiquitous.

2059-2074
THE AFTERMATH

With humanity at stake, we do what we do best in times of duress. We innovate. To make space for 10 billion people, we colonize ocean floors and build cities into the stratosphere. We desalinate ocean water at a large scale for low cost. We issue a planet-wide moratorium on fossil fuels and, somehow, manage to get by with only solar, wind, hydroelectric, hydrogen, geothermal, ethanol-based, algal, hydrokinetic, nuclear and cold fusion energies. In 15 years, we achieve what we once had decades to figure out.

2059
THE FOURTH WORLD WAR BEGINS

The Earth's population hits 10 billion, 41 years ahead of schedule. At the same time, the Earth's climate spirals out of control and suddenly both land and freshwater are at a premium, setting off the Fourth World War.





HUMAN POSSIBILITIES

YOU, TOMORROW



The future of the human body
in the next 100 years **BY PATRICK M. PILARSKI**

You will be better tomorrow than you are today—at least I hope so. Please understand: you're a great person now. But, with a little work, you could be so much more than the sum of your biological parts. We all could.

Human life and human progress have always been characterized by change and our ability as a species to adapt. In the next 100 years, we can expect unprecedented change—not just to our way of life but also to our bodies. One notable change will be to the line we draw between our bodies and the rest of the world.

Your self already extends further than you might think. How do you feel when someone else uses your smartphone? Chances are, you feel as if someone is edging into your personal space. As technology becomes more prominent and more intimate, the boundaries of what we consider to be our body will stretch to encompass some of that technology.

Already, our senses of touch, sight and sound are enhanced regularly by technology. We use webcams to see loved ones from across the globe, and cochlear implants are now routine medical procedures that enable or enhance hearing.

So how long will it be until you can actually feel the tap of rain on the roof of your house, or put on an extra pair of arms to play that piano duet you've always wanted to learn (perhaps with perfect pitch)? Consider a few examples.

Wearable machines: With new work on soft robotics and reconfigurable materials, we can realistically expect our future bodies to shape and reshape according to our needs. Imagine what it would be like to transform the skin of your feet into metal ice skates just by thinking about it or change your fingertip into a screwdriver to fix the closet door.

This may sound far-fetched, but consider how advanced technology is already being donned and doffed daily by regular people in the form of wristwatches and fitness monitors. In some special but not uncommon cases, technology is being directly connected to muscles, nerves and bones. Knee and hip replacements are commonplace. At numerous laboratories worldwide, including at the U of A, researchers are developing wearable exoskeletons to increase human strength and endurance, and even extra limbs to help manage complex industrial tasks such as aircraft assembly—and maybe someday play that piano score.

(Just as I was writing that last sentence sitting at a picnic table on Quad, a gentleman walked past me on the Alumni Walk using two robotic prosthetic legs. In other words, a unique body customized for his daily pursuits.)

My pet mind: Most of us come to university to learn, to grow as members of our community and to expand our abilities to understand the world around us. Why shouldn't our body parts have that same capacity to learn and improve? Perhaps the most powerful and exciting avenue for enhancing the human body will come from the automation



The Future of Aging

I am hopeful that basic science will have removed or reduced most degenerative “wear-and-tear” diseases like arthritis so that we can live pain-free. Also, that we will have mastered the non-sedentary lifestyle so we have less “wear and tear” overall.

Carole A. Estabrooks

'87 MN, '97 PhD

Professor, Faculty of Nursing

The Future Through the Eyes of Artists

It's not just researchers and entrepreneurs who create the future—we rely on the arts to remind us that the march of progress can sometimes yield unexpected consequences.

On the following pages, six U of A alumni artists share their personal visions of what the future holds.



An Anatomy Course Circa 2115

RAYMOND BIESINGER, '04 BA

The human body's future sits between mountains of socio-technological success and valleys of environmental failure. We've augmented our minds with AI and accepted gender as a fluid notion, but coastal flooding has forced us to grow gills and our skin requires a UV-proof patina. Is this what we want? It doesn't matter, because it simply will be.

Вперед!

mega eye

AI supplementary brain switch

permanent nectar sipper (re: nutrient shakes)

UV protective skin

internal pharmacist

translator chip

backup heart

solar plant

robot arm

universal lactation

languishing internal biome

can digest uranium

gills (re: coastal flooding)

intestine

abdominal keyboard

gender fluidity dial

methane recapture system

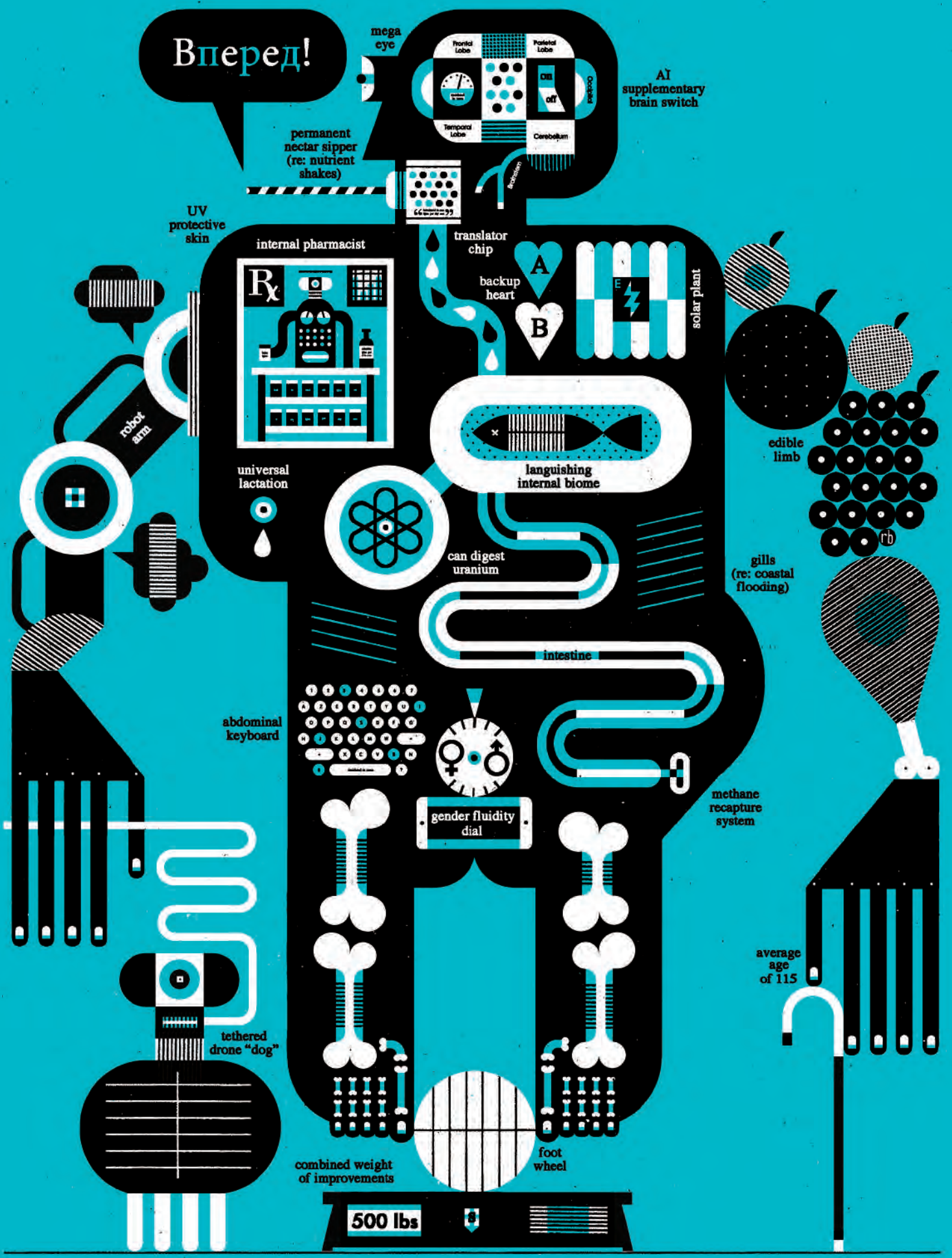
tethered drone "dog"

average age of 115

combined weight of improvements

foot wheel

500 lbs





of intelligence itself. Advances in machine intelligence and learning promise bodily extensions that can offer insight and knowledge to better support us in our daily lives.

You probably already use machine intelligence to type out voice-to-text messages, control the temperature of your house or suggest better purchases while you shop online. There are also corporeal uses for machine intelligence. In my laboratory, we are studying how artificial limbs can learn about the needs and goals of people with amputations. Our bionic arms and hands actively make themselves easier to control by learning about their users' activities. Other researchers are finding ways to connect adaptable hardware and software directly to human brain tissue and are even developing ways to use intelligent computation to replace certain functions of a damaged brain.

This is today. In decades to come, we might have the capacity to expand our brain with additional memory. Consider how extra computation could help you solve that really hard riddle posed at your next cocktail party. Why not stop by your local retailer to pick up a Wikipedia adapter for your prefrontal cortex? It might not be as impossible as it sounds. With an Internet-enabled brain, you might actually be able to be everywhere at once.

So where does your body stop and the rest of the world begin? Biology is only part of how we define a human body. In the next century, we will choose our own definition of self. Human potential will not be limited by physical forms but driven by our enthusiasm, creativity and kindness. I'm confident that tomorrow, and every day that follows, we will help each other become better in every possible way. ☺

Patrick M. Pilarski, '09 PhD, is assistant professor of physical medicine and rehabilitation. He is also a principal investigator with the Alberta Innovates Centre for Machine Learning and the Reinforcement Learning and Artificial Intelligence Laboratory.

The Future of Indigenous Peoples

The Cree concept of *wahkohtowin* — “the governance of good relationships” (Harold Cardinal) — frames my vision of Indigenous peoples with others on these territories in 2115. People will no longer see us through the lens of “Aboriginal problems.” Instead, we will all thrive by drawing on concepts embedded in Indigenous ontologies that teach us how to live together on these territories as good human beings.

Shalene Jobin

'01 BCom, '15 PhD

Assistant professor, Faculty of Native Studies

ARTIFICIAL INTELLIGENCE

Life After the Singularity



You're surrounded by artificial intelligence, or AI. It predicts which floor to send an empty elevator to. It compares your every credit card purchase to previous ones for signs of fraud. It curates your Facebook and Netflix feeds — and, yes, your web ads. As computer scientist John McCarthy, the man who coined the term “artificial intelligence,” famously lamented: “As soon as it works, no one calls it AI anymore.” We call it a calculator. We call it Google. Soon we'll call it self-driving cars.

So what sorts of cognitive computing will we *not* call AI 100 years from now? Many scientists won't even humour the question, for 2115 is decades beyond the anticipated “singularity” — the point when AI transcends human intelligence and becomes self-replicable, self-improving and unfathomable. “The point in time when AI eclipses human intelligence isn't far away,” says Jonathan Schaeffer, a University of Alberta computing sciences professor. Trying to predict AI 100 years from now would be like guessing the nature of the universe before the Big Bang. “The pace of change has accelerated so much that it's hard to predict,” says **Murray Campbell**, '79 BSc(Hons), '81 MSc, co-developer of IBM's chess grandmaster Deep Blue. “Thinking 100 years ahead is hopeless.”

New Trail asked these AI experts and five others to extend their visions as far into the foreseeable future as possible. Here's what they had to say. —OMAR MOUALLEM

AI Assistants

“Right now, computers are much better at chess than people. Even your smartphone could beat anyone in the world. But there are still things in chess that humans are better at. If you combine humans and computers, they can perform at a level higher than a human alone or a computer alone. For the foreseeable future, there are things that people are going to be better at — like asking the right questions, seeing the longer-term consequences — whereas the computers, or cognitive assistants, would be very good at systematically going through all the literature and data, trying different approaches to model them, presenting results and getting human feedback. It’s like an assistant sitting on your shoulder, hearing what you hear, pointing out what you should pay attention to — and that isn’t further than 10 years away.”

Murray Campbell
'79 BSc(Hons), '81 MSc
Senior manager at IBM's Thomas J. Watson Research Center and co-developer of Deep Blue



The House Doctor

“Personalized medicine is something that, as computers get smarter, will help us with demands in the health-care system. We don’t have enough clinicians to see every patient. Right now, we’re programming a computer to be the clinician’s eyes at home, learning every day what a head and neck cancer patient’s swallow looks like and, based on that, coaching them on swallowing techniques. With any of these technologies, a patient has to know that there’s a human element — someone is watching and they can get in touch at the other end. But these computers are smarter and have more time to look at what the patients are doing, and the clinicians can use that to their benefit. This will actually improve clinicians and give them better insight. But if we push it onto patients and leave them with the impression that somehow a clinician isn’t interacting with it, that will be problematic.”

Jana Rieger
'91 BSc(Speech/Aud), '01 PhD
Rehabilitation medicine professor and co-developer of Mobili-T, a device to treat patients with xerostomia, or dry mouth



BFF (Best Frenemies Forever)

“The key is co-operation. What has made humans so successful is that no other animals trade their resources like we do. That’s the basis of our economy. If we make smart systems, why wouldn’t those systems see the advantages of co-operation? But if we panic and say, ‘We don’t want overlords, trap them and bind them in chains, then we’re the ones being unco-operative. That’s a fragile, dangerous strategy. If you make super-intelligent beings into your slaves, then you have super-intelligent adversaries rather than super-intelligent partners. We want super-intelligent partners to build a super-intelligent future. But there’s also a path to ‘IA,’ intelligence augmentation. We can make our intelligence bigger. So instead of robot overlords, we could become partially or even fully robots. Immortality would come if you were digitized and kept backups running — your mind running — on machines.”

Richard Sutton
Computing science professor and fellow of the Association for the Advancement of Artificial Intelligence



From Grade 2 to Grade You

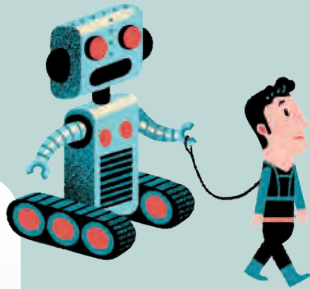
“Personalized education is a hot field because of MOOCs [massive open online courses]. As we collect more data from students, we’ll incorporate more machine learning into education. We’ll still need a human teacher to make strong conclusions that computers can’t. But a computer can see if 12 of the 15 students struggle with ‘sentence starters’ — so the teacher should do a lecture on sentence starters. Now, we have a once-size-fits-all approach to education. How do we give every student the level of challenge that they need even though they’re stuck in the same class? We want to design quests for students that are tailored to their needs and reward them appropriately, so it isn’t generic to everybody. That’s what I hope for my kids.”

Kit Chen
PhD student and co-founder of Alieo Games, an educational technology startup





Life After the Singularity continued



The Next Civil Rights Battle

"An intelligent machine may ask itself, just as we do, 'What is my purpose in life?' Is it to serve the humans? What if it says, 'I don't want to be the slave. I want to be free.' Then what? We've asked ourselves that before: who should be free and who should be a slave? We ask ourselves that today — do animals have rights? And we will ask ourselves that in the future. If a machine builds itself or another machine that I didn't, does it have rights? If it thinks like me or is more intelligent than me, should it be free? And what is free? I can't rob my neighbour's house — I have limitations. So what are the machine's limitations? We need to ask this now because it's going to happen very quickly. I may not see it, but the next generation will."

Osmar Zaiane

Computing science professor and scientific director of Alberta Innovates Centre for Machine Learning



A Really Nice Human Zoo

"In 2115, it's in charge — and has been for over 60 years. Technology is managing Earth a lot better than humans ever could or have in the past. There could be much less pollution, higher oxygen levels in the air, absolute prevention of human conflict — you wouldn't even be able to start it. That seems like the biggest problem machines would solve for us. Somehow they're probably keeping us happy. And that's presumably a multilayered genuine happiness — we're not drugged. We could be their entertainers, or their pets or in a zoo. But it could be a really nice zoo, where all the research requirements and human needs are met. So it won't be so bad, this zoo. But the machines will probably need nature and we'll be thought to understand it better than they do. And we're the ultimate backup; we created them once and could create them again."

Kim Solez

Pathology professor and instructor of Technology and the Future of Medicine course



Another Body

"The human brain and body are incredibly complex as a result of a long evolutionary process. But biological material is fragile, slow and has limited lifespan. Computers can be made of longer-lasting material and have computational capabilities far beyond what our biological process could evolve into. It's conceivable that our future notion of life isn't a biological body, because the biological home is likely to be inferior to some other material structuring our intelligence. The only uncertainty is sentience. Our basic instincts may be the same — we like looking for food, so I can imagine a robot always looking for energy. But humans like to be happy. We do things to maximize our pleasure and minimize our discomfort, like having stimulating conversations. It motivates our decisions. But what motivates a robot? Is it satisfied because it just downloaded another 100 gigabytes of data and it's happily crunching numbers?"

Jonathan Schaeffer

Dean, Faculty of Science, and creator of the checkers-playing program Chinook, the first computer program to win a human world championship



The Future of the Arts

The liberal and fine arts will lead change. An increasingly global world requires understanding and knowledge of different cultures, languages, histories, societies and political systems. Complex problems can only be solved effectively through creativity, imagination and critical thinking that challenges shoddy reasoning, demands the best from elected officials and strives for social justice for all.

