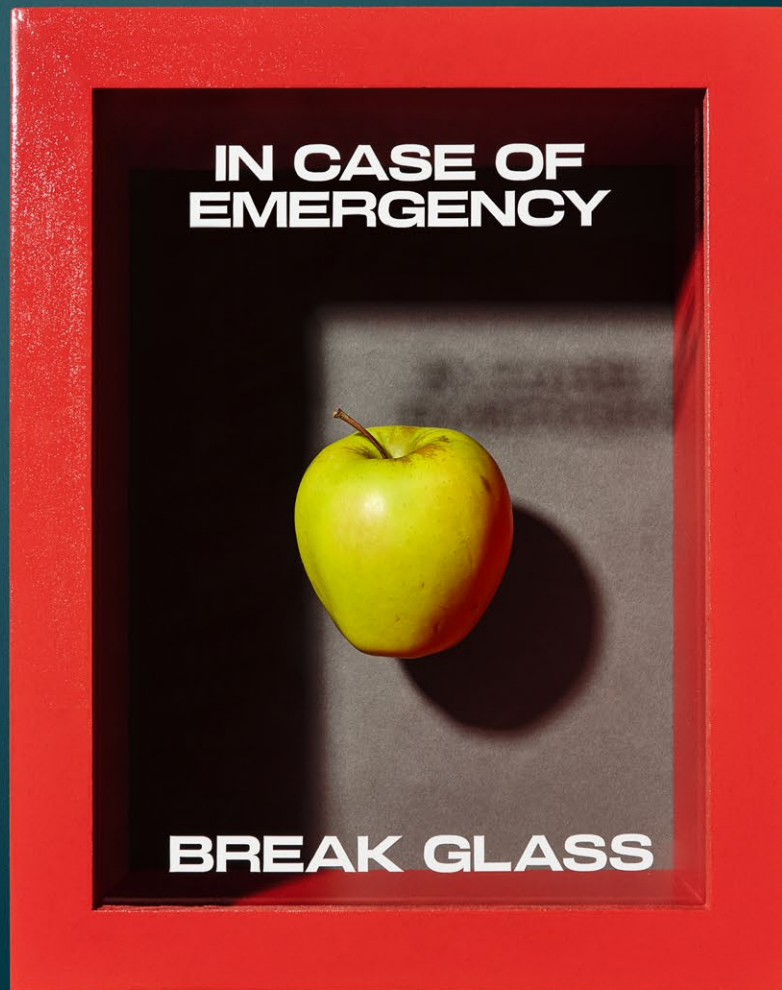


Western Alumni Magazine

Fall/Winter
2025



Feeding change

Story by Megan Stacey
Photo by Andrew Nelson,
courtesy of the Ministry
of Culture of Peru

It's more than 6,000 kilometres away from their usual archaeology class.

Western students traded lecture halls and bookbags for a six-week field project on the Central Coast of Peru, where they analyzed fardos—mummy bundles—to learn more about those who lived in Puruchuco, located just east of Lima, between AD 1470 and 1532.

“This project is the opportunity of a lifetime. Being able to see the process of field research firsthand has been invaluable,” says Avery Dowling, a fourth-year archaeology student and recipient of the Bogal-Szot Undergraduate Anthropology Fieldwork Award. “It gave me the chance to learn not only about archaeology, but also about academic research.”

Fardos are burial bundles containing individuals' remains, encased in textiles, alongside funeral goods such as decorative or memorial pieces. The sandy conditions in which they were buried worked to preserve remains, along with the wrapping materials that drew fluids away from the body. Fardos are microcosms of a person's life and culture, and they are studied for evidence on everything from pilgrimage patterns to health.

Western professor and bioarchaeologist Andrew Nelson has worked with Peruvian collaborators on this project since 2018, studying more than 150 fardos and creating an innovative mobile X-ray process to gather data and gauge whether the mummy is a fit for further CT scanning.

This summer, Nelson returned to the basement of Peru's Ministry of Culture building, where the Puruchuco fardos are stored, bringing a team of students for a unique hands-on research opportunity.

While fardos are typically studied by unwrapping the textiles encasing the mummy, that process causes irreversible damage and sacrifices future analysis. Nelson's team uses X-rays, CT scans and minimally invasive sampling to preserve the fardos while gathering valuable information about their cultural and biological characteristics, context and history. ●



Pisco, Peru, August 4, 2025, 11:25 AM

↗

From left: Chloe Sarmento,
Hanne Andersen, Avery Dowling



Western has a long history of making bold moves.

Western is all in on its newest fundraising campaign. Leveraging its role as a leader in life-changing research and transformative student education, the *All in* Campaign aims to mobilize donors and supporters to make a lasting impact.

Learn more at allin.westernu.ca

←

Opposite: Crews install campaign banners on campus in the early morning hours of Sept. 24, 2025.

The birthplace of wind engineering. The first MBA program outside of the U.S. The world's first liver-bowel transplant. Among many other groundbreaking milestones.

We're problem-solvers who see every challenge as an opportunity—and we lean in.

Today, we're closing in on cures for HIV and ALS, helping prepare for extreme weather, transforming how food is grown and produced and informing important global conversations on democracy and justice.

All of this while we prepare the next generation of leaders who will shape what comes next.

Western still provides that great student experience you knew when you were here—it's the glue that binds this community. A sense of belonging but also a sense of purpose.

And that feeling carries through boldly among our 382,000 alumni.

Now it's time to harness that power for the greater good.

Western has launched the most ambitious fundraising and engagement campaign in its history to fuel the transformation we want to see. Alumni are essential to our work—building connections, ideas, networks and leadership.

We're raising \$1 billion dollars—to shape the future for Canada and the world.

Together, we can meet this moment.

We are all in and I hope you'll join us.

AS

Alan Shepard
President & Vice-Chancellor



Western Alumni Magazine

Fall/Winter 2025

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Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum.

This land continues to be home to diverse Indigenous Peoples (First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society. Their distinct rights are an important part of our institutional responsibility to Reconciliation, and they are essential partners as we continue our commitment to increasing Indigenous voices and presence across all levels of community life, work, study and research.



↑
The installation *What Do You Carry? What Do You Leave Behind?* (detail) by Indigenous artist-in-residence Jodi Lynn Maracle includes sculpture and performance with soil, calico, deer hide, salt and found objects. Maracle uses Haudenosaunee material and techniques—combined with soundscapes, projections, video and performance—to interrogate questions of place, power, erasure and responsibility to the land.

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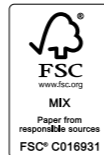
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Dr.
Robyn
Klein



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Ranked and recognized

Western has earned top marks in recent national and international rankings for its sustainability efforts, workplace culture, entrepreneurial impact and academic standing.

In the 2025 *Times Higher Education Impact Rankings*, the university placed third in Canada and 14th globally for advancing the United Nations Sustainable Development Goals, including climate action, gender equality and global partnerships.

