

SPRING 2021

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trail

UNIVERSITY OF ALBERTA
ALUMNI MAGAZINE

THE
HUNT
FOR
HEP C

A blood-borne illness was making millions sick, but no one could find the culprit. Inside the seven-year search to identify a mystery virus.

**And what it takes to
earn a Nobel Prize.**



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Kristian Basaraba, '01 BEd, combined his love of skateboarding with his love of teaching. The results surprised even him. Page 39. Photo by John Ulan

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When an unknown illness starting making people sick, scientists didn't know what they were looking for. But they knew they had to find it. Page 18. Illustration by Dan Page

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The search for the hepatitis C virus began with a mystery and ended with a Nobel Prize. But Michael Houghton isn't done yet.

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Drones, AI and more efficient cattle. What else will it take to get food to your table?

The Rewards of Curiosity

WHEN I WAS A GRADE 1 AND 2 TEACHER,

I taught a unit about bats. The flying critters made their way into every subject — math, language arts, social studies — and students played a big role in determining what they learned. Each student chose a type of bat to study, came up with questions and helped to find the answers. In a classroom of 30 kids, would you believe we studied 24 different kinds of bats?

It was amazing to watch how invested the students became in their learning when they were given the opportunity to unleash their curiosity. What is the wingspan of an Egyptian fruit bat? Why does the little red flying fox drink water off its body? I ran into one student seven years later, and she said she still remembered everything about Honduran white bats.

The point of the unit wasn't just to teach kids about bats. It was to create an environment where students could experiment, explore and let their interests guide their learning. As an educator, I discovered that nourishing creative minds not only creates enthusiastic learners, it also encourages creative solutions.

Reflecting on this makes me think about our alumni in the ThresholdImpact Venture Mentoring Service (VMS) program. In VMS, U of A grads, faculty and staff who run their own businesses receive coaching and mentorship from experienced entrepreneurs.

Claire Theaker-Brown, '08 BA, is a VMS alumna. While living in Shanghai, she saw first-hand how the demand for mass-produced clothing created low wages for workers and low-quality goods

for consumers. So, she asked a question: What would happen if a company was willing to pay higher wages for smaller quantities of well-made goods? The answer led to the launch of her company, Unbelts, which keeps its production small to ensure its employees make a living wage. In 2018, she opened a second manufacturing location where she could launch prototypes quickly — including cloth masks when the pandemic hit.

Grads like Theaker-Brown ask questions about how to make their communities and the world a better place and then passionately seek answers. They're part of a long history of creative problem-solving and inventive thinking at the U of A. More than 50 years ago, **Roy Berg**, '50 BSc(Ag), changed the global beef industry when he discovered that cross-breeding cattle made them more resilient and productive (page 33). Today, researchers continue to ask important questions in a quest to make food production more efficient and sustainable. You can read more on page 28.

The best solutions come when we ask good questions, whether our inquiries tend toward bats or how to protect people around the world from the hepatitis C virus (page 18). I'm proud to be part of an alumni community that wonders, seeks and turns curiosity into real change.

*Heather Raymond finished her term as president of the Alumni Association on May 31. Meet your new president, **Tyler Hanson**, '00 BSc(MechEng), on page 50.*

HRay
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NEW FREQUENCY, SAME GREAT TASTE

Starting this year, *New Trail* will be landing in your mailbox twice annually. You'll still get an award-winning magazine bursting with alumni accomplishments, U of A research and a lot to be proud of on your doorstep—just on a different schedule. If you want to keep in touch more often, check us out online or subscribe to our digital newsletter at ualberta.ca/newtrail.



The Legend of Ella May Continues

Editor's note: After publishing an image created by Ella May Walker in the Autumn 2020 issue, grads have written in to share bits and pieces about the artist's life.

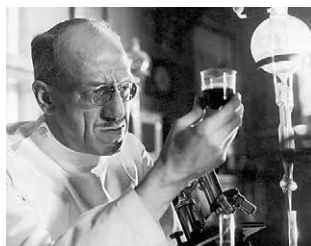
In the 1930s, women who were married were often not allowed to work. But there were a few exceptions and Ella May Walker was one. Her story, and the stories of **Eleanor Silver Keeping**, '23 BSc, '24 MSc, (one of the first women to teach science at a Canadian university) and playwright **Elsie Park Gowan**, '30 BA, '82 LLD (Honorary), were brought alive in the 1996 book *Meet the Aunts*. The fictionalized account details this story about Walker: She wanted to meet a famous Mexican artist, so she packed up her car and her two young sons and made the trip without spending a cent. She stayed with relatives along the way, met the artist and then headed home.

—Ellen Schoeck, '72 BA(Hons), '77 MA, Edmonton

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A Reading List for Fresh Perspectives
Crack the spine and open your mind.



Fact or Fiction?
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A Nobel Connection

In response to “Concern for Patients Drives Nobel Prize Winner’s Research” (page 6 in the Winter 2020 issue), **Brenda Scott (Schnell)**, '73 BEd, wrote to tell us about another Nobel connection. Her brother **Russell Schnell**, '66 BSc, '15 LLD (Honorary), was a member of the Intergovernmental Panel on Climate Change when the organization was awarded the Nobel Peace Prize in 2007.

Look to the Treaties

“Understanding Treaties Is Essential to Understanding,” by **Patricia Makokis**, '79 BEd, in the Winter 2020 issue deserves widespread distribution, especially where I live in Hamilton, Ont. It would go a long way to shed light on the embattled land disputes between the Six Nations of the Grand River and the land developers encroaching on their unceded land.

—Don Brown, '72 MA, Hamilton, Ont.

Warm Memories from a Cold Day

My wife and I have many happy memories of the U of A. There is one particular incident that I have always wanted to tell others. I have told it to my children many times, and I shall tell it to my grandchildren when they are older.

I was coming out of the chemistry building in the winter of 1969-70, when I slipped and fell, hitting my head on the metal edge of one of the steps. When I got up, I noticed that I was bleeding profusely from a deep cut on my forehead. Suddenly, a student appeared, took my lab coat, rolled it up and put it on my forehead laceration. He then waved down a cab, got in with me and told the driver to take us to the U of A Hospital. He took me into the emergency department and got me registered and treated. By the time I had the stitches, he had already left, and I never saw him again. I did not know his name or what he looked like, so I could not thank him. In my subsequent years at the U of A, I was the recipient of many acts of kindness and generosity from staff, students and strangers. And I shall not forget the student who helped me on that winter day in front of the chemistry building.

—Joseph Kwok, '71 BSc, '75 MD, Toronto

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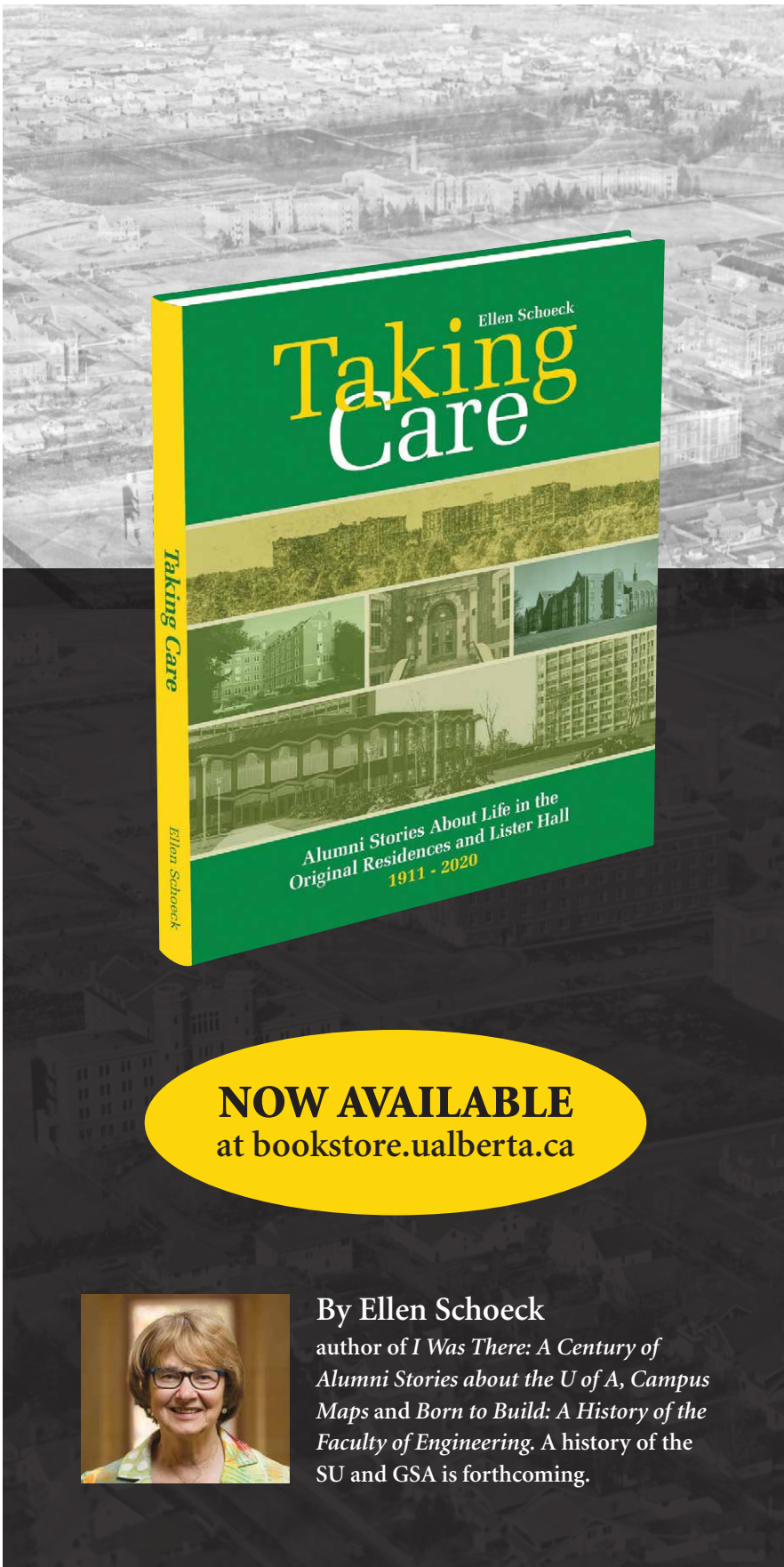
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By Ellen Schoeck

author of *I Was There: A Century of Alumni Stories about the U of A*, *Campus Maps* and *Born to Build: A History of the Faculty of Engineering*. A history of the SU and GSA is forthcoming.

notes

WHAT'S NEW AND NOTEWORTHY



Ancient Evidence

Geoscientists search for clues to climate change in the permafrost of Canada's northern caves

RESEARCHERS STUDIED 72 CAVE DEPOSITS OF PERMAFROST in Arctic and Subarctic Canada to understand the ancient history of permafrost thaw—including in this cave in Nahanni National Park Reserve, N.W.T. “Permafrost response to past periods of global warming is like a natural experiment for what we might expect in a future, warmer Arctic,” says **Alberto Reyes**, '10 PhD, project co-investigator and a U of A professor in the Department of Earth and Atmospheric Sciences. The team looked at evidence of ancient permafrost thaw, which can release greenhouse gases, to compare with past levels of atmospheric carbon dioxide and methane. They were surprised to find no strong correlation, but Reyes says more study is needed to understand the complex interactions among climate, permafrost and greenhouse gases. —ANDREW LYLE



COVID-19

Alberta-Made Vaccine Candidate Is in Human Trials

The DNA-based vaccine has the advantage of not needing low-temperature storage, researcher says

THIS SPRING, A MADE-IN-ALBERTA COVID-19 VACCINE FOUND its way into the arms of Canadians as part of Phase 1 clinical trials—a major step forward on the path to Health Canada approval. Entos Pharmaceuticals, an Edmonton company led by John Lewis, CEO and University of Alberta researcher developed the vaccine. It's now at the Canadian Centre for Vaccinology in Halifax for trials.

"Getting the first batch out is a huge milestone," says Lewis. "The team is exhausted. They've been working non-stop since March 2020. It's a big sigh of relief now that we've got that batch out and we'll be looking on with a lot of optimism toward the clinical trial results."

The Phase 1 clinical trial will test the safety of the vaccine in 72 participants, split between young adults and older Canadians. A larger Phase 2 clinical trial will begin in July that

will test the efficacy of the vaccine.

Unlike conventional vaccines, the vaccine is DNA-based, meaning that instead of injecting a weakened form of the virus into the body, it uses engineered DNA to stimulate an immune response against the SARS-CoV-2 virus.

Many of the COVID-19 vaccines already approved, such as Pfizer and Moderna, take a slightly different approach to DNA-based vaccines, using messenger RNA (mRNA). They've proven effective against the virus but require low-temperature storage. "That's a real challenge to scale the manufacturing and then distribute the vaccines to anywhere but urban areas," says Lewis. "And we've seen those challenges, certainly with the worldwide rollout of these vaccines."

The Entos vaccine can be kept in a fridge for more than a year and at room temperature for more than a month, Lewis says. Although several vaccines have been approved for use in humans, he says there's still a need for others to reach the finish line.

"We need to get 16 billion doses worldwide to beat this pandemic, and we believe DNA is the perfect way to approach that." —ROSS NEITZ

COVID-19

U OF A SPINOFF SUPPLIES CRITICAL MATERIAL FOR COVID-19 TESTS

When U of A professor **Stacey Hume**, '94 BSc(Hons), '03 PhD, realized Canada could face a shortage of medical reagents essential to COVID-19 tests, she went hunting for a solution.

"During the initial outbreak of the pandemic, my lab helped with COVID-19 testing, as we had all the equipment. I became aware of how difficult it was to acquire the reagent for the COVID tests," says Hume.

Hume looked for domestic partners that could supply high-quality reagents. After many tests, the reagents from a U of A spinoff company, Applied Quantum Materials Inc., were found to be the best at detecting the virus.

The result was a partnership between AQM and Alberta Health Services to supply the reagents. The company was able to create a commercially viable product within eight months to respond to the need.

Reagents are an integral component of a COVID-19 test.

When patient samples are returned to the lab, a portion is treated to break open the virus and expose its genetic material. The critical step involves adding magnetic silicon nanoparticle beads, which bind to all genetic material. The genetic material is tested to determine whether the SARS-CoV-2 virus is present, indicating the patient has an active infection.

"These reagents used in standard nucleic acid testing are the gold standard for molecular tests," says Hume. "And until now, Canada did not have any suppliers of this critical medical reagent within the country."

Many of AQM's employees are U of A grads. Its technology is versatile enough to be in demand after the pandemic, says CEO **David Antoniuk**, '78 BSc(ElecEng), '83 PhD. —ANDREW LYLE

COVID-19

"Imagine that you will not contaminate anyone else or even yourself when you touch your mask. When the bacteria or virus is killed when it touches the fabric, it can't do any more damage."

Textiles scientist Patricia Dolez of the Department of Human Ecology, who is leading research on a textile treatment for masks and medical protective equipment that would kill viruses on contact, including SARS-CoV-2



PLAYERS FACE OFF TO BEAT CANCER After 252 hours of non-stop hockey, 40 volunteer players netted \$1.93 million to help fund cancer research—and set a world record for the longest hockey game. Much of the February game at a Strathcona County rink was played in temperatures as low as the mid -40s that shattered dozens of pucks. Every dollar raised for the Cure Cancer Foundation by the World’s Longest Hockey Game will support a clinical trial for a promising U of A-made cancer drug, PCLX-001. “Our hope is we will find a safe and effective dose of the drug in this first trial, and that it will actually show we can help people,” says oncologist John Mackey.—ROSS NEITZ

HEALTH

HIT SNOOZE ON YOUR SLEEP PROBLEMS

If you’re having trouble sleeping at night, you’re not the only one. COVID-19 dreams, binge-watching TV before bed and the stress of the pandemic have caused a swell of sleep troubles that some experts have dubbed “coronasomnia.” “So much of sleep is affected by our environment—not just the physical environment, the social environment too,” says Cary Brown, professor of occupational therapy and sleep researcher in the Faculty of Rehabilitation Medicine. She offers tips to help you get some shut-eye.—ANNE-MARIE AGUILAR, '15 BA

CATCH RAYS

Sunlight helps our bodies produce the neurochemicals we need for a healthy sleep cycle, but it’s hard to find in basement offices. Take breaks outside and try a light therapy lamp in your workspace.

FIND ROUTINE

We create routines to help kids sleep, says Brown. But these bedtime cues also help adults. Whether it’s showering in the morning or reading before bed, find a groove and stick with it.

POWER DOWN

Blue light from devices like smartphones can stop your body from producing melatonin—a neurochemical needed for sleep. Turn off devices at least one hour before bed to tell your brain it’s time to rest.

NUMBERS

60

The number of seconds it takes an automatic door push plate made of compressed salt to kill more than 95 per cent of bacteria and superbugs. Two U of A grads who run the startup company Outbreaker Solutions have teamed up with Edmonton Transit to test the plates in some transit stations.

AGRICULTURE

TWO NEW CHAIRS BOOST LINKS WITH BEEF AND FORESTRY INDUSTRIES

Two new research chairs have been created to help connect U of A research with industry partners in the beef and forestry sectors.

Gleise M. Silva, a PhD specialist in beef cattle nutrition, holds the first BCRC-Hays Chair in Beef Production Systems. Silva will work with producers to translate research in cow-calf production into practical advice. Her goal is to help producers save money, maintain forage lands and advance sustainable production.

“Producers are the ones working hard for us from Monday to Sunday,” she says. “I want my research to reach the people who need it most.”

Robert Froese will hold the first Endowed Chair in Forest Growth & Yield. He will build an applied research program that uses data to measure and map how forests will grow.

The industry can use these findings to manage forests in a way that’s sustainable for both the environment and the economy.

Both positions start July 1. —ANNA HOLTBY

U of A Reshapes Itself for the Future

Three new colleges will increase collaboration across disciplines

THE UNIVERSITY OF ALBERTA IS LAUNCHING a new academic structure on July 1, grouping faculties of similar disciplines into three new colleges.

The new model will enable deans and academic staff to spend more time on the university's three key goals: to enhance student learning, research and connections with the community, says U of A President Bill Flanagan. It also offers more opportunity to work across faculties and disciplines to address complex global challenges that demand multidisciplinary solutions.

"Faculties within the colleges will preserve their unique identity and history. They will continue to be the touchpoint for students and alumni," says Flanagan. "Campus Saint-Jean, Augustana and Faculty of Native Studies remain as stand-alone faculties to preserve their connections to key communities and partners."

He says the college model will prepare the university well for the future.

"Enriching the experience of our students will remain at the core of our mission," he says. "We'll provide our students with the skills, knowledge and intellectual curiosity to innovate and strengthen the province's economy and advance social well-being."

The interim college deans will take their posts July 1.

- **Greta Cummings**, '86 MEd, '03 PhD, dean of the Faculty of Nursing, has been named interim dean for the College of Health Sciences. The college will advance interdisciplinary research and teaching across the spectrum of human health and wellness.

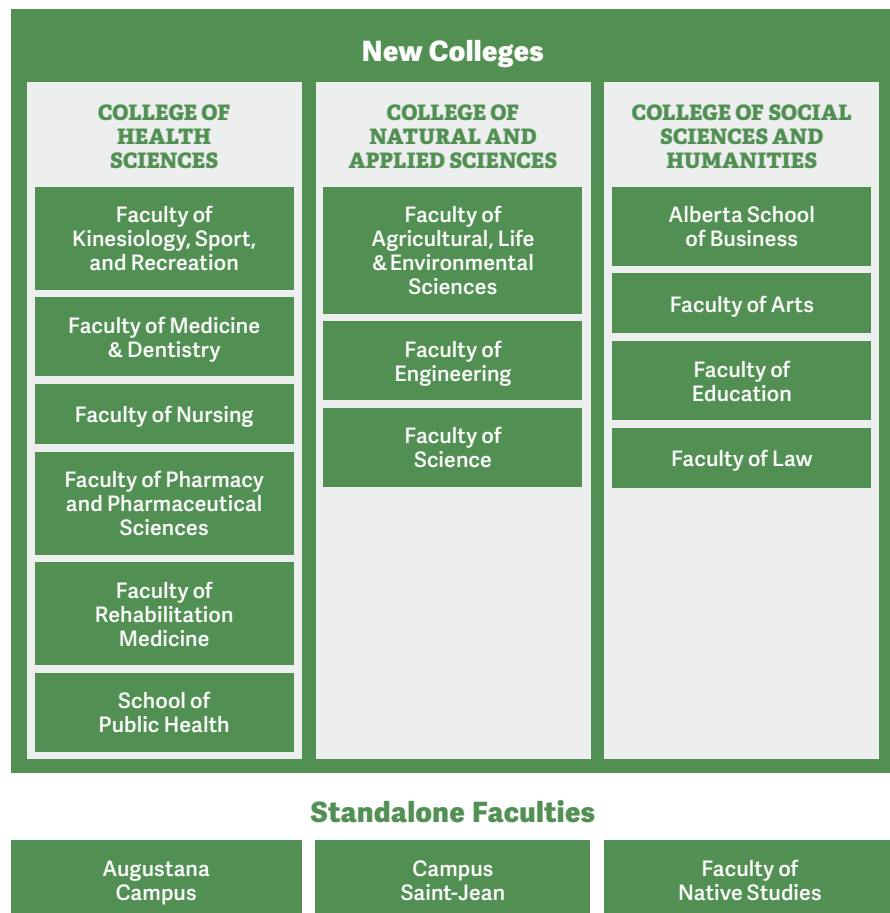
- Joseph Doucet, dean of the School of Business, will lead the College of Social Sciences and Humanities. Through critical inquiry, these disciplines work to expand our understanding of ourselves and our society to foster inclusive, creative, prosperous communities.

- Matina Kalcounis-Rueppell, dean of the Faculty of Science, is interim dean of the College of Natural and Applied Sciences. The college spans a range of science, from fundamental discovery that advances our understanding of the world to the direct application of science to improve our lives.

Alongside the move to colleges, the university is also reorganizing to create central units in human resources, finance, information services and technology, and other areas. The restructuring, passed by the board of governors in December, is part of U of A for Tomorrow, a plan to restructure the university for the future and prioritize teaching, research and the community. The plan is intended to save more than \$120 million by 2022 to address reductions in provincial funding in the last two budgets. In February, the government announced the U of A's grant will be reduced by a further 11 per cent, bringing the total funding cut since 2019 to \$170 million.

In April, Flanagan joined the provincial minister of advanced education, Demetrios Nicolaides, to announce Alberta 2030, a 10-year strategy for higher education and skills. The U of A advocated strongly for several of the strategies, Flanagan says. One key proposal would give post-secondaries greater control and flexibility over their financial affairs, similar to other major Canadian universities, to work toward long-term financial sustainability. "The importance of this change cannot be understated."

Alberta 2030 also proposes to enhance students' experience, boost the capacity to commercialize research, and create greater collaboration with community, industry and other post-secondaries, he says. —ANNA HOLTBY



For more about the University for Tomorrow, go to ualberta.ca/uofa-tomorrow.



ENERGY

Project to Create Jet Fuel from Biowaste Takes Off

A renewable fuel source would curb emissions and create new markets for Alberta producers

Flying could get a whole lot greener thanks to U of A research. **David Bressler**, '96 BSc(Hons), '01 PhD, professor of bioresource technology and fermentation, is leading a three-year project to develop renewable fuel for the aviation industry. Made from waste products like restaurant grease and tallow from the rendering industry, the fuel would have a lower

carbon footprint than fossil fuels.