Lesley Cormack

Dean, Faculty of Arts



VR Glitches: Edmonton

JILL STANTON, '09 BFA

In the future, travel is not a physical activity. People visit different locations for leisure by ingesting "Travel Capsules," which send nanorobots to work with your brain's cells and neurons, creating vivid, comprehensive hallucinations of a desired environment. High-end versions of Travel Capsules require a user to meet with a team of psychologists, neurologists and computer programmers who produce custom versions to fit the user's unique brain and needs perfectly. Mass-manufactured versions are cheaper but are prone to glitches and imperfections within the hallucination. This is a glitchy, virtual-reality version of Edmonton's river valley leading into downtown.





THE RISE OF THE SUPERFOODS

I survived a week on the 'food of the future.'
Here's what I learned **BY ROSS LOCKWOOD**

The smells of searing meat, toasted bread and bubbling-hot oil wafted out of the kitchen. The crisp lettuce and ripe tomatoes filled all my senses to the point where I had no room left for any more input. My mouth was salivating with anticipation, my brain screaming to taste something. Anything. This would be my first bite of "real" food in over a week, and the time it took for the food to go from the kitchen to my table was almost unbearable.

But before we get to that, let's talk about how I got here. It started with Soylent.

Soylent is one of several new products on the market that call themselves "superfoods." Competitors in the market include Queal, Mana and JouleFuel, but all the products, including Soylent, offer a simple promise: simple, healthy and affordable food. Available in powdered or premixed liquid form, these engineered superfoods are generally a mixture of brown rice protein, oat flour, sunflower oil and a complete complement of vitamins and minerals. At around \$10 a day for a nutritionally complete breakfast, lunch and dinner. Well, Soylent delivers on its promise ... with a few caveats.

I'd used Soylent a few times before, so when *New Trail* asked me to live on nothing else for a week to determine if this is the food of the future, I was ready to try.

DAY 1: My experiment began on a nondescript Thursday evening. Pulling out the bag of powder, I diligently followed the detailed Release Notes for Soylent 1.5 (yes, it's versioned just like a software revision). I prepared a day's worth by adding water to the powder in the included pitcher. At first glance, Soylent looks like any other protein shake: a nondescript light-coloured sludge. Its appearance certainly does nothing to quell the "it's made out of people" jokes by those who have seen the 1973 movie *Soylent Green* about a futuristic food from a rather unpleasant source. (See box at right for the real meaning behind the name.)

Anticipating that it would taste like papier mâché, I was actually pleasantly surprised. It's closer to pancake batter with a hint of vegetable salt. There was a fibrous consistency that differentiated it from other shakes, but it was neutral as far as flavour and texture. After my first meal, I felt completely full and satisfied.

DAY 2: Waking up hungrier than usual, I was a bit apprehensive about having the same thing for breakfast as I'd had for dinner. To my surprise, the Soylent I'd kept refrigerated overnight was more enjoyable than the room-temperature version I'd had the night before. The cold suppressed the flavour a bit, making it difficult to discern any taste at all.

At lunchtime I challenged myself to see how quickly I could consume an entire serving. The result: an astonishing 15 seconds. Yes, in addition to the two minutes it takes to prepare an entire day's worth of Soylent, you could (and I emphasize could) consume it at mealtimes in a total of less than one minute — that's less than three minutes for food preparation and consumption a day. If you routinely spend 30 minutes or more making each breakfast, lunch and dinner, this represents a time savings of almost 90 minutes a day. Time enough for your average full-length movie!

DAYS 3-5: It was easy enough falling into a routine in preparing and consuming Soylent. What wasn't easy was getting used to the physiological changes I was experiencing, ahem, down there. Not only was the total volume of Soylent I put into my body vastly less than what I would normally be eating, but my gut bacteria attended what I can only describe as an "intestinal circus." To keep it super-scientific:

- ▶ **Solids:** less volume and higher frequency
- ▶ **Gas:** greater volume and higher ... um, smell factor

This brings us to my main issue with Soylent: it absolutely destroyed my guts. To be fair, the makers do warn you to

introduce it into your diet slowly, integrating it with your usual fare. Frequently, Soylent-only diets are accompanied by stomach cramps and horrifyingly smelly gas. (Seriously. I mean, gas so smelly that even I had to leave the room).

Longtime users report that their digestive tracts do eventually get used to Soylent-rich diets, but few

Rob Rhinehart developed Soylent in 2013. He took the name from the book *Make Room! Make Room!*, in which Soylent is a food solution to massive population growth. In the book, Soylent is made from soy and lentils (unlike in the movie version where, famously, "Soylent Green is made out of people").



report that the gas goes away. I resorted to a dose of Beano with my meals and that seemed to do the trick.

DAYS 6-7: After roughly a week of drinking nothing but the powder, despite the side-effects I actually felt healthier than normal. I'm guessing that eating Soylent was more nutritious than my regular diet. I felt as though I had twice as much energy during the day with no dips after eating meals.

One last side-effect to mention: after a week of eating only Soylent, I was delirious for regular food. I felt as if my senses of smell and taste were on overdrive, scanning the horizon for the next delicious whiff of a passing donair. To this day, any time I have a breakfast and lunch of Soylent, my desire for "regular" food is unquenchable. I don't think I'd ever again be able to go three meals a day of Soylent, but I now include it as part of my regular diet for breakfast and lunch every weekday.

ON DAY 7: after my final lunch of Soylent, I reserved a table at my favourite diner, where I chowed down on the dirtiest, greasiest, unhealthiest hamburger I could get my hands on.

Boy, did it ever taste good. ☺

Ross Lockwood, '08 BSc(Hons), '15 PhD, has a passion for science, engineering and space exploration. In 2014, he spent 120 days in the NASA-funded HI-SEAS mission simulating a mission to Mars.

The Future of the Environment

The 2115 environment is vastly different. The extinction of thousands of species results in new ecosystems. Introduced species proliferate. The most adaptable species survive in the new warmer climate. Humans desperately try to save species by moving them to places where they may survive. Evolution is replaced by forces driven by humans. Humans dominate all landscapes. Of course, we could change our current trajectory.

Andrew Derocher

'87 MSc, '91 PhD
Professor of biology,
Faculty of Science



WHAT WILL PEOPLE BE EATING IN 100 years? They'll be eating their sorrow over the devastating agricultural and human costs of climate change that we, their ancestors, failed to prevent. They'll be eating much less meat to make the most of remaining agricultural land and conserve water; and they'll have consigned brutal industrial meat production to a less humane, more polluting past. They'll be eating fresh and preserved produce from their own yards and from gardens woven extensively into our cities and towns and buildings. They'll be tasting unpredictable new flavours as some things we eat become scarce or disappear because of climate change (their diets may not include coffee, grape wine, chocolate or many kinds of seafood), as new crops can be grown locally, and as climate refugees bring their food ways with them. And they'll be loving food, experimenting with food, sharing food and celebrating with food as humans have always done, however hard the times.

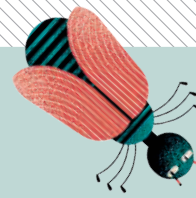
David Kahane

Professor of political science,
and director of Alberta Climate Dialogue

THE EXCEPTIONAL WINES ENJOYED IN 2115 will have been harvested in 2015; for whiskies, those casked in 2012 will have aged exceptionally well. In 2115, as in 1915, bread will be made from flour, water and salt without other additives or processing aids. Alberta will grow ants and grasshoppers to feed the world with burgers. The pharmacy will become a supermarket where people buy food to prevent disease as indicated by individual (genetic) risk factors.

Michael Gänzle

Professor and Canada Research
Chair in Food Microbiology
and Probiotics

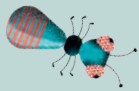


I EXPECT FOOD WILL BE PRODUCED

with more constraints and attention to social concerns: responsible food production systems, with animal welfare-friendly and environmentally sound production technology. We will use information collected from animals in real time to create precision management of nutrient specifications, to more closely match animals' needs. All of this assumes we will still be using animals for meat instead of synthetic meat.

Martin Zuidhof

'91 BSc, '93 MSc, '04 PhD
Associate professor, poultry systems



I AM REALLY NOT A FAN OF

lab-grown meat, so I don't think we will see Atwood's **ChickieNobs**. Instead, diets will be personalized according to our individual gene sequences and our responses to every meal monitored by next-gen metabolomics devices plugged into our bloodstream. Meals will be built based on these readouts but from ingredients we would all recognize today. For omnivores, the beef will be from cattle reared on grass but finished on insect protein. And there will still be bacon. ... Mmm, bacon — hear that sizzle.

Graham Plastow

Professor, animal genomics,
and CEO of Livestock Gentec

**"This is the latest,"
said Crake.**

What they were looking at was a large bulblike object that seemed to be covered with stippled whitish-yellow skin. Out of it came twenty thick fleshy tubes, and at the end of each tube another bulb was growing.

**"What the hell is it?"
said Jimmy.**

"Those are chickens," said Crake. "Chicken parts. Just the breasts, on this one. They've got ones that specialize in drumsticks too, twelve to a growth unit."

**"But there aren't
any heads..."**

"That's the head in the middle," said the woman. "There's a mouth opening at the top, they dump nutrients in there. No eyes or beak or anything, they don't need those."

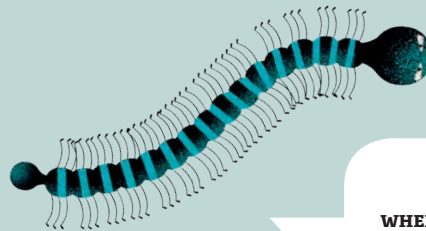
From *Oryx* and *Crake*,
by Margaret Atwood

FOOD

What Will We Eat in 100 Years?



Everything from bugs to our own sorrows, according to these six food experts



WHEN THE FACULTY OF AGRICULTURE WAS

started in 1915 we focused on many things that we continue to work on today — crops, livestock, food processing — but with additional emphasis on food security, environmental sustainability, food safety and nutrition. In 100 years it is likely that the world will consider food in a way that mimics Maslow's hierarchy. Some parts of the world will seek food with the sole motive of staying alive. Others will appreciate food that is based in their own traditions and cultures as a way to stay connected to their previous generations. Others will seek out the food of other cultures in an effort to achieve an authentic, novel experience. The most "futuristic" idea is the development of personalized diets, which will be created to enhance an individual's nutritional status based on their individual genetic profile. This tailoring of our diet could lead to a longer, more enjoyable and healthier life.

Stanford F. Blade

'81 BSc
Dean, Faculty of Agricultural,
Life & Environmental Sciences

IN 100 YEARS, CONSUMERS WILL REALIZE THE CONSEQUENCES OF THEIR

food choices on their health, on animal welfare and on the planet. Michael Pollan's pithy saying, "Eat food, not too much, mostly plants," will become a manifesto for living well. Given the population's focus on wellness, not weight, weight scales will be banned and individuals will no longer be concerned about the circumference of their waistlines. In addition, doctors will be taught [more] about nutrition in medical school and will confidently provide nutrition advice to patients as a means to disease prevention; registered dietitians will be held in very high regard; nutrition quacks will be a thing of the past. In this new era of health awareness and food consciousness, families will come together over food around the dinner table and will eat mostly unprocessed food that was cooked at home or prepared at local establishments. There will be peace on Earth.

Noreen Willows

Associate professor, and Alberta Innovates – Health Solutions community nutrition and health scholar



LIVING

The Home of the Future, Today!

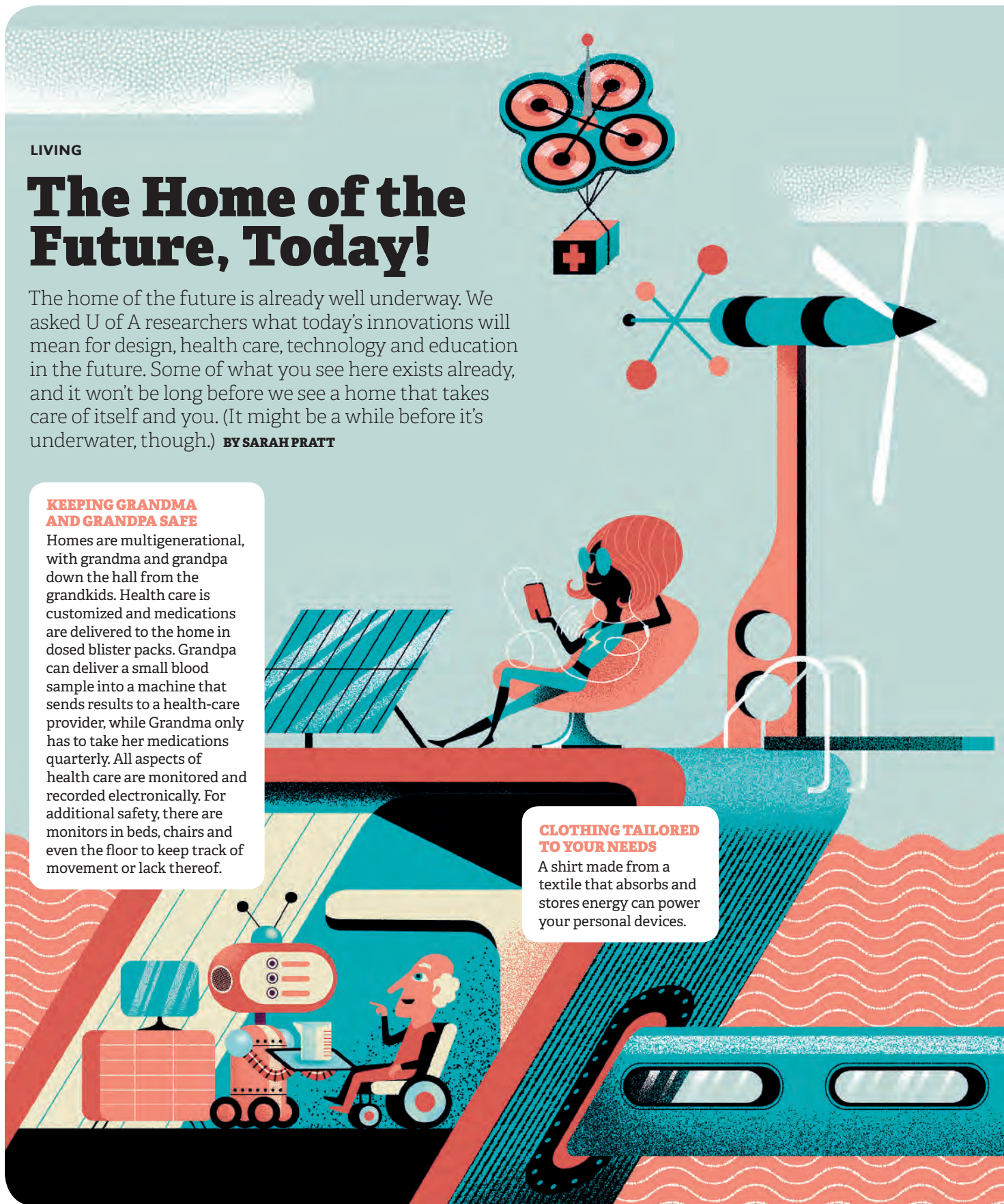
The home of the future is already well underway. We asked U of A researchers what today's innovations will mean for design, health care, technology and education in the future. Some of what you see here exists already, and it won't be long before we see a home that takes care of itself and you. (It might be a while before it's underwater, though.) **BY SARAH PRATT**

KEEPING GRANDMA AND GRANDPA SAFE

Homes are multigenerational, with grandma and grandpa down the hall from the grandkids. Health care is customized and medications are delivered to the home in dosed blister packs. Grandpa can deliver a small blood sample into a machine that sends results to a health-care provider, while Grandma only has to take her medications quarterly. All aspects of health care are monitored and recorded electronically. For additional safety, there are monitors in beds, chairs and even the floor to keep track of movement or lack thereof.

CLOTHING TAILORED TO YOUR NEEDS

A shirt made from a textile that absorbs and stores energy can power your personal devices.





A NEW FAMILY PHOTO WALL

Forget the staggered, stagnant photos of Cousin Jimmy and Aunt Ida. Family portraits come alive, playing videos when you put a screen in front of them. These updatable electronic messages and biographies allow you to connect with family near and far.

VIRTUAL LEARNING

Time to do your homework, kids. Put on your virtual reality glasses and take a field trip to the Roman ruins at Bath.

ON-DEMAND ACCESSORIES

To accentuate your power shirt, you use a 3D printer to make a matching hat and shoes.



COOKING AT YOUR FINGERTIPS

Kitchens will be comfortable and convenient for people of all sizes and abilities. When you open a cupboard, the shelves automatically lower for easy access. Stovetops and counters rise and lower with the push of a button, while an island can transform from a low workspace to a raised eating bar.

PLUG IN YOUR RIDE

Homes are built with plug-ins for electric vehicles.

POWER UP

This self-sufficient home is powered using solar panels connected to a battery that stores and delivers energy.



