

SPRING/SUMMER 2023

new. trail

UNIVERSITY OF ALBERTA
ALUMNI MAGAZINE

THE TINY ISSUE

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contents

Lindsay LeBlanc plays it cool in her Ultracold Quantum Gases Lab when the lasers are off. Story on page 38.
Photo by John Ulan

features

22

The Tiny Issue

From an itty-bitty dinosaur and a thumbnail-sized book to quantum computing and molecular medicine, small is a big thing

41

2022 Alumni Awards

Meet a group of grads who have led the way and inspired others

departments

3

Your Letters

5

Notes

What's new and noteworthy

12

Continuing Education

Our columnist's newly empty nest starts him reminiscing

14

Speaking Of

Bloodthirsty behaviour reminds our guest columnist of his undergrad days

15

Thesis

Book learning versus experience: the overlap is bigger than you'd think

49

Trails

Where you've been and where you're going

53

Class Notes

65

In Memoriam

72

Small Talk

ON THE COVER

Big things come in small packages. Zoom in on some tiny wonders, starting on page 22. Photo by Liam Mogan

Life Experience

SOMETIMES LEARNING HAPPENS when you least expect it.

I've been on both sides of mentorship. I participated in the co-op program through the Faculty of Engineering, and I've hired many co-op students throughout my career. I can easily say I learned just as much as a mentor as I did when I was a student.

One experience that really stands out for me was with **Demi Truong**, '19 BCom, a business student in the co-op program and now a fellow grad. I was working for a construction firm and Demi came on to help us out with marketing and analytics. As a student, Demi brought what she was learning in her coursework to an organization that wasn't quite comfortable with where to start. She was a wealth of interesting ideas and perspectives in the short time she was with us.

Work experience programs like the Forestry Field School, Arts Work Experience and the co-op programs in the Faculty of Engineering and Alberta School of Business help students gain on-the-job skills they can take into their careers. "Until we actually experience something, how can we make an informed decision about whether we want to do it?" says

professor **Bonita Watt**, '01 BEd, '03 MEd, '08 PhD, who helps students gain practical professional skills in career and technology studies. She and other grads and experts share their take on "learning by doing," starting on page 15.

It's not just formal mentorship programs that offer these kinds of learning opportunities. During my term as your Alumni Association president, I've learned a lot. I've met so many amazing grads and have had the opportunity to listen to your stories. I've seen — and experienced first-hand — the positive impact the University of Alberta can have on us beyond our formal education or degrees. It has been a privilege to represent you these past two years, and I look forward to continuing to learn with you in the future.

Tyler Hanson finishes his term as Alumni Association president on May 31, 2023. Meet your new Alumni Association president in the next issue of New Trail.



Tyler Hanson, '00 BSc(MechEng)
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Future Grad

I thought you might get a giggle from this photo of my granddaughter, 13-month-old Magnolia “Maggie” Miller, poring over the latest issue of *New Trail*. Maggie is the daughter of alumni **Marcus Miller**, '09 BA, and **Jamie Miller (Ausmus)**, '09 BEd.

—Joanne Miller, '81 BCom

From the Ground Up

With keen interest, I read your feature article, “City and Country: The Shape of the Future” in the Spring/Summer 2022 issue. The article presents some interesting current and future perspectives on where we may be headed. Many people understand that land in the Edmonton area is highly productive, but what makes it so unique and productive is not well understood. What is often overlooked is the 10,000 to 15,000 years it took for the rich, organic and living topsoil to develop. It's not just dirt. And, as one grower reminded me, no one is making more of it. For alumni and the general public to better understand this would certainly help in our public debate on land use and preservation in the larger context of environmental protection.

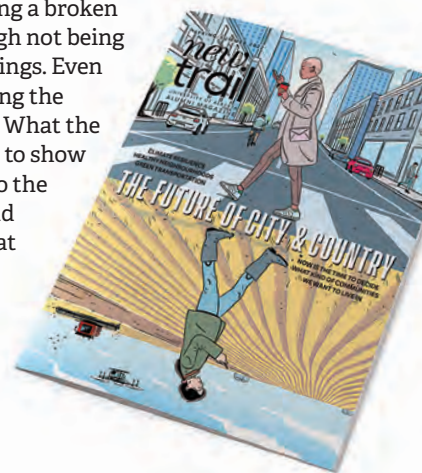
—Emile deMilliano, '80 BSc(Ag)

What do you think about the magazine? Let us know by email or the old-fashioned way; you'll find the addresses on page 4. Letters may be edited for length or clarity.

Digital Dangers

I did not notice it immediately, but the illustration on the cover of the Spring/Summer 2022 issue is problematic. I imagine it is supposed to represent the digital inroads into both urban and rural life; rather, it shows dangers of digital immersion while navigating an analogue world. I would give anyone grief for doing what these people are doing. The person walking the field is risking a broken or sprained ankle through not being aware of their surroundings. Even worse, the person crossing the street is at risk of death. What the illustration really seems to show is the loss of attending to the real world around us and the false assumption that we are not responsible for managing our own risks.

—Paul Bergen, '88 BA(Spec),
'89 MSc, '04 MLIS



Head in the Cloud

I enjoyed the Spring/Summer 2022 issue of *New Trail*. The “City and Country” feature gave a good comparison of the two regions. In the illustration on the cover, I noticed that neither person is looking at where they are going—they are looking at their phones. Maybe they are both in a digital world.

—Patrick Ryall, '70 MSc

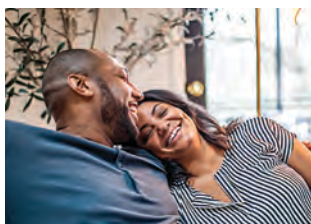
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City Dwellers

What to do when you see wildlife on urban trails



The Science of Love

Four tips to nurture a happier, healthier relationship



How to Help A Child Read Better

An education researcher offers some evidence-based ideas



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CONTACT US

Email (Comments/Letters/Class Notes):

newtrail@ualberta.ca

Call: 780-492-3224; 1-800-661-2593

Mail: Office of Advancement, University of Alberta,
Third Floor, Enterprise Square, 10230 Jasper Ave.,
Edmonton, AB T5J 4P6

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Address Updates: 780-492-3471; 1-866-492-7516
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notes

WHAT'S NEW AND NOTEWORTHY



Old Is New

Renovations bring in natural light and uncover previously hidden design touches

THE VENERABLE DENTISTRY/PHARMACY CENTRE was built more than 100 years ago. Its early 20th-century red bricks, columns and decorative flourishes are foundational to the U of A, even though some features, hidden for decades, had to be uncovered and repaired when the university undertook a 21st-century renovation. The result is University Commons — a multi-functional gathering place for students, community members, staff and academics across disciplines, set to open in 2024. The renovated space embraces principles of sustainability, equity, diversity and inclusivity as well as accessibility and connectivity. With spaces for collaboration, pop-up events and more, University Commons is adaptable, allowing new uses for a growing community. —BRITTANY HURLBURT, '18 MA

BIOMANUFACTURING

A Dose of Good News

Funding will boost drug research and commercialization in Alberta

AN \$80.5-MILLION INVESTMENT from the federal government will put Alberta at the centre of efforts to commercialize new drug discoveries and give Canadians a reliable national supply of some life-saving medicines.

Around 80 per cent of the raw ingredients for the world's drugs are made in China and India, and Canada currently imports 85 per cent of the medications it needs.

The funding will enable the Canadian Critical Drug Initiative (CCDI)—a partnership between the industry-led, not-for-profit Applied Pharmaceutical Innovation and the Li Ka Shing Applied Virology Institute (LKSAVI) at the U of A—to build an integrated research, development and manufacturing cluster in Edmonton. The initiative brings together industry partners, governments and research institutions from across Canada to research, develop, test and manufacture new drugs and produce widely used generic drugs that are in short supply.

"Through COVID and some of the supply issues, Canada hasn't always been able to get access to some of the critical products we need to care for patients," says **D. Lorne Tyrrell**, '64 BSc, '68 MD, founder and director of the Li Ka Shing

Institute of Virology. "It's important we have some domestic production."

"CCDI fills a gap in manufacturing small-molecule therapeutics for the country," says Michael Houghton, co-recipient of the 2020 Nobel Prize in Physiology or Medicine, director of the LKSAVI and a medical microbiology and immunology professor.

Small molecule drugs make up as much as 90 per cent of the medicines we use every day (see page 26). This funding will help build a 40,000-square-foot manufacturing facility as

well as upgrade existing facilities. When completed, they will be able to produce up to 70 million doses of critical drugs annually, improving domestic supply and reducing shortages for Canadians.

Meanwhile, the infusion of funds could speed breakthroughs in vaccine and therapeutic development at the LKSAVI, leading to the treatment or prevention of diseases including cancer, hepatitis C, COVID-19, group A streptococcus and Alzheimer's.

And the economic benefits and intellectual property will stay in Canada. Edmonton will now become a significant site for manufacturing and a training hub for technicians and scientists.

Andrew MacIsaac, CEO of Applied Pharmaceutical Innovation, says: "CCDI will provide a broad spectrum of value to Canadians by reducing drug shortages, employing Canadians in high-paying jobs, and providing better support for researchers and innovators to develop their discoveries into drugs that cure diseases, which can benefit people around the world."

—GILLIAN RUTHERFORD



COVID-19

BETTER CARE FOR COVID LONG-HAULERS

A new countrywide network of scientists, clinicians, Indigenous knowledge keepers, people experiencing long COVID and policymakers will seek better answers—and better care—for people with long COVID.

"Long COVID presents really differently in different individuals," says Piush Mandhane, pediatrics professor and member of the network's executive committee. "It's a disease that crosses many specialties The only way forward is to work together."

A study published in October 2022 found nearly 15 per cent of Canadians who tested positive or suspected an infection had COVID symptoms at least three months after they were infected. In July 2021, Canada's Public Health Agency recognized "post COVID-19 condition" as a major public health burden.

The Long COVID Web network, funded by a \$20-million grant from the Canadian Institutes of Health Research, comprises more than 250 researchers, stakeholders and patients. Its research priorities include diagnosis, treatment and inequities in racialized and Indigenous populations.—ADRIANNA MACPHERSON

VIROLOGY

NEW HUB PREPARES FOR FUTURE PANDEMICS

The U of A will lead a new federal research hub to develop homegrown vaccines and treatments for future pandemic diseases.

The Prairie Hub for pandemic preparedness, headed by U of A biochemist Joanne Lemieux, brings together post-secondary institutions and industry partners from Alberta, Saskatchewan and Manitoba as well as Canada's National Microbiology Laboratory. The U of A was chosen to lead the initiative because of its national expertise in virology.

"It will ensure that Canada itself is ready to respond internally instead of outsourcing medications outside the country, providing faster access to the average Albertan and Canadian," Lemieux says.

—GILLIAN RUTHERFORD



NIGHT VIEWS A cheap, simple device attached to wildlife collars has made a night-and-day difference to researchers in the Department of Biological Sciences. By incorporating a bar code on reflective tubing on existing collars, researchers can easily identify nocturnal animals photographed by motion-triggered cameras. "The biggest limitation with methods that currently exist is that you can't really see numbers or colours or anything like that at night," says **Yasmine Majchrzak**, '20 PhD, a member of the research team that included professor **Stan Boutin**, '77 BSc(Hons). "Something reflective that's easy to identify is such a huge advantage." —ADRIANNA MACPHERSON

EXPERT ADVICE

TIPS TO GET STUDENTS MOVING

The sedentary state of school-aged children got worse when their screen time increased during the pandemic, says **Valerie Carson**, '09 MA, a professor in the Faculty of Kinesiology, Sport, and Recreation. Spending too much time sitting at a desk is hard on health and learning, so Carson and colleagues developed the International School-Related Sedentary Behaviour Recommendations.

Parents and teachers can implement them with these four Ms. —ADRIANNA MACPHERSON

MANAGE BEHAVIOUR

For both lessons and homework, turn sit-down activities into active games. Stop for movement breaks every 30 minutes (for ages 5 to 11) or 60 minutes (12 to 18).

MEANINGFUL SCREEN TIME

Prioritize screen use for mentally and physically engaging activities such as learning games rather than for passive viewing. Avoid screens as a default option in learning.

MODEL HEALTHY USE

Put your own phones out of sight, often. Avoid screen time during meals. Turn off the TV and computer when not in use.

MONITOR FOR PROBLEMS

If children can't accept screen-time limits or complain they're unhappy without technology, screens may be a concern. Follow up with your family doctor or other health-care provider.

NUMBERS

\$19.4B

The total economic impact the University of Alberta brought to the province in 2021-22, according to a recent report

RANKINGS

2 SUBJECTS RANKED TOP 5 IN THE WORLD

The U of A remains the best place in Canada to study nursing and petroleum engineering, according to the 2023 QS World University Rankings by Subject. Eighteen subjects at the U of A ranked in the Top 100 internationally. Here are some highlights:

- The nursing program holds the top spot in Canada for the second consecutive year. It moved from 23rd in the world in 2019 to fifth this year.
- Petroleum engineering ranked first in Canada for the fourth consecutive year and came in fifth in the world.
- Pharmacy and pharmacology rose from 85th in 2022 to 49th internationally.
- The Faculty of Education moved up six spots to 81st in the world and sits at fifth in Canada.
- Other top subjects include anatomy and physiology (33rd internationally), agriculture and forestry (76th), medicine (92nd) and accounting and finance (98th), with earth and marine sciences, geology, geophysics, veterinary science and dentistry all finding places within the top 100.
- The U of A as a whole ranked fourth in Canada and climbed 16 spots to 110th in the world.

—ADRIANNA MACPHERSON

BUSINESS

Comfort Shopping

Research shows lonely people are drawn to brands that create warm feelings

MOST OF US ARE FAMILIAR WITH THE IDEA, if not the act, of retail therapy—hitting the shops to buy ourselves something to lift our mood. A new study shows those shoppers are drawn to products that are branded to evoke the warm fuzzies.

U of A marketing researchers **Kyle Murray**, '94 BSc(Spec), '04 PhD, **Soyoung Kim**, '18 PhD, and Sarah Moore found that brands that appear more caring or exude a sense of warmth provide some comfort to consumers who feel socially excluded.

Before the pandemic, one in five Canadian adults reported some degree of loneliness or social isolation. That figure has been rising steadily since the pandemic began, say the researchers.

To understand how “warm” brands can mitigate the negative effects of social exclusion, the team conducted an experiment using a ball-toss video game called Cyberball. Participants believed they were playing with two or three team members; in fact, those teammates were controlled by the programmer. Some participants eventually stopped receiving the ball, to elicit feelings of exclusion. The others received passes and therefore felt included in the game.

Following the game, participants could choose between two gift bags containing laundry detergent: one showed the Tide logo, the other had Snuggles’ bear graphic.

“The people who were excluded in the game tended to choose the bag with the Snuggles bear,” says Murray, acting dean of the Alberta School of Business.

Researchers then conducted four other experiments involving hundreds of participants, and found that socially excluded consumers preferred warm, comforting brands over seemingly colder ones.

The findings offer important lessons for companies, says Murray. “If you can be a warmer, more caring brand, you can actually make people feel better, and that will make them better customers,” he says. “They’re more likely to be loyal and more likely to choose you.”

“If you’re a colder brand and this trend in increased loneliness continues, you’re going to struggle.”

—GEOFF MCMASTER

NUMBERS

90%

The accuracy with which a machine learning model, developed by the School of Public Health, was able to predict which patients were at risk of adverse outcomes from opioid prescriptions

ARTIFICIAL INTELLIGENCE

VEHICLE, DRIVE THYSELF

If a self-driving car has insufficient data to decide whether to brake or to swerve, it turns over control to the driver in a process that can waste precious seconds of reaction time.

Ehsan Hashemi, an expert on autonomous navigation in the Faculty of Engineering, hopes to improve the time it takes for vehicles to respond to their surroundings.

He is researching methods to make autonomous vehicles process data more quickly and make reliable decisions in situations where such decisions are critical—such as Edmonton’s wintry driving conditions or where there are pedestrians or cyclists.

Hashemi’s system uses artificial intelligence to filter data received from vehicle sensors, remote cameras and fixed sensors mounted on objects like buildings and lampposts.

“Our lab is developing technology to enhance the safety of pedestrians, cyclists and vehicles.”

—GEOFF MCMASTER



INNOVATION

STUDENT BUILDS DRONE TO SPOT LANDMINES

A Ukrainian teen who won a global prize for his prototype of a drone that can detect unexploded landmines has brought his device—and determination to complete it—to the computer science program at Augustana Campus.

Igor Klymenko started the project while in high school. It took on personal significance when overhead bombing forced his family to take shelter in Ukraine’s countryside.

“I realized I shouldn’t stop working on my device, because today could be the last day,” the 17-year-old recalls.

Klymenko selected the U of A for its research facilities and Ukrainian connections. “I have found a lot of new people who have become my small Canadian family.” —BEV BETKOWSKI





SPACE

It's Space Time

Head in the stars and eyes to the ground, a student group builds a satellite to monitor earthly wildfires

THIS MARCH, DOZENS OF STUDENTS and their advisers on the AlbertaSat team watched a satellite they designed and built rocket into space aboard a resupply vessel bound for the International Space Station (ISS).

Ex-Alta 2 is part of the Canadian Space Agency's Canadian CubeSat Project, in which students and professors build cube satellites—small satellites weighing no more than two kilograms—to engage in real space missions.

After it deploys from the ISS, Ex-Alta 2 will orbit Earth, capturing visible and infrared images of forest fires, allowing scientists to track their spread—a mission inspired by the 2016 Fort McMurray wildfires.

"I definitely didn't think I would be able to build a satellite during my university degree," says Joanne Cai, a third-year student in mechanical engineering. Working on a project that addresses a climate-change issue was important to the AlbertaSat team, adds Cai.

The Ex-Alta CubeSats have been an enormous success for the team. The group's first satellite, Ex-Alta 1, was the first made-in-Alberta satellite and completed its mission in 2018 with all systems working.

"We've demonstrated that student teams are able to enter the new space race, to make measurements with miniaturized hardware that can't be made anywhere else, for the benefit of humanity," says physicist Ian Mann, a faculty adviser on Ex-Alta 1.

While building the Ex-Alta 2, the students also designed and built satellites for two partner schools, Yukon University and Aurora College in the Northwest Territories. Plans are already underway to construct AlbertaSat's next cube satellite, which will monitor glaciers and ice caps from a polar orbit.

—GEOFF MCMASTER

Cube Logic Space jam

CubeSats are tiny; some are the size of a loaf of bread.

All systems go

Students designed and monitor the performance of all the subsystems, including computer, radio and camera.

Small talk

Ex-Alta 1 collected data on space weather, which affects everything from airplane communications to power infrastructure.

Inside job

The instruments on Ex-Alta 1 and Ex-Alta 2 and a number of the latter's subsystems were designed and built in-house by students at the U of A.

Great heights

Ex-Alta 2 is set to orbit the Earth for one to two years at a maximum altitude of 410 km.

Without a trace

Like its predecessor, Ex-Alta 2 will burn up in the atmosphere once its mission is accomplished, leaving no space junk behind. —JOYCE BYRNE

Footnotes

A brief look at what's new at the U

Campuses welcome 12 new Black scholars

Twelve Black scholars, representing a range of disciplines, have joined the U of A as part of a commitment to diversify the university's faculty. In November 2021, the U of A joined 40 other peer institutions across Canada in signing the Scarborough Charter on Anti-Black Racism and Black Inclusion in Canadian Higher Education, a national plan to fight structural racism.

Partnership promises 20 new AI experts

The university's expertise in artificial intelligence will be boosted with 20 new hires in coming years, thanks to a collaboration with the Edmonton-based Amii (Alberta Machine Intelligence Institute). One of three institutes in the Pan-Canadian AI Strategy, Amii has committed \$30 million to recruit five new faculty members in computing science and 15 new hires who will focus on interdisciplinary research in three areas: health, energy and Indigenous leadership.

New name, classic support

The Institute for Sexual Minority Studies and Services has a new name: Fyrefly Institute for Gender and Sexual Diversity. Established nearly 20 years ago and housed in the Faculty of Education, the non-profit now serves more than 10,000 people across Alberta. Fyrefly programs aim to reduce discrimination against gender and sexually diverse youth in Alberta through educational programs and community outreach.



TECHNOLOGY

All Systems Go

Wireless sensors, tiny antennas will provide real-time data about soldiers' health

USING TECHNOLOGY THAT only a few years ago seemed impossible outside of video games, Ashwin Iyer and other researchers are designing a communication system that would give military commanders real-time information about the health of their troops in the field.

The system uses wireless sensors attached to a soldier's body to track vital health statistics such as heart rate, respiration, muscle fatigue, catastrophic damage to organs and possibly even brain activity.

Transmitting that information would traditionally require antennas too big for combat situations, so Iyer's team is building tiny antennas using ideas inspired by his research in meta materials — materials engineered to have properties not found in nature.

"If you can make materials with designer properties, then you can make devices with designer performance," says Iyer, an electrical and computer engineering professor.

He is working with researchers from the U of A and other Canadian universities, as well as industry partners Meta Materials Inc. and AUG Signals. The project received \$1.5 million in funding from the Department of National Defence's Innovation for Defence Excellence and Security program.

Iyer's research builds on the pioneering work on intelligent

wireless sensors by U of A researchers Pedram Mousavi and Mojgan Daneshmand, a married couple who were aboard Ukraine International Airlines flight PS752 when it was shot down three years ago. Iyer and one of his partners on the DND contract, Rashid

Mirzavand, carry on their work.

"This technology will keep soldiers safe and extend their lives on the battlefield," says

Iyer. "It will keep them more aware of what's happening around them and give them a better chance of survival."

—GEOFF MCMASTER

For more on these and other great U of A research stories, visit folio.ca.

NUMBERS

FIVE

Per cent reduction in carbon emissions that could be possible if we heated our homes with a blend of hydrogen and natural gas, according to a study led by engineer **Amit Kumar**, '04 PhD, an expert in energy systems

WORKPLACE

HIRING AND APPLYING AT STARTUPS: FLEXIBILITY REQUIRED

The job posting fits your qualifications perfectly. You land the job. But when you arrive on Day 1, that dream job seems to have evaporated.

The experience is not uncommon, but it might not necessarily be bad either, says Sara Mahabadi of the Alberta School of Business. After reviewing hiring at 51 small startups within their first three years, Mahabadi and Lisa Cohen at McGill University found that job evolution between posting, hiring and onboarding occurs for multiple reasons and can actually have positive outcomes for both employees and employers.

Their data analysis showed that during hiring, some jobs had tasks added or removed; other jobs were abandoned, replaced or moved, and in some cases, jobs were reposted. The key takeaway from their study, say Mahabadi and Cohen, is that both employers and job applicants need to be prepared for inevitable evolution in the hiring process.

For job seekers, the authors say it's a good idea to apply for positions even if you don't have everything asked for in the posting.

"Many managers and entrepreneurs use this hiring process as a way to figure out the needs of the organization. Through that process, they might figure out that you're actually the perfect candidate," says Mahabadi. "They just didn't know it yet." —GEOFF MCMASTER



POPULAR CULTURE

Digging Up Pseudoscience

Experts urge Ancient Apocalypse viewers to resist the allure of a well-told yarn in a pretty package

A **NETFLIX SERIES** claiming Mexico's Great Pyramid of Cholula—and many other sites worldwide—are the legacy of a forgotten and technologically advanced civilization has two U of A experts on a mission to debunk the underlying pseudoscience and restore viewers' trust in academia and science.

In *Ancient Apocalypse*, journalist Graham Hancock proposes that an advanced civilization was wiped out during a cataclysmic event 12,000 years ago but its knowledge lived on through a few survivors. The show travels around the world to prove its existence.

In making its points, the series characterizes academia as “arrogant and patronizing” and brands archeologists as “so-called experts.”

“It almost makes denying expertise a noble task,” says **Timothy Caulfield**, '87 BSc(Spec), '90 LLB, U of A law professor and misinformation fighter. “You're a hero if you stand opposed to conventional wisdom. Hancock considers it a badge of honour that he's not an archeologist and not a scientist.

Caulfield and archeologist André Costopoulos urge viewers to critically weigh the evidence and avoid being seduced by the allure of a beautiful production and a provocative narrator.

That said, it's understandable how people are drawn to provocative material, especially when it's presented as a bit of fun, Caulfield says. He recalls being “obsessed” with the 1968 bestseller *Chariots of the Gods* and its ancient alien astronaut premise.

“Is it playing to anger, to ideology? Is it playing to your hopes or fears? That doesn't mean that you shouldn't let those things draw you in. But recognize what the creators are doing,” he says.

Scientific knowledge is advanced by evaluating evidence, not suppressing it, says Costopoulos. Archeologists actually crave the new insight those challenges might produce, he adds.

“I don't mind speculation. I engage in it myself,” Costopoulos says. “But when I am at work as an archeologist, I like to identify speculation as such.”

—GEOFF MCMASTER

QUOTED

“We'd really like to shift the culture of farming to recognize that mental health is just as important as running the farm, and that it's OK for farmers to talk about it and seek help when they need it.”

Rebecca Purc-Stephenson, a psychology professor at Augustana Campus and lead researcher at AgKnow, the Alberta Farm Mental Health Network. She is leading a series of studies to identify stressors and build resilience among farmers, their families and the agricultural community



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



To Fly the Coop

SEEMS LIKE JUST YESTERDAY I LIGHTENED MY PARENTS' LOAD BY MOVING OUT. BACK THEN, I COULDN'T IMAGINE WHY IT WAS SUCH A BIG DEAL

I recall the day I left home as if it were yesterday. Although now that I think about it, that might not be the most reassuring declaration in that, as I age, I sometimes have trouble remembering what I did yesterday.

Anyway, let's just say I remember the day as well as possible. I was 20 and was headed from Calgary to Edmonton to go to the University of Alberta. I'd completed a couple of years of post-secondary education in Calgary but dreamt of the bright lights and big city, the razzle and dazzle of a metropolis where my life, my true and real life, could begin and catch fire. I wanted action and excitement. I picked Edmonton instead. That day, ready to depart, I stepped into my old beater station wagon I had purchased for a few hundred bucks and filled with my earthly belongings: a few sweaters, two pairs of jeans, various socks and underwear, a winter coat, a squash racket, a pair of soccer cleats and about 600 books. I was parked in the alley by our garage, saying goodbye to my dad, who was standing beside the car. He was stoic and quiet, as always. Told me to drive safely, as always. Slipped me 50 bucks, not as always. My mother was nowhere to be found. It was odd. I mean, I was leaving home for heaven's sake! Didn't she even want to say goodbye? I asked my dad if she was going to come out and say goodbye.

"She can't," said my dad. "She can't bear it."

I looked out of the car to the kitchen window and there she was, framed in her

grief, watching her eldest depart. I was the first family member of my generation to go to university and my parents' first child to leave home. My mom was weeping, her arms crossed over her stomach. I waved goodbye and smiled. She tried to smile back but couldn't and had left the window frame before I even put the car in gear.