Western earned recognition on *Forbes'* list of Canada's Best Employers for Company Culture and was named one of Southwestern Ontario's Top Employers by MediaCorp Canada for the second year in a row, noted for its employee well-being programs, professional development opportunities and mental health supports.

In the 2025 Center for World University Rankings, Western ranked sixth

in Canada and 185th worldwide, landing in the top one per cent of universities globally. Its standout achievement was in employability, rising nine spots and securing Canada's top position for the fifth year running. The employability metric measures the average number of alumni per year who have held top leadership positions since 2011 at the world's 2,000 largest public companies.

Western also ranked among the world's top 50 schools for undergraduate and MBA entrepreneurship in *PitchBook's* 2025 rankings, which track start-ups and venture capital-backed businesses. The university placed 40th globally for undergraduate alumni who have raised venture capital in the past decade—one of just seven Canadian universities on the list, ahead of prestigious institutions including Oxford, Cambridge and Johns Hopkins. ●

More on these stories: magazine.westernu.ca

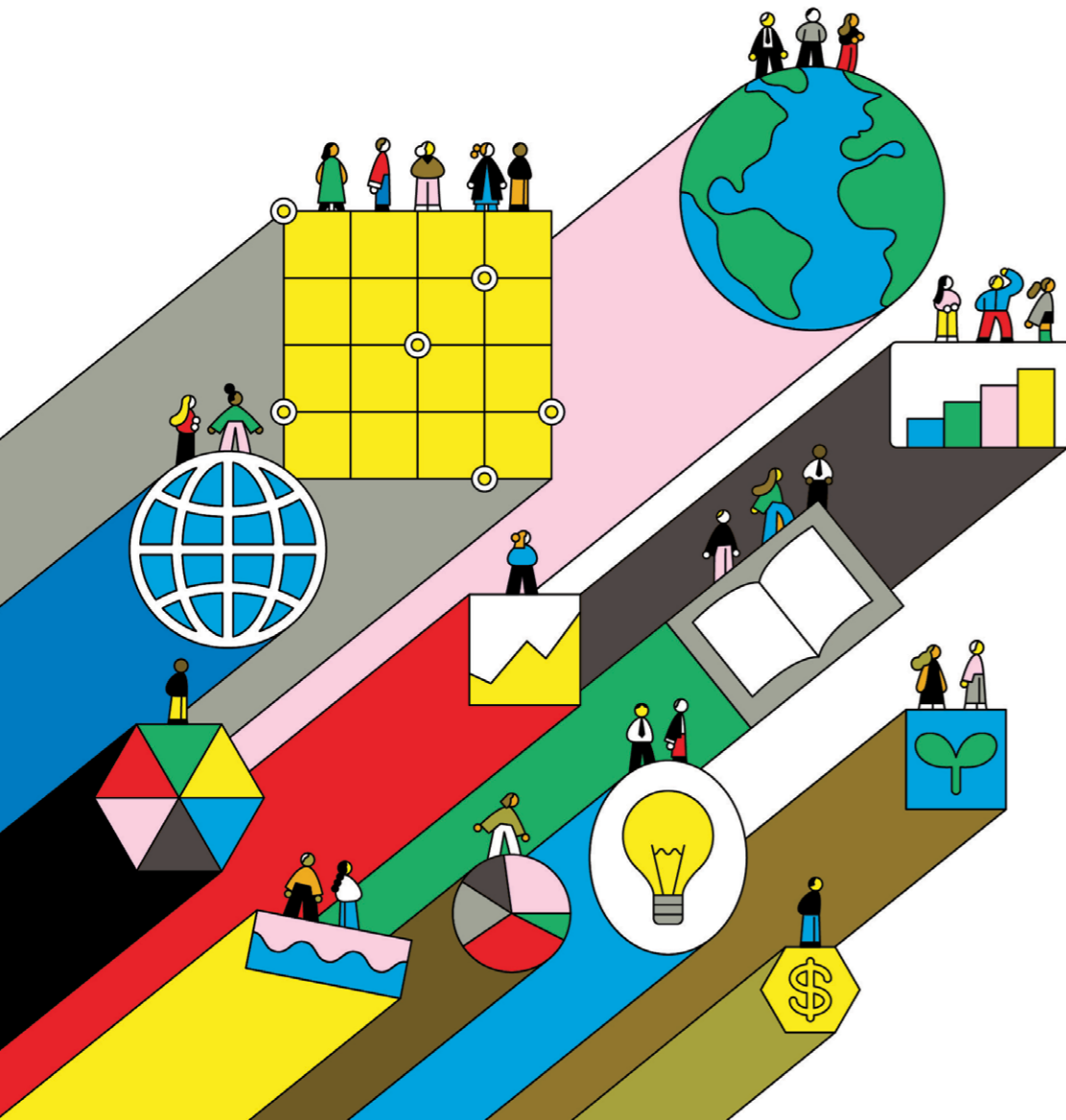


Illustration by Rose Wong



Bioconvergence Centre to transform health research

Western is entering into the detailed design phase for the Bioconvergence Centre, a 375,000-square-foot facility that will transform health research and science and medical education.

Among the largest capital projects in Western's history, the state-of-the-art interdisciplinary research space will advance one of the university's core strengths—biotherapeutics research and development—drawing on expertise across medicine, the biomedical and life sciences and engineering. It will serve as a hub for interdisciplinary teams from Schulich School of Medicine & Dentistry and the Faculties of Engineering, Health Sciences and Science, and will also include laboratory and instructional space for Schulich's MD program and new chemistry labs.

From developing wearable diagnostics to precision cancer therapies—future physicians, engineers, scientists and other experts will learn and discover within this shared environment designed to foster collaboration.

"This is not just a building—it's a transformational investment in our future," says Western President Alan Shepard. "The Bioconvergence Centre will bring together brilliant minds across fields to drive health advancements for Canada and beyond."

Pending approval from Western's Board of Governors, construction is expected to begin in early 2027, with the building slated to open in 2031. ●

↑
Conceptual design, created to illustrate the direction of the project.

Western roots, Nobel honour



Alum Peter Howitt, MA'69 (Economics), has joined the ranks of Nobel laureates. The longtime Western faculty member was awarded the 2025 Nobel Prize in Economics for his groundbreaking work on innovation-driven economic growth.

He shares the honour with Joel Mokyr and Philippe Aghion for their influential work advancing the theory of creative destruction—how innovation drives progress by replacing outdated technologies and industries.

Howitt taught at Western from 1972 to 1996 and says his time on campus was pivotal in shaping his career. In a press conference held by Brown University, where he is professor emeritus, Howitt reflected on his Canadian roots and the influence of Western on his career. He described the university's economics department as a lively, collaborative environment, full of scholars eager to share ideas, comment on each other's papers and organize conferences.

The atmosphere at Western was the one that really taught me how to be a productive scholar and I'm forever grateful for that.

in his classes where, because of his explanation, I could understand something that the day before seemed impenetrable."