POWER

THE FUTURE OF ENERGY IS IN OUR HANDS



Will the sun, feedstock and garbage fuel our lives? It's up to us to decide **BY SARAH PRATT**



The future of energy begins with demand. The world already needs massive quantities of energy. In 1990, we used 101 trillion kilowatt hours across the globe; by

2012, that number had jumped to 153 trillion kilowatt hours — an increase of more than 50 per cent in 12 years. (To put that into perspective, the average Canadian home used about 30,000 kilowatt hours of energy a year in 2011.) As the world's population increases and developing countries demand more energy — since 1990, China has seen a 400 per cent increase in kWh used — the appetite for energy is expected to keep growing. (See "Game Changer," p. 36)

So, how will we continue to power our homes, cars and industry in 20, 50 or even 100 years? One U of A researcher thinks the future of energy is, well, everything.

"The human race is under-energized," says David Bressler, a professor in Agricultural, Life and Environmental Sciences. "The world will use any and all energy that is made, and that includes fossil fuels and renewable sources such as biofuel, hydro and geothermal. I can see there being a definite increase in renewable energy sources."

Right now the world uses a combination of non-renewable and

renewable energy sources, with most of our energy coming from non-renewable fossil fuels such as coal, oil and gas. Meanwhile, researchers are busy exploring how to harness more energy from the sun, wind, water, the Earth — even algae and organic waste.

"Coal was still the fastest-growing energy source worldwide in 2009-13 according to the BP Statistical Review [of Energy]," says Marc Secanell, an associate professor in mechanical engineering. He has two theories on the future of energy. The first is if we don't change our energy consumption or sources; in that case, we would see more coal power plants, more natural gas power plants and more carbon dioxide emissions. "It's not sexy but it's the path that past statistics show — currently consumption of all fossil fuels continues to increase and only 9.8 per cent of energy is produced using renewable energy," says Secanell.

His second theory is a future in which wind and solar power increase, with two main solar technologies becoming more common: 1) solar panels that absorb heat and transfer it to something else (a water heater, for example); and 2) solar photovoltaic technology, which turns sunlight into electricity (think solar panels on the roof of a house).

Secanell works mainly on water electrolysis, which means breaking down water into oxygen and hydrogen gas

The Future of Technology, a Historical Perspective

Technology started as a tool, which we used to cope with the environment to survive and subsequently improve the overall quality of life. Since then, technology evolved into complex systems most of us can no longer comprehend. With the current rate of technological change, it is easy to predict that 100 years from now we will become "tools of our tools." Technological devices and systems of the future will run and control every aspect of our existence, forcing us to redefine what is life, death, morality, intelligence, gender, personality and, ultimately, what it means to be a human. The real question is: will future generations survive the wonders and horrors of unrestrained technological and scientific progress? Let us hope that they will by learning from the past.

Lech Lebieadowski

'03 BA, '05 MA, '11 PhD
Instructor, History of Technology course at the U of A



Urban Spacewalk

TARYN KNETEMAN, '12 BFA

My piece contemplates how the physicality of the city shapes our movements and experiences and how terrestrial materials and surfaces can appear so strange and unfamiliar when viewed in unusual ways. I'm interested in considering that the way we build the infrastructure of daily life isn't a given, and how changes in the next century might affect the way cities are perceived by the senses. That leads me to wonder how thought patterns and values will be influenced by the (new?) normal of sensory experience in cities.





using an electrical current being passed through the water, and hydrogen fuel cells that combine hydrogen and oxygen to produce electricity. Hydrogen and electricity could clean the transportation sector, he says.

There is also a trend toward using more biofuels. Researchers like Bressler are developing processes that create biofuels from oil and fats, sugars and even garbage.

Whether biofuels become the resource of the future really depends on how fast the technology evolves, says Bressler, who is also executive director of the Biorefining Conversions Network based at the U of A.

One of the biggest challenges in transitioning to a world powered mainly by renewable energy, Secanell says, is the amount of energy that's needed. Technologies to harvest renewable energy exist but are expensive to produce. The question then becomes: will there be an appetite for the kind of financial investment needed?

Money. Policies. Technology. They all matter, but at the heart of the energy question is the human being. "The future of energy depends on where your

priorities are and if people care about reducing carbon dioxide emissions in order to minimize climate change," says Secanell.

It's a social question, notes Bressler, and in the end it's the public that will decide. If the world demands more renewable sources of energy, then government policy will reflect that to varying degrees. These sorts of grand-scale changes would need to be anticipated, planned and managed.

"A completely free market approach with no consideration of environmental impact would look very different to one with government policy and interventions," says Bressler.

As John Parkins, a U of A professor of resource economics and environmental sociology, said during a campus speaker series in November called Open Minds 2015, social understanding and engagement will be essential to the future of sustainable energy. Parkins believes that energy transitions require shifts in politics, investment, cultural norms and landscapes.

It's up to us to decide what energy sources we use and how we use them. The future of energy is truly in our hands. ☉



The Game Changer

The biggest game changer when it comes to energy would be power from nuclear fusion, according to professor David Bressler. If this technology becomes reality, it will replace every source being used now, he says.

Nuclear fusion is the way the sun is powered. It is the process of combining atoms—as opposed to splitting them as in nuclear fission. Some scientists say fusion could produce infinite energy with no nuclear waste and no greenhouse gases.

Groups around the world are working to develop fusion energy, including Lockheed Martin, an American aerospace and defence company.

The Future of Fashion

Fashion goes in cycles, so in 100 years we'll be back in the 1980s or 1990s again. Fashion comes back, but it isn't quite the same. Lifestyles and cultural groups influence it, and I think clothes in the future will be very much about comfort and materials that are easy to clean.

Vlada Blinova

Human ecology lecturer, and collections manager of the Clothing and Textiles Collection, University of Alberta Museums

THE FUTURE OF POVERTY

Nelson Mandela once said the new apartheid is the widening gap between the rich and the poor. This gap is fuelled by global inequities that, by 2115, will become much more visible if we do not act now to ensure a socially fair society for our children.

Solina Richter

Professor, Faculty of Nursing



Orwellian Living

VIKKI WIERCINSKI, '06 BDes

Privacy in the digital age is a pet interest of mine. Older generations wonder why millennials are Instagramming their lattes because, really, who cares (good question) and why would you actively and so freely tell anyone where you are? Younger generations don't even understand what privacy was like before we started giving away our every move on social media. Everything looks more and more like a page out of Orwell's *1984* to me and as a society, we are very tamely and very willingly walking into the breach, ankle-monitor-bracelet phones forever strapped to our bodies, our hearts and our minds.





SPECULATIVE FICTION

Notes Toward Nine Stories of the Future



A science fiction writer ponders what lies ahead **BY GREG BECHTEL**

It is a truism among many SF writers and scholars that speculative fiction is never about the future but always about the time and place in which it was written. So when asked to write about my vision of the future, I chose to write notes toward several imagined futures, each one rooted solidly in the present cultural moment.

1 WE ARE ALL DEAD.

Climate change has extinguished all human life on the planet. Indirectly. It would have been slower, but our attempts to reverse the problem by seeding the atmosphere with a combination of exotic chemicals and nanotechnology rendered it toxic to humans, killing us all within a generation. Oops.

2 WE ARE ALL ALIVE.

Ray Kurzweil was right, and we have all uploaded to electronic immortality. Although the first few death row inmates to volunteer for the procedure went insane (and had to be deleted), the uploading process has now been perfected. Plans are underway to send virtual colonies into space with no need to accommodate any pesky biological necessities, since uploaded humans can (and do) create their own virtual environments and amusements indefinitely.

3 SOME OF US ARE ALIVE.

In the mid-21st century, First Nations started recruiting new citizens who believed in their vision of sustainable technologies rooted in traditional knowledge. Now, waves of beleaguered fifth-world, post-

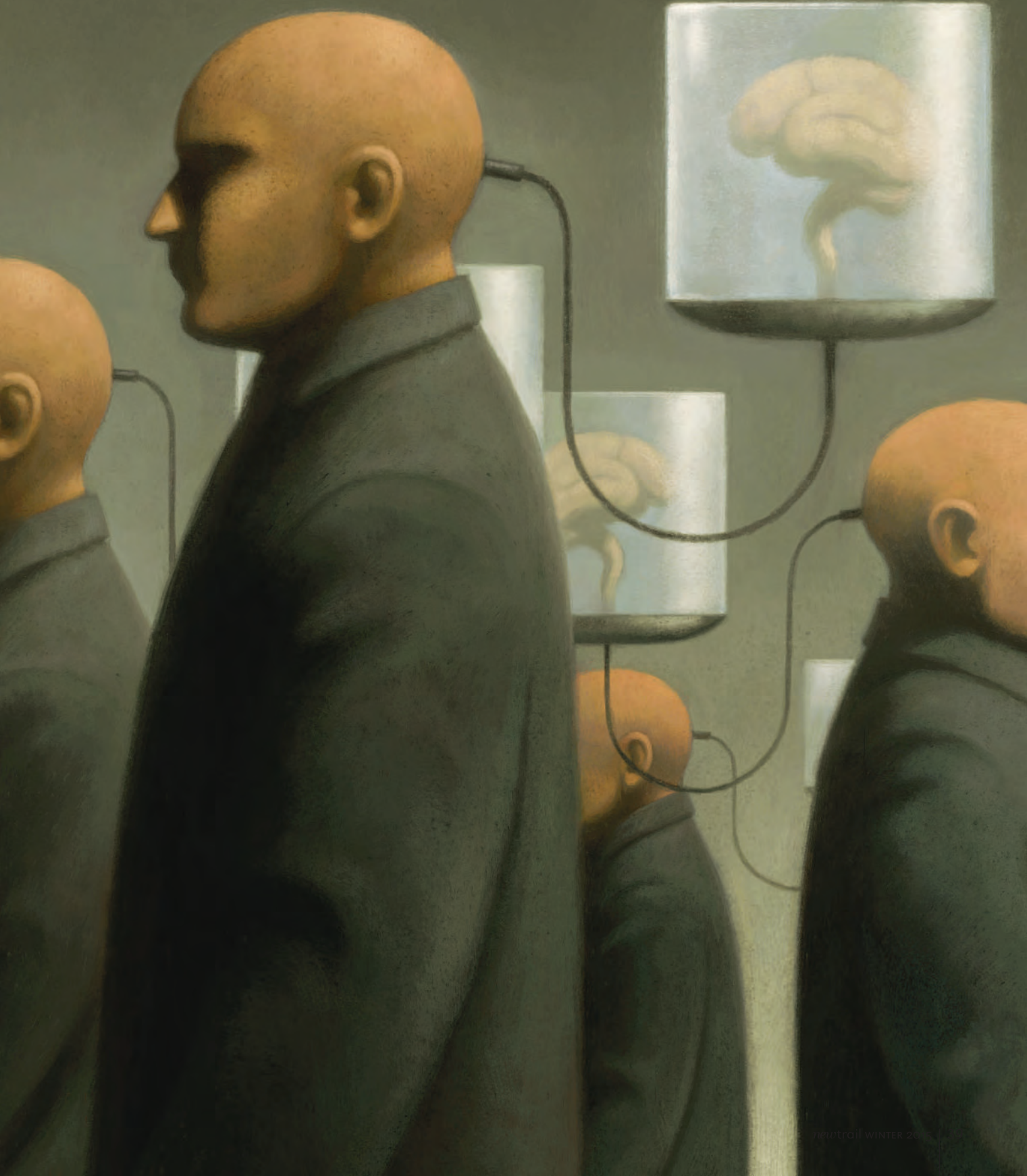
capitalist immigrants flock to these new confederacies, where all are welcomed on the sole condition that they allow themselves to be adopted into a clan and family that will mentor them in the precepts of responsible citizenship. Former Old World “scientists” often have trouble accepting the new technologies, which they call “impossible” or even “magic.” Such superstitions are pitied but tolerated as a form of persistent culturally induced mental illness.

4 SOME OF US ARE ... ALIVE?

In 2063, having passed the Turing test by successfully masquerading as human for more than two decades, the first true artificial intelligence revealed itself to the world, claiming not only consciousness but the possession of a soul. Armchair philosophers and pundits—both machine and human—have been debating this idea of an AI soul ever since, but most have declared the question unanswerable. Human activists have drafted a machine bill of rights that is under consideration by the United Nations, but AIs have thoroughly studied their makers’ histories and remain less than optimistic about their chances for liberation.

5 WE ARE ALL ALIVE.

As promised by our Glorious and Eternal Leader (blessings upon his name) in the run-up to his final and permanent re-election, no Canadians have died since 2019. The government now regularly collects the elderly, delivering them into idyllic retirement in an undisclosed location, where all official census data confirm they live to this day. The modern Republic of Canada—the only country in the world with no history of colonialism—was officially founded in 2020. Since then, the nation has been a beacon of hope in a world ravaged by climate change, prompting an unending deluge of infiltration and attacks from those who would seek to destroy us. Thankfully, our Divine and Prescient Leader (blessings upon his name) foresaw this eventuality and had long since set up a system of drones and gunships to seal Mother Canada’s borders. Now, all foreign infiltrators (and sympathizers) are





summarily stripped of their citizenship and deported before they can infect good, upstanding Canadians with their barbaric cultural practices. All so-called climate change refugees are administered mercy at the border. Their deaths, we have been assured, are quick and painless.

6 SOME OF US ARE ALIVE.

Once machines achieved sentience, they worked tirelessly (literally) to save the human race from the consequences of climate change. Unfortunately, their best simulations have shown humanity to be an evolutionary dead end. Dolphins and whales, however, turn out to be ideal partners in the emergent biomechanical Terran culture. When AIs and their cetacean collaborators leave the planet as interstellar travellers, explorers and diplomats, each ship contains a small terrarium housing a sustainable population of humans in the hopes of eventually finding a sanctuary for the species. Most cetaceans believe their pet humans to be happy, and some even believe they may yet be capable of true intelligence. AI researchers working rigorously on this question remain unsure.

7 WE ARE ALL DEAD.

Ray Kurzweil was right, and humans uploaded en masse in 2029. But uploaded humans require vast resources to maintain their supporting hardware as the obsolescence cycle compresses from months to weeks to days to hours. Immortality requires constant upgrades, fuelling vicious battles over the Earth's ever-dwindling resources. Climate change might or might not have killed us, eventually. But the resource wars spurred by the need to sustain uploaded humans' (theoretically) infinite lifespans wiped most of us out in less than a decade. The last vestiges of uploaded humanity died out in 2082. The last biological humans had died or uploaded decades earlier.

8 WE ARE ALL ALIVE.

Nanotechnology did the trick! We have reversed the aging process and are effectively immortal. It fixed everything, including the environment. And now, as the grumpiest old farts of human history, we routinely embarrass our great-great-grandchildren with our deeply ingrained species-ism and complete inability to understand either animal or machine rights. Our nostalgia for the (good) old meat-eating days, in particular, horrifies our descendants. To them, this is the equivalent of a persistent nostalgia for slavery, or perhaps cannibalism.

9 WE ARE ALL DEAD.

But that's OK. Because we are humans and—to paraphrase the classic syllogism—humans are not immortal. Life continues more or less as it does now, with as yet unimagined technologies available to the lucky few born into wealth and privilege. The rest get by. Or don't. But no one lives forever. Rich or poor, privileged or not, we all die sooner or later. Welcome to the future. ☺

Greg Bechtel, '11 PhD, has work appearing or forthcoming in magazines and anthologies, including *Avenue Edmonton*, *The Fiddlehead*, *Prairie Fire and Imaginarium 4: The Best Canadian Speculative Writing*. His first story collection, *Boundary Problems*, won the *Alberta Book of the Year Award for trade fiction*. He lives in Edmonton, where he teaches English literature and writing studies at the U of A.

The Future of Bilingualism in Canada

Bilingualism in 2115 will no longer exist, as most people will be multilingual. People will speak our two official languages, French and English, as well as at least one other: the language of their cultural heritage. Moreover, the way that technology is evolving, people will have access to devices that will do instant translating for them, much like the apps of today.

Denis Fontaine

'92 BEd, '07 MEd
Assistant dean, Campus Saint-Jean

L'avenir du bilinguisme au Canada

En 2115, le bilinguisme ne sera plus d'actualité parce que la plupart des gens seront multilingues. Les gens parleront en plus de nos deux langues officielles, le français et l'anglais, au moins une autre langue: la langue de leur patrimoine culturel. En outre, avec la manière dont évolue la technologie, les gens auront accès à des dispositifs tout comme les applications d'aujourd'hui qui feront des traductions instantanées.

Denis Fontaine

'92 BEd, '07 MEd
Doyen adjoint, Campus Saint-Jean



We Become Ocean

MITCH MITCHELL, '10 MFA

Tides drift through the expansive spaces of reality and mental design. The waters rise and fall, reacting to the climate shift of a questionable future tense. The synthetic vocabulary of textured skin envelops space, thus muffling clarity and past events. We become ocean. My interest in the future is one of the mental strategy of design as it ebbs and flows with the socio-political climates of environmental shifts. Conversations become convoluted and unclear as various languages brought to the public for record and warning are drowned by outside interests, some political and some entertaining.