I shrugged at Dad and he smiled and shrugged back. It was just Mom being emotional, I figured. It wasn't like I was abandoning her or anything. I said I'd be back for Thanksgiving, six weeks down the road. She still had five more kids in the house. I'd presumed I was doing her a favour by lightening the load. Kids leave home. It's what they do. What's the big deal?

I get it now.

Our older child, Jess, moved out a few years ago. That was hard for various reasons, not least because the move was to New York City. It was exciting to visit but a little nerve-racking to imagine your



by Curtis Gillespie

child living there. Jess lives in Berkeley, Calif., now, which is at least closer and where one is more likely to get harassed into buying heirloom vegetables than to be mugged. Our younger daughter, Grace, has gone back and forth between Edmonton and Vancouver over the last little while and has now moved back to Vancouver, for good, she says. So now it's just Cathy and me. After Grace left, I turned to Cathy and said, "Now what are we going to talk about?"

In my mind I went back to that day when I left home. Kids leave. It's what they do. It's what they're supposed to do: namely, abandon their parents who raised them from glutinous blobs of protoplasm into fully functioning human beings, leaving the nest just as their parents are themselves beginning to recede slightly and could really use their help with raking up the damn leaves all over the front la ...

Too granular? Sorry. OK, really, it's not a big deal. Emptying the nest is the natural order. (I will note, for the sake of reality, that adult birds often push their little ones over the nest's edge to force flight on the ones lucky enough not to end up splattered on the forest floor.) We humans raise our offspring to leave, and if we parents have done our job properly, our children will proceed to forsake us in our hour of greatest ... OK, OK. Scratch that, too. But the truth is that having your kids leave home is not all fun and games. To co-opt a business consultant's phrase, parents have to negotiate the tension between pride and abandonment. With a little bit of relief thrown into the mix. Let's unpack all this, shall we?

Let's deal with the pride and relief part first. Cathy and I had, and still have, two children who are young people of considerable intelligence, warmth and integrity. I highly recommend a conversation with either of them should you ever have the chance. We are very proud of the people they have become. But there is a dreadful reality to raising children that you're not supposed to mention as a parent: it takes a toll on a guy. Wait, what? Others have mentioned that?

Oh, OK. Well, I've never read a parenting book, so I guess that's why I thought it was just me whispering the truth that shall never be named (except in this column), which is that raising kids is immensely rewarding but it takes a chunk out of you. And we only had two. I can't even imagine what it was like for my parents. My mother had five preschool children by the time she was 25 years old. You read that right. No wonder I sometimes catch her looking at her numerous grandchildren and great-grandchildren while she exhales with undisguised relief. I'd be exhausted, too, Mom.

So, yes, there is pride in seeing your children forge their own path, and yes, it can also come with a bit of relief that perhaps the hard lifting is over. Let's now move on to the abandonment. And remember, in the eyes of the law, not understanding you are committing a crime does not absolve you of that crime. Ergo, if your children don't understand that they are utterly and totally throwing their parents under the emotional bus when they leave, that doesn't mean they are not accountable for the grief they are leaving in their wake.

It's fair to say that with most reasonably well-adjusted children, the detachment process starts long before said children technically leave home. I remember saying to Cathy ages ago, probably when Jess was in junior high, that it was clear that we were no longer the sun around which our kids' lives orbited, but distant moons faintly visible in their night skies. Which is OK. Friends take over at a certain point, as should be the case and as was also the case in my teen years. I remain on excellent terms with my mother (my father died decades ago). I love her and respect her, but in thinking back to those days when I was leaving home, I wasn't particularly worried about her emotional state the day I left. I just figured she was sad to see me go and would probably get over it by, say, dinnertime.

But I see now that having your kids leave home is not like getting a haircut, a seamless adjustment to having less of something. No, it's more like having

one's eyesight recalibrate in daily microgradation across years of raising children, so that you come to view the world filtered through their experience and your experience of them. Then, suddenly, those lenses that took 20-odd years to build are snatched away and now you can't really see the world properly. Refocusing does not and cannot happen immediately. Again, this is not a wrong thing, it's just how it is. And the opposite would be worse! I don't want irreparable cataracts (in this analogy, that means kids who never leave home).

Pride, relief and abandonment aside, the bottom line is that you just have to get on with it once they're gone. It's not all bad. The house is quiet most days, though the problem with that is that the house is too quiet most days. I grew up in a house of two parents, six kids, three bedrooms and two bathrooms. I didn't have my own bedroom until I left to go to university. The notion that silence could be part of home life is alien to me. Now, some days when I'm working in my home office, the dog will bark at something on the street and it startles me. It's not the easiest adjustment. Lately, I've found myself wandering into one of the bedrooms formerly occupied by a kid, where I'll mess up the bed and toss clothes around at random just to fondly recall the good old days. Or I'll smear toothpaste on the bathroom counter. If I'm feeling particularly nostalgic, I might even go into the kitchen and yell out, "Would it kill you to clean up after yourself?"

There's no one to yell back now. The only response I get is a puzzled look from the dog. All I hear is an echo. An echo coming back to me in the form of the voice of one of my children, saying, *It's OK, Dad. Don't worry. Everything's fine.* I smile to myself. But then I also hear, *And don't forget to clean up that mess you made in my room before I come back for a visit.* ■

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

Some of our grads are at the centre of experiences others only read about. Their perspectives bring us close to the story. **Dan Riskin**, '97 BSc, is a bat biologist, science journalist and author. His first picture book for children, called *Fiona the Fruit Bat*, is out now.



by Dan Riskin

Bloodthirsty Behaviour



A TASTE FOR THE RED STUFF HAS CREATED SURPRISING SIMILARITIES ACROSS SPECIES — AND ACROSS RESEARCH INTERESTS

Vampire bats are sanguivores. That's zoology-speak for "they drink blood." Gross? Absolutely.

But it's not just a party trick. Once a vampire bat gets old enough to stop drinking its mother's milk, blood becomes the only food it will ever consume again. No other mammal does that, so sanguivory has made vampire bats totally different from the other mammals, especially from other bats. No other bat can run on the ground, but vampire bats do. No other bat shares food with non-relatives, but vampire bats do. No other bat can slice your skin like a razor blade, but vampire bats do. To me, that distinctiveness has always been the best thing about them.

I've been obsessed with bats for decades, and I eventually studied them for my master's and PhD. I first fell in love with bats when I read a book about them in high school. Excited to learn more, I got my bachelor of science degree in zoology at the U of A. And I remember how frustrated I was in my first zoology class because of how little bat content there was. The professor, Reuben Kaufman, kept going on about his favourite research subjects, ticks, and all I could do was keep imagining how much more I'd get out of the course if only he'd been a bat biologist. I didn't want a tick talk!

But in the past decade or so, I've stepped outside academics to work as a science journalist, and that has forced me to cast my gaze more broadly. It has given me permission to learn more about the wider world, and that perspective has given me a new way of seeing bats, especially the vampires.

Vampire bats aren't the only sanguivores. Plenty of fish, worms, insects, arachnids and even birds also drink blood. I'd always known that, of course, but I'd ignored the science around those other animals because it seemed too tangential to the work I was doing. My research was on the biomechanics of vampire bat walking. Why would I learn about leech saliva? But having given those other animals a closer look in recent years, the vampire bats suddenly don't seem unique. Instead, I can now see how eerily similar they are to other blood-drinking animals. And if you don't mind a little gore, I think the diversity of blood-feeding animals is well worth a quick tour.

The vampire moth *Calyptra* of Southeast Asia has a one- to two-centimetre-long proboscis (feeding tube), like the butterfly in your garden does. But instead of drinking nectar, it stabs the skin of animals — including humans — to drink their blood. Many other moths feed on tears near the eyes of animals as a way of getting salt. A lot of experts think the vampire moth got its start that way but got a little carried away when feeding at the corner of the eyeball and developed a taste for the salty red stuff that came out when it probed a little too hard.

The eye socket is also the target for *Colubraria reticulata*, the vampire snail — a roughly six-centimetre-long animal you'll only ever see if you go snorkelling at night in the tropical reefs of Southeast Asia. The snail's strategy is to extend a very long proboscis (up to three times its body length) into the eye socket of a sleeping fish. Just how that habit evolved is a mystery, but as to whether it's gross, there's no debate.

Another fascinating blood-feeder is the jumping spider *Evarcha*. It doesn't feed on blood directly, though. (No spider does, thank goodness.) But it does need blood to make pheromones to attract a mate. So it gets blood second-hand, taking it from the belly of a parasite. The spider hunts mosquitoes, preferentially focusing its efforts on females that have just had a blood meal.

Blood-feeding is everywhere. It has evolved at least two dozen times among animals. And because the challenges of that diet are basically the same for all sanguivores, there are lots of ways in which they have become quite similar to one another. Vampire bats are a perfect example.

Vampire bats use smell to find their victims, like bed bugs do. They can sense temperature differences on the skin to find blood vessels, like mosquitoes do. They have proteins in their saliva that stop blood from clotting while they feed, like leeches do. And since blood is so watered down, vampire bats drink as much as they can in a single meal, like ticks do. These characteristics differentiate vampire bats from other bats and also make them similar to other sanguivores.

I spent decades zoomed in on bats as an academic, but the broader perspective I've taken from journalism has helped me see bats differently. I feel like an astronomer, stepping back from my telescope to look up, awestruck by the expanse of twinkling stars.

I recently submitted a paper about vampire bats to *The Canadian Journal of Zoology* to show them in this broader light. In the paper, I mention how vampire bats can increase their body weight by 50 per cent in a single meal and that this fits the pattern of other blood-feeders. Looking through the literature, I learned that mosquitoes can drink 180 per cent of their body weight in one meal, and that medicinal leeches average an increase of 890 per cent in just 29 minutes. But the record-holder? The tick, capable of increasing its body weight 100-fold when it feeds.

And when I went to cite the tick paper and checked the name of the author, I couldn't believe it: Reuben Kaufman!

Twenty-nine years later, my professor's tick talk had finally hit its mark. ■

Dan Riskin is a scientist, an adjunct professor at the University of Toronto and a television host and producer. He's the author of many academic papers and, in addition to his recent kids' book, a bestselling non-fiction book for adults called Mother Nature Is Trying to Kill You.

thesis

DIVING DEEP INTO ONE IDEA



Do and Learn

Experience is the best teacher, but when it comes to, say, knowing to stop at a red light, nothing beats a little advance book learning

THERE IS A FALSE DICHOTOMY BETWEEN LEARNING AND DOING.

On one hand, we imagine students in a classroom absorbing a lecture. But lectures don't teach you how to dribble a soccer ball or land a beautiful cross. That takes experience, lots of it. Yet you don't pick up the rules of a game by kicking a ball. At some point, someone teaches you the rules. In life, there's a messy overlap between learning and doing. ■



In 4-H, author Kate Black was learning about being part of something bigger.



Reading, Riding and Arithmetic

A former 4-H club kid has to ask, can people actually learn without doing? It turns out there is no solid line dividing the two

LIKE MANY ALBERTAN HORSE girls, I grew up in a 4-H club. I was always vaguely mystified by the slogan emblazoned on our dorky green fleece vests: "Learn To Do By Doing."

Those words annoyed me for a couple of reasons. First, they gave licence to all the less-awesome mandatory activities of 4-H: annual highway garbage cleanups and public speaking competitions, calculating how much hay our animals ate and what it cost (our parents) to keep them alive. Second, the slogan

was so obvious that it hardly made sense. How can anyone learn to do anything *without* doing it?

Jacqueline Leighton, '93 BA(Hons), '95 MEd, '99 PhD, a U of A professor of educational psychology, says there's no hard line between the two.

"When we are doing we are learning," Leighton says. "And even when we are not doing, we are learning."

The problem is that we might not be learning the thing our teachers intended. I'm thinking about all the

times I sat in classrooms without doing much other than scribbling notes, if not completely zoning out, while my teacher droned to overhead slides. Something has nevertheless lingered with me from these experiences: how to spend my day sitting somewhere I don't want to be.

Or, Leighton says, many of us learned to stay quiet in the classroom — especially coming-of-age in western societies, where we put a premium on looking smart and learning quickly.

"You might fear that you haven't learned the information properly and will be embarrassed," she says. "The unfortunate part is that we focus so much on performance that we actually encourage students to not seek out innovation and challenge."

But how do people actually learn the things they are supposed to learn?

Bonita Watt, '01 BEd, '03 MEd, '08 PhD, a professor in the U of A's secondary education department, says the answer lies in experiential learning: having students partake in what they're learning about and then reflect on the experience. It's crucial to Watt's specialty in career and technology studies, where students are exploring and getting practical skills in professions including communications technology, trades and culinary arts.

"Until we actually experience something, how can we make an informed decision about whether we want to do it?" she says.

Watt says that although we might associate experiential learning with career-readiness programs, it's not exclusive to foods or shop classrooms. Imagine how improvising as a character from a play you're reading in English class could help you better connect to their perspective and choices, or how you could more deeply understand a poem's musings on nature while walking outside.

"It all becomes so embedded in mind and body," Watt says.

We still can (and do!) learn in lecture halls. And we must learn some things in this manner first before getting to do something else. Educational psychologists, such as Leighton, distinguish between two types of learning: declarative learning,

“You might fear that you haven’t learned the information properly and will be embarrassed. The unfortunate part is that we focus so much on performance that we actually encourage students to not seek out innovation and challenge.”

Jaqueline Leighton,
professor of
educational psychology,
Faculty of Education

in which we learn how to do things, and procedural learning, in which we develop skills by doing. We’re more aware of our declarative, facts-based knowledge, than our subconscious muscle memory, gained through procedural learning.

Often, we put declarative knowledge to work as we learn new information through procedural learning. In drivers’ training, for example, you learn that it’s illegal to run a red light. Only through actually driving do you learn the particular kind of foot pressure you need to brake smoothly and on time. This is handy knowledge for any of us.

Everyone takes on the role of a teacher at some point, whether that’s raising kids or training someone at work. But that role is important on a deeper, ideological level, too. We all care about education, in every sense of the word, in that caring about something — climate change, correctly filing invoices — usually means you want other people to learn about it. Our ideals around learning shape our gripes with the present and our hopes for the future.

Each of our educations, then, reflects the hopes someone else had for us. It’s a nice, if not weird, thought: my involvement in 4-H wasn’t just a reflection of my obsessive interest in horses, but that my parents and the people who created the organization wanted me to become one of the “responsible, caring and contributing leaders” that the club describes on its website. Luckily for 4-H, it seems to be working: an eight-year study of more than 7,000 4-H kids found that they’re more likely to be involved in their communities, set and achieve goals, and have healthy habits.

I’m not saying that to brag — honestly, it’s hard to trace any quality I have to an experience I had in the past. But I clearly remember picking up wet cardboard from the ditches outside Sherwood Park, Alta., as part of a 4-H clean-up crew. In that moment I felt so strongly that I was part of something larger than myself — and that my participation mattered.

Weirdly, I experienced a similar feeling in a completely different scenario in Grade 12. My math teacher pulled me into the hallway and, with stern interest, asked why I kept zoning out in class. He wouldn’t let up until I gave a confusing but honest answer: I didn’t know what was going on with me, but I did know I wasn’t feeling great and I was having trouble concentrating. While it was abundantly clear that he wasn’t happy with my behaviour, it was equally clear he cared about me, and that I mattered in his bigger picture.

I can hardly articulate the lesson of that moment. But I know it was profound for me to remember it so clearly after all this time, among all the other things I’ve learned and how they’ve made me who I am.

—KATE BLACK, ’16 BA

MENTORS GET CREATIVE

Business owners pay back the support they received

SOMETIMES IT TAKES AN EXPERIENCED BUSINESS TO help create a nascent one. When COVID-19 compelled CommAlert, which provides emergency communication services for businesses, to work remotely, president and CEO Tim Carwell decided to give away his business’s newly renovated office space in downtown Edmonton. He knew that other businesses require an on-site workspace. “And businesses in the startup phase could hire a new person rather than pay a lease,” he says.

The first person he needed to convince was his wife, **Tanis Carwell**, ’90 BCom, a senior financial adviser at ATB Wealth. “Tim has an idea at least once a day,” she says. “Sometimes they’re amazing. Sometimes I just go back to work.” Tim convinced her this was one of the former.

The Carwells named the initiative the Goodwill Project and put out a call for applications in late 2021. The project connected five finalists (out of 70 applicants) with a mentor to hone their pitches for a panel of judges. “Tim reached out to people in the business community that he had a ton of respect for,” Tanis says. Like Tim, three of the judges happened to be part of ThresholdImpact Venture Mentoring Service, a U of A initiative that helps entrepreneurs grow professionally and personally.

After overtime deliberations, the panel selected Runwithit Synthetics, an analytics business with Indigenous leadership that helps decision-makers think about the future. “It’s really given us an amazing boost as a company,” says Myrna Bittner, CEO and founder of Runwithit. “We fund R&D with our revenue, so this allows us to continue to advance and innovate. We’ve made two new hires since we took over the space.”

—LEWIS KELLY





SHOW OF HANDS: Fine arts in general, and printmaking specifically, means hands-on learning. But for **Miriam Rudolph**, '17 MFA, making each piece is also revelatory. "Through the process of printmaking, I layer multiple printing plates to create complex images," she says. "The content of a piece often reveals itself in the process of layering. The meaning becomes evident to me by the doing." See more at miriamrudolph.com.

STUDENT EXPERIMENT TAKES FLIGHT

Can space make better foamy materials?

A STUDENT-DESIGNED PROJECT THAT BRINGS TOGETHER

10 students from across Canada under the supervision of **Shawna Pandya**, '06 BSc(Hons), '12 MD, takes flight as one of 36 scientific experiments selected for Blue Origin's 23rd space mission with the New Shepard rocket. The space experiment, selected by a panel of judges, will test the effects of microgravity on polyurethane foam, to determine if microgravity makes it more stable. Polyurethane foam has applications everywhere from construction materials to furniture to auto parts. —ANNA SCHMIDT



Out in the Field

Students broaden their mindsets, opportunities through agronomy internships

KRISTEN VISSER SEPARATES HER VISION OF HER future into two distinct phases: before her internship, and afterward.

Between May and August of last year, Visser, an undergrad in the Faculty of Agricultural, Life & Environmental Sciences, worked as an intern in public engagement and education at the Alberta Canola Producers Commission, which promotes research, advocacy and consumer engagement.

The internship, part of the course Work Experience in Agriculture, seemed worlds away from her vision of her future as an agronomist. As it turns out, that was exactly the point. “I’m a lot more open-minded, and my perspective has changed,” says Visser. “I learned that there are many more jobs and opportunities in agriculture than I had previously thought.”

Her experience is a success in the eyes of Linda Gorim, an assistant professor in the Faculty of ALES. When Gorim arrived at the U of A in 2020, she found students were ready for work experience.

“I noticed that among many students who have grown up on the family farm, they know everybody and trust everybody around them,” she says. “Some students may return to the farm but many would end up in large companies like Corteva Agriscience or Syngenta Group.” She says that the work experience, in which they journal to reflect on their goals and the skills they’ve gained, helps them build professional communications, resolve conflict in the workplace and maintain work-life balance.

In another course Gorim teaches, students take part in a week of active learning in crop equipment and technology and plant nutrition — “more touch, feel, see, digging in the ground,” she says.

Gorim completed her undergraduate degree in Cameroon and graduate studies in Germany, where she excelled in introducing students to agriscience through internships. She is the Western Grains Research Foundation Chair in Cropping Systems, and at the U of A she has been transforming her students’ learning experiences.

“I knew I had the opportunity to develop this course the way I see fit. And I got all kinds of support from the university. Our chair even said she wanted to expand it beyond crop science students — so that all students could benefit.”

—MARY FRANCES HILL

How a Classroom ‘Flip’ Engages Students

HERE’S AN ASSIGNMENT: TRY TO RECALL the university classroom or course that was so engaging that you couldn’t help but retain the material years later.

Odds are this class experience strayed far from the conventional lecture. It was full of conversation. You were free to ask questions, solve problems with fellow students, take part in debates and do meaningful group projects. Maybe you got to know your professor, teaching assistant and classmates better than you did in other courses.

It’s that kind of active, engaged learning that is the core concept behind the “flipped” classroom, an experience pioneered by Peter Sankoff, a professor in the Faculty of Law.

In a conventional teaching mode, there wasn’t enough time in a typical lecture session to introduce new material, and discuss questions and problems with students, says Sankoff, an educator and researcher who focuses on legal issues surrounding the criminal trial process, and the relationship between animals and the law.

“I said, ‘What if we take part of the class out of the classroom?’” he says. In a flipped classroom, the instructor greets students after they’ve reviewed new material through textbooks or an online video lecture at their own pace. Once in class, they’re ready to dive into the material in a new way — through debates, group discussion, projects, and active, energetic learning.

“Suddenly, we could engage in all the problem-solving that we wanted, because the flipped classroom created enough time for us to do that.”

The flipped classroom, Sankoff says, opens more opportunities to take part in dynamic, active learning that sets the stage for a deeper understanding than a lecture would offer. The flipped classroom was created by Colorado secondary school science teachers in 2007 and adopted at Stanford, MIT and Harvard before Sankoff pioneered it in Canada.

In 2021, Sankoff’s mentorship, teaching and course design earned him the Hon. Tevie H. Miller Teaching Excellence Award, recognizing excellence in teaching at the Faculty of Law. But success didn’t come easy, Sankoff says. Perfecting video production and gauging students’ needs took some time, but the flipped classroom turned out to be a perfect fit in a legal education setting.

Practising law requires problem-solving, so the opportunity to simulate cases is valuable. In 2014, Sankoff and the University of Ottawa’s Craig Forcese co-wrote a comprehensive paper in the *Canadian Legal Education Annual Review* on the benefits of the flipped classroom.

“Students realize that getting outside classroom learning puts them in a better position to succeed,” he says, “and their willingness and ability to build on those outside experiences in the classroom has been wonderful.” —MARY FRANCES HILL



Immersive Study

Land-based learning for students and teachers

THE GROUP AWAKES IN CANVAS TENTS ON AN

August morning. Pulling back the tent flaps, they see the North Saskatchewan River, coursing past on its journey east. The day holds possibilities — paddling, harvesting plants, hiking to greet nearby buffalo.

At the centre of this scene is not a group of voyageurs, but 12 U of A students who spent a week last summer immersed in Métis culture as part of the university's first Métis land-based learning course. The students learned from Métis elders and knowledge holders at the Métis Crossing Cultural Gathering Centre, 90 minutes northeast of Edmonton.

"All of it connected to the concept of relationality — what we call *wâhkôhtowin*," says Nathalie Kermaal, director of the Rupertsland Centre for Métis Research and acting dean of the Faculty of Native Studies. "It's important to experience the embodiment of what you may understand intellectually but don't always feel."

Kermaal launched the pilot course alongside **Amanda Evans**, '18 MA, Métis citizen and a PhD student in the Faculty of Native Studies, aiming to provide opportunities for Indigenous and non-Indigenous learners to think about the land in a Métis context, and for Métis students to reconnect to the land. The project relied on partnerships between the U of A, Métis Crossing and the Rupertsland Institute.

The course is just one of three new land-based programs with an Indigenous focus at the U of A. It reflects commitments to reconciliation made in the university's new Indigenous Strategic Plan, says Kermaal.

At Augustana Campus, the second new program brings sciences to life for Indigenous K-12 students. Augustana hosts programming for students of all ages at its two rural science facilities, Miquelon Lake Research Station and the Hesje Observatory. Lessons, whether biology, chemistry, math or astrophysics, will take an Indigenous, land-based learning approach.

"We want Indigenous students who take part to connect to their experiences, cultures and the sciences, to have fun and to see they have a place in STEM fields," says **Glynnis Hood**, '07 PhD, an environmental science professor and vice-dean at Augustana. Indigenous students and staff will help craft and deliver programming, drawing on expertise from Indigenous partners, the First Nations Technical Services Advisory Group, Future Ancestors Services and the Louis Bull Tribe.

The third program trains teachers to include land-based perspectives in lessons, responding to a call to action of the Truth and Reconciliation Commission of Canada. "We want long-standing links to make meaningful experiences for Indigenous students and communities," Hood says. — ANNA SCHMIDT



PHOTOGRAPHS BY JOHN ULAN

Indigenous land-based learning is underway through the Faculty of Native Studies (main image and images on facing page). Related coursework is happening at Augustana Campus (images below).







SMALL THINGS, BIG IMPACT

From quantum computing to cellular medicines to a book barely bigger than a thumbnail, tiny things can pack a punch. Read on to learn how these tiny titans are teaching us about our language, ourselves, our planet and the universe.

PHOTOGRAPH BY LIAM MOGAN

What Is the Smallest Small?

Enter the weird and wonderful world of quantum physics

Looking for limits is often instructive. We've made remarkable progress, as a species, by answering questions like, "What's beyond the horizon?" "How old is the universe?" And, of course, "How spicy is too spicy?"

When the limits get small, the stakes get high. "What is the smallest thing?" weighs in at a svelte five words, but seeking the answer has had huge implications. The quest has improved our understanding of the fundamental nature of reality, no less — and much else besides.

The smallest thing we know has become a lot smaller in the past couple of decades, thanks in large part to particle accelerators, says physicist Roger Moore (photo opposite). The biggest and most powerful accelerator is the Large Hadron Collider at CERN, the European Organization for Nuclear Research, where the fabled Higgs boson particle was discovered in 2012.

Moore contributed to that discovery (as did U of A physicists Doug Gingrich and James Pinfold). Moore is now a member of the IceCube experiment at the South Pole, searching for neutrinos that can achieve energies similar to and beyond those observed at CERN.

So who better to ask about the smallest small?

THE UNBEARABLE WEIRDNESS OF QUANTUM

There's one thing you need to know about the bizarre and baffling world of quantum physics. Or is it two things? In quantum physics, the smallest thing is also the heaviest thing. And a given thing will be smaller the faster it is moving.

So what, then, is the smallest-heaviest-fastest thing we've found? There are two contenders, but choosing between them isn't as easy as it might seem, says Moore.

"Determining the smallest thing depends on what you mean by 'smallest thing.'"

CONTENDER #1: THE TOP QUARK

In one corner of the tiniest boxing ring you've never seen is the top quark, sometimes called the

truth quark, which was discovered in 1995.

"It's the fundamental particle with the highest mass," says Moore. "It has a mass of 175 gigaelectron volts, whereas the Higgs boson has a mass of 125 gigaelectron volts. So you could argue the top quark is the smallest particle." (Put another way, a top quark is about 182 times heavier than a proton, while a Higgs boson is about 133 times heavier.)

With a name like "top quark," you'd think it's a clear winner as the smallest small. But the top quark and the Higgs boson have been observed only in particle accelerators built specifically to see them. In the wild, physicists have been able to catch fleeting glimpses of particles with even higher energies — and therefore higher masses, shorter wavelengths and smaller sizes.

CONTENDER #2: NEUTRINOS AND COSMIC RAYS

These even smaller particles include high-energy neutrinos — which Moore began working on after the discovery of the Higgs boson — and cosmic rays, which are primarily protons travelling at nearly the speed of light.

