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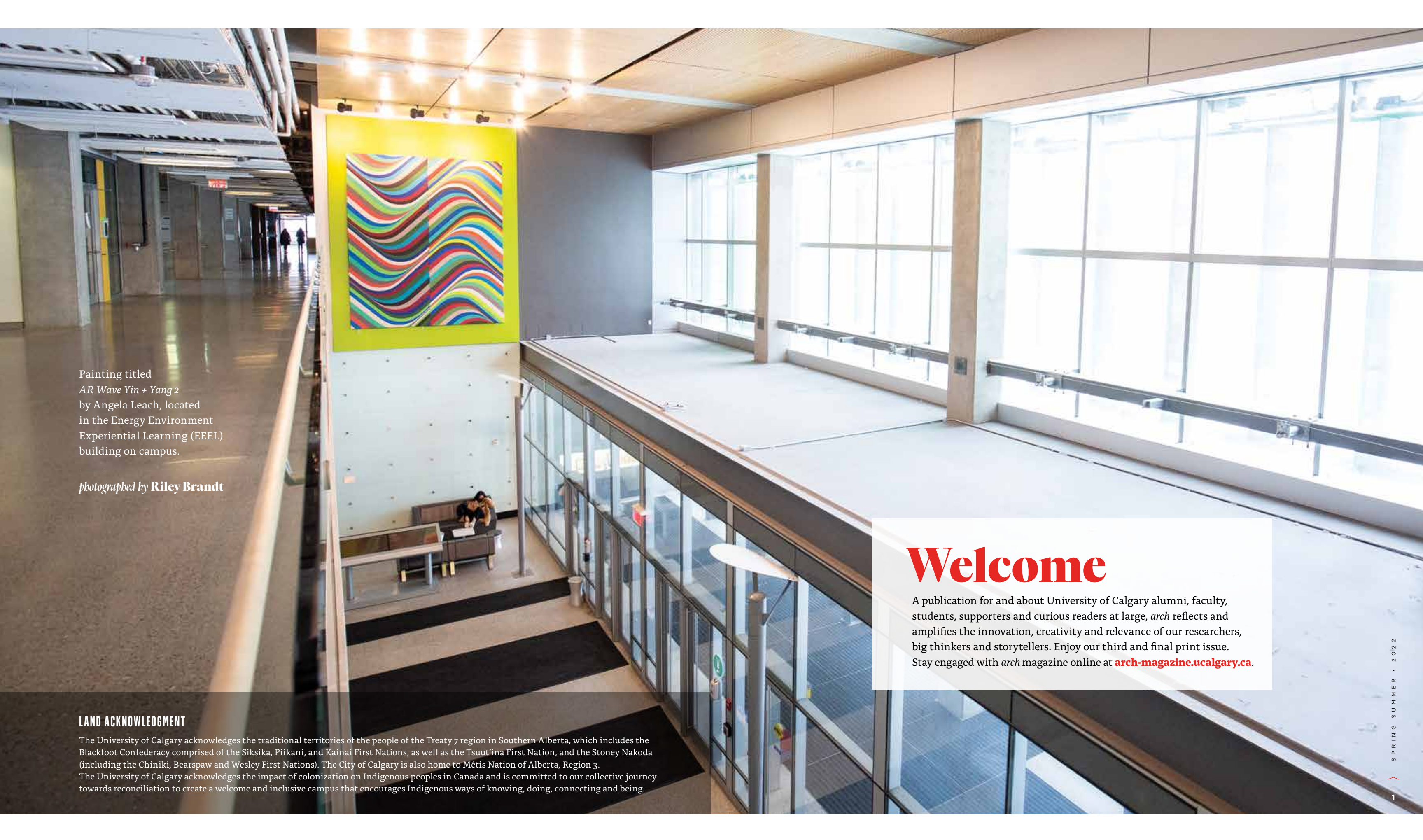
THE UNIVERSITY OF CALGARY INSIDE AND OUT ISSUE NO. 3

SPRING SUMMER • 2022

FROM BIZ TO BEATS

Business-savvy, musically gifted and devoted to lifting others through storytelling, **Thabo Chinake** (a.k.a. KTheChosen) is a rising star and an undeniable force of positive change.

+ Who Wants to Be a Veterinarian? + Tough Love for the Oilsands + Ageism is Getting Old



Painting titled
AR Wave Yin + Yang 2
by Angela Leach, located
in the Energy Environment
Experiential Learning (EEEL)
building on campus.

photographed by **Riley Brandt**

LAND ACKNOWLEDGMENT

The University of Calgary acknowledges the traditional territories of the people of the Treaty 7 region in Southern Alberta, which includes the Blackfoot Confederacy comprised of the Siksika, Piikani, and Kainai First Nations, as well as the Tsuut'ina First Nation, and the Stoney Nakoda (including the Chiniki, Bearspaw and Wesley First Nations). The City of Calgary is also home to Métis Nation of Alberta, Region 3. The University of Calgary acknowledges the impact of colonization on Indigenous peoples in Canada and is committed to our collective journey towards reconciliation to create a welcome and inclusive campus that encourages Indigenous ways of knowing, doing, connecting and being.

Welcome

A publication for and about University of Calgary alumni, faculty, students, supporters and curious readers at large, *arch* reflects and amplifies the innovation, creativity and relevance of our researchers, big thinkers and storytellers. Enjoy our third and final print issue. Stay engaged with *arch* magazine online at arch-magazine.ucalgary.ca.

Editor's Note

What age do you feel inside? I'm stuck at 32, a number that appears to me far closer in my rear-view mirror than it is.

While age may be a very personal state of mind, it's also a tangible mark of significant milestones; an emotional hot button that can trigger our biases; and a measure of where we are now and where we'd like to be next.

In this issue, we look with pride at the coming-of-age of our vibrant, teenaged vet med school (pg. 28) and its bright future that will soon include a cohort of twice as many veterinary students than it once had capacity for. That's a tremendous change that addresses a critical emerging shortage of vets in rural and urban Alberta. It will mean less stress and better mental health for vets; timelier care of animals and the people who love and rely on them; and more opportunity for valuable industry partnerships and vital animal- and human-health research.

We also look at the state of Alberta's oilsands (pg. 42) as they approach late-middle age. Governor General's Award-winning journalist and alumnus Don Gillmor asks: What does the final act look like for the *bête noire* of environmentalists around the world? With the global shift to renewables, how will the oilsands' looming retirement play out? To some degree, technology, developed in our labs, will determine their future.

And we look into the cost of habitual discrimination against the 65-plus set (pg. 36). Benevolent ageism — that is, the assumption that older adults are helpless to make decisions for themselves — can foster anxiety, depression and morbidity. Gerontologists from UCalgary's Brenda Strafford Centre on Aging are proving the dire consequences of systemic ageism and finding positive solutions that can enrich and elevate people of all ages.

As always, by digging deeper into an anniversary, a funding announcement or a program expansion, we find people who delight us with new ways of seeing old things (thank you, starry-eyed Dr. Phil Langill, pg. 10), inspire us with their devotion to building community (thank you, Dashmesh Culture Centre, pg. 22) and — as with the McGuires, our poster-family for courage in the face of a challenging diagnosis (pg. 52) — give us infinite reason to hope.

Thanks for reading.

We look with pride at the coming-of-age of our vet med school, whose future includes a cohort of twice as many students than it once had capacity for.

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Thought and
opinion from the
UCalgary family

Forward



It's been 40 years since the *Canadian Charter of Rights and Freedoms* came into effect in April 1982, which means that, like me, it has officially reached middle age. While many of us take the Charter for granted, this crucial document has recently been put to the test.

The COVID-19 pandemic has given rise to intense debate about where to draw the line between our freedoms and governments' need to limit those freedoms to protect others. The pandemic has also caused an increase in domestic violence and other gender-based impacts — for example, in the employment and education sectors where women have taken on dangerous work and have struggled to juggle their paid and unpaid labour even more than usual.

This is, therefore, an opportune time to ask: How well has the Charter been protecting women's equality rights so far?

Readers might be surprised to know that it was only in 2018 that women first won a sex-discrimination case under the Charter at the Supreme Court of Canada, and such claims have only been successful at the Court twice in the

last four decades. Although women were at the forefront of lobbying for strong equality rights protections in the Charter, they continue to experience myriad inequalities in Canadian society, and our courts have not afforded women the protections they fought hard to achieve.

Perhaps this sorry record is linked to the very depth of women's systemic inequalities. Consider gender-based violence, job segregation and pay inequity, poverty, and lack of access to housing. These inequalities are deep and entrenched, and trying to address them in the courts is challenging. The Charter only applies to government actions, and courts have been reluctant to impose positive duties on governments to rectify inequalities, especially where that would involve public expenditures. Our Supreme Court also has yet to formally recognize intersecting inequalities, despite ongoing discrimination against Indigenous, racialized and religious women and the marginalization and oppression of older women, women living in poverty, women with disabilities, and queer, trans and gender-diverse folks.

Despite these shortcomings, however, I have hope. The Supreme Court will consider a case involving the disproportionate criminalization of Indigenous women this spring and, later this year, the adverse impact of safe third-country agreements on refugee women is on the Court's agenda. The legal tools exist to recognize these harms, and there is a new generation of legal advocates trained to sharpen these tools using feminist, queer and critical race theory, as well as disability justice and Indigenous laws. Non-legal strategies are also crucially important to achieving justice and equality — as the work of Thabo Chinake (pg. 6) illustrates.

As the Charter turns 40, it is time for our courts, governments and all members of society to take the rights of women and other disadvantaged groups from paper promise to lived reality.

Jennifer Koshan, BSc'85, LLB'88
Professor, Faculty of Law
University of Calgary

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Touching History

From a special tree to a residential school, our fleeting natural and built environments are rich with secrets, stories and knowledge that 3D technology can preserve and protect.

Cover photo: Jason Stang; Above photo: Tim Nguyen

arch

The iconic arch spanning the south campus entrance once served as the Rainbow Bridge over Crowchild Trail. Built in 1966, it was designed by UCalgary engineering students and has become a symbol of connection, diversity, support and collaboration.

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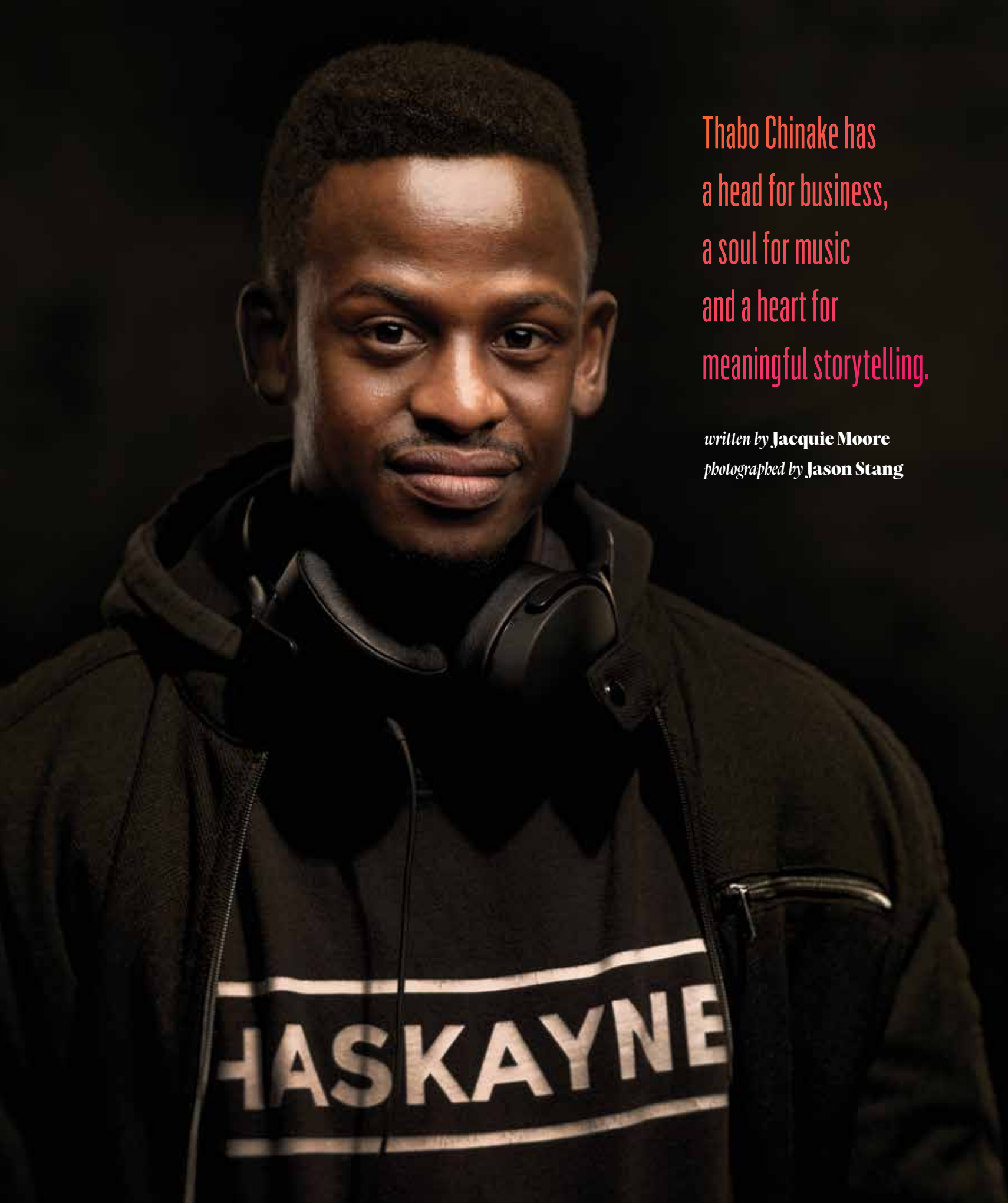
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Rebounding with verve from a cancelled hit TV show, comedian and UCalgary alumnus **Andrew Phung**, BA'06, has another gold-star sitcom on his hands, CBC's *Run the Burbs*. Here's how he thinks, unwinds and stays in the now.

Friends and family of *arch* magazine survey winner, **Ardell Clark-Tronnes, BEd'75**, enjoying a winter adventure courtesy of UCalgary's Outdoor Centre.