Biofuel leverages one of Alberta's strengths as a large producer of agricultural oils, says Bressler. Turning waste oils into a hot commodity creates a new market for producers to sell lipids that would normally go to waste—like rendering fats, inedible crop-based oils and corn oil produced from the ethanol industry.

The aviation industry is keen to reduce emissions, and biojet fuel is the quickest, easiest and most effective way to do it, says Bressler. If the product takes off commercially, the patented biojet fuel could result in an estimated \$133 million in revenue and nearly 100 jobs in Alberta by 2030.

Natural Resources Canada has provided \$2.89 million to fund an advanced fuel-testing suite in Bressler's lab and support graduate students and post-doctoral researchers working on the project. —BEV BETKOWSKI

QUOTED

“The launch was one of the most exciting and nerve-racking moments of my life. I kept thinking, ‘If anything goes wrong, that changes the entire course of my career over the next several years.’”

Chris Herd, U of A planetary geology expert, on watching the Mars 2020 Perseverance Rover launch last July. (The full interview is in the 2021 issue of the Faculty of Science *Contours* magazine.) Herd is part of a NASA team that will study samples for clues to whether life has ever existed on the planet



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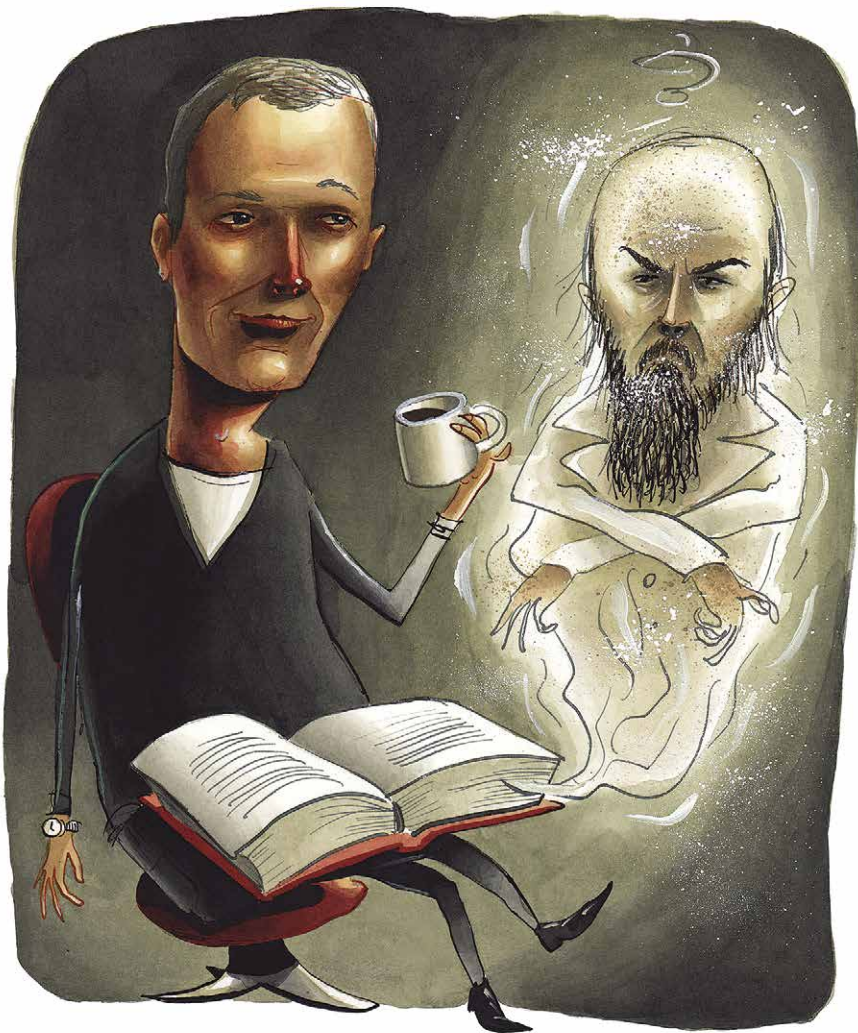
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Learning doesn't end when you accept your degree. We are all lifelong learners, whether we pursue lessons in a class or a lecture hall—or these lessons pursue us. **Curtis Gillespie**, '85 BA(Spec), reflects on the continuing opportunities for education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



Oh, Brothers

ONE OF MY FAVOURITE PROFS ASSIGNED A SEMINAL DOSTOEVSKY NOVEL 30 YEARS AGO. WOULD I EVER FINISH IT?

I have a confession to make. It's not what you think, although I admit I have no idea what you're thinking. But I *imagine* this isn't what you're thinking, since the word confession evokes images of a priest and sinner, a chastened figure who has committed an action so shameful it can only be spoken of in whispered tones from behind a latticed panel. My offence is not sinful enough to warrant penance, though it's true that my atonement involved countless hours of ruthless moral interrogation, some of it even from me.

Here's what happened. When I was in my undergrad years in the Faculty of Arts, the reading loads were enormous. I recall a prof once assigning a 700-page biography of Freud, which he wanted us to read by the following week. He tested us by snap-quizzing us on things like knowing Freud's address in Vienna ("Berggasse 19! You

need to do better than that, professor!"). Among the various barriers to academic success that I faced as a university student—which included sloth, distractibility, television, beer, sports and women—was that I was (and remain) a much slower reader than you might think, given that I've become a writer. Though my grades may have indicated otherwise, my problem was not one of comprehension but rather that I enjoyed reading, often to the point of rereading books I particularly liked. These were the days when deconstructionism was the rampant literary theory on campus and admitting you were reading a novel for something as dopey as pleasure was like saying you enjoyed the workout of breaking rocks in prison.

On top of being a slow reader, I was young. And I don't mean age-young, though I was. I mean experience-young. I was a reasonably self-aware person but still a kid who hadn't experienced much in the way of young love or young heartbreak or any real angst beyond the standard-issue post-teen stuff. My parents were together and happy. I got along with my siblings. I had a couple of weird relatives, but who didn't? In other words, I was a pretty green banana. Then came a comparative literature course with one of my favourite profs, a lovely man named Edward Mozejko. And on the reading list was *The Brothers Karamazov*.

For those of you who don't know, this is one of the towering works of world literature, widely considered Fyodor Dostoevsky's masterpiece. It's a heavy book. Literally. When I picked it up at the campus bookstore, it felt as if I was doing a bicep curl. You know you're in trouble when you assess how long it's going to take to read a book by its weight rather than number of pages. Mozejko, of course, assigned an essay on *The Brothers Karamazov*. I don't recall what the precise topic was, what my mark was or what Mozejko had to say about my essay. But although I did pass the course with an acceptable mark, I left carrying a horrible secret. This may have been decades ago, but my crime has been like a tiny fissure eating away at the ethical



by Curtis Gillespie

dam of my life. I have finally decided to end the torment and confess to myself, my family and my community.

I never finished *The Brothers Karamazov*.

There. I've said it. I feel better already. A weight has been lifted from my soul! *Glasnost!*

The reason I didn't finish the book was that Mozejko gave me permission to not finish. Well, that's probably not exactly how he'd characterize it. We were talking about Marcel Proust one day, as one does, and I happened to mention to Mozejko that I had only read the first few hundred pages of Proust's *Remembrance of Things Past* and had never finished the remaining thousand pages or so. Now, Mozejko is a man who speaks about a dozen languages, a man of immense intelligence but with great kindness and humility, and he said to me, "Oh, that's fine. With a book like that, the point is really just to taste it. You don't go to a buffet and eat the whole thing." It was liberating. You only had to taste something, not eat it whole! So I took that as my cue to drop *The Brothers Karamazov* like a hot samovar. I have no idea how I managed to write an essay on it, but whatever I wrote must have focused on the first couple of chapters because that was all I read.

And yet I never forgot it, probably because the real reason I didn't finish it wasn't because I was a slow reader, but because the book unsettled me and I didn't know why. It was intense, intimidating, and I'm quite sure I just didn't understand even the few bits that I read.

What I mean is that although I was intellectually equipped to understand it, I was not emotionally equipped to understand it. But there it sat, on my shelves, moving from apartment to apartment while I was still a student, then from city to city while I went to grad school, then back to Edmonton when I got married and started working, then from our first apartment to our first house, then to our second house, where we still live. It has moved from one home office to another home

office, from one bookshelf to another bookshelf. But no matter where I went, it came with me, and I never questioned why. It was *The Brothers Karamazov*. That was reason enough.

Over those decades, whenever someone asked me if I'd read it ... wait a minute, check that. Literally no one ever looked at my bookshelves or asked me if I'd read it. But whenever it came up in conversation ... hang on, check that, too. It never came up in conversation. I finally realized I could trace the slight spasm of guilt I'd always carried about not having finished the book all the way back to Mozejko's course. That, my friends, is precisely the germ of guilt that Dostoevsky might have written a 900-page novel about. Count yourselves fortunate to be subjected to only a few hundred words.

Then a funny thing happened this past Christmas. I pulled the book off my shelf and started reading it. I can't even say why. There was nothing momentous about it. I just saw it one day and realized that I was ready to read it. The time had come. Was it pandemic-related? Age-related? I don't know. But let me say this: I now understand the fuss. It is a huge novel in every way, shape and form, and I am now old enough and have experienced enough life to understand it. I have gone through enough joy and love and disappointment and pain in life to appreciate what Dostoevsky evokes. The novel is a human cry of ecstasy and despair, of love and hatred, of success and failure, of desire and repulsion. It is compulsively readable, bottomlessly thought-provoking and yet, in a strange way, quite life-affirming, even though it's about trying to figure out which son killed his father. It's worth the effort.

The great literary critic George Steiner once said to his students at Harvard: "Who among you has never read this book?" One student remembered that most of the class raised their hands, almost embarrassed, thinking they were going to be called out by their professor as substandard. Instead, Steiner sighed: "I envy you so much, you will experience this

masterpiece for the first time, and there is nothing else in the world like that."

The bigger takeaway for me, in this confessional moment, is that in life our learning has so much to do with when doors are open and when they are closed. If they are closed, there's usually a reason and bad things tend to happen when you try to force your way through a closed door. When they are open, don't hesitate, stride through! I wasn't ready for *The Brothers Karamazov* when I was 21 and part of me surely sensed as much after reading a chapter of it. It's too harrowing a look into the human psyche for a kid to comprehend.

In the end, the point really isn't even about finishing or not finishing something, it's about letting your experience be your own. There are plenty of things I have started that overwhelmed me—that I couldn't finish. But that doesn't mean they were less impactful because I didn't complete them. I haven't finished *Moby Dick* or *Don Quixote* or cleaning the garage. They're part of my life and always will be. And what's the downside of admitting that we can't finish everything?

Would my life have been materially different if I'd told Mozejko that I'd only read the parts of *The Brothers Karamazov* I needed to in order to write the essay?

I mean, what's the worst that could have happened? I suppose he could have reversed my mark and failed me. Which, I suppose, might have lowered my GPA such that I would not have got into grad school. Of course, maybe then I wouldn't have travelled to Toronto and Scotland, taken that rewarding road, returned to Edmonton, met and married my wife, had children or had this wonderful life.

On second thought, here's my confession. I don't have any regrets about waiting so long to read *The Brothers Karamazov* from first page to last. Now, as for *War and Peace* ... ■

Curtis Gillespie has written five books and earned seven National Magazine Awards. His New Trail article "A Hard Walk" won gold for best article of 2018 from CASE, an international post-secondary association.

Patricia Makokis, 79 BEd, has devoted her life to building bridges between Indigenous and non-Indigenous cultures. She guides us as we walk through some difficult spaces together and learn what it means to say *wé're all treaty people*.



by Patricia Makokis

Our Collective Mother and Why We Should All Care

THE LAND AND ALL ITS BEINGS ARE CENTRAL TO INDIGENOUS BELIEFS

Story has the potential to take us on winding, bumpy roads, and my life's journey has done that for me, especially in how I approach leadership, community and settler-ally work. For more than 30 years I have been on a learning journey to figure out what it means to be a Cree woman in the interconnected relationships of the web of life.

As a child growing up in northern British Columbia near Prince George, the land was my playground. My family had moved away from our extended family on the Kikino Métis Settlement and Whitefish Lake First Nation to live in a rural logging camp, where my parents both worked. My five brothers and I played among huge pine and spruce trees, picking five-gallon pails of blueberries, raspberries and huckleberries. We climbed stumps, lay on the mosses and loved our playground, our Mother, the Earth. She nurtured our spirits and she fed our stomachs. Bears, moose and wolves were plentiful and we were taught to respect our four-legged relatives. I can remember one morning waking up to see a black bear pawing my bedroom window, looking down on me as I lay in bed. The land was always a part of who I was and it has moulded me into who I am today.

Fast forward many years to the late 1990s. I was team-teaching with one of my mentors, the late Elder Mike Steinhauer. We developed and team-taught many leadership classes at Blue Quills First Nations College (now university) in St. Paul, Alta. Through him, I learned about Cree leadership and governance and traditional ceremonies such as fasting. One day, Mike and I were talking about the Creator's Laws. I was working on my dissertation in educational leadership and I wanted to include them. My mentor had learned the laws (and more) from his mentor, just as they had been passed down orally for many generations in the Cree way. That day, he said, "My girl, I am giving you permission to include the teachings in your dissertation."

You know the saying, "When the student is ready, the teacher will come"? Well, that was me.

One of the ceremonies I learned about was fasting. As I began my first fast, I sat on the land again, this time as an adult. There were many of us, Indigenous and non-Indigenous, embarking on this introspective journey. When we fast, we ask questions. Who am I? What is my purpose? What are my responsibilities to the human family, to the land, the water and Creation? In order to elevate our spiritual consciousness and create a deeper connection with the land, we don't drink or eat anything for four days and four nights. We each sleep in a hogan, a little hut made of willows and covered with tarps to provide protection from the elements. For the first three days, we speak to no one—it is a time to focus on answers to our own questions. Each person has their own reasons for fasting but, essentially, we are all seeking answers toward a better life. We're searching for the meaning of life.

One of my most profound learnings from fasting over the years is our interconnectedness to Mother Earth. I have come to feel a deep spiritual understanding of the land and of the lessons offered me through the Creator's Laws—how they can guide me personally and professionally.

The laws, as taught to me by my mentor, represent the interconnectedness of human beings to land, water, animals and all other beings, including those western society would consider inanimate, such as water, soil, rocks.

The Creator's Law is represented by a circle divided into quadrants. The top left depicts a small braid of grass. Our elders say it is our teacher of *kindness*, because as the grass grows, we cut it, stomp on it, burn it and, despite what we do, it continues to grow. A tree in the top right quadrant represents our teacher of *honesty*, standing straight and tall. On the bottom right is a buffalo, who teaches us *sharing*, for they share their lives so we have life, exemplifying the relationship of man to the animal nation. A rock on the bottom left is our animate (yes, animate) older brother, who teaches us *strength* and *determination* through our connection to the land and to prayer. A red dotted arrow running from the centre through the bottom of the circle is symbolic of our daily efforts to live the "red road" or sweetgrass way: in Cree, *miyo-pimatisiwin*, the good life.

Among many learnings for me when I first started fasting was that when I sat quietly, alone on the land, without talking to human beings, I focused on my other relatives: the ants and the birds, for example. I watched how, early every morning, the birds congregated and chatted, then flew off and reconnected in the evenings. I kept my distance from the ants, respecting their space and hoping they would do the same for me. As I sat quietly on our Mother Earth, I watched, I observed, I reflected on my relationship to all beings.

At the end of the fast, a ceremony is hosted by our elders and all the families of the fasters. Families of many races come together and know that we are one family, the human family. We are all related and connected and responsible for looking after each other and the Earth. Most importantly, we realize that *water is life* and that we all need to protect our collective Mother to survive on this planet. ■

Patricia Makokis has a doctorate in education. As an educator and consultant, she considers herself a servant leader, working for the people. She is co-producer of two educational documentaries: *Treaty Talk: Sharing the River of Life and Treaty Walk: A Journey for Common Ground*. She lives on the Saddle Lake Cree Nation.

thesis

DIVING DEEP INTO ONE IDEA



Who is 'Us,' Anyway?

We live in groups that overlap: families, friends, societies, biological systems. The border of one can blur into the next

WHEN WE TALK ABOUT US, there's an implied edge at which our group stops and another begins. Sometimes it's a fine line. Being part of a group can mean communicating better and looking harder at the mechanisms that tie us. What happens when we choose to expand the concept of us, to switch places with our mentors, to include other creatures, or to acknowledge the parts of us we do not understand? Read on to find out. ■

Where I Stop and You Start

What happens when the idea of “us” grows, allowing it to encompass a little more than it did before?

THE WORD US, AND ITS

subjective form, we, have never been more abundant. Or weird. They poke up everywhere: *We need to come together. This isn't us. Is this who we are?* The concept of us invokes a collective that has become more distant and abstract with each strange, passing week of pandemic life.

That first-person plural has always been a bit slippery. It defines who is a part of ourselves and, importantly, who is not. It also speaks an awkward assumption into being: that we have something, like an experience or a belief, in common. But how could we ever be sure? Maybe this is why it has always been easier to define *them*. And, when the outside world looks more unfamiliar

and unsafe, it's tempting, even comforting, to tighten into a tidy first-person singular.

But as **Emily Hoven**, '16 BA(Hons), has realized, there's a trippy and life-affirming world out there when you expand your bubble of “us.” In her case, it tastes like fresh bread.

The PhD dissertation she's writing at the U of A philosophizes how fermenting and baking sourdough—from the rituals of feeding and discarding the starter to sharing loaves with friends—can teach us a lot about taking care of our communities and ourselves. It encourages us not only to imagine the invisible, but also to imagine the invisible as part of us.

Hoven took up sourdough on her therapist's

recommendation—tending for something else, the idea was, would help her take better care of herself. It quickly became more than following a recipe; it became a relationship. Before handwashing was paramount during the pandemic, Hoven was cognizant of the different cleaning products she used at home—she didn't want to disrupt the delicate balance of microbes proliferating in her starter jar. She has felt real distress when the starter has looked sick, real gratitude when she eats her bread.

“Working with sourdough has made me think in totally different ways about the boundaries of my body,” Hoven says, mentioning a North Carolina State University study. It found the microbiome—the



community of microscopic living things—on sourdough bakers' hands more closely resembles the sourdough microbiome than that of non-bakers' hands. “It has made me conscious of the fact that I'm surrounded by all this other life and that the things I do have

implications for this other life around me.”

It's true: the human body contains as many or more cells of other species, microbes, than actual human cells. When reflecting on this fact, **Justine Karst**, '99 BSc(EnvSci), asks the existentially mortifying question: “Where do we start and the microbes begin?”

Karst is an associate professor in the Faculty of ALES and an ecologist who studies mycorrhiza: the relationship between plant and fungus. (Mycorrhiza is to plant and fungus, as marriage is to spouses.) Trees owe their growth to massive underground networks of fungi. The fungi supply the trees with vital nitrogen from the soil and allow them to send underground signals to each other. In return, the trees supply the fungi with carbon. Much like people and our microbes—or people and anything else, for that matter—the actual cells of fungi and trees are so enmeshed that it's hard to tell where the trees end and the fungi begin. And this connectedness is important. A PhD student in Karst's lab recently found that when trees are more connected to other trees via fungal networks, they grow taller and stronger.

But Karst cautions against romanticizing mycorrhiza—fungi and trees aren't perfect partners. If there's little nitrogen in the soil, the fungi will hoard it. They're still individuals, after all, and don't exist just to serve the trees.

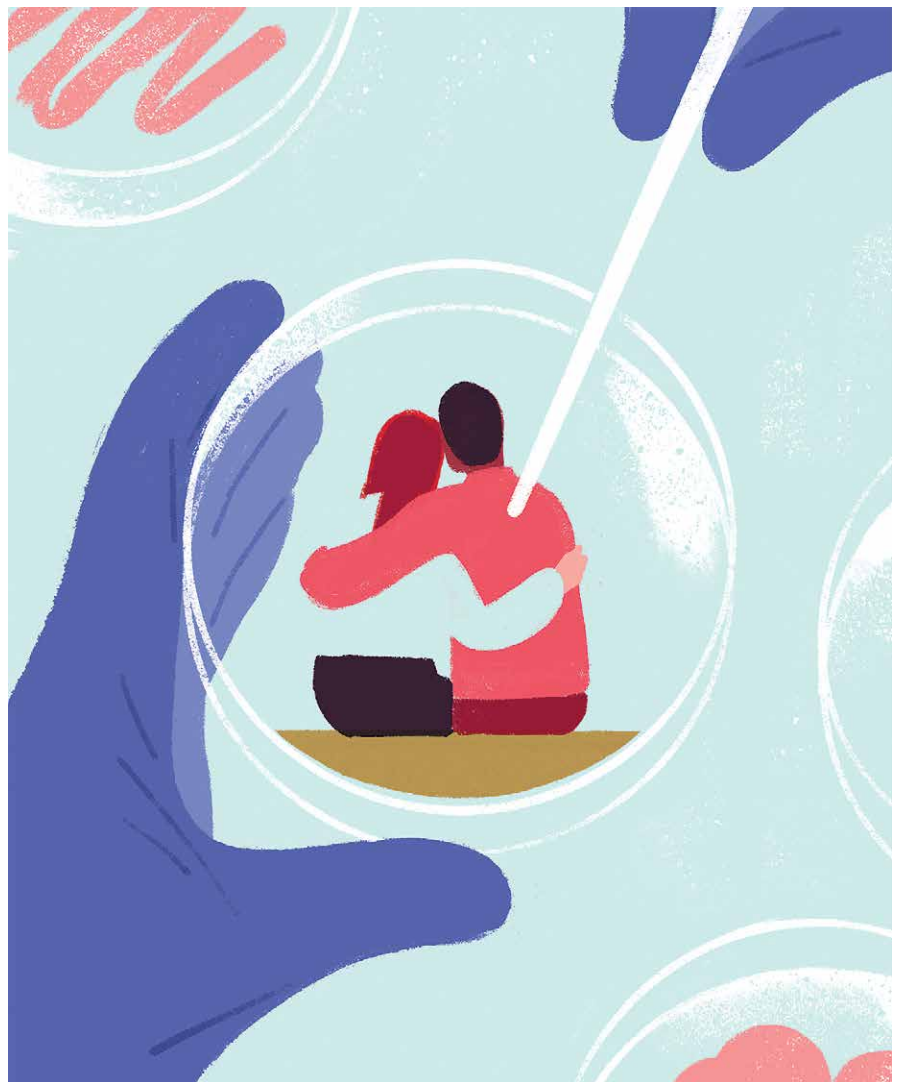
Karst says we can extend this idea to people. “We're all individuals and we're all active agents in our lives,” she says. “But you cannot explain our actions in isolation from the individuals that are around us.”

“We’re all individuals and we’re all active agents in our lives. But you cannot explain our actions in isolation from the individuals that are around us.”

*Justine Karst,
associate professor,
Faculty of ALES*

Realizing the true connectedness of our world is mind-blowing. But this way of thinking might only be mind-blowing to some cultures. As **Patricia Makokis**, ’79 BEEd, reminds us in her essay, “Our Collective Mother and Why We Should All Care” (see p. 12), people have understood the true enmeshment of plants and animals for time immemorial. Once we accept everything living—and even non-living—as part of us, she writes, it’s hard not to feel a greater sense of responsibility to one another. A tree becomes more than something merely beautiful or fascinating, but something deserving of our care.

Our connectedness raises the stakes on what we owe each other. It’s more than a thought experiment, the quaint acid trip of imagining all of our microbes tangling with other microbes, the invisible vast networks beneath our feet—invisible only because of where we’re standing. Seeing the deeply connected “us” as it really is asks more of us, but it’s where the real work begins. —**KATE BLACK**, ’16 BA



A MYSTERY WRAPPED IN A HORMONE

Love brings us together, but what brings love?