"We have seen high-energy neutrinos with energies up to 1,000 times higher than anything we can achieve at the Large Hadron Collider, and cosmic rays have even higher energy than that."

There is, of course, a catch: both particles are extremely difficult to detect and measure. They exist on Earth only for a fraction of a scintilla of a microcosm of a second and, until just months ago (see "At the Frontiers of Physics"), their origins were still mostly mysterious to physicists.

Which leaves us with three questions, all with mercifully straightforward answers.

QUESTION 1: What does Moore see as the smallest thing we've ever found?

"You could say the best definition of 'small' is for something that's stationary," he says, "in which case it's the top quark. If you could make anything move fast enough, you could make it small."

QUESTION 2: Is this the final frontier in small, or might we find something tinier still?

"There is definitely a chance that there are weirder and smaller things out there," Moore says.

"Gravity, dark matter and the 'lightness' of the Higgs boson itself — ironically, despite it being one of the most massive particles we have found! — are all problems with our current understanding of physics that need to be solved. And some or all are likely to involve higher mass and hence, arguably, smaller particles."

QUESTION 3: Why is the world of atomic and subatomic particles so strange and baffling?

"Why," he says, "is a hard question to answer in science." —LEWIS KELLY

AT THE FRONTIERS OF PHYSICS

Scientists made a big leap forward recently in locating the source of some of the smallest building blocks of the universe.

"This is the cutting edge of science," says U of A physicist Roger Moore, part of an international team working on the IceCube experiment in Antarctica. "We now have the first real evidence that this is where at least some of the extremely high-energy cosmic rays and neutrinos come from."

The team announced in *Science* last November that neutrinos had been detected coming from a supermassive black hole that powers the nearby active galaxy, NGC 1068, also known as Messier 77.

While research like this might seem obscure, similar basic research underpins a lot that we take for granted today.

"Our modern world is built on what we learned from equally esoteric experiments," Moore says. He points to Ernest Rutherford's famous 1911 experiment bouncing radioactive particles off gold foil, which revealed the nuclear structure of the atom. "The knowledge of atoms and quantum mechanics we learned from those experiments led to semiconductors, MRI scanners, computers and many other transformative inventions," he adds.

"Today's physics research may seem removed from everyday life, but it is laying the foundations of the world of our grandchildren, just as Rutherford's scattering experiment did for ours."

—KAREN SHERLOCK



Mighty Meds

Researchers are creating small molecule drugs to treat age-old threats and modern menaces

Crack open the average medicine cabinet in Canada and chances are you'll find a similar cast of characters. Tylenol. Check. Benadryl. Yep. Antibiotic ointments. Probably. Despite their different uses, these standard drugs have one thing in common: they belong to a class called small molecule drugs.

Few people know it, but small molecule drugs comprise up to 90 per cent of the medicines we use on a daily basis in homes or hospitals. In addition to the staples of the medicine cabinet, these drugs include propofol for anesthesia, lorazepam to stop seizures and the steroid dexamethasone. Not to mention Paxlovid — made up of two small molecule drugs — and remdesivir, which are among the few approved treatments to curb early-stage COVID-19 infections before they become severe.

Though small in size, these drugs have enormous potential. That's why U of A research scientists are developing a wide range of homegrown versions to take on everything from cancers to future pandemics.

UNSUNG HEROES OF HEALTH CARE

Small molecule drugs are tiny organic compounds that can be absorbed readily and enter cells easily to

carry out their intended therapeutic effects. Some, like the family of commonly used antidepressants known as selective serotonin reuptake inhibitors, or SSRIs, attach to the surface of cells to do their work. Other small molecule drugs get into cells by active or passive diffusion or are carried by one of the human body's hundreds of transporters — proteins that move peptides, lipids and other molecules across a biological membrane. The benefit of small molecule drugs is that they're relatively easy to administer, often by mouth or intravenously, and relatively stable.

Some of these drugs are designed by chemists. Some already exist naturally or as previously developed compounds but their full effects aren't yet known. Even the ancient Egyptians had an inkling of the antibacterial qualities of fungi when they applied a poultice of mouldy bread to a wound, for example, yet it wasn't until 1928 that penicillin was discovered. It is still perhaps one of the best-known and most revolutionary small molecule drugs around.

How to Undo Unconscious Bias

Three ways to shift your mindset

IF YOU HAVE A BRAIN, YOU HAVE A BIAS.

Candy Khan, '96 BA, '08 MEd, '21 EdD, has built a career out of guiding people to uncover and overcome unconscious or implicit bias: stereotypes or assumptions that people form without being aware of them. As an instructor in diversity and inclusion, she helps post-secondaries, governments and businesses reduce discrimination based on implicit biases such as gender, race and ability. She says a few tiny shifts in perspective can help make our communities more equitable for all.

1. IDENTIFY YOUR BIASES. It's human to have unconscious biases, says Khan, whose specialty is in adult, community and higher education. "We acquire them through socialization, our upbringing, media and education." The first step in overcoming them is to recognize them for what they are.

To learn about your own gaps in understanding, Khan recommends the Harvard University's Implicit Association Test, which measures your negative or positive associations with traits such as age and weight. You can also seek out an intercultural development inventory, administered by an expert such as Khan, which assesses your ability to accommodate other cultures.

2. EXPAND YOUR HORIZONS. After identifying the specific biases you carry, Khan advocates seeking out experiences



RESEARCHERS AT THE READY

Biochemist Joanne Lemieux is part of a network of scientists at the U of A researching small molecule drugs — in her case, antivirals to fight the COVID-19 pandemic as well as future threats.

“It’s an exciting time for antiviral drug development,” says Lemieux, who was recently appointed executive scientific director for the Prairie Hub — a new federal research centre devoted to pandemic preparedness (see page 6).

She’s working with chemists and virologists to design drugs that inhibit a crucial enzyme of SARS-CoV-2, the virus that causes COVID-19. So far, they’ve synthesized more than 75 promising candidates. They are now selecting the best and honing them for testing, first in animal models and ultimately in humans.

At other U of A labs, microbiologist David Marchant and his team are developing a nasal spray that could be used to fight respiratory syncytial virus (RSV) which, along with COVID-19 and the flu, rounded out what some called Canada’s 2022 “tripledemic.” Meanwhile, neurologist Jack Jhamandas, working with the Li Ka Shing Applied Virology Institute (LKSAVI), has identified a small molecule drug that shows promise in the treatment and prevention of Alzheimer’s disease.

A HISTORY OF SUCCESS

U of A researchers have a solid track record of developing small molecule drugs that are saving the lives of people affected by viral diseases.

Lamivudine was first synthesized by a McGill University scientist in the 1980s to treat HIV/AIDS, but it was **D. Lorne Tyrrell**, ’64 BSc, ’68 MD, founding director of the Li Ka Shing Institute of Virology and

90

The percentage of existing everyday medications made from small molecule drugs

GSK Chair in Virology, who demonstrated that it is also effective against viral hepatitis B.

Voclosporin is based on a drug molecule discovered and developed by **Robert Foster**, ’79 BSc, ’82 BSc(Pharm), ’85 PharmD, ’88 PhD, a 2022 U of A Distinguished Alumni Award recipient, and his team (see page 46). The drug received FDA approval in 2021 as the first oral treatment for lupus nephritis, an autoimmune condition.

And it was the U of A virology lab of Matthias Götze that first demonstrated the ability of remdesivir — a drug originally developed against Ebola — to target the SARS-CoV-2 replication machinery.

LAYING THE FOUNDATION FOR A HOMEGROWN INDUSTRY

The LKSAVI was established in 2013 with a view to ensuring more of these homegrown discoveries could be tested and commercialized within Canada. Under the direction of Michael Houghton, co-winner of the 2020 Nobel Prize in Physiology or Medicine, the LKSAVI is building partnerships with businesses, governments and other research institutions to carry vaccine and drug development through testing, manufacturing and distribution to patients — literally from lab bench to bedside, here in Alberta (see page 6).

The goal is to bring the numerous research projects underway to pharmacy shelves — providing new vaccines for hepatitis C and group A streptococcus and medicines for COVID-19, herpes viruses, cancer, Alzheimer’s disease and others.

Houghton notes: “It will help Canada be better prepared for future and current pandemics, as well as help to develop drugs and vaccines against common major diseases for which we have no preventatives or treatments currently available.” —GILLIAN RUTHERFORD

that gradually expand and challenge your point of view. This could mean attending a cultural festival or reading books by someone from a different background. Engaging with these perspectives helps replace assumptions you’ve made with facts.

3. USE TACT WHEN TALKING ABOUT BIAS.

Once you’ve uncovered some of your own biases, you may be tempted to point them out in others. Khan says that can be constructive, but it’s important to emphasize the benefits of overcoming unconscious stereotypes rather than suggesting someone is biased.

“The way I approach it is to ask people: ‘Who is at the table? Who are we missing?’” she says. “Chances are you’ve skipped some valuable perspectives. There’s your unconscious bias.”

—LEWIS KELLY AND **KATE BLACK**, ’16 BA

A PINCH OF PROFANITY HELPS SWAY SHOPPERS

Well, gosh darn it. You might be surprised to learn that a dishwasher described in an online review as “damn quiet” is perceived as more desirable than one without the expletive. Readers tend to infer that the dishwasher is extra quiet and that the reviewer feels strongly about the assessment, rendering it more persuasive, explains marketing researcher **Katie Lafreniere**, ’19 PhD. Along with professors Sarah Moore and Robert Fisher, Lafreniere analyzed perceptions of reviews collected from Amazon and Yelp. Their study, published in the *Journal of Marketing Research*, found that reviews with limited and selective use of profanity improved consumer’s attitudes toward the product and received more “helpful” votes than those without. —GEOFF McMASTER



Pictured Actual Size!

Good things come in small packages, especially when you're talking about some of the tiniest research and artifacts on campus. From nanofibres designed to ward off biohazards to a book the size of a postage stamp, the U of A is full of wonders that answer ancient questions and inspire curiosity. Bust out your rulers, because you're seeing them in actual size. —MADISEN GEE, '21 BA, '21 CERT(CSL)



POCKET-SIZED PREHISTORY

The U of A is home to more than 15,000 trilobite fossils, some of which are displayed in the Paleontology Museum. Some trilobites, an extinct group of ancient sea dwellers, were less than three centimetres long, including ones tiny enough to fit on the end of a piece of dried spaghetti. Professor emeritus Brian Chatterton and his research group in the Department of Earth and Atmospheric Sciences named more than 150 species of trilobite, giving the tiny creatures a special green-and-gold connection.

PLASTICS UNDER THE MICROSCOPE

Microscopic plastic particles are everywhere in our environment, but we don't fully understand their impact. Jeffrey Farnier, an assistant professor of civil and environmental engineering, is investigating. By introducing micro- and nanoplastics into simulated ecosystems, Farnier and his team hope to better understand how plastics break down, travel and interact in the real world.

Lab-prepared plastics, including some less than 1,000 nanometres wide, magnified 5,000 times.



SKELETON KEY

The skeleton of a baby *Chasmosaurus belli* discovered by paleontology professor Philip Currie is the most complete fossil of its kind. The 40-centimetre-tall dinosaur, thought to be about three years old when it died, has been crucial to understanding developmental changes in the species, including growth patterns between hatchling and adult dinosaurs.



(PLASTIC BAG) JAROSLAV SIROKY/EYEEM/GETTY IMAGES; (MICROPLASTICS) U OF A BIOLOGICAL SCIENCES ADVANCED MICROSCOPY FACILITY; (TRILOBITES, DINOSAUR SKELETON, BOOK AND BOOK CASE) JOHN ULAN; (MILITARY JACKET) LIAM MOGAN; (NANOFIBRE INSET) ELHAM KAVIANNASAB; (NEEDLE CASE) CARVED BAMBOO NEEDLE CASE MACTAGGART ART COLLECTION (2005.5.631) UNIVERSITY OF ALBERTA MUSEUMS



Fibres around 430 nanometres wide magnified 10,000 times.

A THIN LINE OF DEFENCE

Patricia Dolez and her lab in the Faculty of Agricultural, Life & Environmental Sciences are developing self-decontaminating nanofibres as part of a multi-university research project. The nanofibres have the potential to help protect Canadian soldiers against chemical and biological hazards. Nanoscopic fibres are spun into a wearable — and comfortable — layer that may be incorporated into protective equipment to provide a higher level of filtration to prevent harmful materials from reaching the body.

A GLIMPSE OF QING HISTORY

A 19th-century carved bamboo needle case, donated by **Sandy Mactaggart**, '90 LLD (Honorary), and **Cécile Mactaggart**, '06 LLD (Honorary), depicts scenes from two solar terms in the summer on the Chinese lunar calendar, which marks important seasonal and natural events. Measuring a little over 11 centimetres long, the ornate case shows figures listening to music, walking through a garden and praying for ancestors.



LIGHT READING

Antiquarian bookseller **Hugh Anson-Cartwright**, '10 LLD (Honorary), donated this 1817 French almanac to Bruce Peel Special Collections in honour of his friend **Jeannine Green**, '77 BA(Spec), '80 MLIS, when she retired as the head of special collections. The roughly 26-by-17-millimetre book contains songs, eight full-page engraved illustrations and a liturgical calendar listing saints' days and other feasts. The miniature case (left) was created by alumnus and bookbinder **Alexander McGuckin**, '93 BA, '95 MA.





Cheep Housing

TINY CONDOS LIKE THIS ONE ON Augustana Campus dot the surrounding community of Camrose, Alta., thanks in part to environmental science professor **Glen Hvenegaard**, '87 BSc(Forest), '89 MSc. The 85 nest boxes are designed for purple martins, North America's largest swallow, which are dependent on humans for housing and aspects of care. As a founder of the Camrose Wildlife Stewardship Society, Hvenegaard has lectured on the birds and helped increase the number of "landlords" (people who host them) to nearly 40. —MIFI PURVIS, '93 BA

Teeney Words Expose Societal Changes

MAYBE YOU LEARNED THE DIFFERENCE BETWEEN the masculine *le* and feminine *la* by memorizing strange images: *le fromage* with a moustache and *la pizza* in a pink dress.

But society's understanding of gender beyond binaries has put French's tiny words in the hot seat, says Anne-José Villeneuve, an associate professor of French linguistics at Campus Saint-Jean.

Cheese, of course, is not the essence of manliness. *Le* and *la* don't indicate the boyishness or girlishness of inanimate objects — they're remnants of Latin, in which nouns were classified as masculine or feminine according to their endings. Sometimes this had to do with the gender of the person associated with the word, but it wasn't meant to imply that inert objects had masculine or feminine qualities. (The words for types of trees are feminine, while words for winds are masculine.)

Origins aside, this approach affects how people describe and perceive each other today. Until 2019, a female doctor in France was typically referred to as *le docteur*, though she was already *la docteure* in Québec. When an online dictionary included *iel* — a new gender-neutral alternative to the pronouns *il* and *elle* — critics exploded, accusing dictionary staff of eroding lexical integrity for political correctness.

"It's a little bit ironic," Villeneuve says, noting that Latin had a neutral (or "neuter") third gender.

The debate is contentious enough to hamper the adoption of widespread alternatives for *le* or *la*, Villeneuve says. But in her classrooms at the U of A, students come up with their own solutions, such as swapping out one gendered word (*le lycéen*) for a similar one that begins with a vowel (*l'élève*).

"We don't need to wait for language institutions to tell us what to do," she says. "We're already innovating in our interactions."

—KATE BLACK, '16 BA



De tout petits mots révèlent le changement sociétal

PEUT-ÊTRE AVEZ-VOUS APPRIS LA DIFFÉRENCE entre le « le » masculin et le « la » féminin en mémorisant des images bizarres: « le fromage » portant la moustache et « la pizza » habillée d'une robe rose.

Cependant, ce que la société comprend sur le genre au-delà de la binarité a mis les tout petits mots français sur la sellette, affirme Anne-José Villeneuve, professeure agrégée en linguistique française au Campus Saint-Jean.

Évidemment, un fromage n'est pas l'essence de la virilité. « Le » et « la » n'indiquent pas que la masculinité ou la féminité des objets inanimés — les articles sont des vestiges du latin, par lesquels les noms étaient classés comme masculin ou féminin selon leurs terminaisons. Parfois, le genre de la personne associée au mot déterminait son genre mais ce n'était pas pour laisser entendre qu'un objet inanimé possédait des qualités masculines ou féminines. (Les termes utilisés pour nommer les types d'arbres sont féminins tandis que ceux pour les vents sont masculins.)

À part les origines, le monde d'aujourd'hui est influencé par cette approche dans sa description et sa perception des autres. Jusqu'en 2019 en France, il était typique de nommer une femme médecin « le docteur », tandis qu'elle était déjà « la docteure » au Québec. Quand un dictionnaire en ligne a inclus « iel » — l'alternative neutre aux pronoms « il » et « elle » — les critiques ont éclaté, accusant les lexicographes d'éroder l'intégrité lexicale au bénéfice du politiquement correct.

« C'est un peu ironique, » précise Anne-José Villeneuve, notant que le latin avait un troisième genre neutre.

Le débat est suffisamment contentieux pour ralentir l'utilisation généralisée d'options alternatives pour « le » ou « la » indique Anne-José Villeneuve. Par contre, en classe à l'Université de l'Alberta, les personnes qui suivent ses cours trouvent leurs propres solutions, comme remplacer un mot genré (le lycéen) par un terme similaire commençant par une voyelle (l'élève).

« Pas besoin d'attendre que les institutions linguistiques nous dictent quoi faire, » dit-elle. « On fait déjà preuve de créativité dans nos interactions entre nous. »

—KATE BLACK, '16 BA; TRADUCTION FRANÇAISE PAR CÉCILE MAGNAN

Storytelling Through Beads

TARA KAPPO, '15 BA(NativeStu), '15 Cert(IndigGov/Ptnshp), '21 MA(NativeStu), was working on her master's thesis when the university commissioned her to create a beaded U of A crest.

Kappo, who is Woodland Cree from Sturgeon Lake Cree Nation in Treaty 8 territory, used the crest as a jumping off point to explore what beadwork does and is, and how it's connected to practices of Indigenous law and governance, especially *nîhiyaw*, meaning Cree. She titled the piece *kiskinohawmatok*, learning together through sharing.

■ "In approaching beadwork through *nîhiyaw pimâtisowin*, the Cree way of life, beads are understood as animate, other-

than-human beings with whom beadwork artists have relationships of co-creation," Kappo explains in her thesis.

■ Kappo wanted to focus on things that people in Alberta living under treaty have in common, starting with the land, which is part of the U of A crest in the form of the river, prairies and mountains.

■ She chose the wild rose because it's common in Cree and Métis beadwork and is Alberta's provincial flower. The other plants are wild strawberry flowers, blueberries and sweetgrass, all of which are medicines and represent Indigenous knowledge. They are considered other-than-human relatives.

■ The velvet backing is significant for Kappo because it's a common Métis beading fabric and both her adoptive and paternal grandmothers were Métis. —CHELSEA NOVAK, '07 BA



Research Targets Pesky Pests and Other Threats

WHEN IT COMES TO AGRICULTURE, TINY THINGS CAN CREATE HAVOC: insects, bacteria, a few degrees of temperature change. Fortunately, tiny things can also be the source of solutions. Here are some of the ways researchers in the Faculty of Agricultural, Life & Environmental Sciences and others are solving problems that could threaten our food supply and our climate. —THERESE KEHLER

PROBLEM: Canola-killing parasite

SOLUTION: Plant DNA

Clubroot is a nasty, soil-borne disease that attacks the roots of a canola plant. Even nastier, the parasite that causes it — first identified in Alberta in 2003 — has mutated into 36 known strains, many of which aren't stopped by the clubroot-resistant seed used since 2010. Plant pathologist **Stephen Strelkov**, '93 BSc, is digging through plant DNA to find new sources of pathogen resistance that can be bred into canola seeds. "We're confident we are going to find some good solutions."

PROBLEM: Bugs

SOLUTION: Bug brigade

In this bug-eat-bug world, researchers wonder if there's a bigger role for natural pest control in farm fields. Entomologist **Boyd Mori**, '07 BSc(Spec), '09 BSc(Spec), '14 PhD, and a team of grad students are looking at the ground beetle as one

possible ally. "We can dissect the gut and use next-generation DNA sequencing to figure out what the insect has been eating," Mori explains. "We're hoping to find that they are feeding on our pest species. That tells us which are the most important species to work on conserving." The hope is a bug brigade of natural crop protectors could help farmers reduce the use of chemical pesticides.

PROBLEM: Underdeveloped gut bacteria

SOLUTION: Probiotics for calves

Newborn dairy calves' undeveloped immune systems leave them susceptible to common ailments like diarrhea that can stunt growth, reduce productivity and increase costs for producers. But a study by student researcher Maddison Degenshein found that calves fed a probiotic with four gut bacteria from healthy cows were healthier in the crucial first weeks of life. The research

also helped determine that calves are most vulnerable to illness in the first six to nine weeks of life.

PROBLEM: Greenhouse gases

SOLUTION: Carbon storage

Prairie ranchland has a value beyond grazing cattle: it stores carbon. Maintaining grasslands "helps keep carbon in the ground and not in the atmosphere," says grasslands ecology researcher Cameron Carlyle. He's co-leading a project to map out carbon storage values of about eight million hectares of perennial prairie grassland across Saskatchewan. The map will be available to producers across the Prairie provinces to help manage their fields, and the resulting database will support further research.

PROBLEM: Hog diseases

SOLUTION: Animal genomics

Sickly swine pose a double-headed



challenge: a financial cost and a loss of public trust around animal safety and antibiotic use. An eight-year Genome Alberta project has pinpointed key traits of healthy hogs and is working toward incorporating those into breeding programs. Michael Dyck, a U of A expert in reproductive technologies, explains: “Producers will know that the pigs they market come from an optimal health environment — and that knowledge can be passed along to consumers.”

PROBLEM: Wheat midges

SOLUTION: Plant genomics and metabolomics

The tiny wheat midge causes about \$60 million in damage a year in Western Canada. There’s concern the orange flies will become resistant to the sole existing defence. But the female midges have a quirk: they won’t lay eggs in wheat that

has a bad smell. So researchers in the Faculty of Science and ALES are sniffing out ways to create a strain that will repel the midges. Says chemistry researcher James Harynuk: “This is the sort of thing that could be a really big game-changer for the wheat industry.”

PROBLEM: Data and more data

SOLUTION: Artificial intelligence

An “armchair rancher” app that uses machine learning promises to make farming and ranching more efficient, economical and sustainable. The joint project of agriculture and science researchers will leverage data such as historic weather patterns, market projections, herd genetics and economics. “As business owners, their profit depends on decisions,” says science researcher **David Wishart**, ’83 BSc(Hons). “We want to give them a digital assistant that helps them make smart moves.”

READING BY THE NUMBERS

30 minutes ×

4 times a week ×

5 months =

80% of students reading at grade level

—RESULTS OF A 2021-22 STUDY LED BY EDUCATION PROFESSOR **GEORGE GEORGIU**, ’04 MED, ’08 PHD, THAT TRAINED ALBERTA TEACHERS IN EARLY INTERVENTION TECHNIQUES FOR STRUGGLING READERS IN GRADES 2 AND 3

The Devil in the Details

ANYONE FAMILIAR WITH THE grammar tips bestseller *Eats, Shoots & Leaves* knows a wee comma can turn a panda bear innocently eating a veggie meal into a murderer fleeing a crime scene. But in legal matters such as contracts, can misplaced punctuation or a tiny typo derail the whole deal?

“Not generally,” says U of A law professor David Percy, who co-edited *Contracts: Cases and Commentaries*, used at law schools across Canada. “The court tries to take a practical, common-sense approach to the interpretation. The test is, how would a reasonable person interpret the words that the parties used?”

Yet minuscule details can be key. In December 2019, the U.K. firm Cineworld agreed to buy Cineplex Inc. Weeks later, COVID-19 arrived. Cineworld walked away from the deal based on a clause that said an event or occurrence having material adverse effects on Cineplex’s business allowed the buyer to escape. Alas, the clause also said adverse effects did not include *outbreaks of illness*. Cineworld was found liable for \$1.24 billion.

“I tell my students, ‘You will become expert proofreaders.’ You have to read every line critically.”

—HELEN METELLA



THE POWER OF LITTLE WORDS

Keith King, '04 BScN, an assistant professor in the Faculty of Nursing, teaches health-care professionals how important it is to mental health to use the correct pronouns of 2SLGBTQ+ youth. King offers their own pronouns (he/they) when meeting new patients. This has prompted some young people to discuss their gender during medical checks, giving King the opportunity to refer them to medical and mental health supports if needed. Some have reported that it "literally saved their lives."

—GILLIAN RUTHERFORD



Listen to Your Gut

Mini microbes in your digestive tract play a leading role in health

FOR EVERY HUMAN CELL IN YOUR BODY THERE are just as many, if not more, cells of bacteria. The ones living in your gut make up the microbiome—and they can affect everything from immunity to behaviour.

THERAPEUTIC POTENTIAL Ben Willing and his team in the Department of Agricultural, Food & Nutritional Science are investigating the therapeutic potential of *Parasutterella*

bacteria, part of the human microbiome. The team colonized mice with a microbiota that did not include *Parasutterella* and then added it to see what changed. They discovered the bacteria could play a role in controlling bile acid production.

ALLERGY AVERSION Imbalances in the microbiome could contribute to allergic diseases. Anita Kozyrskyj and her team in the Department of Pediatrics have linked low gut *Bacteroides* — a type of bacteria in the intestine — with childhood peanut allergies. They also found that babies from homes with pets had higher levels of bacteria linked with lower risk of asthma and eczema.

DRUG INTERACTIONS Studies show that gut microbiota can affect the brain in ways that alter behaviour and development. A study by Anna Taylor and her team in the Department of Pharmacology found a difference in the gut microbes of mice that had and hadn't been exposed to morphine. They also found changing the microbiome exacerbated symptoms of opioid withdrawal.

—CHELSEA NOVAK, '07 BA

Nanomaterials and the Environment

When it comes to these particles, think about the big picture

NANOMATERIALS ARE EVERYWHERE.

They're in the air we breathe and the products we put on our skin. These microscopic particles — defined as having at least one dimension that measures less than 100 nanometres — occur naturally in the environment or can be engineered for a particular use.

Nanomaterials can be incredibly useful. Nano-scale titanium dioxide is used in mineral sunscreens to repel ultraviolet rays and as a whitener in foods and toothpaste. Nano drug delivery systems can penetrate tissues and membranes that larger ones can't.

These tiny particles are generally better at getting a job done than a larger particle of the same compound, explains environmental chemist Bernadette Quemerais. Think about the surface area of a stick of butter compared with the surface area that same stick would have if it was cut up into tiny pieces. The smaller chunks will melt significantly

faster and emulsify better with other ingredients. "They're much more efficient in terms of chemical reaction."

But they have a downside, too. "Some particles that we're engineering are not very degradable in the environment," says Quemerais, an associate professor in the Division of Preventive Medicine.

T-shirts with silver nanomaterials will shed fibres in the washing machine; sunscreen washes off in the shower, sending particles down the drain. These nanoparticles can affect animals and plants when they arrive in a river or lake.