Photo: Carol Tronnes





Thabo Chinake has
a head for business,
a soul for music
and a heart for
meaningful storytelling.

written by **Jacquie Moore**
photographed by **Jason Stang**

Partway through his second year of university, **Thabo Chinake** — an international student from Harare, Zimbabwe — was homesick, weary of the cold, and doubting his creativity and academic fortitude. He decided it was time to open the first in a stack of letters that had been addressed to him nearly 22 years earlier.

“My mom, who was an English teacher at the time, wrote the letters when she was pregnant with me,” says Chinake. They were tributes of love to her unborn son, and to the adult she envisioned he would become.

“Her words helped me bounce back,” he says. “They gave me space inside myself to move.”

In October 2021, the same month the album came out, he was chosen as artist of the month by the Immigrant Council for Arts Innovation. As well, he was invited to join 25 other artists — ranging from dancers to graphic designers — in the inaugural cohort of the Arts Commons incubator program. The program gives artists opportunities to learn from one another’s craft while also illuminating the kinds of equipment, space and support artists need from visual and performing arts organizations.

Chinake says business school taught him the communication, marketing and organizational skills he needs to fuel and manage his career as an artist. Likewise, his involvement in extracurricular clubs increased his confidence, honed his networking abilities and, he says, expanded his capacity to empathize with diverse perspectives. Chinake says his close relationship with his mom and other female relatives motivated him to join the campus Consent Awareness and Sexual Education Club to, he says, “understand what sex positivity looks like, and what consent looks like. People generally only think about consent in terms of sexuality, but it falls into so

One to Watch

Chinake, who received his Bachelor of Commerce from the Haskayne School of Business in 2021, is now an account manager at a staffing and recruitment firm, and he’s also a rising hip-hop artist.

He jokes that sometimes he feels like a superhero, hurriedly changing out of his office clothes to inhabit his musical alter ego, KTheChosen (a name inspired by an endearment his mother uses). Still, he finds alignment between the two endeavours. “As different as the recruiting work is from what I do as an artist, it’s similar in that it’s about talking to people, and learning and sharing their stories,” he says.

Indeed, if Chinake has a superpower, it’s supporting and encouraging people to tell their stories — on their own and via his own artistry. Last fall, he released his latest project, *+Vice*, in collaboration with the Blackfoot rapper, Tribe, as well as Cree and Métis musicians. Chinake leveraged the album to raise funds for Indigenous causes linked to Orange Shirt Day.

many things we do, including posting on social media.”

Ultimately, Chinake sees himself staying in Calgary (he’s decided that nasty winter temperatures are outweighed by frequent-enough blue skies) where he believes there’s room for art to become a more robust economic driver. He’ll continue to make his own music, and work with other emerging artists to market and develop their careers.

“I feel like a bridge or connector of people — I think that’s my main purpose,” he says.

Well, that and fulfilling the ongoing demand of his parent to — as she signed off in one of her prenatal letters — “Love your mother (that’s an order).” •

In This Together

For all its tragic outcomes, the pandemic has also revealed untapped reserves of courage, compassion and innovation in students and faculty alike. These six stellar citizens were galvanized by recent mental, physical and social-justice challenges to improve the well-being of others, relating to COVID-19 and beyond.

- 1 “There are few specific evidence-based therapies available for children currently, and detailed research data describing outcomes in young people with COVID-19 has been lacking. Our work is focused on offering important insights we believe will be helpful for frontline care providers tasked with treating children with COVID-19.”

— **Dr. Stephen Freedman, MDCM**, professor in the departments of Pediatrics and Emergency Medicine and the Alberta Children's Hospital Foundation Professor in Child Health and Wellness. He received the 2021 Peak Scholar Award for COVID-19 Innovation Excellence for his studies in improving diagnostic approaches and treatments for children infected by COVID.

- 2 “My research highlights the challenges experienced by immigrant women working as health-care aides in long-term care during the pandemic. These women suffered in terms of their health and well-being and financial security, while doing essential jobs and largely being excluded from institutional decision-making processes. I propose policy changes to improve their working conditions, pay and ability to provide quality care to their vulnerable clients.”

— **Dr. Naomi Lightman, PhD**, assistant professor of sociology, who was awarded the 2021 Peak Scholar Award for COVID-19 Innovation Excellence in the area of Social Impact, and the 2021 New Scholar Research Award from the Faculty of Arts.

- 3 “We know that children and youth have been multiply impacted by the pandemic — school closures, cancelled clubs and sports, family economic loss. Our multi-wave study of more than 1,200 Alberta youth revealed that, despite feelings of sadness and worry, most youth are demonstrating remarkable courage, self-compassion, and resiliency. The challenge now is to identify and address the toll taken on youth mental health and to nurture newly discovered strengths.”

— **Dr. Kelly Schwartz, MSc'92, PhD'02**, associate professor, School and Applied Child Psychology, and social development research team director, Werklund School of Education.

1. Dr. Stephen Freedman, MDCM



2. Dr. Naomi Lightman, PhD



3. Dr. Kelly Schwartz, MSc'92, PhD'02

4. Dr. Christine Walsh, PhD



5. Dr. Lindsay Tedds, PhD



6. Lujaina Eldelebs hany

compiled by **Hong Truong**
illustrated by **Jac Sterling**

- 4 “At the outset of the pandemic, my colleagues, Qianyun Wang (MSW'19) and Jacky Liu (MSW'20) and I worried about the older Chinese immigrants living in Calgary. We were right to be worried. Our exploratory qualitative study revealed that they experienced grief, loneliness, social isolation, ageism and racism. It is our social responsibility to find ways to improve the lives of older immigrant adults.”

— **Dr. Christine Walsh, PhD**, professor, Faculty of Social Work. Her research focused on the experiences and impacts of the COVID-19 pandemic from the perspectives of older Chinese immigrants in Canada.

- 5 “The COVID-19 pandemic has served as a watershed moment, hoisting to the top of priority lists the demand that we do better to ensure that public policy works for the many, rather than the few. We're hopeful for not only a fair recovery, but also the chance at a bigger shift towards a more just society. We require a modernized approach to public policy to address longstanding policy failures — that's what my research is focused on.”

— **Dr. Lindsay Tedds, PhD**, associate professor of economics and scientific director of fiscal and economic policy at The School of Public Policy.

- 6 “Since the book came out, I've been thinking about the importance of empathy in times of crisis. Being able to respond to a need using a relevant medium has shown me how rewarding it is to be compassionate. Saying, 'I can make this better' can be truly heartwarming.”

— **Lujaina Eldelebs hany**, first-year Schulich School of Engineering student and 2021 recipient of the prestigious Schulich Leader Scholarship. She is the author of *Why Do We Wear Masks?*, a children's book that encourages curiosity and learning.

LIGHT-YEARS AHEAD

FIVE DECADES OF STARGAZING AT THE ROTHNEY ASTROPHYSICAL OBSERVATORY.

written by **Jaelyn Molyneux**

photographed by **Brad Ward**

Star light, star bright / first star I see tonight...

Often, when we look up into the clear night sky, our wonder and awe is accompanied by a comforting familiarity. Indeed, the galaxy appears the same as it did when we were kids making wishes on stars that seem fixed in place. If you've ever stargazed through a telescope at the Rothney Astrophysical Observatory (RAO), however, you know how tremendously dynamic the night sky really is.

"You can point a beautiful telescope with a sensitive detector at the sky and see from night to night, hour to hour, that there are things moving and changing," says RAO director Dr. Phil Langill, BSc'85, PhD'94. "There are very tiny changes — but they can reveal something that is so mind-boggling,"

The RAO is owned and operated by the Faculty of Science. It's been a hub for serious stargazing ever since it opened in 1972 on a quarter-section of land, off Highway 22 southwest of Calgary, donated by local rancher Sandy Cross. Back then, the observatory had two trailers, an observation deck, a 41-centimetre telescope and a dome.

As technology became available, the observatory's tools were upgraded. Now, RAO's collection includes a 1.8-metre Cassegrain telescope, a 40.5-centimetre Newtonian telescope and the Baker-Nunn telescope — all used to spot comets, asteroids, even exoplanets, and to monitor the tiniest flickers of brightness in stars and abnormalities in the night sky.

The RAO's location, equipment and the experts who work there have long attracted astronomers from around the world who access our telescopic views for their own research. The state-of-the-art technology also keeps undergraduate students sharp and makes the RAO one of the best training facilities in Canada.

When Langill first accessed the observatory as an undergraduate student in the 1980s, his astrophysics class would pile into a bus and trek out to the observatory, hoping for clear skies. They'd collect data and bring it back to campus on floppy disks. Now, his undergraduates gather in a classroom on the main campus in Science B. They can see live images of the sky above the observatory and operate the telescopes remotely. "When they've got enough data for their project, they turn everything off, close the door, high-five one another and get to work on the assignment," Langill says.

Still, nothing beats the buzz of being at the observatory in-person. Over the years, more than 100,000 school-age kids have passed through on field trips. Late-night public open houses often have the energy of a crowded party with groups excitedly clustered around telescopes, spilling onto the walkways, and ooh-ing and ahhh-ing at stars. On those nights, Langill says, the RAO's popularity can be a challenge, but it's one that he is happy to take on.

"People come here and are stoked about the observatory. They talk to the scientists and look through the telescopes to learn something about the universe," he says. "You can discover the most incredible stuff." ■



THE RUNNING

Are you more fleet-footed than ever? Some credit for that goes to the science behind your cool new kicks.

Nov. 24, 1989, the Reebok Pump became the most exciting (and, at \$170, most expensive) athletic shoe on the market, dazzling basketball players and sporty sartorialists alike with its newfangled internal inflation technology. Sales skyrocketed further when NBA player Dee Brown pumped up his shoes in front of millions of viewers before winning the '91 NBA Slam Dunk Contest.

Faddish as those shoes were (but hark! They're back — for twice the price), Reebok Pumps forever upped the ante on high-tech athletic footwear. Since then, researchers in UCalgary's Faculty of Kinesiology have been major players in a competitive game that insists on constantly evolving performance-enhancing innovation.

As a doctoral student in the faculty nearly 25 years ago, Dr.

Darren Stefanyshyn, PhD'96 — now a professor whose current research looks at maximizing athletic performance and minimizing risk of injury — began testing a theory in the Human Performance Lab with his supervisor, renowned human-locomotion researcher and professor emeritus Dr. Benno Nigg, DSc, founder of Biomechanig Sport and Health Research.

The duo discovered that a carbon-

fibre plate embedded in the sole of a running shoe would provide a speed boost to everyone from weekend plodders to Lycra-clad gazelles. Their findings would eventually contribute to a running-shoe revolution — they just had to wait a couple of decades for the world to catch on.

The magic of featherweight, millimetre-thin carbon-fibre plate — which was prohibitively expensive and difficult to manufacture back when Stefanyshyn and Nigg were first on to it — lies in its ability to optimize an athlete's movement when set in the midsole of a shoe.

"Old shoes bend an awful lot, and, any time something bends, it absorbs energy," explains Stefanyshyn. "The carbon-fibre plate stiffens the shoe, so it doesn't lose energy in the first place." A rigid shoe also increases the lever arm, thereby creating a more efficient biomechanical position for

the wearer. "By doing that, you've given the runner an opportunity to be, in layman's terms, in a higher gear or in a better gear. They can now generate more force during each push-off."

It wasn't until 2016, however, that carbon-fibre tech took hold. While many companies had experimented with the plates, it was Nike that pushed carbon-fibre into the market in a big way. "The technology really took off after it was used in their Vaporfly Elite shoes during their Breaking2 marathon record attempt that year," says Stefanyshyn of the *National Geographic*-documented project that saw the athletic giant try to break the two-hour marathon barrier. Although Nike's runner, Eliud Kipchoge of Kenya, came in two minutes over the two hour mark, they had already won the footwear game.

Stefanyshyn says carbon-fibre plated footwear can offer a speed boost to runners to the tune of up to four per cent: "Such an instantaneous improvement is almost unheard of, it's very rare."

It's such a remarkable edge that some observers claim carbon-fibre plates are a form of cheating — shortcuts to personal bests; spring-loaded trips to the winner's circle. Stefanyshyn doesn't see it that way. "My argument is that, until recently, we were giving inferior products to athletes," he says. "All we're doing now is giving them better products, so they're not limited."

Not only that, but Stefanyshyn and his fellow biomechanics specialists around the world are committed to refining the technology for even faster results. Working in collaboration with Adidas, his research explores the next big thing in athletic footwear, a business

THE FIRST RULE OF RUNNING-SHOE INNOVATION IS THAT YOU DON'T TALK ABOUT RUNNING-SHOE INNOVATION.

whose estimated global revenue is expected to approach US\$100 billion in 2025. "Nothing has been perfected yet," says Stefanyshyn. "We can do everything better — we just haven't figured out how yet."

What is almost certain is that whatever comes next will have a UCalgary connection. "You can name literally any of the top footwear brands and I can tell you that there's someone from this university working there," says Stefanyshyn. "I don't want to brag, but it's unbelievable — our reputation, with respect to footwear research, is among the best in the world."

If you're wondering what speedy innovation your next pair of running shoes will hold, you'll have to exercise the same patience as the researchers themselves: the first rule of running-shoe innovation is that you don't talk about running-shoe innovation.

"People are trying to get an industry advantage, right?" says Stefanyshyn. The most he'll say about his current research is that he's working on new and unique materials, and different uses of carbon-fibre technology that goes beyond plates. "There are some secret aspects," he says with a smile.

We'll try to hit a new personal best while we wait. •
—JM with Scott Cruikshank

WHAT THE %@*# IS OPEN SCIENCE?

A growing movement that encourages researchers to fling open their notebooks to the world may prove that sharing is, indeed, caring.

written by *arch* staff



Please stay with us while we attempt to unpack this complex (and simple) new (and very old) concept without making you feel the way we did (confused; irritable) the last time someone tried to explain cryptocurrency to us.

In brief, open science is a philosophical approach to scientific processes that values cooperation, collaboration, and transparency. Rather than keeping ideas, data and resources behind the closed doors of academic research labs, open science uses digital tools to invite anyone to observe and contribute.