Western President Alan Shepard calls the recognition "a proud moment for the university and our alumni," noting much of Howitt's most significant research was conducted at Western. "His pioneering work has transformed how we think about innovation and growth." ●

"Working in Canada was where I really cut my teeth as an economist," said Howitt. "The atmosphere at Western was the one that really taught me how to be a productive scholar and I'm forever grateful for that."

Governor of the Bank of Canada, Tiff Macklem, MA'84, PhD'89, reflected on Howitt's talent as a teacher in an interview with CBC. Macklem, who was one of Howitt's students at Western in 1984, recalled: "I can still remember a few 'aha' moments

ILLUSTRATION BY NIKLAS ELMEHED © NOBEL PRIZE OUTREACH

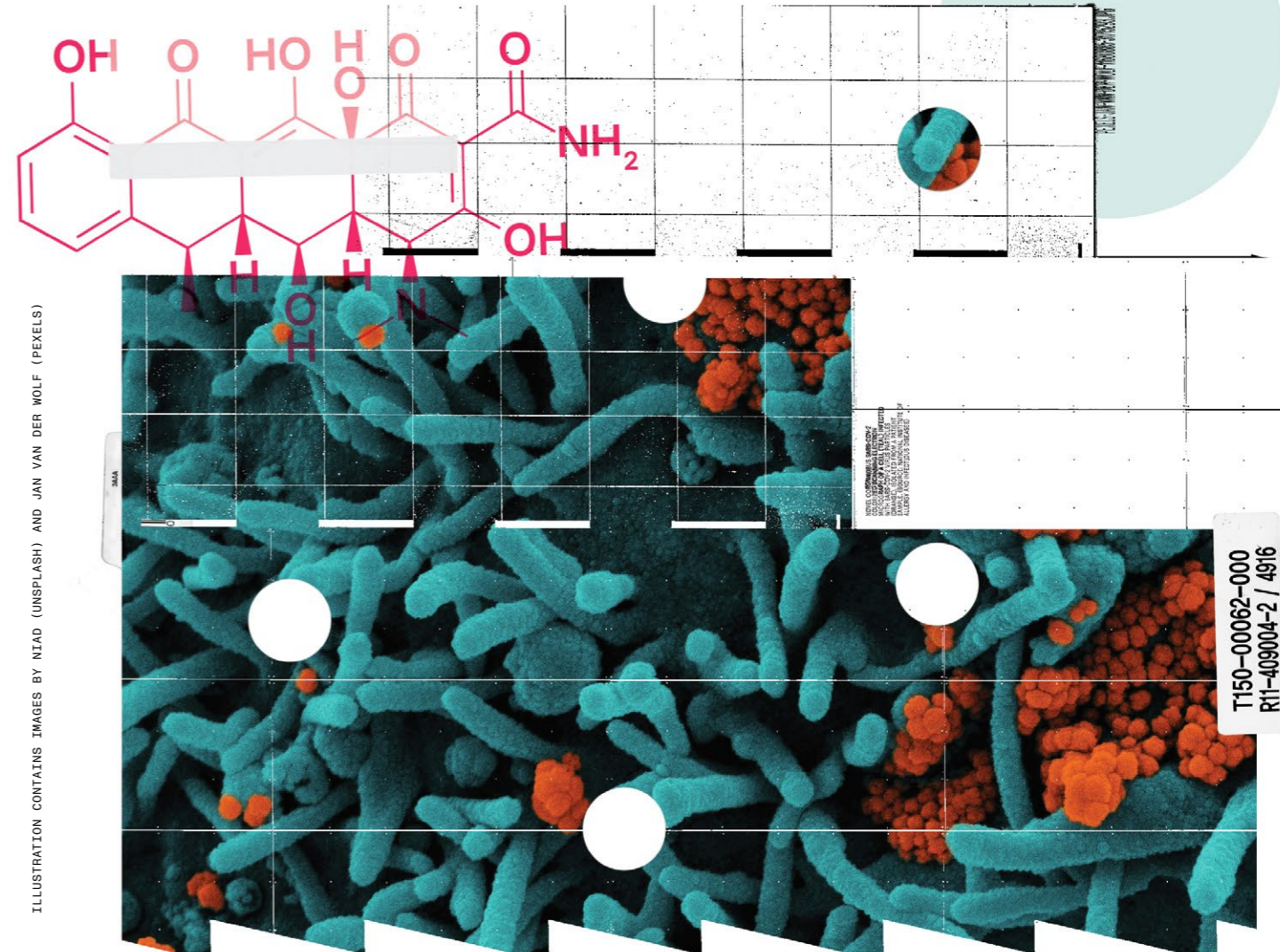


ILLUSTRATION CONTAINS IMAGES BY NIAD (UNSPLASH) AND JAN VAN DER WOLF (PEXELS)

New Pathogen Research Centre to boost vaccine innovation



Western has broken ground on its \$44-million Pathogen Research Centre, a first-of-its-kind facility in Canada that will revolutionize infectious disease research and vaccine development.

Opening in 2027 at Western Research Parks, the centre will house two cutting-edge biocontainment level 3 labs: a Good Manufacturing Practice (GMP) facility, where vaccines and therapies are produced safely to the highest standards, and a microbial transmission lab that simulates real-world environments to study how viruses spread.

Supported by \$16 million from the Canada Foundation for Innovation and \$3.9 million

from the Ontario Research Fund, the centre is poised to boost London's life sciences sector and strengthen Canada's biomedical self-sufficiency.

"By investing in world-class research infrastructure like Western's Pathogen Research Centre, we are strengthening Canada's position as a global leader in biomedical innovation," says Mélanie Joly, federal Minister of Industry. "This facility will help ensure Canadian research can move from discovery to impact—turning breakthrough ideas into life-saving solutions, creating good jobs and improving our readiness for future public health challenges." ●

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Western's *All in* Campaign is raising \$1 billion to tackle Canada's toughest challenges. Meet the alumni co-chairs leading the charge.



Perry Dellelce

Founder and Managing Partner, Wildeboer Dellelce LLP

How does the *All in* Campaign theme reflect Western's character?

I've worked with many institutions, and none capture the full spectrum of personal growth like Western. It builds whole people, and that's worth celebrating.

Raising \$1 billion is a big goal. What excites you about it?

It's bold, yes, but Western is ready. We have energy and community spirit, we're as strong as anyone. This campaign is our moment to step forward and shape the future—not just for Western, but for Canada and beyond.

What's your message to the Western community?

Think about what Western gave you. Your growth, your friendships, your future. Then ask yourself: what's that worth? Give back and help write Western's next chapter.

Kelly Meighen

Western's 24th Chancellor; Past President, Meighen Family Foundation

What inspired you to volunteer with Western?

It's the people. Our leaders have developed a bold strategic plan, our researchers are tackling global issues, and our students are showing real civic responsibility. Their dedication and spirit make me want to be involved and give back.