The solution, advises Quemerais, is not necessarily to label all nanomaterials as bad but to think about the big picture.

"I wouldn't worry more about nanomaterials than about other chemicals in our cosmetics and food." Think about where a product might end up before you buy it. Where possible, swap for "cleaner" alternatives: choose fresh foods over processed, and workout clothes made with anti-stink merino wool instead of nano silver.

"We have to think in a more global view," she says. "We're part of an ecosystem, and we have to protect that ecosystem as much as we have to protect us." —LISA SZABO, '16 BA

Let the Dogs Out!

"Of course, a dog cannot give testimony in court, so debris from where the dog indicated must be taken back to the laboratory and analyzed."

—ROBIN ABEL, '20 PHD, LEAD AUTHOR OF A 2020 DEPARTMENT OF CHEMISTRY STUDY THAT FOUND TRAINED DOGS CAN DETECT FIRE ACCELERANTS SUCH AS GASOLINE IN QUANTITIES AS SMALL AS ONE-BILLIONTH OF A TEASPOON, PROVIDING POTENTIAL EVIDENCE IN ARSON INVESTIGATIONS



Time Machines

Ice that's tens of thousands of years old helps us study the past and peer into the future

Old ice interests scientists for the same reason we put food in freezers: when things freeze, they don't break down. But we're not talking about T-bone steaks and ice cream — or, for that matter, a woolly mammoth or anything big enough to see with the naked eye.

"There's lots of tiny stuff in ice," says glaciologist Alison Criscitiello, director of the Canadian Ice Core Lab. "As an ice core scientist, I look at different ions like sodium and chloride, as well as other species like isotopes of oxygen," she says. "Those can tell us a lot about the past."

The U of A lab houses about 1.4 kilometres of cylindrical ice cores drilled mostly from the High Arctic in the far northeast corner of Canada near Greenland. The oldest sample dates to roughly 79,000 BC, during the last ice age. Criscitiello's team is creating a searchable database to allow researchers around the world to access the lab's wealth of information.

ASH ME ANYTHING Fingerprinting volcanic ash found within ice cores is a common technique to date ice, meaning to apply a time scale to the different depths in the core sample. "It's almost like DNA sequencing," Criscitiello says, noting that other experts at the U of A do this part of the work by analyzing volcanic tephra, particles ejected from an eruption. "There's an online library of the chemical makeup of the particles from the biggest volcanic eruptions of the past — big enough that they sent ash all around the planet. You can analyze the particles in your core sample and match them to the right volcanic eruption, and thus the correct date." This provides a "tie-point" (a depth of an exact known age) to use as a reference point for the layers in the ice core record.

ITTY-BITTY BUBBLES Ice can capture tiny bubbles of atmospheric gases as the snow compresses to firn — the intermediate stage between snow and glacial ice — and then to ice. Analyzing these gases trapped within the ice is a major branch of ice core science. Gases can tell us about the past makeup of the atmosphere (for example, CO₂ levels) and temperature of our planet, which is crucial to understanding climate.

ICE CAP Criscitiello's specialty is another main branch of ice core science: analyzing the ice itself. It can tell us more about what Earth's climate looked like in the past and why.

"Sea ice is a really important part of the ocean-atmosphere climate system because it acts as a cap on the ocean. It slows or stops ocean-atmosphere exchange regionally, which has a big impact on climate."

She studies chemical species as small as ions and isotopes in ice from recent decades to see how they have changed in relation to "sea ice extent," the area of ice that covers the Arctic Ocean at a given time. By comparing ice core chemistry with satellite data of sea ice extent, she can determine the relationship between the two. Once a relationship is established, those chemical species can be used further back in time — prior to the satellite era — to reconstruct sea ice extent before we have records of it.

DUST IN THE WIND Particles such as pollen and dust captured in ice cores can tell us all sorts of things about the past, including the types of vegetation that were growing and how large-scale wind patterns, driven by global atmospheric circulation, have varied through time. —LEWIS KELLY



Focusing Small for Big Health Benefits

LIKE THE STONE IN YOUR SHOE that causes a blister to break, it's often the little things that are the source of astonishing pain.

Health researchers at the University of Alberta respect the small stuff. Whether they're focused on nanomedicine, tiny and telling clues in speech or on downsizing hospital-grade machines to make them more accessible in more places, they are helping all of us feel better, big-time, by thinking small. —HELEN METELLA

A HOST OF PROBLEMS

Some types of freshwater snails spread parasites that cause schistosomiasis, one of the world's neglected tropical diseases. Medicine can help remove the parasites and relieve symptoms, such as liver enlargement and kidney damage, in the more than 200 million people worldwide who have contracted the disease from infected water. But researcher **Patrick Hanington**, '02 BSc(Spec), '08 PhD, in the School of Public Health is targeting the mini misery-makers themselves. He's looking for novel ways to reduce transmission by better understanding the parasite's life cycle and why some snails make better hosts than others.

TINY TRACERS TARGET CANCER CELLS

In collaboration with **Frank Wuest** in the Department of Oncology, pharmacy researcher **Afsaneh Lavasanifar**, '01 PhD, is using radiotracers on nanoparticles carrying radiotherapy and/or radiosensitizer drugs to deliver more targeted therapy to cancerous cells. When a high quantity of drugs accumulates at a tumour site, a radiologist can apply radiation there, enhancing the drugs' effectiveness.

GENTLE JOLTS TO IMPROVE FOCUS

Researchers in rehab medicine are using mini doses of electrical current to stimulate the brain to improve memory, focus and cognition.

Transcranial direct current stimulation delivers a low-intensity current via electrodes on the head, increasing blood flow much like electrical nerve stimulation in physiotherapy.

Pilots, athletes and people living with dementia are among those who could benefit from the still-experimental treatment.

SPEECH CLUES FOR PTSD

Researchers in psychiatry and computing science have been able to identify people with post-traumatic stress disorder with 80 per cent accuracy by training a computer to analyze small clues in text data from interviews. The machine-learning model that they developed detects and categorizes negative messages and how often they pop up. It could eventually serve as an inexpensive screening tool to support health care professionals in diagnosing PTSD and other mental health disorders.

PREDICTIVE GENES

Finding the right antidepressant drug and dosage takes tedious trial and error. A pilot study at the U of A's Neuroscience and Mental Health Institute used pharmacogenomics instead. By testing a patient's unique genetic makeup, researchers can see variations in four relevant genes and predict how that person's body might respond. That could get patients the right treatment faster with fewer side effects.

MINUTE DEGREES OF BACK STIFFNESS

Lower back pain is the leading cause of disability worldwide, yet there are few ways to measure how the lower back functions. Greg Kawchuk in the Rehabilitation Robotics Lab in the Faculty of Rehabilitation Medicine developed a tool that gently presses into the lower back to measure tiny changes in stiffness in muscles, ligaments and joints around the spine. Having a reliable and objective way to measure spinal stiffness could help determine the cause of lower back disability and assess how well treatments are working.

SMALL SQUEEZES FOR CONTINENCE

About half of Canada's adults report bladder incontinence; for those with dementia or living in long-term care, it can be as high as 80 per cent. Gerontological nursing researcher Kathleen Hunter, '82 BScN, '92 MNurs, '06 PhD, teaches adults of all ages pelvic floor exercises such as kegels — tiny squeezes that strengthen the pelvic floor — as well as other techniques to support continence.

PRE-EMPTIVE STRIKES AGAINST CANCER

Chemical and materials engineer Hasan Uludag is zapping the defective molecules that lead to blood cancers, such as leukemia, before they can unleash havoc. Instead of targeting the cancerous proteins emitted by defective mRNA, as conventional anti-cancer drugs do, Uludag hits the mRNA with RNA-loaded nanoparticles. Since the mRNA's structure is predictable while that of cancerous proteins is not, his method could have better odds of eliminating defective molecules and fighting the diseases.

ULTRASOUND THAT'S ULTRA PORTABLE

A portable ultrasound system developed by radiologist Jacob Jaremko has the potential to give communities in rural and remote locations better access to medical diagnoses. The small hand-held device can screen for infant hip dysplasia, thyroid cancer and fractures. Images are uploaded via tablet and an artificial intelligence app compares them with thousands of other results to spot abnormalities.

BANDAGES THAT MAKE SENSE

Diabetes causes nerve damage, known as polyneuropathy, and people living with the disease can develop complications from a foot wound without noticing it. If a foot ulcer goes untreated, amputation may be the only alternative. Researchers in nursing, engineering and neurology hope to prevent this by designing tiny sensors embedded in bandages to monitor wounds. The 3D printed sensors will be as thin as 200 nanometres, or about 1/35th the width of a human hair.

What's Small and Cold and Filled With Promise?

Scientists are harnessing quantum mechanics to create computing power beyond anything we've ever known

We use computers in just about every facet of our lives. Most of us carry tiny computers around in our pockets and, with a simple tap, can pay for our groceries, access locked buildings or send a message to the other side of the world.

Then there are the uses that have become central to our economies and societies, not to mention our personal lives — in some cases literally. Medical technology, banking, rail systems, traffic control, supply chains. The list goes on. Our demands are becoming increasingly complex and multi-faceted.

The solution is simple. We need to go quantum.

Quantum computing, that is. Which is not, in fact, simple at all.

"It's not just that quantum computing is faster. It's actually different," says **Lindsay LeBlanc**, '03 BSc(EngPhys), Canada Research Chair in Ultracold Gases for Quantum Simulation. (Stay tuned for more about ultracold later.)

Scientists see this yet-to-be-realized technology as the key to cracking many as yet intractable problems as well as a possible solution to the world's insatiable need for computing power. Researchers like LeBlanc and others at the U of A are among those striving to make the technology viable.

"The world's computers are grinding away and using a huge amount of energy," says Robert Wolkow, a U of A expert in nanoscale information and communications technology. "It's totally unsustainable. We need more efficient computers."

So what is quantum computing?

THE 'BIT' OF DIFFERENCE

One of the key differences between quantum and regular computers is the way they store information. Regular computing uses binary digits, a.k.a. bits, where each bit can store one piece of information: it's either a zero or a one. Quantum computing uses quantum bits, called qubits [kyoo-bits]. Thanks to a quantum property called superposition, qubits level

QUANTUM TECHNOLOGY

In addition to quantum computing, two other quantum technologies are at the forefront of research.

Quantum sensing measures physical quantities such as electric and magnetic fields, chemical processes and temperature with tremendous accuracy and precision. It promises to give us new insight into what's in our bodies, in the ground and all around us.

Quantum communication makes many of today's high-tech options seem like relics, providing greater degrees of security than we've ever imagined. Innovations in this sphere could help keep our data safe in everything from health care to banking.

up the standard binary code. Rather than being either zero or one, they can be both at the same time.

"There are two pieces of information carried with that one physical object," explains LeBlanc. "That's really at the heart of why it's so much more powerful."

THE PROBLEMS IT SOLVES

Quantum computers are expected to be lean, mean problem-solving machines. Their unique properties mean they could tackle questions and calculations that regular computers would find prohibitively challenging. This is because the property of superposition (the same one that allows each qubit to store more information) gives quantum computers the ability to analyze many things at the same time.

They are expected to excel at two key types of problems, LeBlanc explains.

The first has to do with optimization, where a computer program tries to figure out the best path to do something when there are many options. The world presents countless real-world optimization problems: planning the most efficient route for a delivery person with multiple packages and stops, for example, or helping health researchers find the one chemical or molecule they need amid a sea of options.

Quantum computers are also expected to outdo today's computers when it comes to security. This is because of an intriguing quantum property called the no-cloning theorem. With information stored in qubits, explains LeBlanc, "you can't look at it and make a direct copy of the information without destroying it." This means that the user will know immediately if a quantum computer is hacked and be able to avoid the loss of sensitive data.

RUNNING ON ATOMS

So how do you make a quantum computer? The components aren't whipped up in the machine shop or factory. It takes atoms to make them run. And atoms need to be contained in order to work with them.

Engineering professor Ray Decorby works on what's called "cavity quantum electrodynamics," which involves taking fundamental particles such as atoms and confining them in tiny containers.

"Once confined, we can make them interact in a way that can be controlled at the quantum level and can be useful for performing quantum functions," says Decorby.

Working at the quantum level also requires cooling the atoms to incredibly cold temperatures, around -273 degrees Celsius. This minimizes the chances of qubits moving from one energy state to another in an unpredictable way. At warmer temperatures, LeBlanc explains, "you don't have that control over setting your qubit. It gets scrambled up because it vibrates more as the temperature increases."



When atoms are ultracold, their movement slows down. As a result, they begin to act together, with their behaviour governed by quantum mechanics. "They're a very nice test bed for quantum technology," says LeBlanc, whose area of expertise is ultracold research.

ON THE HORIZON

LeBlanc estimates that the widespread use of quantum computers could come within a decade. They'll likely be housed in large research facilities at universities and corporations — much like the days when regular computers were mammoth machines that took up entire rooms. They're most likely to be accessible to the rest of us, at least initially, as a remote cloud service.

Already, the research race is on to create systems with more and more qubits. As little as two years ago it was common to see 50-qubit prototypes, says LeBlanc. That has since increased to 100-qubit systems. The more qubits a system has, the more problems and greater complexity it can handle.

Alberta Innovates, the provincial government's research and innovation agency, recently funded LeBlanc's lab to construct a small-scale quantum computer prototype with modules of about 100 qubits each.

A lot of research has to take place before quantum computers become an everyday fact in our lives, LeBlanc says, but the fact that the technology is moving from the lab to the real world is already a big win in her eyes.

"It's a fundamental principle of our universe, that it is quantum and it works this way," says LeBlanc. "If we can actually harness that, it's a really powerful thing." —ADRIANNA MACPHERSON



If we can harness [quantum], it's a really powerful thing.

—PHYSICIST
LINDSAY LEBLANC

Quantum Industry Scales Up

ALBERTA IS ALREADY A STRONG PLAYER in quantum technologies, and a recent \$23-million provincial investment promises to accelerate the progress made over the past two decades.

The U of A has partnered with the universities of Calgary and Lethbridge to create Quantum City, a collaboration hub that will allow researchers, companies and other organizations involved in quantum technology to draw on one another's expertise. The hub will include education and training, internships and research funding.

Researchers and professors at the U of A are also involved in training tomorrow's quantum experts through Quanta Create. The provincial program for graduate students prepares them for jobs in these emerging technologies by providing additional education in project management and business skills.

New businesses and jobs are another product of growing U of A expertise. Examples include Quantum Silicon Inc., founded by physics professor Robert Wolkow, which is manufacturing the first portable quantum random number generator, enabling widespread quantum-enhanced cybersecurity. Zero Point Cryogenics, founded by physics professor John Davis, makes a type of refrigerator that uses liquid helium to cool particles down to the temperatures needed for quantum computing.

—ADRIANNA MACPHERSON

Super(hero)sized

Could Ant Man ever be real?

OK, WE'VE COVERED THE SERIOUS STUFF.

Now let's get to the big question.

Will humanity's quest for ever smaller objects eventually let us shrink things to the "quantum realm," à la Marvel superhero Ant Man? (If you're a fan, you might want to stop reading here.)

We asked U of A physics expert Roger Moore who, despite his expertise and international reputation, is not above answering a silly question.

"No, unfortunately physics does not work like that!"

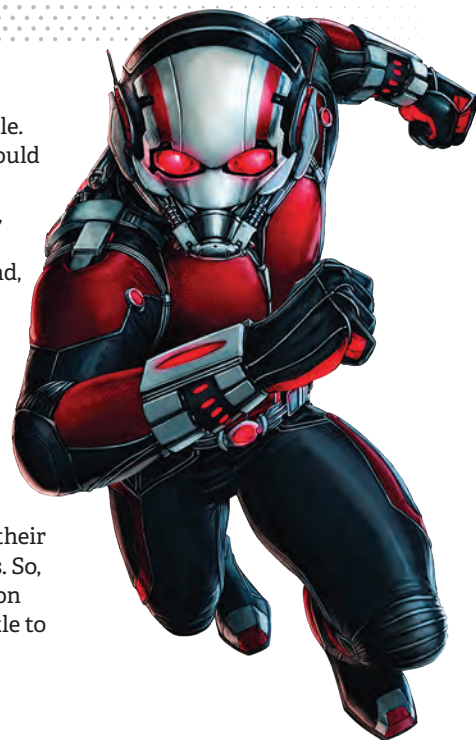
He can explain why in immense — or is that minute? — detail. Essentially it comes down to the fundamental laws of physics at

the human scale, which are completely different from those at the quantum scale. Shrinking a human body, Moore says, would require finding a way to break these essentially unbreakable rules of physics, including the consistent speed of light.

"These are fundamental constants and, as far as we know, cannot be altered."

Even the structure of space and time could be different at the quantum scale, he says. "If you reach this point then all bets are off, since we have literally no idea what, if any, that structure is."

"This is one of the issues with films like *Ant Man* or the earlier *Fantastic Voyage*: you cannot shrink atoms, since their size is governed by fundamental physics. So, while it may make for a fun science fiction story, it's almost entirely fiction, with little to no science." —KAREN SHERLOCK



(ANT MAN) ALBUM / ALAMY STOCK PHOTO; (LEBLANC) JOHN ULAN



**A Corner Gas star
who helped advance
Indigenous voices.
A grad who makes
sure doctors have
the latest research
at their fingertips.
An entrepreneur
who left academia
to found a company
that develops
life-changing drugs.**

ALUMNI AWARDS

**Meet some
incredible people
who have given
their time, energy
and expertise
to make their
communities
better, near
and far.**

By Therese Kehler

Illustrations by
Robert Carter



Lorne Grant Cardinal

'93 BFA

Actor, director and producer

For being an Indigenous advocate and role model throughout his acting career

TO HEAR LORNE CARDINAL TELL IT, he didn't know how to walk, talk, read or even breathe like an actor before he started the U of A's fine arts program.

The Cree actor from the Sucker Creek First Nation in Alberta had been on stage often enough at that point to know he had found his calling — but not enough to know what he didn't know.

At the time, he was rehearsing for "his first paid gig," a play by poet, writer and eventual filmmaker Alison McAlpine that involved lots of "clown work and mask work and body work." He assumed a bachelor of fine arts would give him more exposure to avant-garde performance styles.

"And when I got there it was like, 'Nope. We don't do that kind of theatre,'" he recalls. "We do classical theatre training. ... You have to learn how to walk first."

Four years later, as the program's first Indigenous graduate, Cardinal had developed those skills along with a special talent for finding the truth in the roles he plays. His authenticity is a big part in his success in more than 100 stage and screen roles over the last four decades. In addition to his portrayal of the lovable Davis Quinton on *Corner Gas*, he (or his voice) has been in the TV series *Molly of Denali* and *FBI: Most Wanted*. His theatre performances have included an all-Indigenous production of *King Lear* at Ottawa's National Arts Centre and the Edmonton staging of *The Tempest* performed by a mix of deaf and hearing actors.

"I start with the script and I start reading, working my way through it. And then I pore over every description, everything the writer says, everything the characters say," Cardinal says.

"I don't think I'd be doing half the stuff if it wasn't for the BFA training. It was the best tool box I could ever ask for."

HARD LESSONS

Cardinal's relationship with formal education wasn't always so positive. His earliest memories involve nuns at the day school in Fort Vermilion, Alta., who tied his thumb to a belt loop to stop him from writing with his left hand. His dad, a residential school survivor who raised Cardinal and his brother, sent the boys to schools where they were the only Indigenous kids. "It led to a lot of fights and racist experiences at a young age," Cardinal says. "But [Dad] knew that if we were going to live in this system, we had to learn how that system works."

ACTING AS AN INDIGENOUS PERSON

Today, Cardinal has drawn a firm line against roles that are blatant attempts to add more diverse faces to the scenery. "If it's a stereotype of a Native person, if it doesn't drive the scene, if the character doesn't have an important role in the story it's telling, I'm not interested," he says.

To have Lorne Cardinal on your drama team is to have a star player who makes everyone else better by his constant efforts to crack a scene, to find the humour and the pathos, and to reveal the human heart (for good or bad).

Bradley Moss,
'95 MFA, artistic and executive director,
Theatre Network

Just for laughs

A shy youngster, Cardinal became the class clown, stealing jokes from comedy records to make friends and fit in.

Stage fright

Cardinal joined the backstage crew in high school rather than audition for a part. "I was close to the action but I didn't have to go out there and speak."

BFA beginnings

Jean-Pierre Fournier, '73 BFA, '98 MFA, a U of A stage combat instructor, remembers Cardinal well. "He worked like a fiend and produced, and he did so with generosity, commitment, humility and responsibility to his work and classmates. It did not do any harm that he was charming, well-built and a dashing young man with a marvellous sense of humour."

Role reversal

Cardinal's role as Davis Quinton on *Corner Gas* was originally written as a serious supervisor to police rookie Karen Pelly. "Somehow we flipped that, where I was the flighty sergeant-in-charge and she was a down-to-earth, grounded rookie. And it just seemed to work that way."

Sun Dancer

In honour of his father, Don, Cardinal went through an arduous four-year commitment to learn the sacred Sun Dance ceremony, earning the title of Sun Dancer.

R. Brian Haynes

'69 BSc, '71 MD

Doctor and health-care researcher

For creating innovative solutions that bridge the gap between physicians and medical research to create better clinical decision-making

"WHAT'S THE EVIDENCE FOR THAT?"

Brian Haynes was the student at medical school constantly seeking proof behind the theories and practices being taught in class.

Instructors at the U of A were fairly diplomatic in their responses. Things were less polite at the University of Toronto, where Haynes completed his residency. "Some of them would actually get mad," he says with a laugh.

But what Haynes didn't get was answers. "I knew something wasn't quite right but I didn't know how to fix it," he says.

During his medical internship at Toronto General Hospital in the early '70s, Haynes had a fortuitous meeting with Dave Sackett, widely regarded as the father of evidence-based medicine, who became one of his mentors. Haynes followed Sackett to McMaster University and earned a master's and PhD while developing expertise as a health-care researcher. Then Haynes, now a professor emeritus at McMaster, went on to create sophisticated digital systems that put medical research at the fingertips of physicians around the world.

INFORMATION AVALANCHE

Not every clinical trial is a good one, but how to tell them apart? Sackett and Haynes began teaching doctors how to critically appraise medical literature, a program that was a good first step — but not a solution. "Even if we taught everybody how to appraise evidence when it's published, they wouldn't have time to do it," he says. That's why, in 1987, he founded McMaster's Health Information Research Unit and, within it, a "refinery" to assess published information about health.

KNOWLEDGE REFINERY

"About one article in 50 is worthwhile paying attention to," Haynes says. The McMaster Health Knowledge Refinery mines for scientifically sound material in the avalanche of medical literature, a labour-intensive process now aided by artificial intelligence. The resulting "nuggets" are screened by a network of clinician experts and rated based on scientific soundness, medical relevance and innovation. The end product is a newsfeed shared with about 240,000 people as well as publishing services around the world.

FUTURE CHALLENGE

Even getting the best research into the right hands isn't enough, Haynes says. A doctor who sees patients might recall reading about a new treatment, "but they don't know how to spell it. They can't remember the correct doses of it." The future challenge of evidence-based medicine, he says, is figuring out how to speed up the adoption of innovative treatments in the doctor's office.

I believe that Dr. Haynes is a medical hero. He has had a broad and profound impact on patient care, research and training in Canada and internationally.

Sharon Straus,
Toronto doctor and
director of the
U of T knowledge
translation program

An early go-getter

At 13, the sports-loving Calgarian became a door-to-door salesman hawking a tasty treat: the potato-based "Spudnut" doughnuts.

Say uncle

Haynes's decision to give medical school a try was influenced by an uncle who was a doctor and role model. "I didn't think I actually had the right stuff to be a physician," he says. "But I tested it out and it worked out all right."

Student of the '60s

Haynes recalls the decade as a remarkable period when anything seemed possible. "[There was] a sense that youth had a better way to do things than the old people," he says. Plus, "a fair amount of rambunctiousness and craziness."

Start your search engine

Haynes developed Clinical Queries in the late 1990s, search filters that allow doctors to find relevant articles in medical databases. His work even changed how abstracts are written.

Freudian slip

A psychiatrist lecturing about Freud's theories gave a refreshingly honest answer to Haynes's famous "evidence" question. As Haynes recalls, he said: "I was told to give this lecture by the head of the department, who's a Freudian. But I don't think that there's any evidence that these theories are correct."





Robert Thomas Foster

'79 BSc, '82 BSc(Pharm), '85 PharmD, '88 PhD

Scientist, businessman and inventor, CEO and director, Hepion Pharmaceuticals

For ground-breaking work as a scientist-entrepreneur who is creating drug molecules that change lives

ROBERT FOSTER WAS THINKING OF A MUSIC CAREER when fate, in the form of gentle dissuasion from his trumpet teacher, intervened. He drifted into the science faculty, played pool at SUB, suffered through English classes and stumbled into organic chemistry.

"And I just clicked," Foster recalls. "I could visualize what needed to be done to understand molecules."

Fate had struck.

More than 40 years after getting his first degree of four, Foster has matched that understanding of molecules with business acumen (he has been the founder and/or CEO of four companies), a willingness to take risks (he left a tenured U of A position to start his first company in 1993) and sheer tenacity. "It's almost like the pit bull mentality," he says. "I was, in a way, that pit bull."

Foster is among the few Canadian drug inventors to get approval for a drug from the United States Food and Drug Administration and the European Medicines Agency. Since 2021, voclosporin has provided relief to hundreds of thousands of people with lupus nephritis, a severe autoimmune condition.

Earlier this year, Foster got another FDA boost when rencofilstat, a drug developed by his company Hepion Pharmaceuticals, was granted orphan drug status for liver disease. (Orphan drug status covers drugs for rare diseases that might not be profitable to produce without government assistance.) Rencofilstat has also received an FDA fast-track designation for use in another liver disease called non-alcoholic steatohepatitis, also referred to as NASH, which can lead to cirrhosis and liver cancer. About a quarter of the population is believed to have non-alcoholic fatty liver disease, of which about 20 per cent will develop NASH.

Little wonder that Foster is excited. "If we can put a little dent on the clinical course of having NASH ... we can save lives," he says. "It's a big task for a small little company."

Fortunately for that small company, the boss has learned a thing or two since starting his career journey as a scientist, businessman and inventor.

"When you're in this type of business — or maybe any other business — in your mind you've got Plan A, Plan B, Plan C, and I'm not sure you're limited to 26 letters of the alphabet," he says. "You better have a lot of ideas because that's what will hopefully enable you to be successful."

You'd also be wise to surround yourself, as Foster has, with trusted colleagues who push and fight for the business's success.

"It's not a one-man show," says the guy who literally used to blow his own horn. "If you want to win that Stanley Cup — which is like getting a drug developed and approved by the FDA — you need to have a team."

We should all study how he moves through creative discovery to business creation to human application. Simply put, I know few better examples of success on this difficult pathway than Dr. Robert Foster.

Philip Halloran,
director, Alberta
Transplant Applied
Genomics Centre

Parental influences

Foster's mom was a piano player who occasionally performed at the Hotel Macdonald in Edmonton, where Foster grew up. His dad was a businessman with a practical "farm mentality." Foster's eventual combining of science and business came from "things that I picked up by osmosis, growing up in ... a business family."