The heart of the open-science movement is that research in any field, from biosciences to the humanities, must be performed in dialogue with society — in other words, open science puts real-world problems, meaningful engagement with the public and the human experience at the forefront of research communication.

While it was only last fall that the United Nations set up a framework and international standards for open science, you could say the grassroots movement has been kicking around since the 17th century with the advent of the Scientific Revolution. Scientists who had previously kept their new knowledge close to the vest (or to the vest of their noble patron) were

The heart of the open-science movement is that research must be performed in dialogue with society; it puts meaningful engagement and human experience at the forefront of research communication.

incentivized to share their discoveries more rapidly — including in scientific journals, which were printed and distributed around the world. That made it possible for scientists and non-scientists, alike, to repeat, and perhaps improve upon, otherwise-unknowable experiments. Ironically, modern open science asks scientists to share resources and data long before a discovery might appear in an academic journal. Such publications often own the rights to the author's article and charge a user-fee to access. Online open-science platforms, on the other hand, give immediate, unrestricted and free access to the latest research.

Opening up the scientific process and making its results immediately available to a wider audience means that knowledge can be disseminated in real time on a global scale. At UCalgary, the Hotchkiss Brain Institute has established a partnership with McGill University's Tanenbaum Open Science Institute. It's an initiative that proves that accelerating the pace of discovery can bring solutions more quickly to patients with neurological disorders.

While the open-science approach is not without some risk and controversy, its benefits are immeasurable — not least of which is the opportunity to, at long last, peer at your lab partner's notes with impunity.

Images: Library of Congress

THE FOUR PRINCIPLES OF OPEN SCIENCE:

- 1 INCLUSION
- 2 FAIRNESS
- 3 EQUITY
- 4 SHARING

Wait a minute... but doesn't open science exclude the humanities and social science?

Nope! The approach is also sometimes referred to as "open research" or "open scholarship." Alas, "open science" seems to be sticking, but the approach includes *all* research disciplines.

Open WIDE

Besides creating opportunities to make friends, influence people and potentially solve some of the world's most challenging problems faster, the benefits of open science to scholars and citizen scientists alike are plentiful. Open science means:

- Researchers in **developing countries** can see the work of scholars from around the world.
- A **swifter path** from research to innovation to produce new products and services.
- More **citizen engagement** and, sometimes, their active participation in scientific experiments and data collection.
- A better understanding of challenges that require co-ordinated **international actions**, such as for climate change or the aging population.
- A higher level of **quality and integrity**.
- **Diversity** of knowledge.

Five Schools of Thought on Open Science

School of Thought	Central Assumption	Involved Groups	Central Aim	Tools & Methods
DEMOCRATIC	The access to knowledge is unequally distributed.	Scientists, politicians, citizens.	Making knowledge freely available for everyone.	Open Access, intellectual property rights, Open Data, Open Code.
PRAGMATIC	Knowledge-creation could be more efficient if scientists worked together.	Scientists.	Opening up the process of knowledge creation.	Wisdom of the crowds, network effects, Open Data, Open Code.
INFRASTRUCTURE	Efficient research depends on the available tools and applications.	Scientists & platform-providers.	Creating openly available platforms, tools and services for scientists.	Collaboration platforms and tools.
PUBLIC	Science needs to be made accessible to the public.	Scientists & citizens.	Making science accessible for citizens.	Citizen science, science PR, science blogging.
MEASUREMENT	Scientific contributions today need alternative impact measurements.	Scientists & politicians.	Developing an alternative metric system for scientific impact.	Altmetrics, peer review, citation, impact factors.

Source: One Term, Five Schools of Thought table from the London School of Economics

OH, TANENBAUM

In 2006, the Tanenbaum Open Science Institute (TOSI) — named for the Larry & Judy Tanenbaum family, whose philanthropy fuelled its creation — was established at McGill University's Montreal Neurological Institute-Hospital (a.k.a. The Neuro). The goal was to accelerate the pace of discovery in neuroscience — a crucial commitment given that diseases of the brain and nervous system are among the most complex and unmet medical needs of our time.

In 2021, thanks to a \$2-million commitment to UCalgary by TOSI and the Larry & Judy Tanenbaum Family Foundation, UCalgary's Hotchkiss Brain Institute (HBI) at the Cumming School of Medicine became the first to partner with TOSI. The Montreal-based institute said it chose the HBI as it is "uniquely positioned to move the needle on open science for brain and mental health."

As HBI director Dr. David Park, PhD, puts it, "It's difficult for people working in isolation to make significant impact. We need to work together and collaborate if we're going to make rapid advances in brain and mental health and, ultimately, improve people's lives."



Cloudy, with a Chance of Plastic

Earlier this year, a team of researchers out of Utrecht University in the Netherlands won a grand prize of more than C\$35,000 for coming up with an open-science tool to help combat plastic pollution in the aquaculture industry. Their project — Sea Clearly — developed a tracker that could help farmers and policymakers locate plastic particles in the ocean. That information would be linked to an **open-science platform** called The Blue-Cloud where researchers share data and results with each other.

Standing on the Shoulders of Giants

Open science calls for an important cultural shift in how we evaluate and credit scholars.

Sharing results early in the scientific process is a seismic shift in how scholarly activity has long been approached. Even as the Chief Science Advisor of Canada officially champions the government's commitment to increased accessibility to federal science for Canadians, challenges abound.

Dr. Richard Frayne, PhD, is a professor in the departments of Radiology and Clinical Neurosciences and is deputy director of the Hotchkiss Brain Institute, where he leads open science efforts. Frayne says the success of the movement calls for a cultural change in how science is done.

"We're moving away from a model where people thought of their data, their ideas, their code, their tools, as something that was closed and protected until they published it," he says. "Engaging in open science means that the broader scientific community would have to look at a wide range of a scholar's career, such as important contributions to the completion of a scientific accomplishment done elsewhere. It's tricky and its evolving."

But, Frayne says, "changing the way we evaluate our achievements is fundamental to breaking a model" that isn't the most efficient path to outcomes and solutions.

As Frayne sees it, open science builds toward solutions through a new paradigm that supports scholars to "stand on the shoulders of giants" — the giants being everyone who contributes beneficial data, code or a new tool. "We give our colleagues a leg up by sharing information rather than having dozens of researchers all working on the same problem behind closed doors."

UCalgary's partnership with the Tanenbaum Open Science Institute will, says Frayne, "provide some of the resources needed for the research community to start adopting a variety of open-science approaches." •



Touching History

From a special tree to a residential school, our fleeting natural and built environments are rich with secrets, stories and knowledge that 3D technology can preserve and protect.

written by **Jacque Moore**

There was a time when a particular elm tree — planted in the early 1900s at the intersection of four backyards in Calgary's Victoria Park — was doubtless the focus of play for neighbourhood kids who swung from its branches and took shady respite under its leaves.

Today, the tree sits, lonely and inconvenient, in the middle of Parking Lot No. 14, north of the Saddledome. Known as the Stampede Elm, its future currently hangs in the balance as the City of Calgary looks to move ahead with redevelopment of lands adjacent to the Stampede Grounds.

So what? Isn't it just a run-of-the-mill tree — not even that old by tree standards — that has outlived its usefulness and beauty? On the contrary, the elm is deeply meaningful to historians, arborists, storytellers, environmentalists, educators and nostalgic Calgarians for whom the tree's impending demise represents a lost opportunity to better know this place and its people.

Dr. Peter Dawson, PhD'98, is a professor in the Department of Anthropology and Archaeology whose research focuses on using reality-capture technologies to digitally preserve heritage at risk. He collaborates with community members, as well as students and other faculties, to scan and print 3D iterations of buildings, geological formations and, yes, even a tree, to make lasting records of tactile and poignant learning tools for future generations.

Most recently, much of Dawson's work has been in partnership with Indigenous Knowledge Keepers in helping preserve the physical memory of a dark chapter in our history.

In 2019, Dawson met Angie Ayoungman; Gwen Bear Chief; Dr. Vivian Ayoungman, BEd'70, EdD; and Herman Yellow Old Woman at a workshop he organized around finding ways to



The Stampede Elm

The City of Calgary had hoped to relocate the more-than-a-century-old tree with the help of an expert transplanting service. Unfortunately, one of its main branches is damaged, so the elm can't be moved. The City worked with UCalgary's Anthropology and Archaeology department to document the tree, making it the first biological heritage item captured with its scanning technology (left).

PHOTO: CAPTURE 2 PRESERV TEAM



"I felt like our stories of residential schools and what they did to us will not be swept under the rug."

will help ensure Old Sun can be maintained, repaired or rebuilt if the Nation decides.

Perhaps most significantly, the manifestation of Old Sun as a small 3D print contains a unique element of healing. Bear Chief says that, when she held the model, she "felt like our stories of residential schools and what they did to us will not be swept under the rug."

Dawson will continue to work alongside the Knowledge Keepers to explore how virtual and physical models of Old Sun and other former Indian residential school sites "can be used to inform the public about a chapter in Canadian history that caused great harm and suffering to generations of Indigenous people."

For Angie Ayoungman, the project has provided some peace of mind. "Here is this big stone building that I had to go to when I was a child," she says. "It's remarkable that I can now hold it in my hands. I can point to a room and tell my story." This opportunity, she says, "will help to make sure my experiences are never forgotten." •

The Okotoks Erratic

An important historical site of spiritual significance to the Blackfoot peoples, the "big rock" is also a popular tourist destination. Routine digital scanning helps demonstrate how the 16,000-tonne boulder is affected by visitors who attempt to touch or climb it.

PHOTO: RILEY BRANDT



commemorate and preserve the few remaining Indian Residential School buildings in Alberta. As children, all four of them had attended Old Sun, a residential school that operated on the Siksika Nation from 1931 to 1971.

The school, which now serves as a First Nations community college, still holds an imposing place on the landscape near Gleichen. Surprisingly perhaps, given the trauma and cultural genocide that took place inside, Angie, Vivian, Bear Chief and Yellow Old Woman would prefer to see the school remembered, rather than demolished.

"The members of this group, along with other former students/survivors, feel strongly that these buildings need to be preserved because they are witnesses to history and sites of conscience that refute residential school denialism," says Dawson. His digital heritage research group used laser scanners to rapidly capture the architecture of the building, and its interior and exterior measurements, while the Knowledge Keepers recalled various descriptive details of the building's appearance that had changed over the decades.

The resulting digital data was used to create a virtual visualization of the school and — with the help of research associate Dr. Katayoon Etemad, MSc'10, PhD'15, in the Department of Computer Science — an uncannily detailed 3D print. The data also informs a complete set of "as-built" architectural plans that



Old Sun

Located on the Blackfoot Reserve near Gleichen, Old Sun was one of 130 residential schools across Canada. Among the 25 that existed in Alberta, the Old Sun building represents intergenerational trauma among Indigenous Peoples; its digital capture will serve a role in education for all ages.

PHOTO: ANGLICAN CHURCH



THE KITCHEN IS ALWAYS OPEN

A traditional act of compassion, which elevates contemporary Calgary and defines the heart of the growing Sikh community, has inspired an expanded program of study.

written by **Marcello Di Cintio**

Photographed by **Bryce Meyer**

It's late morning at the Dashmesh Culture Centre (DCC) in the northeast community of Martindale.

In the basement langar hall, diners line up to fill their steel thali trays with dal, channa masala, sweet rice and fresh salad. Metal tumblers of drinking water crowd one table. Thin rubber mats lay in straight lines on the linoleum floor where diners sit cross-legged in front of their meals. A volunteer with an urn and a basket walks up and down each row offering cups of chai or rounds of fresh roti for anyone who needs an extra circle of bread.

When they've finished eating, each diner, with turmeric-dyed fingers, will rise to bring their trays to the dishwasher and along the row of sinks at back of the hall. All the while, music from the upstairs gurdwara, performed live throughout the day by a rotating trio of white-turbaned musicians, emanates from ceiling speakers.

The Sikh concept of langar originated more than a half millennia ago when Guru Nanak Ji was on his way to the market. Nanak Ji would eventually found the Sikh faith, but, when he was 12 years old, his father worried about his future. As befits a future guru of his stature, Nanak Ji preferred the company of holy men to businessmen.

This troubled Nanak Ji's father, a wealthy trader, who wanted his boy to develop his own entrepreneurial skills. So Nanak Ji's father gave his son 20 rupees and sent him off to purchase salt, turmeric and other goods to trade for a profit.

En route, Nanak Ji came upon a group of hungry sadhus meditating in a forest. Each had sacrificed worldly comforts for spiritual gain. Nanak Ji said to his travel companion, "What better bargain could there possibly be! Let us offer the money to these fine holy men. They will eat and buy clothes and they will be pleased!" The sadhu leader refused the money, but Nanak Ji purchased food for them from a nearby village. Nanak's father was furious that his son came back empty-handed, but Nanak Ji explained that true profit was found in feeding the needy.

Guru Nanak Ji's act of compassion has lived on. Nearly every gurdwara in the world runs a community kitchen that serves free meals to all comers. Some are modest facilities that might provide a meal every week, while the largest gurdwaras in India serve hundreds of thousands of meals each year. The cuisine is always democratically vegetarian. Everyone can partake, regardless of their dietary regulations.





Jagjeet Kaur is a third-year student at UCalgary's Werklund School of Education.



THE SIKH EXCHANGE OF FOOD EXISTS OUTSIDE THE TYPICAL "HAVE" AND "HAVE NOT" DYNAMIC. LANGAR IS WHOLLY DEMOCRATIC. MEALS ARE NOT GIVEN AND RECEIVED. THEY ARE SHARED.

And everyone sits on the floor, "so, whether you're a king or whether you're poor, no matter who you are, you sit at the same level and you eat," says Jagjeet Kaur, a third-year education student at the University of Calgary who prays daily at the DCC. Kaur's family has long supported the *langar* through financial donations; they might cover the cost of a week's worth of *langar*, for example. Kaur, herself, is a member of the near-300-person strong battalion of volunteers who can be summoned at any time to help out in the *langar* hall's vast industrial kitchen. The *langar* has a large pool to draw from: more than 100,000 Sikhs currently reside in the city — a fifth of all the Sikhs in Canada — and the community is growing.