YOUR EYES MEET ACROSS A CROWDED app. There’s a spark, a swipe right and romance begins. Chemicals flood your brain, your heart pounds. You feel a connection to the other person. Maybe you write a poem. But if it falls flat, don’t blame the chemicals in your head—not even oxytocin, the hormone and neurotransmitter known as the “love hormone.”

Oxytocin is involved in pair bonding. It’s on hand when you feel empathy and trust, and when you have sex. Later,

oxytocin is on the scene for childbirth and breastfeeding. But it’s not calling the shots. “This is one of those things that people who study hormones and behaviour are always struggling with, this idea that the hormones are like marionette strings,” says Pete Hurd, professor of psychology and neuroscience in the Faculty of Science.

While it may be tempting to fault hormones, you and your behaviour are pulling all the strings. “How you act changes your hormones, and how you behave and think is more important. Your hormones will follow along afterwards,” says Hurd. “The take-home lesson is that policing your thoughts and how you act is what drives the emotion of love.”

We know that love can lead to propagating genes and keeping evolution rolling, but scientists have not entirely figured out the emotional part. “I would say that love is still a mystery,” says Hurd. “I don’t know that neurobiology has any deeper understanding of love than really good novelists have.” —**JENNIFER ALLFORD**, ’84 BA

When the Master Makes Mistakes

What mentors have to learn from their mentees

FROM FAIRY GODMOTHERS TO wise wizards, many of our favourite stories feature sage advisers lending a helping hand to the less experienced. These relationships form in real life, too, albeit with less wand-waving. Students and new professionals seek out mentors with the hope they'll learn skills, build confidence and make connections. It's clear what motivates the mentee to join the relationship—but what about the mentor?

Last summer, **Shelly Jun**, '15 BSc, '17 MSc, mentored a U of A student who had received funding through the Undergraduate Research Initiative (URI). Jun was helping her as the student looked at how some of the URI's partner agencies use evaluation to inform their programs.

Jun, a research co-ordinator with the Community-University Partnership for the Study of Children, Youth, and Families, says she doesn't consider herself a natural mentor. But she made the leap for a simple reason: she remembered how much mentorship had meant to her when she was a student. Like her mentee, Jun had also received funding and mentorship through the URI, an experience that helped her get into graduate school.

Here are four things Jun learned from her experiences as a mentee and mentor.

1. Put the mentee first.

As a mentee, Jun learned more from supervisors who treated her like a colleague rather than an employee. "What probably affected me the most, and encouraged me to follow their example, were the mentors who were invested in my growth," she says.

2. Don't think you're Yoda.

Once she started mentoring, Jun quickly realized she would not just be wisely doling out advice. In fact, being a mentor brought up some personal challenges, she says. "It helped me identify areas for personal development, including patience and active listening."

3. It's not your project to perfect.

Jun noticed her own hesitations to let go when it came to mentees' projects. "It's easy to fall into the mindset of wanting to do all the work myself," she says. "But I'm getting better at delegating and being patient with the iterative nature of the process."

4. It's a beautiful circle.

While a mentee may feel intimidated by their more-experienced colleague, Jun says the mentor should be equally ready to learn. "A lot of my learning has been around seeing my flaws and then having the opportunity to try again. And try again."—ANNA HOLTBY

A TIME TO TALK

When a piece of the communication puzzle—the ability to talk—is missing, innovative solutions can help

THIRTEEN-YEAR-OLD MARC BOUTILIER understands the challenges of not being able to speak in a world where oral communication is the norm. Most especially, he knows the pain and isolation of not being heard.

He also knows the difference that communication devices and strategies can make. Boutilier, who has autism spectrum disorder and apraxia, uses an augmentative and alternative communication (AAC) device, which electronically speaks the words he types.

"I like that I can talk," he says. But it's hard when people are impatient.

"If people are not familiar with Marc, they tend to dismiss his slow typing or his playing with the keys as, 'Oh, he really doesn't have anything of importance to say,'" says his mother, **Gail Boutilier**, '85 BEd. "They won't wait. They will just move on."

Some people don't let him finish typing, instead assuming they know what he is trying to say. Others jump in to type his words for him. "This really doesn't give Marc a sense his voice matters."

Support has come through AAC Camp Alberta. Offered through the U of A's Faculty of Rehabilitation Medicine and March of Dimes Canada, the annual camp brings together kids who use communication devices and teaches them new ways to use them. "It helped Marc see he wasn't alone or strange because he used a device to speak," Gail says. The camp also offers fun activities, like swimming, swinging, music and campfires. In 2020, the camp was virtual with activities like building living room forts, crafts and dancing.

"The primary purpose is to provide a camp experience to children who use AAC, in an environment where it is supported and valued," says Karen Pollock, an expert in speech-language pathology at the U of A and co-founder and director of the camp. Sessions are offered for parents and siblings, too. "AAC is a game changer that opens up so much."

Boutilier's mother, Gail, agrees. "There are lots of other people in this world who speak this way. No one treated Marc as a novelty or like he was less intelligent because he didn't use the spoken word."

The benefits don't stop with the campers. Pollock and her students build a body of research about how campers benefit and the students gain valuable experience. "We've been approached by families and professionals in other communities who are interested in setting up similar camps," says Pollock. "AAC Camp is one of the most rewarding experiences of my career."—**JENNA C. HOFF**, '02 BSc(PT)



Dogs Become Us

From lapdogs to sentries, our canines are part of many cultures in a way no other creature is

THE INCREDIBLE JOURNEY, *Marley and Me, Where the Red Fern Grows:* dog stories run deep in the weave of our cultural tapestry, back into the mists of time to the first night we shared a campfire with our four-legged friends.

Not every human culture views dogs in the same way, but research demonstrates a long interspecies relationship. A study published recently in *Science* undertook a genetic analysis of the remains of 27 ancient dogs. “Right after the end of the ice age,

there’s already quite a bit of differentiation in these dogs, which means domestication originated well into the ice age, maybe 15,000 years ago,” says Robert Losey, an archeologist in the Faculty of Arts and one of the study’s 57 international authors.

Was it just propinquity? Are we opportunists, who duped the kindest and mildest of wolves into guarding our homes in exchange for a warm spot by the fire and some leftovers? Or did some wolfish ancestor size us up and go for

the long game: “Kill yourself a man and you’ll eat for a day, but become his friend and you’ll eat for generations.”

Think back: what’s the first dog story you remember? With some cultural exceptions, people’s first experience of dogs arises within a context of, “we love dogs, dogs love us.” We might love other animals, too, but none finds more roles in society. Working dogs have partnered with pastoralists from ancient times, according to Losey. Guard dogs and the hounds of war have gone to battle beside us. Lapdogs, ever daintier and more elegant, serve no purpose other than to adorn loving keepers.

No other animal shows as broad a range of size, temperament and abilities. Can you imagine a sheep cat, minding the flocks? A seeing-eye cat, patiently leading a human through their days? It’s the cats who set the agenda, and their domestic forms are remarkably similar.

Dogs adapt to our evolving needs and become teacup poodles or Tibetan mastiffs. Dogs actually listen, every owner swears it. Dogs lead from the heart and, once given, that heart will give its last beat in loyalty. Paradoxically, invoking the species’ name has long been used as an insult, to imply that a human lacks will, industry or a kind nature.

So how did dogs become part of us? Trees and their associated fungi thrive together, bonded via mycelia at the roots. Perhaps dogs and humans are likewise symbiotic. Maybe there’s a dog-shaped connection in our hearts that we’re born with, just waiting for dogkind to attach, so that we can grow kindness.

Losey says the team’s research speaks to the length of the relationship, pointing to the fact that changes in dog genetics tend to mirror changes in human genetics, “particularly related to major population movements.” His studies cannot reveal if the two species’ shared long walk through time was first sparked by necessity—anyway, affection soon followed. “People clearly had emotional attachments to their dogs from the very beginning,” he says. And just as fungi strengthen the root systems of trees, stories and research tell us that dogs strengthen us, heart first.

—ANNA MARIE SEWELL, '91 BA(SPEC)



ANAS

What does it take to win the world's top prize in medicine?

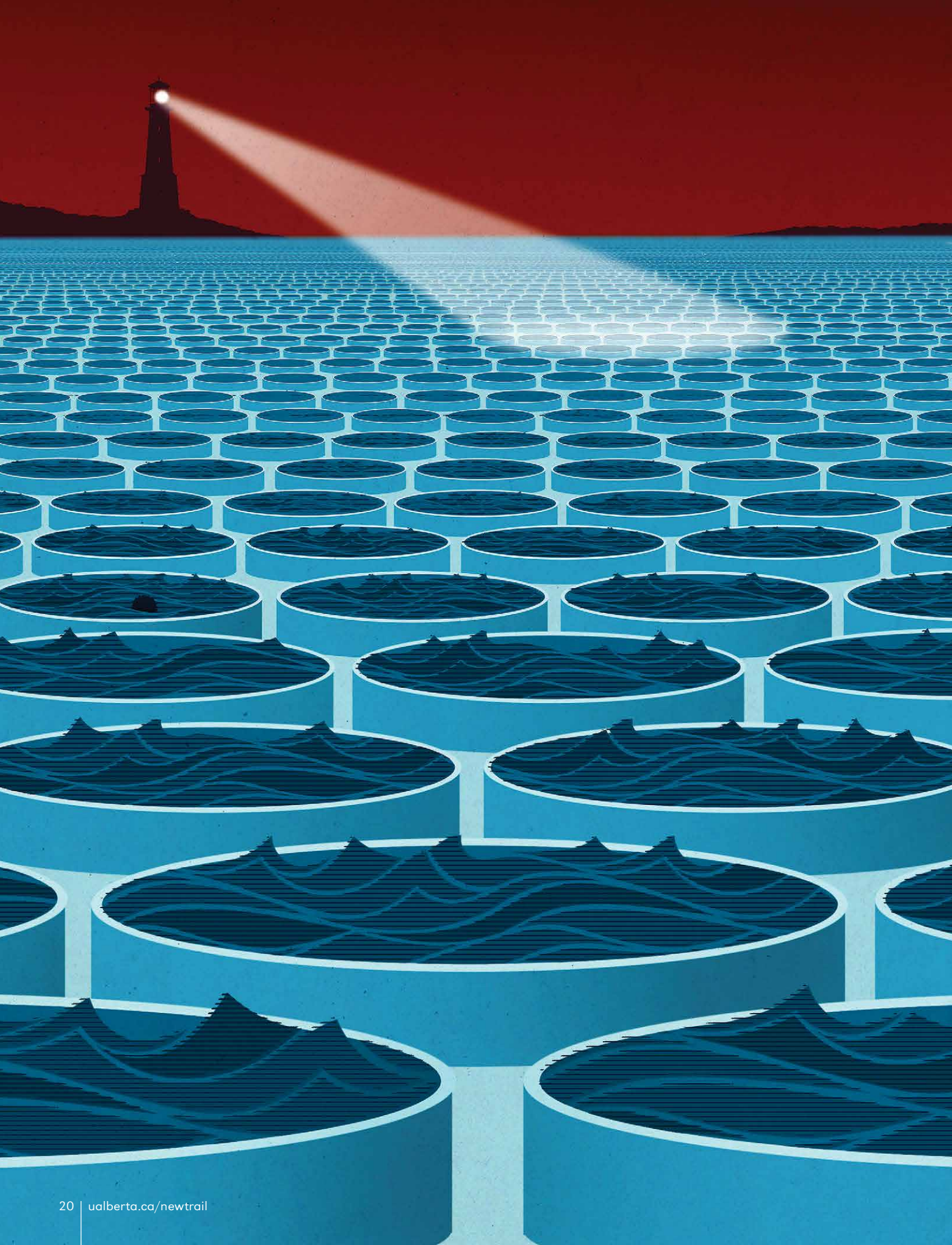
The inside story of the hunt for the elusive hepatitis C virus and a discovery that changed millions of lives

By Bruce Grierson,
86 BA(Spec)

OBEL RESEARCH

Illustrations by
Dan Page





W

hen Chiron Corp., a small biotech company in California, hired a young scientist named Michael Houghton in 1982, it was already clear he was an exceptional scientist.

Several top biotech companies had offered him senior scientist positions based on research he'd conducted since obtaining his PhD in 1977 from King's College London, in England. When Chiron called, Houghton was researching human

interferon genes at a U.K. research institute of the large U.S. pharmaceutical firm, G.D. Searle & Co.

Soon after Houghton arrived at Chiron, he learned about a mystery unfolding in every country.

A dangerous new pathogen that attacked the liver was running amok in the global blood supply. Left untreated, it could cause cirrhosis, end-stage liver disease and cancer. It wasn't hepatitis A and it wasn't hepatitis B. Whatever it was, it was brutal. Apart from turning a blood transfusion into a game of Russian roulette, it plagued the world's most vulnerable and stigmatized people when they shared a needle—for it seemed to spread through contaminated blood. Roughly 150 million people worldwide were infected with it.

Houghton decided to switch fields and devote his lab at Chiron to finding the mystery virus.

"I thought, 'Yeah, this will be a good purpose for my lab,'" Houghton recalls. And, as it turns out, for a good chunk of his life.

By now you probably know the man we're talking about. In October, he won the Nobel Prize in Physiology or Medicine, sharing the honour with Americans Harvey Alter and Charles Rice. Houghton, a virologist in the Faculty of Medicine and Dentistry and director of the Li Ka Shing Applied Virology Institute at the University of Alberta, is the first scientist based at a Canadian university to win a Nobel in medicine since Frederick Banting discovered insulin at the University of Toronto in 1923.

And that, you might assume, is the story in a nutshell: young researcher gets on the train and hops off 40 years later at the summit of human accomplishment, feted by the world as a hero.

But of course, the story isn't that tidy. And the final chapter is still being written.

"You want to know what it takes to win a Nobel Prize? You do something that many people think is not possible," says **Lorne Tyrrell**, '64 BSc, '68 MD, virologist and founding director of the Li Ka Shing Institute of Virology, which encompasses the Li Ka Shing Applied Virology Institute that Houghton leads. Both work in the Department of Medical Microbiology & Immunology in the Faculty of Medicine & Dentistry.

Indeed, it's necessary to *not* realize it's impossible in order to be able to do it, as the Nobel-winning physicist J. Michael Kosterlitz once framed the task.

In video meetings with media following the Oct. 5 Nobel announcement, Houghton presented to the world an expression that was ... complicated. A mixture of joy, relief and gratitude, for sure. But the face of the scientist, now 70, also hinted at the kind of determination you'd expect of someone who deals in the impossible.

IN 1982, THE DISEASE HOUGHTON decided to tackle was known only as NANBH—non-A, non-B hepatitis, as in not caused by hep A or B viruses. A mysterious blood-borne disease defined by what it wasn't. This would become his quest: to chase a shadow.

Together with Qui-Lim Choo, whom he recruited in 1983 along with Amy Weiner, Kang-Sheng Wang and Maureen Powers, Houghton set to work. One of the things that had slowed progress on NANBH—let's call it HCV, the hepatitis C virus, since we know now that's what they were seeking—was the lack of suitable animal models. Other than humans, hep C is only known to infect chimpanzees.

Houghton visited the lab of Daniel Bradley of the Centers for Disease Control and Prevention, an expert in the NANBH chimpanzee model. With Bradley's collaboration, the Chiron team extracted nucleic acid (DNA and RNA) from infected chimps and patients and cloned them to create vast libraries containing millions of nucleic acid sequences. They began sifting through them for one that looked as if it didn't belong—a task akin to finding a single typo in a dictionary.

These days, with modern techniques that vastly speed up the copying and sequencing of segments of the genome, virology is a different beast than it was then. Nothing in Houghton's tool kit at the time was quite up to the scope of this endeavour. "The methods we were applying were not sensitive enough," he says. If today's technology had been available back then, Houghton says, "it probably would have taken seven weeks" to find the mystery virus and sequence it.

Instead, it took seven years.

It didn't help that no one really

knew what kind of pathogen they were looking for. Was the virus like hep B or yellow fever—or even a prion? Or maybe it was a retrovirus like HIV. Houghton's strategy was to go wide, trying many different molecular approaches at once based on the scientists' best guesses. It was like fishing with multiple rods over the side, each hook carrying different molecular bait. At one point, more than 20 different approaches were in play.

Their work was painstaking. And fruitless.

"After two or three years," Houghton says, "we were still shooting blanks."

THE PATH TO ANY NOBEL PRIZE IS paved with failed experiments, almost by definition. The breakthroughs that win a Nobel tend to be innovations wrought by failures that force you to rethink and try new approaches.

One day in 1985, three years into the research, Houghton went next door to the lab of George Kuo to discuss a new approach Houghton had been considering involving the generation of monoclonal antibodies against HCV. That key discussion convinced Houghton to try an immunoscreening approach to bacterial clone libraries. At about the same time, Bradley suggested the same idea.

So, the Chiron team put another fishing rod over the side, so to speak.

The tactic, never before tried to identify a new virus, would use antibodies—proteins in the blood that bind to foreign substances—to help detect the virus. The team would copy the DNA and RNA from chronic hep C carriers into DNA in bacteria and make libraries of many millions of bacterial colonies. Then they could screen the libraries using samples from patients with chronic hep C.

If the idea worked, the antibodies would sniff out and bind to the foreign stowaway, the hep C virus, in a rare one-in-a-million colony.

Over the next couple of years, Houghton and Choo sifted through the cloned DNA and RNA in 11 different bacterial

libraries—millions upon millions of genetic sequences. They found nothing at all that might be the elusive quarry.

Nothing.

It has been said that people, like teeth, come in two types: incisors and grinders. And surely this applies to scientists, too. Incisors make an early impact with a provocative paper, enjoy early fame and then often fade from view.

Houghton is unquestionably a grinder. People who've worked with him say he is like a dog on a bone. "What distinguishes Mike compared to other researchers is that he zeroes in on a goal and goes after it, and he just never lets go," says John Law, lead virologist in the Li Ka Shing Applied Virology Institute and a research associate in the Department of Medical Microbiology & Immunology. "He's not going to fall back on Plan B just because Plan A is hard."

Back in 1987, after five years of trying and failing to find hep C at Chiron, Houghton was beginning to feel some pressure as the project leader responsible for the research. "The investors put pressure on management, and management put pressure on me." Houghton knew he was close to being cut loose.

He didn't particularly care. This was his mission: to fight the toll of disease on so many lives around the world.

"You can go ahead and fire me," he remembers telling his boss. "I'll just continue to work on this elsewhere."

THE NEEDLE IN A HAYSTACK

By the fall of 1987, Houghton and his team at Chiron had tried 30 to 40 different approaches and sifted through literally hundreds of millions of recombinant clones.

Up to that point, Houghton and Choo had been screening the bacterial libraries with serum derived from the rare patients and chimps that had recovered from NANBH infection, assuming they

"We knew we had it. I don't take drugs to feel good, but I was on a high for two years afterwards."

MICHAEL HOUGHTON



would have the highest antibody levels. They decided instead to use serum from NANBH patients who had not recovered.

One day, while combing through a bacterial library—in a sample that contained a bit of contaminating "goo" that made it look so unpromising it was almost thrown out—Choo found something. It was "a very tiny little clone," Houghton says. The wee-est fragment of a copy of ... what? He and Choo scrutinized it over several months. It looked different from anything they'd seen, not derived from human or chimp genomes. Foreign.

It was a single, small nucleic acid clone derived from a large molecule typical of RNA viruses. Houghton and Choo also showed that the RNA encoded a protein to which most NANBH patients had antibodies that were not present in uninfected control patients. Based on this, Kuo developed a method to test a large number of patients, which confirmed the presence of antibodies in NANBH patients and not in control patients. As Houghton and Choo found more and more related clones and determined their

THERE HAVE BEEN 111 NOBEL PRIZES IN PHYSIOLOGY OR MEDICINE

PORTRAIT ILLUSTRATION BY ADAM CRUFT

sequence, they saw very faint but significant similarities with known flaviviruses such as dengue and yellow fever. That was when they knew they had it.

Houghton disclosed the finding at a seminar at the University of California, San Francisco, in 1988. Some hepatitis experts were skeptical, even after seeing the data. But not Houghton, Choo and Kuo. “We knew we had it,” Houghton says. “I don’t take drugs to feel good, but I was on a high for two years afterwards.”

Two years. That’s how long it would take to use their precious little snippet to sequence the whole virus. And then to convince the world, with at least eight rounds of verification, that they had the real deal.

DEADLY VIRUSES CAN BE QUITE beautiful. Hepatitis C turned out to be caused by an RNA virus very distantly related to tropical diseases like yellow fever or dengue. Under the microscope, it was small and round and enveloped with surface proteins—a bit like the now-familiar SARS-CoV-2 virus that causes COVID-19—the better to get its hooks into its host.

With a blueprint to work from, the team rushed to develop a test to screen blood for the newly identified contaminant. The team announced its blockbuster discoveries in *Science* in 1989: the isolation of the hepatitis C virus and a test that could successfully detect the virus in human blood.

Blood banks around the world finally had the gatekeeper they needed. Until then, the odds of getting hep C from transfused blood had been around the same as drawing a face card in a deck. With new screening tests that could detect tainted blood in advance, HCV was virtually eliminated from the Canadian blood supply by 1992.

Beyond making the blood supply safer, Houghton et al. published the

genetic sequence for HCV, which allowed researchers to develop antiviral drugs to treat hep C. It looked as if the hard work was over.

It wasn’t.

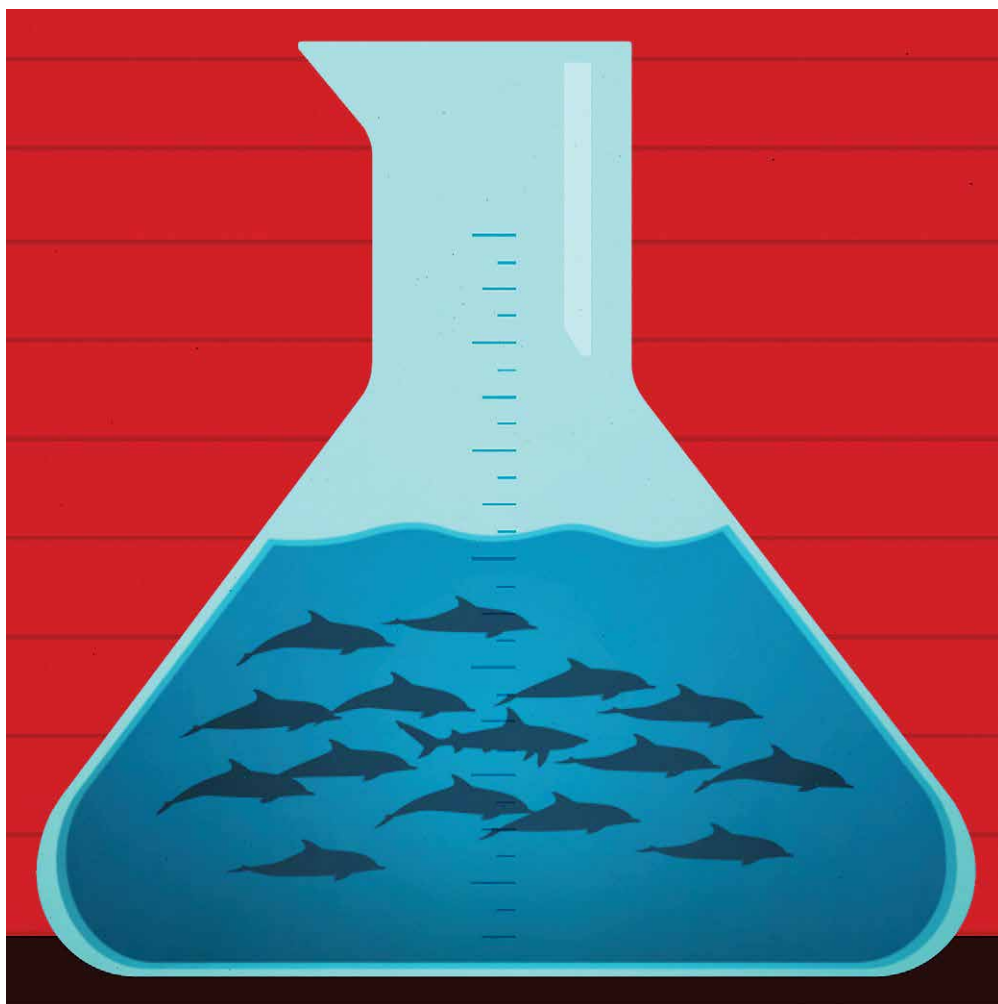
THE PROMISE OF MAKING LIVES BETTER

This is a story about hepatitis C. But it’s also a story about hep B—for it was Lorne Tyrrell’s work on hep B that, in a roundabout way, built the Li Ka Shing Institute of Virology at the U of A. From Tyrrell’s research, pharmaceutical company Glaxo produced the antiviral drug lamivudine, the first oral treatment of chronic hepatitis B, and sank enough funds into the U of A to begin robust virology research and

development. Hong Kong billionaire philanthropist Li Ka-shing decided to invest in the scientist whose work had improved, if not outright saved, millions of lives: one Lorne Tyrrell. It was the infusion of \$25 million from the Li Ka Shing (Canada) Foundation that attracted \$52.5 million from the Government of Alberta through Alberta Innovates. The funding allowed Tyrrell to vastly expand his budding virology institute and to found the Li Ka Shing Applied Virology Institute in 2013.