Best advice

The warning that steered Foster away from music was a blessing. "In my 20s, I had a problem with my esophagus, which really put an end to the trumpet-playing days. Lucky thing I went into science."

DIY guy

Working in his younger days at his father's sawmill in Nordegg, Alta., taught Foster self-sufficiency. "Lying on your back, putting a new clutch in a forklift or skidder, you realize this is the way it is," he says. "You need to fix it because we need to get back to work."

The money talk

"I knew academically that some one to two billion dollars [was needed] to create a drug. But I didn't realize that, if I wanted to do it on my own, the one to two billion fell on my shoulders."

Alumni pride

"I've heard people describe the U of A as Stanford of the North," he says. "Forget about it. It is the U of A."

ALUMNI HONOUR AWARD

Recognizes the significant achievements and contributions of U of A alumni to their professions and/or their communities over a number of years



Jerome Cranston,

'90 BSc, '92 BEd

For being an advocate for racial justice and equity throughout his career as an educator



Soraya Hafez,

'75 BEd, '75 Dip(Ed)

For championing her Muslim heritage while encouraging cultural tolerance and understanding as an educator



Godfrey Walton,

'74 BSc(Hons)

For implementing responsible practices as a mining executive through social, economic and environmental initiatives

ALUMNI HORIZON AWARD

Recognizes the outstanding professional achievements and/or contributions to the community of graduates who are 40 or younger



Omayra Issa,

'14 BA

For sparking conversation and storytelling around inclusion and diversity as a Canadian journalist



Apooyak'ii/Tiffany D. Prete,

'09 BEd, '11 MEd, '18 PhD

For improving Indigenous education and exploring the impact of colonization as a Blackfoot scholar and speaker



Gentry Wood,

'12 BSc(MatEng), '17 PhD

For being a leader, mentor and innovator in the manufacturing sector as a senior research and development engineer

SPORTS WALL OF FAME

Recognizes the contributions of alumni as athletes and builders of University of Alberta sport



Pandas Gymnastics,

'87 to '91

For a streak of team golds — four national and four Canada West championships — under head coach Stephanie Bishop



Jackie Rowan (Simon),

'00 BCom, '05 BEd

For being all-time lead scorer in Pandas basketball and a Top 100 player of the century in Canadian women's basketball



Esther Sieben (Medema),

'96 BEd

For outstanding performances as a Pandas track athlete and as a national and international competitor



Anna Wray (Schnell),

'02 BCom

For championing women's rugby at the U of A and at the national level as a player and a coach

Read more about these amazing grads — and watch for the 2023 Alumni Award recipients — at uab.ca/alumniawards.

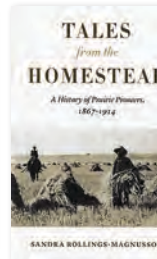
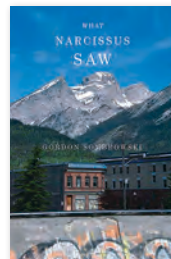
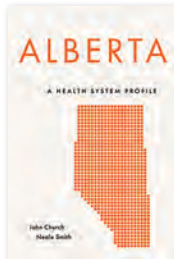
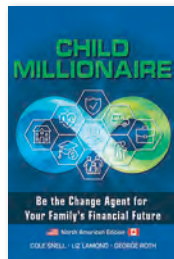
trails

WHERE YOU'VE BEEN AND WHERE YOU'RE GOING



The Symphonic Wind Ensemble, led by Director of Bands Angela Schroeder, plays for the inaugural U of A Days in September 2022. The four-day event, formerly Alumni Weekend, was open to the public for the first time, inviting all to partake in the green and gold festivities.

Books



Here are the latest books by U of A alumni, including history lessons from quilts, a case for the value of video games and an approach to wellbeing rooted in Indigenous ways of healing.

Compiled by **Stephanie Bailey**, '10 BA(Hons), and **Kate Black**, '16 BA

MEMOIR

Life of Lai

by **Carl Mark**, '82 BCom, self-published

Mark recounts stories from the life of his late father, Lai Foo, beginning with Foo's childhood in China through to his immigration to Canada.

AUTOBIOGRAPHY

Crest to Crest: Riding the Boomer Wave

by **William Thorsell**, '66 BA, '71 MA, '95 LLD (Honorary), self-published

The Canadian journalist recounts memories — including 11 years as editor-in-chief at the *Globe and Mail* — from a “life well lived.”

CHILDREN'S LITERATURE

Fiona the Fruit Bat

by **Dan Riskin**, '97 BSc, *Greystone Books*

Young readers join Fiona as she discovers the power of echolocation — and that there's nothing to be afraid of in the dark.

LETTERS

My Darling Wife: Letters From the Green Bag

transcribed by **Marion Diggon Wildin**, '74 BLS, self-published

Wildin presents letters written between her grandparents, Harold and Leila Diggon, while

the former was a British soldier in the First World War.

SOCIOLOGY

Tales From the Homestead: A History of Prairie Pioneers, 1867-1914

by **Sandra Rollings-Magnusson**, '03 PhD, *Heritage House*

Rollings-Magnusson highlights the stories of 36 homesteaders on the Prairies.

HISTORICAL FICTION

The Other Side of Morning

by **Stephen Goss**, '80 BA, '81 BA(SpecCert), self-published

Goss imagines the triumphs and tragedies of John Zephaniah Holwell, a surgeon, magistrate and pivotal figure in 18th-century India-Britain relations.

PHILOSOPHY

Gender Violence: Resistance, Resilience, and Autonomy

by **Sylvia Jane Burrow**, '97 MA, *Rowman & Littlefield*

Burrow reveals how practices such as self-defence training can foster self-confidence and resiliency in the face of gender-based violence.

YOUNG ADULT

Silencing Rebecca

by **Nikki Vogel**, '87 BA, *Thistledown Press*

An Orthodox Jewish teen's world is upended not once, but thrice, as she moves to

Edmonton, discovers the secret behind her mother's death and transforms into a golem.

ESSAYS

Next Time There's a Pandemic

by **Vivek Shraya**, '03 BA, *University of Alberta Press*

Shraya reflects on the dissonances of recent years and proposes a generous and caring path through future struggles.

AGRICULTURE

Low-Rank Coal Applications in Agriculture: Humic Analyses, Products, and Performance

by **L. Edwin Liem**, '94 MSc, '98 PhD, *Wiley*

This textbook explores the potential of low-rank coal — which is low in carbon and rich in organic matter — to improve agricultural productivity.

HISTORY

10 Days That Shaped Modern Canada

by **Aaron Hughes**, '93 BA(Hons), *University of Alberta Press*

From the patriation of the Constitution to the Tragically Hip's farewell concert, Hughes traces 10 notable days from recent history that have shaped the country as we know it.

CULTURAL STUDIES

Expressive Space: Embodying Meaning in Video Game Environments

by **Greg Whistance-Smith**, '19 MA, *De Gruyter Oldenbourg*

Drawing on philosophy, cognitive science and architectural theory, Whistance-Smith looks at how the virtual environments found in 12 different video

games communicate ideas, offer meaningful experiences and deepen our engagement with the physical world.

EDUCATION

Opening the Online Door to Academe: A Practical Guide to Doctoral Study Online and Beyond

by **Dianne Conrad**, '87 Dip(Ed), '91 MEd, '02 PhD, *Brill*

Conrad guides prospective graduate students through best practices in pursuing a doctoral program online and transferring that acumen into academia after graduation.

EDUCATION

The Tactical Teacher: Proven Strategies to Positively Influence Student Learning and Classroom Behavior

by **Dale Ripley**, '72 BED, '74 Dip(Ed), '91 PhD, *Solution Tree Press*

Ripley provides teachers with a plethora of research-based strategies to motivate students.

POLICY

A Sales Tax for Alberta: Why and How

edited by **Robert L. Ascah**, '84 PhD, *Athabasca University Press*

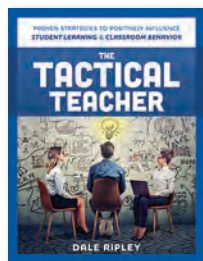
Contributors broach a potential path to Alberta becoming the final province to adopt a sales tax.

YOUNG ADULT

Ghoster Heights

by **Corey Lansdell**, '04 BDes, and **Kelly Mellings**, '00 BFA, *Simon and Schuster*

In this middle-grade graphic novel, eight-year-old Ona navigates trauma, grief and



hope in her baba's haunted apartment complex.

LITERARY STUDIES

Political Affairs of the Heart: Female Travel Writers, the Sentimental Travelogue, and Revolution, 1775-1800
by Linda Van Netten Blimke, '08 MA, '14 PhD,
Bucknell University Press

Van Netten Blimke explores travel writing from women in late 18th-century Britain and its connection to national and gender politics.

PHILOSOPHY

Political Philosophy in Gulliver's Travels: Shocked by the Just Society
by Lloyd W. Robertson, '77 BA(Hons), *Palgrave Macmillan*

Robertson analyzes Jonathan Swift's classic novel from a political philosophy perspective, focusing on the tension between the ideals of a classical republic and modern technology.

TRUE CRIME

The Gorilla Man Strangler Case: Serial Killer Earle Nelson
by Alvin A. J. Esau, '73 BA, '76 LLB, self-published

Esau reconstructs the historic 1920s case of two Winnipeg murders committed by a notorious American serial killer.

GAMES

Constructive Bidding 401 and Constructive Bidding 402
by Stephen Paul, '75 BSc(MechEng), *Master Point Press*

Emphasizing the importance of teamwork and structure,

Paul's two books examine winning strategies for the card game bridge.

EDUCATION

Seniors' Learning in the Digital Age
by Dianne Conrad, '87 Dip(Ed), '91 MEd, '02 PhD,
University of Ottawa Press

Drawing on adult education theory and gerontological studies, Conrad reviews the barriers and opportunities confronting older learners in today's digital society.

FICTION

The Elephant on Karlův Bridge
by Thomas Trofimuk, '87 BA, *Thistledown Press*

Narrated by the 600-year-old Charles Bridge in Prague, the novel illustrates the bizarre and profound events following an elephant's escape from the city's zoo.

PHOTOGRAPHY

Abandoned Alberta II
by Joe Chowaniec, '91 BSc(Spec), '95 BSc(ElecEng), *MacIntyre Purcell Publishing Inc.*

In the second instalment of his *Abandoned Alberta* series, Chowaniec captures the history of the province by photographing abandoned places.

HISTORY

From Denmark to the Cariboo: The Epic Journey of the Lindhard Sisters
by Linda Peterat, '71 BEd, '78 Dip(Ed), '79 MEd, '83 PhD,
Heritage House Publishing

Peterat provides an account of three sisters who left their

home in Denmark due to political turmoil and sought new lives in the Cariboo region of pre-Confederation British Columbia.

EDUCATION

The Future of Sustainability Education at North American Universities
edited by Naomi Krogman with Apryl Bergstrom, '94 BSc, '98 BA(Hons), '14 BSc(EnvSci), '19 MSc,
University of Alberta Press

Authors in this collection advocate for models of teaching sustainability that empower students to address pressing issues through experimentation and community engagement.

FINANCE

Child Millionaire: Be the Change Agent for Your Family's Financial Future (North American Edition)
by George Roth, '88 BSc(MechEng), Cole Snell and Liz Lamond, *The Four Eight Group of Companies*

The authors provide practical advice on how to manage your finances to create familial wealth for future generations.

HISTORY

Alberta Quiltmakers and Their Quilts
by Lucie Heins, '05 BSc(HEcol), '08 MA, *Friends of Royal Alberta Museum Society*

Heins demonstrates the importance of quilting to the people and history of Alberta through stories about individual quilters and the themes that have guided quilt making in the province for the last three centuries.

WELLNESS

Walking Together, Working Together: Engaging Wisdom for Indigenous Well-Being
edited by Leslie Main Johnson, '93 MA, '97 PhD, and Janelle Marie Baker, '06 MA, *University of Alberta Press*

This collection of essays seeks to provide a holistic view of well-being, drawing on Indigenous approaches to healing and western biomedicine.

SHORT FICTION

What Narcissus Saw
by Gordon Sombrowski, '80 BA, '83 LLB, self-published

This collection of short stories set in the Rocky Mountains features coal miners, ski bums and a cast of other characters who come from around the world to work and play in a famed resort town.

MEMOIR

Our Journey: The Health and Physical Education Masters Cohort Experience
edited by Douglas Gledie, '06 MA, '10 PhD, Lauren Sulz, and Hayley Morrison, '19 PhD, self-published

The U of A's inaugural health and physical education master's cohort share stories and takeaways from their two-year program.

POLICY

Alberta: A Health System Profile
by John Church and Neale Smith, '88 BA(Hons), *University of Toronto Press*

The co-authors examine Alberta's political and economic history to provide a detailed



description of the province's health-care system and the forces that have shaped it.

MEMOIR

Breasts, Ma'am! A Young Woman's Journey to and Through the Canadian Military by Linda Long, '85 LLB, Black Card Books

Long details her journey from serving in the military to practising law and being appointed the human rights monitor of military gender integration by Canada's minister of national defence.

BIOGRAPHY

From Horse and Buggy to GPS: Life on a Saskatchewan Farm by Roderic Beaujot, '70 BA, '72 MA, '75 PhD, self-published

Beaujot tells the story of his farming family over three generations after his parents immigrated from Belgium and France at the turn of the century.

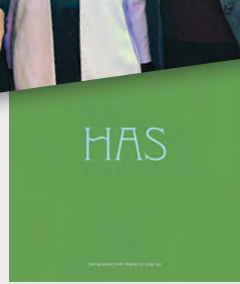
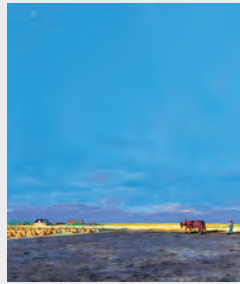
CULTURAL STUDIES

National Literature in Multinational States edited by Albert Braz and Paul D. Morris, '88 MA, '95 PhD, University of Alberta Press

This collection of essays looks at how literature can challenge a sense of common history and identity in multinational states such as Canada and Nigeria.

Tell us about your recent publication. Email a write-up with a high-resolution cover image to newtrail@ualberta.ca. Or mail your write-up and book to New Trail Books at the mailing address on page 4. We cannot guarantee all submitted write-ups will be included on this list. Inclusion does not denote endorsement by New Trail.

Top: Barbara, Orm, Sharon Butala and Frances at the launch of the 75th anniversary edition of *Who Has Seen the Wind*. Below: W.O. Mitchell.



MANY HANDS MAKE A SPECIAL BOOK

Orm Mitchell, '65 BA(Hons), '67 MA, announced the launch of the 75th anniversary edition of *Who Has Seen the Wind*, written by his father, W.O. Mitchell, '43 BA, '75 DLitt (Honorary), and published by Freehand Books. Orm wrote to share how this special edition came together thanks to the contributions of many U of A alumni.

"First, my father, W.O. Mitchell, was a graduate of the U of A and also wrote much of *Who Has Seen the Wind* under the mentorship of F.M. Salter in the Department of English. Frances Itani, '74 BA, wrote

the foreword for this special edition and my wife, Barbara Mitchell, '67 BA(Hons), and I each wrote an afterword, setting out the editing and publishing contexts of this classic novel.

Kelsey Attard, '07 BA, of Freehand Books was our editor. Our publisher, Glenn Rollans, '78 BA, '80 BA(SpecCert), was the former director of the University of Alberta Press. He took the first crucial step in making this anniversary edition happen. I clearly remember our phone call 2½ years ago. Glenn enthusiastically said yes, explaining that he felt

he owed this to my father because of the influence he had on him when he took my father's creative writing workshop at the Banff Centre some 50 years ago.

When we launched this special edition at the Calgary Central Library in November 2022, the Writers' Guild of Alberta announced the establishment of the W.O. Mitchell Scholarship endowment fund, which will support emerging writers through mentorship. Future royalties from my father's writing will support the fund. My father and professor Salter would've approved." ■



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

Compiled by **Stephanie Bailey**, '10 BA(Hons), and **Kate Black**, '16 BA

Class Notes

1960s

'64 **Lynn Malin**, BA, former vice-president and branch chair of the Alberta Society of Artists, exhibited a series of paintings at the Peter Robertson Gallery in spring 2022. The exhibition, *Fresh*, highlights Malin's work in both still-life and abstract meditations on nature—and is one of the 50-plus solo shows to feature her work since 1980.

'65 **Raymond Marusyk**, BSc(Pharm), '67 MSc, was recognized by Stockholm University as a jubilee doctor—or *jubeldoktor*—a title awarded to individuals who have held a doctorate for 50 years or more. Marusyk was honoured for his achievement during a ceremony in September, as part of the school's 2022 convocation. The event was held in the Golden Hall in Stockholm's city hall.

'67 **Judith M. Romanchuk**, BSc(HEC), was decorated by the government of Finland with the highest honour bestowed on a foreigner: Commander of the Order of the Lion. She was recognized for her

Lynn Malin's exhibition, *Fresh*



service for the last 40 years as honorary consul of Finland in Calgary. The ceremony took place on Sept. 30, 2022, during a dinner hosted by Finland's ambassador to Canada. Romanchuk was also awarded the honour of Knight, First Class, Order of the White Rose of Finland during the 1988 Winter Olympics from then-prime minister of Finland Harri Holkeri.

'68 **Peter Kevan**, MSc, '70 PhD, received the 2021 Lifetime Achievement Award from the North American Pollinator Protection Campaign (NAPPC) for his devotion to the conservation of pollinator species, especially bees. Kevan was one of the first to ask

questions about pollination conservation in the 1970s and has been a pioneer ever since in micrometeorology—the study of weather conditions on a small scale—in and around the stems and flowers of plants. His discoveries have helped shed light on how these plants grow and reproduce and attract different species of insects. He helped found NAPPC in 1997 and has been instrumental in the organization's efforts to promote the health of pollinators through conservation, education and research. Kevan is now a professor emeritus for the School of Environmental Sciences at the University of Guelph.



Judith Romanchuk and Finland's Ambassador to Canada, Roy Eriksson



Peter Kevan

1970s

'72 **Ian Cook**, MVA, recently celebrated his 50-year anniversary of teaching visual arts at Red Deer Polytechnic (formerly Red Deer College). In addition to serving as the Art and Design program's chair for 22 years and mentoring students who have become leaders in Canadian and international art scenes, his accomplishments at the college include establishing its permanent art collection. Cook was one of five students accepted into the U of A's inaugural MVA program and was hired by Red Deer College shortly after graduation. He has maintained his own art practice through the years, and his sculptures appear in government and private collections across Canada.

'72 **Henri Pallard**, BA, has received an Order of Merit from the Association des juristes d'expression française de l'Ontario (AJEFO). The largest group of francophone justice professionals in Ontario, the

AJEFO recognized Pallard's commitment to promoting the practice of common law in French, both in Canada and abroad. Pallard founded the francophone law and justice program at Laurentian University and directed its International Centre for Interdisciplinary Research in Law for 14 years, most notably promoting human rights, the rule of law and democracy in North Africa. He is a visiting professor at the British University in Egypt.

'76 **Michael Mucz**, PhD, a retired professor of biology at the U of A's Augustana Campus, has donated a collection of 152 Indigenous art pieces to the Museum of Aboriginal Peoples' Art and Artifacts at the Lac La Biche, Alta., campus of Portage College. Valued at more than \$76,000, the donation includes works from Ojibwa painter and printmaker David B. Williams, Inuit carver Mary Ayaq Anowtalik and Métis painter Ayla Bouvette. The museum serves as a teaching collection for the school's Native arts and culture program.

'76 **Mary-Anne Neal**, BEd, received a Victoria Community Leadership award for lifelong learning. The organization writes, "Mary-Anne's leadership, curiosity and tenacity inspire

communities around the world to increase pride in their identity and improve literacy." Neal's recent memoir, *Under the Midnight Sun: Journey With the Sahtu Dene*, has sold more than 3,100 copies in the past year.

'77 **Greg Ogrodnick**, BCom, co-founded Circle Cardiovascular Imaging in 2008. The Calgary-based company develops MRI software that uses artificial intelligence to allow cardiologists to interpret images faster and more accurately. The technology is used in more than 1,500 hospitals and 50 countries around the world. Circle was recently acquired by Thoma Bravo, one of the world's largest private equity firms, for \$213 million.

'78 **Eva-Marie Kröller**, PhD, was appointed a member of the Order of Canada in June 2022 for her contributions to the appreciation of Canadian writing as an educator, editor and writer. Kröller, a professor emerita of literature at the University of British Columbia, past chair of the university's comparative literature program and past editor of *Canadian Literature*, has most recently published the book *Writing the Empire: The McIlwraiths, 1853-1948*, in which she explores the life writings of an eccentric Scottish middle-class family.

'79 **Patricia Makokis**, BEd, produced and premiered her third educational documentary, *Awàsisak Our Future*. A followup to *Treaty Talk* and *Treaty Walk*, the new film shadows a group of Indigenous and non-Indigenous people undertaking a five-day,



100-kilometre walk along the Iron Horse Trail in 2021 and reflecting on our collective responsibility to treaty along the way. The film is available for free at treatytalk.com.

1980s

'81 **Sharon Murphy**, MEd, has been awarded the title of University Professor from York University—one of the highest lifetime honours the institution bestows on its faculty. Murphy has held a number of leadership positions at the university, including director of the graduate program in education, associate dean of the Faculty of Graduate Studies and interim dean of the Faculty of Education, through which she gained recognition for co-developing diploma programs in early-childhood education and language literacy.



DID YOU KNOW?

Violet King Henry, '52 BA, '53 LLB, was the first Black person to graduate with a law degree in Alberta. She was also Canada's first Black female lawyer.

Godoy Stoyke



'86 **Susan Schayes**, BMedSc, '88 MD, was acknowledged in *Women We Admire's* "Top 50 Women Leaders of Georgia 2022" list. The website honoured Schayes' clinical and business expertise as the chief transformation officer for ChenMed, which operates more than 100 medical centres across the United States and specializes in providing care for moderate-to-low-income seniors with complex chronic diseases. Schayes previously served as a faculty member for 16 years at the Emory University School of Medicine in Atlanta.

'86 **Godoy Stoyke**, BSc(Spec), '91 MSc, was awarded a 2022 Lifetime Achievement Award from Clean50 for his work in nature conservation and climate protection. As president of Carbon Busters, a net-zero builder and community developer, he has helped reduce the carbon footprint of 370 public buildings in Canada, the United States and Europe by 75.8 million kilograms of CO₂ equivalent while saving \$26.7 million in utility costs. Stoyke is building nine net-zero-energy homes in Edmonton's Blatchford sustainable community and creating a decarbonization app with Carbon Busters CEO **Shanthu Mano**, '90 BA.



IN THE NEWS

Meaningful Murals

Alixandra Jade, '16 BDes, has been painting the town red (and lots of other colours, too) with striking large-scale murals. The visual artist has left her mark on buildings around Edmonton — including the Body Shop and Columbia Plaza (pictured above) — while honouring different cultures and values. Her mural in Seoul Fried Chicken's downtown location pays tribute to Korean folk art. In spring 2021, she painted a mural on a boutique hotel in Kentucky to help spread hope and happiness in a difficult time.

—EDIFY EDMONTON

Upcoming Class Reunions

'73 **Robert Curtis**, LLB, tells us that plans are underway to celebrate the 50th anniversary of the 1973 law class. The class reunion will take place Sept. 15 and 16, 2023. For more details, please contact Curtis at rcurtis@mccuaig.com.

'73, **Roger Scott**, BPE, '74 Dip(Ed), is getting the word out for the 50-year reunion of the Physical Education class of '73, taking place from Sept. 21 to 24, 2023. Scott writes: "We have enjoyed a couple of great get-togethers over the years and I really hope we can unite again as students and staff to observe the changes that have shaped a half-century in our profession, to cheer on the Bears, to enjoy the freebies offered with a 50-year class celebration and to socialize as only a PE class can!" For details, contact Scott at 780-458-3753 or rogermsscott@gmail.com.

Roger Wong with former Governor General, Michaëlle Jean



1990s

'90 **Roger Wong**, BMedSc, '92 MD, was invested as a member of the Order of Canada for his contributions to the field of geriatric medicine, including the advancement of policies, education and specialized, culturally sensitive health care. "I am very pleased to be waving the U of A alumni flag as one of the inaugural geriatricians to be appointed to the Order of Canada," he writes.

'92 **Kimberley Palichuk**, BA, '94 MA, '97 LLB, was appointed a judge of the provincial court of Alberta in the Edmonton criminal division—one of four newly created judgeships in Alberta. Prior to her appointment she served as executive legal counsel for the chief judge of the provincial court. She previously practised

litigation at Alberta Justice and Justice Canada and was also a pro bono legal adviser for Dogs with Wings Assistance Dog Society.

'96 **Amit Monga**, PhD, has been appointed to the Infrastructure Ontario board, where he will help guide updates to the province's public assets, and to the board of University of Toronto Press, helping direct the operations of one of the largest university presses in North America. Monga brings more than 20 years of expertise in investment banking, corporate governance, artificial intelligence and data analytics to the positions.



Amit Monga

Lorianna Bennett



He previously held leadership roles at CIBC, the Canadian Medical Foundation and Alberta Innovates Technology Futures.

'97 **Lorianna Bennett**, LLB, was appointed as a judge of the provincial court of British Columbia in June 2021. Bennett has practised at Paul & Company in Kamloops, B.C., for 19 years, where she has earned a reputation as a knowledgeable and collaborative family lawyer. A past recipient of the Thompson Rivers University Distinguished Alumni Award and the Reader's Choice Award for best lawyer from *Kamloops This Week*, Bennett is esteemed for her

engagement in organizations including the Canadian Bar Association, B.C.'s Provincial Health Services Authority and Anaphylaxis Canada.

'97 **Wendy Crosina**, BSc(EnvSci), '99 BSc(Forest), '11 MF, received the Women in Forestry Award from the Forest Products Association of Canada for her work strengthening the evolving forestry sector while advancing workplace diversity and inclusion. The association calls it "a pleasure to salute the great work that Wendy is doing as a sustainability leader, while at the same time being a tremendous role model to young women in our sector."

'97 **Colin Lachance**, LLB, is co-founder and CEO of Jurisage, a software company that brings artificial intelligence to the legal research process. The company launched as a joint venture between Lachance's case law publishing business and the applied AI company AltaML, which is headquartered in Edmonton. Jurisage extracts and analyzes court judgments and other legal

(continues on page 58)



DID YOU KNOW?

The Faculty of Agricultural, Life & Environmental Sciences is home to more than 10,000 hectares of farm and ranchland across Alberta, which supports research and teaching in agriculture and food science.