So, too, is the Sikh Studies program in the Faculty of Arts. A successful crowdfunding campaign in April 2021 raised \$510,000 in just three weeks, more than twice the fundraising goal. This will result in a more robust program with additional courses, more research and community engagement, and the possible creation of a Chair of Sikh Studies.

The DCC translates the tradition of *langar* into the context of life in contemporary Calgary. The DCC provides it every day of the week, starting in the morning until around nine at night. Anyone who is hungry is welcome, from gurdwara worshippers and international students to single moms.

"Maybe some of them are suffering from addiction, or mental health issues or just down on their luck," says Raj Sidhu, DCC's director of operations. "Just, honestly, really good people." Nobody asks guests why they are there. Nobody asks them to reveal their income or expenses or other such poverty credentials. And they endure no such interrogation and no proselytizing. Nobody gets a sermon. Everybody gets fed.

And Sikh tradition dictates strangers always get fed first. According to Dr. Harjeet Grewal, PhD, adjunct professor in religious studies at UCalgary, the writings of Bhai Gurdas state that Sikhs prepare food for everyone

irrespective of need, then serve those people. "They eat after everyone," Grewal says. "If there's nothing left, which is unlikely, they go hungry."

Regardless of the imperative to feed the needy, the *langar* tradition adheres more to the Sikh notion of equality and equitable access to necessities more than it does Judeo-Christian notion of giving alms to the poor.

"Regardless of your gender, your religion, your ethnicity, your culture, whatever it might be, inside you is the light of God," Kaur says. Thus, everyone deserves to eat. In some respects, *langar* hardly resembles charity at all, which too often demeans a recipient's sense of self-worth. The Sikh exchange of food exists outside the typical "have" and "have not" dynamic. *Langar* is wholly democratic. Meals are not given and received. They are shared.

In Calgary, the *langar* acts as the de facto interface between the city's Sikhs and the greater community. Not only does the DCC serve hot meals to Sikhs and non-Sikhs, the DCC kitchen supports more than 30 food-security agencies throughout the city. The Calgary Food Bank receives meals from the DCC, as does the Leftovers Foundation, Salvation Army and Brown Bagging for Calgary's Kids.

The DCC also runs its own food bank and hamper program called No Hungry Tummy. A trailer parked outside the gurdwara holds wire-rack shelves laden with decidedly non-Indian foodstuffs like pasta, peanut butter and Nutella. Unlike other local food agencies that require clients to prove their need, an exercise that can be demoralizing, the DCC's hampers go to anyone who requests one, without question. In 2021, the program distributed 3,500 food hampers to needy families.

Volunteering at the *langar* hall has always felt meaningful to Kaur — "You want to be there to serve people because God is always there for you," she says — but felt even more vital as waves of the COVID-19 pandemic crashed over Calgarians. COVID closed businesses and robbed workers of their jobs and livelihoods. As the community struggled, the need for *langar* increased.

CREWS DELIVERED FOOD TO THE COUTTS PROTESTORS, TOO.

“THERE WAS NO DIFFERENTIATING. IF ANYBODY REQUESTS A MEAL, WE WILL SERVE THE MEAL. WE JUST COUNTED HOW MANY TRUCKERS WERE STUCK.”

The gurdwara saw an especially large uptick in hamper requests once the federal Canada Emergency Response Benefit program ended. People required help more than ever before. Many turned to the DCC.

Kaur volunteered at the gurdwara nearly every day during the pandemic. She prepared food and packed meals for delivery to needy households. Many people who would've normally come to the *langar* hall for a meal were in quarantine or isolating at home, so Kaur and her fellow volunteers took the food to them.

Not only the housebound received food assistance from the DCC. In February 2021, the centre's volunteers prepared and delivered meals to demonstrators marching in solidarity with the Indian farmers' protests, then again to truckers stranded by the British Columbia floods the following November. For the better part of a week, caravans of volunteers shuttled food all the way from Martindale to Golden, B.C. When convoy protestors blockaded the border at Coutts in February 2022, volunteers crossed into the U.S. at another port of entry to bring meals to truckers trapped on the American side. DCC's crews delivered food to the Coutts protestors, too. “There was no differentiating. If anybody requests a meal, we will serve the meal,” Sidhu says. “We just counted how many truckers were stuck.”

Providing meals to people on both sides of a conflict adheres to the core philosophy behind *langar*: politics doesn't matter. Nor does anger or hurt feelings. Everyone deserves to be fed, friend or foe.

“It's about trying to see God in all, whether they seem to be your enemy or not,” Kaur says. “At the end of the day, even though they're looking down on you, you still see the good in them. And you still offer them that meal.”

In June 2021, the DCC expanded its service to the community with what could best be described as a *langar* of vaccines. A Sikh doctor who works with the Siksika First Nation reached out about running a vaccination clinic out of the DCC. Through a collaboration with the Calgary Homeless Foundation and Okaki — a medical

software provider specializing in Indigenous health — more than 700 people received COVID vaccinations in the *langar* hall. “It's been amazing to see the Indigenous community and the Sikh community here in Calgary develop that strong bond and work together,” Sidhu says.

The program was profoundly successful. Due in part to the DCC's vaccination efforts, Calgary's upper northeast boasted Canada's highest immunization rate. By November 2021, the *Calgary Herald* reported, more than 99 per cent of the area's residents 12 and older had received their first dose of vaccine. And not just Sikhs. “A lot of people that are non-Sikh came here, and we're proud of that,” Sidhu says. Everyone respected the gurdwara's rules. They covered their heads and removed their shoes. “There were no issues. Everyone was friendly and appreciative of the program.” Perhaps counterintuitively, the pandemic strengthened the bonds between Calgary's Sikhs and the community at large.

The imminent expansion of the Sikh Studies program feels important for young Sikhs like Kaur, who contributed to the crowdfunding campaign. Kaur realizes few non-Sikh Canadians know anything about Sikhism, even though the country's half-million Sikhs represent the highest population of Sikhs outside of India. “A lot of times, we'll be mistaken as Muslims, or we'll be mistaken as Hindus,” Kaur says. “But the Sikh faith is a completely separate sovereign faith. So it's really cool that people are getting that knowledge.”

Spreading this knowledge is vital. “Sikhs believe in the ethos of this country,” Grewal says. “But the country needs to know what our ethos is, and how they connect.” Non-Sikhs don't realize how closely their values align with Sikh values. An enhanced program will serve to fill in those gaps. Grewal sees a kinship between the philosophy of *langar* and the expansion of the Sikh Studies program. Both are rooted in the concept of engagement.

“Expanding into course offerings is the same impulse,” Grewal says. “This is what I get from my students: ‘We want to share what we do.’” •





Vet Med Grows Up

SIXTEEN YEARS IN, THE FACULTY HAS NOT ONLY HIT ITS STRIDE AS ONE OF THE LEADING SCHOOLS OF ITS KIND ON THE CONTINENT, BUT IT'S FINDING SOLUTIONS TO A STICKY CHALLENGE THAT HAS PLAGUED THE FIELD FOR YEARS.

written by **Valerie Fortney**
illustrated by **Julie McLaughlin**

from the moment she could walk, Dr. Renate Weller was expected to help on her family's pig farm in southern Germany. "My earliest childhood memory is from when I was two and my grandmother sat me down on a bale of straw and said, 'You're going to watch that momma pig and, if you see a little piglet come out, come get me,'" she says with a hearty laugh. "I don't think people would do that today in the developed world, but, back then, it was my job to be the surveillance system."

While she may not have determined that very day that caring for animals would constitute her life's work, it didn't take much longer for Weller, DVM, PhD, to know that, when she grew up, she would become a veterinarian. "Studies have shown that, for most vets, they know they

want to pursue that career by the age of nine," she says. "I was so lucky to have had that experience as a child, and I've had zero regrets about my decision."

These days, it's the University of Calgary that's feeling lucky, as Weller settles into her new role as dean of the Faculty of Veterinary Medicine. Weller's resumé is extensive and impressive; her previous position was as the inaugural director of veterinary education for one of the largest integrated veterinary service providers in Europe (CVS Group PLC), and her experience includes work in the areas of research, clinical work, teaching and leadership, always with a focus on transdisciplinary scholarship and community collaboration. She's won several international awards, including the UK Higher Education Academy (HEA) National Teaching Fellowship — the highest honour awarded for excellence in teaching in the United Kingdom; she's also a member of the International Equine Hall of Fame.



"I've had a very eclectic career — everything from being a mixed practitioner to being involved in veterinary politics," she says of her work that includes time at the esteemed Royal Veterinary College at the University of London, where she developed several new courses and programs, and was eventually named associate dean for undergraduate teaching. "Vets are very lucky. Our background allows us to do a million things."

Now midway through her first year at the helm of UCalgary's Faculty of Veterinary Medicine (UCVM), Weller and her team are celebrating a boost that will see the school well-prepared for the coming years. Earlier this spring, the provincial government announced targeted funding for some programs at UCalgary, including \$59 million for UCVM. The funding means that, by 2025, there will be a doubling of the student population in the faculty — from 50 to 100.

"Our infrastructure is at capacity at the moment, and, with the additional strains of COVID-19, our people are also at capacity," Weller says, adding that the transition to accommodate twice as many students will require a three-year process. "We need some time to create the infrastructure, hire the people, create our curriculum and make sure everything is in place. We will still be on the small side, internationally, but I think it will serve Alberta's needs quite well."

It's great news for UCalgary, but also for an industry in dire need of more skilled practitioners and researchers. That's partly due to what Weller calls a "leaky bucket phenomenon," wherein the sector is growing faster than schools have been able to graduate students. "Beef plays a big role here, so, from an agricultural business side, there is a need to expand, and government needs more vets because we all want safe food," she says. "We also need

"STUDIES HAVE SHOWN THAT, FOR MOST VETERINARIANS, THEY KNOW THEY WANT TO PURSUE THAT CAREER BY THE AGE OF NINE."



THE NEED FOR RAPID EXPANSION IS COMPOUNDED BY THE CONCERNING ATTRITION RATE AMONG VETS, SOME OF WHICH IS ATTRIBUTED TO IT BEING A HIGH-STRESS PROFESSION.

vets to do research on One Health (a transdisciplinary approach to people, animal, and environmental health) issues such as coronavirus.” And, Weller adds, “there is an expansion in the pet sector with more people owning dogs, cats, rabbits, and other small animals. There was a steady growth before the Covid pandemic started, which has accelerated considerably during the last two years.”

The need for rapid expansion is compounded by the concerning attrition rate among vets, some of which Weller attributes to it being a high-stress profession.

“It’s extremely competitive to get into vet school, the course is extremely demanding and the work highly stressful,” she says. “The work of vets was made even more stressful by the pandemic, which saw so many people adopting pets.”

Even before the pandemic, the veterinary field was notable for having some of the highest rates of mental-health issues and suicide. A 2020 University of Guelph report revealed that about 17 per cent of Canadian vets had considered suicide or experienced suicidal thoughts. Compare that to the six per cent of the general public reporting the same issues, according to the Canadian Mental Health Association. “We hold life and death in our hands,” says Weller. “We work long-hours, in a high-pressure environment often under adverse conditions and we are an outward, public-facing profession, adding an additional challenge.”

The veterinary shortage is nothing new and was a catalyst, in part, for the establishment of the UCVM. Back in 2004, Dr. Lyle Oberg, MD, then Alberta’s learning minister, announced that Calgary would be home to Canada’s fifth veterinary college, and the first of its kind in Alberta.

The decision was precipitated by the bovine spongiform encephalopathy (BSE) outbreak the year prior, a crisis that saw international borders close to Alberta beef and cost the province close to a billion dollars in lost revenue. With 40 per cent of the national cattle inventory located in Alberta and 72 per cent of the national packing capacity here as well, it was determined that Alberta was the ideal place to research these and other issues. Nearly two decades before the COVID-19 pandemic, the need for better awareness and focus on studying diseases that pass from animals to humans was already gaining momentum, due to BSE and other animal-related diseases such as hantavirus, West Nile and the 2003 SARS (Severe Acute Respiratory Syndrome) outbreak.

While no veterinary school can dictate what area a graduate ultimately decides to pursue, the plan for the new school in Calgary was to specialize in educating students to become large-animal veterinarians, something that was in short supply in Alberta. The Western College of Veterinary Medicine (WCVM) at the University of Saskatchewan in Saskatoon, which had been supported over the years by all four western provinces, had in recent years seen its 90-per cent-female graduating classes becoming mostly pet vets. The new UCalgary school would also concentrate on food animal production medicine, ecosystems, and the links between wildlife, domestic animals and humans, along with investigative biomedical research. “You can’t control whether someone goes into rural or urban practice — but you can nudge,” says Weller.

BY 2008, THE UCALGARY VET MED PROGRAM WAS UP AND RUNNING AND QUICKLY ESTABLISHED ITSELF AS SOMETHING UNIQUE WITHIN NORTH AMERICA.

By 2008, the UCalgary program was up and running and quickly established itself as something unique within North America — a vet med school with a focus on the bovine and equine worlds; expertise and leadership in research of animal diseases and food-supply safety; and an innovative, community-based teaching model offering hands-on clinical learning situations from day one.

Weller says what’s been done at UCalgary in a relatively short time is a significant part of what drew her to Calgary (she and her family of six are also avid outdoors types who love to ski). “Everyone was keeping an eye on the school’s distributed model,” she says of the approach known as the Distributed Veterinary Learning Community that sees students get hands-on experience in a variety of clinics and other settings through community partnerships. “I believe in making use of primary care practices here to train our students

Meanwhile, Back at the Ranch.

Vet Med's 19,000-acre backyard is fertile ground for discovery by the largest group of researchers working on beef in North America.

written by Jaclyn Molyneux

Don't let the rolling foothills and casually grazing cattle of W.A. Ranches fool you. At 19,000 acres, those foothills add up to the largest outdoor classroom in North America.

And those beef cows — about 900 Angus and 60 bulls — are the subjects of study and monitoring as part of a massive effort to expand the teaching, learning, research and community engagement around global beef production and animal welfare.

W.A. Ranches is a working cow-calf ranch just northwest of Calgary. It was gifted to UCalgary by J.C. (Jack) Anderson and his daughter, Wynne Chisholm, BA'79, in 2018, instantly changing the game for agriculture research at the university.