The new institute was tasked with transforming virology research into treatments, drugs and vaccines that would directly improve people’s lives. And Tyrrell had just the person in mind to lead it.

It began with a phone call in 2009. It was a call that was bound to happen sometime. Tyrrell, in his lab,





had made his mark with hepatitis B. Houghton, in *his* lab, had identified the hep C and hep D viral genomes during his time at Chiron. Between them, they nearly covered the alphabet. It was about time they stopped circling each other like double-helix strands and met.

Houghton was driving through San Francisco one sunny lunchtime when he got a call from Tyrrell. Houghton was then at a different small biotech outfit, where he was working on herpes viruses. Tyrrell floated the news that a new institute within the Li Ka Shing Institute of Virology would focus on translating lab discoveries into practical and commercial applications. It needed someone to run it. Tyrrell wanted an outstanding virologist to apply for a grant from the new federal Canada Excellence Research Chair program, which would guarantee funding for seven years.

“Do you know anyone who might be interested?” he asked Houghton.

It was a nervy overture. If there is such a thing as a rock star in the world of virology, Houghton was it. He had won the prestigious Albert Lasker award in 2000. In 2003, his team had developed a SARS vaccine to address the major health threat of that year. (The SARS virus disappeared quite quickly, but had the vaccine been commercially manufactured and stockpiled, Houghton believes it could have changed the course of another SARS virus outbreak: COVID-19.)

On the phone with Tyrrell, Houghton fished for a couple of names of folks who might be interested. “But you know,” he said finally, “I might be.”

It was exactly what Tyrrell had wanted to hear.

RESEARCH THAT CURES DISEASE AND improves people’s lives—this is what drives Houghton and turned his eyes toward Edmonton.

Canada typically lags behind the United States in this type of “bench to bedside” research, and Houghton was thrilled to see the U of A cranking up that commercial energy. It was one of the things that made him take the job.

After arriving on campus, he wasted no time in hiring a vaccine team that included a dozen scientists and technicians, many of them Canadian, with Tyrrell as a close collaborator. The goal was to work across disciplines to turn basic research into a safe human vaccine to prevent hep C.

Spirits were high. But the vaccine team would soon run into major challenges—owing partly to the sneaky nature of the hep C virus.

“The virus is difficult in a few senses,” says Law, the lead virologist on the vaccine team. Each strain has a wildly different genetic signature. “It’s almost like a person who keeps dressing up differently to get into a bar he was kicked out of,” says Law. “He keeps putting on different clothes to get past the bouncer multiple times.”

VACCINES TRICK THE BODY’S IMMUNE system into building a defence against a phantom scourge it thinks it’s encountering. The hep C vaccine being developed at the U of A is made from a cultured human cell tracing back to a single donor. It isn’t a weakened copy of the whole virus but rather a little piece of the outer protein shell. And that shell is super-delicate. Like a soufflé.

“It comes apart easily,” says Law. “Also, the cells don’t like to make this protein. Other vaccines, it’s almost like making a piece of copper. It’s easy. But now we’re making a piece of gold. And we need to give it to everybody. So, we need to have an efficient way to go to the gold mine and extract enough to give it to everybody. And keep the costs down.”

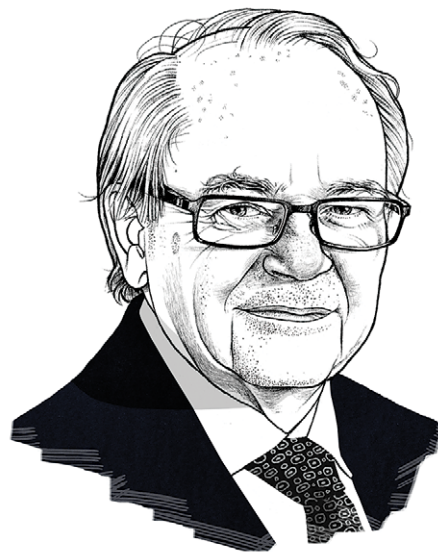
Despite the challenges, something happened in 2013 that lifted everyone’s spirits.

Law and his team were experimenting with a new technique. Many were skeptical it would work, but after many trials, they got a promising result. The technique seemed to neutralize or prevent infection for multiple different strains of the virus. They had solved, as Law explained it, the “getting-past-the-bouncer” problem.

“I remember the day we sent [Houghton] the data,” Law says.

“To win a Nobel Prize, you’re making a discovery that is transformative.”

LORNE TYRRELL



“It was right at the time he had to give a report to the funding agency.” At a media conference, Houghton coolly presented the news. The U of A had made, for the first time, a hep C vaccine that appeared to work against most known strains of the virus.

It was a game-changing development—a development that led to a promising hep C vaccine that Houghton’s team hopes to take to human trials this year or next.

“We’ve got a lot of partners lined up around the world—the United States, Germany, Italy and maybe Australia—to test it in the clinic as soon as we’ve made it. And I think it has a good chance of working,” says Houghton.

THE ULTIMATE GOAL: ERADICATION

Houghton is sometimes asked why we need a hepatitis C vaccine at all. After all, thanks to his original hep C discovery, drugs now exist that can quickly cure most patients with few side-effects. His best argument

THE NOMINATIONS FOR THE NOBEL PRIZES ARE KEPT SECRET FOR 50 YEARS

goes like this: Any treatment, no matter how effective, is still just playing whack-a-mole with the disease. Despite advances in treatment, hepatitis C has infected an estimated 170 million people worldwide, while 71 million live with chronic infection that can lead to liver disease and cancer. Ultimately, a vaccine is the only way to eradicate it from the planet.

And quite apart from the cost in human suffering, there's the financial hit. Tyrrell likes to say that if you accidentally drop your hep C pill down the sink, you'd better have the nearest plumber on speed dial. A full course of treatment costs around \$60,000. An effective HCV vaccine would save Canada's health-care budget close to \$1 billion in antiviral drug costs over 10 years, Houghton estimates. "If you figure out how much it's going to cost to treat those people with drugs, versus how much to vaccinate, then it's night and day. It's at least an order of magnitude cheaper to vaccinate."

EVERY YEAR SINCE 2012, TYRRELL HAD been nominating Houghton for the Nobel Prize. And every year Tyrrell had called the university's president and dean of the Faculty of Medicine & Dentistry to say they should keep an ear out.

He knew in his bones that Houghton was deserving. "To win a Nobel Prize, you're making a discovery that is transformative," he says. The hep C discovery has saved or transformed millions of lives, if you count the curative drugs developed from it and the blood screening that prevents the disease in the first place. An annual international conference around hepatitis C has been running for 27 years—a whole discipline that wouldn't exist without the work of Houghton's team.

Then last Oct. 5, at two minutes to 4 a.m., Tyrrell woke up as he does every year to check his phone for Nobel news. Nothing. He waited a few minutes. Nothing. And then ... the kind of news that chucks a high-water mark onto a whole life.

Houghton was in California.

His phone rang at 3:10 a.m. local time. The Nobel committee didn't have his phone number, so it was his friend, Tyrrell, who woke him up.

"Congratulations, Mike," he said. "You just won the Nobel Prize."

There was silence. Ice ages came and went. It was one of the greatest moments in the history of the University of Alberta.

Except.

What if Houghton—the man Tyrrell had hired partly for the kind of stubborn decisiveness that made him an awesome research scientist and a refuser of prizes on principle—refused the Nobel?

After all, he had refused the Gairdner in 2013, Canada's most prestigious award in science, when he learned that it would go to him alone. To his mind, his former colleagues were an inseparable part of the hep C discovery. Choo was his wingman, working 100-hour weeks at the bench for years on end. And Kuo, well, he was the one who

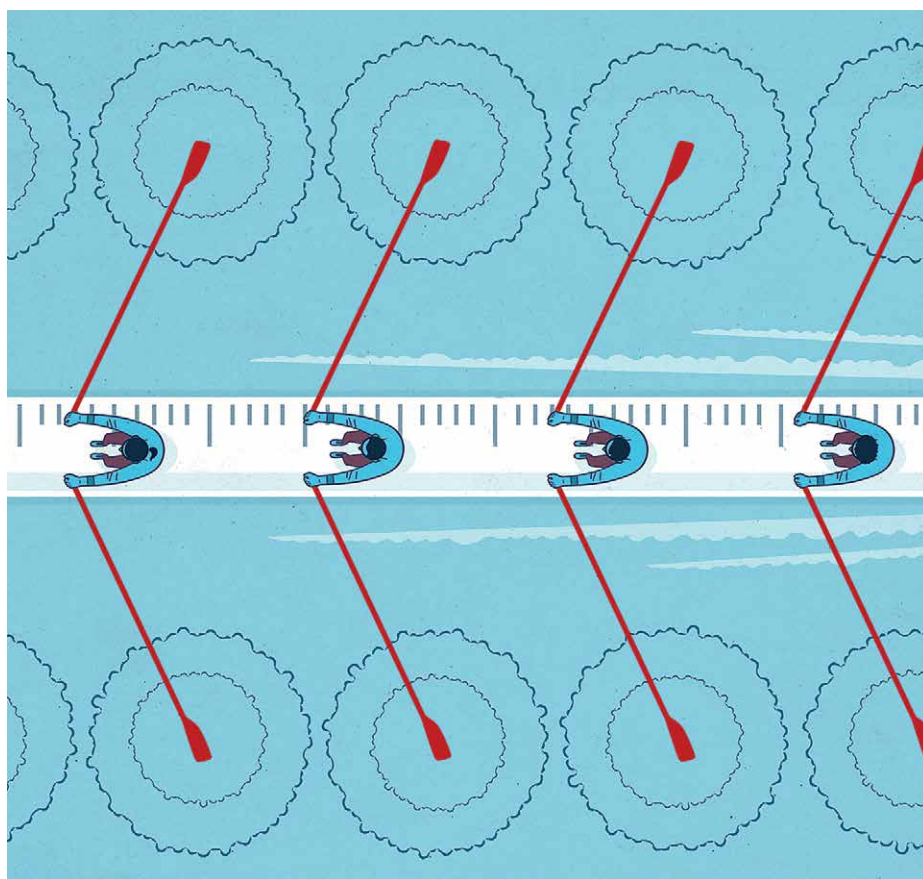
had convinced Houghton to try the approach that ultimately worked.

His frustration was not just about recognition. It was, and continues to be, that the world seems not to acknowledge the way science works, he says. Scientific discovery is not some kind of transoceanic row by a solo sailor. There is no single "aha" moment by the genius in charge. Innumerable small wins along the way advance the technology in ways the world never sees.

"I don't think I'm being unduly ethical," he says now. "I'm just being honest. When you've worked with people for a long time and you know that they've made key contributions, it's just basic honesty."

Which is why Houghton, after agonizing, told Tyrrell in 2013 he wouldn't accept the Gairdner (or the \$100,000 that goes with it), a gesture that was unprecedented in the award's 54-year history.

Anticipating the same dilemma



this time, Tyrrell had video-called Houghton the previous Friday for a temperature check. Just as he feared, his colleague was deeply conflicted. “Michael, we can’t go through this again,” Tyrrell said. “Please. Look straight at me and tell me, ‘I will accept the Nobel Prize if it’s awarded to me.’”

Houghton said he would.

IT’S CUSTOMARY FOR NOBEL

acceptance speeches to be a little bit lighthearted. When U of A grad **Richard Taylor**, ’50 BSc, ’52 MSc, ’91 DSc (Honorary), won the 1990 Nobel in physics for his work at Stanford, he said: “We were asked to be witty. But after a great deal of reflection I have decided that quarks are just not funny. ... Perhaps next year the Royal Academy will award the physics prize to someone in condensed matter physics or general relativity. Those are hilarious subjects.”

Houghton’s speech wasn’t like that. Instead, via Zoom from his home in San Francisco, he laid a sober bread-crumble trail of his path to the hep C discovery, recognizing by name everyone who contributed along the way. Receiving a special hat tip were Choo, Kuo and Bradley.

It was Houghton’s way of cutting the Gordian knot. He was upset at how major science awards tend to prop one scientist up in the shop window. But he was honoured.

“It would be too presumptuous to turn down a Nobel,” he says. He owed it to the U of A, to Tyrrell and to his colleagues not to refuse it. “And also, by accepting the Nobel,” he says, “I’ve been able to get the message out loud and clear: ‘This was a team effort.’”

After the announcement, the journal *Nature* reached out to Kuo and Choo for comment. Both took the high road. Kuo admitted he was disappointed to have been left out but was pleased to have had a hand in the accomplishment. And to have been able to model for his children “how important it is to work hard on something that you feel passionately about.” Choo broke down and cried — not with

“[The virus is] almost like a person who dresses up differently to get into a bar he was kicked out of.”

JOHN LAW



39 PRIZES IN MEDICINE HAVE BEEN SHARED AMONG THREE LAUREATES

bitterness but with joy. “It’s my baby; I’m so very proud,” he told *Nature*. “How can I not be proud?”

The magnanimity breaks your heart. But by Houghton’s lights, gracefulness in the face of discourtesy should never have been asked of these two men.

“As knowledge and technology grow exponentially around the world and with an increasing need for multidisciplinary collaborations to address complex questions and problems, there is a case to be made for award committees adjusting to this changing paradigm,” he wrote in an op-ed in *Nature* in 2013 after refusing the Gairdner.

“What matters is that you are successful with a group of people. I firmly believe the ethical way forward is for all institutions to be more inclusive,” he adds today.

That is science’s bottom line. You’re always building on previous work. No one is freestyling. It takes a team to win a Nobel Prize.

A QUIRKY FACT ON THE WAY OUT THE door here: Winning the Nobel Prize buys you almost two more years of life. The number comes from a 2007 study based on the lives of 528 Nobel recipients and nominees from 1901 to 1950. No one has been able to explain the phenomenon, though some have speculated that the spike in status may somehow boost the immune system. Perhaps the body knows it has earned a victory lap.

Or maybe the type of person who wins a Nobel is too dedicated to give up those two extra years in the lab.

The famed Merck virologist Maurice Hilleman, who developed eight of the 14 vaccinations that kids get today, carried in his pocket a list of childhood viral diseases that had yet to be conquered. This was his to-do list. When he knocked one off (rubella: check) he would literally cross it off and move on to the next.

Houghton has something of that same mindset. Shouldn’t it just be a normal thing to want to fix the world? And to believe that you can?

“If you really think about it, it’s almost a disgrace that we know so little about so many major diseases,” he says. “Alzheimer’s, Lou Gehrig’s disease, inflammatory bowel disease, multiple sclerosis. We are capable of curing those diseases. Why haven’t we? Because there’s not enough funding? Yes. But also, there’s not enough cultural momentum to focus on disease. And that sounds ridiculous, doesn’t it?”

Houghton has his own to-do list, and it is Hilleman-like. The applied virology institute is collaborating with a wide international network to research, among other things, a Group A streptococcus vaccine, novel therapeutics for Alzheimer’s disease and cancer immunotherapy.

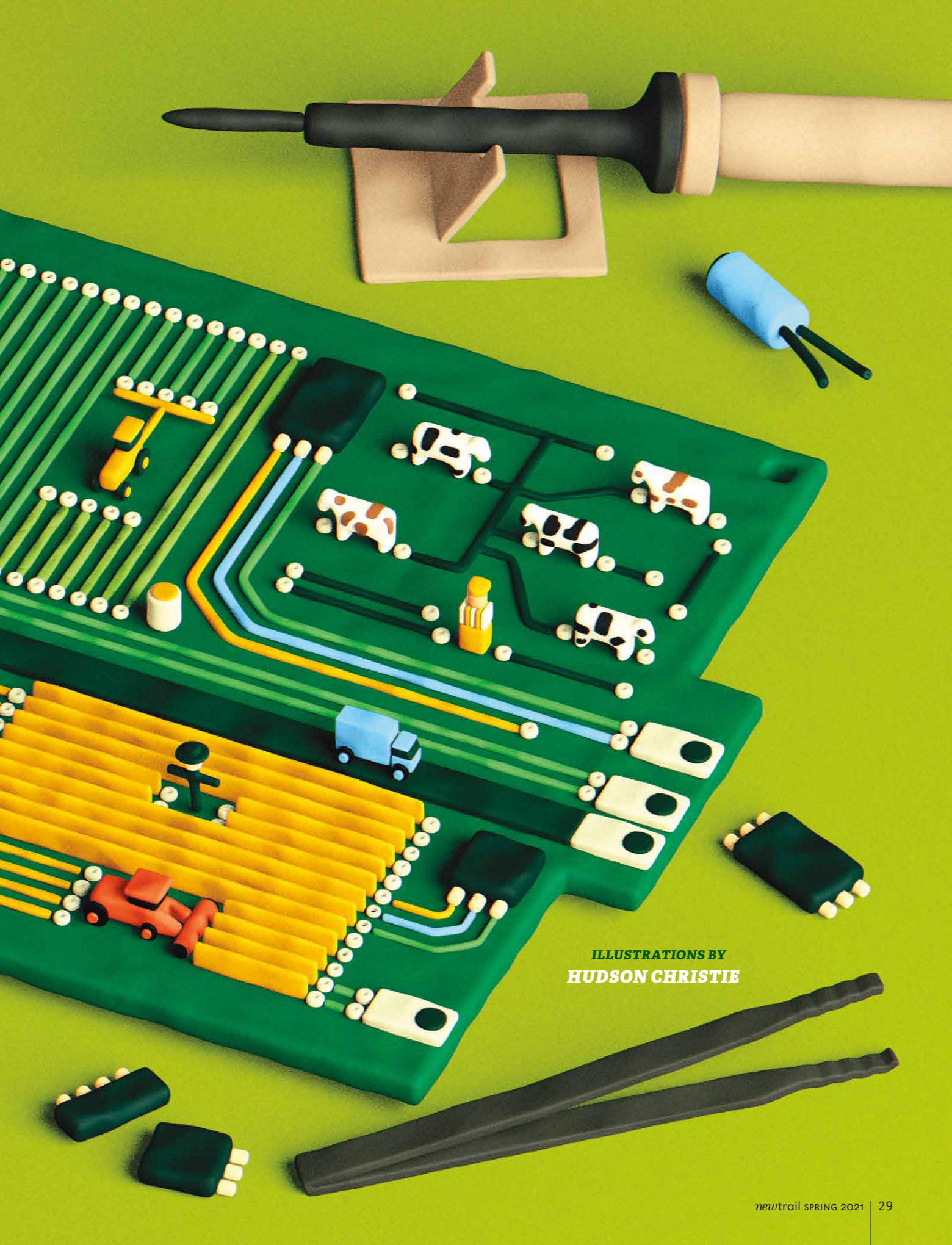
“I’ve always felt that contributing to disease solutions is well worth all the failures, all the frustration, all the funding issues, and all the politics,” Houghton says.

“Millions of people are dying and suffering from so many diseases around the world. Working for 40 years on HCV, and several years on other diseases, is the least that I can do.” ■



**We look at tomorrow's
dinner, from the lab to the
farm to the supply chain.**

The Future of Food Starts Now



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HUDSON CHRISTIE

THE FUTURE OF FARMING IS SMARTER

In the drive to become more efficient and adaptive, farms are becoming innovation incubators

By **Therese Kehler**

THE FUTURE OF FARMING MIGHT BRING TINY DRONE pollinators or a fishy foray into conserving water in greenhouses. It might bring an app that diagnoses plant disease, artificial intelligence that reduces a farmer's driving time, or robotics that lend some extra hands.

Future farming might bring some, all or none of those. What it will bring, says **Stan Blade**, '81 BSc, is change.

"This is an industry that is looking at how it can expand, how it can do things in a more informed manner, how to be more efficient, how to generate more revenue," says Blade, dean of the Faculty of Agricultural, Life & Environmental Sciences. "There's a reason why agriculture and food stories are above the fold in the business section these days."

That reason is food production, as an increasing number of mouths to feed is divided by challenges such as a shrinking and aging workforce, climate change and reduced arable land. Between 1971 and 2011, for example, Canada lost about six per cent of its agricultural land—approximately 3.9 million hectares—to the growth of cities, highways and airports, oil and gas, mining, and alternative energy projects, according to a York University policy paper. And Alberta's two largest cities grew by 52 per cent between 1984 and 2013, swallowing some of the province's top-ranked farmland, according to a University of Alberta study.

Farms and ranches take up just seven per cent of Canada's land mass but they're cornerstones of



the food production system, with more than 193,000 farms providing oilseeds and grains, fruits and vegetables, poultry, beef and other meats.

Meanwhile, a rise in small-scale farming systems is diversifying how food is produced in Canada.

Canada's greenhouse industry, for example, has been growing steadily for eight years, producing more than 660 million kilograms of fresh fruits and vegetables in 2019. Aquaculture farms, which raise fish, seafood and edible marine plants, now exist in all 10 provinces plus one territory.

There's even a fledgling industry that mashes the two together in the form of aquaponic farming systems, raising both fish and vegetables for food.

A Perfect Circle

In an engineering building not far from Blade's campus office is Rafiq Ahmad's Aquaponics 4.0 Learning Factory, nicknamed AllFactory, where traditional hydroponics will meet the fourth industrial revolution.

Call it Agriculture 4.0, with pools of tilapia fish.

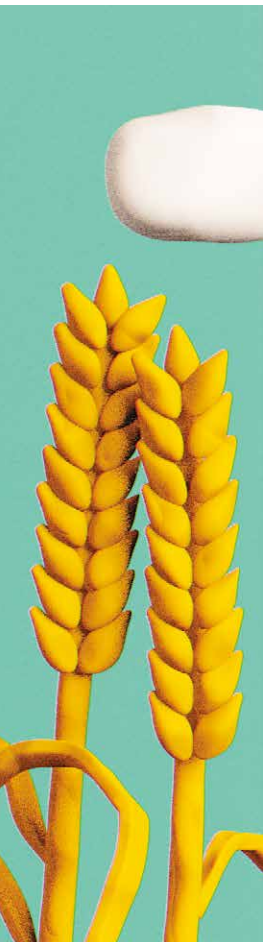
"Everybody thinks that engineering is restricted to just mechanical systems ... cars, or airplanes, things like that," says Ahmad, an assistant professor of mechanical engineering. "That was something I wanted to change here at the University of Alberta."