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

PRESERVING INDIGENOUS LANGUAGES

One grad is on a quest to revitalize
Denesųłłné in her community

By *Kalya Hennig Epp*

LYNDA MINOOSE, '91 BEd, '12 Cert(ComLing), conducted a survey in 2007 to find out how many people in her community spoke and understood Denesųłłné—the traditional language of her community and one she's spoken all her life. When she told the Cold Lake First Nations chief and council she found only 118 people out of 4,000, they hired her to head the first Denesųłłné Language and Culture Department on Cold Lake First Nations. Minoose enrolled in the Canadian Indigenous Languages and Literacy Development Institute (CILLDI) at the U of A to expand her tool kit. She learned linguistic analysis, policy planning and tech skills to integrate Denesųłłné back into her community. Here are some of the things she has learned about preserving and revitalizing Indigenous languages.

1 LEARNING HAS NO AGE LIMIT

In the past 10 years, Minoose, age 72, has earned a master's degree and a Community Linguist Certificate, and has dubbed herself a "techno-granny." At CILLDI, she was introduced to digital tools ranging from PowerPoint to language software. Now, she's helped publish nine storybooks, a 3,000-word dictionary and a language app, all to support Denesųłłné learners. "As long as I have the physical capability

and the mind, then I have something to contribute," she says.

2 YOU NEED TO HAVE HEART

Today, there are around 60 Denesųłłné speakers left in Cold Lake First Nations. But this doesn't discourage Minoose—it motivates her. "There's a deep current that drives me," she says. "And it's my passion. I've taken on this work, and have continued with it as long as I have, because this is what I'm supposed to do with my life." She started a language nest, a two-year immersion-based language revitalization program for families with young children, to pass on that passion to the young people in her community.

3 LANGUAGE IS ALIVE

Language is more than words and letters. Minoose says that because she understands Denesųłłné, she can better understand her peoples' world view, way of life and history. Her focus on reviving cultural traditions like birch bark

basket making, hide tanning, drumming, smudging and medicine harvesting are all part of the revitalization process. "Language lives in the people who speak it and in their traditions," she says. "Language is in our DNA. It's in our soul memory. It's in everything we do."

4 REVITALIZATION IS A TEAM EFFORT

Minoose says there are many ways for people to get involved in revitalization efforts. She wants to get her Denesųłłné dictionary online and functioning intuitively, update the app and open a cultural interpretive centre in Cold Lake. But she needs help. It would be a dream, she says, to connect with experts—such as web developers, historians, archivists and researchers—who are willing to teach and guide her and others. "Above all, we need people to get together," she says, "to work together, to create more dialogue and share our skills."

5 IT TAKES TIME

The revitalization of a language doesn't happen overnight. It takes perseverance, patience and, most of all, time. In 2019, when the United Nations declared the International Year of Indigenous Languages, 40 per cent of the estimated 6,700 languages spoken around the world were in danger of disappearing. Minoose is working hard to pass her torch to the next generation to create a future where Denesųłłné is spoken commonly in her community. "It took the government 150 years to try to eradicate our languages," she says. "So, it would be safe to say we need the support for 150 years to bring it back." ■

Lynda Minoose has helped create resources like books and an app to help language learners in her community.



IN THE NEWS

Grad Wins Giller Prize

Suzette Mayr, '92 MA, received the 2022 Scotiabank Giller Prize, Canada's top literary award, for her novel *The Sleeping Car Porter*. Described as "immediate — and eerily contemporary" by the Giller jury, Mayr's work of historical fiction follows R.T. Baxter, a Black, queer train porter who aspires to become a dentist. The Calgary-based author and creative writing teacher beat 137 other novels for the honour, which includes a \$100,000 prize. —CBC

Ranjan Agarwal



(continued from page 56)

documents like court filings and research memos. It delivers key insights to lawyers through dashboards and browser extensions in ways that dramatically cut down on the time needed to read and understand the document contents.

'98 **Nicole Heinz (Wahl)**, BSc(HEcol), and her sister **Monique Miller (Wahl)**, '03 BDes, opened Former + Latter Fabrics, a store specializing in high-quality, garment-specific fabrics, both in-person and online at formerlatterfabrics.ca. "We are looking forward to providing Edmonton-area sewists with greater options for incredible garment fabrics that aren't offered locally," Heinz writes.

'99 **Ranjan Agarwal**, BA(Hons), has been appointed as a judge of the Superior Court of Justice in Ontario. Agarwal, most recently a partner at Bennett Jones LLP in Toronto, served as a

U of A Engineers Join APEGA Council

Four U of A alumni — **Lisa Doig**, '89 BSc(ElecEng), **Walter Kozak**, '77 BSc(ChemEng), **Dean Mullin**, '94 MSc, '05 PhD, and **Lorna Harron**, '95 BSc(MetEng), '97 MEng, '97 MBA — have been elected to the Association of Professional Engineers and Geoscientists of Alberta's council. Doig, whose extensive career has included electricity, oil and gas, and commercializing innovation in clean technology, is APEGA's 103rd president. Kozak, Harron and Mullin were named APEGA councillors.

president of the South Asian Bar Association and was the first South Asian person to serve as an officer with the Ontario Bar Association. He was an adjunct professor at the University of Toronto, co-wrote *Class Actions Law and Practice* and received the Eric Hoaken Excellence in Mentoring Award from the Advocates' Society.

2000s

'00 **Christopher Kyba**, BSc, and his app, *Nachtlichter*, were shortlisted for Science Breakthrough of the Year in the science and innovation category by the Berlin-based Falling Walls conference. *Nachtlichter* has enabled citizen scientists to classify more than 250,000 sources of outdoor artificial light—filling a global knowledge gap in the variety of sources that light up urban areas at night. Kyba, a physicist at the GFZ German Research Centre for Geosciences, recently received the Leon Gaster Award from the Society of Light and Lighting for his paper "Direct measurement of the contribution of street lighting to satellite observations of nighttime light emissions from urban areas," which was published in *Lighting Research & Technology*.

Grads Enrich Alberta's Literary Community

The Writers' Guild of Alberta nominated five U of A alumni to receive Queen Elizabeth II's Platinum Jubilee Medal in honour of their service to advancing writing in Alberta:

Marilyn Dumont, '90 BA, for her contributions to Indigenous literature in Alberta and Canada; **Nisha Patel**, '15 BCom, '15 Cert(Leadership), '22 Cert(LandUsePlanning), for her contributions to her community as a disabled, queer woman of colour; **Pierrette Requier**, '71 BEd, for creating opportunities to promote French-language writing in Alberta's literary scene; **Matthew Stepanic**, '12 BA(Hons), for his work as a queer writer, literary community leader and co-founder of Glass Bookshop; and **Matthew J. Weigel**, '16 BSc, '21 MA, for his contributions to the Indigenous arts community as a Denesųłné and Métis poet and storyteller.

'00 **Michael Taschuk**, BSc(EngPhys), '07 PhD, founder and chief technology officer of G2V Optics, and **Ryan Tucker**, '09 BSc(EngPhys), '14 PhD, the Edmonton-based company's CEO, have been developing solar simulator technology for the next space age. G2V's engineered sunlight technology allows space industry organizations to recreate the effects of solar

light during ground testing of spacecraft and subsystems. NASA is using the technology to test a spacecraft that is set to be launched in 2026 to service an outdated satellite. France's space agency, le Centre nationale d'études spatiales, is using G2V's Sunbrick technology to test sensors for an upcoming exploration of Mars' moons. G2V currently provides its technology to more than

200 companies in more than 40 countries.

'00 **Susan Vukadinovic (Sava)**, BA, '05 MBA, was elected as a public school board trustee for wards 8 and 9 during Calgary's 2021 municipal election. Vukadinovic, a longtime advocate for children, education and equity, began her career as a policy analyst in provincial and municipal



▲ Susan Vukadinovic and her kids

Gillian Thomson with the Skipper shower cap



U of A Books Earn Accolades

The U of A was well represented at the Alberta Book Publishing Awards, with grads getting accolades in four categories.

Carole Massing, '70 BEd, '79 MEd, '91 PhD, and **Mary Lynne Matheson**, '77 BA(RecAdmin), '00 MSc, were honoured with the Learning Book of the Year award for *Introduction to Early Childhood Education and Care: An Intercultural Perspective*, published by Brush Education.

Impact: Women Writing After Concussion, published by University of Alberta Press and edited by **E.D. Morin**, '85 BA, '89 BSc(ElecEng), and Jane Cawthorne, was awarded Trade Non-Fiction Book of the Year.

Natalie Olsen, '08 BDes, received awards for her work on books by two grads. She took home best cover design for *The Party is Here*, by **Georgina Beaty**, '08 BA, and published by Freehand Books, and best book design for *Coconut* by **Nisha Patel**, '15 BCom, '15 Cert(Leadership), '22 Cert(LandUsePlanning), published by NeWest Press.

Alan Brownoff, '79 BFA, also won best book design for *On Foot to Canterbury*, published by University of Alberta Press.

The University of Alberta Press published another winner: *The Bad Wife* by Micheline Maylor received the Robert Kroetsch Award for Poetry.

government before transitioning to project consulting in private and not-for-profit sectors.

'01 **Jody Best**, MSc, has poured her passion for the outdoors into a series of children's books over the past three years. *Moose Tracks*, *Mouse Tracks*, *Marten Tracks*, *Too!*, *If You Walk on the Prairie* and *1, 2, 3... Turtles for Me* are available on Amazon, at the Sputtergotch Toy Co. in Swift Current, Sask., and at Analog Books in Lethbridge, Alta.

'06 **Jason Lee Norman**, BA, has paired with Blindman Brewing—a Lacombe, Alta., craft brewery founded by **Dave Vander Plaats**, '13 MBA, and U of A MBA student Kirk Zembal—to get local literature into beer enthusiasts' hands. Since 2019, Norman has curated flash fiction and poetry by Albertan writers to appear on more than 30,000 cans of Blindman's Super Coffee Stout and Super Session ale distributed across Western

Canada. During each run, featured writers are interviewed on CKUA Radio's *Session Stories* show. The sixth and most recent season wrapped in March 2023.



'10 **Gillian Thomson**, BSc, used her background in science, hairstyling and marketing to invent a new kind of shower cap called Skipper. The cap is adjustable and machine-washable, providing a sustainable option for people who want to wash their hair less. The patent for her design is pending, but she has already been busy selling her caps since December. Thomson's connection to the U of A remains strong. She is

receiving mentorship in the ThresholdImpact Venture Mentoring Service. She also hopes to join the advisory board for the university's Women in Scholarship, Engineering, Science and Technology (WISEST) unit of the Office of the Dean of Students.

'12 **Franca Brodett**, BCom, and her sister, Nella Brodett, snagged a third-place finish on the eighth season of *The Amazing Race Canada*. Franca, assistant dean of development at the U of A's Faculty of Pharmacy and Pharmaceutical Sciences, helped "Team Franella" through a number of challenges, including rapidly shucking 24 oysters in New Brunswick and finishing first in a memory game involving bandana-wearing goats in Lethbridge, Alta. The sisters finished first in legs 2 and 6 of the race.

'12 **Conor Kerr**, BA, was one of 14 Canadian authors longlisted for the Scotiabank

Giller Prize. He was recognized for his debut novel, *Avenue of Champions*, which illustrates a young Métis man's journey to navigate his identity and the intergenerational impacts of colonialism while living in Edmonton and attending the U of A. Kerr also won Canada's 2022 ReLit Award and was shortlisted for the 2022 Amazon Canada First Novel Award.

'14 **Mohammad Refaei**, MD, '19 PostgradCert(MedEd), has been working to change the culture around red blood cell transfusions. Since joining Niagara Health in Ontario in 2020, the hematologist has helped the St. Catharines, Welland and Niagara Falls sites earn the Using Blood Wisely designation, which is awarded to hospitals for decreasing unnecessary red blood cell transfusions in order to keep supplies sustainable. Refaei was honoured for his efforts with the inaugural Physician



Research Award at Niagara Health's annual Research Day in May. He credits his mentors from his hematology residency at the U of A for instilling in him the importance of quality improvement.

'14 **Sarah Sentes**, BA, was promoted to co-managing partner of the podcast and

management consultancy Manager Tools. Founded in 2004, the company provides practical management training through podcasts, curriculums and products to clients including Apple, General Motors, the Federal Reserve Bank and the U.S. Department of Justice. Sentes will share her duties with co-managing partner

Kate Braun. They will take over the company from its co-founders.

'14 **Arlan Vriens**, BMus, has received the Lieutenant Governor of Alberta's 2022 Emerging Artist Award in recognition of his excellence in violin performance. Vriens is a candidate for a doctor of musical arts at the University of Toronto, where his research aims to rediscover the lost performance techniques of the late 18th-century violinist Friedrich Wilhelm Rust. He spent the spring of 2022 as a visiting student at Cambridge University.

'15 **Matthew Nickel**, BSc(MatEng), '18 PhD, and **Hillary Sweet**, '18 PhD, founded their company, SN Biomedical, shortly after graduation with the goal of creating simple and affordable diagnostics to improve the health of animals. The pair invented Kidney-Chek, an at-home saliva test that screens a pet's kidney function in two minutes. They recently

commercialized the product and are now selling it in vet clinics, retail pet stores and their e-commerce store.

'17 **Marie Wilson**, LL.D (Honorary), received the Governor General of Canada's Meritorious Service Cross for her "fortitude, compassion and perseverance" as one of the lead commissioners of the Truth and Reconciliation Commission of Canada — a six-year effort that involved examining documentation and witnessing the testimony of more than 6,500 survivors of the Indian Residential School system. The commission's final report, released in 2015, includes 94 calls to action for Canadian institutions and individuals to repair harm experienced by Indigenous Peoples in Canada.

'18 **Peter Anto Johnson**, BSc(Hons), '20 MSc, and **John Christy Johnson**, '18 BSc(Hons), twin brothers and U of A medical students, have received the Diana Award. Named in honour

(continues on page 63)

Alumni Celebrated by the Royal Society of Canada

From epidemiology to digital humanities, nine U of A alumni from vastly different fields have been elected to the Royal Society of Canada — the country's highest academic honour.

Five grads were peer-elected fellows, an honour that recognizes them as the best in their field.

- **Miriam L. Diamond**, '80 MSc, is internationally recognized for groundbreaking work uncovering sources and pathways for exposure to chemical contaminants in the environment.
- **Roussos Dimitrakopoulos**, '85 MSc, is a leading authority in stochastic mine modelling and optimization of planning and production scheduling of industrial mining complexes.
- **Randy Allen Harris**, '85 MSc, researches the intersection of rhetoric, linguistics, cognitive neuroscience and AI.
- **Raymond Siemens**, '91 MA, is an early Tudor poetry scholar, known for his pioneering work in emerging digital research, dissemination and collaborative engagement methods.
- **Gregory Edgecombe**, '87 MSc, is a paleontologist and

systematic biologist investigating the evolutionary history of the largest animal phylum, the Arthropoda.

Four grads were named members of the College of New Scholars, Artists and Scientists, which recognizes them as emerging intellectual leaders.

- **Angela Kaida**, '01 MSc, is a leading researcher in global health epidemiology, focused on community-based research and addressing health inequities among women affected by HIV.
- **Trevor Lantz**, '98 BSc(Hons), is exploring the causes and consequences of Arctic ecological change to guide northern decision-making and climate change adaptation.
- **Robert Mizzi**, '02 MEd, researches educational interventions that foster respect for and understanding of 2SLGBTQ+ people in organizations.
- **Jordan Abel**, '08 BA, is a Nisga'a author and associate professor in the Department of English and Film Studies whose work engages with Indigenous representation.



Legendary Links

TELLING THE STORIES OF GRADS WHO CAME BEFORE DEEPENS OUR CONNECTION TO THE U OF A AND EACH OTHER

One Friday evening in 1999, I met someone who would change my life.

The man was **Hugh Morrison**, '30 BA. We were both at the Myer Horowitz Theatre for an alumni reception and we bonded over our shared education paths—though we had graduated more than 40 years apart. We hit it off and Hugh told me about his life in the 1920s and 1930s.

Hugh was set to study law, as his father had, but what enthralled him were the lectures on Shakespeare by professor **Edmund Broadus**, '33 LLD (Honorary). Hugh decided to give up law to study English and he

excelled. In 1930, he received a Rhodes Scholarship to study at Oxford, where he learned from soon-to-be illustrious writers. Among his professors were J.R.R. Tolkien, who two decades later would publish the first book in his *Lord of the Rings* trilogy, and C.S. Lewis, lay theologian and author of the *Chronicles of Narnia*.

In the early 1940s, Hugh took a leave from his job with the fledgling CBC to join the war effort, eventually carrying secret messages for the British government. He became part of the renowned network run by William Stephenson, a Canadian spymaster perhaps better

known by his wartime code name, Intrepid. "Part of my job was to pass messages and documents to another operative at the British Embassy in Washington," Hugh told me. He recalled that, at nearly two metres tall, the operative was easy to spot. While the two never spoke, Hugh later learned the tall spy was Roald Dahl, author of *Charlie and the Chocolate Factory*.

Listening to Hugh's stories that evening, I was mesmerized by the simple joy of hearing what life was like so many years ago: vibrant, exciting and a little on the edge. But I also felt cheated that after all the years I had

spent on campus I knew so little of the people who had passed through. I saw only their exteriors—nothing of the stories within.

I decided to document the experiences of older alumni so that new grads would know the glories, the scary moments and the contributions of those who came before them. Those stories made up my first U of A history, *I Was There*, and would inspire the four books that followed.

Hugh died at age 98, in May 2006. Meeting him started a ripple effect that hasn't stopped. If it weren't for our chance encounter, I wouldn't have met **Sylvia Evans**, '33 BA, a high-ranking officer in the Second World War who fought for equal pay between men and women in the service, or learned of **David Ho Lem**, '37 BCom, the first Chinese-Canadian to graduate from the U of A. Nor would I have met the hundreds of other alumni who have been gracious enough to share their memories with me.

As U of A grads, we are connected by the buildings in which we sat through lectures, memories of the crunch before exams and the crests on diplomas and degrees tucked away or hanging on our walls. These stories connect us, too. I never met J.R.R. Tolkien, but I know someone who did: Hugh.

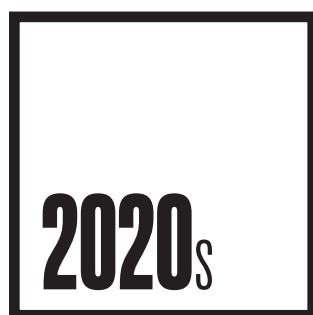
And I am different because of him. ■



Ellen Schoeck, '72 BA(Hons), '77 MA, spent 37 years on campus as a student and administrator. She has written five U of A histories including *I Was There*, *Born to Build* and her latest, *Taking Charge, a history of the Students' Union and Graduate Students' Union*.

(continued from page 61)

of the late Princess of Wales, the international award is considered the most prestigious accolade a young person can receive for their social action or humanitarian work. Together, the two have made strides toward biomedical research and community initiatives, including founding Sharpen the Quill, a virtual mentorship program that has supported more than 200 young people over the past three years.



'20 **Sama Ahmed**, MEng, landed a role with Edmonton-based Runwithit Synthetics one month after receiving her degree in environmental engineering from the U of A. As a product manager with the company, Ahmed creates digital data twins of cities to illustrate outcomes of policy choices. Recently, she collaborated with NASA scientists to build a simulation game modelling space weather impacts on the power grid and communities. "As a new engineering grad, I had expected to start in the 'engine room of the ship,'" Ahmed writes. "It's amazing to be working so closely with stakeholders in our community and using data for good, driving convergence, equity and inclusion right off the bat."

'21 **Frincy Clement**, MSc, has been recognized with a host

of awards for being a leader in artificial intelligence, a community builder and an advocate for women to adopt careers in technology. She was selected as one of Canada's Most Powerful Women: Top 100 by the Women's Executive Network in 2022 as well as one of the Top 25 Women in AI in Canada by ReWork. In 2022, she was named Advocate of the Year by the Women in IT Awards Canada and Women in AI Ambassador of the Year by Women in AI. Clement also helped build the Canadian chapter of Women in AI community, which now includes more than 850 members and 50 volunteers. She works as a principal data scientist at ADP.

'21 **Isabel Jewell**, BA(Hons), '21 Cert(IntLearning), '21 BA(CertTrans), '21 Cert(EurSt), and her sister **Sophia Jewell**, '21 BA(Hons), '21 Cert(IntLearning), '21 BA(CertTrans), '21 Cert(EurSt), aged 18 and 21, recently completed their master's degrees at the University of Toronto after beginning their academic journey at the U of A at young ages. Sophia began taking classes at age 14 in September of 2016 and enjoyed them so much that she invited her younger sister to join her. Isabel enrolled for the following January when she was 12, and the two ended up taking every single course together from then on. After graduating from the U of A, they each went on to receive prestigious Canada Graduate Scholarships and University of Toronto Fellowships to pursue graduate studies at the University of Toronto, where they both completed their master's of arts degrees in Slavic languages and literatures last year. ■

Frincy Clement



DID YOU KNOW?

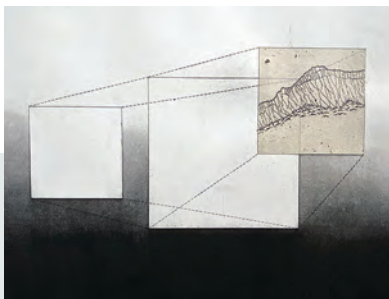
The U of A's campus radio station, CKUA, went on the air in November 1927 as the first public radio station in Canada, predating the CBC. Some of its early offerings included one-act plays, French-language lessons and a program for trappers and miners in the Far North.



Sophia and Isabel Jewell

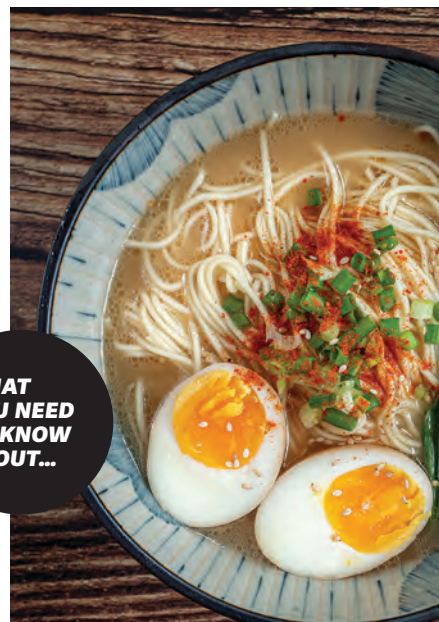


Artwork by Jewel Shaw and Heather Leier (top left); Jill Ho-You (top right); Sean Caulfield and Sue Colberg (middle); and Tara Manyfingers (bottom).



Visualizing Climate Change

From Oct. 11 to Dec. 10, 2022, the Fine Arts Building (FAB) Gallery presented *Transitional Impressions: Visualizing Environmental Change*. The exhibition featured new artwork by seven U of A alumni working across a range of printmaking and expanded print media practices: U of A professors **Sue Colberg**, '83 BFA, '91 MVA, and **Sean Caulfield**, '92 BFA, '96 MFA; as well as **Jewel Shaw**, '04 BFA, '08 MFA; **Jill Ho-You**, '12 MFA; **Heather Leier**, '16 MFA; **Tara Manyfingers**, '19 BFA; and **Kiona Callihoo Ligtoet**, '21 BFA. The exhibition's interdisciplinary works examine and challenge each artist's relationship with climate change. A full-colour exhibition catalogue is available from the FAB Gallery.



**WHAT
YOU NEED
TO KNOW
ABOUT...**

MAKING RAMEN AT HOME

Hands off the Mr. Noodle

By Madisen Gee, '21 BA, '21 Cert(CSL)

If you've fallen into the rabbit hole of online ramen hacks, you're not alone. Ramen is popping up everywhere, and it's not just for students on a budget. People from all walks of life are trying to create the perfect bowl of ramen at home, but if you've never made it before it can be a daunting task. **Allen Gao**, '19 BSc(CivEng), entrepreneur and owner of Kasey Ramen, an Edmonton-based ramen pop-up, shares tips on how to elevate your at-home ramen game.

Embrace local flavours

"I think the best ramen in each region is determined by regionally available ingredients," says Gao. While ramen is often packed with traditional ingredients such as bamboo shoots or kombu (dried seaweed), Gao suggests finding inspiration in your own backyard. Check out your local farmers market or butcher shop for seasonal veggies and fresh meat, and play around with the flavours you find. "There aren't a lot of rules," says Gao. "It can be very experimental."



Get a “whiff”

Ramen broth is pretty simple, says Gao, “typically just bones and water.” The flavour comes from aromatics added at the end and from a flavourful mixture called tare, which can include spices, dried fish, salt and sugar. Unlike a bowl of veggie soup, ramen broth shouldn’t taste vegetal. Gao recommends adding aromatics such as onions, garlic and ginger at the end. This prevents them from breaking down too much and imbues the broth with aromas, rather than a strong veggie flavour. “It’s like having whiffs of onion, garlic, ginger and scallion,” he says.

Build a balanced bowl

When putting together your dish, think about how different textures will work together. If you have a thicker broth, like tonkotsu, says Gao, you might opt for a skinnier, snappier noodle, as the complementary textures create a more balanced feel. That goes for toppings too. Try a soft-boiled egg and crunchy corn or fine slices of crisp green onions and chewy mushrooms. Above all, embrace the process of experimenting. At the end of the day, all that matters is whipping up a comforting meal you enjoy. ■

The Alumni Association notes with sorrow the passing of the following graduates (based on information received between April 2022 and January 2023).