"We have this focus on the health and welfare of beef at the University of Calgary that didn't exist before," says Dr. Ed Pajor, PhD, director of W.A. Ranches and the Anderson-Chisholm Chair in Animal Care and Welfare in the Faculty of Veterinary Medicine. "When you have your own research station, you can manage the resource and take the lead in research programs."

As the team got to understand the nuances of the expansive ranch, it launched several field research projects, including the "grimace scale." That project involved hovering drones unobtrusively around calves to

record their facial expressions at various times, identifying what they looked like when they were in pain and when they weren't. That information helps producers and vets make informed decisions around the welfare of calves.

The ranch also provides infinite opportunity for cross-faculty research. Biomedical engineering, science and sustainability applications, and research have tapped into the ranch. For example, engineering student Jackson Cooper recently used the facility to test and validate computer coding to track collars on bulls. And partnerships with government and industry are growing — Alberta Innovates, Alberta Beef Producers and the Beef Cattle Research Council are just a few of the groups working with W.A. Ranches on research projects.

The ranch also spurred the creation of a six faculty-strong club called Team Beef, whose members meet monthly to kick around ideas and support each other and their students. "It's the largest group of researchers working on beef in North America, especially at a vet school," says Pajor.

If the first couple of years were all about getting to know the ranch, the next few are about continuing to build infrastructure to expand the teaching and research capabilities and open the gates to increased outreach through industry workshops and youth events. It's an enviably wide and welcoming home on the range. •



Dean **Renate Weller** brought a menagerie of pets to Calgary with her including her donkey, Fritz.

"I DON'T CARE IF IT'S A DOG, A HAMSTER OR A DAIRY COW — WE ARE THE GUARDIANS OF ANIMAL HEALTH, AND WE START HERE, WITH A GLOBAL REACH."

because that is where most of them will end up," she says. "Another big factor, that is not necessarily a given elsewhere and is very unique to Calgary, is the buy-in from the community."

Weller, who succeeded interim dean Dr. Robert McCorkell, DVM, PhD, last fall, has an ambitious to-do list for her five-year tenure at the helm. Aside from overseeing the three-year plan to double the student population, this includes everything from curriculum review and expanding research, to an outreach program to connect with aspiring vets, especially in rural settings — that includes tele-health and ongoing support.

"Everyone benefits from mentorship," says Weller, who is working with her counterpart at WCVU, Dr. Gillian Muir, DVM, PhD, on such initiatives. "These are things that will help fight the battle against attrition."

All of these efforts, says Weller, will contribute to the primary responsibility of her profession: making sure every animal in Alberta gets the veterinary care they need. "I don't care if it's a dog, a hamster or a dairy cow," she says. "We are the guardians of animal health, and we start here, with a global reach."

"If I can say at the end of my tenure that I've given Alberta what it needs in terms of animal-care professionals, I will be extremely happy," adds Weller, who counts a donkey, two horses, two dogs and three cats as part of her own family.

"I love being given a job and a challenge. My family saw that in me when I was just a small child — for as long as I can remember, I always wanted to help get things done." •



CANADIDA RAMOS
(1919-2006), grandmother
of Jenny Chin, BA'99,
UCalgary senior marketing and
communications specialist.

Ageism is Getting Old

A growing body of research shows the negative impact of treating older persons as hapless “others.” If we’re lucky, it’s a group we’ll join someday. It’s well beyond time to change our perceptions.

written by **Jacquie Moore**

“Another secret we carry is that though drab outside — wreckage to the eye, mirrors a mortification — inside we flame with a wild life that is almost incommunicable.”

— from *The Measure of My Days* by Florida Scott-Maxwell, written from her nursing home at the age of 82

There’s a *New Yorker* cartoon featuring an unhappy-looking older man with a long beard sitting at the window of his Manhattan apartment with a shotgun on his lap. His wife, unalarmed and lounging in an armchair nearby, is saying into the phone, “He’s angry because he’s getting old.”

And why shouldn’t he be? Getting old in this part of the world often means being relegated to the category of unseemly “other,” a group that — says Dr. David Hogan, MD, a professor and geriatrician at the Cumming School of Medicine (CSM)— is largely seen as some combination of incompetent, burdensome, non-sexual, unambitious, senile, sad, confused and, overall, acceptable fodder for greeting-card jokes.

While many cultures, including Indigenous peoples and Asian communities, have traditions of respect for older persons, Western attitudes toward aging are often negative. A growing body of research shows the dire consequences of ageism to health and to health-care costs.

“To perceive older persons as helpless is a dangerous and patronizing perspective,” says Hogan. “It feeds into this youth-centred idea of power and privilege — the idea that older individuals are not full members of society. It’s a dismissal of the abilities and strengths they bring to the conversation.”

Like other destructive “-isms” in our culture, ageism against older people is based on a rejection of perceived differences in a certain group. Notably, however, for the first time, the older-adult set is getting ahead: in Canada, there are now more people aged 65 and over than those 14 and under.

Hogan and his colleagues at the Brenda Strafford Centre on Aging in UCalgary’s O’Brien Institute for Public Health work to illuminate ageism in its many forms. Hogan says the COVID-19 pandemic often shone a bright light on hostile or “calculated” ageism; he recalls comments made by Texas Lt. Governor Dan Patrick in the early part of the pandemic that suggested older people consider sacrificing their lives so the younger generations could get the economy going again. (The same senator blamed unvaccinated Black people for the spread of COVID in his state.) More prevalent than hostile ageism, however, is our culture’s widespread, habitual brand of “benevolent” or “compassionate” ageism.

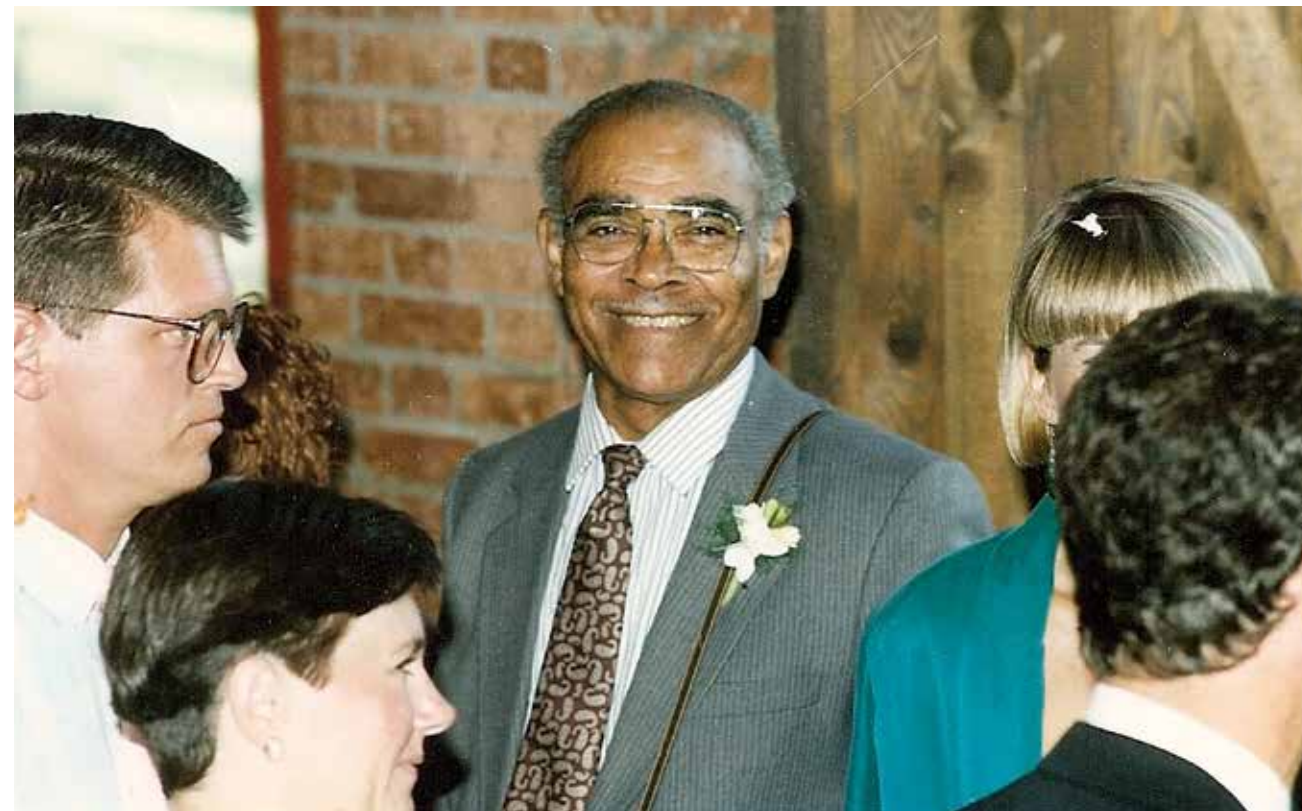
“People are often motivated by the best intentions and don’t realize what they’re doing,” says Hogan. “Benevolent ageism sees old people as one homogenous group that needs protection and help in deciding what is best for them.” For example, he says, an intervention for an older person at risk of falling might be, “they shouldn’t walk on their own, they need to stay in a wheelchair,” says Hogan. While, in some cases, after considering the options and their potential consequences with the older person, there is a shared consensus that this may be the best solution, sometimes “such a decision can have such a nefarious impact on the individual’s life that is ultimately worse than a fall, if it’s not what the person wants.”

Limiting older individuals’ autonomy around decision-making and excluding them from participating in activities is associated with worse health outcomes, says Dr. Jayna Holroyd-Leduc, MD, an academic geriatrician and professor at CSM. She points to a recent systematic review that shows how ageism negatively impacts everything from the older person’s access to work opportunities and health services to a decline in mental health and poor social relationships.

the Silver Screen

Calgary's THIRDACTION Film Festival puts the beauty, complexity and appeal of ageing front and centre.

written by Lois Epp



OWEN A. MOSS (1920-1995), father of Michele Moss, BEd'84, MA'07, associate professor, School of Creative and Performing Arts, UCalgary.

"At the structural level, we see ageism in the way that policies and practices support health care rationing by age," says Holroyd-Leduc, who will take over as academic lead of the Centre on Aging this summer, recently gave a public lecture on ageism organized by the Calgary Chapter of the Alberta Association of Gerontology. At an individual level, she says, "we see ageism in the ways an older person takes in negative cultural views of aging, including self-limiting behaviours." Or, as Hogan puts it: "learned helplessness."

Another common example of benevolent ageism is "elderspeak," defined by Hogan as, "a form of communication overaccommodation used with older adults that sounds a lot like babytalk." The negative impact of speaking more slowly with simpler words and sentences to an older person on the assumption that their thinking abilities have declined often makes communication worse, not better, he says. "People don't realize the harm they're doing by lumping all older individuals in the same bucket and viewing them as

Speaking more slowly with simpler words and sentences to an older person on the assumption that their thinking abilities have declined often makes communication worse, not better.

mentally incompetent and vulnerable." Hogan adds that pandemic-era media, which combined the words "vulnerable" and "seniors" constantly in the news, hasn't helped matters.

So, what can be done to shift behaviours that put one of the country's fastest-growing demographics on the shelf? Holroyd-Leduc and other researchers at the Centre on Aging strive to improve the mental and physical health of older adults through increased social participation, age-

he brainchild of Mitzi Murray, Calgary's THIRDACTION Film Festival launched in 2017. With more than a quarter of Canada's overall population living into their 70s, 80s and 90s, Murray saw the opportunity to showcase what positive aging and a productive "third act" can look like.

As Murray explains, "media is often fraught with negative stereotyping, and the medicalization of aging leads audiences to believe that aging is nothing but decline and frailty. Symbolic annihilation is another significant contributor. To put it simply, when we don't see ourselves represented in the media we consume, we start to believe that we don't matter."

But someone needs to be the disruptor and flip the script. Cue Murray, whose observation of the adverse effects of sidelining seniors during her work in seniors' housing inspired her passion project, which is equal parts advocacy,

entertainment and education.

UCalgary's Brenda Strafford Centre on Aging, which lives and breathes the health and wellness of older Canadians, is a founding sponsor of the festival, including the Reel Research Speaker Series, where subject-matter experts from UCalgary and beyond participate in post-screening discussions related to aging topics that appear in the films.

Now in its fifth year, THIRDACTION has hit its stride. Ironically, thanks in part to the COVID-19 pandemic and the resulting opportunity to expand the festival offering monthly online screenings to a larger, housebound audience. This year's festival, which runs June 10-12, will return to in-person screenings in addition to offering live-streaming.

Stay tuned for the June lineup at thirdactionfilmfest.ca. Meanwhile, here are some favourites from last year's festival:



LADIES OF STEEL

Finland, comedy

After hitting her husband on the head with a frying pan, Inkeri, 75, flees with her two sisters, Raili and Sylvi. Their journey through Finland is filled with charming hitchhikers, memories and sinful dancing. When Inkeri comes across her old university writings and finds Eino, a crush from her youth, she's reminded of her dreams that were later suppressed by a patriarchal marriage. Inkeri must make the biggest choice concerning the rest of her life, a choice between happiness and convention.



WHEN TOMATOES MET WAGNER

Greece, documentary

In a dying Greek village, two cousins and five women decide to do things differently. With a little help from Richard Wagner's music, the villagers cultivate an ancient tomato seed and enter the world market with their organic products. Humorous and bittersweet, this surreal story speaks about the importance of reinventing oneself during difficult times.



GUN KILLERS

Canada, documentary; short

In an undisclosed location in rural Nova Scotia, retired blacksmiths John and Nancy Little live a peaceful life, tending to their beautiful vegetable garden and crafting ethereal musical sculptures out of scrap metal. Occasionally, the couple are employed by local police to engage in the mass destruction of firearms in a noble effort to protect the lives of all Canadians.



TOTO

Canada, drama; short

Rosa Forlano, a 90-year-old Nonna, teaches a robot how to make spaghetti. Unfortunately, a software update erases her family recipe. *TOTO* is a sci-fi story about intergenerational communication and the pace of change, both bitter and sweet. •



ANTONIO COSTA, 89, introduced traveller Lois Epp, UCalgary senior director content and publications, to Google Translate while in Porto, Portugal, resulting in a magical friendship.