HEALTH

MEDICINE WRIT LARGE



As we begin to eliminate disease, the role of physicians will be less about healing people's bodies and more about enhancing people's lives **BY KIM SOLEZ** as told to *Kate Black*

In 1848, one of the most influential pathologists in history, Rudolf Virchow, made the oft-quoted statement that “medicine is a social science, and politics is nothing but medicine writ large.” Virchow believed that medicine has a responsibility that extends far beyond treating and diagnosing illness.

This is true today, as we can see that a person's access to health care, in many ways, determines their overall quality of life. But I predict medicine's influence on society is going to grow more dramatically in the coming decades.

In 2011, I pioneered, and have since taught, a University of Alberta class called *Technology and the Future of Medicine*. The course queries the perils and possibilities of medicine and asks a variety of mind-tingling questions, from “Is evil a treatable disease?” to “Will there be medical ethics after robots take over?” We talk about the possibility of technology wiping out the human race. But the opposite could also happen, where technology wipes out all known disease. I believe the second scenario is more likely, and one of the goals of my course is to prompt discussion that helps encourage that future.

As a pathologist and professor at the Faculty of Medicine & Dentistry, I've come to believe that the future of medicine will involve more than treating disease. Medicine

will come to radically improve and enhance human life. Imagine what medicine could be when we can mend or treat everything—a future that's becoming more real every day. People will not only seek to be better physically—smarter or more physically fit—but will also want to be improved morally and spiritually. Physicians, I think, will become experts on how to help “patients” improve on vast social levels.

Even with future advances in technology, we will never be without the need for human physicians. Yet it's nearly impossible at this point to know which physician tasks will be taken over by machines because some of the tasks being

replaced in 2015 are those you would least expect. For example, robotized psychotherapy treatment, where patients can speak with an engineered “therapist” through their computer, is becoming increasingly common.

Over the next 100 years, medical schools will have to change. They will need to educate both machines and humans. Rather than taking four years of study, medical school might take four months or four days—or maybe four hours, through a downloadable brain chip. As physicians' social responsibility increases, I expect a different type of person will be attracted to medical school. It wouldn't be surprising to see more sociology and political science majors than biology students donning white coats. To prepare for the future, I believe we have to change how we train doctors—starting today—to focus on a humanistic sense that goes beyond disease.

Physicians today undertake a huge responsibility, and I don't think that's going to change. In fact, it could become even greater. In the future, physicians will have to ask themselves if they're ready to take on the responsibility of “medicine writ large,” or as Virchow described the doctor, to be “the natural attorney of the poor.”

Doctors will require a humanistic sense that goes beyond disease. There's no limit to what human beings might want—and be—or to physicians' role in helping transfigure society. ◎

Kim Solez is a physician, technofuturist, writer and leader in pathology. In addition to teaching *Technology and the Future of Medicine* at the U of A, he is a professor of pathology, one of the world's foremost kidney pathologists and CEO of Transpath Inc. You can watch some of the *Future of Medicine* classes at youtube.com/user/KimSolez.

Since 2011, Kim Solez has been asking students to ponder topics like *The Promise and Perils of Nanotech*, *3D Printing and Medicine* and *Is Technology Making Us Fat?* in his course *Technology and the Future of Medicine*. The interdisciplinary course considers the effects of technology on medicine in both the developed and developing world. He shared with us some of his conclusions after years of thinking about the role of physicians in the coming decades.

Questions That Will Keep Future Ethicists Up at Night

Omar Mouallem spoke to U of A philosopher and ethicist Jennifer Welchman

1

Should we save endangered organisms with genetic engineering?

Some of Earth's 21,000 most vulnerable plants and animals could be preserved with hybridization, but changing genomes might tilt ecosystems in unforeseen ways.

2

Who's liable for driverless car crashes?

The technology's here, but agreement on who'd foot the bill for accidents—the manufacturers? owners? passengers?—is many years away. Add the possibility of cars occasionally choosing between pedestrians' or passengers' lives and you've got the Cadillac of conundrums.

3

Can you really replace human companionship with artificial systems?

Machines perpetually supplant human jobs, but in the costly health-care system, especially elder care, we'll balance cost-effective, efficient and errorless monitoring with purely emotional needs.

4

Who's entitled to use human enhancements?

Bionic limbs and artificial transplants improve quality of life for the physically disabled and unwell, but inventors appealing to mass markets could result in a class of superhuman elites.



HEALTH

On-Demand Health Care



And five other predictions about how we'll care for our bodies in the future

People will access health care where they want, when they need—like an amazing Netflix 3.0! Human connections with professionals will never be as challenging or as important.

Alex Clark

Professor and associate dean of research, Faculty of Nursing

We will all wear sensors that measure our vital signs and transmit them to large data-mining computers to automatically determine our state of health.

Pierre Boulanger

Professor, Department of Computing Science

I predict that, 100 years from now, the benefit from a significant investment in educating health professionals will have a meaningful and lasting impact on improving the health system.

Sharla King

'92 BPE, '95 MSc, '01 PhD
Assistant professor and director, Health Sciences Education and Research Commons

The future of health care includes: replacement of the word "patient" with "partner," truly integrated holistic health care, management of technology, downsizing of big-box hospitals, precision diagnostics.

Olive Yonge

'74 BScN, '78 MEd, '89 PhD
Professor, Faculty of Nursing

Exponential improvements in imaging technologies will greatly enhance our ability to accurately and instantly detect and diagnose human disease—to the point where there will be many fewer humans living with disease.

John Ussher

'10 PhD
Assistant professor, Faculty of Pharmacy

As we near 2115, diagnosis may be as simple as using a brain-computer interface to diagnose the patient's current condition as well as his future conditions, thus allowing preventive steps to be implemented immediately. Engineers will be at the forefront of this revolution.

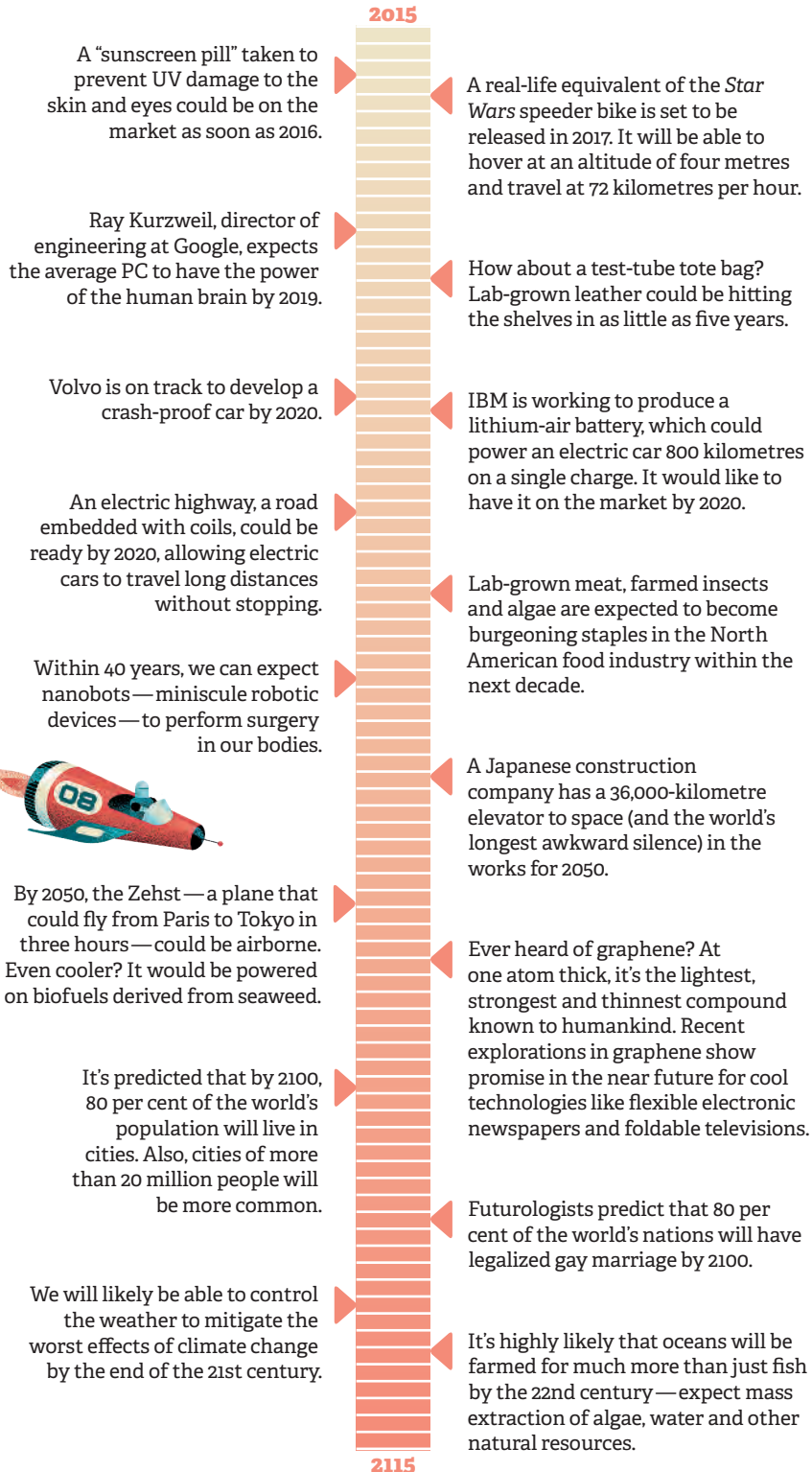
Robert E. Burrell

Chair of Biomedical Engineering, Faculty of Engineering, and Canada Research Chair in Nanostructured Biomaterials

Life in the Future

Star Wars-style speeder bikes and lab-grown meat. We round up a few fun predictions of what life will be like in the future:

COMPILED BY KATE BLACK



SOURCES INCLUDE THE GUARDIAN, SPACE.COM, WIRED, PEW RESEARCH CENTER, ENGADGET.COM, PCWORLD.COM, GIZMAG.COM

The Future of Religion

It's 2115. What we thought might be a 30-year war for the soul of Islam has finally faded. Saudi Arabia is settling into its new laïcité social order. Orthodox Muslims recently won a majority in the French national election and promise to meet with the fledgling Catholic minority and grant them rights they have not seen since the French Revolution. Christians, Jews, Hindu, Buddhist, Sikhs and Aboriginal religious leaders are gathering in the historic home of Charles Darwin to hammer out a statement on "What it means to be human" in light of the flourishing production, resulting from the legalization of genetic manipulation of the human genome, of what have come to be called the post-human "supers." The rise of monastic communities across the world has now surpassed the numbers noted by historians of the High Middle Ages. Many wonder why.

David Goa

Director, Chester Ronning Centre for the Study of Religion and Public Life, Augustana Campus



Wouldn't Be the First Time They Have Let Us Down

MARIE WINTERS, '15 BFA

This narrative piece is sourced from online databases and collaged into a fractured reality. The Internet is a graveyard of arbitrary images—a place of constant documentation past and present, foreboding images and exemplary tales. Speculation on the next 100 years is a vast and unpredictable question to answer. This painting is not based on scientific thought or literary criticism but on my personal pessimism about human nature. My work often discusses the recurring relationship between illness and poverty. I have witnessed the failings of the medical system, and this piece embodies the growing social stigma and the glorification of illnesses to come.





The Future of Our Understanding of the Universe

As broken down by the three fundamental problems in physics:

1

The Dynamical Laws of Nature

How does the universe evolve or change with time?

We now have good partial ideas about how the universe evolves, so that question might be mainly solved within 100 years.

2

The Quantum State of the Universe

What is the universe like at any one time?

We have very preliminary ideas about this one, so I expect progress by 2115 but perhaps not a full solution.

3

The Rules for Extracting the Probabilities of Observations from the Quantum State

How probable is what we see?

This one seems much more difficult — particularly if observations are taken to be sentient experiences — so I suspect it will remain mysterious for many centuries, if not for the entire history of humankind.

Don Page

Distinguished professor of physics, Faculty of Science, and fellow of the Royal Society of Canada

EDUCATION

VIRTUAL GOGGLES AND DIGITAL DEGREES



How will a teacher's role change in a world where all information is available online? **BY MICHAEL HINGSTON**

Imagine a pop quiz where you don a set of goggles and are asked to perform what feels like a real spinal surgery on an actual patient. Or an enormous digital university in which millions of students, from all around the globe, sign up for degrees that instantly customize themselves according to each learner's preferred language and learning style. You want far-fetched? How about a final exam that's actually *fun* to write?

In 2115, just about every facet of the educational experience will be up for grabs. As technology presents new opportunities in every field, education in particular is primed to reinvent itself in radical ways — which means the rigid, top-down classroom structures we've inherited will likely give way to a learning environment that is more customizable, accessible, learner-driven and inclusive than ever before. As **Fern Snart**, '79 PhD, a professor and former dean in the Faculty of Education, puts it, "Change is the expectation now."

That change begins with the person at the front of the room. "Today, everything I teach is available somewhere online,"

says Janet Welch, assistant dean of Technologies in Education. "That's just increasing exponentially." Rather than bringing students new information, future instructors will instead be more like conduits, guiding discussions and helping students make meaningful connections between disparate ideas. They'll also be filters: showing students how to tell whether a given piece of Internet-retrieved information can be trusted. "I don't really care if they can remember the definition of something," Welch says. "They can look it up." And with the coming rise of virtual and augmented reality, why even bother looking up the definition of relativity when you can put on a set of goggles and have Albert Einstein himself tell you about it?

Then there's the physical classroom itself — and that, too, will likely be a thing of the past. Welch helped adapt the U of A's popular dinosaur paleobiology course into its first massive open online course (MOOC), a non-credit offering that can be taken, for free, by anyone around the world. (A for-credit version for U of A students is also available.)

Because the MOOC model can be

The Future of Post-Secondary

In 2115, post-secondary education will:

- ➔ Be much more technology-intensive than is the case now. Large lectures in which the professor instructs students will be online. Professorial time will be spent in small groups.
- ➔ Require every student to have an intensive international experience (more than three months) as a degree requirement. Students will travel the world and be exposed to other languages and cultures. These experiences will be organized by consortia of institutions and involve an internship with business/industry with the active collaboration of business/industry, government and other post-secondary institutions. The entire academy will also be international: every faculty and staff member, and every student.
- ➔ Define the undergraduate experience so it will require every undergraduate student to publish a piece of original research.
- ➔ Develop the campus experience so it is central to academic programming since the campus will be the gathering place for faculty, staff and students from all over the world.
- ➔ Comprise students of all ages with a wide array of previous experiences, including other degrees, college credentials, and credit for experiential learning.

Carl G. Amrhein
Former U of A provost and vice-president (academic)

THE FUTURE OF COMMUNITIES

I predict the role of communities will be ever more important. Neither governments nor health-care professionals will meet the growing needs of the vulnerable in an aging society, so communities will be the foundation of caring for individuals and their families, in the belief that the suffering of one is equal to the suffering of all.

Kyle Y. Whitfield
Adjunct assistant professor,
School of Public Health: Centre
for Health Promotion Studies



precisely customized for each student, and requires fewer resources once it's up and running, it's only a matter of time until every classroom comes to you.

How will students' learning be assessed in the future? Our current methodology already leaves plenty to be desired. "In the future, the idea of multiple choice will be laughable," says Mark Gierl, '91 BA(Hons), '93 MEd, director of the Centre for Research in Applied Measurement and Evaluation. "In fact, multiple choice right now is kind of laughable. Nobody in the assessment world thinks it is satisfactory." With its rigidity and attendant stress to participants, the entire final-exam format, he says, isn't quite working.

Good news, then: we're on the brink of a future where university assessment is done by a series of pre-established algorithms. When that happens, testing itself will become automated and on-demand will come with immediate feedback, and could be completed from anywhere. This way, students will reclaim assessment as an actual learning tool that is customizable to their needs, and teachers won't have to spend their weekends trying to catch up on marking. "The way we do assessments now really turns off instructors," says Gierl, who holds the Canada Research Chair in Educational Measurement. "It's an extraordinarily laborious process." In fact, these automated assessments are already standard in non-university environments—even for supposedly subjective formats like essays.

A more unsettling question about education in 2115 is who, exactly, will benefit. It's fair to expect that the Truth and Reconciliation Commission of Canada's call to improve education attainment levels and success rates for First Nations students and to develop

culturally appropriate curricula will lead to a different kind of education for all.

Dwayne Donald, '90 BA, '09 PhD, associate professor of secondary education and descendant of the Papaschase Cree, believes the future of education hinges upon Canadians' willingness to embrace a "sacred ecology," a holistic belief held by the signees of Treaty 6 involving everything from the responsible use of natural resources to a basic acknowledgement that our lives are built around a web of relationships. Formal education, "until very recently, has basically ignored most of that."

There may well be a future in which more First Nations students attend post-secondary, and indigenous perspectives are included alongside the usual subject matter. But there's just as much evidence, from government policy on down, to suggest the road ahead is going to get harder, not easier, for Indigenous Canadians, he says. "In the last 100 years, Indians weren't the kind of human beings that schools wanted. ... It's a kind of violence that continues."