In Memoriam

1940s

‘42 Florence Mae Karlstrom, BSc(HEC), in January 2023

‘44 Kathleen Lawrence Longworth (Anderson), BSc(HEC), in April 2022

‘45 Reinard W. Brandley, BSc(CivEng), ‘46 MSc, in August 2022

‘45 Dorothy Fern Shortreed (Wiltzen), Dip(Nu), in October 2022

‘46 Kathleen Ellen Brundage (Sheasby), BEd, ‘46 BA, in May 2022

‘46 Dorothy Jean Harris (Ward), BA, in September 2022

‘47 Henry Neal Collins, BSc, ‘62 BSc(MineralEng), ‘64 MSc, in January 2022

‘48 Bernice Lucille Burnard (McElhinney), BSc(HEC), in March 2022

‘48 William Lockwood Cox, BSc, in April 2022

‘48 Christina Grace Hamilton (Bernhardt), Dip(Nu), in April 2022

‘48 Agnes Niven Hayes (MacKenzie), BSc, in July 2022

‘49 George Adam, BSc(CivEng), in June 2022

‘49 Gordon Glenn Campbell, BSc(CivEng), in November 2022

‘49 William Arthur Case, BSc(MiningEng), in August 2022

‘49 Donald David Dick, BSc(CivEng), in August 2022

‘49 Douglas Athol Greenough, BA, ‘51 BDiv, in January 2022

‘49 Hugh Hay-Roe, BSc, in October 2022

‘49 Kathleen Lillian Johnstone (Black), Dip(Nu), ‘50 BScN, in November 2022

‘49 Doreen Mae Loughheed (Bradley), BCom, in April 2022

‘49 Donald Herbert Medhurst, BA, ‘50 LLB, in July 2022

1950s

‘50 Ruth May Daw (Hulland), BEd, in February 2022

‘50 Victoria Joan Fedorak (Shandro), Dip(Nu), in March 2022

‘50 Josephine Margaret Ferguson-Haines, BSc(Hons), ‘55 Dip(Ed), ‘55 BEd, in November 2022

‘50 Svend Aage Hansen, BSc(Ag), ‘52 MSc, in May 2022

‘50 Ronald George Henbest, BEd, in January 2023

‘50 Benny Janz, BEd, in December 2022

‘50 Doris Verna Nufer, BSc, in September 2022

‘50 Sheila Mabel Ramsey (Cary), BEd, ‘50 BA, in November 2022

‘50 Joseph Sikora, BSc, ‘54 DDS, in December 2022

‘50 Gordon Cummings Swann, DDS, in January 2023

‘50 Lorna Mae Teare (Kennedy), BSc(Pharm), in August 2022

‘50 Peter Yurkiw, BSc(CivEng), ‘52 MSc, in July 2022

‘51 Elaine Norah Barnes (Cornish), BSc(HEC), in September 2022

‘51 Thelma Bernice Dennis, BSc(HEC), in January 2023

‘51 Louise Katherine Dmitroca (Heidecker), Dip(Ed), in May 2022

‘51 Jack Holmes, LLB, in June 2022

‘51 Anne G. Lightfoot, BEd, in November 2021

‘51 Clifton Lloyd Nelson, BSc, ‘52 MSc, ‘54 MD, in November 2022

‘51 Aphrodite Nicas, BA(Hons), in March 2022

‘51 Robert James Nicholl, BSc, in October 2022

‘51 Frederick Larson Scott, BA, ‘52 LLB, in August 2022

‘51 H. Peter Simon, BSc(ChemEng), in July 2022

‘51 Thomas William Snowdon, BA, ‘52 LLB, in May 2022

‘52 Walter Ladymir Baydala, BSc, in October 2022

‘52 Lorraine Fay Dennis (Peterson), Dip(Nu), in July 2022

‘52 Herman Hubert Dorin, BA(Hons), ‘57 BEd, in April 2022

‘52 Sally Ann Durno (Becker), BSc, in November 2022

‘52 Henry Charles Finlayson, BSc(Hons), ‘54 MSc, in February 2022

‘52 Mary Jean Freebury (Carlisle), Dip(Ed), ‘53 Dip(Ed), in June 2022

‘52 Mary Enid Hart (Hannah), BSc(HEC), in January 2023

‘52 Rosalie Holmes, BA, in June 2022

‘52 Lawrence Koper, Dip(Ed), in June 2022

‘52 Allan Sherold Krebs, BEd, in January 2022

‘52 Raymond Fredrick Lepage, BA, ‘56 BEd, in August 2022

‘52 Richard W. Lyne, BSc(CivEng), in July 2022

‘52 Milton William Thomas Matthews, BSc(ChemEng), in January 2023

‘52 Norma Marion Nelson, Dip(Ed), ‘54 BEd, in February 2022

‘52 Steve Nick Odynak, Dip(Ed), ‘54 BEd, ‘63 PhD, in June 2022

‘52 Alexander Frederick Psikla, BEd, in April 2022

‘52 Sheila Mae Ringrose (Smith), Dip(Nu), ‘53 BScN, in April 2022

‘52 Wasyl Skakun, BSc(Pharm), in April 2022

‘52 John Glyde Stelfox, BSc(Ag), in January 2022

‘52 Donald James Stiles, BSc, in October 2022

‘52 Francis Derek West, BSc(Pharm), in June 2022

‘53 Ronald Jack Casey, BSc, ‘57 MD, in May 2022

‘53 James Allan Durno, BSc(ChemEng), in October 2022

‘53 Ralph Gordon Evans, BSc, ‘55 BA, ‘63 BEd, in December 2021

‘53 Donna Marie Kauffman (Brown), BEd, in July 2022

‘53 Harry Kiyooka, BEd, in April 2022

'53 **Terrence Stanley Kline**, BSc, '55 DDS, in May 2022

'53 **Neil Arnold Longson**, BSc(CivEng), in September 2022

'53 **Elizabeth May MacArthur**, BSc(HEc), in December 2022

'53 **Steve Pawluk**, BSc(Ag), '55 MSc, in April 2022

'53 **Charles Thomas Peacocke**, Dip(Ed), '55 BEd, '59 BA, in November 2022

'53 **Susan Carol Reid (Weston)**, BSc(HEc), '55 BEd, in November 2022

'53 **Muriel Orvetta Shapka (Clapp)**, BPE, '82 Dip(Ed), in April 2022

'53 **Josephine Stefaniuk**, Dip(Ed), in December 2022

'53 **Sydney Evan William James Wood**, BA, '56 LLB, in November 2022

'54 **Calvin John Edwardh**, BSc, '56 DDS, in October 2022

'54 **Caroline Willys Gilfillan**, BSc(HEc), in August 2022

'54 **Chikara Koyanagi**, BCom, in September 2022

'54 **Viola Jean Mallett (Ross)**, Dip(Nu), in December 2022

'54 **Robert Sydney Margolis**, DDS, in June 2022

'54 **Jean Edith McKenzie (Carmichael)**, BEd, '59 BA, '78 MEd, in December 2021

'54 **Beverley Burrell McNiven**, BA, in December 2022

'54 **Rose Elizabeth Proskurnik**, Dip(PHNU), in January 2023

'54 **Greta Amelia Wilson (Greulich)**, BA, in April 2022

'54 **George W. Windsor**, BEd, in January 2022

'55 **Douglas Sidney Allen**, BCom, in February 2022

'55 **Wilda Margaret Allen (Colwell)**, BSc(HEc), in November 2022

'55 **Paul S. Chrumka**, BA, '58 LLB, in December 2022

'55 **Donald Ernest Clark**, BSc(Ag), in April 2022

'55 **Winifred Joy Cox (Warner)**, Dip(Nu), in June 2022

'55 **John Hartley Daniels**, BSc(CivEng), in January 2023

'55 **Mary Ann Hutniak**, Dip(Ed), in April 2022

'55 **Elizabeth Gowan Jones (Millard)**, BSc(HEC), '08 DSc (Honorary), in August 2022

'55 **Donald Matthew Mahura**, BSc(PetEng), in June 2022

'55 **Joan Munro (Pecover)**, BA, '59 BEd, '71 MEd, '86 PhD, in December 2022

'55 **Ralph Gilbert Perry**, DDS, in December 2022

'55 **Marjorie Kathleen Pritchard (Kent)**, BSc, in January 2022

'55 **Carl Sobolewski**, BSc(Pharm), in December 2022

'55 **Shirley Ann Stewart**, BSc, in September 2022

'55 **J. Neil Tidsbury**, BSc, in December 2022

'55 **William E. Wilson**, BA, '56 LLB, in September 2022

'55 **Edward Leonard Wolfman**, LLB, in June 2022

'56 **William Dyson Abercrombie**, BA, '57 LLB, in May 2022

'56 **Harry Thomas Andersen**, BSc(CivEng), in February 2022

'56 **Frederick William Baker**, MD, in May 2022

'56 **James Norman Bowersock**, BSc(ChemEng), in January 2023

'56 **John George Calpas**, BSc(Ag), in May 2022

'56 **Patrick E. Connell**, BSc(Pharm), in November 2022

'56 **Kenneth Austin Cush**, BA, '57 LLB, in July 2022

'56 **Ralph George Dahl**, MD, in January 2023

'56 **Ronald Kenneth Deepprose**, BSc(CivEng), '59 MSc, in December 2022

'56 **Warner Grant Fairley**, BCom, in November 2022

'56 **Dianne Winifred Ferguson (Ross)**, BScN, in August 2022

'56 **Charles Verner Godberson**, MD, in November 2022

'56 **Roy Roderick Gouchey**, Dip(Ed), '60 BEd, in March 2022

'56 **Joseph John Holyk**, Dip(Ed), '59 BEd, in July 2022

'56 **Arlend James Hudson**, BEd, in January 2023

'56 **Harry Mosychuk**, BSc, '59 BEd, '65 MEd, '69 PhD, in June 2022

'56 **Donald Harry Ostry**, BA, '57 LLB, in April 2022

'56 **William Arthur Porter**, BSc(CivEng), in June 2022

'56 **Douglas Gordon Quigley**, BSc, in November 2022

'56 **Glyndwr Willis Richards**, BSc(CivEng), in December 2022

'56 **Cornelius Schuring**, BSc(Ag), in January 2023

'56 **Raymond Russell Young**, BSc(PetEng), in January 2023

'57 **Daryl Elmer Birnie**, MSc, in December 2022

'57 **David Wilfrid Cornish**, BSc(CivEng), in October 2022

'57 **William Lavern Crooks**, MD, in October 2022

'57 **Josephine Anna "JoAnna" Dutka**, BA, '61 MA, in January 2023

'57 **Orest Humeniuk**, BCom, in May 2022

'57 **Kenneth John Kasha**, BSc(Ag), '58 MSc, in December 2022

'57 **John R. Lymer**, BSc(Pharm), in April 2022

'57 **David Parks MacNaughton**, LLB, in August 2022

'57 **Gary Stewart Onstad**, BCom, in October 2022

'57 **Fred Otto**, BSc(ChemEng), '59 MSc, in May 2022

'57 **Annamarie Loreace Patrick (Nechkin)**, BSc(HEC), in January 2022

'57 **Arlene Thelma Smith (Ball)**, BSc(HEC), '58 BEd, in September 2022

'57 **Richard Brian Staples**, BPE, '67 MA, in December 2022

'57 **Catherine Chris Thrall**, BSc(HEC), in April 2022

'57 **Kathleen Derwyn Whitbread**, BA, in August 2022

'57 **Alvina Mae Worobets**, Dip(Nu), in June 2022

'58 **Margaret Kerr Acton (McLellan)**, Dip(Nu), '59 BScN, in December 2021

'58 **Edith Elizabeth Collin (Witney)**, BSc(HEC), '67 BEd, in September 2022

'58 **Thomas Walter Dingle**, BSc(Hons), '65 PhD, in August 2022

'58 **Eugene Vincent Dolinsky**, DDS, in June 2022

'58 **Shirley G. Grace (Williams)**, Dip(Nu), in June 2022

'58 **Brian Edgar Henson**, BSc, in July 2022

'58 **Mary Katherine Krpan**, BEd, '67 BA, in October 2022

'58 **Norma Jean McCullough (Habkirk)**, Dip(Nu), in July 2022

'58 **Norman D. Olson**, Dip(Ed), '60 BA, in November 2022

'58 **Dorothy Ann Sherring**, BEd, in August 2022

'58 **Kathleen Louise Wright**, Dip(Ed), in May 2022

'59 **Donald Paul Akitt**, BSc(EngPhys), in December 2022

'59 **Donald Valentino Basso**, BSc, in June 2022

'59 **Clemens Sylvanus Bernhardson**, MA, in January 2022

'59 **Arthur "Scotty" Aubrey Day**, BEd, in May 2022

'59 **Douglas Edward Deakin**, BCom, in April 2022

'59 **William E. Forde**, BSc(ChemEng), in August 2022

'59 **George Goldsand**, MD, in December 2022

'59 **Leonard Paul Haenni**, BSc(CivEng), in March 2022

'59 **Leonard James Hanak**, BEd, in September 2022

'59 **Myer Horowitz**, MEd, '90 LLD (Honorary), in October 2022

'59 **Wing Ho Lew**, BSc(Pharm), in November 2022

'59 **Patricia Ann Sears**, Dip(Nu), in August 2022

'59 **Gerald Thomas Smith**, BSc, '63 BEd, in September 2022

'59 **Lester J. Zimmel**, BSc, in April 2022

1960s

'60 **Mary-Wynne Ashford (Moar)**, BSc(HEC), '61 BEd, in November 2022

'60 **Donna Deepprose**, BA, in January 2022

'60 **Roy Douglas Ferguson**, BSc, in June 2022

'60 **Drake Hocking**, BSc, in August 2022

'60 **Keith Thomas Horn**, BSc(ChemEng), in August 2022

'60 **Ronald David Karoles**, BA, '64 LLB, '78 MBA, in September 2022

'60 **Albert Karvonen**, BEd, '64 Dip(Ed), '66 MEd, in November 2022

'60 **Patricia Agnes Klinck**, BA(Hons), in October 2022

'60 **George Stewart Lane**, BCom, in May 2022

'60 **Robert Donald MacKenzie**, BSc(Pharm), in July 2022

'60 **Robert Edward Pottinger**, BCom, '64 LLB, in June 2022

'60 **Barry Phillip Robbins**, MSc, in December 2022

'60 **Gordon D. Williams**, PhD, in April 2022

'61 **Margaret Anne De Marco**, Dip(Nu), in August 2022

'61 **Agnes Marie Dick**, BSc, in November 2022

'61 **Norma Joan Holden**, BEd, in June 2022

'61 **Wayne Gary Holt**, BA, in May 2022

'61 **Eduard W.J. Kerkhoven**, BSc(Ag), '65 MSc, in August 2021

'61 **Francis Gerald Kohler**, BSc(CivEng), in November 2022

'61 **John Steven Krebes**, BSc(CivEng), in December 2022

'61 **Anna Mae Maruyama (Stewart)**, Dip(Nu), '72 BScN, in April 2022

'61 **Elizabeth Leitch Mathieson**, Dip(Nu), in October 2022

'61 **Raymond Philippe Messier**, BEd, in April 2022

'61 **Lorraine Gertrude Milne**, BA, in June 2022

'61 **Charles Robert Neill**, MSc, in July 2022

'61 **Geoffrey Harold Saxton**, BCom, '64 LLB, in July 2022

'61 **Viola Jean Scheidt**, BEd, in March 2022

'61 **Donald Ivar Torstensen**, BEd, in August 2022

'61 **Arthur Wichert**, BSc(MineralEng), in December 2022

'62 Gloria J. Dalton, BA, in November 2022	'63 Stanley Sanderson, BCom, in 2022	'64 Albert George Seeger, BA, in November 2022	'66 Dorothy Marie Browne, BCom, in July 2022	'67 Isadore Steve Shewchuk, BA, in October 2022	'69 Roy Herbert Bricker, BA, in June 2022
'62 Phyllis Ruth Dearborn (Olson), Dip(Nu), in October 2022	'63 Rita Margaret Shillabeer (Goedicke), BSc, '68 MEd, in September 2022	'64 James Richard V. Walters, BSc(CivEng), '66 MSc, in April 2022	'66 Yvonne Graziella Chevalier (Baert), BEd, in April 2022	'67 Dwayne Alan Skoye, BSc(Ag), '72 MSc, '88 Dip(Ed), in July 2022	'69 Terrence Timothy Buck, BA, in December 2021
'62 Robert Murray Hicks, BEd, in July 2022	'63 Madeleine Suska Krusche, MSc, in 2022	'64 John Stuart Watts, BSc(MechEng), in November 2022	'66 Ruth Alice Deans, BEd, in September 2022	'67 Neta J. Specht, BEd, in December 2022	'69 Donald Arthur Enarson, BSc, '70 MD, in June 2022
'62 John Robert MacFarlane, BA, '63 BEd, in April 2022	'63 John Anthony Watson, BEd, in November 2022	'64 Pamela White, BScN, in October 2022	'66 James Kenneth Fenton, BSc(Ag), in May 2022	'67 Peter Lawrence Thompson, DDS, in December 2022	'69 Lucien Lionel Faucher, BSc, '70 MD, in September 2022
'62 Jack Thorne Mah, BSc(Pharm), in May 2022	'64 Mary Clare Bednarik, BEd, '70 BA, in April 2022	'64 Grace Ruth Deanna Yakimishyn (Kroening), BA, '71 BEd, in November 2022	'66 Arthur Hooks, BPE, in April 2022	'68 John Robert Ballard, BSc(MechEng), in August 2022	'69 Robert Oscar Johnson, BSc(MechEng), in December 2022
'62 Kenneth Delmar Mitchell, BEd, '65 BA, '73 Dip(Ed), in June 2022	'64 Clarice Bloomenthal, BA, in April 2022	'65 Jolaine Margaret Allan, BSc(Pharm), in April 2022	'66 Harry Paul Klann, BEd, '80 MEd, in January 2023	'68 Joseph Charles Baudin, BEd, in December 2022	'69 Vern Wilton Lindberg, BSc(Hons), in September 2022
'62 Joseph Thomas Sorenson, BPE, '64 BEd, in January 2022	'64 Bernie John Bradley, BSc(ChemEng), in June 2022	'65 Elmer Clark Allen, BSc(Ag), '67 MSc, in April 2022	'66 Donald Murray Layman, BEd, '68 Dip(Ed), '72 MEd, in August 2022	'68 Carl James Brodie, BEd, '71 BA, '73 Dip(Ed), '76 MEd, in November 2022	'69 Ian Donald MacLeod, BCom, in October 2022
'62 William Alexander Tajcnar, BSc, in December 2021	'64 Robert Graham Bruce, BCom, in September 2022	'65 Richard Theodore Asp, BEd, '72 Dip(Ed), in December 2022	'66 Geoffrey Austin Lester, MA, in May 2022	'68 Gordon Franklin Dixon, LLB, in November 2022	'69 Robert Dale McIntosh, BEd, in November 2022
'62 Kenneth Clifford Welsh, BA, '99 LLD (Honorary), in May 2022	'64 Ingrid Louise Delancey (Swanson), Dip(DentHyg), in January 2023	'65 Darlene Gail Drever (Pasemko), BEd, in October 2022	'66 Howard J. Luke, LLB, in July 2022	'68 Barbara Anne Fraser, BMus, '69 BLS, '80 BEd, '87 MEd, in April 2022	'69 Darryl Wayne McLeod, BA, '72 BEd, in February 2022
'62 James Robert Wood, BSc, '64 BEd, in September 2022	'64 Francis Edward Dunnigan, BEd, in November 2022	'65 Laverne Edith Grant (Munro), Dip(Nu), '66 BScN, in June 2022	'66 George Albert W. Purkess, BEd, '71 MEd, in July 2022	'68 Sterling Earl Green, BA, in November 2022	'69 Edgar Lorne Mitchell, BEd, '70 Dip(Ed), in July 2022
'63 John Francis Brosseau, BEd, '65 MEd, '73 PhD, in January 2023	'64 Graham Stephen Farquharson, BSc(MiningEng), in May 2022	'65 Murray Arnold Greenberg, BSc, in June 2022	'66 Harvey Edward Sauder, DDS, in November 2022	'68 Emily Letwiniuk, BEd, in March 2022	'69 Jane Elizabeth Pace (Hobson), Dip(Nu), in September 2022
'63 John Timothy Byrne, BA, '66 LLB, in December 2022	'64 Margaret Jean Foth (Marsh), Dip(Nu), '65 BScN, in December 2022	'65 Peter Burnell Hancock, BSc(ElecEng), in September 2022	'66 Mary Demetrius Tebo, BEd, in November 2022	'68 Stewart William Martin, PhD, in November 2022	'69 Nikhil Kumar Sarkar, MSc, in December 2022
'63 Robert Bruce Cockell, BEd, '63 BMus, in November 2022	'64 Jean C. Graham, BA(SpecCert), '65 BMus, in April 2022	'65 John Munro Hope, BA, '68 LLB, in December 2022	'66 Fitzgerald Metcalfe Thomas, BSc, '68 MSc, in February 2022	'68 Eugene Matichuk, BEd, in July 2022	'69 Hugh Verlin Stewart, BSc, '70 MD, in August 2022
'63 Keith Lavern Hansen, BA, in April 2022	'64 Walter Werner Haessel, BSc(Ag), '66 MSc, in August 2022	'65 Rudy Kaethler, BSc(MechEng), in June 2022	'67 Philip Francis Boyle, BEd, in April 2022	'68 Kenneth Michael Mayer, DDS, in March 2022	'69 Ernest Robert Vyse, PhD, in June 2022
'63 Patrick Guy Heslip, MD, '71 MSc, in June 2022	'64 Robert Arthur Hallgren, MD, in April 2022	'65 Lennart Hubert Marx, MD, in December 2022	'67 James Edward Goulet, BEd, in January 2023	'68 Maxine Joyce McClelland (McLeod), BSc(HEC), in January 2023	'69 Jennifer Anne Wrzosek (Gomes), BEd, in January 2022
'63 Lois Dianne Johnson (Stepa), BSc(Pharm), in September 2022	'64 John Malcolm McEwen, BEd, '74 MEd, in August 2022	'65 Maya Mangesh Murdeshwar, MA, in June 2022	'67 Michael Macauley Jamison, BCom, '71 BEd, in November 2022	'68 Morley Michael Pinkoski, BEd, '89 MEd, in June 2022	'69 Darlene Yakimetz, Dip(Nu), in November 2022
'63 Gordon Max Kenyon, BSc(CivEng), in January 2023	'64 Alan George Meech, BA(Hons), in July 2022	'65 Eric Lipsey Nielsen, BCom, in December 2022	'67 Jules Albert Lacoursiere, BEd, '75 Dip(Ed), in December 2021	'68 Richard Leonard Shaffner, MA, in June 2022	
'63 Ivan Samuel Kravinchuk, BA, in May 2022	'64 John Howard Nodwell, BSc(MechEng), in November 2022	'65 Marie Margaret Polding, Dip(Nu), in August 2022	'67 Wanda Leeb (Badach), BEd, in October 2022	'68 Roman "Roy" Walter Solowiejko, BA, in June 2022	
'63 William James Lockhart, BSc(Ag), '67 MSc, in October 2022	'64 Thomas Corbett Parker, BSc, '67 BEd, '77 MEd, in August 2022	'65 Leonard Clifford Roger Schultz, BEd, '68 BSc, '83 Dip(Ed), in May 2022	'67 Richard John Meanwell, BCom, in November 2022	'68 Waldmar Eli "Hank" Tatarchuk, BPE, in October 2022	
'63 Robert Thomas Malpass, DDS, in April 2022	'64 John Patrick Peacock, BA, '67 LLB, in December 2022	'66 Owen Arthur James Anderson, BA, '72 PhD, in February 2022	'67 Brooke Lilford Mitchell, BSc, in January 2022	'68 Terrence Rountree Wilson, BEd, '71 Dip(Ed), '78 MEd, in January 2022	
'63 Daniel Terrence McCool, BSc(Pharm), in May 2022	'64 Brenda Lynn Powell (Bruce), Dip(Nu), in March 2022	'66 Terry James Bolton, BSc(ChemEng), in November 2022	'67 Ronald Victor Wolch, BCom, in November 2022	'69 John Edward Barrie, BEd, in May 2022	
'63 Donna Beverly Motture, BEd, in December 2022			'67 Carol Jane Nishimura, BEd, in July 2022	'69 Andrew Bilon, BEd, in December 2022	

1970s

'70 Linda Ruth Benbow (Pallister), BSc(Hons), in November 2022
'70 Delmar Perry Brooks, MBA, in February 2022
'70 William Herbert Carruthers, BEd, '72 BA, in November 2022
'70 Fredrick William Halliday, MD, in October 2022
'70 Helmut Herder, BSc(Hons), '71 Dip(Ed), in April 2022