When we do intervene to help someone, it should be based on facts, not on an assumption that they don't have the wherewithal to live their life as they wish.

friendly communities and policies that promote equitable inclusion in society.

Holroyd-Leduc says that, "addressing ageism needs to become a health-care priority." Current and new health policies should, she says, "be reviewed to ensure they don't promote inequities by age, and funding agencies should establish requirements for inclusion of older adults in medical research."

As well, Holroyd-Leduc would like to see the incorporation of ageism-awareness into education curriculums. "We need to create opportunities for young people to learn from older adults, which could include situating schools, daycares and university dorms within continuing-care facilities," she says, adding there should also be more intentionally designed outdoor spaces and parks that include multigenerational outdoor exercise equipment and accessible community gardens. A new emphasis on positive presentations of older adults on social media and in TV and film would also help with a

cultural shift (see pg. 39 for details about a local older person-affirmative film festival).

Perhaps, Hogan says, one of the most helpful things we can do is to remind ourselves, "that we *all* live at some risk." All of us, whatever our age, he says, "should be able to judge what types of risk we are willing to live with, as long as we fully understand our situation and what our options are, based on our values and beliefs."

Certainly, it can be difficult to determine when help is truly helpful and when it's potentially harmful, but, says Hogan, "when we *do* intervene to help someone, it should be based on facts and one's needs at that time, *not* on an assumption that they lack ability or don't have the wherewithal to live their life as they wish."

Support and care, he adds, should be approached whenever possible as making decisions *with* rather than *for* others. "We want to support autonomy, not helplessness." •



HELEN GRAHAM, 85, is the mother of Grant Burns, BA'82, long-time host of *Road Pops* on CJSW radio.

The Oilsands' Third Act



written by **Don Gillmor**
illustrated by **Pierre-Paul Pariseau**

CAN TECHNOLOGY LOWER EMISSIONS, PRESERVE THE ENVIRONMENT AND GIVE THE OILSANDS A SUSTAINABLE FUTURE? STAY TUNED.

In the 1970s, I spent my summers in the oilfields working as a roughneck, listening to sad country music as I hurtled down section roads in my unreliable truck to get to rigs outside of Medicine Hat, Brooks and Grande Prairie.

The landscape was dotted with rig towers and they were relentless — 24 hours a day, seven days a week, undeterred by lightning strikes, hailstorms, drunken drillers, unreliable crews and, on one occasion, a farmer firing a .22 rifle at us.

Every September, I returned to the University of Calgary with a swollen bank account and stories of oil patch madness. The city was booming and oil was god.

A few years after graduation, the price of oil cratered, and that infamous bumper sticker appeared: “Lord, please send me another oil boom and I promise not to piss it away.”



THE WORLD IS BEGINNING ITS PIVOT AWAY FROM FOSSIL FUELS IN WHAT IS PROVING TO BE A MESSY, EXPENSIVE DIVORCE.



Though we did piss it away. Such is the nature of booms. Both the city and the Canadian dollar ebbed and flowed with the price of oil; a simple formula. But nothing about oil is simple these days. The world is beginning its pivot away from fossil fuels in what is proving to be a messy, expensive divorce.

Dr. Steven Bryant, PhD, grew up in Tennessee and looks more like a Nashville session musician than a scientist. He was drawn to Alberta because it was at the centre of the energy debate. Today, he's the Canada Excellence Research Chair Laureate in Materials Engineering for Unconventional Oil Reservoirs at UCalgary, as well as the Schulich School of Engineering Research Chair in Materials Engineering.

"Right now, Alberta is this crucible for all the problems facing society in the next century," Bryant says. "And some of those problems are in conflict with one another."

Conflict is one of oil's defining traits. The industry has spent billions on developing new technologies to reduce emissions, and, on a per-barrel count, has been successful, but increased production means it has increased overall emissions.

Canada has committed to a 40-per cent reduction in emissions from 2005 levels by 2030, and an 80-per cent reduction by 2050. The Canada Energy Regulator (CER) calculated that, if every Canadian industry other than oil went to net zero, the emissions from oil and gas alone would still cause us to miss the 2050 target by 32 percent, and this is assuming that emissions-per-barrel decreases by a further 30 per cent.

Politically, oil is caught between the lofty climate goals of Prime Minister Justin Trudeau and Alberta

Premier Jason Kenney's quixotic attack on global environmentalists and fund managers who divested from fossil fuels.

But divestment is a relative term; fund managers are also conflicted. In 2020, Larry Fink, CEO of BlackRock, the world's largest private fund, with more than \$10 trillion under management, announced that "climate risk is investment risk." It was widely viewed as a call to arms to divest from fossil fuels, though BlackRock retained significant investments in oil and gas and still had \$85 billion US invested in coal companies. Oil is a conflicting force, even within individuals; we want to reduce our carbon footprint, but still fly to Phoenix in January.

Oil's end game is largely agreed-upon, but the transition and timeline are hotly contested.

The International Energy Agency (IEA) predicts that peak oil demand could plateau as early as 2030. Oil predictions are notoriously unreliable, but, at some point in the coming decades, the industry will contract. It is already less of an economic force domestically, its contribution to Canada's GDP declining over the last 20 years. Tax revenues from oil and gas have gone from 14 per cent of all industry in 2009 to less than four per cent. Surging oil prices have allowed Alberta to recently post a surplus for the first time in eight years, part of a familiar boom/bust pattern. But, over the long term, the oilsands have become a smaller part of the economy while becoming a larger part of our environmental burden.

How the oilsands are stewarded affects us all. The transition needs to minimize both emissions and employment-disruption. There is a need for regulatory guidelines, but political forces can be capricious and self-serving.

"Net zero is possible, but it's very complicated," says Dr. Ian Hussey, PhD, manager of the Parkland Institute, a non-partisan research centre in Edmonton. "It's more complicated politically than it actually is technically." The best hope for reducing oilsands emissions and securing a sustainable final act may lie in technology.

The University of Calgary has 280 faculty members involved in energy-related research. Among them, there is a cautious optimism and an acute sense of urgency as they work to lower emissions, store carbon, clean the air, preserve water, reduce tailings ponds and bring Canada closer to its net-zero target.

"If I've learned anything about the climate challenge, the CO₂-mitigation challenge, the net-zero challenge, it's that it's got to be a collection of myriad solutions," says Bryant. In other words, there won't be a silver bullet.

The mandate for Bryant's group of researchers, he says, is "to bridge the gap between the current technological status of the oilsands industry and where it needs to be for a sustainable, globally competitive future." His lab has worked on incremental technologies; using nanotechnology to make steam in SAG-D (steam-assisted gravity drainage) operations more viscous and, therefore, more efficient. But they have also tried more radical solutions, such as looking at the feasibility of leaving bitumen in situ and extracting energy through a molecular transfer, though the technology wasn't really scalable.

It is one thing to have encouraging results in the lab; it's another to create technology that results in a commercial application.

"The whole thing I've done with the research program is try and push things out the door," Bryant says. "You can

move at the speed of business, instead of at the speed of graduate students with their dissertations."

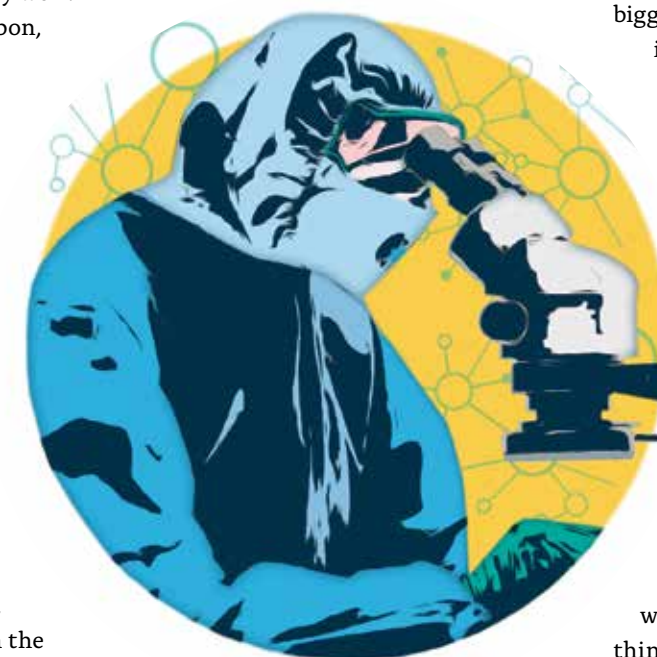
One startup company to come out of Bryant's lab is CalAgua, which innovates an environmentally sustainable ionic liquid bitumen extraction method that doesn't involve the creation of tailings ponds. Every barrel of bitumen results in 1.5 barrels of tailings, and these ponds contain hydrocarbons as well as toxic chemicals like ammonia, mercury and naphthenic acids.

The contaminants can seep into groundwater, affecting wildlife, and are among the biggest environmental concerns in the oilsands. CalAgua's ionic liquids reduce the need for water and eliminate the creation of tailings ponds, significantly decreasing greenhouse gas emissions.

But any radical technology runs into the fiscal realities of the oilsands infrastructure. The industry has spent billions building that infrastructure and any new technology needs to fit into what already exists. "One of the things about the oilsands is right now the zeitgeist has shifted and folks are not looking at building new-anything,"

Bryant says. "It's a very tough environment to go in and say, 'We can do things differently.'"

Dr. Ian Gates, BSc (Eng)'90, PhD, is a professor in the Department of Chemical and Petroleum Engineering and director of UCalgary's \$75-million Global Research Initiative in Sustainable Low Carbon Unconventional Resources. "I always tell the folks downtown, the last 50 years of wealth-creation with respect to oil and gas are not going to be the next 50 years of wealth-creation," he says. "We have to shift to be cleaner. We have to shift toward maybe alternative projects. Globally, the world is moving on. There are massive forces which are leading to a sense of low-carbon sources.





“We’ve seen lowering of emissions, but, to move forward, we have to accelerate it. We certainly don’t want to find that, at some point, Alberta gets stranded behind other jurisdictions which have moved faster toward cleaning their operations. It means a lot of focus, a lot of risk-taking. It means a different form of investment.”

One of the areas Gates’ researchers looked at was taking hydrogen out of the oilsands while leaving the emissions in situ. It involves converting the oil and the water in the reservoir to hydrogen, leaving the carbon dioxide in the ground, and producing clean hydrogen from existing oil reservoirs. “This could change the entire basis of energy on the planet,” Gates says.

He and his research engineer, Dr. Jingyi Wang, MEng’08, PhD’21, co-founded Proton Technologies,

a Calgary-based startup, and they first tested the technology in the field in 2018. Gates’ research group has since been working on refining the technology and scaling it up. It can be used in the oilsands or abandoned oil and gas wells, where hydrogen is extracted, leaving the CO₂ in the ground.

“Producing hydrogen from the resource produces an energy vector and a chemical feedstock vector, which on end use is clean,” says Gates. “So, it makes sense.”

Gates says a multi-pronged approach is necessary in order to meet the 2050 timeline. “It’s behaviour change among people, it’s about industry doing what it needs to do, but that requires massive investment,” he says. “It’s also about government policy to support all of that. And none of these things are fast.”



OILSANDS COMPANIES HAVE LESS DEBT AND LEANER OPERATIONS THAN THEY HAD A DECADE AGO... HOW THEY SPEND THE CURRENT WINDFALL IS CRITICAL.



Dr. Stephen Larter, PhD, is associate vice-president of research and innovation for UCalgary and he invokes the Second World War-era Manhattan Project in comparing the level of focus, urgency, investment and effort we need to avoid climate chaos today.

“The Manhattan Project went from zero to a bomb going off in four years when little was known of nuclear processes at the project start,” he says. “And how did they do it? It was government plus academia plus industry driven by a timeline.”

They had a crisis to motivate them then, Larter says; the western world was threatened. We have a crisis now, but it still isn’t close enough to home. On this continent, wildfires decimate millions of hectares every summer, the Arctic is melting, there are floods and record heat, and record droughts. The science and the prognoses are increasingly clear. But, for many Canadians, it is still happening “offstage.”

“The crisis hasn’t been big enough yet to really change that narrative,” Larter says. “There’s clear signs of a real crisis and the language from the Canadian oil and gas companies is that they see a crisis coming too, or it’s already here. I think there’s some move beyond talk, but it’s still mostly talk.”

The industry is in brilliant shape to initiate change. Oilsands companies trimmed costs to deal with US\$40/barrel oil, but oil is back in the \$100 range and profits are at historic highs. They have less debt and leaner operations than they had a decade ago and are better capitalized (though this has triggered higher royalty payments). How they spend the current windfall is critical.

“If the oil companies are serious about decarbonizing, we’ll see that revenue stream going into mitigating existing emissions, new clean technology and an urgent energy transition away from where they are today,” says Larter. “If they’re not serious about it, then we’ll see stock buybacks and executive bonuses and all the usual stuff. It’s a good time to watch what they do, not what they say.”

One of the areas of Larter’s research is removing CO₂ from the atmosphere. “Much of the carbon capture and storage discussion is around large emitting sites — refineries, power plants, things like that — which is important,” Larter says. “But the bulk of the emissions from oil and gas are downstream emissions.” It comes from our cars and our homes. “We are looking at different types of carbon-capture storage, focusing on a variety of air-capture routes, including geochemical routes, because that’s the only way that you can deal with a lot of the emissions that have already happened.”

The industry is also hoping that carbon capture, utilization and storage (CCUS) solves most of its emissions issues. In the 1990s, federal scientists started with the vague idea of how to store emissions safely. That initial exploration led to further research and development at the provincial level, and Canada currently has enviable global expertise in CCUS. In its 2021 budget, the federal government stipulated a tax credit for CCUS investment. To capitalize on this, the industry launched the Oil Sands Pathway to Net Zero initiative, which involves the six main oilsands players — Suncor, Canadian Natural Resources Ltd., Cenovus Energy Inc., Imperial Oil Ltd.,



RENEWABLE ENERGY PROJECTS WILL BRING AN ESTIMATED \$3.75 BILLION WORTH OF INVESTMENT TO ALBERTA, ALONG WITH 4,500 JOBS.