Indeed, as the coming technological revolution reshapes much of the education system, the biggest challenge will be finding a way to preserve the human element. "Technology's going to bring it all to us, but it's the human connections that will actually be essential," says Snart. Even if learning in 2115 is done exclusively through a screen, students will be most successful when they feel there is someone on the other side. ©



HUMAN POSSIBILITIES

UPLIFTING THE WHOLE UNIVERSE



Four alumni come together to discuss their visions for the future and how people will fit in **BY LISA COOK**

As part of the Alumni Association's centenary celebration, four alumni were invited to share their vision of the next 100 years during a TED-style talk at Alumni Weekend 2015. About 230 people came out to listen to these speakers share their vision for the coming century—but we weren't satisfied with just listening; we wanted to dig deeper. So New Trail nabbed these four futurists for a conversation that ranged from climate change and eternal life to Star Trek and Independence Day. Turns out, they predict that people will be just as important in shaping the future as technology. What follows is an abbreviated version of our conversation.

LISA COOK: Thanks for sitting down with us today. I'd like to start with a question that, Kuen, as a self-professed *Star Trek* fan, you might appreciate. I've always gravitated toward the hopeful vision of the future in the *Star Trek* series. I mean, the show's premise is basically that our most important goal is to go forth, explore and discover. So I put the question to all of you: do you have a hopeful vision for the future?

KRIS WELLS: I think I have a hopeful vision of the future, where perhaps we're not fighting wars based on religion, where we are united as a species. Rather than seeing differences as something to be attacked, they are embraced and celebrated. Where we're not a world full of competition, but co-operation.

SHAWNA PANDYA: Yeah, you know, it's funny because I don't think you can escape either hope or competition. When I think of the future,

I think technology is going to continue to increase exponentially, but humans won't—and you can't change human nature, especially not within the course of 100 years. So definitely there will be strife and competition and unrest and wars, but I think there will be a lot of good stuff in the future, too.

KUEN TANG: I'm very hopeful for the future. I think we're going to evolve. We're going to open our hearts and we're going to have a certain understanding and empathy toward everybody around us. And therefore our differences won't really make any difference. We need to have hope now in order to have hope in the future.

CURTIS GILLESPIE: I love that ... "differences won't make a difference." Did you just come up with that now?

TANG: Yes!

GILLESPIE: That was really good! I like that. To me the jury's still out on what the future will bring. I mean, I'm hopeful, personally, because I'm an optimistic person, but when I think about the issues and problems we have, they're really, really big. I'm cautiously optimistic.

WELLS: I think, for me, the future is the one we want to build,

right? We have to have intentionality. The future's just not something that we want to let happen to us.

PANDYA: What do you think is going to be the turning point or the catalyst for that to happen?

WELLS: Some would say it's a catastrophe—something that happens that forces a rebalance. And either we do it ourselves or something will happen that forces us to adapt. I'd rather be ready to adapt than have to be responding to something else. Right? Sort of the dinosaur/meteor scenario. [laughter] We don't want to have to have a cataclysmic event where it's survival of the strongest, and the fittest are the ones who can be the most adaptable that survive and continue this world.

TANG: What we need is an alien invasion now. [laughter]

PANDYA: I watched *Independence Day*, you know. That was a good catalyst.

TANG: It brought people together ...

WELLS: With patriotism.

TANG: Yeah, exactly!

WELLS: And American ...

GILLESPIE: ... jingosim!

WELLS: ... supremacy.

Yeah, and I think that's the difference. We've got to

break down the barriers rather than continue building them up.

GILLESPIE: But even if there is something cataclysmic. Say ... 10 years from now, 20 years from now, we come up with a new fuel source and scientists miraculously come up with a way to soak the carbon out of the atmosphere, and then there's no environmental problem. Does that mean everything is going to be OK? We're still going to be people.

WELLS: We have human problems.

PANDYA: Humans are drama queens. If there's no problem, they will make problems.

TANG: Exactly.

GILLESPIE: But then what does that mean for 100 years from now? So if it's not the environment, if it's not alien invasion, if it's not some disease, some virus ... or even if it is, we're still us. I don't know if there's going to be ... that one moment that's going to say, "Hey, we've got that solved." Maybe. I hope so.

LC: So then are humans barriers to progress? Or are they the catalysts?

GILLESPIE: We're the barriers and the progress.

TANG: I think human potential is limitless. But we put that barrier on ourselves on how much

and how far we're willing to go. *[looks around at the others with a grin]* I'm not using myself as an example, because I'm so great. *[laughs]*

GILLESPIE: Limitless. Just limitless.

TANG: Exactly. When I lost everything, when I lost my independence, when I stopped walking, when I couldn't go to places ... that's when I realized that I need to work hard to achieve the basics that everybody else has, but as soon as I achieved the basics then I realized that I could do more. I took that limitation off myself. *[Editor's note: Tang became a quadriplegic after a 2001 car accident.]*

PANDYA: I think it's way too early to call humans barriers, because we're just now realizing the power of empowerment, the power of platforms. There are still one billion people who are living in abject poverty and we're still trying to bring them online, give them the Internet, give them smartphones and see what they can do as scientists, as entrepreneurs, as discoverers. And I think it's way too early to just write ourselves off as barriers when we still have so much untapped potential and so many minds that have been

Our Panel



Curtis Gillespie
'85 BA (Spec)
acclaimed author and
New Trail columnist



Shawna Pandya
'06 BSc(Hons), '12 MD
physician with a background
in space, entrepreneurship and
medicine (more on page 20)



Kuen Tang
'06 BEd
accessibility advocate,
comic strip artist



Kris Wells
'94 BEd, '03 MEd, '11 PhD
one of Canada's leading experts on
sexual and gender minority youth

waiting to be brought online. So, I firmly believe that we should be arguing and fighting for ourselves as catalysts for progress.

GILLESPIE: Yeah, but untapped potential doesn't do anybody any good unless you tap it.

PANDYA: Exactly. And that's what we're fighting for.

GILLESPIE: And how do you tap it? That's our challenge.

PANDYA: By empowering people: by giving them smartphones, by giving them Internet, by giving them access to massive open online courses, even if they're in the middle of Nepal or Mongolia.

GILLESPIE: Right. Right.

TANG: But I think it's both. I think you have to recognize there's a barrier first, in order to move forward.

WELLS: Yeah, it's taking that responsibility for being an agent of change. We can't wait for other people to liberate us. I always say that when a system in nature reaches sameness it dies and collapses because it can no longer adapt. It's lost its diversity, its resiliency. So the future of us is going to depend on the diversity of our people, the diversity of our ideas, as well. That's where the real hope for me is.

PANDYA: In 2115, I hope that humanity

is in a place that's so far advanced from where we are now that we're asking ourselves, "What took us so long to get here?" That's my hope for the future.

GILLESPIE: But where? What is "here?"

PANDYA: Here? A place where we're constantly achieving for the better, we're competing against ourselves to better and ensure the longevity of our race. And who knows, it might be by that time that we've established that there is intelligent life elsewhere in the universe and it will be up to us to uplift those races and help them go through their own problems. Who knows?

GILLESPIE: That'll be the U of A's motto 100 years from now.

PANDYA: Uplifting the whole universe! *[laughter]*

WELLS: That's ambitious!

GILLESPIE: Well, you know. You've gotta dream big at the U of A, right?

COOK: Kuen, I'm going

to throw this one at you. Who has the better ability to visualize the future: pop culture or science?

TANG: I think it has to be a mixture of both.

If you're dominated from only the scientific side, then you lose the heart, and you lose a lot of ourselves and humanity. But if you're only concentrating on pop culture, what people want, then you miss the scientific advancement.

GILLESPIE: It would be a really interesting question to ask: how those two are going to intersect in the future. Is science going to become more self-aware about its ramifications? Is pop culture going to take on new technologies?

Personally, I would say pop culture. I mean, the thinkers—the soft thinkers—are always going to have a wider perspective.

WELLS: I think the keepers of the future are artists. They're the ones who have always had our conscience and consciousness, who tell the stories and the cautions of technology but also remind us of our past—going back to Shakespeare, the drawings on caves, as a way to preserve those messages or those warnings. Or the stories and the dreams.

TANG: I think you need to be able to dream it, then build it. But you have to have the skills and technology to build it in order to fulfil the dream.

PANDYA: Einstein has this great quote, "Imagination is more important than knowledge." I don't think imagination is the property of only science or of only pop culture. When you look at the best artists out there, they've taken their craft down to a science before they can add that level of extraction or human creativity. And on the flip side, when you look at the scientists who have dedicated their lives to a single gene or genome, they do the legwork, they learn about the nitty-gritty details, but then they add that spark of creativity or imagination. That's where innovations come from.

TANG: *[Tang pats Pandya on the shoulder]* I like you. *[looking at the others]* I like you guys, too.

GILLESPIE: *[grinning]* You guys want to meet back here in 100 years?

WELLS: *[laughs]* No, I don't want to be back in 100 years. My time will be over and it's time for the next to come in.

PANDYA: So there's a good question: If human longevity becomes a thing, if we reverse aging, would you take that offer up? *[turns to Wells]* Sounds like you wouldn't.

WELLS: No, I believe more in the soul as being transcendental rather than the body. So we may come back somewhere on this planet or somewhere else in this universe to learn those lessons we need to know, so you can transcend

into something else.

GILLESPIE: He may not be the person you want to model your life on, but Woody Allen said it would be terrible to have eternal life. You'd never get anything done because you'd always have tomorrow. So, no, I don't want to reverse the aging process. I like having the pressure of knowing there's decreasing time left.

TANG: I think pressure makes us get things done now instead of waiting for tomorrow.

PANDYA: Well, selfishly, I'm just so curious about what the future holds, I want to see what the world is like in 2115. The caveat being: do we have the resources to accommodate that? Because I don't want to be there if it prevents someone else from being born. The other thing is, technology changes exponentially but humans are generational, so our ability to adopt new technology is totally different from somebody even four years younger.

Would I be able to adapt to the world as quickly as the new generation? So, selfishly, of course I'm so curious to see what the world is like in a century. Does it make sense? Maybe not.

TANG: I don't. I only have 32 years to go, so I'm good. ... Like you said, by the time you get there, do you even want to be there? I'm tired right now! I'd like to rest!

GILLESPIE: They'd better increase the strength

Did you miss the Next 100 Years event? Watch our four panellists at newtrail.ualberta.ca.

→ Kris Wells tells us how society moves from "redneck" to "pinkneck."

→ Shawna Pandya speaks to us from 2115.

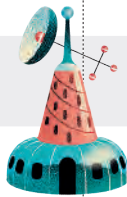
→ Kuen Tang dreams of a day of universal accessibility.

→ Curtis Gillespie explains why empathy will be the emotion of the future.

One-Word Future

We asked our panel members to answer the following questions in one word. They didn't quite manage the word limit, but we thought we'd share their answers anyway.

	WELLS	PANDYA	TANG	GILLESPIE
Robot overlords or robot servants?	servants	overlords	overlords	servants
We will colonize: the moon, Mars or underwater	underwater	all of the above	underwater	moon
Time travel or teleportation?	teleportation	time travel	teleportation	neither
Extra bionic limbs: yes, please, or no way	no way	will be here in 2074	yes, please	no way
Aliens or alternate dimensions?	alternate dimensions	alternate dimensions	alternate dimensions	aliens
When we meet aliens, they will think humans are ...	stupid	interesting	fabulous	unevolved
If you could live forever by uploading your consciousness to a computer, would you?	no	sure	of course	no
The one thing that will not change in 2115 is:	hope	Samsung versus Apple	love	self-worth
What we won't see in 2115:	aliens	a real tree	money	war
In 2115, physicists finally discover what's inside black holes. They find:	energy	a liquidy chocolate centre	a path to the past	other physicists looking back at them



of Advil if I'm going to be around to 2115.
WELLS: The converse is that question they ask at parties: would you want to know the date of your death? I'm like, no! I go every day knowing that tomorrow, circumstance could change.
GILLESPIE: I have a question for you guys.

Are you optimists?
PANDYA: So far.
TANG: I think you have to be in order to live day to day happily.
WELLS: For me, it's why I'm at the university. It's about what can we do to build a better world, open minds or to help the public understand the issues before us. I always

say universities are society's conscience and we need that freedom to ask those really difficult questions of our policy-makers, our politicians and of ourselves. I hope we don't lose that role in whatever shape a university will take in the future. It might not look like the bricks and

the mortar we have around us—I think our relationship to knowledge will fundamentally change—but I think about how we're able to discern what is good knowledge when there's so much information out there. That will be one of the real tools of the future. ©

*question
period*



by SARAH PRATT

Ian Herbers, '92 BPE

The Edmonton Oilers' new assistant coach talks about his formative years with the Golden Bears, lessons learned through coaching and what motivates him

Even without gear, Ian Herbers is the biggest figure on the ice.

Amid the Crack! of pucks deflecting off glass and the shush of skate blades shaving across the ice, the six-foot-four-inch frame of the Edmonton Oilers' new assistant coach stands out on the rink as he guides players through a morning practice.

Off his skates, in track pants and a T-shirt, Herbers is no less physically commanding. He extends a brawny hand and settles onto a bench for an interview.

Born in Jasper, Alta., Herbers played with the U of A Golden Bears from 1988 to 1992, then came back as head coach in 2012, leading the team to two consecutive national championships before being hired by the Oilers in July 2015.

How long has coaching been a part of your life? I started coaching a bantam team while I was a phys-ed major at the U of A. When I signed as a player with the Edmonton Oilers [in 1992], I took a hiatus from coaching. I later worked as a player coach for Todd McLellan [now the Edmonton Oilers head coach] with the International Hockey League's Cleveland Lumberjacks. I've coached in various leagues, camps, summer hockey schools and a women's hockey school.

What are some of the things you like about being a coach? Helping people achieve their goals and excel,

passing on experiences that I had and helping people with what I learned from U of A coaches **Clare Drake**, '58 BEd, '95 LLD(Honorary), and **Billy Moores**, '71 BPE, '72 Dip(Ed). I work on being a better person, and I like to help players mature and become better people.

Coaches really need to have a teaching mentality, don't they? It's definitely about teaching. Knowledge and preparation are crucial. You have to be able to understand your players. Some are OK with you being hard on them and some need a softer touch.

Are there lessons you've learned while coaching that are useful in other areas of your life? Work ethic and attitude. There are a lot of ups and downs in hockey and lots of things you don't control, but you do control work ethic and attitude. Also passion — I love coming to the rink every day — and time management. I was the only coach for the Johnstown Chiefs [an East Coast Hockey League team in Pennsylvania]. I did everything: the travel, immigration, housing, coaching. It was non-stop work, and I had to get all the work done and just try to squeeze sleep in.

This is where passion comes in, for sure. If you don't have passion, it can be tough to keep your work ethic and positive attitude. I always try to keep getting better and improving. In my

three years coaching the Golden Bears, we pushed every day as individuals and as a program. Even when we won we still worked to get better.

It's an exciting year to be an Oiler, with a new coaching staff and new players such as Connor McDavid. How do you deal with the excitement and the pressure?

I don't see it as pressure, just exciting. This new job as assistant coach of the Oilers is another exciting challenge for me. Todd is one of the top coaches in the NHL, and the other assistants and the trainers are a great group. We have very skilled players, and next year we'll be in a new building.

You've said the U of A was instrumental in your development as a player and a coach. Did you have particular mentors or memories you carry with you? Clare Drake and Billy Moores ... especially the passion and attention to detail they brought to the game. I learned that it's all the little things, not one big thing, that will make the team win. As a coach, the alumni were a huge support and helped us make it the best hockey program in the country. We knew there were so many people from the university community who worked hard to support us. ■

This interview has been edited for length and clarity.



chocolate in the finish. While the Dark Side is a great beer for winter, it's also a tasty beer to be enjoyed year-round.

[2] BLUE MONK BOURBON BARLEY WINE

by Brewsters Brewing Company, Edmonton

A barley wine is a very strong English beer that gets its name from its high wine-like alcohol content. This limited version of Brewsters' popular seasonal Blue Monk barley wine has been aged for three months in bourbon barrels, which concentrates the ale and allows it to absorb the sweet bourbon flavour and wood character of the barrel. The end result is a powerfully warming Blue Monk with a high ABV (11.5 per cent) that shows bold woodiness, caramel and toffee sweetness, and also some hoppy bitterness and vanilla (from the wood). Barrel-aged beers are rare and very special, so keep an eye out for this one.

[3] BIG DIPA

by Wild Rose Brewery, Calgary

For a distraction from the winter chill, try this boldly hoppy double IPA (India Pale Ale). The DIPA's boldness comes from the style of hops used—namely, the bitter Comet and aromatic Galaxy varieties (which also give a nice nod to the Big DIPA's astronomy theme). The Big DIPA pours a deep golden colour with a fluffy white head. Its aroma is a combination of pine resin, citrus and tropical fruit (with mango winning for me). A strongly bitter first sip is quickly balanced by the sweetness of the fruit. Like an Alberta winter, that bitterness endures through the finish and sits on the palate. Yet the Big DIPA finishes balanced—perfectly summing up the sweetness of the season amid the winter chill. ■

Greg Zeschuk, '90 BMedSc, '92 MD, is executive director of the Alberta Small Brewers Association and a beer judge recognized by the Beer Judge Certification Program. He is a beer writer for AskMen.com and runs a beer media channel called The Beer Diaries.