AllFactory is a 33-square-metre factory-in-a-lab that will see traditional methods of aquaponics practised alongside the development of machine-learning technologies for the integrated fish-and-plant system.

Aquaponics is an indoor circular system in which wastewater from the tilapia pools is circulated to plants that use the nutrients, filter the water and return it to the fish. (Crop choices would rely on consumer markets, location and local climate, pest resistance and how well the crops take up nutrients.) The system's environmental and economic advantages — nutrient recycling, minimal water loss and dual income streams — have intrigued Alberta farmers since the early 1990s.

The project received funding and approval in early 2020 by NSERC Canada. The pandemic has stalled the final setup of Ahmad's learning factory, but seeing how COVID-19 has affected on-site workforces has reinforced his confidence in the need for engineered, automated solutions.

"You need to constantly monitor the plants, the nutrients in plants. You have to monitor fish growth. You have to monitor that nothing goes wrong in the process on a daily basis, even an hourly and minute basis," he says. "If we cannot bring a lot of people to work, how can we make it



"This is an industry looking at how it can expand, do things in a more informed manner, generate more revenue."

—Stan Blade

completely autonomous so that people can monitor from a distance?"

The AllFactory will partner with businesses related to food production, especially those looking for engineered solutions to specific problems. In fact, one such conversation, with a U.S. company that develops aquaponics systems, inspired Ahmad's recent purchase — a small drone.

"Their problem was related to broad-based pollination," he says about the company's dilemma. How do indoor plant systems pollinate? "That is a big issue in aquaponics or hydroponics systems. Because you cannot bring in bees."

Agriculture Meets AI

The agriculture industry is no stranger to data collection. Gathering information about soil, sky, routines and yields has long been part of the farming rhythm. During an early-morning Zoom meeting in January that included academia, government agencies and agriculture industry stakeholders, **Shazan Jabbar**, '16 MSc, was pitching the benefits of turning those rhythms into algorithms.

Jabbar is a scientist who specializes in machine learning. He's hoping to drum up interest in a new program from the Alberta Machine Intelligence Institute (Amii) that aims to help the ag industry explore the potential of AI. To make his point in the Zoom meeting, Jabbar demonstrated a German-made app called Plantix, in which a farmer takes a picture of a poorly growing plant and the app identifies whether it is suffering from disease, pests or nutrient deficiencies.

"You must be wondering how this stuff gets built," Jabbar said to the group. "Mostly it's just clever algorithms and data. Data in combination with computation."

Amii's program, Reducing Emissions through Machine Intelligence (REMI), pairs AI researchers with organizations to figure out how emerging technology can be used to reduce emissions, says Nella Brodett, Amii's director of investment and partnerships. A version of the program for the energy industry, which had 20 companies participate, was completed in February 2021. This is the first time REMI has been offered to the agriculture sector.

Farms in Canada generate about eight to 10 per cent of the country's greenhouse gas emissions, and much of Amii's work will be to find ways to optimize different farm processes, Brodett says. "How many times do you run your equipment based on when you *need* to run it versus when you *thought* you needed to run it?"

The reduction in greenhouse gas emissions would be small on an individual scale but there is strength in numbers. "If every farm in Alberta, every farm in Canada, every farm in

“The farmer needs to have that aha moment of, ‘This could impact my business positively.’”

— Nella Brodett

North America was able to move that dial just slightly,” Brodett says, “that’s a big impact over time.”

She says the program has received a curious but cautious response from applicants, which range from tech startups to family farms. There are concerns about financial risk, invasion of privacy and whether farms would need to hire a data scientist. “Most of these farms are people’s homes,” she says. “This is actually personal property.”

REMI is a 16-week program structured in phases, and participants will go only as far as they need. The first phase is educational, Brodett says, “for the folks who may never use the technology or may not use it in the next five years, 10 years, but now understand what it means.” The second phase walks participants through a tangible idea. In the final phase, which only a handful of participants will reach, a proof of concept is developed.

“The farmer needs to understand what the technology means, not at a very technical level but to have that aha moment of, ‘This could impact my business positively. Now I want to know the next steps.’”

It’s Complicated

There’s a complicated relationship between agriculture and climate change, Blade says. The ongoing work to reduce agriculture’s carbon footprint — through measures such as reduced tillage or grazing strategies to maximize carbon sequestration — needs to be accompanied by research to ensure producers are set up for success.

“There will be warming in the environment. There will be challenges around moisture and transpiration,” Blade says. “Agriculture would be very much at the front of that. But we also have to be aware of what the data show us on how productivity will change in different parts of the world.” Blade adds that the sector needs to navigate the coming changes to climate without adding to the problems.

While REMI seeks to use AI to tackle emissions, crop scientists are using it to identify plant genes that use water more efficiently, fight disease more effectively and adapt more readily to the changing climate, according to an Alberta agribusiness market study from 2020.

Government and industry are investing heavily in research to drive smart innovations in agriculture.

Precision agriculture will be among the first areas addressed by the U of A’s new 5G Living Lab, the result of a \$15-million, five-year partnership between the university and Telus to explore commercial applications of new research.

In 2019, the federal government gave \$49.5 million to the Canadian Agri-Food Automation and Intelligence Network (CAAIN). As with Amii, projects that are approved for funding will see agri-food producers work directly with researchers and technology companies to find smart ways to produce more with less.

Blade is also a key player in an Alberta government program called Results Driven Agriculture Research, announced in March 2020. It has a budget of \$370 million over 10 years for agriculture research projects. Like the other programs, the Alberta one matches producers with tech experts. Unlike the others, this program is led by producers.

Blade agrees that producers are pragmatic about taking on investment risk, but they’re keen to embrace innovation, whether it’s a new way to manage crops or a GPS technology to auto-steer tractors.

“Over the last 10 years, our faculty has received tens of millions of dollars out of the pockets of farmers, through their commodity groups, because they are just rock-solid on investments in research,” Blade says.

“There always has to be a reason. It has to make things easier, faster, better — producers have seen that new approaches are going to pay off.”

The Next Generation

The future of farming is about new ideas, but it’s also about new blood.

There’s the generational factor — the average age of a Canadian farmer in 2016 was 55, a situation Blade says is untenable. But there’s also the need for new experts: students who might otherwise go into computing, sciences or engineering.

“Whenever you’re dealing in biological systems, it’s never a flat line. You’re always on the escalator going down because you have to fight insects and disease and weather and all the rest of it,” Blade says. “But the very complexity of those problems seems to be attracting the most creative individuals.”

Aidan Heaman is a good example of one of those creative types. He grew up on a seed farm near Virden, Man., and followed his dreams of an engineering career to the U of A.

Purely by accident, Heaman stumbled upon an article about aquaponics and was hooked by the system’s efficiency. That led him to start a student club on campus, the University of Alberta Permaculture Group and, in turn, the club led him to Ahmad and the AllFactory. The student club will help run the aquaponics system.

Along the way, Heaman discovered that you can take the boy off the farm but he can still work in the food industry.

“Food is something that’s kind of close to me,” says Heaman, who finished his degree in December and is now working as a building systems co-ordinator for PCL Construction. “I know that I want to someday find myself contributing to food security ... helping create some of the infrastructure that we can use to have a really good, sustainable food future.”





THE FUTURE OF BEEF IS RESILIENT

For this industry, sustainability is more than a buzzword. And it's coming to our farms and dinner plates

By **Lisa Szabo**, '16 BA

SOME THINGS HAVEN'T CHANGED FOR BEEF PRODUCERS SINCE KARIN SCHMID, '04 BSc(Ag), '07 MSc, grew up on her family's farm in Alberta. Kids still chase farm cats around the barn, spend summers working in the fields and learn to drive a little earlier than the law says they should. Cattle producers continue to keep meticulous records—though the calving book that once sat on the kitchen counter, filled with breeding and health information for the herd, has been replaced by an app. And cattle producers still have a profound understanding of their connection to the land and to the food they produce.

Alberta remains the largest beef cattle producer in the country, home to 40 per cent of Canada's cattle herd. Research and technology still drive agricultural practices. What has changed is people's perception of cattle farming.

In recent years the beef industry has come under fire for heavy use of resources, including land and water, and its contribution to greenhouse gas emissions. In 2013, the Food and Agriculture Organization of the United Nations reported that the world's livestock sector was responsible for 14.5 per cent of human-induced greenhouse gas emissions—most from enteric fermentation (better known as cow burps) and the production and processing of feed.

People are also more aware of big-picture items like sustainability and animal welfare, says Schmid, who works on behalf of the province's 18,000 beef cattle producers as lead, beef research and extension, with Alberta Beef Producers. A hundred years ago, many people would have had a parent or grandparent who farmed. But with most Albertans now three generations removed from farming, Schmid says, "there's an increased drive from customers to have a connection to food and how it's produced and wanting to know why we do the things we do."

That shift in perspective has caused a change in the industry, from advancements in pain control during procedures like castration to reducing environmental impact. (Since 1981, Schmid says, Canadian beef farmers have reduced their greenhouse gas emissions by 15 per cent.) A sustainable beef industry has to have a small carbon footprint. It also has to support viable businesses for farmers, healthier animals and a resilient food supply. And U of A grads and researchers are coming at it from all angles.

Isha Datar, '09 BSc, is one such grad. In 2012, when she gave a TED Talk on in-vitro meat, the world of cultured animal products—known now as cellular agriculture—was fringe. Datar is the executive director of New Harvest, a non-profit organization supporting cellular agriculture research.

Most people had no idea that by removing a few muscle cells from a cow and soaking them in a liquid rich with

amino acids, carbohydrates and other nutrients, the cells would grow and divide. But Datar did. She was championing change in the beef industry well before the world's first lab-grown burger made headlines in 2013.

By developing the field of cellular agriculture, Datar says we would use far less land and water. She wants to reduce greenhouse gas emissions by growing only the parts of the animal used for food.

Her goal isn't to end cattle production or have everyone eat cultured meat. She expects cellular agriculture will someday be more akin to microbreweries than factory farming. Given global growing population and reliance on animals for protein, the answer isn't to cancel beef, she says. It's to feed the world in a sustainable way. "We want sellers to increase the diversity of protein production methods, because diversity is resilience."

Alberta has been a centre of research in the beef industry since 1955 when U of A researcher **Roy Berg**, '50 BSc(Ag), challenged the belief that purebred cattle were superior to crossbreeds. It took 10 years but his research proving that hybrid lines were 30 to 40 per cent more productive than purebred made Alberta a world leader in beef production and research — and made crossbreeding cattle a new global norm.

Today, innovation and research in the beef industry continue to converge at the U of A. With funding from the university's new BCRC-Hays Chair in Beef Production Systems, Gleise M. Silva is helping translate her colleagues' work into practical industry advice. She's building on decades of research. (Read more on page 7.)

John Basarab, '76 BSc(Ag), '81 PhD, is working toward the same goal. He hopes to reach it by building a better cow.

As a senior beef research scientist with the Department of Agricultural, Food & Nutritional Science, Basarab studies the relationship between genetics and a host of characteristics in cattle. By identifying regions of an animal's DNA that are responsible for traits such as meat quality, fertility and disease resistance, genomics researchers like Basarab are helping ranchers build more efficient, sustainable herds. One of the ways he's doing this is through feed efficiency.

"We found that some animals consume a lot of feed but they don't do anything with it," he says. "They're just eating for fun." One heifer could eat as much as 20 kilograms of food per day, while another ate much less for its size — as little as 14 kilograms per day — but would grow and gain as much weight as a big eater without any adverse health effects.

Through his research, Basarab and co-workers determined the regions in the genome that contribute to making an efficient eater. By bringing a sample of hair from a breeding bull or heifer into

one of the province's testing sites, ranchers can use this research. Breeding for feed-efficient cattle promises to save ranchers money on the cost of feed and help reduce greenhouse gas emissions from feed production — reducing methane emissions to boot.

Working with researcher Thomas Flesch, Basarab and his co-workers measured the methane output of a group of feed-efficient cattle. They emitted around six per cent less methane than a control group. Over time, as efficient animals breed and bear efficient offspring, Basarab says the changes will add up. "Genetic selection is permanent and cumulative," he says. "We're not talking about one animal. We're talking hundreds of thousands."

Feed efficiency is one part of building a better herd. The Global Roundtable for Sustainable Beef defines sustainability as a socially responsible, environmentally sound and economically viable production that prioritizes the planet, people, animals and progress. "Sustainability means safe food. It means the welfare of animals. It means the use of technology in a responsible way to make things better," Basarab says. Reducing greenhouse gas emissions is just one part of that. Long-term sustainability means developing an industry that can withstand disaster and bounce back from global threats.

"Sustainability means that we're more robust to changes in climate, economics, health," he says. "Our grasslands are healthier, our animals more efficient and resilient to disease." It adds up to agricultural systems that can better adapt to change.

Now, nine years after her TED Talk, Datar hopes cellular agriculture can be part of that resilience. "I'd love to see a world in which you have animal meat, plant-based versions, cell-based versions and combinations," she says. "Look at how the dairy aisle has changed over the past few years." Where cow's milk was once the only option, nut and grain versions have slipped effortlessly into people's buying habits. If a blip in the dairy supply chain causes a shortage, people can turn to almond or soy. Datar sees investing in cellular agriculture as another strand in the beef industry's safety net — another way to produce protein, particularly in times of need.

We need to diversify, Schmid agrees. "We're going to have nine billion people in the next decade or so, we need to explore options to ensure there's protein for everyone who needs it." She's hopeful. We've never had a safer food supply, she says, and advances in research continue to shape the foundation of a sustainable industry. "Research forms the backbone of how we improve our sustainability, competitiveness and profitability," Schmid says, by applying the advances of science and technology in a cost-effective manner. "We don't do things because that's the way they've always been done."

But change takes time, and cultured meat is a long way from your dinner plate. Companies will need regulatory approval to sell their products in stores as well as investment to scale up. Plus, Datar says, they'll have to mind their own environmental impact. In the meantime, increasingly sustainable cows are born every day.

The burger of the future will be backed by research and steady innovation. But mostly, it will be delicious.





THE FUTURE OF FOOD DELIVERS

COVID-19 changed how we process, ship and shop for food. What supply chain changes will stay into the future?

By Alexis Kienlen

NO ONE WILL FORGET GOING TO THE GROCERY STORE AT THE BEGINNING OF COVID-19 and seeing empty shelves. It revealed flaws in the Canadian food supply chain. “The food supply chain has become a prominent topic through the COVID-19 crisis,” says Sven Anders, a professor in the U of A’s Department of Resource Economics and Environmental Sociology. “It’s bringing something into the public discourse that hasn’t been there.”

Before the pandemic, food just showed up at the grocery store — people didn’t have to think about it. What changes can we expect to play out in stores and kitchens in the wake of the pandemic?

The pandemic created shortages and delays in global and local supply systems, which caused people to wonder just how robust our food supply chains really are. Going backward along that chain from the grocery store to the producers, we find a system of intricate logistics. Every commodity has a different supply chain. It’s exceedingly complicated.

“There’s producers, there are aggregators, or buyers, who can be distributors. The aggregator can also be a packer, like in the meat industry,” Anders says. “A processor aggregates meat from several packers, it arrives in a packing house, where it’s weighed, packaged and shipped to grocery stores.” Sometimes food goes right to the store. Sometimes it goes to a logistics company, such as a trucking company that takes, say, a container of avocados from Mexico to the U.S. border, and then another company takes them to Calgary. Then the avocados might be repackaged or sent to stores directly.

“The products that are the most vulnerable are foods that are delicate by their nature. Anything that has to be handled with care, that can be dented or bruised, would expedite deterioration,” Anders says. Think tomatoes or spinach.

COVID-19 disrupted the food supply chain at every point. People got sick and weren’t able to get the product off the field, and truckers weren’t able

to move product to the market. Processing plants for meat are labour-intensive and encompass both slaughtering and cutting; staff at these facilities were sickened across the continent.

“Those facilities have people coming together. That’s why these supply chains are more vulnerable to disruptions,” Anders says.

Some meat-packing plants closed for a couple of weeks last spring, disrupting slaughter capacity and leading to a backlog of fat cattle that lasted for months. Anders says that as employees were affected, so were logistics. Highly detailed and computerized grocery logistics weren’t enough to handle the initial crisis because, as you move backward along the supply chain, each link presents potential problems.

When the food supply chain has to react to a global crisis again, Anders predicts, protective measures will be put in place more quickly. “Some protocols are already in place now. Everybody has learned a lesson, so next time the shocks will be less severe,” he says. Companies overcame some hurdles by providing workers with personal protective equipment, dividers between workstations, and staggered breaks and start times. New policies allowed seasonal farm workers to quarantine in hotels after crossing a border.

And in April, the Government of Alberta announced it would vaccinate workers in meat-packing plants, regardless of where individual employees found themselves on other priority lists. It’s a step that, taken early next time, could see food processing facilities open sooner or avoid closures altogether, depending on the crisis.

The pandemic showed us that our sophisticated systems are vulnerable to systemic disruptions. Many consumers turned to support their local producers. “If we were to pay more attention to what’s close by and local, it would insulate us a bit from global shocks,” Anders says. “This isn’t the first time people have promoted ‘buy local.’” This time the message resounds, and consumers understand the hardships small producers face.

Ellen Goddard researches consumer behaviour. She tracked news stories and Google trends about local food and found there were significantly more in 2020, trending highest during severe restrictions. “There’s a shift to local, but I’m afraid there isn’t much data yet,” says Goddard, Co-operative Chair in Agricultural Marketing and Business. “The shift was a risk response.” When consumers couldn’t find in-store products, they looked to local producers. As grocery stores’ stocks have improved, demand for local products has tailed off, she says. Also, the pandemic has accelerated Canadians’ desire for online options and the stores’ capacity to make it happen — a trend she predicts will continue, citing consumer research reports.

“It doesn’t mean that everybody who’s buying online is going to continue having their groceries delivered all the time. But people want the option, and they want the option of being able to run into a shop,” she says.

Goddard predicts that most consumers, shaken by the empty shelves, will maintain a larger stockpile of food in their homes than they used to. “People started to carve out a place in their house to stock up on staples. I don’t think that’s going away.”

Further, she says cooking has become a family activity. “There are other benefits to getting your kids involved in cooking. I think we will see more of an interest in basic ingredients.”

People have become more interested in their food, and it’s a reasonable bet that we’ll pay more attention in the future. Some of us are keen to find out where our meat is coming from, even

“Grocery stores are looking at better ways of making sure they can satisfy sudden demands. Empty shelves were stressful for them, too.”

– Ellen Goddard

buying direct from farmers. And there’s increased attention to plant-based meat substitutes. “People are interested in cooking and in variety,” Goddard says. “That’s a permanent change.”

Changes in consumer behaviour precipitate in-store changes. “Grocery stores will probably never go back to being dedicated 100 per cent to a just-in-time purchasing pattern,” she says. Just-in-time describes the level of inventory a store keeps. Prior to the pandemic, stores didn’t keep big inventories. Why would they? A phone call could bring more.

“Grocery stores are looking at ways of making sure they have more food in more-distributed places so they can satisfy sudden demands,” Goddard says. “Empty shelves were stressful for them, too.”

The pandemic also revealed problems with intense specialization in our food system. Specializing allows producers to operate on scales of efficiency, producing mass amounts for certain markets. “But the second specialization goes wrong, it comes to haunt you,” Anders says. “I learned about a cucumber producer who used to serve the American market. When COVID-19 closed the border, they had to throw out semi-truckloads full of English cucumbers.

“Because we’ve been specializing to such a high degree, we are dependent on large, long international supply chains, which are prone to all sorts of issues,” he says. While there’s no crystal ball, Anders says the supply chain should move into the post-pandemic world with increased flexibility to pivot between markets and not stick to highly planned systems that fall apart in a crisis.

Anders hopes the pandemic will encourage shoppers to look for local agriculture rather than relying on international markets. But that’s not the only answer. “Here in Alberta, we need these other markets. Otherwise we will eat cabbage, carrots and potatoes all winter.”

Goddard predicts stores will accelerate their quest for reliable distribution systems that can help them through crisis. “Stores will need distribution systems that guarantee them access to more goods,” she says. Those goods include packaged foods with a long shelf life and the typical non-food items you find in a grocery store. She says some chains are already looking at automated warehouses for these products.

Loblaws, for example, has been worked with a tech company that specializes in automated trucks that could deliver groceries locally. Other companies are building automated warehouses. These facilities will be built where the population warrants it, Goddard explains, and automated robots could assemble grocery orders and restock shelves.

Regardless of how it takes shape, the pandemic has inspired and hastened changes to the contents of our dinner plates and how the food gets there. ■

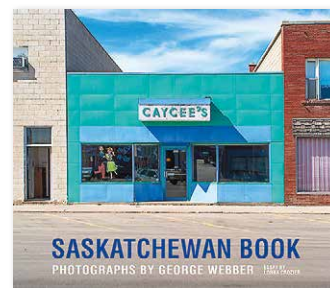
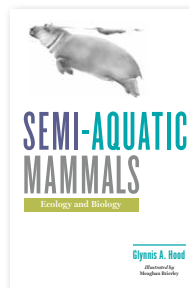
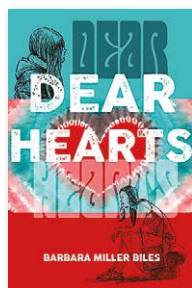
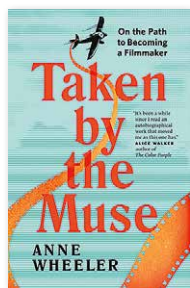
trails

WHERE YOU'VE BEEN AND WHERE YOU'RE GOING

Last summer, sea ice researcher **Benjamin Lange**, '12 MSc, (left, with Aikaterini Tavri and Mallik Mahmud), joined more than 400 scientists and other experts from around the world on MOSAIC, the largest Arctic research expedition in history. The team surveyed the effects of climate change in the Arctic—the epicentre of global warming—to better understand its impact around the world.



Books



Semi-aquatic mammals, odes to pie and a beloved detective tale with a twist — though not all together. Here are the latest reads from U of A grads.

Compiled by *Kate Black*, '16 BA

▼
SHORT FICTION
Winning Chance
by *Katherine Koller*, '78 BA(Hons), '87 MA,
Great Plains Publications

With an empathetic touch, Koller writes 15 short stories that capture moments of everyday redemption.

▼
MEMOIR
Taken by the Muse: On the Path to Becoming a Filmmaker
by *Anne Wheeler*, '67 BSc, '90 DLitt (Honorary), *NeWest Press*

The celebrated screenwriter and director recounts outrageous adventures that helped shape her as an artist.

▼
HEALTH
Hardwired: How Our Instincts to Be Healthy Are Making Us Sick
by *Louis Hugo Francescutti*, '85 PhD, '87 MD, and *Robert S. Barrett*, *Springer Books*

A physician and social scientist explore the evolutionary forces behind recent declines in physical health even though we are living in one of the safest times in human history.

▼
SHORT FICTION
Dear Hearts
by *Barbara Miller Biles*, '73 BEd,
Inanna Publications

Biles' short stories explore the longing and strength of women navigating changing sexual mores and cultural values.

▼
ANTHOLOGY
Life of Pie: Prairie Poems and Prose
edited by *Ivan Sundal*, '69 BA(Hons), '72 MA, '76 Dip(Ed), and *Myrna Garanis*, '74 BLS, self-published

This collection features 31 pieces themed around the much loved flaky dessert.