Why is it critical for Western to step up at this moment?

In uncertain times, universities must lead. The challenges are urgent, but Western has the plan, the people and the drive to meet these challenges.

What is the sense of momentum on campus right now?

There's a real energy across the university. People are excited about the campaign and see it as a chance to get involved and help shape Western's, and Canada's, future.

David Simmonds

Senior VP & Global Chief Communications & Sustainability Officer, Canada Life and Great-West Lifeco; Western Board Member

What is the vision for this campaign?

Western is a place of deep connection; rooted in well-being, belonging and a strong sense of community. This campaign will accelerate thoughtful research, active learning and the development of leaders to continue building collective health, community identity and economic prosperity—here and around the world.

Why is now the right time for Western to go all in?

We have the talent, the capital and engaged alumni. The urgency is real, and the opportunity is here.

What can alumni do to help?

We need your resources, but even more than that, we need your time. Open your networks, attend an event, take a call. Every bit counts.

ILLUSTRATIONS BY MELINDA JOSIE



Gabrielle Drolet, BA'20, is a writer and cartoonist who earned her degree in English and writing studies at Western, where she also served as the 2019–2020 Student Writer-in-Residence. Her cartoons have appeared in *The New Yorker* and her debut memoir, *Look Ma, No Hands*, was published in May 2025.

←

Adapted for the page

Story by Gabrielle Drolet
Photo by Alexa Kavoukis

My first book was supposed to be a novel. Like most writers, I spent most of my life imagining everything about this first book—the work that would finally transform me from a *writer* into an *author*. Throughout high school, I had amorphous ideas for what this novel might be; a sharp, adventurous young adult book like the ones I loved reading, perhaps, or a sweeping work of literary fiction that would get me showered with endless praise.

As I worked through an undergraduate degree in English and writing studies at Western, the idea of writing a novel shifted from a dream into something that might actually be achievable. I applied to master of fine arts (MFA) programs, stating in my cover letters that my concentration would be fiction.

I plan to write a novel. I wrote these words over and over in my applications. And when I finally did start my MFA, my novel started to take shape. Then, suddenly, things shifted.

My first book finally came out earlier this year. Not a novel, but a memoir. And not by choice, but because of the startling and unexpected ways in which a life can change course.

→

During the first semester of my master's program, I began to feel a light twinge of pain in my forearms whenever I typed. I immediately identified this as a repetitive strain injury. It was something I'd seen my girlfriend, a pianist, go through while we were at Western. Her pain, which turned out to be tendinitis, made it hard for her to perform or practice, and I watched the way her body held her back from what she loved. And so, when my own pain started, I took it seriously from the beginning. I immediately booked myself in to see a physiotherapist and took as much time off work as possible. Still, after a series of misdiagnoses and improper treatment, it worsened. This was all happening at the height of the pandemic, when the kind of testing or care I needed was considered non-essential, so landing at an actual diagnosis felt impossible. Physiotherapists cycled me through different potential answers, saying I might have carpal tunnel or thoracic outlet syndrome. Meanwhile, my symptoms worsened. Within a few months, the pain was so bad I could barely type.

Enter: Voice-to-text technology. You've probably used it before without thinking too much about it. Your hands are wet from washing the dishes, so you get Siri to send a text for you, speaking the words out loud and watching them form on the screen. This technology, which I'd used in little ways for years, suddenly became central to my life. As typing went from being painful to nearly impossible, I started relying on voice-to-text to write everything from school assignments to articles for my freelance journalism work. Everything I would do on a keyboard before was suddenly spoken aloud into my computer.

It took a long time to get the hang of this technology—to get my computer to understand me, setting down my words the way I intended. I bought an external microphone and learned to enunciate in a slow, computer-friendly way. Eventually, I was able to use voice-to-text smoothly. But there was an unexpected problem: my writing itself started changing.

We don't talk in the same way that we write. Writers spend years—lifetimes, even—honing their *written* voice, finding a style and tone that suits their work. It's not the same as the conversational, easy way we speak out loud. And so, when I started writing with voice-to-text, the way I wrote changed. My work sounded softer, more casual. Less practiced. I tried hard to capture the way I used to write, before my pain made me unable to do so. The harder I tried to speak the way I wrote, the worse my work sounded—a pale, awkward imitation of the way I actually wrote.

Throughout all of this, I kept trying to write that novel I'd always envisioned. I hated it. I wrote with voice-to-text, constantly frustrated at the fact that the book didn't sound or feel the way I wanted it to. Instead of accepting that my written voice was simply changing, I continued to push against my new way of writing, struggling to make my work fit this idea I had for it. I wrote 20,000 words—a third of a book—this way and was flooded with shame every time I submitted a new chapter to my professors. I realize now what I was writing wasn't bad. It was just different from what I was

aiming for, from what I knew I was capable of. But at the time, I hated not being able to write in the way I always had and didn't want to accept that the way I worked and sounded might have to change to suit my new physical limitations. The frustration I felt was so immense I took a year off school, resolving to return and finish my novel when I could type again.

As I learned how to write with voice-to-text, I also kept trying to solve the riddle of what, exactly, was wrong with my body. I'd eventually learn I was dealing with a crushed disc in my neck—the kind of thing that might never have become debilitating if it had been treated properly sooner. A diagnosis meant I could finally get better treatment and slowly start to ease my pain.

I never finished that novel. When I went back for the last semesters of my MFA, it was clear too much had changed. I still couldn't type much, but had finally accepted the way I wrote was simply different now. Instead of pushing against it, striving for a voice and style that were no longer accessible to me, I leaned into it. I abandoned the novel and wrote a memoir instead, delving into what had happened to me with a level of humour and levity I couldn't see when it first started. With voice-to-text, I wrote about writing; I wrote about graduating with a creative writing degree when I couldn't type; about cooking when I couldn't chop, moving into my first solo apartment when I couldn't build IKEA furniture. I allowed myself to use the tools I needed without trying to keep writing the way I used to. And though I still grieved for my old life—one where writing was an easy, physical act—I allowed myself to enjoy the new one.

It's been more than four years since my pain first started. My body isn't completely back to normal, and will likely never operate at 100 per cent again. Though I can type much more than I used to (I'm typing this, now!), I still need to supplement it with voice-to-text on especially painful days. The key difference now is I'm allowing myself to work *with* these tools instead of against them.

I'm proud of my first book, though it's not the first book I ever intended to write. And a few months ago, I finally started to write a novel again. It's a completely new work—my old one is too tied up in negative feelings and grief to revisit.