'70 **Julia Anne Hutcheon**,
Dip(PHNU), '71 BScN,
in December 2022

'70 **S. Harihara Iyer**,
PhD, in January 2022

'70 **George Bohdan Jendyk**,
BA, '73 Dip(Ed),
'76 BEd, in May 2022

'70 **Marsha Marie Morris Manolescu**, BSc, '73
LLB, in December 2022

'70 **John Edward Morck**,
BSc, in October 2022

'70 **Robert F. Mulcahy**,
BED, '72 MEd, '75 PhD,
in December 2022

'70 **Hans Gerhard Nill**,
BA, in January 2022

'70 **Ramon Angelo Orlando**, MD,
'71 BSc(Med), in
November 2022

'70 **Gajanan Shambhu Pundit**, LLB, in April 2022

'70 **Donald Ross Smyth**,
MEd, in May 2022

'70 **Noreen C. Woitenko**,
BED, in June 2022

'70 **Adele Lucia Yukes**,
BED, in June 2022

'71 **Kenneth Roy Ambrock**, BSc(Hons),
in January 2022

'71 **Margaret Ann Burak**,
BED, in June 2022

'71 **Whitmore Thomas Burgess**, BED, in
November 2022

'71 **Ruby C. Chung (Tully)**, BED, '83 Dip(Ed),
in February 2022

'71 **Madeleine Cloutier**,
BED, in January 2022

'71 **Joan Elaine Hainer (Kerr)**, BED, '86
Dip(Ed), in June 2022

'71 **Albert Kwan Kit Hoh**, DDS, in April 2022

'71 **Joana Janis**,
BED, in May 2022

'71 **Elizabeth Johnson (Sarawanski)**, BED,
in June 2022

'71 **James Bradford Kerby**, BSc, '75 LLB,
in September 2022

'71 **Yvonne Grace McKinnon**, BED,
in May 2022

'71 **Gerald Wayne Piro**,
BCom, in June 2022

'71 **Marilyn Louise Stallworthy (Corey)**,
Dip(Ed), '72 Dip(Ed),
in July 2022

'72 **Leonard George Allbon**, BSc(OT),
in July 2022

'72 **Wayne Earl Benner**,
BCom, in January 2023

'72 **Marie-Anne Irene Demers**, BED, '80
Dip(Ed) in 2022

'72 **Larry Oliver Fraser**, BSc(ChemEng),
in October 2022

'72 **Arthur Victor Greenhalgh**, BA,
in January 2023

'72 **Helen Haponiuk**,
BED, in August 2022

'72 **Robert George Hoskins**, BA, in
December 2022

'72 **Patricia Belle Howey**,
BED, in September 2022

'72 **Frank Kee-Yan Hui**,
BSc, '74 DDS, in July 2022

'72 **Gerald Ryan Kereliuk**, BSc(Hons),
in September 2022

'72 **Peter Allan Kleparchuk**, BED, '80
Dip(Ed), in January 2023

'72 **Barry Clive Kotch**,
BED, in June 2022

'72 **William Ganfield Laatsch**, PhD, in
September 2022

'72 **Gordon Ronald MacLock**, BA, '73 Dip(Ed),
in January 2022

'72 **James Paul MacLure**,
BPE, '73 Dip(Ed), in
October 2022

'72 **Wayne Larry Meckle**,
BA, '91 BSc, in May 2022

'72 **Kathryn Pauly Morgan**, MEd, in
September 2022

'72 **Agnes Elaine Nixon (Bucknum)**, BA, in
December 2022

'72 **Roy John Paskuski**,
BED, in April 2022

'72 **Treva Oressa Rimney**,
BED, in October 2022

'72 **Christopher Peter Root**, BSc, in June 2022

'72 **Svend Aage Schmidt**, BED, '76 BA, '79
Dip(Ed), in June 2022

'72 **Jeannette Marie Semeniuk**, BA,
in June 2022

'72 **Grant Tsuchin Tu**,
PhD, in December 2021

'72 **Richard Alfred Vivone**, BA, in May 2022

'72 **William A. Williams**,
BA, in January 2023

'72 **Christopher James Wilson**, BA, '73 LLB,
in August 2022

'72 **Loverne Anne Wowk**, BED, '81 Dip(Ed),
in September 2022

'73 **Leslie Gregg Brentnall**, BSc, '76
Dip(Ed), '76 BEd, in
December 2022

'73 **Thomas George Hoskins**, BED, '76
Dip(Ed), '80 MEd,
in June 2022

'73 **Lorne Stanley Carlson**, BSc(ElecEng),
in April 2022

'73 **Carl Eric Engstrom**,
BED, in August 2022

'73 **Peter J. Gray**, BED,
in September 2022

'73 **Bernice Wanda Kizior**, BED, in July 2022

'73 **Margaret Elizabeth Kohle (Rigney)**, BScN,
in September 2022

'73 **William Ormond MacCallum**, BED,
in March 2022

'73 **Don E. Macdonald**,
BSc, '76 BSc(SpecCert),
'85 MSc, in January 2023

'73 **Bruce Allen McCarty**, BSc(CivEng),
in November 2022

'73 **Linda Mae Nichols-Mandrusiak (Nichols)**,
BED, in September 2022

'73 **Kenneth Brian Sharun**, BED, in
January 2023

'73 **James N. Shaw**, LLB,
in November 2022

'73 **Lawrence Alexander Sitko**, BA, '74 LLB,
in January 2023

'73 **Floyd Scott Taylor**,
BA, in January 2023

'74 **Lorraine Marie Andrichow**, BED,
in November 2022

'74 **Robert Taylor Barnes**,
BED, in January 2023

'74 **Nancy Ann Bateson**,
Dip(DentHyg),
in July 2022

'74 **Marie Cecilia Benoit**,
BED, in March 2022

'74 **Joseph Robert Brasic**, BSc(ElecEng),
in July 2022

'74 **Brian Russell Burrows**, LLB, in
November 2022

'74 **Adrian Bussoli**,
BA, in July 2022

'74 **Barbara E. Cotton**,
BA, in June 2022

'74 **Duncan F. Crerar**,
LLB, in December 2022

'74 **Anthony Richard Green**, BSc, '76 Dip(Ed),
in August 2022

'74 **Bertram Michael Gruber**, BA, '83 MEd,
in October 2022

'74 **Beverly Jean Guenther (Nish)**,
BED, in March 2022

'74 **Lawrence Metro Hlushak**, BED, in
January 2022

'74 **Jennie Hnydyk**, BED,
in September 2022

'74 **Christopher Yiu-Sun Lee**, BSc(Pharm),
in February 2022

'74 **Leone Christine McGregor**, BA, in
January 2023

'74 **Dale R. Michaels**,
BSc, in April 2022

'74 **Sheila Marion Moorhouse**, BED, '84
Dip(Ed), in January 2022

'74 **Anna-Cari Morin**,
BED, in December 2022

'74 **Ralph Sydney Pedersen**, BED,
in May 2022

'74 **Adriano Zenari**,
BSc(Hons), '78 MSc, '83
PhD, in August 2022

'75 **James Gregory Donald Andrais**, BSc,
'81 BCom, in May 2022

'75 **Cherry Lynn Bowhay**,
Dip(Ed), in June 2022

'75 **Terry James Caveny**, BSc(ChemEng),
in July 2022

'75 **Bryan Arthur Heinz**, BSc(MechEng),
in November 2022

'75 **Ruth Ann Hoover (Umbach)**, BSc(Spec),
in June 2022

'75 **Donald John Thomas Howden**, BCom, in
September 2022

'75 **Marie Elaine Marina Hutchinson (Duperreault)**,
BLS, in May 2022

'75 **Stanley Tadeusz Kiryczuk**, BED,
in April 2022

'75 **Robert Wayne MacKlem**, BSc(Pharm),
in October 2022

'75 **Clara Anne McRae (Parsons)**, Dip(Nu),
in August 2022

'75 **Anette Marie Minchuk**, Dip(RM), '82
BSc(PT), in March 2022

'75 **Maureen Elizabeth Pelensky**, BED, '80
Dip(Ed), '96 MLIS, in 2022

'75 **Frances Irene Tallon**, BED, '92
Dip(Ed), in April 2022

'75 **Myrtle Ethel Gail Taylor (Moolin)**, LLB,
in September 2022

'75 **Colin Bruce Wylie**,
BSc(Spec), in July 2022

'76 **Janet Elizabeth Andrews**, BMus,
in January 2022

'76 **Margaret Ruth Ballantyne**, BSc(Spec),
in October 2022

'76 **Anne S. Cackett**,
BScN, in November 2022

'76 **Richard Lawrence Cone**, BMedSc, '78
MD, in July 2022

'76 **Richard Joseph Dombrosky**, BED,
'86 Dip(Ed), in
December 2022

'76 **Jody Anne Harries**,
BA, in December 2022

'76 **Lloyd Holden**, BED,
in January 2022

'76 **Carol Linda Jenken**, BMedSc, '78
MD, in April 2022

'76 **Violet Kowalchuk**,
BED, in May 2022

'76 **Roy Edward Lavalley**,
LLB, in April 2022

'76 **Allan Gert Levinsohn**, BSc(Forest),
in January 2022

'76 **Richard Wayne Massing**, BSc(Spec),
in December 2022

'76 **Richard Linton Sherbaniuk**, BA,
in April 2022

'76 **Jean Shumborski**,
BED, in May 2022

'76 **William Viznei**,
BED, in March 2022

'76 **Iain Douglas Watson**,
BSc(Forest), '90 BEd,
in September 2022

'76 **Russell Frank Yurkiw**, BCom,
in June 2022

'77 **Glenn Francis Allison**, BA, in
November 2022

'77 **Samuel Craig Buchanan**,
BSc(ChemEng), in
January 2023

'77 **Doris Lorraine Corbin**, BED, in April 2022

'77 **Mark Emil Ehrman**, BSc(Spec),
in January 2022

'77 **Jeannine Marie Green (LaFrance)**,
BA(Spec), '80 MLS,
in October 2022

'77 **Barry Dewayne Haughian**,
BSc(MechEng), in
January 2023

'77 **Bruce Gordon Hudson**, BCom, in
October 2022

'77 **Christian Otto Knoechel**, BSc(PetEng),
in July 2022

'77 **Andrey Gregory Kunda**, BSc(Spec),
in April 2022

'77 **Edith Jean McCreedy**,
BED, in March 2022

'77 **Brian Kenneth Rebus**,
BSc, in August 2022

'77 **Frederick William Thomas Somerville**,
LLB, in August 2022

'77 **Sheila Anne Spooner**,
MHSA, in December 2022

'78 **Helena Lucia Adamowicz**, BSc(Spec), '81 MA, in May 2022

'78 **Timothy Shawn Cake**, BSc, in August 2022

'78 **Carol Ferne Engelking (Howe)**, BEd, '83 BCom, in January 2023

'78 **Robert William Fewings**, BSc(CivEng), in November 2022

'78 **Diana Gibson**, BCom, in December 2022

'78 **Igor Levental**, BSc(ChemEng), '82 MBA, in June 2022

'78 **Kenneth John Meier**, BSc(CivEng), in September 2022

'78 **Reme Nelson**, Dip(Ed), in August 2022

'78 **Kathleen Ann Ponto**, BEd, in January 2022

'78 **Edward Waldemar Rossol**, BSc, '79 BEd, in June 2022

'78 **Dawn Jean Schutta**, BEd, '85 PostgradDip, in December 2021

'78 **Joseph Wai-Hung So**, MSc, '84 PhD, in July 2022

'78 **John Vanderleest**, BSc(Ag), in December 2022

'78 **Doreen May Youngs**, BA, in August 2022

'79 **Fahiem Ivor Bacchus**, BSc(Hons), '88 PhD, in September 2022

'79 **Daphne Daniels**, MHSA, in January 2023

'79 **Sharon Dawn de la Mare**, BEd, in May 2022

'79 **Judith Prescott Flynn**, PhD, in May 2022

'79 **Dawnita Gail Johnson**, BEd, in January 2023

'79 **Leanne Helen Mill**, BCom, in August 2022

'79 **Mark Douglas Tims**, LLB, in October 2022

'79 **Kenneth Brent Wasserman**, BSc, in December 2022

'79 **Sheila Mary Young**, BEd, in December 2021

1980s

'80 **Catherine Louise Arbeau**, BEd, in March 2022

'80 **Maria Buchta**, BEd, in September 2022

'80 **Michael Gifford Edmonds**, BCom, in October 2022

'80 **Sastri Gosine**, BEd, in March 2022

'80 **Helen Elizabeth McLean**, BEd, in October 2022

'80 **Maylene Sharol McMillan**, BA, '85 MSc, in September 2022

'80 **David James Perry**, BA, in July 2022

'81 **Brian Edward Grice**, BCom, '85 LLB, in January 2023

'82 **Janet Mary Billingham**, BA, in October 2022

'82 **Leah Ellen Dockrill**, MLS, in September 2022

'82 **Darolyn Edith Hunter-Frey**, BEd, in November 2022

'82 **Jennifer Mary Lunn-Wallin**, BEd, '89 BCom, in January 2023

'82 **Janet Ann MacGregor (Jones)**, BEd, in June 2022

'82 **Ramraj Chris Maharaj**, BA, in May 2022

'82 **Maureen Suzanne McNally**, BEd, in September 2022

'82 **Dawnette Elizabeth Schmidt (Clyne)**, BEd, in April 2022

'82 **Catherine Marie Sturwold**, BSc(Ag), in January 2022

'82 **Faye Van Oers Papirny**, BEd, in April 2022

'83 **Violet Elizabeth Elliot**, BScN(Hons), in March 2022

'83 **Henry Kuik**, BEd, in September 2022

'83 **S. Wayne Lee**, MSc, '92 PhD, in April 2022

'83 **Beverley J. Marshall (Hodges)**, BSc(HEC), '86 BEd, in May 2022

'83 **Peggy Dawn Moore**, BFA, in October 2022

'83 **Laura Kim Stevens**, LLB, in January 2023

'84 **Joseph De Franceschi**, BA, in May 2022

'84 **Kathy Anne Gall**, BEd, in February 2022

'84 **Willena Jessie Horne**, BEd, in December 2022

'84 **Ruth Krahn**, BA, in November 2022

'85 **Valerie Gaye Finnemore**, BEd, '00 Dip(Ed), in September 2022

'85 **David James Hagen**, BSc(PetEng), in 2022

'85 **Fernand Paul Ouellette**, BEd, in February 2022

'85 **Jeanne Marie Wegner**, BEd, in July 2022

'86 **William Alexander Hunter**, BSc(Spec), '96 BSc(SpecCert), in April 2022

'86 **John Henry Lehnert**, BSc(CivEng), in July 2022

'86 **Douglas Wayne Nixon**, BA, in September 2022

'86 **Christian J. Toupin**, PhD, in April 2022

'87 **Paul Edward Broska**, BSc(MechEng), in September 2022

'87 **Dwight Dana Danelesko**, BSc, in October 2022

'87 **Marilyn Gail Holben**, BEd, in July 2022

'87 **James Curtis Kalynchuk**, BSc(Spec), in September 2022

'87 **Christopher Scott Kieser**, BCom, in April 2022

'87 **Paula Patricia Nowlan (Bassett)**, BEd, in September 2022

'87 **Colin Grant Sorochan**, BSc(MedLabSci), '91 MHSA, in March 2022

'87 **Henriette Van Hees**, BA, in November 2022

'87 **Florence Lynn Van Reede (Cook)**, BA, '94 BA(SpecCert), in December 2022

'87 **James Dirk Vos**, BSc, in November 2022

'87 **Wayne Michael Wasylciw**, BSc(AgEng), '93 MSc, in January 2023

'87 **Joan Ellen Wispinski**, BEd, in 2022

'88 **Maria David-Evans**, BSc, '93 MBA, '94 MA, in September 2022

'88 **Barry Lee Hertz**, BEd, in May 2022

'88 **Anne Keenleyside**, MA, in October 2022

'88 **Gharib Abdelhadi Mohamed**, MSc, in January 2023

'88 **Leslie Merville Samuelson**, PhD, in October 2022

'88 **Shauna Lee Wilson**, BSc(PetEng), in November 2022

'89 **Glen Robert Ellingson**, MEd, in July 2022

'89 **Ray Hegerat**, BEd, in September 2022

'89 **Joan Anna Kennedy**, BEd, in December 2022

'89 **Kathleen May Klepachek (McKerchar)**, BEd, in July 2022

'89 **Betty Loraine Phelan**, BA, in January 2023

'89 **Michael Gerald Schmitke**, BSc, in August 2022

1990s

'90 **Jeannette Mae Beck**, BEd, in August 2022

'90 **Bruce Beingessner**, BCom, in September 2022

'90 **Margaret Allyson Bekolay (Campbell)**, MEd, in October 2022

'90 **James Allen Duncan**, BEd, in September 2022

'90 **Fiona Allison Lang**, BCom, in September 2022

'90 **John Paul Moxham**, BMedSc, '92 MD, in January 2023

'91 **James Edward Baylis**, Dip(Ed), in November 2022

'91 **Cameron Owen Boddy**, BA, in September 2022

'91 **Jason Yohemas**, BCom, in April 2022

'92 **David Leonard Fowles**, LLB, in October 2022

'92 **Jo Ann Hammond-Meiers**, PhD, in June 2022

'92 **Nicholette Leonee Prince**, MSc, in April 2022

'92 **Jason C. Silverman**, BSc, in December 2022

'92 **Athena Athanasia Skagos**, BCom, in July 2022

'92 **Laura Kathleen Sorenson (Rosland)**, BA, '94 BEd, in March 2022

'93 **Lynette Marie Matchim**, BScN(Hons), in December 2022

'93 **Peng Fong Mok**, BSc(ElecEng), in June 2022

'93 **Devra Avis Sullivan**, MEd, in August 2022

'94 **Jennifer Alyssa White**, Dip(DentHyg), in April 2022

'95 **Todd Douglas French**, MSc, in November 2022

'96 **William Robin Brazel**, BSc(Spec), in February 2022

'96 **Corey Lynn Lederhouse**, BPE, in July 2022

'97 **Elaine Admussen**, BSc, '99 BEd, in April 2022

'97 **Cory Leigh Boddy**, BCom, in March 2022

'97 **Robert Noel**, BEd, in September 2022

'98 **Douglas Nimchuk**, BSc(PetEng), in October 2022

'99 **Linda Rose Gadwa**, BEd, '06 Dip(Ed), '09 MEd, in June 2022

2000s

'00 **Theresa Dawn Armstrong**, BPE, '00 BEd, in November 2022

'00 **Dorothy Marie Kelker**, BSc(Hons), in May 2022

'00 **Heather Elizabeth Lawrence**, BSc, '05 BSc(PT), in July 2022

'01 **Ravindran Govindasamy**, BSc(MatEng), in August 2022

'01 **Joanna Terese Laphorne**, BSc(Nutr/Food), in December 2022

'01 **Raoul Reynold Mendoza**, BDes, in August 2022

'02 **Daniel John Pastirik**, MBA, in April 2022

'03 **Todd G. Reade**, BA(Rec/Leisure), in September 2022

'03 **Allan Steven Reid**, BA(Spec), in October 2022

'05 **Todd Roger Homan**, BA, in October 2022

'06 **Jordan Cale Kirillo**, BA, in December 2022

2010s

'11 **Duncan Francis Charlton**, BEd, in November 2022

'13 **Jessica Audrey Hatton**, BMus, in 2022

'14 **Suzan Sevda Ciplak**, BEd, in February 2022

'15 **Hilary Christine Penner**, BSc(Spec), in September 2022

'17 **Jeffrey Daniel Horan**, BSc(CivEng), in September 2022

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

thehub

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SPEAKER'S CORNER

EXERCISE CAN HELP BOOST RECOVERY

By Madisen Gee, '21 BA, '21 Cert(CSL)

A walk around the block won't cure cancer, but studies are showing it can help make treatment more effective. Kerry Courneya, a professor in the Faculty of Kinesiology, Sport, and Recreation, has spent decades researching the effects of exercise on people undergoing cancer treatment. He spoke recently about his findings at an alumni event. Here are some takeaways from his talk.

SMALL CHANGES MAKE A BIG DIFFERENCE Exercise will look different for everybody depending on age, physical ability and the type of cancer they have. While patients should consult their doctors before committing to any vigorous exercise plans, there are small ways to incorporate physical activity into a daily routine, even if it's walking to the mailbox. "Start with what you're able to do," he says. "A five-minute walk is a good starting point."

EXERCISE IS A CONSTANT COMPANION Low-intensity physical activity is safe and feasible for patients throughout



the entire treatment cycle, says Courneya, who is also a Canada Research Chair in Physical Activity and Cancer and director of the Behavioural Medicine Laboratory and Fitness Centre. A study of more than 200 people with breast cancer showed that those who were on a monitored strength training regimen while receiving chemotherapy had a much higher chance of completing their treatments and completing them on time.

IT PLAYS WELL WITH OTHERS A study in mice found that chemotherapy paired with moderate aerobic exercise slowed tumour growth more than just the drugs alone. The mice in the exercise group had more and healthier blood vessels than their control counterparts, suggesting that exercise improves blood flow to the tumour, allowing more of the drug to be delivered, says Courneya.

ACTIVITY IS GOOD FOR THE BODY AND THE BRAIN While exercise has physical benefits for patients with cancer, the mental health benefits may be just as important. Courneya and his team looked at the psychological impact of physical activity on people with prostate cancer who were undergoing "active surveillance," a method of monitoring cancer rather than treating it with surgery or radiation. While many men in active surveillance experience fear and anxiety about cancer progression, the study showed that those who exercised had significantly less stress and anxiety than the control group. This led to higher levels of self-esteem and less fatigue — all factors that help keep patients healthy mentally.

Courneya is one of many speakers to share expertise at alumni events. For more, visit ualberta.ca/OnDemand.

PODCAST WISDOM

"Your greatest asset is your curiosity. Start by being curious about others. The people who are remembered as great conversationalists are the people who say very little."

Arden Tse, '95 BSc(Spec), '99 BCom, '13 MBA, talks about navigating his unexpected career path on an episode of the alumni podcast *What the Job?*



LIVING ROOM LESSONS

Getting enough protein isn't just a concern for bodybuilders. Protein helps fuel everything from balance to immune function. Get tips on protein-packed recipes and learn the science behind the sustenance in the On Demand webinar "How to Cook With Nutrition and Muscle in Mind." Check out this and other free offerings at ualberta.ca/OnDemand.



DON'T MISS OUT ON...

P.D. COURSES

Join other U of A grads online for a new series of career development courses offered by the Office of Alumni Relations. There are a variety of topics, such as conversing with people who have different opinions, developing healthy habits and starting your own business. The four-week courses provide micro-credentials that you can add to your LinkedIn profile and resumé.

2,482



The number of hotdogs given out to attendees at U of A Days (formerly known as Alumni Weekend) in September. Students, staff, grads and community members gathered for events across U of A campuses including carnival games, a scavenger hunt and talks featuring expert speakers.

172

The number of entrepreneurs who have received mentorship support from the Threshold Impact Venture Mentoring Service (VMS) since December 2013. VMS pairs entrepreneurs looking to start or scale their venture with experienced mentors to help guide them as they grow into strong business leaders.



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Elise Noyes, fourth-year
U of A music student (voice),
practises in Convocation Hall.

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"Education is everything. The best way to encourage it is to help finance it for those who can't afford it."

Donors **Alan Bell**, '53 BA, '55 BEd, '67 MEd, and **Alice Bell**, '63 BEd

smalltalk

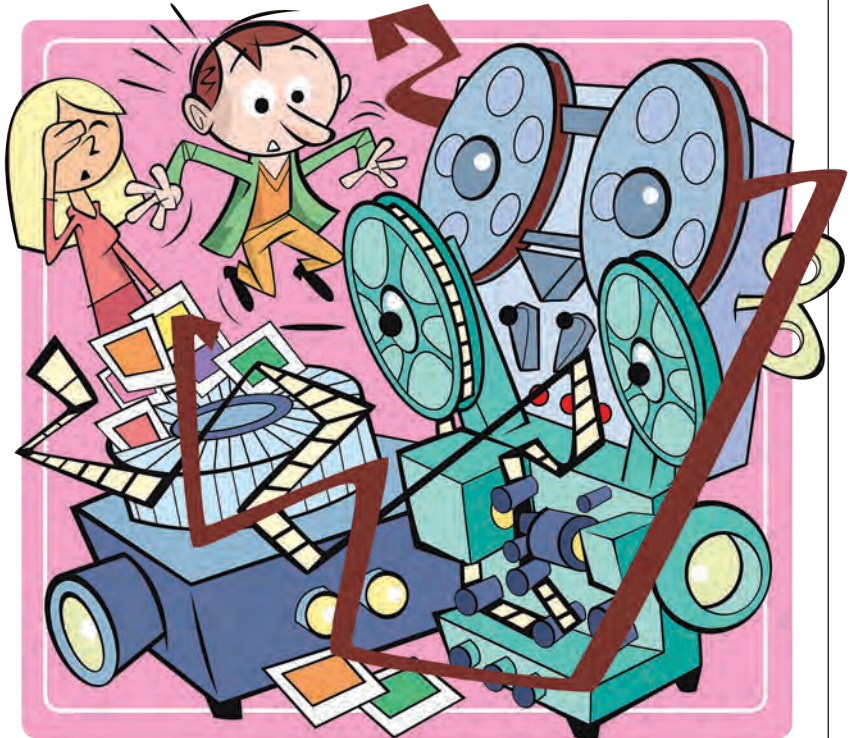


Technologically Challenged

➔ Nowadays we take things like smartphones, laptops and Wi-Fi for granted — but it wasn't too long ago that slide rules and typewriters were mainstays of student life. We asked grads to share blasts from the past that current students would have a hard time wrapping their heads around. Tell us yours or find more campus memories at facebook.com/UAlbertaAlumni.

Looking through drawers full of call numbers in the library to search for references to use for writing a paper on a typewriter.

—Michelle Frost, '94 BA(NativeStu)



As a student in the late 1970s, I worked in the Audio-Visual Media Centre. My job was to test future teachers on their ability to thread 16-mm projectors, reel-to-reel videotape recorders and film strip projectors; how to insert slides into a 35-mm slide projector; and how to use overhead projectors. If any of these relics still exist in a classroom today, I am certain that they are mostly collecting dust on a shelf.

—Rob Porkka, '80 BEd

I hated the telephone registration system. “The course you have selected is now full.” Still gives me anxiety just thinking about that!

—Corlaine Legge, '91 BSc



My boxy Mac, and using a paper clip to extract the disk that did not have enough memory for a longer paper!

—Coleen Graham, '88 BSc(HEC), '93 MED

Having to build a schedule then register by lining up in person for every course for each of my first-year science classes in 1978. The worst was getting three completed, and then having the next course full and having to backtrack and rebuild the schedule — took two days!

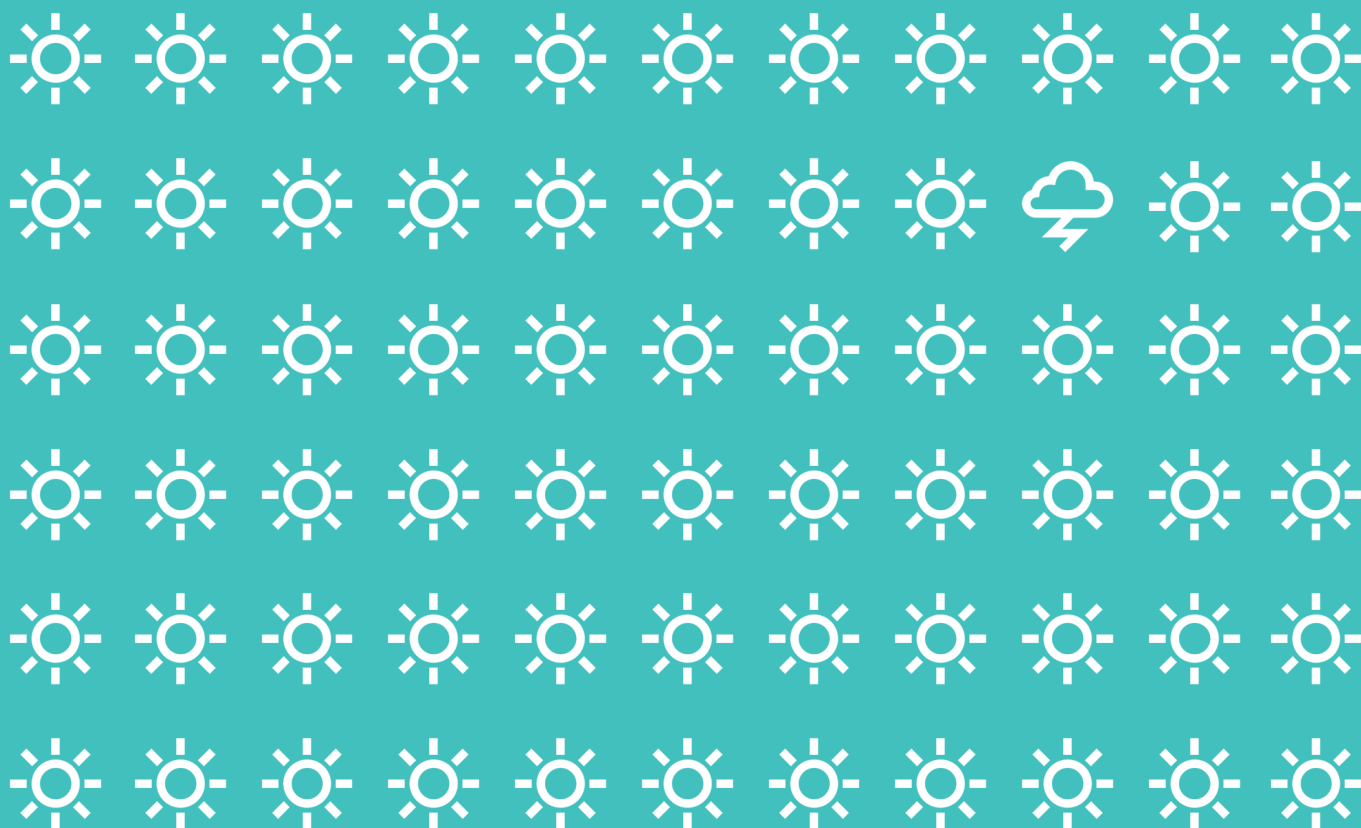
—Bill Preshing, '81 BSc, '85 DDS, '94 PostgradDip

In 1992, I was a kid from Sedgewick, Alta., a town of 800 people, trying to find her way to her first-year classes. All I had was a map with overhead pictures of the buildings. Outside, each building had its name on an obscurely placed post — somewhere. I ended up by the Biological Sciences Centre in tears and had to ask a complete stranger how to get back to Lister. To which I was told, “Uh, it's straight up the road.”

—Brandi Horinek Wyatt, '97 BSc(Ag)

Submitting a computer program job to the mainframe (I missed the punch card era) and then going over to the General Services Building later to pick up the printed output.

—Eugene Mah, '91 BSc(Spec), '96 MSc



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