▼
PHOTOGRAPHY
Abandoned Alberta
by *Joe Chowaniec*, '91 BSc(Spec), '95 BSc(ElecEng), *MacIntyre Purcell Publishing*

Chowaniec captures a visual history of the province through deserted barns, homes and other forgotten buildings.

▼
SCIENCE
Semi-Aquatic Mammals: Ecology and Biology
by *Glynnis A. Hood*, '07 PhD,
Johns Hopkins University Press

Hood examines the curious biology and important ecological roles of 140 mammals that split their time between land and fresh water.

▼
HISTORY
Taking Care: Alumni Stories about Life in the Original Residences and Lister Hall
by *Ellen Schoeck*, '72 BA(Hons), '77 MA, self-published

Inspired by the legacy of Reg Lister — the namesake of the iconic U of A residence — Schoeck documents

more than a century's worth of alumni memories.

▼
WELLNESS
Bend It Like You: Personal Stories of Resiliency and Perseverance from People Just Like You
by *Nancy Ng*, '97 BA, self-published

Eight people share their experiences of withstanding hardship and offer advice on how to navigate adversity.

▼
PHOTOGRAPHY
Saskatchewan Book
by *George Webber*, '73 BA,
Rocky Mountain Books

Featuring an essay by *Lorna Crozier*, '80 MA, the book showcases photos of prairie landscapes and nostalgic rural structures Webber has captured over the past 30 years.

▼
FICTION
Diary of a Future Politician: How an Average American Saves America
by *Dave Volek*, '82 BSc(Eng), self-published

Disillusioned after losing his job, Len takes on the heady task of reforming western democracy for the better.

▼
BUSINESS
Supply Chain Revolution: How Blockchain Technology Is Transforming the Global Flow of Assets
edited by *Don Tapscott*, '78 MEd, '01 LLD (Honorary), self-published

Experts explain how the most recent advances in technology can minimize supply-chain disruptions,

such as those experienced during the pandemic.

▼
ANTHROPOLOGY
ECHO: Ethnographic, Cultural and Historical Overview of Yukon's First Peoples
by *Christine Schreyer*, '09 PhD, *Victoria Elena Castillo*, '12 PhD, and *Tosh Southwick*, *Institute for Community Engaged Research Press*

This handbook introduces readers to the past and present ways of life of Indigenous Peoples in Yukon.

▼
FICTION
Simulated Hysteria
by *Trent Portigal*, '12 MA, self-published

Upon his release from a psychiatric hospital, protagonist Tomas reckons with the madness of the outside world.

▼
FICTION
The Arrival of Sherlock Holmes
by *Jia Hartsiva (Rajitha Sivakumaran)*, '14 MA, self-published

A young Sherlock Holmes and his right-hand woman, Watson, investigate the mysterious circumstances surrounding missing jewels and a bloody attack.

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**FIVE THINGS
I'VE LEARNED
ABOUT...**

WORKING TOGETHER

Life lessons from a teacher, skateboarder and team player

By Haley Lewis

KRISTIAN BASARABA, '01 BEd, has been skateboarding for more than 30 years. But the high school teacher never thought that he'd be leaning so heavily on the sport in the classroom. In 2019, he started the Sk8trepreneur program at Salisbury Composite High School in Sherwood Park, Alta., challenging students to create their own skateboarding brand and to design assets like grip tape and a skateboard. The curriculum twist — that the skateboard brands were to draw on learnings about Indigenous history, colonialism and reconciliation — won him the 2020 Governor General's History Award for Excellence in Teaching. But Basaraba says he couldn't have done it on his own. Here's what he learned about leaning on others, creating community and fostering relationships.

1 PLANT A SEED IN SOMEONE'S MIND — IT'LL GROW

Basaraba developed Sk8trepreneur after visiting Oasis Skateboard Factory in Toronto, where students create their own skateboard brand and business for high school credit. He was further inspired by the work being done at

Colonialism Skateboards, a company that encourages people to learn about the history and enduring legacy of colonization. Basaraba brought these two concepts together and encouraged his students to run with it from there. "If students are provided an opportunity to have a voice," he says, "and you encourage them to take it, then they're going to take it."

2 LEAN ON THE EXPERTS

Being non-Indigenous, it was important to Basaraba to involve Indigenous people in the project. "I want the experts to teach them, not me, because I'm not the expert," he says. He worked closely with **Michel Blades**, '95 BA, '99 BPE, '99 BEd, a specialist in Indigenous education. He also brought in Joe Buffalo, a professional skateboarder, and John Cardinal, a Cree artist who goes by JCat. Cardinal was a particularly important addition, since Basaraba and many students had little art experience.

Without his collaborators, Basaraba says, the project couldn't have happened.

3 EXPERIENCE IS A COMPELLING TEACHER

Buffalo, a residential school survivor from Samson Cree Nation, was the perfect guest to have in class. "Their phones were down, you could hear a pin drop as he was telling his story." One student, Basaraba says, was moved to tears. Speaking from experience, Buffalo showed the students first-hand the lasting impacts residential schools have on Indigenous Peoples and the need for reconciliation.

4 START A LASTING CONVERSATION

The relationships students formed in class, including those with local businesses, skateboarders and each other, were instrumental in their learning. "The students were engaged, they had a voice," says Basaraba. And the art they created sparked discussions around what they had learned. "It's still creating a discussion," he says, "because here I am, still talking about it a year later."

5 FIND STRENGTH IN SUPPORT

For several Indigenous students in the class, it was empowering to be able to process new and difficult information using creative channels. One of the students adorned her board with a traditional headdress inspired by her grandmother's beaded earrings. "At the beginning of class, she was a bit hesitant," Basaraba says. But after bringing the earrings into class, something changed. "She started talking more about her identity. She brought in her Métis card," he says. "You could just see she was really proud." ■

We'd love to hear what you're doing. Tell us about your new baby or your new job. Celebrate a personal accomplishment or a volunteer activity or share your favourite campus memories. Submit a class note at uab.ca/classnotes or email newtrail@ualberta.ca. Notes will be edited for length, clarity and style.

Compiled by **Kate Black**, '16 BA

Class Notes

1960s

'62 **R.L. "Bob" Hemmings**, BSc(ChemEng), wrote a short history of the Athlone Fellowship Scheme — a program that ran from 1951 to 1972 and provided 810 Canadian engineering grads, including Hemmings, with professional experience and education in the United Kingdom. You can access his write-up online through the U of A's Education and Research Archive.

'65 **Adriana Davies**, BA, '67 MA, received the Edmonton

Heritage Council's inaugural Heritage Writers' Reserve award in September. The award supported the publication and distribution of Davies' book, *From Sojourners to Citizens: Alberta's Italian History*, which chronicles the lives of Italian immigrants in Alberta from the 1880s to the present.

1970s

'72 **Douglas Taylor**, BSc(Ag), '79 MAg, hosts a weekly English conversation circle to help international U of A graduate students practise

Jerome Martin



their language skills. This volunteer effort follows a career that included working with Alberta's Ministry of Agriculture and Forestry, developing and running the province's Green Certificate Program — which teaches students agricultural skills — and spending five years as an adult-education consultant in Iran, China and Ukraine.

'73 **David Gray**, PhD, was named one of Canada's 90 greatest explorers by the Royal Canadian Geographical Society. The society recognized Gray's work as an Arctic wildlife biologist, writer and documentarian, as well as his leadership in the 2013 search for the remains of the 1913-18 Canadian Arctic Expedition. Gray's fourth book, *Deep*

and *Sheltered Waters: The History of Tod Inlet*, was published in November by the Royal BC Museum.

'74 **Catherine Morris**, BA, '78 LLB, has been appointed as the executive director of Lawyers' Rights Watch Canada, a non-governmental organization that supports human rights defenders around the world through legal research, education and advocacy. Morris serves as the organization's main representative at the United Nations Human Rights Council. She is a founding director of the Peacemakers Trust charity and a research associate of the University of Victoria's Centre for Asia-Pacific Initiatives. She earned her master of laws degree from the University of British Columbia in 2001.



DID YOU KNOW?

Rugby football, a precursor to Canadian football, was the first on-campus sport to feature competition against another city. The inaugural game was played on Oct. 22, 1910, against Western Canada College in Calgary.

'75 **Thomas Gee**, BSc, '78 MBA, has been awarded a Lifetime Achievement Award by Chartered Professional Accountants (CPA) Alberta. Gee, an assurance partner at RSM Canada's Edmonton office, was celebrated for his service on CPA Canada's private enterprise advisory committee and his work teaching courses at Alberta post-secondary institutions and through CPA Alberta's professional program. "Perhaps Tom's biggest legacy is the impact he has had on hundreds of CPAs through his education and recruitment activities," CPA Alberta states on its website. "Tom is and has always been passionate about developing future generations of accounting professionals."

'76 **Jerome Martin**, PhD, received the Lifetime Achievement in Publishing award from the Book Publishers Association of Alberta in September. Martin was recognized for his longtime volunteer service to the association and for (with his late wife, Merle) founding Spotted Cow Press—the first publisher in Alberta to produce ebooks and to offer all of its titles in electronic format. Past association president **Glenn Rollans**, '78 BA, '80 BA(SpecCert), described Martin as a "true Renaissance man" for his talents in photography, storytelling and music.

'79 **Terry Blumenthal**, BSc(Spec), received the Jon Reinhardt Award for Distinguished Teaching from Wake Forest University in Winston-Salem, N.C., where he has taught for the past 33 years. He previously received the university's Award for Excellence in Research in 1996 and the Neuroscience Faculty Mentor Award in 2012. "All of



IN THE NEWS

Truth Wins Big

Beverley McLachlin, '65 BA, '68 LLB, '68 MA, '91 LLD (Honorary), won the \$25,000 Shaughnessy Cohen Prize for Political Writing for her memoir, *Truth Be Told: My Journey Through Life and the Law*. The book follows McLachlin from her childhood in rural Alberta without electricity or running water to her time on the Supreme Court as the longest-serving chief justice in Canadian history. "It is my story, through good times and more challenging times," McLachlin said in her acceptance speech. "It is also a story about my country, Canada, a country where a young girl of no particular note could rise to become the chief justice of Canada."—CBC

this was made possible by the patience and guidance of faculty in the Department of Psychology at the U of A," Blumenthal writes, offering special thanks to his former professors Donald Heth and Edward Cornell. "I am forever grateful for that start."

'79 **Robert Foster**, BSc, '82 BSc(Pharm), '85 PharmD, '88 PhD, first discovered voclosporin at his company Isotechnika Pharma in 1993. In January it became the first FDA-approved oral therapy

Two Startups Get a Funding Boost

Founded by **Zack Storms**, '18 MBA, and **Tim Lynn**, '15 BCom, the semi-annual Startup TNT Investment Summit raises seed funding for Edmonton and Calgary companies.

Two companies founded by U of A grads received investment funding from the most recent summit. True Angle Medical Technologies, founded by **Jana Rieger**, '91 BSc(Speech/Aud), '01 PhD, created Mobili-T technology, which enables people who have a swallowing disorder to complete their swallowing exercises from home and send their data to a clinician remotely. Uproot Food Collective, founded by **Chris Lerohl**, '09 BSc(ElecEng), '12 MBA, '12 MEng, helps to reduce barriers for local food companies by sharing knowledge and certified spaces, allowing them to scale up operations to serve national markets.

to treat patients with active lupus nephritis, a disease that causes irreversible kidney damage and significantly increases the risk of kidney failure, cardiac events and death. Foster is now developing targeted therapies for liver disease at his new company, Hepion Pharmaceuticals.

across North America, Europe and Africa.

1990s

'91 **Eugene Mah**, BSc(Spec), '96 MSc, completed his PhD in bioengineering at Clemson University, "checking off one more bucket-list item," he writes. He will be continuing as a diagnostic medical physicist at the Medical University of South Carolina's radiology department in Charleston, S.C., where he has worked for the past 22 years.

'94 **Erin Olsen**, BA, has been appointed as a judge for the provincial court of Alberta. Olsen had served as chief Crown prosecutor in Lethbridge since 2018. She has worked with the Integrated Services Court and, outside of the courtroom, has been involved with the Lethbridge Sexual Violence Action Committee and the City of Lethbridge Reconciliation Advisory Committee.

'98 **Brad Wuetherick**, BA, '06 MA, was appointed associate provost of Academic Programs, Teaching and Learning at the University of British Columbia Okanagan. He has spent the last eight years as executive director of Learning and Teaching at Dalhousie University, where he also co-chaired the Indigenous Council.

'99 **Ranjan Agarwal**, BA(Hons), was elected to serve as the second vice-president of the Ontario Bar Association. He will assume

Sam Prochazka



the association's presidency in September 2022, making him the first South Asian lawyer in the organization's history to hold the position. Agarwal is a partner and co-head of the class actions practice group at Bennett Jones LLP in Toronto, where he lives with his wife, Sunita Bhowmik, and their two children, Asha and Diya. Their family supports the U of A through the Ranjan Agarwal and Sunita Bhowmik Scholarship in Arts.

'01 **Sam Prochazka**, BSc(CompEng), is the president and CEO of GoodMorning.com, which he founded with his twin brother, **Andy Prochazka**, '01 BSc(CompEng), in 2009. They're also two of the four founders behind the online furniture retailer Article. GoodMorning.com is Canada's largest independent online mattress retailer and was one of the first online bed-in-a-box companies in the world. Article topped *Canadian Business's* annual growth list as Canada's fastest-growing company in 2018 and 2019.

'06 **Sanjeeva Srivastava**, PhD, is the head of the proteomics facility and a professor at the Indian Institute of Technology Bombay, where he was awarded the Excellence in Teaching Award. A visiting professor at Nottingham Trent University and Arizona State University, he is also a fellow of three royal societies: Biology, Chemistry and Medicine. He serves on the executive council of the Human Proteome Organization and is an active contributor to global proteomics research and education.

(continues on page 44)

2000s

'00 **Chris Squires**, BEd, '16 MBA, and **Jen Armstrong**, '19 BA, founded Realty Unleashed, an Edmonton-based real estate brokerage, in 2018. Squires says he was inspired to launch the company while completing his MBA capstone project, when he realized the need for a brokerage with a stronger focus on customer service.

1980s

'85 **Kevin Mar**, BFA, has designed a single-use recyclable and compostable face mask, combatting the plastic waste created by traditional disposable masks. The Canadian-made, non-medical Avro Masks are made with cellulose filter paper and cotton ties.

'88 **Sydney Lancaster**, BA(Spec), exhibited *Macromareal (a rising tide lifts all boats)* at Edmonton's SNAP Gallery in September. Created in collaboration with Scott Smallwood, associate professor and director of the U of A's Sound Studies Institute, the installation combines sculpture, video and sound. It invites viewers to consider how human activities, time and the tide intersect, using the Bay of Fundy as a focal point.

'89 **James Wong**, BCom, has invented an eco-friendly alternative to the single-use foam blocks typically used in floral arrangements. FloraGuppy is a clear, malleable plastic ball with 58 holes that is sold by floral wholesalers in countries

Order of Canada Appointments

Thirteen grads were inducted into the Order of Canada late last year:

Charles Guest, '49 BSc(MiningEng), for establishing the profit-sharing and employee-ownership plan at Spartan Controls and for founding the Bears paw Benevolent Foundation.

John McNeill, '60 BSc(Pharm), '62 MSc, for his pioneering research linking cardiac disease and diabetes and his contributions to cardiovascular pharmacology.

Stanley Dragland, '64 BA(Hons), '66 MA, for his literary contributions and his distinguished teaching career.

Thomas Radford, '66 BA, for his films and documentaries showcasing the history and culture of Western and Northern Canada.

Bob Steadward, '69 BPE, '71 MSc, '02 LLD (Honorary), was promoted to Companion for his global contributions to the Paralympic movement.

Judy Birdsell, '76 BScN, for her contributions to improving health care and the quality of life for patients in Canada.

Douglas Stollery, '76 LLB, for his community involvement, defence of human rights and contributions to Canada's legal landscape.

John Brink, '78 MA, for his work championing Blackfoot culture as an author, archeologist and curator.

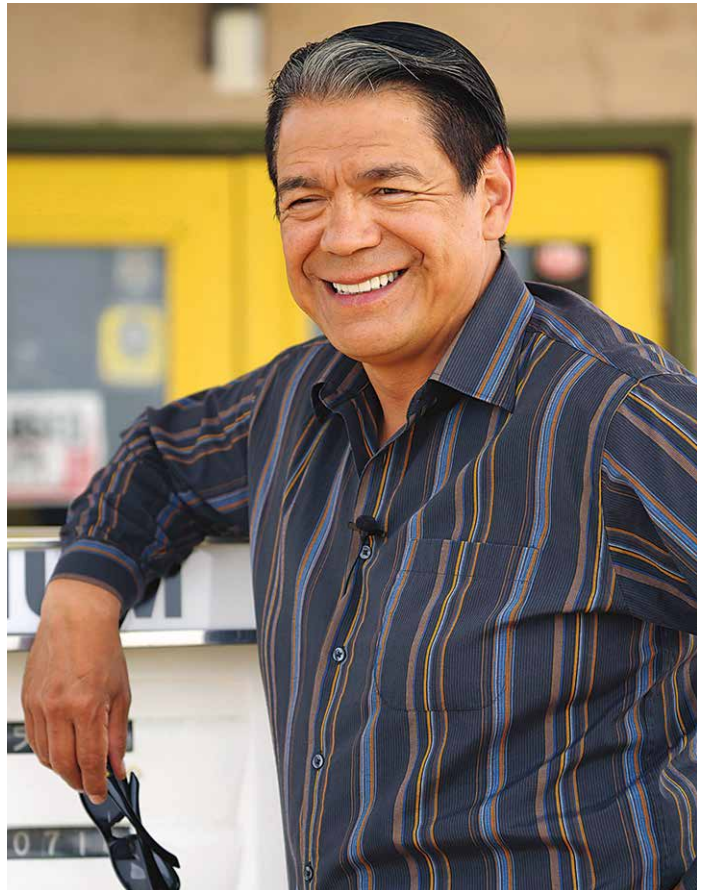
John G. Geiger, '81 BA(Spec), for his non-fiction work and his efforts to honour Canada's diverse geography and heritage.

Sandra Kirby, '86 PhD, for advocating for equity, inclusion and safety in sport and her pioneering research on athlete harassment.

Monique Bégin, '89 LLD (Honorary), was promoted to Companion for her contributions to public health, education and global human rights.

Roger Wong, '90 BMedSc, '92 MD, for his contributions to the field of geriatric medicine, including the advancement of culturally sensitive health care.

Tom Jackson, '06 LLD (Honorary), was promoted to Companion for his career as an actor and singer and for his philanthropic initiatives.



IN THE NEWS

Cardinal's Class Act

Lorne Cardinal, '93 BFA, received the August Schellenberg Award of Excellence from the Toronto-based imagineNATIVE Film and Media Arts Festival. Schellenberg was a mentor of Cardinal's, with whom he worked on *Lonesome Dove*, *Crazy Horse* and the National Arts Centre's all-Indigenous-cast production of *King Lear*. Cardinal has more than 100 film, television and stage credits to his name and was the first Indigenous graduate of the U of A's BFA in acting program. —CBC



DID YOU KNOW?

The Department of Radio and Television hosted a TV program in the mid-1970s called *In Touch With U*. You can find 41 episodes of the show on the U of A Library site.

(continued from page 42)



'13 **Brendan Gallagher**, BDes, and **Nick Kazakoff**, '13 BDes, along with their team at Onetwosix Design, were named Industrial Designers of the Year by *Western Living* magazine. Born out of Gallagher's garage in 2015, the Edmonton-based agency has grown to design and manufacture products such as its sleek Loop Phone Booths, designed to provide a soundproof space for occasional use in open-concept offices.

'15 **Conor McNally**, BA(NativeStuHons), wrote, directed and edited *Very Present*, a short film released in October on The Curve, the National Film Board of Canada's COVID-19-related showcase. By drawing parallels between his brother's experience

Pharmacy Grads Recognized

Eight grads came out on top at the Alberta College of Pharmacy's 2020 APEX Awards:

Jenny Wichart, '98 BSc(Pharm), received the M.J. Huston Pharmacist of Distinction Award for her leadership in transplant and nephrology care. She is a clinical practice lead at the Alberta Children's Hospital, where she works in the nephrology and transplant clinics. Wichart also co-ordinates pharmacist care with the Southern Alberta Renal Program and holds various roles at the Canadian Society of Transplantation.

Taciana Pereira, '04 BSc(Pharm), received the APEX Award of Excellence for her contributions to launching Connect Care, the new electronic clinical information system used across Alberta Health Services facilities.

Andrew Noh, '14 BSc(Pharm), **Lauren Mark**, '18 BSc(Pharm), and **Eva Cui**, '20 PharmD, received the W.L. Boddy Pharmacy Team Award for their work at Mint Health + Drugs: Franklin Station. The pharmacy's staff

was recognized for improving medication management and safety and for helping to establish progressive care plans for treatments including HIV PrEP, opioid agonist therapy and gender-affirming hormone therapies.

U of A grads took home all three of the APEX Future of Pharmacy Awards:

Colter Young, '16 BSc(Pharm), helped create the Co-ordinated Hepatitis C and Opioid Dependency Intervention in a Community Environment (SDM-CHOICE) program to improve screening and treatment of hepatitis C for patients on opioid-substitution therapy.

Klaudia Zabrzanski, '16 BSc(Pharm), co-founded and leads the Adherence and Community Engagement (ACE) Team, Edmonton's only pharmacist-led inner-city outreach team.

Choi Chung, '17 BSc(Pharm), owner and manager at Mint Health + Drugs: CMP, collaborates with non-profit agencies to provide primary care and resources to patients in the Boyle Street and McCauley neighbourhoods in central Edmonton.

under house arrest and the pandemic lockdowns, McNally probes the effect of prolonged confinement on one's experience of time.

'18 **Mais Aljunaidy**, PhD, was named one of the world's 120 most forward-thinking

women by the Global Thinkers Forum. Aljunaidy was recognized for her pursuit of maternal health research in the United Kingdom, Canada and her native Syria and for inspiring young women to achieve the highest levels of education. Aljunaidy is a psychology instructor at Bilkent University in Turkey and is an international member of UNESCO's Organization for Women in Science for the Developing World.

'18 **Peter Anto Johnson**, BSc(Hons), '20 MSc, delivered a presentation called "Breaking the Routine: Learning from Child's Play" at the March 2020 TEDxUAlberta conference. Johnson, a medical student at the U of A, has kept busy during the pandemic. He co-wrote a new ebook titled *e-Mental Health: Progress*,

Challenge, and Change, which takes a careful look at the implications of technology on people's health. Johnson also co-founded a program called Sharpen the Quill, which matches undergraduate students with appropriate summer internship positions.

'18 **Kristen Newbury**, BSc(Hons), '20 MSc, received the Student of the Year award from IBM Canada's Center for Advanced Studies. While doing thesis research with IBM, Newbury mastered three complex open-source software systems and invented a novel prototype system for improving application security. According to the tech company, Newbury's work "has made contributions important to IBM's leadership in Java run-time technology and software security." ■



▲ Mais Aljunaidy

The 2020 ALUMNI AWARDS

These 11 recipients of the 2020 awards have brought their energy, creativity and out-of-the-box thinking to making their communities better. (This is Part 2 of a three-part series. Watch for more amazing grads in the next issue.) *By Therese Kehler*



ALUMNI HONOUR AWARD

FOR PUSHING SCIENCE TO SOW SEEDS OF DISCOVERY

Mark Estelle, '78 BSc(Hons), '83 PhD
Cell and developmental biology researcher

How do plants grow? It seemed like such a simple question, but it had confounded scientists back to the days of Charles

Darwin. Countless plant physiologists had tried and failed to understand the workings of a powerful hormone called auxin, from

a Greek word meaning “to grow,” which dictates a plant’s growth and has broad implications for agriculture and terrestrial ecosystems.