This new novel just surpassed 30,000 words, meaning it's longer than my first one ever got to be. And as I'm writing, I'm being gentle with myself, letting my work take shape the way it needs to instead of exactly how I'd envisioned. ●

Feeding

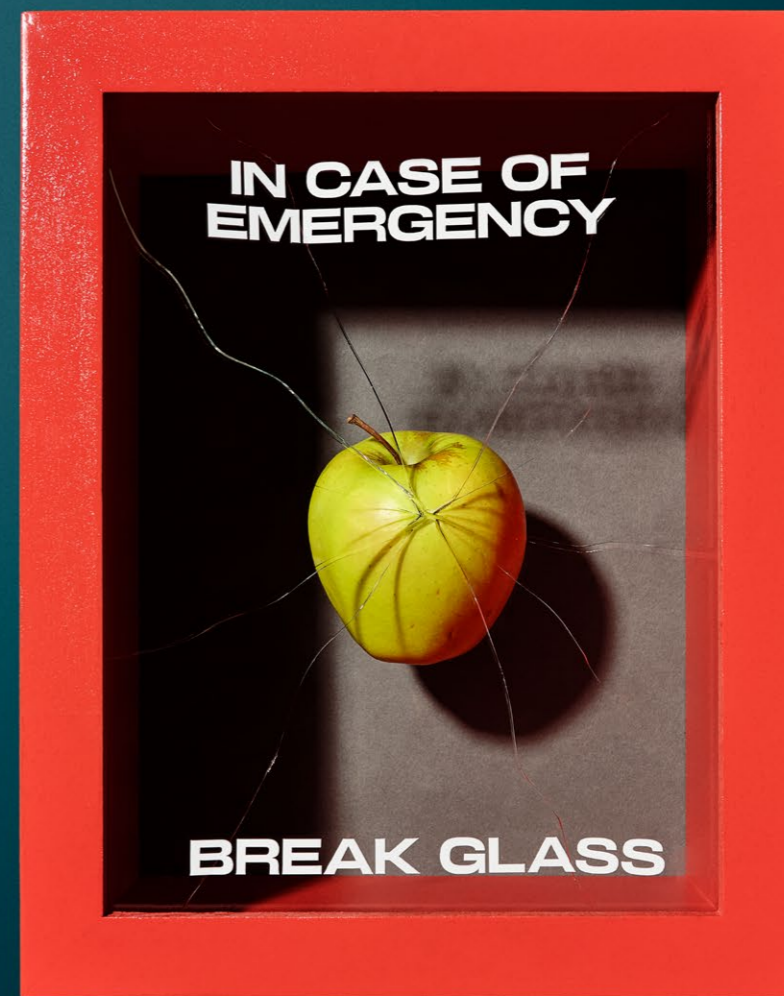


PHOTO BY SARAH WRIGHT

change

Feeding

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The host calls out. *Dinner is ready.* It's that time of year when potluck celebrations and food-filled gatherings take over.

Someone roasted a turkey. Around it, the table fills with favourites—latkes with sour cream, kebabs, Singapore noodles, bannock, lasagna, sushi—and, of course, the requisite veggie tray.

Plates are filled and everyone finds a spot to sit—on chairs, couches, the stairs—while others stand, balancing plates and cutlery as best they can.

There's small talk, maybe a bit of political debate. But no one is talking, or even thinking, about how the food is grown and produced, where it comes from or what it will take to keep it on our tables in the future.

Every bite on that buffet arrived through a complex mix of science, politics, history, economics and global supply chains, all now being reshaped by the biggest influence of all: climate change. Hunger is rising worldwide, billions lack regular access to safe and nutritious food and nearly half of what's produced in Canada ends up wasted.

Western researchers are tackling every part of the food system, from growing and distributing to improving nutrition and cutting waste. It won't happen overnight, but their work is a 'back to our roots' effort to reshape how we grow, share and sustain food for generations to come.



Photo by Sarah Wright

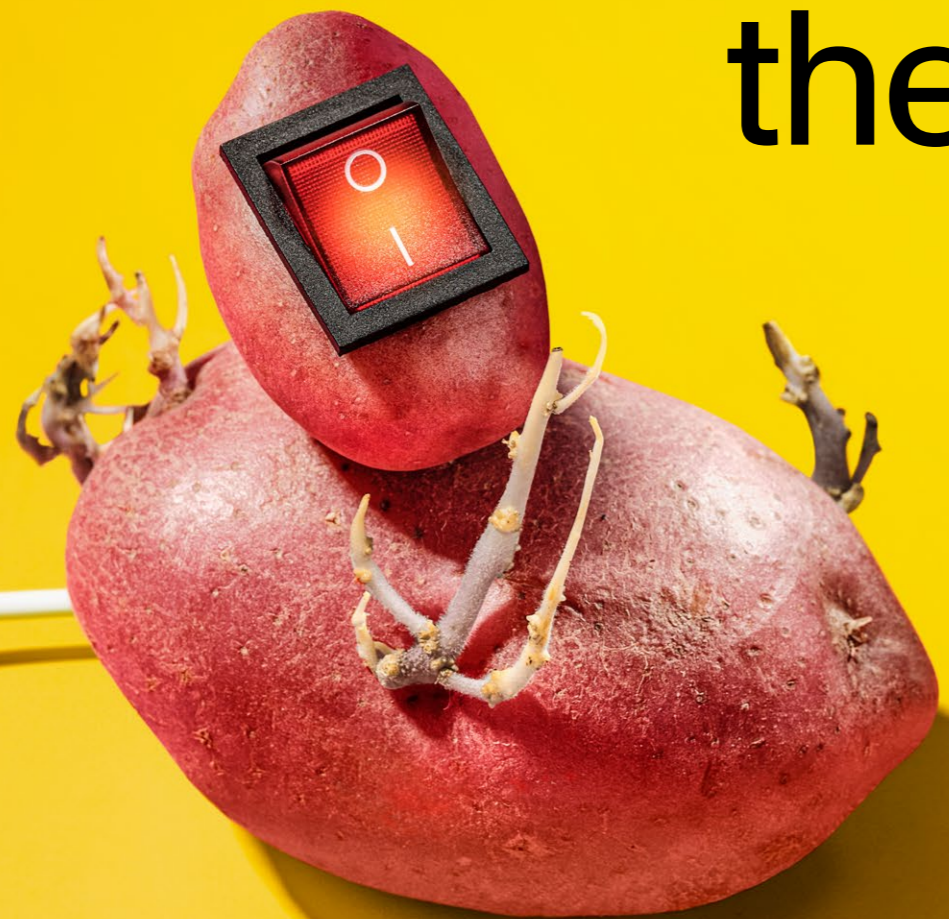
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The ingredients of our food systems—climate, culture, technology—are shifting fast. Bold ideas and innovation will define what's next.

change

Farming

From gene-edited potatoes to solar-powered growing systems, researchers are engineering crops and environments to withstand a changing climate.



the

future

Story by Jeff Renaud
Photo by Sarah Wright

North of the Arctic Circle—buried 100 metres deep into a remote Norwegian mountainside—the Svalbard Global Seed Vault safeguards more than 1.3 million seed samples, conserving 13,000 years of agricultural history.