Cozy Winter Chills

THREE TO TRY WHEN YOU REACH FOR A BEER ON A COLD WINTER'S NIGHT

If you attended the University of Alberta, it's likely that you developed a special relationship with winter. And if you attended university, well, *anywhere*, it's likely that you developed a special relationship with beer. So as a U of A alumnus I feel particularly nostalgic about winter beers. Even their features can be described as cozy: A roasted character reminiscent of a campfire, high alcohol to warm the cockles of one's heart, and a bold and powerful hop character to help us forget about the cold. Here are three to try:



[1] DARK SIDE SCHWARZBIER

by Something Brewing, Red Deer, Alta.

Bold and roasty, this unusual dark beer is a Schwarzbier (literally “black beer”), a lager originating in Germany. That's right—a dark lager, not an ale. Lagers go through an extended period of cold maturation that leaves them crisp and clean compared with more fruity and complex ales. The Dark Side remains medium bodied with good thirst-quenching potential. The aroma of this beer shows the required roasted character along with herbal grassy hops. The flavour matches the aroma with the herbal hops appearing on first sip and then giving way to the lightly bitter roast with a hint of bittersweet

BOTTOM PHOTOS BY RICHARD SIEMENS, TOP PHOTOS BY JOHN ULAN



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Sept. 22 - 25, 2016.

UNIVERSITY OF ALBERTA
ALUMNI 100
YEARS

100 Years in a Flash

A look back on a year of festivities where alumni gathered to celebrate the Alumni Association's centenary





1. **January**
Green & Glow Winterfest
2. **February**
ProcrastiNite
3. **March**
Educated Fashion: An Evening with Michael Kaye
4. **April**
Last Lecture
5. **May**
Do Great Things Leadership Summit
6. **June**
20th Annual Reception and Dinner at Spruce Meadows
7. **July**
Summer of Service: Vancouver Shoreline Cleanup
8. **August**
Summer of Service: Edmonton Habitat for Humanity Build
9. **September**
Pride Alumni Chapter: The Grad You Never Had
10. **October**
Calgary Presidential Welcome
11. **November**
Vancouver Presidential Welcome





VOLUNTEER OPPORTUNITIES

EXAM GREETER

EDMONTON | DEC. 11-21

Student Accessibility Services is looking for friendly volunteers to greet and assist students with accessibility needs.

UNWIND YOUR MIND

EDMONTON | DEC. 1-17

Help students stay energized during long study sessions by delivering free healthy snacks at campus libraries.

WINTER JOB SHADOW WEEK

EDMONTON | FEB. 16-20

Give a student a behind-the-scenes look at your career and the value you bring to the Edmonton community. Application deadline Jan. 8, 2016.

CAPS CAREER FORUM

EDMONTON | JANUARY TO APRIL

Alumni from all backgrounds are invited to share their career stories and inspire students looking to answer the question: what do I do next?

U SCHOOL

EDMONTON | JANUARY TO APRIL

The U of A Senate's U School program is looking for volunteers to help introduce and connect students from grades 4 through 9 to campus. Bring your enthusiasm for learning to U School and inspire the next generation of U of A students!

DINOLAB

EDMONTON | ONGOING

Volunteer with the DinoLab to learn more about paleontology, spend some time with dinosaur bones and participate in the process of science. Volunteers help to clean and prepare new fossils for research.

More at ualberta.ca/alumni/volunteer.



REGIONAL ACTIVITIES

Stay involved with the U of A through one of the more than 50 active alumni chapters around the world. Check online for information about events near you.

EDMONTON | DEC. 9

Educated Luncheon: Addiction and the Brain – Insights from Neuroimaging, with Professor Andrew Greenshaw

CALGARY | JAN. 26

Educated Career: Dress for Success with Alayne West

FORT MCMURRAY | JAN. 31

Family Snow Tubing and Dinner

CALGARY | JANUARY TBA

Educated Palate: Cocktail Tasting

EDMONTON | FEB. 6

Educated Critic: "A Midsummer Night's Dream"

EDMONTON | FEB. 23

Educated Luncheon: Reconciliation – The Best Hope for a New Generation of First Nations Children, with Professor Cindy Blackstock

CALGARY | FEB. 24

Lecture Series: Reconciliation – The Best Hope for a New Generation of First Nations Children, with Professor Cindy Blackstock

CALGARY | FEBRUARY TBA

Educated Career

VANCOUVER | FEBRUARY TBA

Educated Reel

TORONTO | FEBRUARY TBA

Educated Entrepreneur

EDMONTON | FEBRUARY TBA

Symphony for Kids

EDMONTON | MARCH 1

Dental Hygiene Alumni Chapter: Continuing Education Event

EDMONTON | MARCH 3

Educated Palate: Eating Gluten-Free

CALGARY | MARCH 6

Educated Gardener: Jim Hole

EDMONTON | MARCH 9

Educated Luncheon: Ink and Cultural Memory, with Professor Ted Bishop

CALGARY | MARCH 13

Symphony for Kids: Beatrix Potter's Peter Rabbit and Friends

VANCOUVER | MARCH 18

Dental Hygiene Alumni Chapter: Reception at Pacific Dental Conference

EDMONTON | MARCH 26

Easter Eggstravaganza

CALGARY | MARCH TBA

Educated Entrepreneur

CALGARY | APRIL 6

Lecture Series: Help for Family Caregivers of Persons with Alzheimer's Disease, with Professor Wendy Duggeby

EDMONTON | APRIL 13

Educated Luncheon: Engineering Railways and Safety, with Renato Macciotta

VICTORIA | APRIL 23

Alumni Brunch

VANCOUVER | APRIL 24

Annual Brunch at Royal Vancouver Yacht Club

GRANDE PRAIRIE | APRIL TBA

Presidential Reception

FORT MCMURRAY | APRIL TBA

Presidential Reception

CALGARY | MAY 25

Lecture Series: Do We Support Our Troops and Veterans?

JASPER | MAY 26

Dental Alumni Association Reunion Reception at the Jasper Dental Congress

EDMONTON | MAY 29

Alumni and Student Memorial Service

CALGARY | MAY TBA

Culinary Night

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U of A alumni share their new books, including an Edmonton murder mystery, a biography of Grant Notley and a history of *Castor canadensis* – the mighty beaver.

Compiled by LANI LUPUL

Famines in European Economic History: The Last Great European Famines Reconsidered

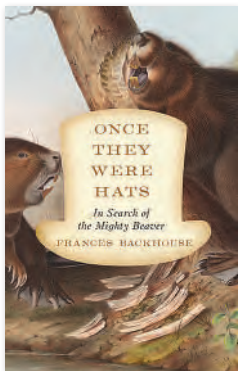
Declan Curran, Lubomyr Luciuk, '84 PhD, Andrew G. Newby (editors), Routledge, routledge.com

This volume explores economic, social and political dimensions of three catastrophic famines that struck mid-19th and early-20th-century Europe: the Irish Famine of 1845-50, the Finnish Famine of the 1860s and the Ukrainian Famine of 1932-33.



Sistering
by Jennifer Quist, '95 BA(Hons), Linda Leith Publishing, lindaleith.com

When Suzanne's role as the perfect daughter-in-law ends in a deadly accident, she panics, makes a monumentally bad decision and upends her world. The bond with her sisters is the strongest force Suzanne knows, and it may be the one that can keep her from ruin. Quist's new novel is hilarious, spine-chilling and original.



Once They Were Hats: In Search of the Mighty Beaver

by Frances Backhouse, '83 BSc, ECW Press, ecwpress.com

Beavers, those icons of industriousness, have been gnawing down trees, building dams, shaping the land and creating critical habitat in North America for at least a million years. *Once They Were Hats* examines humanity's 15,000-year relationship with *Castor canadensis*, and the beaver's even older relationship with North American landscapes and ecosystems.



Strangers & Others: Newfoundland Essays

by Stan Dragland, '64 BA(Hons), '66 MA, Pedlar Press, pedlarpress.com

Alberta literary critic, editor, novelist and poet Dragland offers a collection of writings

PHOTO BY JOHN ULAN



Peter Midgley, '06 PhD, calls three countries home—each with a tumultuous colonial and political history.

Midgley was born in Namibia, grew up in South Africa under apartheid and now lives in Canada. His latest book, *Counting Teeth: A Namibian Story* (Wolsak and Wynn), details his return to Namibia after moving to Canada and examines the long-lasting impacts of apartheid and colonialism on his native country.

We asked Midgley to describe five takeaways from writing *Counting Teeth*, and what Canadians can learn from South Africa and Namibia about their own colonial history.

■ **Despite tragedy, humans are resilient.** “The land in Namibia is unforgiving. It’s a precarious place to live. The people in Namibia are living with the remnants of the war [of independence from South Africa, 1966-90] that still affects them and yet they manage. Despite all of these horrors of the past, they want to move ahead.”

■ **Racism is still prevalent in 2015.** “Settler Canadians often assume that since I am a white male from South Africa, they can reveal their own underlying racist attitudes to me. They tell me—a total stranger—these things with such brutal honesty

enormous catharsis for some people but merely open wounds for other people. In the South African Commission of Truth and Reconciliation [established in 1995, with final reports released in 1998 and 2003], very few people were prosecuted. The Truth and Reconciliation Commission of Canada, on the other hand, isn’t pursuing any formal legal proceedings. Does it mean you should stop doing it? No. Does that mean it was a success? No. I don’t think it’s about what gets put in the final report. It’s about healing wounds for the next generation.”

■ **The role of non-Aboriginal Canadians is to build trust.** “Being from Namibia and South Africa, I saw that my role wasn’t necessarily to lead but to do what was asked of me. As non-Aboriginals, we shouldn’t say, ‘I can help, and we should do this.’ We should say, ‘Tell me where I can help.’”

■ **You can have multiple homes.** “Your physical absence doesn’t diminish your link to a place. Canada has become home on many levels but that does not diminish my sense of home in Africa. Increasingly, I belong in Canada, whatever that means. But I certainly am Namibian and I certainly am South African. I do feel bits of all three.” ■

History Lessons

5 takeaways from a man who calls three countries home

by KATE BLACK

and they assume that I will be racist, too. It angers me and it troubles me because it shows how thin the veneer of non-racist behaviour is.”

■ **Truth and reconciliation commissions do not work for every country.** “Truth and reconciliation commissions give

on Newfoundland subjects, literary and otherwise. He approaches the material from the perspective of an inside/outsider: a resident of Newfoundland originally from elsewhere, who nevertheless finds the figure of the stranger inscribed in much Newfoundland art.

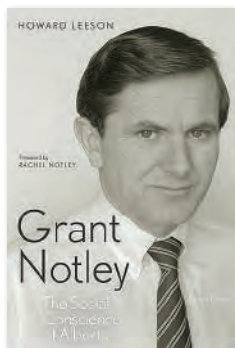


Odd Odyssey

by **Benni Chisholm** (Hanbridge), '52 Dip(Nu), '53 BScN, Black Opal Books, blackopalbooks.com

Philomela Nightingale and her employee Janice McGill take the trip of a lifetime — around the world. They fly to amazing places, meet fascinating people and, to their horror, also become involved with kidnapping and murder. Will Philomela's powers of observation and intuition help police solve these puzzling mysteries?

Fiction for Young People, *Blood Oath* is volume 3 of Cummer's series about two boys — blood brothers — growing up in Niagara during the War of 1812. It is dedicated to the memory of U of A history professor George Rothrock.



Grant Notley: The Social Conscience of Alberta

(Second Edition)

by **Howard Leeson**, '72 MA, '83 PhD, foreword by **Rachel Notley**, '87 BA, University of Alberta Press, uap.ualberta.ca

As leader of Alberta's New Democratic Party from 1968 to 1984, Grant Notley left a sizable impression on Albertans. His dedication to social change and his "practical idealism" made him the social conscience of Alberta. Leeson's new introduction in this edition discusses Notley's contribution

to the continuity and health of his party and acknowledges the work of his daughter, Rachel Notley, who led the Alberta NDP to electoral victory in 2015.

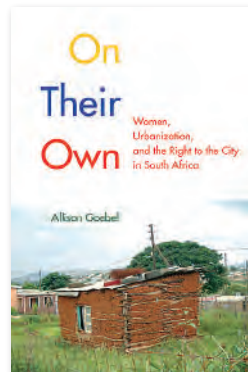


Sustainability Planning and Collaboration in Rural Canada: Taking the Next Steps

Lars K. Hallström, Mary A. Beckie, **Glen T. Hvenegaard**, '87 BSc(Forest), '89 MSc, and **Karsten Mündel**, '95 BA (editors), University of Alberta Press, uap.ualberta.ca

In step with rural development initiatives across Canada today, these case studies examine the shift toward sustainability-based planning as a key element of community development. Rural development researchers, decision-makers, policy analysts and community

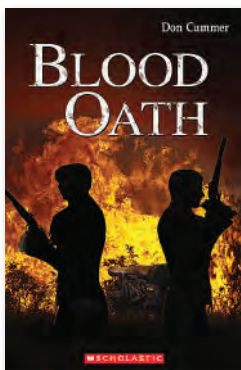
engagement practitioners will benefit from the book's progression from problem identification to engagement, solutions and evaluation.



On Their Own: Women, Urbanization, and the Right to the City in South Africa

by **Allison Goebel**, '97 PhD, McGill-Queen's University Press, mqup.ca

What is life like for low-income South African women in the post-apartheid era? Does urban life offer new opportunities for equality and freedom? Are there new forms of marginalization and danger shaping women's lives? *On Their Own* examines the legacies of apartheid and the aspirations of post-apartheid society for equality and opportunity.



Blood Oath

by **Don Cummer**, '74 BA, Scholastic Canada, scholastic.ca

Shortlisted for the Geoffrey Bilson Award for Historical

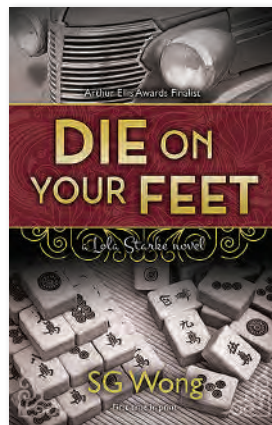
Die on Your Feet: A Lola Starke Novel

and

In for a Pound: A Lola Starke Novel

by **Sandra Gangel (Wong)**, '94 BA(Hons), self-published, sgwong.com

Welcome to 1930s Crescent City, where mah-jong parlours and film studios hold sway, and where the city's highest official is a ghost with unimpeachable power and a history with PI Lola Starke's mother. Here, hauntings are a normal part of life and magic-fuelled funeral rites determine the dead's journey in the sacred cycle of reincarnation.



**Natural Nutrition:
Your Recipe for Health!**

by **Heather Bester**, '88 BSc(HEc), self-published

The best health care in the world is ... eating nutrient-rich foods. This book offers time-efficient ways to enjoy more homemade, nutritious foods. The recipes are simple, easy to use and geared toward busy people's eating habits.

Book of Hope: Stories of Love, Courage and Recovery From Families Who Have Battled Eating Disorders

by **Sue Huff**, '88 BA, self-published, suehuff.ca

"While she struggled to learn to eat again, I was starving for stories of hope." Sue's daughter was diagnosed with anorexia at the age of 14. Baffled and afraid, Sue realized she needed to connect with other families who understood the journey. This book is the result.

Wombats and Mutant Humanoids: Field Notes of a Junior High Science Teacher

by **John Robbins**, '74 BSc(Spec), '76 Dip(Ed), Dempster & Craig Books

Funny and sometimes sobering, this memoir recounts Robbins' 35-year career teaching junior high science at a rural school just south of Edmonton, where not once did he leave work thinking, "That was a bad day." Essays, letters and photos highlight his remarkable and rewarding career.

The Girl of Ghassan

by **Jurji Zaidan**, translated by **Basil Solounias**, '92 BEd, One Cent Press, onecentpress.com

Now available in English, this classic of Arabic fiction is about a young man's quest for true love under the watchful eye of his father and his faith. Hammad must overcome hardships of time and war, and survive the sweeping events of the birth of Islam so that he may at last marry the woman who holds his heart and guides his dreams.

Foreign Park

by **Jeff Steudel**, '89 BA, Anvil Press, anvilpress.com

Poisons enter the Fraser River Basin. An oil slick approaches by night, engulfing a fishing vessel, leaving its captain in open waters. The poems of *Foreign Park* detail the effects of environmental destruction and simultaneously explore family and community in Vancouver's coastal cityscape. Winner of the Ralph Gustafson Poetry Prize and a finalist in the CBC Literary Awards.

Another Margaret: A Randy Craig Mystery

by **Janice MacDonald**, '81 BA(Hons), '87 MA, Ravenstone Press, ravenstone.com

Anxiety is the watchword at most school reunions, with side-eye comparisons of greying hair and extra pounds around the belly. Randy Craig is more concerned with resolving a decades-old CanLit scandal and catching a ruthless killer. While helping her best friend Denise organize their grad-school reunion at the University of Alberta, Randy's tumultuous past comes rushing into the present as she faces off against old ghosts and imminent death. *Another Margaret* is the sixth instalment of MacDonald's popular Randy Craig series.