MEG Energy Corp. and ConocoPhillips Canada — who account for 95 per cent of oilsands production. One of its plans is to build a carbon dioxide pipeline from Fort McMurray and Cold Lake to a sequestration hub.

Carbon capture comes with good news and bad news. The good news is that it can reduce emissions (CO₂, as well as nitrogen oxide and sulphur dioxide) and is relatively safe.

The bad news is that it is energy-intensive (the processes of separation, transportation and injection) and, if the captured CO₂ is used for enhanced oil recovery — getting more oil out of existing wells — then it may actually add to emissions (though it does reduce the number of new wells drilled). Carbon capture is complicated to scale up to what the oilsands needs, and, finally, it is expensive.

The industry is hoping that government will pay 75 per cent of the cost. Brad Corson, CEO of Imperial Oil, told investors that getting the oilsands to net zero by 2050 would require \$70-75 billion in investment. But the federal government likely won't pay 75 per cent of the cost, and won't give tax credits if the CO₂ is used for enhanced oil recovery.

The view in the scientific community is that carbon capture is part of the solution, but there is a danger in relying too heavily on it.

"I really hope that they're considering beyond just putting CO₂ in the ground," says Gates. "Because that tells me that they're going to continue the same stuff at the recovery process level. I'm hoping to see modular nuclear reactors, I'm hoping to see rich solvent processes. I'm hoping to see hydrogen-based systems, because I think they have to go hand-in-hand with carbon sequestration."

Government funding may dictate the fate of sequestration. A report from the Canadian Institute for Climate Choices, a federal agency under the auspices of Environment Canada, noted that, "Public investment in assets at elevated risk of being stranded in low-carbon scenarios could generate less economic and job benefit than investment in areas that could capture a share of growing, transition-opportunity markets."

The federal government is looking for a middle ground that supports clean energy initiatives while protecting jobs in the legacy oil and gas industries. But employment in the oil and gas sector peaked in 2014. That year, in Alberta, there were 166,028 employed in oil and gas; in 2021, the number was 139,004, a drop of 16.3 per cent. The largest growth area in oil and gas jobs may be cleaning up orphan wells.

Meanwhile, the renewable market is growing exponentially. In 2021, there were more deals involving renewable energy projects announced than in all previous years combined, and the volume of those deals tripled all previous years combined. Renewables made up only six per cent of Alberta's energy mix in 2018, but have grown to 26 per cent in 2022. Renewable energy projects will bring an estimated \$3.75 billion worth of investment to Alberta, along with 4,500 jobs. Clean Energy Canada projects that, by 2030, 560,000 jobs will be created across the country in renewable energy, though jobs in wind and solar are mostly in the installation field; they don't require a great deal of maintenance. In 2021, the European Union used more renewable energy than fossil fuel energy for the first time. Even Saudi Arabia is desperately trying to diversify.

At their inception, the oilsands were largely viewed as a fool's errand by conventional oil companies. They required risk-taking, massive investment, and had to overcome daunting technological challenges. These same qualities need to be employed once more to ensure a timely efficient transition.

There are areas of intersection between oil and green energy. Alberta has lithium, a key ingredient in battery production. Lithium is also a byproduct of bitumen mining and is found in tailings ponds and scientists are working on ways to efficiently extract it. Because wind and solar are intermittent, they need storage capacity to make them reliable and battery storage is one option. Another is hydrogen, and Suncor is the largest producer of hydrogen in the country. Canada is the largest producer of green hydrogen (manufactured using renewable sources of energy) in the world. These technologies are increasingly coming together in inventive ways — technologies and expertise we can export.

Since the 2016 Paris Accord, five of the G7 countries have reduced emissions. Only Canada and the U.S. have increased them, with Canada the worst offender (a 3.3-per cent increase). Oil and gas production accounted for 26 per cent of our emissions. If we fail to meet our target in 2030, there will be a lot of blame to go around. Blame may be the largest petroleum byproduct — blame the government, the markets, the industry, Trudeau (pick one), OPEC, the Russians. We have eight years to avoid becoming the G7's climate goon.

"We are slowly starting to move away from our domestic dependence on fossil fuels," says Hussey. "But it is far more important to Alberta's oil and gas industry that the U.S. continues to buy our oil and gas than our domestic policies."

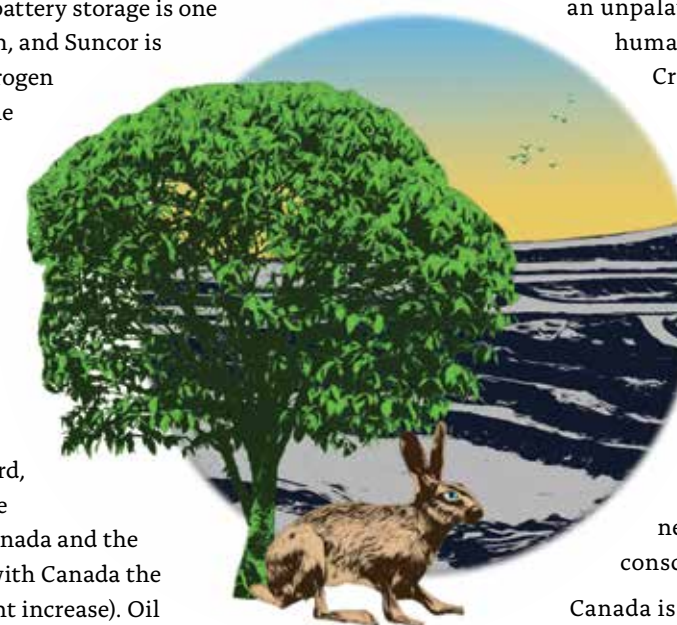
The current American administration, along with individual states like California, is aggressively moving toward a greener economy. The next administration could double down on existing targets and so called

"dirty oil" will be even less welcome. Or a Trump-inspired administration could reopen shuttered coal mines and allow fracking in national parks. Whatever the short-term political vagaries, globally, we are moving toward a greener world.

The oilsands' third act may be helped by geopolitics. The U.S. is now the world's largest producer of oil, but 50 per cent of its oil comes from fracking, which is almost as environmentally contentious as the oilsands, and, more critically, has been largely unprofitable. And shale fields have a high depletion rate. Saudi Arabia is the world's second largest, an unpalatable regime with a dismal human rights record, including Crown Prince Muhammad bin Salman's implication in the assassination of foreign journalist Jamal Khashoggi. Russia, run by an insecure thug, is the world's third largest oil producer and a rogue nation both environmentally and politically. Vladimir Putin's invasion of Ukraine sharpened the need for energy security in the consciousness of most nations.

Canada is No. 4, followed by Iraq and China. Of these, Canada is the most stable democracy, has the third largest reserves, and carries the least amount of geopolitical baggage. In the long run, if there is one, Canada could emerge as the most politically acceptable source of fossil fuels. But it is critical that we become the most environmentally acceptable, as well.

Much has been made of Norway's prudent stewardship of its oil and gas resources, treating it as a finite, shared resource, and resulting in a sovereign wealth fund worth \$1.4 trillion. By contrast, Alberta was a multi-decade keg party, with years of roaring fun, crippling hangovers and searing regret — though we were able to save enough (\$18.9 billion) for cab fare and to hire someone to help clean up. •



On Finding Peace in Chaos

In a worrisome world that keeps us up at night, **Kris Demeanor** makes his own kind of music.

“Don’t tell me to relax!”

This was my mother, Agneta’s, protest years ago whenever the glib suggestion to “relax” would come out of my mouth at her displays of heightened emotion.

My partner, Deborah, has the identical objection today. I apologize to them both.

Yes, some people wear their anxieties like Christmas lights. They are easy targets for those of us who cultivate a more mellow attitude. But then casual-me will get his coat pocket stuck on a door handle, use every foul word in existence in one sentence, and proceed to drink a bottle of wine in half an hour. I just do it in the basement away from scrutinizing eyes.

We’re all stressed. We all need to relax. But how?

Both my artistic and personal life seem to be asking that question at present. Whether we are working too much, too little, having our spare time hijacked by screens, worrying for our wounded planet, mourning our dead, caring for an infant, or delaying a celebration for the fourth time because of COVID, our mind is rarely given a break.

Not that we don’t try to give it one. Alcohol and medication are shortcuts to temporary relief. There’s the spa. There are the exhaust-your-body-and-hopefully-your-mind-will-follow activities such as Crossfit and triathlon. There are the undeniably healthy remedies of

a walk in nature, time with friends who are easy on the nerves, and chamomile tea.

But how does one escape, for instance, the psychic pressures of chronic pain? My father, Wilfried Wenzel, BEd’64, has peripheral neuropathy — the pain is constant and debilitating and, as night approaches, stress increases with the knowledge that sleep will not come easily. Treatments and trusted routines are doing their part, but there is no silver-bullet cure here — it’s a collage of forces that work on bringing down the pain notch by notch.

With this in mind, my new recording of original music is called *Songs for My Father to Fall Asleep To*, a collection of intimate, mid-tempo compositions using only solo voice and guitar, with the singular intention of lulling my dad into a relaxed state. The songs do not contain positive platitudes, though they evoke our personal history and enjoyable adventures together. They are real reflections of both the dark and light in life — they are stories, meditations, love songs. I hope they will be distraction and solace, a sonic Percocet.

I’ll be creating a project similar in thrust this summer with Ghost River Theatre. *The Great Alberta Sound Bath Experience* will be a public musical experiment where waves of sound wash over prostrate participants as they are gently guided toward a sense of calm. Traditionally, a sound bath is associated with singing bowls, gongs, chimes and choral voice. Instead, we’re giving the concept a twist by composing original music using a blend of instrumental and electronic melodies, poetry,

and group vocalization to take audience participants on a dynamic sound journey.

My hope is that the *Sound Bath* will encourage not only relaxation, but active reflection and the processing of those myriad wound-up coils in our bodies and minds. The idea is to feel renewed so that one feels more prepared for action in the “real” world.

It’s not about restoring our energy and focus so we can jump back on the same hamster’s wheel. Ideally, it will encourage a reassessment of how we live. A hopeful result, I know, but art has never needed to be more about transformation than now.

Of course, as my work turns serendipitously toward healing others, the mantra, “Doctor, heal thyself,” gets louder. Deborah and I have an eight-month-old daughter, Aviva. The topics of sleep and relaxation are a constant:

“Is she over-tired or under-tired?”

“Maybe, if we read her the same book over and over, we can bore her to sleep.” “Can you take her for 20 minutes so I can stare at the wall and contemplate this intractable new existence?”

I pause here to recognize that hearing about someone’s child is like hearing them talk about their dreams — eternally fascinating to the person living it and beyond

tedious for the listener. So I’ll talk about both at once to get it over with. Every dream Deborah and I have now, no matter how innocuous or initially pleasant — dinner with friends, flying over a mythical city — ends in a terrified, “Where’s the baby?”

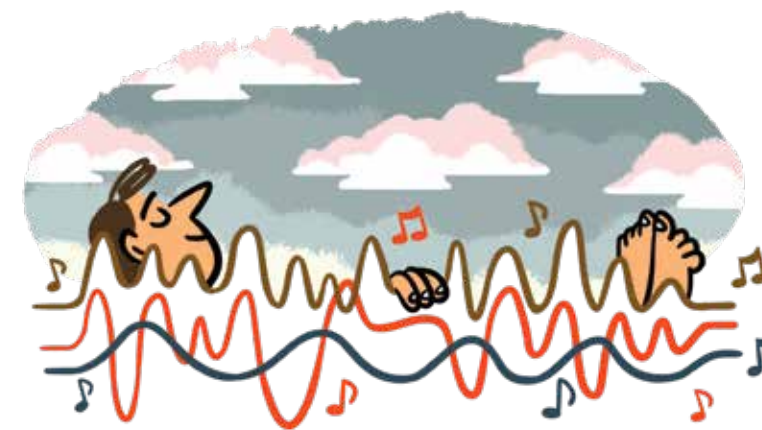
We are searching for calm in this fresh reality — dance parties and gratitude, and food is always a joy.

Is the quest for relaxation a privilege only a few in the world can entertain, while others are consumed with the business of survival or, as in Ukraine, fleeing for their lives?

Perspective is the first word in any discussion about inner peace. True contentment is unachievable if others needlessly suffer. While we in Calgary struggle to live our best lives amidst an embarrassment of comfort, wealth and security (for now), I open an email from a friend in Latvia who is convinced, with good reason, that “they are next.”

“Please enjoy a peaceful life as much as you can and have many nice times together,” he writes.

So yes, take it easy on yourself. Search for respites from stress and anxiety. I’ll try to do the same. And I won’t tell you to relax. But, if you can, while you can, please enjoy. •



Sound Bath will encourage not only relaxation, but active reflection and the processing of those myriad wound-up coils in our bodies and minds.

Kris Demeanor, BA’92, is a singer-songwriter, actor and Calgary’s first Poet Laureate (2012-14). He has released eight recordings and has toured Australia, Europe and across Canada. His latest album, *Songs for My Father to Fall Asleep To*, is underway and will be available in August 2022. The first workshop of *The Great Alberta Sound Bath Experience* with Ghost River Theatre takes place this April, with a full production scheduled for September 2022.



Facing Our Fears

Overwhelmed with worry for the mental health of her daughter with autism, **Kristina McGuire** found help in a program that changed her family's world.

When Kate McGuire was four years old, she began to worry that she would become separated from her family and lost in the world. In the washroom at home, she'd call out to her mother, Kristina, who was in the kitchen, to make sure she wasn't home alone. A few minutes later, Kate would frantically check in again: "Mom? Are you there?!"

No amount of calm reassurance from her mom would temper Kate's anxiety. Kristina attributed the worries in part to Kate's previously diagnosed attention-deficit/hyperactivity disorder (ADHD) and, in larger part, to recent family stress around Kate's little brother, who had been born a year earlier with a severe congenital heart defect.

"Kate went through a tough developmental time when we were in the thick of things with Sam and lived for a while at Ronald McDonald House," says Kristina, a former neonatal intensive care nurse at the Peter Lougheed Centre. "All of that had a big impact on Kate's psychological and mental health." Indeed, at the age of six, Kate was admitted into the emergency room at Alberta Children's Hospital (ACH) with suicidal thoughts.