Providing long-term, climate-controlled storage (-18 C) for samples of seeds from around the world, Svalbard secures the international food supply against war, sabotage, disease, severe weather and the most probable: human mismanagement (epitomized in the 1840s with the Great Irish Potato Famine and the death of one million people). The Global Seed Vault, completed in 2008, was entirely funded by the Norwegian government for approximately \$12 million and yet storing seeds there is free.

While it may sound like an elevator pitch for the next Christopher Nolan blockbuster, it's all real and unfortunately, these seeds may be needed far sooner than anyone involved in the project ever expected. The climate crisis and its consequences on food security loom large, but mass insect infestation or fungal, viral or bacterial plant disease also pose significant threats to the world's agriculture. In fact, one country has already made a potentially population-saving withdrawal from the seed vault's collection.

Scientists from the International Center for Agricultural Research in the Dry Areas (ICARDA) retrieved seeds from Svalbard during the Syrian civil war in 2015. They wanted to regenerate new samples in Morocco

and Lebanon in case Syria's seeds were destroyed during the conflict. The toll didn't reach the level of annihilation predicted and crops continued to grow, but the effort proved saving seeds for the future is one solution to food security when faced with a real-world threat. Why? Because it all starts with a seed.

"No seed, no food. That's the easiest way to put it," says Isaac Luginaah, co-director of the Western Centre for Climate Change, Sustainable Livelihoods and Health. "If you don't have viable seeds, you're toast. And if you have the wrong seeds, you're toast. And if seeds cannot grow in available soil and conditions, you guessed it, you're toast."

You're also toast if you can't physically get to the seeds tucked away in Norway for safekeeping. Like most things in life, there are haves and have-nots. While Luginaah concedes the seed vault is a solution for some (let's call government, big business and even academia the haves), the have-nots are going to be left high and dry. Pun intended.

"Do you really expect them to have every single seed from every single unique variety from every single growing condition and climate?" asks Luginaah, a geography professor. "Even if they do, how is a farmer from my small village in Ghana going to ever know they exist or, more importantly, have access to getting some? It's a solution for some but not the many."

For the past decade, Luginaah and his collaborators, many based in Africa, have used traditional agroecological practices to help growers mitigate challenges caused by climate change and government programs like mono-cropping—planting and growing the same crop, year after year, on the same plot of land, without crop rotation or diversity. These programs are intended to help farmers, but in the long-term, end up hurting them and the people they feed.

One solution Luginaah and his team have proposed is promoting traditional social networks that farmers keep between family, friends and neighbours. Everyone shares

seeds, which inherently boosts crop diversity. It works, but not everyone has a social circle with which to share. It also leaves the network vulnerable. If drought or flooding occurs, it likely means those closest to you are also affected.

Luginaah believes there's an even simpler approach—one that's available in each individual farmer's parcel of land. The idea, he says, doesn't cost any money, requires no government support or new expensive technologies, and it could start, literally, today.

Many, if not all, smallholder farmers do the same things: they cultivate their gardens with mulch or fertilizer, they grow, they harvest, they eat, they throw out any organic residue (straw, sawdust, wool and manure)

and compost what they can. All in the same field. Luginaah doesn't want them to change a thing. Just do the steps more methodically. With purpose.

The living labs Luginaah and his team have planned, starting with a project in Malawi, would test different approaches of agroecology like composting or intercropping (the practice of growing two or more crops simultaneously) in isolated plots within each field. Then farmers plant the same crop in all plots, water, watch and learn.

"If Malawian farmers track growth and yields, they'll know what works best where," says Luginaah. "And if they adopt this method, the benefits could be boundless."

Imagine which threats can be avoided if farmers simply knew the ideal growing conditions to maximize yields of a specific crop. It ensures the farms are far more resilient—a magic word when it comes to food security.

Luginaah is passionate about supporting smallholder farmers because such approaches can be easily scaled and shared with an open-source ethos across the continent and around the world.

"They don't have to rely on foreign or private investment or new, expensive infrastructure. They just need to modify the way they do things, slightly, and we think the results will be well worth it," says Luginaah. "It's a simple solution to a big problem."

If these new methods prove successful, the next stage may be super-sizing what local farmers can actually grow in their experimental fields. Globally, the "big four" crops (corn, rice, wheat and potatoes) alone account for almost 60 per cent of the world's calorie intake. The downside is these foods aren't very nutritious. Foods like salmon, kale and berries are more nutrient-dense options, providing more vitamins and minerals. These help you feel full with fewer calories, and are essential for disease prevention, weight management and overall health.

Potatoes, the only non-grain in the group, are the most nutritious—rich in carbohydrates, potassium and vitamin C—but are also high in sugar and starch. What if their nutrient density could be supercharged? And what if they were easier to grow and more resilient to climate change, drought and disease?

Traditionally, generating new crop varieties with these characteristics takes generations of plant breeding efforts. Schulich School of Medicine & Dentistry's Bogumil Karas dreams of a far more targeted approach, one confined to science fiction novels he read as a child growing up in 1980s Poland.

The recipient of a \$1.5-million grant from the Advanced Research and Invention Agency (ARIA), the U.K.'s research and development funding agency, Karas and his team are designing and building new plant chloroplasts—microscopic compartments of a cell that act like solar panels, turning sunlight into the energy plants need to grow. For now, he's working with potatoes (other fruits and vegetables are on the horizon) to provide enhanced traits like resiliency and nutrient density. How do they do it?

Working in Western's Biotron Experimental Climate Change Research Centre, Karas and his team are harvesting plant cells from Desiree potatoes (the popular, red-skinned variety) to create protoplasts, "naked" cells with the cell walls removed, so DNA—with the new desired trait—can be easily delivered. The new cell then regenerates into the plant.

The end goal—representing ARIA's overall mission for this project—is to create new technologies that can be applied to various crops and generate variants for different purposes, like adding nutrients or making plants self-fertilizing.

"Once we fully understand the function of each gene, rewriting DNA would allow us to create hardier, virus-free potatoes, or whichever plant or vegetable you choose, modified to thrive in different climates and resist diseases and pests," says Karas, a biochemistry professor.

Like Luginaah, he doesn't necessarily want to rush new technology into the fields.

"We are in a unique era where we can start creating life from scratch," says Karas. "But just because we can, doesn't mean we should."

ARIA-funded initiatives involve consultation with independent bioethicists who examine a range of social and moral considerations around synthetic biology and what's needed to introduce them into native soils.

"As we develop this technology, we need to be asking key questions," says Karas. "Who will own the seeds? What impact will the new potato have on the soil? And how easily will farmers in small towns be able to access this new variety? We need to ask these questions before we get to the end, because then it will be too late."

Sure, ethics and due diligence may offset speed of development, but the project remains a climate change-busting alternative to traditional plant breeding techniques. And while it's early days, Karas and others clearly have a plan for making a potato—already considered a robust and adaptable plant—capable of growing in a wide variety of soils and climates.