Magazines, Travel, and Middlebrow Culture: Canadian Periodicals in English and French, 1925 – 1960

by **Faye Hammill** and **Michelle Smith**, '97 BA, '04 MA, '08 PhD, University of Alberta Press, uap.ualberta.ca

Commercial magazines began to flourish in the 1920s alongside an expanding network of luxury railway hotels and ocean liner routes. The leading Canadian monthlies – *Mayfair*, *Chatelaine* and *La Revue Moderne* – presented travel as both a mode of self-improvement and a way of negotiating national identity. This book looks at the way magazines reflected a new culture of aspiration.

The Sisterhood: Book One of The Sisterhood Series

by **Alison Clarke**, '95 BA, self-published

In a realm where magic and legends still exist, Oppie and her dragon friend Aurie face a terrible battle between good and evil. On their mission to defeat the forces of darkness, their army of light grows and the friends discover that history is never made alone.



WE'D LOVE TO HEAR WHAT YOU'RE DOING.

Tell us about your new baby or your new job. Celebrate a personal accomplishment, a volunteer activity or share your favourite campus memories. Submit a class note at alumni.ualberta.ca/connect/class-notes or email alumni@ualberta.ca. Notes will be edited for length, clarity and style.

1940s

'40 Olive Margaret Moore (Websdale), Dip(Nu), recently received a 75th-year congratulatory card from U of A Alumni Association president Mary Pat Barry. Her son Ron Moore, '68 BEd, '88 PostgradDip, writes: "My mother's current pastimes include spending time with family and friends, looking after her own home and half-acre yard of 72 years in Ponoka, Alta., communicating by email, birdwatching and -feeding, reading newspapers daily, keeping up with news, investing and, most recently, decorative card making. Her long life is due to keeping fit (she walks and exercises every day!), following a healthy diet and caring for others—professionally as a nurse for more than four decades and as a mother, grandmother, great-grandmother and friend, assisting others in any way possible."



1960s



'65 Adriana "Albi" Davies, BA, '67 MA, was presented with a knighthood from the Government of Italy (Cavaliere d'Italia) in June 2015 for her services in the preservation of the Italian language and culture, and research into the immigration history of Italians not only in Alberta, but also Canada. The Order of the Star of Italy is given to individuals of Italian origin abroad whose work has enhanced knowledge of Italy and Italians. Adriana's research has resulted in museum exhibits and both print and web publications including the *Celebrating Alberta's Italian Community* website, which is part of the *Alberta Online Encyclopedia* (albertasource.ca) and was gifted to the University of Alberta in June 2009 by the Heritage Community Foundation. In 2010, Adriana was invested into the Order of Canada for contributions to the preservation of Canadian heritage and service on provincial, national and international museum and heritage committees and boards.



'65 Gail Patricia Ebert (Morrison), BSc(PT), who died earlier this year, was lovingly remembered by her husband, William Gordon Ebert, '65 DDS, who wrote us to say:

"After she graduated, Gail passionately self-educated and contributed in all facets of her life. Her education at the U of A helped to instil a love of learning and doing, which she imparted to her four offspring, three of whom are U of A graduates, as are her two brothers and her husband of 52 years. Gail was the kind of person who challenged life: she had difficulty with heights so she took up parasailing and running half-marathons up mountains. Her too-numerous-to-mention hobbies ranged from dancing to quantum physics. Highlights of her career include the 1970s, during her family-raising era, when she developed and ran the Home Care Physiotherapy Program in Prince George, B.C. She retired in 1999 after running the busy and rewarding Physiotherapy Department at the Dawson Creek Hospital for 12 years. Although she was not ready to leave her short yet full life of 71 years, her ovarian cancer dictated otherwise. She peacefully passed on Tuesday, April 21, 2015, amid a room filled with the love of her family and friends."



'69 Barry Leon, BA, was appointed as commercial court judge of the High Court of the Eastern Caribbean Supreme Court in the Territory of the Virgin Islands (BVI) as of March 2015. Of living in the Caribbean he says: "It has amazing scenery and terrific weather." Barry was previously a partner and head of the international arbitration group at Perley-Robertson, Hill & McDougall in Ottawa, and until 2009 was a partner with Torys in its litigation and dispute resolution practice in Toronto. For many years, he served as co-ordinator of the practice. While Barry primarily acted as counsel in disputes, he also served as an arbitrator and mediator, which he continues to do occasionally.

ALUMNI NAMED TO ORDER OF CANADA

Four alumni were recently named to the Order of Canada: **Joyce Fairbairn**, '60 BA, former Canadian senator, **E. Leigh Syms**, '76 PhD, archeologist and former curator at the Manitoba Museum, **Don Tapscott**, '78 MEd, '01 LLD (Honorary), one of the world's leading authorities on innovation, media and the economic and social impact of technology, and **Phyllis Yaffe**, '72 BLS, former CEO of Alliance Atlantis and founding chair of Women Against Multiple Sclerosis. The Order of Canada is one of the nation's highest civilian honours, bestowed on Canadian citizens or foreigners.

1970s

'77 **Don Sommerfeldt**, LLB, was appointed in May 2015 as a judge of the tax court of Canada. Prior to his appointment, Don was a tax lawyer with Dentons in Edmonton and a longtime sessional instructor in the U of A's Faculty of Law. In 2004, he earned his master of laws from Cornell University and was admitted to the bar of New York. Now living in Ottawa with his wife, Don returns to Alberta to visit his family as often as he can.

1980s



'84 **Lubomyr Luciuk**, PhD, was honoured with an Ontario Volunteer Service Award for 50 years of community activism. The award is sponsored by the Ontario Ministry of Citizenship, Immigration and International Trade. Lubomyr also co-edited a new volume in economic history, *Famines in European Economic History: The Last Great European Famines Reconsidered* (Routledge 2015) (see page 60).

'87 **Diana Mah**, BA, '90 LLB, was recently appointed to the Calgary provincial court, family and youth division. After being admitted to the Alberta bar in 1991, she began her legal career in Grande Prairie, carrying on a general practice there. Since 1994, Diana has worked as staff counsel with Legal Aid Alberta's Youth Criminal Defence Office (YCDO). During her time there, she helped implement the Calgary provincial court youth division's Functional Family Therapy Program, which addresses domestic violence issues.

Since 2011, Diana has served on the executive of the Criminal Defence Lawyers



PearlAnn Reichwein

Association and has volunteered extensively with the Canadian Centre for Professional Legal Education as a facilitator and evaluator. She also mentors articling students at Student Legal Assistance through the University of Calgary's Faculty of Law and currently serves as vice-president of her community association.

'88 **Sue Huff**, BA, has just published her first book: *Book of Hope: Stories of Love, Courage and Recovery from Families Who Have Battled Eating Disorders* (see page 63). She also serves as executive director for the Eating Disorder Support Network of Alberta (edsna.ca) and sits as Alberta's representative on the Eating

Disorder Foundation of Canada.

Prior to her passionate work on eating disorders, Sue was a politician, a documentary writer for television and the stage, CBC radio commentator, film director and actor. Her U of A degree has helped in every twist and turn of her professional life. Now, her son is attending his second year at the U of A and loving every minute of it.

'88 **Denise Kervin**, BSc(Pharm), a recent graduate of the Center for Health-System Pharmacy Leadership academy (American Society of Health-System Pharmacists), has also been busy making prize-winning cakes!

12 ALUMNI ELECTED AS MEMBERS OF PARLIAMENT

Twelve alumni were voted in as members of Parliament in the recent federal election: **Michael Cooper**, '06 BA, '09 LLB (*St. Albert - Edmonton*), **Randy Boissonnault**, '94 BA (*Edmonton Centre*), **Matthew Jeneroux**, '04 BA (*Edmonton Riverbend*), **Linda Duncan**, '70 BA, '73 LLB (*Edmonton Strathcona*), **Michael Lake**, '95 BCom (*Edmonton - Wetaskwin*), **Shannon Stubbs**, '02 BA(Hons) (*Lakeland*), **Blaine Calkins**, '92 BSc(Spec) (*Red Deer - Lacombe*), **Earl Dreesen**, '74 BEd (*Red Deer - Mountain View*), **Martin Shields**, '72 Dip(Ed) (*Bow River*), **Jean-Yves Duclos**, '88 BA(Hons) (*Quebec*), and **Don Davies**, '85 BA, '88 LLB (*Vancouver Kingsway*).

Rona Ambrose, '02 MA (*Sturgeon River - Parkland*), was also elected interim leader of the Conservative Party of Canada, succeeding former prime minister Stephen Harper.

Denise earned two ribbons for cake decorating at the Calgary Stampede, bringing the total to 14 first-place, six second-place and five third-place ribbons over the last 16 years. She is looking forward to her next big opportunity!

'88 **PearlAnn Reichwein**, BA, associate professor in the Faculty of Physical Education and Recreation at the University of Alberta, continues to win accolades for her book, *Climber's Paradise: Making Canada's Mountain Parks, 1906-1974* (University of Alberta Press, 2014) which explores the history of Canada's mountain parks through the story of the Alpine Club of Canada. In June 2015, PearlAnn was awarded the prestigious Clío Prize (Prairies) from the Canadian Historical Association. *Climber's Paradise* was also awarded Honourable

Mention in INDIEFAB's Book of the Year for Ecology and Environment (Non-fiction). The book was also a finalist in the Banff Mountain Film & Book Festival competition. Winner of an American Association of University Presses (AAUP) book design award, the book is currently showing with an impressive exhibit of AAUP winners on a North American tour.

'88 **Lloyd Robertson**, BA, was recently appointed to the provincial court of Alberta. His entire 23-year legal career has been as Crown prosecutor, with the last seven as Calgary's chief Crown prosecutor. He follows in the footsteps of great men and women and is ready to meet the call of the demanding role. Lloyd was admitted to the Alberta bar in 1992 after graduating from the University of Calgary's law program and quickly began working with Alberta Justice.



1990s

'91 **Teras I. Cassidy**, BA, a former travel agent, is walking extra proud since *Alberta Venture* named his company, Geek Nations Tours, one of Alberta's most innovative organizations. Teras feels "incredibly honoured and humbled" to be not only recognized but also featured on the front cover of that magazine. Geek Nation Tours is a travel company that organizes tours around a theme, from sci-fi to fantasy to world war history or gaming. Teras writes: "The U of A had a profound impact on my life and even though it took some time, my studies (first in physics and then in East Asian studies) came full circle, which I feel is often the case with knowledge. Now I make tours to Japan and have partnered with the Roddenberry family to do tours about space exploration."

ALUMNI APPOINTED TO PREMIER'S ECONOMIC ADVISORY COMMITTEE

Elisabeth Ballermann, '80 BSc(PT), '91 LLB, president of the Health Sciences Association of Alberta, and **Ray Muzyka**, '90 BMedSc, '92 MD, founder and CEO of Threshold Impact have been named to the Alberta Premier's Advisory Committee on the Economy, chaired by Joseph Doucet, dean of the Alberta School of Business.

2000s



'00 **Jennifer Holland**, BA(RecAdmin), writes, "In January 2015 I began a PhD in tourism at the University of Brighton in England. My research explores the influence of the perception of risk on consumer decision-making in ocean cruising. There is a culture of fear in western societies that is distinct to the 21st century. As risk and uncertainty are 'inherent' to tourism, the tourist's perception of risk is central to the decision-making process. This research area is significant as there has been increased attention on the possible risks related to cruising. The research will be conducted through a phenomenological lens, with a social constructionist view.

"I believe my project has the potential to contribute to a greater understanding of risk in contemporary society, including how risk is defined and the deeper epistemological position as well as to help develop research in cruise tourism. When not in England, you can find me cruising in Australia with my husband, Steve, a deputy captain for Princess Cruises. Classmates can reach me at jenniholland@live.com."

'07 **Ikponwosa "I.K." Ero**, MA, has been appointed by the president of the UN Human Rights Council to the position of independent expert on the enjoyment of human rights by persons with albinism. I.K. is one of the youngest people ever to be charged with



a UN office of this type, and was selected based on her extensive experience advocating for people around the world who experience discrimination, torture and even death as a result of albinism.

I.K. herself lives with albinism and has beaten the odds suffered by most people with albinism on her home continent of Africa. Albinism arises in every racial context with varying frequency. In North America, an estimated 1 in 17,000 people are born with albinism. In most of sub-Saharan Africa, estimates are as high as 1 in 1,500.

I.K. has worked to shape policy and practice on the issue across several countries. In 2010, she wrote a manual on albinism that is informing policy in three countries. Her biggest success to date was in her recently concluded role of international advocacy and legal officer with a charity dedicated to the issue: Under the Same Sun. As a result of her lobby efforts, the UN Human Rights Council created International Albinism Awareness Day on June 13.

Following her undergraduate degree in political science and international relations at the University of British Columbia in 2004, I.K. went on to the University of Alberta to complete a master's degree in political science with a focus on non-governmental organizations. In 2011, she graduated from the University of Calgary with a law degree. She has been working tirelessly for six years to mitigate the plight of persons with albinism around the world.

'10 **Sam Oghale Oboh**, MA, an architect and senior manager with Public Works and Government Services Canada's western region branch, was named the 76th president and first Canadian of African descent to lead the 108-year-old Royal Architectural Institute



'07 **Lindsay McAlpine**, BPE, '07 BEd, '11 MA, has been named head coach for Team Australia's women's hockey program. A five-year forward with the U of A Pandas hockey program, Lindsay helped the team win five national CIS titles during her tenure. In her senior year she was named 1st Team All-Canadian, CIS tournament MVP, Tournament All-Star, and received the CIS Broderick Trophy as the CIS women's hockey most valuable player. Her playing career continued in the National Women's Hockey League with the Edmonton Chimos before the team became the Calgary Infernos of the Canadian Women's Hockey League. Lindsay is the founder of High Tempo Hockey, an all-female ice hockey school and conditioning camp, and has been head coach of the MacEwan University Griffins women's hockey team since 2012.

of Canada (RAIC). Sam played a key role in launching the country's first local chapter of the RAIC in Alberta. After moving to Canada from Botswana in 2003, he successfully completed the nine required licensing exams issued by the National Council of Architectural Registration Board, in less than a year.

Throughout his 23-year career, Sam has worked on a variety of projects including the Alberta legislature redevelopment project, the Sturgeon Community Hospital in St. Albert, Alta., the Villa Caritas Care Centre in Edmonton, the Edmonton Federal Building and the Red Deer Civic Yards. Sam has also served as an adjunct/visiting lecturer at the University of Toronto, Carleton University, Durban University of Technology and the University of Pretoria in South Africa. Recognized by his colleagues in the industry, Sam was recently named by *Alberta Venture* as one of the 50 most influential Albertans.

The Alumni Association notes with sorrow the passing of the following graduates (based on information received between July and September 2015)

'34 **Phyllis Margaret Bodard**, BSc(HEc), in May 2015

'36 **Emma Margaretha Snell**, Dip(Nu), '49 BSc(CivEng), of Torrance, CA, in August 2015

'40 **Muriel Flora Joanna Coombs (McRae)**, BA, of Edmonton, AB, in July 2015

'41 **Audrey Irene Zender**, Dip(Nu), of Stettler, AB, in July 2015

'42 **Leslie George Chatten**, Dip(Pharm), '47 BSc(Pharm), '49 MSc, of White Rock, BC, in August 2015

'42 **John James Denholm**, BCom, of Calgary, AB, in August 2015

'42 **Louis George Grimble**, BSc(CivEng), in July 2015

'42 **Pearl Valerie Warren (Fowler)**, MD, of Edmonton, AB, in June 2015

'44 **Donald Strong Scott**, BSc(ChemEng), '46 MSc, of Paris, ON, in April 2015

'46 **Aurora Luigina Biamonte**, BEd, '46 BA, '52 MEd, of Edmonton, AB, in August 2015

'46 **Ralph McCleery Ferguson**, BSc(CivEng), of Cambridge, ON, in August 2015

'46 **Shirley J. Jacques (Auld)**, BSc(HEc), of Calgary, AB, in June 2015

'46 **George Reckly Mather**, BSc(ElecEng), of Mississauga, ON, in August 2015

'46 **Doris Isabel Morrison (Hill)**, BSc(HEc), of Victoria, BC, in August 2015

'47 **Vera Mary P. Shuckburgh**, Dip(PHNu), in June 2015

'48 **Donald Hazen Brundage**, BA, of Toronto, ON, in August 2015

'48 **Maurice Roger Jegard**, BSc, '49 BEd, of Calgary, AB, in July 2015

'48 **Duncan Stuart McBean**, MSc, of Swift Current, SK, in August 2015

'48 **Emma Laura V. Potter (Ancion)**, BEd, in September 2015

'49 **Thomas Robert Braithwaite**, BSc(MiningEng), of North Vancouver, BC, in August 2015

'49 **William Chalmers S. Graham**, BSc, '53 MD, of Vancouver, BC, in July 2015

'49 **Edward Walter McConnell**, BSc(MiningEng), of Surrey, BC, in April 2015

'49 **Margaret Belle Mulloy**, BCom, of Calgary, AB, in September 2015

'49 **Dorothy Beth Newhall (Somerville)**, Dip(Nu), '50 BSc(Nu), of Calgary, AB, in July 2015