As time went on, Kate's list of fears grew: tornadoes, a house fire, any amount of water on her face or clothing — literally anything outside of her own bedroom was upsetting and, often, terrifying to Kate.

The family tried therapy and medication, to no avail. Kristina eventually began to suspect that Kate might have autism.

It turns out she was right, but, Kristina says, "the struggle of getting a diagnosis was pushed aside because there was so much happening in our family and there seemed to be more obvious explanations."

Eventually, the McGuires were referred to a program that would change Kate's life.

Facing Your Fears is an adapted cognitive behavioural therapy program geared toward youth with autism who experience clinically significant anxiety. A collaborative effort funded by community donations to the Alberta Children's Hospital Foundation, its key research arm is headed up by Dr. Carly McMorris, BA'06, PhD, an assistant professor at the Werklund School of Education and a member of the Owerko Centre at the Alberta Children's Hospital Research Institute. She works alongside partners including Alberta Health Services and the Society for the Treatment of Autism to study and optimize the program.

As McMorris explains, Facing Your Fears helps children with autism who are at heightened risk of experiencing anxiety — which is often more crippling than the diagnosis itself.

"Kids with autism aren't just 'worried,' they are sometimes terrified to the point that, for instance, they'd kick a hole in the wall attempting to avoid the terror of getting into a shower or speaking to a stranger," she says.

Guided by a team of experts that includes psychologists, occupational therapists, and speech and language therapists, the 14-week program includes sessions and workbooks for both the parent and child, deep-breathing techniques, coping skills, and strategies for self-calming, as well as a reward system.

"Facing Your Fears met Kate where she was," says Kristina. "It's unlike anything else we'd tried."

The program gave Kate skills to identify and tackle her anxiety, starting with her fear of water.

"Kate's lens is mysterious and unique to her," says Kristina. "But Facing Your Fears opened her eyes and gave her language to express herself." • —JM

The newly established Azrieli Accelerator will elevate and advance community-partnered research like that of Dr. Carly McMorris, fuelling programs and therapies that empower people of all ages with neurodevelopmental disabilities to live full lives.



The **Azrieli Accelerator** will transform neurodevelopment research across the lifespan through collaborative and transdisciplinary teams committed to making a positive difference in the lives of neurodiverse people of all ages. The Azrieli Foundation's donation will enhance collaborations across the university, in the community and throughout the global network. It builds upon the university's more than 50-year history of advancing related research, which has been supported by transformative investments by government, community partners and generous philanthropists, including the Alberta Children's Hospital Foundation; the Owerko, Cumming, Hotchkiss, Snyder, Mathison and Fenwick families; and many others.

"Several members of my family have neurodevelopmental conditions and that motivated us to look for ways to make a difference. We came to understand that scientific research in neurodevelopmental disabilities is particularly underfunded. The needs are great, but the potential to catalyze positive change is huge."

—Naomi Azrieli, DPhil,
Chair and CEO, Azrieli Foundation Canada

Photo left: Kristina McGuire; photo right: Yuri Doic

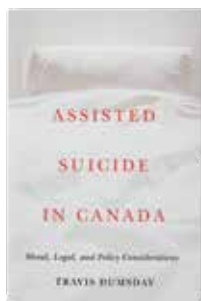
Wild Poetry and a Better Pandemic

A round-up of the best new books from our writerly friends and faculty.

written by arch staff

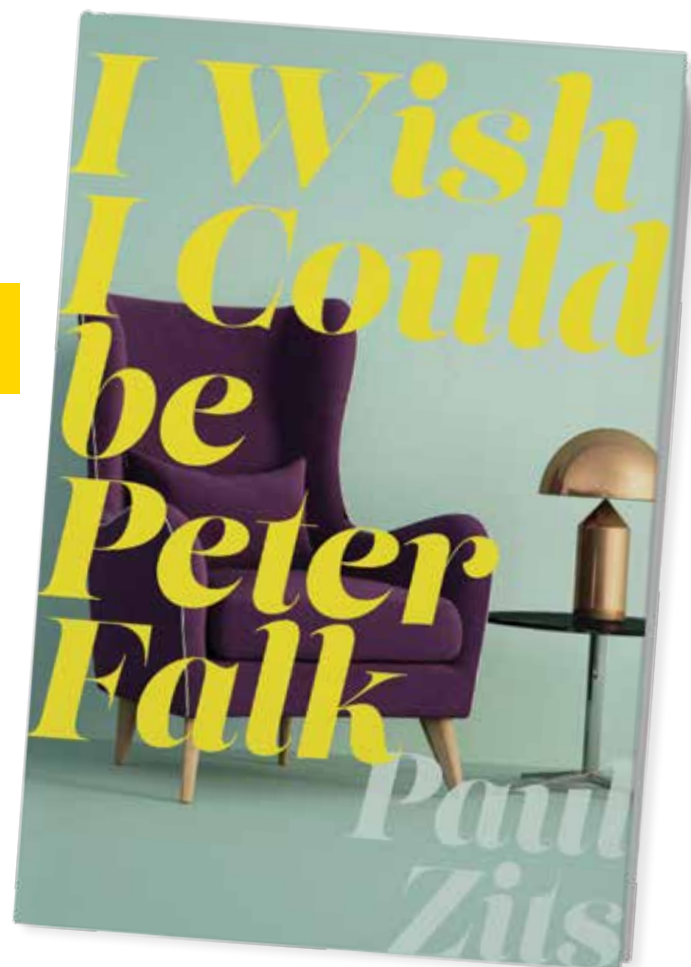
■ **Assisted Suicide in Canada: Moral, Legal, and Policy Considerations** (February 2022)
Dr. Travis Dumsday, PhD'10

Assisted Suicide in Canada delves into key federal and provincial court rulings on medical assistance in dying (MAID) from 1993 to 2015 and explains subsequent legislative history. Dr. Travis Dumsday engages in an accessible, yet nuanced exploration of the most significant ethical arguments — pro and con — and unravels the related legal and policy disputes. Thorny issues such as freedom of conscience for health-care professionals, public funding for MAID and proposed extensions of eligibility are dealt with thoughtfully and clearly.



■ **I Wish I Could Be Peter Falk** (February 2022)
Paul Zits, BA'08, MA'10

An intimate, poetic interrogation of restrictive masculinity from award-winning author Paul Zits, *I Wish I Could Be Peter Falk* challenges the standards of the masculine convention, and the various media that help sculpt our expectations, tirelessly telling men how to feel, how to think, how to dress, what to drive and how to identify. These poems speak with candid intimacy, delivering a perceptive critique with sensitivity and humour. With its title invoking the name of the iconic late *Columbo* actor, *I Wish I Could Be Peter Falk* is a nuanced exploration of modern masculinity and a warning of the dangers that persist when the commodification of gender goes unchecked.



■ **Arborophobia** (March 2022)
Nancy Holmes, BA'82, MA'90

Arborophobia, the latest collection by award-winning poet Nancy Holmes, is a poetic spiritual reckoning. Its elegies, litanies and indictments concern wonder, guilt, and grief about the journey of human life and the state of the natural world. When a child attempts suicide and western North America burns and the creep of mortality closes in, is spiritual and emotional solace possible or even desirable? Answers abound in measured, texturally intimate and often surprising ways. Taking a hard look at what we have done to this beautiful planet and to those we love, *Arborophobia* is a companion for all who grapple with the problem of hope in times of crisis.



■ **Cafe Conversations: Democracy and Dialogue in Public Spaces** (March 2022) Dr. Michael Picard, BA'86, PhD



Cafe Conversations is the first to look closely at the phenomena of philosophy in a café. This volume brings the international voices of numerous facilitators of engaged philosophical inquiry, including some of the most prominent, together with observers in allied fields, to explore practical and organizational issues. It also brings to bear critical and theoretical perspectives on participatory philosophy in the public sphere.

■ **Next Time There's a Pandemic** (March 2022) Vivek Shraya



In *Next Time There's a Pandemic*, artist Vivek Shraya, an assistant professor in UCalgary's Department of English, reflects on how she might have approached 2020 and the COVID-19 pandemic differently, and how challenging and changing pervasive expressions, attitudes and behaviours might transform our experiences of life during — and after — the pandemic. What might happen if, rather than urging one another to “stay safe,” we focused instead on being caring? What if, instead of striving to “make the best of it” by doing something, we sometimes chose to do nothing? With generosity, Shraya captures the dissonances of this moment, urging us to keep showing up for each other so we are better prepared for the next time ... and for all times.

“By focusing on a kid ostracized by surreal circumstance, my hope is readers will recognize their own loneliness, and locate a common humanity in even the most desperate of experiences.”

— Chris Kelly, BCS'14, MA'17, author of the Prairie magical realism novel, *A Kid Called Chatter*

■ **Medical English as a Lingua Franca** (March 2022) Dr. M. Gregory Tweedie, PhD, and Dr. Robert C. Johnson, PhD



Dr. M. Gregory Tweedie, associate professor with the Werklund School of Education, and Dr. Robert Johnson, associate professor with the University of Calgary in Qatar, assert that the concept of *Medical English as a Lingua Franca* (MELF) represents an important contribution to our understanding of English as a Lingua Franca (ELF), in that existing ELF research has been limited to relatively low-stakes communicative situations. Medical contexts, in contrast, often represent situations calling for exceptional communicative precision and urgency. Providing both evidence from their own research and analysis from the limited number of existing studies, the authors offer a counterpoint to the optimism regarding communicative success prevalent in ELF. The book proposes a theoretical perspective on how the various features of health-care communication serve as important variables in shaping interaction among speakers of ELF, further enlarging our understanding of this emerging sub-field.

■ **A Kid Called Chatter** (April 2022) Chris Kelly, BCS'14, MA'17

A stunning work of Prairie magical realism, *A Kid Called Chatter* is a kaleidoscopic mingling of history, truth, folk tale

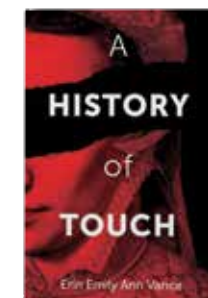


and fiction. A fable of belonging, it explores how humans use stories to confront what can't be explained, and the way communities come together to protect — or to destroy — the things that make them unique.



■ **A History of Touch** (May 2022)
Erin Emily Ann Vance, BA'16, MA'19

Erin Emily Ann Vance's first collection of poetry interrogates the position of the female body in folklore, pop culture and history. Exploring the natural, the supernatural and everything in between, the poems in this collection writhe with sharp and often lurid imagery, digging into the marrow of “sweet wickedness.” The poems in *A History of Touch* haunt the reader with both a bitter familiarity and the “the woebegone, the winsome, the wild.”



■ **An Orchid Astronomy** (July 2022) Tasnuva Hayden, BA'06, BSc (Eng)'10, MSc'13

An Orchid Astronomy is the story of Sophie, her personal trauma and climate catastrophe, told in striking experimental poetry. Crossing poetic styles and genres, words and sentences flow and break, twist into images, and cluster together like the Arctic stars. Coming together in a

sustained narrative, these poems ask how we grapple with magnificent loss, searching for solutions in science, in mythology, in storytelling and, ultimately, in our re-lived memories. •

10 Things We Like About You

Rebounding with verve from a cancelled hit TV show, comedian and UCalgary alumnus **Andrew Phung** has another gold-star sitcom on his hands, CBC's *Run the Burbs*. Here's how he thinks, unwinds and stays in the now.



Photos: Tim Nguyen

If you could do anything for a living, what would it be?

While chasing a career in comedy, I was the program director of a non-profit in Calgary called Youth Central. I loved my work in this field and could see myself doing something new and exciting in this sector. I really value the work that community organizations do, and how they make communities stronger and more vibrant.

When and where were you happiest in your life?

Right now! Is that an answer I can use? Improv comedy taught me to live in the moment and I'm constantly finding happiness in my work and life. Each day is special, and I love where I'm at in life with my family and career. So, I choose now — or a Friday night in Grade 11. My friends and I got snacks from Mac's, video and game rentals from Rainbow Video, and pizza delivery. Those were some happy days!

Who or what has had the greatest impact on the person you've become?

Loose Moose Theatre Company. That place taught me to fail; it taught me to be the best version of myself; and it allowed me to find my comedic voice. These are life lessons I'll carry with me forever. Dennis Cahill (artistic director) and Deborah Iozzi (general manager) gave me a sandbox to play in, and I'm forever thankful for that.

What do you like most about yourself?

I've learned to really embrace my energy and spirit. I think my ability to "find the positives" in anything is what I like most about myself.

If you could travel anywhere, where would you go?

New York City. The glitz and energy of that city is something I cherish; I love exploring it. I've been there a dozen or so times and it still excites me.

Describe the most beautiful place you've ever been.

Vietnam really stands out because of my personal connection to the country. There's something beautifully chaotic about Saigon — and then it's ultra-calming when you visit the beaches and rural areas.

When you're restless or unhappy, what do you do to improve your mood?

I either look at pictures and videos of my kids or I watch an old martial arts movie.

Current guilty pleasure?

I try not to experience guilt in things that make me happy. But, if I had to choose, it'd be wrestling action figures and chasing down old *Star Trek* and *Ghostbusters* toys. Or watching sneaker-unboxing videos!



Who or what in life brings you the most joy?

My family brings me the most joy in life. I get giddy with excitement at the little things like watching movies and playing board games together.

If a song played whenever you entered a room, what would it be?

It would be a wrestling theme song, something like the theme songs for Bret Hart or Stone Cold Steve Austin. When I walk into a room, I'm ready to get things done! •

Andrew Phung, BA'06, is an award-winning actor, improv comedian, emcee and writer. His infectious and relatable personality has made him one of Canada's top comedic performers. His work on *Kim's Convenience* earned him four Canadian Screen Awards for Best Supporting Actor in a Comedy Series. Phung currently stars in the CBC television series *Run the Burbs*, which he wrote, co-created and on which he serves as executive producer.



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> **Dr. Phil Langill,**
BSc'85, PhD'94,
director of the
Rothney Astrophysical
Observatory, fell in
love with the sky
when he saw Saturn
from a telescope in
his northwest Calgary
backyard at age 14.
Here he is, circa 1991,
with the ROA's A.R.
Cross Telescope
(pg. 10).



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