Then Estelle took a look.

These days he’s a scientist at the University of California San Diego and is regarded as one of the world’s top plant biologists. Back then, in 1983, he was a freshly minted graduate with a PhD in genetics. That background became key when, as a post-

doctoral fellow at Michigan State University, he turned his attention from fruit flies to foliage.

“Mark used his genetics training that began at the U of A to attack the auxin problem from an entirely different perspective,” says Peter McCourt, a professor of cell biology at the University of Toronto and a longtime admirer of Estelle’s work.

“He delved into areas of research where he had no experience to crack one of the major problems in all of plant biology.”

Estelle’s discovery broke new ground in another way. His molecular genetic research in the 1980s was based on a flowering plant known as *Arabidopsis thaliana*, rarely used at the time. His recognition of the plant’s features—quick growth, small size and prolific seed production—is cited as a major factor in making it the most-used model for plant biology research today.

That ability to apply tools and technology in unexpected ways has seen Estelle’s research published in prestigious journals and incorporated into biology textbooks.

But his impact goes far beyond that. His genuine joy in science and discovery has made him a champion of science who supports colleagues and students alike. “Science is a communal activity that engages scientists in every country in the world,” he says. “It has been a thrill to be part of this.”

ALUMNI EXCELLENCE AWARD

FOR SHOWING STUDENTS WHAT SUCCESS SOUNDS LIKE

Audrey Ochoa, '09 BMus, '09 BEd

Teacher and musician

By day, Ochoa is a passionate music educator at an Edmonton elementary/junior high school. By night, she's an award-winning jazz musician, bandleader and composer with a growing national and international profile. "They're both jobs where you have to create the opportunities," Ochoa says, whether it's problem-solving for hundreds of students or booking concerts, paying hired musicians and figuring out what to do with a GST number. Ochoa studied classical trombone but her creative spirit thrives on variety: jazz, pop, Latin, punk and ska. She has won the prestigious Edmonton Music Prize (2018), the Western Canadian Music Awards' Jazz Artist of the Year (2020), and the hearts of fellow musicians who sing her praises as a creator, collaborator and performer.



Audrey Ochoa performs with other musicians at a parking lot concert last August at the Jasper Place Curling Club in Edmonton. The award-winning jazz musician, bandleader and composer also teaches in elementary and junior high.

ALUMNI INNOVATION AWARD

For game-changing research to end sexual violence

Kenzie Gordon,

'11 BA(Hons), '11 Cert(Peace/PCSt), '18 MA

Researcher, social worker, gamer

Gordon is a game-changer in every sense of the word. Her love of video games and passion for social justice have combined to create new ways to change attitudes and behaviours around sexual violence. Now a PhD candidate, her master's

research spun into *It's Your Move*, a game of choice and consequences that helps train nightclub staff in intervention tactics. Another app, *Flourish*, which she created with the Edmonton John Howard Society, offers resources to people experiencing domestic violence.

Here are some thoughts from Gordon about her work and hopes for change.

► **Why is bystander intervention important?** It's not a private matter when there's violence happening between two people—there's a power imbalance and someone needs to break that imbalance.

► **Why does *It's Your Move* let players make bad choices?** There is no question that games help us learn to understand the world around us and understand our

society. The addictive element of games is that we make mistakes until we're good at something.

► **What should we all do to change the story of sexual violence?** Find ways that centre on the well-being of the victim. Instead of trying to do the "white knight" thing, try to think about what would they want, how could you help them feel safer. Be more cognizant about power and who holds the power—and err on the side of who has less. And believe women. One in three women worldwide will experience sexual violence. The biggest thing we can do is demonstrate to people in our lives that we will believe them and we will be an ally for them.

This interview has been edited and condensed.



ALUMNI HONOUR AWARD

For building the team behind Alberta's justice system

E. Orest Yereniuk,

'75 BA, '78 LLB

Former executive director and chief Crown prosecutor of regional prosecution

Yereniuk is a team player and a team builder. As a Crown prosecutor for four decades and chief prosecutor from 2008 until his retirement last year, he helped keep Albertans safe by promoting the rule of law. He also made sure the future of Alberta's criminal justice system was left in good hands. When it comes to succession planning, he has a gift for fostering young talent, his admirers say.

An All-Inclusive Vocation

Diversity, tolerance and cohesion among Alberta's prosecutors are at the heart of many of Yereniuk's achievements. He promoted women into leadership roles. He hired Indigenous prosecutors, then built a better understanding of Indigenous Peoples through seminars and sweat lodge ceremonies. Plus, he devised innovative ways to reduce stress in rural Alberta's small yet busy prosecutor offices.

Leading from Within

Yereniuk handled about 25 homicide cases, 35 jury trials and hundreds of sexual assault cases during this career. He prosecuted arson cases, fraud trials and the exploitation of sex workers. As lead counsel on important cases, he took the time to mentor younger lawyers eager to learn.

No Fear

Work hard, play hard, push yourself and get out of your comfort zone. Believing that professional growth requires personal challenge, Yereniuk established a program that dared young prosecutors to go outside the norm and overcome their fear of making mistakes. The highlight of the program was a special presentation that celebrated prosecutors doing extraordinary things.

ALUMNI HONOUR AWARD

For giving pharmacists in Alberta an Rx to achieve

Margaret Wing (McKenzie), '85 BSc(Pharm)

Chief executive officer, Alberta Pharmacists' Association

As of May 2021, more than 900,000 Albertans seeking a COVID-19 vaccination had got the jab at a neighbourhood pharmacy. Last summer, pharmacists stepped up to provide COVID-19 tests to asymptomatic clients. These are the types of strides Wing envisioned when she jumped in to help the profession rewrite its role to match its training and potential. Under her leadership, pharmacists in Alberta have received training and support to become the first in Canada to administer injections, including more than a million flu shots delivered over eight weeks in late 2020. She also facilitated a shift that allows Alberta pharmacists to access patients' electronic health records and provide comprehensive care, such as prescription extensions. In 2012, the Alberta government enshrined her vision in the Pharmacy Services Framework, which modernized the funding model to pay for patient-focused services.

ALUMNI HONOUR AWARD

For making it fashionable to be responsible

Marilyn McNeil-Morin,

'77 BSc(HomeEc)

Founder and director, Fashion Exchange, Toronto's George Brown College

The Fashion Exchange that Marilyn McNeil-Morin helped launch is helping the fashion industry put its best foot forward—from using environmentally friendly techniques to creating new jobs. The organization fosters innovative, ethical, and environmentally and socially sustainable fashion production. Educators, designers, producers and entrepreneurs come together to innovate in an economically vibrant fashion industry.

“Marilyn and her team provide facilities for small designers and producers who wish to scale up production but may not be well-known enough—or big enough—to go to a large production facility.”

Deanna Williamson, chair of the U of A Department of Human Ecology

“She has been credited for ‘bringing fashion manufacturing back to Canada’ by promoting environmentally and socially sustainable practices in the fashion industry [and developing] cutting-edge academic programs to meet the new skills required by the industry’s resurgence.”

Stan Blade, '81 BSc, dean, Faculty of Agricultural, Life & Environmental Sciences

“(The fashion industry’s) environmental impact in terms of fibre, water, chemical and energy uses is phenomenal. The organization Ms. McNeil-Morin leads is not just paying lip service to innovative sustainable practices, it is actively trying to find solutions.”

Anne Bissonnette, ALES associate professor and curator of the U of A’s Anne Lambert Clothing and Textiles Collection

ALUMNI HONOUR AWARD

FOR OPENING MINDS TO BETTER MENTAL HEALTH FOR YOUTH

Jai Shah, '01 BSc, Psychiatrist and researcher

When it comes to supporting young people with mental health issues, most would agree more needs to be done. Shah is working to fix that as an investigator for ACCESS Open Minds (AOM), a five-year national research project intended to evaluate and transform mental health services for young people. The U of A is home to one of 16 AOM clinics across Canada, including three in Alberta, that offer easy-to-access, youth-centred, integrated care to 11- to 25-year-olds and their families experiencing early phases of mental health difficulties. The clinics are building evidence about the most effective ways to support young people in need.

64 to 65

Percentage of AOM clients who report a drop in the severity of mental health problems and improvements in school, work and social situations.

1:10

The ratio of dollars invested in mental health to dollars saved later in hospital stays and visits to emergency rooms and outpatient clinics, according to preliminary research from the AOM Edmonton site.

18

The age at which people are often shifted from youth to adult treatment. AOM offers support until age 25 to create a smoother transition.

Number of youth who received AOM services as of Aug. 31, 2020.

7,539

72 hours or fewer

Time within which AOM tries to secure a first appointment for a young person in distress. (It hits the target more than 8 in 10 times.)

SPORTS WALL OF FAME

For lifting Pandas wrestling onto the world stage

Heidi Susanne Coleman (Kulak), '05 BA, '09 BEd, Pandas wrestler, business owner

Her wrestling career may have started in the family living room, but Coleman became one of the sport’s elite competitors as women’s wrestling moved onto the world stage. The first Olympic trials for women were held in 2004, and Coleman—a star wrestler for the Pandas from 2000 to 2005—was there to represent Canada. “It was the culmination of a lifetime of hard work and dedication to a sport that was emerging for women,” she says. Her natural grit, strength and competitive spirit made her a five-time Canada West medallist and helped establish the Pandas as a wrestling powerhouse. After receiving her education degree, Coleman returned to Whitecourt, Alta., to work as a teacher and, coming full circle, to train student wrestlers alongside her own former wrestling coach.



▼
ALUMNI HORIZON AWARD

For building engaged communities

Zain Velji, '10 BA

Political commentator, community activist

Velji moderates the popular political podcast *The Strategists* and managed Naheed Nenshi's successful 2017 campaign to be Calgary's mayor. He co-founded Everyone's Canada, a national organization that celebrates multiculturalism and combats xenophobia. Velji is a board member and volunteer for several community groups and is

very involved in Calgary's Ismaili community. We asked him to share his best advice for a new grad—or anyone, really—who hopes to kick off a similarly exciting career.

► **Know your limitations**

Knowing your strengths is one thing, but also knowing your limitations allows you to double down on your strengths. You'll have a sharper sense of where you can add value.

► **Generalize, don't specialize—yet**

The broader your skill set, the more unique you will be when you do hone in on a specialty. Nurture a liberal arts mindset. That is: have many interests, specialize in a few and continue to grow your knowledge base. Your

ceiling for personal and professional success only gets higher when you are more textured.

► **Nothing interesting is a waste of time**

Boring people suck (and there are so many of them). If you want to be interesting, be interested. This applies to your own interests—if you're into it, it's not a waste of time—and to those of others. People will find you more interesting if you genuinely engage with what excites them.

► **Don't downplay your soft skills**

Knowing how to deal with people, manage conflict or ascertain intent are essential skills. Technical skills can be automated, but no one can take away your ability to navigate people.

► **Surround yourself with diverse people**

I don't just mean people who are culturally or socio-economically different from you, though that is important. Surround yourself with people who have different ways of thinking about the world—they are the ones who will sharpen your perspective. People who are smarter than you are not your enemy. You can learn from them.

▼
SPORTS WALL OF FAME

FOR HANDLING PRESSURE WITH APLOMB

Shandra Doran, '97 BSc(Spec), '05 PhD

Pandas volleyball, emergency doctor

Doran—who describes herself as an “adrenalin junkie”—helped the Pandas win four national volleyball championships from 1995 to 1998. Today, it is her work at the University of Alberta Hospital's emergency department that keeps her on her toes.

“She loved pressure and always brought her best performances when it was most difficult. It's not surprising that the team was so successful during her tenure with the Pandas—she was one of the athletes we could always count on when the pressure was at its highest!”

Laurie Eisler, Pandas volleyball head coach

▼
ALUMNI SERVICE AWARD

For being a champion of fitness for all Albertans

H.A. “Art” Quinney,

'74 PhD in physical education

Professor, administrator, fitness leader

In 1971, long before step-counting watches and Instagram workouts, Canada was one of the least-fit countries on the planet. Quinney, a U of A physical education grad student at the time, helped change that.

He Just Did It

Quinney's expertise was exercise physiology but his passion was getting people moving. He set up a campus fitness testing centre in 1982, offering strength assessments, body fat measurements and all-important suggestions for improvement. A few years later, he commandeered the technology of the day—television!—to bring fitness tips and facts into Alberta homes via Access TV (now CTV2), then owned by the Alberta government.

All Well and Good

Today's fitness gurus talk about “wellness” and “active living” but the visionary Centre for Well-Being, which Quinney established in 1989, helped coin the terms. With its emphasis on the sweet spot of health, wellness and active living, the renamed Centre for Active Living is still going (ahem) strong.

Fiscal Fitness Challenge

During almost five decades at the U of A, Quinney moved from the classroom to dean's chair to senior administration. His calm leadership and problem-solving skills are credited with helping the university through some challenging financial storms.

Geared Up for Green and Gold

Tyler Hanson, '00 BSc(MechEng), begins his two-year term as Alumni Association president in June. We caught up with him to discuss his recent career change and the high sartorial bar set by past presidents.

By **Kate Black**, '16 BA

You were recently recruited to become the president of an advertising technology company owned by another U of A grad. It's pretty cool that all these years later the university community is still a part of your life. There are dozens of examples of how the U of A community has impacted me more than my academic experience has. When something comes up in my career or my life, I gravitate towards the U of A. I've used research from the faculties of engineering and Native studies to inform my work in construction engineering. Even as a parent, I love taking my kids to watch Pandas basketball games.

What advice would you offer to people considering a career change? Look for things in your current career that you find rewarding and that you think you could be successful at in a different environment. For me, that thing was project management. I really like helping entrepreneurs and businesses. I realized that I've had a 20-year career and that, if I took some risks, I could squeeze a

whole new career into the next 20 years. Now, I'm feeling the same excitement and vulnerability as when I came out of my undergrad. I'm learning and asking questions and bringing some new ideas.

Past alumni presidents are known for repping their U of A pride. Mary Pat Barry, '04 MA, wore the university's colours every day of her presidency and Heather Raymond, '82 BEd, '86 Dip(Ed), '95 MEd, '02 PhD, knit herself an epic green-and-gold sweater. No pressure, but how are you going to match their game? I don't know if I'm disciplined enough to make that kind of fashion commitment like Mary Pat. And I'm impossibly jealous of Heather's sweater. But I'm a big Vespa fan, so I bought a green and gold scooter last summer. I also ordered myself some custom green-and-gold Nike Air Force 1 sneakers that I'm really excited about. I think between the scooter and the sneakers, I can carry on the tradition. ■

This interview has been edited for length and clarity. Want to read more? Check out our full Q&A with Tyler at ualberta.ca/newtrail.



WHAT YOU NEED TO KNOW ABOUT...



PREPPING YOUR DOG FOR LIFE AFTER COVID

Return to work knowing Spot has it handled

By **Amei-lee Laboucan**

Puppies have become our full-time companions during the pandemic. But with the vaccination rollout underway and people preparing to return to work, our dogs are facing a future with a lot more alone time. **Lindsay Nakonechny** '13 BSc(Animal Health), knows how to recognize anxiety in dogs. She offers tips to help you prepare your pup for independence.

1) Practise perfect exits

To help your dog fly solo, Nakonechny suggests leaving your house for short periods and stretching it out bit by bit so your dog gets used to being alone. You can also encourage your pooch to spend less time with you while you're home. Provide enrichment toys or scented items in a separate room from you, she suggests.

2) See the signs of stress

When you're getting ready to leave home, notice how your dog is behaving. Signs of stress can look like out-of-context yawning, lip licking, pacing,



whining or panting. Your dog may sit by the door or hide when you're getting ready to leave or get destructive when you're gone. But dogs aren't aspiring to behave badly. "They're trying to cope with stress and change in routine," says Nakonechny.

3) Add lots of playtime

Your pup needs stimulation throughout the day so that being home alone becomes a positive experience. Dogs have a highly developed olfactory system, so they love games that involve exploratory sniffing. Freezing peanut butter (without xylitol, which is poisonous for dogs) or wet food inside an enrichment toy can busy your dog while you're out for the day, says Nakonechny. Make sure your pooch gets lots of exercise, and allow them to sniff at their own pace.

4) Get help if you need it

Some studies suggest playing quiet classical music can calm dogs, says Nakonechny, so try leaving the radio or TV on a relaxing station while you're out. The aim is to "change their perception about being apart from you," she says. If leaving your pup home alone isn't an option, consider doggy daycare, a hired pet sitter or a dog walker. Consulting a behaviourist or rewards-based dog trainer can help you develop a modification plan that suits your lifestyle. ■

The Alumni Association notes with sorrow the passing of the following graduates (based on information received between October 2020 and January 2021).

In Memoriam

1940s

'41 **Gerald Warren Hankins**, BSc, '51 MD, in November 2020

'42 **Mary Elizabeth Bothwell**, Dip(Nu), in December 2020

'43 **Ian Smith**, BSc(CivEng), of Maple Ridge, BC, in November 2020

'45 **Winston D. Stothert**, BSc(ElecEng), in December 2020

'46 **Ernest Reinhold**, BSc, '49 MA, of Edmonton, AB, in October 2020

'47 **Ellen Marie Mortensen**, Dip(Ed), in September 2020

'48 **John Harvey Day**, BSc, '52 LLB, of Edmonton, AB, in January 2021

'48 **Elizabeth Laura MacDonell (Heller)**, Dip(Nu), '49 BScN, of Edmonton, AB, in January 2021

'48 **Richard Bedford Oldaker**, BSc, of Victoria, BC, in November 2020

'48 **Marion L. Whitney (Roberts)**, BSc, of Edmonton, AB, in October 2020

'49 **Michael Joseph Charuk**, BEd, '61 BSc, in January 2021

'49 **James Donald Houston**, BSc, of Calgary, AB, in January 2021

'49 **Frank Fred Pawlowski**, BSc(Ag), in December 2020

'49 **Nicholas William Taylor**, BSc, of Calgary, AB, in October 2020

'49 **Donald G. Walker**, BSc(Ag), of Vulcan, AB, in November 2020

1950s

'50 **Alberta Mae Boytzun (Byers)**, Dip(Ed), '51 BEd, of Edmonton, AB, in June 2020

'50 **George Richard Heaton**, BSc(Ag), of Calgary, AB, in 2020

'50 **Ralph Baldwin MacMillan**, BSc(ChemEng), of Victoria, BC, in September 2020

'50 **Robert John Taylor**, BSc(ElecEng), in October 2020

'51 **Gwendolin Mary Carriere (Rear)**, Dip(Ed), '83 BEd, of Beaumont, AB, in December 2020

'51 **Jeanne Estelle Lougheed**, BA, of Calgary, AB, in December 2020

'51 **Katherine Ann MacDonald (Heseltine)**, Dip(PHNu), '72 BScN, of Calgary, AB, in September 2020

'51 **Ernest Chester Orford**, BSc(CivEng), in September 2020

'51 **Dennis Nicholas Strilchuk**, BSc(Pharm), of Edmonton, AB, in September 2020

'52 **Margaret Adele Andrews (Cleveland)**, BEd, in November 2020

'52 **Elizabeth Mary Broen**, Dip(Nu), '53 BScN,

of Edmonton, AB, in September 2020

'52 **Robert Henry Choate**, BSc(ElecEng), in November 2020

'53 **Kenneth Owen Anderson**, BSc(CivEng), '59 MSc, of Edmonton, AB, in December 2020

'53 **Peter Epp**, BSc(CivEng), of Calgary, AB, in December 2020

'53 **Peter Eddie Gabinet**, Dip(Ed), '57 Dip(Ed), '60 BEd, of Sherwood Park, AB, in December 2020

'53 **John Giovanetto**, BSc(MiningEng), of Vancouver, BC, in November 2020

'53 **Gerald Kashuba**, BEd, '60 BA, in December 2020

'53 **Bernard Neufeld**, MD, of Outlook, SK, in January 2021

'53 **James Edward Redmond**, BA, '54 LLB, of Edmonton, AB, in January 2021

'53 **Charles Earl Shaul**, BSc(CivEng), of Edmonton, AB, in December 2020

'53 **John Victor Sorochan**, Dip(Ed), in December 2020

'53 **Glenn William Swift**, BSc(ElecEng), '60 MSc, of Vancouver, BC, in November 2020

'54 **Arthur Alexander**, BSc(ElecEng), of Abbotsford, BC, in December 2020

'54 **Vera Alice Cameron**, Dip(Ed), '60 BEd, '66 BSc(HEc), in December 2020

'54 **Marie Caroline Howg**, Dip(Ed), of Lethbridge, AB, in October 2020

'54 **David Osoba**, BSc, '56 MD, in December 2020

'55 **Marie Terese Bowman**, BSc(HEc), of Edmonton, AB, in November 2020

'55 **Gertrude Violet Brown**, Dip(Ed), of Calgary, AB, in October 2020

'55 **David Ronald Budinski**, BSc, of Surrey, BC, in November 2020

'55 **Thelma Irene Ries (Larson)**, Dip(Ed), in November 2020

'56 **Henry Mayne Beaumont**, LLB, of Calgary, AB, in January 2021

'56 **Hugh Mogensen**, BSc, of Victoria, BC, in September 2020

'56 **Harold Nash**, BSc(CivEng), of Calgary, AB, in November 2020

'56 **Allan Ruus**, BSc(CivEng), of Calgary, AB, in August 2020

'56 **James Richard Sanderson**, BSc(ChemEng), in November 2020

'56 **David Finley Stevenson**, BA, of Toronto, ON, in September 2020

'57 **Mary Lorraine Culp**, Dip(Nu), '67 BScN, in January 2021

'57 **Earl Victor Gowda**, BSc, '61 DDS, in November 2020

'57 **Donald Selwyn Kerr**, BCom, of Brampton, ON, in January 2021

'57 **Allan Charles Oliver**, BSc(ChemEng), of Edmonton, AB, in December 2020

'57 **Elizabeth Margo Schwab**, MD, of Edmonton, AB, in October 2020

'57 **Margaret Lorraine Williamson (Recknagle)**, BPE, of Edmonton, AB, in November 2020

'58 **Doris Helen Annear (Greene)**, Dip(Nu), '69 BScN, of Calgary, AB, in December 2020

'58 **Joseph Balombin**, BSc(ElecEng), in August 2020

'58 **Sergius Les Dobko**, BSc(ChemEng), of St. Albert, AB, in November 2020

'58 **Janis Irene Dudley**, Dip(Nu), of Calgary, AB, in October 2020

'58 **Marie Barbara Kozoriz (Laberge)**, BSc(HEc), of Edmonton, AB, in November 2020

'58 **John Clyde MacDonald**, BSc(Pharm), of Edmonton, AB, in September 2020

'58 **Donna Merle Rich**, Dip(Nu), in October 2020

'58 **Roy Shiro Tsuyuki**, DDS, of Surrey, BC, in November 2020

'58 **Diana Winifred Vandersypen (Beveridge)**, BA, in November 2020

'58 **Roman Warchola**, BSc(ChemEng), of Calgary, AB, in October 2020

'58 **Nestor Ivan Worobets**, BSc(Pharm), of Edmonton, AB, in October 2020

'59 **Hugh John Bolton**, BA, '15 LLD (Honorary), of Edmonton, AB, in December 2020

'59 **Gilbert Lionel William Clark**, BSc(ChemEng), of Calgary, AB, in August 2020