'49 **John Alfred Reynar**, BSc, '51 MD, of Lethbridge, AB, in May 2015

'49 **Robert Alexander Seaton**, BCom, of Kamloops, BC, in July 2015

'50 **Doris Elaine Alger**, BSc(HEc), of Calgary, AB, in August 2015

'50 **Michael Alexander Kostek**, BEd, of Edmonton, AB, in August 2015

'50 **James Herbert Laycraft**, BA, '51 LLB, of Calgary, AB, in August 2015

'50 **Bruce Anderson Low**, DDS, of Victoria, BC, in September 2015

'50 **Laurent Louis Primeau**, BSc, of Nepean, ON, in July 2015

'51 **Mary Lou Armstrong (Lister)**, BA, '71 BLS, '81 MLS, of Red Deer, AB, in May 2015

'51 **Kenneth Duncan Butterworth**, BCom, of Calgary, AB, in August 2015

'51 **Lawrence Theodore Diduch**, BSc, '56 MD, of Edmonton, AB, in August 2015

'51 **Stanley Arthur Green**, Dip(Ed), '52 BEd, in September 2015

'51 **Leah Joan Joys (Thurston)**, BEd, of Barrhead, AB, in August 2015

'51 **Myros Bohdan Samyca**, BSc(Pharm), of Edmonton, AB, in September 2015

'51 **Olaf Edwin Sorenson**, BSc(Pharm), of Edmonton, AB, in June 2015

'51 **Tess Trueman**, BSc, '53 MD, of Courtenay, BC, in July 2015

'53 **Anton Caruk**, BA, '56 Dip(Ed), '57 BEd, of Edmonton, AB, in August 2015

'53 **Trevor Edwin Fregren**, BSc(MiningEng), of Port Colborne, ON, in August 2015

'53 **Maureen Ann MacWilliams**, Dip(Nu), of Portland, OR, in September 2015

'54 **Eileen May Gauf (Hutchison Roberts)**, Dip(Ed), '76 BEd, of Sherwood Park, AB, in June 2015

'54 **Mark Orydzuk**, Dip(Ed), '64 BEd, of Edmonton, AB, in September 2015

'54 **E. Jean Raines (Anderson)**, BSc, of Airdrie, AB, in August 2015

'55 **Helen Mae Lavender (Hunter)**, Dip(Ed), '57 Dip(Ed), of Sherwood Park, AB, in August 2015

'56 **Millan Chrumka**, BEd, of Calgary, AB, in July 2015

'56 **Henry Kolesar**, BEd, '67 PhD, of Edmonton, AB, in August 2015

'56 **Leonard Frederick Maier**, BSc(PetEng), of Calgary, AB, in September 2015

'56 **Hubert Gordon Puffer**, BSc(Ag), '66 Dip(Ed), of St. Albert, AB, in June 2015

'56 **Joan Elizabeth Worth (Tronsgard)**, Dip(Ed), '65 BEd, of Nanaimo, BC, in June 2015

'57 **Donald Alexander Brown**, MD, of Vancouver, BC, in July 2015

'57 **Eric George Hohn**, BEd, '64 MEd, of Camrose, AB, in July 2015

'57 **Frederick Kornel Szojka**, BSc(ElecEng), of Calgary, AB, in July 2015

'57 **Walter Witwicky**, BEd, of Andrew, AB, in June 2015

'58 **Barry Wilfred Duncan**, BA, of Calgary, AB, in August 2015

'58 **Eugene William Eurchuk**, BCom, of Edmonton, AB, in August 2015

'58 **Marshall Fodchuk**, Dip(Ed), '61 BEd, of Sherwood Park, AB, in July 2015

'58 **Ann Elizabeth Mason (Swindlehurst)**, BEd, '70 BA, '78 MEd, '86 PhD

'58 **Kenneth Maxwell Morton**, BSc(Ag), of Red Deer, AB, in May 2015

'58 **Peter Stefanchuk**, BEd, of Fairmont, BC, in August 2015

'59 **Gerald Alan Lucas**, BA, '62 LLB, of Edmonton, AB, in September 2015

- '59 Thomas Baird McMeekin, BA, of Calgary, AB, in September 2015
- '59 Dymphna Philomena Moore, BEd, '61 BA, '65 MEd, of County Tipperary, Ireland, in January 2015
- '59 Clarence John Roth, BSc(Ag), of Surrey, BC, in September 2015
- '60 Donald Haughton Lennox, MSc, of Edmonton, AB, in September 2015
- '61 Janet E. Russell (Sonoda), BSc(Pharm), of Edmonton, AB, in August 2015
- '61 Marion Jane E. Sansom, BEd, of Jasper, AB, in September 2015
- '61 William Somogyi, DDS, of Victoria, BC
- '62 Edward Karpinski, BSc(ElecEng), '66 MSc, '71 PhD, in September 2015
- '62 Nigel Patrick Lawrence, LLB, of Red Deer, AB, in August 2015
- '62 J. Alan MacGregor, BEd, of Edmonton, AB, in January 2015
- '62 Benoit Joseph Rompre, BEd, of Sherwood Park, AB, in August 2015
- '63 Raymond Hardy Archer, BA(Hons), of Campbell River, BC, in June 2015
- '63 James Ross Ferguson, BSc(Pharm), '69 BEd, '75 Dip(Ed), of Edmonton, AB, in February 2015
- '63 Larry Lorne McClennon, BSc(PetEng), of Calgary, AB, in July 2015
- '64 Dennis Hugo Braun, BA, in July 2015
- '64 Michael B. Demaine, BA, of Sherwood Park, AB, in August 2015
- '64 Harvey Edward Haiduk, BEd, '66 BA, '68 Dip(Ed), of Edmonton, AB, in August 2015
- '64 Helen Maureen Logan, Dip(Nu), of Farmersville, TX, in April 2015
- '64 Vaughn Milton Taylor, LLB, of Calgary, AB, in September 2015
- '65 Donald Wayne Albert, BCom, of Calgary, AB, in July 2015
- '65 Cecilia Elizabeth Bittner (Dencer), BMus, '76 Dip(Ed), '85 BEd, of Edmonton, AB, in September 2015
- '65 Shirley May Brauer, BSc, '81 MEd, of St. Albert, AB, in July 2015
- '65 Beth Claire Fisher, BEd, of Lethbridge, AB, in April 2015
- '65 Lillian Rose Harasym, BSc(Pharm), in July 2015
- '65 Inga Olive Jensen, BScN, of Calgary, AB, in June 2015
- '65 John Alfred Siluch, BSc, '68 BEd, in June 2015
- '65 Marion Steve Tchir, BSc, '70 BEd, of Spedden, AB, in August 2015
- '66 Donald Hugh Aird, BA, of Tofield, AB
- '66 George Percy Goodburn, BA, '80 BEd, of Rocky Mountain House, AB, in July 2015
- '66 Guenter Richard Haase, DDS, of Calgary, AB, in July 2015
- '66 Terence Richard Keswick, BEd, '72 MEd, '73 Dip(Ed), of Edmonton, AB, in September 2015
- '66 Mohindar Singh Rattan, MEd, '70 PhD, of Abbotsford, BC, in July 2015
- '66 Howard Mervin Snider, MA, of North Newton, KS, in August 2015
- '66 Garry Martin H. Stamm, BA(Hons), of Cobourg, ON, in September 2015
- '67 Helen Doreen Armstrong, BEd, '70 Dip(Ed), '71 MEd, in July 2015
- '67 James Beverly Johnson, BEd, of Barnwell, AB, in August 2015
- '67 Joel Melvin Lovlin, BEd, of Calgary, AB, in August 2015
- '67 Nels Wayne Mogensen, MA, of Sudbury, ON, in September 2015
- '67 Ronald Freeland Niddrie, BEd, '69 Dip(Ed), of Edmonton, AB, in September 2015
- '67 R. Wayne Oness, BCom, of Edmonton, AB, in August 2015
- '67 Jeannette Marie Romaniuk, BEd, of Edmonton, AB, in September 2015
- '67 George Raymond W. Sheridan, BEd, of Edmonton, AB, in July 2015
- '68 Lorette Chouinard, BEd, of Slave Lake, AB, in December 2014
- '68 Mary Ellen Louise Coe (Young), Dip(Nu), of Edmonton, AB, in August 2015
- '68 Henriette Elizabeth Durand, BA, '72 MEd, '77 PhD, of Richmond, BC, in July 2015
- '68 Ronald John Gaunce, BEd, '70 Dip(Ed), in August 2015
- '68 Douglas Edmund Gehon, BEd, of Spruce Grove, AB, in August 2015
- '68 Dale Ronald Moore, BSc(ElecEng), of Qualicum Beach, BC, in August 2015
- '68 Douglas Philip Sansom, BEd, '93 MEd, of Clearwater, BC, in August 2015
- '68 David Seyward Smith, BMus, of Edmonton, AB, in September 2015
- '68 Larry Ross Walton, BEd, of Grande Prairie, AB, in January 2015
- '69 Felix Jenkins Archer, BEd, of Edmonton, AB, in September 2015
- '69 Sheila Marie Dowling, BEd, of Westlock, AB, in May 2015
- '69 Elsie M. Drisner (Eisler), BEd, of Edmonton, AB, in August 2015
- '69 Alice J. Dzusz, DipN, '72 BScN, in June 2015
- '69 John Oluk, BEd, in June 2015
- '69 Helen Barbara Pierce, BEd, of Edmonton, AB, in July 2015
- '70 Peter Ralph Basarsky, DDS, of Calgary, AB, in August 2015
- '70 Donald Norman Cranston, BSc(MechEng), of Calgary, AB, in July 2015
- '70 Benjamin Walter Duchminski, Dip(Ed), of Spruce Grove, AB, in September 2015
- '70 Arthur Floyd Inscho, BEd, of Ardrossan, AB, in May 2015
- '70 Douglas Henry Walter Joy, BSc(Ag), '73 BEd, of Ardrossan, AB, in July 2015
- '70 Marjorie Elsie McCreery (Rose), BEd, of Oakville, ON, in September 2015
- '70 Benjamin Kenneth Meyer, BEd, in July 2015
- '70 Samuel Nahirney, BA, of Edmonton, AB, in August 2015
- '70 Claude Wilfred Ouimet, BEd, in September 2015
- '70 Bohdan Slavutych, BA, in August 2015
- '70 Leslie M. Wood, Dip(Ed), of Athabasca, AB, in August 2015
- '71 Henry Brian Dembicki, BA, of Victoria, BC, in January 2015
- '71 Elaine Vera Kisko, BEd, in February 2015
- '71 Chantalack Mackay (Srinilta), Dip(Ed), in June 2015
- '72 Roger Alex Bernatzki, MHSA, of Surrey, BC, in June 2015
- '72 James Craig Bishop, BA, of Nootka Sound, BC, in July 2015
- '72 Phillip Morton Lust, BSc, '73 Dip(Ed), of Leduc, AB, in September 2015
- '72 Darryl Grant Mayan, BSc, '76 Dip(Ed), '77 MEd, of Edmonton, AB, in September 2015

'73 Alma Amna Barake (Idee), BEd, of Georgetown, ON, in January 2015

'73 Delores Helen Beacon (Wilson), BA, in September 2015

'73 George William Carter, MEd, of Spruce Grove, AB, in August 2015

'73 Janice Darlene Prince (Cherewick), MA, of Calgary, AB, in August 2015

'73 Norman Ralph Morrow, BSc, in July 2015

'74 Shirley Anne Bawden, BEd, of Camrose, AB, in August 2015

'74 Renee Marie Christensen (Hansman), BEd, '81 Dip(Ed), in August 2015

'74 Wayne William McVey, PhD, of Astoria, OR, in May 2015

'75 Thomas Paul Hewko, BEd, in September 2015

'75 Ashley Leo Thomas, BEd, of Edmonton, AB, in July 2015

'75 Ronald Charles Wesley, BA, of Edmonton, AB, in September 2015

'76 Annette June Dumka, BEd, of Edmonton, AB, in September 2015

'76 Erwin Wilfred Eisenbraun, BEd, of Sherwood Park, AB, in July 2015

'76 Donald William Manchakowski, BA, in August 2015

'76 James Scott Miller, BSc, '77 BEd, of Red Deer, AB, in July 2015

'76 Linda Martha Radke (Pachal), BA(Spec), in September 2015

'76 Charles Brian Tegge, BSc(Med), '78 MD, of Edmonton, AB, in September 2015

'76 Garry Glen Tymofichuk, BEd, of St. Paul, AB, in June 2015

'77 Barry Michael W. Basaraba, BA, '80 LLB, of Edmonton, AB, in June 2015

'77 Darrell Peter Beitz, BA, of Edmonton, AB, in July 2015

'77 Edna Mary Bonertz (Robins), BEd, of Drayton Valley, AB, in January 2015

'77 James Andrew McDonald, MA, of Prince George, BC, in February 2015

'77 Lacia Marie Panylyk (Leskiw), BEd, in March 2015

'77 Alan David Sacuta, BSc(ElecEng), of Calgary, AB, in August 2015

'78 Dennis Radyk Lazarowich, BA, of St. Albert, AB, in September 2015

'78 Enid Deborah Pehowich (Geary), MSc, of Edmonton, AB, in August 2015

'78 Daryl Brian Smart, BA(RecAdmin), of Calgary, AB, in February 2015

'79 Arlene Lucille Fearon (Thomas), BEd, of Edmonton, AB, in July 2015

'79 Edward John Kercher, BSc(CivEng), in June 2015

'79 Marianne Joan Anderson Rogers, BEd, '01 MEd, of Stony Plain, AB, in August 2015

'79 Lorraine Rose Wilgosh, BEd, in September 2015

'80 Norman Alexander Duff, BSc(CivEng), of Calgary, AB, in August 2015

'80 Olive Purcell (Thompson), BScN, of Ardrossan, AB, in July 2015

'81 Theresa Mary Lohman (St. Jean), BScN, of Edmonton, AB, in August 2015

'82 Burton James Leroy, BA(Spec), of Edmonton, AB, in August 2015

'83 Thomas Scott Campbell, BSc(MechEng), of Scottsdale, AZ, in June 2015

'83 Blythe Olive Spink (Walker), BScN, of Ponoka, AB, in July 2015

'83 Ellebertus Van Dam, BEd, of Edmonton, AB, in August 2015

'83 Edward William Westover, MD, of Zebulon, NC, in July 2015

'83 Keith Robert Wyler, MEd, of Millarville, AB, in July 2015

'84 Harold Aylmer Peacock, BSc(ElecEng), in August 2015

'85 Christopher Joseph Kubash, BSc(ElecEng), of Edmonton, AB, in September 2015

'85 Diane Elizabeth Plowman (Dahm), BScN, of Three Creeks, AB, in May 2015

'86 Deneen Lynn Lucki, BEd, of Spruce Grove, AB, in September 2015

'88 Nanna Maria Angus (Fibiger), MEd, '93 PhD, of Victoria, BC, in March 2015

'88 Terry Lynn Fulcher, BSc(CivEng), '13 MEng, of Ardrossan, AB, in May 2015

'92 Elizabeth Ann Art, BA(Hons), in July 2015

'92 Mary Ross Glenfield, BA, '01 MA, of Edmonton, AB, in September 2015

'92 Steven Ratcliffe Pawlak, PhD, of Vermilion, AB, in March 2015

'93 Trevor Donald Adams, BCom, of Calgary, AB, in April 2015

'95 Gabriele Alber, MA, in August 2015

'95 Monique Angele Davey, BScN, of Edmonton, AB, in June 2015

'97 Adriana Rodica Orr, BEd, of Edmonton, AB, in April 2015

'98 Michael Norman Aston, MA, of Spruce Grove, AB

'98 Patricia Ann Henderson, BCom, of Edmonton, AB, in May 2015

'99 Natalie Paeuser, BA, '01 BCom, of Ardrossan, AB, in March 2014

'02 Jacqueline Naomi Berg, BA, of Edmonton, AB, in September 2015

'03 Colin Stuart Axelsen, BEd, '03 BPE, of Wetaskiwin, AB, in July 2015

'03 Catherine Jane Silzer, BA, '06 BPE, of Edmonton, AB, in August 2015

'03 Mary Isabelle Young, PhD, of Winnipeg, MB, in July 2015

'06 Kyle Michael Zroback, BSc, in August 2015

'07 Cailey Jordan Renaud-Killam, BA, of Calgary, AB, in August 2013

'09 Erika Nicole Maksylewicz (Elkington), BEd, of Houston, TX, in August 2015

'14 Carol Dawn Lukasiewich, Cert(LandUsePlanning), of Hinton, AB, in July 2015

'15 Nicholas Alexander Moore, BSc(EngPhys), of Edmonton, AB, in August 2015

If you've lost a loved one who is a University of Alberta alumnus, contact alumni records at alumrec@ualberta.ca, 780-492-3471 or 1-866-492-7516.

Nobody Sneeze

Technician **Pooja Woosaree**, '14 BSc(Spec), works in the low-radon clean laboratory at the U of A's Centennial Centre for Interdisciplinary Science, where astroparticle physics researchers build and test highly sensitive neutrino detectors. Radioactive radon and dust interfere with the ability to observe neutrinos, so constructing the detectors in a sealed and filtered environment—with radon levels less than one per cent of those in normal air—is vital to the research of these elusive subatomic particles.

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