But potatoes still require the five essentials of growth: air, water, nutrients, space and sunlight. If one or more of these are missing, to quote Luginaah, "You're toast."

Not necessarily, says Joshua Pearce. What if we bring the climate and the right conditions directly to the plant? That's exactly what he's doing with the Western Innovation for Renewable Energy project.

Pearce, the John M. Thompson Chair in Innovation at Western Engineering and Ivey Business School, and his Free Appropriate Sustainable Technology research group have developed a net-zero energy farm that extends the growing season for berries and leafy greens like romaine lettuce and Swiss chard (all packed with vitamins, minerals and antioxidants) and is already greatly exceeding average traditional agriculture yields both indoors and outside.

Pearce's latest project shows yields of more than 200 per cent above the average for romaine lettuce grown outdoors. Indoors, 1,000 square feet have the same output as 10 conventional acres of farmland per year. The award-winning system strengthens food security and sharply reduces the impacts of flooding, drought, pests and disease.

"We absolutely annihilated our controls. We just had a super-hot summer in Ontario and lettuce doesn't like that, but the ones we planted under solar panels survived and thrived," says Pearce.

The future-proof farm combines solar photovoltaic panels shielded outdoor with an agrotunnel, an indoor growing system that houses vertical aeroponic (growing plants in the air) and hydroponic (growing plants in water) units that use high-efficiency, spectrally optimized LED grow lights.

"Our solution provides an extremely high-density, resilient method to obtain year-round healthy fruit and vegetables at a minimum production cost," says Pearce. "The system is modular, scalable and adaptable to various locations and extreme climate conditions."

What if the nutrient density of potatoes could be supercharged? What if they were easier to grow and more resilient to climate change, drought and disease?

The system is built on agrivoltaics, a fusion of 'agriculture' and 'photovoltaics.' While harnessing solar energy, arrays of panels are also used as shields to protect the outdoor plants from extreme weather, creating a microclimate to conserve water. Equally important, photovoltaics also provide all the electricity needed for the agrotunnel to run the lights, water pumps and heat pumps used for heating and cooling.

Inside the climate-controlled agrotunnel, berries and leafy greens are monitored with artificial intelligence, including computer vision systems, to identify disease and ripeness, measure moisture, carbon dioxide levels and high-energy efficiency. Food crops are also tested and monitored in outdoor agrivoltaics systems under different transparencies, colours and types of solar cells to find optimal conditions for outdoor growth.

All of this makes the agrivoltaic agrotunnel an ideal environment to further Karas' innovative work with potatoes and other synthetic plants, as prime growing conditions can be created despite what's happening in the great outdoors.

"We're seeing higher and higher temperatures. This summer, we had to pause our traditional greenhouse experiments because it was just too hot. So yeah, we have a problem," says Pearce. "We can assume temperatures will continue to rise, so what does that mean for growing? It's almost all bad. Anything temperature sensitive, like lettuce and strawberries, is in real trouble."

"Clearly, the future of growing must include protecting our food in some way. Whether it's in a traditional greenhouse, an agrotunnel or shading with solar panels. By far the most profitable way is agrivoltaics. Just cover your fields with solar panels in a way that's ideal for that particular crop in your location, then earn money off higher yields and solar electricity."

Sow the seeds. Genetically modified or otherwise. And reap the harvest. ●



The Svalbard Global Seed Vault, Feb. 2025.

Politics of

the



How climate, capitalism and inequality are reshaping agriculture and why local, inclusive approaches may be key to food security.

Story by Megan Stacey
Photos by Sarah Wright

plate

It was hailed as the “miracle crop” of the Andes, a nutrient-packed plant that’s naturally gluten-free and can grow amid frost and drought.

But when quinoa rocketed to popularity, adorning salads and grain bowls all over the world, its cost followed suit. Surging prices brought prosperity for some farmers who’d been growing it for centuries, but also introduced brokers and larger growers who dominated production, sometimes degrading soil and straining already scarce water supplies.

The powerhouse product once championed by the United Nations during the “International Year of Quinoa” in 2013 became both a success story and cautionary tale.

It’s a lesson in the power of food—and the risks inherent in our agricultural systems. As weather fluctuates and climate change intensifies, those consequences become more dire. “Food is one of the most fundamental starting points for thinking about many of the biggest challenges we face in the modern world,” says geography professor Tony Weis, an expert in global food systems and industrialized agriculture.

From climate change and corporate monopolies to discrimination and disease, food is entangled with the trickiest problems. “It’s a potentially powerful window into the problems as they exist now, but also the possibilities for change,” Weis says.

There is no miracle crop that can ensure every farmer is paid fairly or equalize access to healthy food. It’s about local realities, and solutions that work for the people eating and growing there. No one-size-fits-all solution will answer for the problems—and possibilities—seizing our food systems.

“We can’t go about building our economy while destroying the environment. We also can’t have a world that is grossly unequal. I want to live in a world with economic security for everyone,” says Bipasha Baruah, a Western Research Chair and professor of gender, sexuality and women’s studies. “So, how do we balance it all?”

The time for perfect or “morally pure” options is long gone, says Baruah, who specializes in interdisciplinary research at the intersections of environment, economy and equity. She wants to see creative ideas eagerly accepted and tested. “It could be a crop introduced in a different way. It could be a social form of innovation. We need to understand how an idea interacts with the local system. That’s why we need out-of-the-box thinking.”

Crops like corn, rice and wheat dominate much of the world’s food supply, but others are hardier and more climate resilient.

“It’s disturbing how narrow our food choices and availability are on the global scale,” Baruah says.

She works in Rajasthan, India, a desert state that’s become even drier due to infrequent rain. Decades ago, government incentives spurred farmers in the region to grow rice and wheat. This change curbed the use of traditional crops like barley and millet, though these higher-protein plants were better suited to the local vegetarian diet.

Food security improved as local producers began to use high levels of irrigation, pesticides and fertilizers. The government bought rice directly from farmers at a good price, converting the remaining barley farmers.

“Over time, barley almost died as a crop. Now, more recently, they’re discovering it can actually grow in drier soils and produces a better yield. So now we need to change other infrastructure—governments need to start developing models where they acquire barley,” she says. “People tend to think of food crops versus cash crops: rice versus rubber, lentils versus coffee. But you can have food and cash crop in one, like barley.”

Its growth in Rajasthan even allowed beer companies in India to use local products, rather than importing barley. Why bring in what can be grown locally? “Here is a crop that you can eat and sell. You can even feed the residue of the plant to cows and goats, which produce milk. It’s a little ecosystem,” Baruah says.

Those crop swaps and projects that challenge the status quo are urgent, Weis says. “Agriculture and food systems need to dramatically change to mitigate or reduce the extent of climate change in the coming years and decades,” he says.

“One of the core problems is the massive land use required to grow and raise the food we eat, particularly livestock,” Weis adds. “If we were to meet our nutritional needs more efficiently, we could conceivably return huge amounts of land to natural habitats, which would simultaneously enhance the conservation of biodiversity and the sequestration of carbon.”