'59 **Marianne Miles**, BEd, '69 Dip(Ed), '73 MEd, in October 2020

'59 **Victor Algirdas Snieckus**, BSc(Hons), in December 2020

1960s

'60 **Marvin Walter Baker**, BEd, of Sherwood Park, AB, in December 2020

'60 **Anastasia Drozdiak**, Dip(Nu), '67 BScN, '84 BA, of Edmonton, AB, in December 2020

'60 **Carole Marie Higham**, BSc(Pharm), of Victoria, BC, in December 2020

'60 **Albert Daniel Laplante**, BSc(CivEng), '63 MSc, of Lethbridge, AB, in October 2020

'60 **Ernest Alyn Mitchner**, BEd, '63 BA, '66 MA, '71 PhD, of Vancouver, BC, in September 2020

'60 **Melvin William Prowse**, BSc(Ag), of Creston, BC, in August 2020

'61 **Lev Borys**, BSc(Pharm), '67 MD, of Edmonton, AB, in January 2021

'61 **Keith Arnold Brown**, BSc(ElecEng), in June 2020

'61 **Margaret Patricia Jane Browne**, BEd, '65 MEd, '71 PhD, of Vancouver, BC, in October 2020

'61 **James Douglas Dale**, BSc(MechEng), '63 MSc, in November 2020

'61 **Alistair George Garden**, DDS, of Medicine Hat, AB, in October 2020

'61 **Bernard Karna**, BSc(MechEng), of Barrhead, AB, in January 2021

'61 **Richard Dennis Odland**, BSc, '64 DDS, of Calgary, AB, in November 2020

'62 **Wilma Edna Bayley**, BEd, '71 MEd, of Leduc, AB, in December 2020

'62 **Reginald Francis John Peter Brewster**, BA, of Canmore, AB, in June 2020

'62 **Steve Chodan**, BEd, of Westlock, AB, in November 2020

'62 **Olaf Ansgar Melvie**, MD, of Calgary, AB, in October 2020

'62 **Henry Frederick Pabst**, MD, of Edmonton, AB, in December 2020

'62 **Victor John Sokolosky**, BEd, in October 2020

'62 **Peter Paul Syroid**, BEd, '68 BSc, of Edmonton, AB, in October 2020

'62 **John Harry Taylor**, BSc, in November 2020

'63 **Dale Leroy Bjornson**, BPE, '72 BEd, '74 Dip(Ed), in October 2020

'63 **Donald Stuart MacPherson**, BSc, '65 MSc, of Dallas, TX, in August 2020

'64 **Leonard Wayne Farries**, BSc(MechEng), of Black Diamond, AB, in August 2020

'64 **Clifford Irvine French**, BSc(Pharm), '65 BSc(Pharm), in October 2020

'64 **Roger Graham Keith**, MD, of Saskatoon, SK, in December 2020

'65 **Murray Samuel Bogorus**, MD, of Black Diamond, AB, in January 2021

'65 **Henry Christian Bosman**, BSc(ChemEng), of Lethbridge, AB, in November 2020

'65 **Patricia Lynne-Davies**, MSc, of

Southport, NC, in November 2020

'65 **Lois Verna Milligan**, Dip(Nu), '66 BScN, in September 2020

'66 **James Vincent Chartrand**, BPE, of Vernon, BC, in November 2020

'66 **Terese Genevieve Cossitt**, MEd, of Corner Brook, NL, in June 2020

'66 **Donald John Cuts**, BPE, of Canmore, AB, in October 2020

'66 **Cornelius Joziassie**, BSc(Hons), of Victoria, BC, in October 2020

'66 **Eugene Jerry Rudnisky**, BSc(Pharm), '70 MD, in January 2021

'66 **Susan Paula Smith (Nigro)**, BA, in September 2020

'66 **Alexandra Adam West**, MA, '78 PhD, of Bragg Creek, AB, in September 2020

'67 **Raymond Allan Brubaker**, BEd, of St. Albert, AB, in September 2020

'67 **Armin Roland Gebauer**, BA, in October 2020

'67 **Mervyn A. Lynch**, BEd, of Sherwood Park, AB, in November 2020

'67 **Malcolm Ian MacKenzie**, BA, '70 LLB, in January 2021

'67 **Laddie Martin**, BEd, in October 2020

'67 **James Alexander Merkley**, BSc, of Calgary, AB, in January 2020

'67 **Verna Loreen Naylor**, BA, of Toronto, ON, in January 2020

'67 **Walter Stanley Soboren**, BSc, '70 LLB, of Calgary, AB, in August 2020

'67 **James Donald Stambaugh**, BPE, '69 Dip(Ed), in November 2020

'68 **Barbara Joan Bayer**, BSc(Pharm), in September 2020

'68 **Stella Gammie**, BEd, '70 BEd, of Edmonton, AB, in January 2021

'68 **Vernon Alois Herle**, BEd, '70 Dip(Ed), '72 BA, of Edmonton, AB, in January 2021

'68 **Elaine Jean McCoy**, BA, '69 LLB, of Ottawa, ON, in December 2020

'68 **Willy Richard Muller**, BEd, '71 Dip(Ed), '76 MEd, in December 2020

'68 **Kenneth Charles Nixon**, BEd, of Edmonton, AB, in September 2020

'68 **Joseph Edward Robinson**, PhD, of Syracuse, NY, in August 2020

'68 **Daniel B. Rudko**, BEd, in September 2020

'68 **Edmund Tessman**, BEd, of Red Deer, AB, in September 2020

'68 **Lorraine Margaret Waring**, BEd, of Courtenay, BC, in December 2020

'68 **Mary Louise Josephine Zdunich**, BA, of Edmonton, AB, in November 2020

'69 **James Rupert Allan**, BSc, in January 2021

'69 **Cecil Roy Blackburn**, BPE, '74 MA, in January 2021

'69 **Alice Eileen Easton (Rigby)**, BEd, of Fort Saskatchewan, AB, in November 2020

'69 **Terry Lee Erwin**, PhD, of Washington, DC, in May 2020

'69 **Antonio Falcone**, BEd, in October 2020

'69 **Howard Reuben Jespersen**, DDS, in October 2020

'69 **Harvey Richard Uretsky**, BSc, '70 MD, of Edmonton, AB, in November 2020

'69 **Anthony Yewchuk**, BSc(ElecEng), of Edmonton, AB, in September 2020

1970s

'70 **Alan Leigh Bell**, BSc(MechEng), '71 Dip(Ed), in November 2020

'70 **Richard Wayne Booth**, BPE, of Thornhill, ON, in 2020

'70 **Patricia L. Cull**, BSc, in October 2020

'70 **Christopher Bruce Freeborn**, BSc(ChemEng), of Calgary, AB, in September 2020

'70 **Catherine Christine Watts (Drabble)**, Dip(RM), in September 2020

'71 **Barry Robert Forgie**, BSc, of Kamloops, BC, in December 2020

'71 **Peter Franz A. Jasper**, BA, '75 LLB, in December 2020

'71 **Jeanne Alice Lepine**, BEd, of Edmonton, AB, in September 2020

'71 **Garth Norman Pickard**, BEd, '74 MEd, '89 PhD, in November 2020

'71 **Hanna Schwabe**, BEd, in November 2020

'71 **Camilla May Smith**, BSc(Hons), '75 MSc, of Victoria, BC, in November 2020

'71 **Anne Uniat**, BEd, in November 2020

'72 **George Raymond Besserer**, PhD, in December 2020

'72 **Kenneth John Hedlin**, BSc(Spec), in September 2020

'72 **Fred David Procinsky**, BSc(Ag), of St. Michael, AB, in October 2020

'72 **Mary Eva Stuart**, BEd, in September 2020

'72 **Francis K. Yeung**, Dip(Ed), of Brisbane, CA, in October 2020

'73 **Derek Shannon Bulmer**, BA, '76 LLB, in January 2021

'73 **Margaret Mary Devlin (Adair)**, BEd, of Edmonton, AB, in January 2021

'73 **Orest Dubelt**, BA, of Myrnam, AB, in December 2020

'73 **Edward Andrew Holownia**, BEd, of Edmonton, AB, in January 2021

'73 **Katherine Ann Hurley**, BA, in September 2020

'73 **Betty L. Thronson**, BEd, in November 2020

'73 **Malcolm Lorne West**, PhD, in September 2020

'73 **John Thomas Wilson**, MA, in October 2020

'74 **Maxine Marilyn Elliot**, BA, '80 MEd, '91 PhD, of Edmonton, AB, in October 2020

'74 **John Ferrin Larson**, BSc(Med), '76 MD, of Spokane Valley, WA, in November 2020

'74 **Susan Merline McCulloch**, BA, '78 BCom, of Edmonton, AB, in January 2021

'74 **Frances Mycko**, Dip(Ed), in November 2020

'74 **Ruth Anne Parnall**, BSc(Hons), of Edmonton, AB, in January 2021

'74 **Mary Schnee (Petruk)**, BEd, of Edmonton, AB, in December 2020

'74 **Anne Toole**, BPE, '76 BA(RecAdmin), of Edmonton, AB, in October 2020

'74 **Philip Arthur Turner**, BA(RecAdmin), of Saint John, NB, in July 2020

'75 **Chandrawate Watee Angle**, BSc(Hons), '89 MSc, in November 2020

'75 **Karen Maria Ferguson**, BA, of Edmonton, AB, in 2020

'75 **Steve James Ignatavicius**, BPE, of Toronto, ON, in October 2020

'75 **Harald Wilfried Kuckertz**, BA, '78 LLB, of Edmonton, AB, in December 2020

'75 **Timothy Alan McCoy**, BA, of Edmonton, AB, in 2020

'75 **Emilia Pasemko**, BA, of Stony Plain, AB, in December 2020

'75 **Eugenia Katherine Skladan**, BEd, of Lamont, AB, in November 2020

'75 **Iris Eileen Walker**, BA, in December 2020

'76 **Sigrid Dahle**, BA, of Winnipeg, MB, in October 2020

'76 **Mary Anne Hickmore**, BA, in December 2020

'76 **Elaine Carol Osoba**, BEd, '78 MEd, of Abbotsford, BC, in October 2020

'76 **Murray Hendrik Van Dyke**, BMedSc, '78 MD, in October 2020

'77 **Robert Brown Morgan**, BSc(Spec), in November 2020

'77 **Lorne Alexander Sarnosky**, BPE, of St. Paul, AB, in December 2020

'77 **Harold Brent Skinner**, MHSA, of Edmonton, AB, in January 2021

'77 **Maurice Clifford Wuetherick**, BSc, in November 2020

'78 **Heather Ann Waldie**, BEd, of Edmonton, AB, in January 2021

'78 **Gordon David Zack**, BSc(CivEng), of Stony Plain, AB, in November 2020

'79 **Shirley Anne Funk (Heemeryck)**, BEd, of Edmonton, AB, in December 2020

'79 **Patricia Elizabeth Gainer**, Dip(DentHyg), '82 BSc, of Edmonton, AB, in November 2020

'79 **Raymond Robert McLellan**, BEd, of Edmonton, AB, in October 2020

'79 **Andrew Brian Saby**, BSc, '81 DDS, in November 2020

'79 **Maxwell William Ward**, LLD (Honorary), of Edmonton, AB, in November 2020

1980s

'80 **Dianne Veronica Dalley**, BEd, in November 2020

'80 **Peggy Anne Field**, PhD, of Edmonton, AB, in January 2021

'80 **Marguerite Helene Lagasse-Langlois**, BEd, '82 BFA, of St. Albert, AB, in January 2020

'80 **Jonathan Jeffrey James Mohr**, MMus, '02 PhD, of Camrose, AB, in November 2020

'81 **Ruth Esther Janssen**, BEd, in November 2020

'81 **Catherine Elizabeth Lesnik**, BEd, of Calgary, AB, in December 2020

'81 **William Wai Hong Ng**, BSc(ElecEng), of Leominster, MA, in September 2020

'82 **Jeanne Helen Carter**, BEd, '88 MEd, in September 2020

'82 **Susanna Maria Christensen (Konrad)**, BSc(Speech/Aud), '99 MScSLP, of Calgary, AB, in December 2020

'82 **Jim John Gregoraschuk**, BEd, in December 2020

'82 **Ernest Walter Lotz**, BPE, '84 BEd, in December 2020

'82 **Judy Rose Close (Mayes)**, BEd, in December 2020

'82 **Mina Eni Simi**, BEd, of Calgary, AB, in October 2020

'83 **Fern Hazel Fausak**, BEd, in November 2020

'84 **Gerard Joseph Curley**, BSc(OT), of Calgary, AB, in December 2020

'85 **Christopher Eugene Paniak**, BA(Hons), of Edmonton, AB, in December 2020

'86 **Donna Arlene Doerkens (Neufeld)**, BSc(PT), of Calgary, AB, in January 2021

'86 **Randall Sylvester Myron Kryz**, BEd, of St. Paul, AB, in October 2020

'86 **Renee Christine Land**, BA, in September 2020

'87 **Sharilyn Dawn Becker**, BEd, in December 2020

'87 **Peter Gerhard Kroeger**, BCom,

of Calgary, AB, in October 2020

'87 **Charlotte Audrey Martens**, BEd, of Calgary, AB, in December 2020

'88 **Isabel Jean Quist (Gray)**, BEd, of Marwayne, AB, in October 2020

'88 **Brian Donald Rosser**, BCom, in October 2020

'88 **Judith Anne Rout**, BEd, of Edmonton, AB, in December 2020

'89 **Fred Eugene Boyko**, BSc(Spec), of St. Albert, AB, in November 2020

'89 **Winnie Marie Mah**, BSc, in November 2020

'89 **Jerome Kendall Turner**, PhD, of New Glasgow, NS, in December 2020

'90 **Elizabeth Charlotte Holt (Marryat)**, MEd, of Edmonton, AB, in January 2021

'93 **Donald Frank Mazankowski**, LLD (Honorary), in October 2020

'94 **Roger John Dlugosz**, BSc(ChemEng), of High Prairie, AB, in January 2021

'94 **Charlene Martha Knudsen (Postill)**, BScN(Hons), '98 MEd, in November 2020

'94 **Suzanne Jane Rau**, BScN(Hons), in November 2020

'94 **David Michael White**, BSc(ElecEng), '99 MSc, of Moose Jaw, SK, in July 2020

'94 **Julie Marie Wolff**, BEd, in September 2020

'95 **Francis Rory Kyte**, BCom, of Valletta, Malta, in November 2020

'96 **Catharina Margaretha Ankersmit**,

BEd, of Canmore, AB, in November 2020

'97 **George Scott Walker**, BCom, in December 2020

'98 **Kent Michael Pilip**, BCom, of Southlake, TX, in December 2020

2000s

'01 **Craig Strivens**, BScN(Hons), in October 2020

'02 **Cynthia Leigh Cotton**, BSc(Forest), of Edmonton, AB, in October 2020

'02 **Kimberly Andrea Cruickshank**, BSc, of Edmonton, AB, in January 2021

'02 **Daniel Kim**, BSc(ElecEng), in October 2020

'02 **Cameron Duane Bentley Roset**, BEd, of Medicine Hat, AB, in October 2020

'03 **Rhonda Lois Meredith**, BScN(Hons), in November 2020

'05 **Pierre Matthew Farage**, BCom, '12 MBA, of Edmonton, AB, in January 2021

'06 **Meghan Rory Weis (St. Pierre)**, BEd, of Edmonton, AB, in October 2020

'09 **Jocelyn Dawn Saskiw**, BA(NativeStu), '09 Cert(CSL), in December 2020

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

thehub

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SPEAKER'S CORNER

TIPS FOR MEDIA LITERACY

By **Lisa Szabo**, '16 BA

The news media have undergone a transformation in the past decade. Many news organizations have consolidated, contracted and moved online, and independent media outlets have popped up to fill the gaps. Boil up these changes with increased political polarization, “fake news” and growing distrust of the media, and we’re left with a stew no one quite recognizes—or feels good about eating. So, where do we go from here? **Juliet Williams**, '96 BA, northern California news editor at The Associated Press, shares expert tips on how to consume a balanced media diet.

DON'T GET DUPED BY FAKE NEWS

“Hundreds and hundreds and hundreds” of shell news organizations have popped up in the last few years, says Williams. These organizations—which exist on both sides of the political spectrum, she says—masquerade as credible sources but instead publish content with one perspective. To avoid getting duped, she suggests liberally using Google to ask questions like, “Is this a real news organization?”



CONSIDER THE SOURCES

Any story that relies on a single source—that is, one person who provides all of the insight—isn't giving a sufficient overview of the story, she says. If you read two stories that seem to be coming from opposite political viewpoints, enlist your critical thinking skills. “Ask yourself if the truth is somewhere in the middle,” she says, or if one side isn't accurate at all.

TAKE A BROAD VIEW

If you use one news source regularly, Williams advises broadening your scope. It takes effort to seek out content that comes from many sources and from many viewpoints. “A lot of the stuff that gets shared on Facebook is coming from one perspective or another, and that has heightened the distrust and divisions,” Williams

says. She adds that people tend to seek news that reinforces their opinions, rather than looking at the whole story.

PAY FOR YOUR NEWS

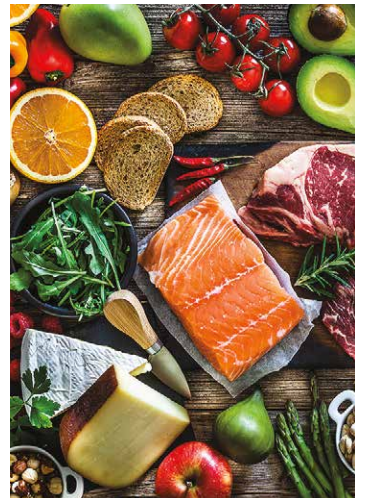
The business model that used to sustain newspapers and magazines is in upheaval. Advertising doesn't bring in the same revenue it once did. As a result, many outlets have introduced paywalls to stay afloat. Williams recommends supporting credible news outlets by paying for a subscription. “If you care about the news, and you want to see a stronger news industry, that's the No. 1 way you can help it.”

Williams is one of many speakers to share expertise at alumni events. Visit uabgrad.ca/OnDemand for more content, including podcasts, online courses and webinars.

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LIVING ROOM LESSONS

Our food supply is safer than it has ever been, but food-borne diseases can still find their way into your pantry. Learn what you can do to fend off food poisoning in the “Safe Food, Safe You” webinar. Or check out other free offerings featuring U of A experts: uabgrad.ca/OnDemand.



PODCAST WISDOM

“Kindness is everything and costs nothing.”

▼
Shana Dion, '05 BA, '19 Cert (Aboriginal Spo/Rec), assistant dean for First Nations, Métis and Inuit students, talks about maintaining connectedness during the pandemic for the alumni podcast *The Line*.

1,289

The number of times listeners tuned in to *What the Job?* to hear **Adrien Cho**, '98 BSc (Mech Eng), '04 MDes, talk about his role in the *Halo* video games.

2,000

The number of flowers a foraging bee can visit in a single day. Learn more about our pollinating friends and the role insects play in global ecosystems in *Bugs 101*, one of the U of A's free massive open online courses.



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“Aha” Moments

➔ It was something a friend said or a line your professor dropped that made you see everything a little differently. We’ve all had those defining moments that changed us for the better. We asked grads to share theirs. Find more campus memories or share your own at facebook.com/UAlbertaAlumni.

I remember many things from many professors that influenced me academically, but David Begg is one of the people who said something that affected me, and likely so many other people, personally: “Figure out what you love, and do that. If you don’t, you’ll be unhappy. If you do what you love, no matter what you do, you’ll put a little bit of love into the world. And that’s the very best thing you can do.”

—Whitney Fox, '16 BSc(Spec)

One of my academic supervisors dropped a line that has become a core memory: “People who don’t learn to collaborate are climbing a mountain, throwing people off along the way, until they get to the top and realize they’re just one lonely ahole.”**

—Joyce Yu, '07 BA, '15 MA

Grant Davy, political science: “Albertans don’t vote. They stamped.”

—Charlotte Bragg, '69 BA, '01 MEd

Studying abroad at the U of A’s School in Cortona, Italy, was one of the best experiences of my life.

—Shannon Smith, '02 BA(Hons), '16 Cert(ResInteriors)



My anthropology of religion prof said, “We’re all viewing the world through our own tall, narrow window. Even if we’re all looking out from the same building onto the same landscape, no two perspectives are exactly the same.” It helped me really understand that we all see the world in our own way!

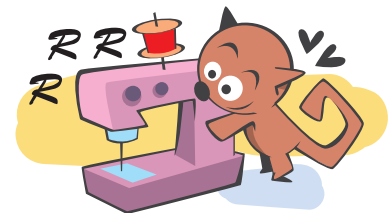
—Janine Funk, '20 BA

Coach Clare Drake, '58 BEd, '95 LLD (Honorary), in my advanced hockey class: “Practise, practise, practise. Then take it to the game.”

—Jeff Pollitt, '73 BEd

Problem 1 from the February 2012 ASTRO 322 assignment from Prof. Gregory Sivakoff: The preamble was one of the most important eureka moments in my degree. How had I gone 2 ½ years not understanding error analysis, and then this one general formula mentioned offhandedly in a random assignment clarified everything?!

—Landon Haynes, '13 BSc(Hons), '14 BSc(Spec), '19 MBA, '19 JD



Vlada Blinova, human ecology: “Your sewing machine should purr like a kitten.”

—Mercedes Cormier, '17 BSc(HEcol)

A man with a beard and mustache, wearing a red and black plaid shirt, is crouching in a field of green plants. He is smiling broadly at the camera, and his hands are held out, showing dark soil and some roots. The background is a blurred field of green plants and brown soil.

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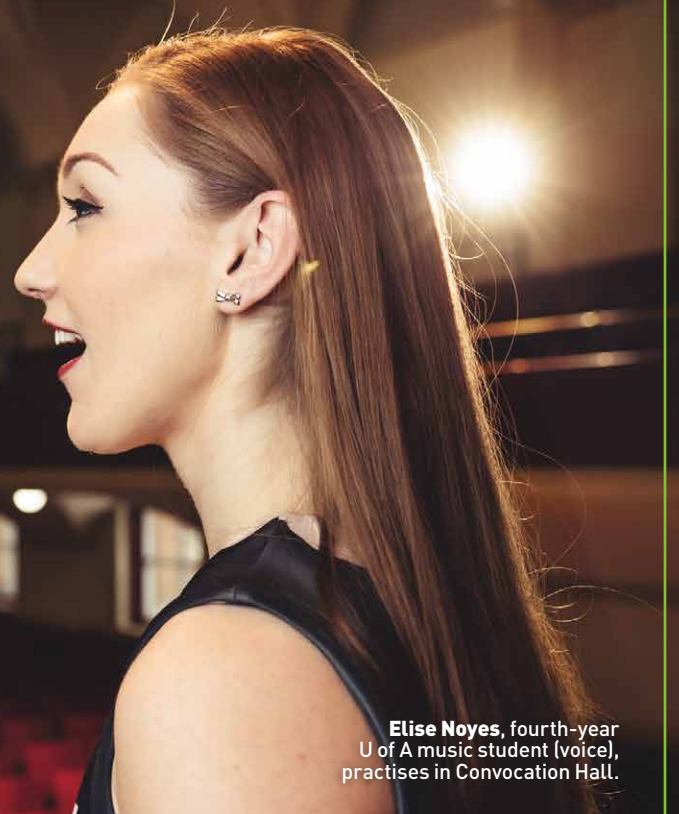
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Elise Noyes, fourth-year U of A music student (voice), practises in Convocation Hall.

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“Education is everything. The best way to encourage it is to help finance it for those who can’t afford it.”

Donors Alan Bell, '53 BA, '55 BEd, '67 MEd, and Alice Bell, '63 BEd

For general inquiries about ***New Trail*** or the Alumni Association, please contact us:
780-492-3224 | alumni@ualberta.ca.