Farmed animals control more than 75 per cent of all land devoted to producing food, between grazing and feed crops (led by corn and soybeans), but provide under 20 per cent of the world's calories.

Many consumers have little sense of how their beef and bananas are produced or where they come from. That contributes to the problem, says Weis. "A lot of people don't appreciate the extent to which agriculture bears on climate and other environmental challenges. They go into supermarkets and see an extraordinary bounty and don't think about where that food has come from or the conditions under which it was produced."

And those overflowing supermarkets belie the reality that interactions between climate change and agricultural systems are making life—and growing—much harder.

"Changes in climate patterns around the world have had such devastating consequences on food security in some countries," Baruah says. She's seeing countries with two growing seasons restricted to one and lack of rainfall in other areas reducing yields by one-third. The implications are enormous.

"The places poised to be hit worse and first by climate change—and those already being hit most adversely—are many of the world's poorest regions, which have had the least to do with causing it," Weis adds.

The ripples of the climate crisis affect more than just the food on your plate or the balance in your bank account. Health, behaviour and performance are also impacted.

"Food relates to so much that determines our quality of life. Half of the leading causes of death are food-related," says Jason Gilliland, a professor of geography who's cross-appointed to Western's School of Health Studies and Schulich School of Medicine & Dentistry. He leads Western's Human Environments Analysis Laboratory, focused on research that helps build healthy, thriving communities. "If you go to school hungry as I did when I was a child, you don't have the energy to learn and play as you would have otherwise. Good food is essential for optimal growth and development, and that means your brain, too."

He points to the need for universal school nutrition programs to fuel and educate kids and teens, so they learn to purchase and prepare foods effectively—ultimately taking a bite out of food insecurity and consequences of ultra-processed diets.

"It all takes knowledge and literacy and skills," Gilliland says. The system isn't built to provide it. Not in schools, and certainly not in the retail landscape, where a handful of large-format grocers have a monopoly.

Half of the leading causes of death are food-related.

The same issue applies to the massive industrial operations that grow most of our food. Even in southwestern Ontario, with its fertile farmland, the majority of agricultural space is devoted to just a handful of crops and livestock species. "Industrial monocultures and livestock operations are extraordinarily resource-intensive," Weis says.

From manufacturing to trucking in seeds, animals, pesticides and fertilizers over long distances, the focus is on producing extremely high yields and using as little labour as possible, Weis says. This approach is environmentally costly, giving big players an advantage and leaving smaller farmers struggling.

"There is a very small group of entities that control a great deal of the power and value in agriculture. Still, we see pockets of smaller-scale farmers trying to do things in radically different ways," Weis says. "Biodiverse farming takes more labour and knowledge, which makes it hard to compete with high-yielding industrial methods."

Though consumers can't change entire systems, there is still value in supporting those 'radically different' farmers through options like community supported agriculture boxes, farm-gate sales and advocacy, Weis says. Shopping local whenever possible, ponying up for fair trade products when it's not and eating less meat are actionable steps for people looking to put a more sustainable dinner on the table.

Weis sees some hope.

"There's lots of evidence that small, more biodiverse farms around the world that use vastly fewer inputs can still generate far more total net nutrition per land area than resource and pollution-intensive monocultures."

Even when people have the desire, having the access or ability to support new farming approaches isn't simple. In many suburbs, a trip to the grocery store can mean driving or taking the bus for kilometres.

"In some areas in London, Ont., public transit takes an hour to get anywhere. People can't shop for groceries that way," Gilliland says, stressing that city design matters. He advocates for a European approach, with small shops selling meat, dairy and fresh produce and walkable markets everyone can access easily and frequently.

Community gardens, shared food knowledge and growing on underutilized city land are other possible solutions to move the needle, Gilliland says. City planning plays a role, too. New neighbourhoods and high-development areas need to be scouted and planned for food—corner markets, retail stores and community gardens. "We need local cooperation and collaboration."

Experts agree there's also a role for governments and other global organizations to play in the future of food.

Subsidies are one tool, incentivizing farming approaches that aren't as environmentally damaging and encouraging producers to grow more sustainable crops. Governments can also buy food directly to support certain practices. But long-standing patterns of agricultural subsidies tend to favour the largest producers, Weis says.

When it's more profitable to grow another product that's shipped across the world, governments can help ensure growers also produce the fruits and vegetables needed for a healthy population, Gilliland adds.

Advocacy organizations fighting for less monopolization and more equitable agri-food systems are pushing for improvements via public policy, another avenue where passionate consumers can lend their voices.

The research and expertise of non-profits, inter-governmental organizations and even the private sector—as is the case with the beer industry in India—can also play a vital role. Their experimentation and guidance can help states determine which successful projects from other regions could work in their own countries, Baruah says.

Take the Food and Agricultural Organization's "forgotten foods" guide, detailing 100 promising crops traditionally cultivated in Africa but now neglected or underutilized. Looking back can give good clues to the future. Whether it's barley in Rajasthan or the African black plum in Nigeria, favouring local and traditional foods can offer better nutrition and more resilient crops.

Food sovereignty—the right to define agricultural systems and have access to healthy, culturally appropriate food—has become increasingly important in the age of geopolitical strife.

Canadians eagerly embraced the 'Elbows Up' mantra and sought to buy fewer American goods after President Donald Trump's repeated tariff threats. Though the context is unfortunate, Western experts agree it's a signal that consumers do care about where their food comes from. "Many of us are now paying attention and making that decision to buy the Canadian product over the Californian one," Gilliland says.

It's especially important among Indigenous communities, where food knowledge is aligned with health, medicine, sustainable environmental practices and connection to the land. Building on this understanding, Western researchers are leading a multi-million project to improve Indigenous food sovereignty for urban residents.

Led by Chantelle Richmond, Canada Research Chair in Indigenous Health and the Environment, alongside Indigenous knowledge keepers, the program is nourishing minds, spirits and reconnecting people with ancestral practices.

"There has been an important shift into research on Indigenous food security and food environments,

The places poised to be hit worse and first by climate change are many of the world's poorest regions, which have had the least to do with causing it.

but a lot of that work remains focused in northern communities or with populations living on reserve and rurally—leaving out Indigenous Peoples who live in urban centres," says Richmond, a geography and Indigenous studies professor. Nationally, more than half of the Indigenous population live in cities. In Ontario, it's about 75 per cent.

In London, Ont., Indigenous residents are 10 times more likely to suffer food insecurity. Traditional foods—and the resources, knowledges and practices so desperately needed to grow, cook or store them—require relationships and belonging, Richmond says. Too often, those connections must be built or rebuilt in urban centres. "This mismatch between need and resources—and the fact that this knowledge is so precious—is what drives our focus on Indigenous food sovereignty in London," she says.

Richmond and her collaborators—her team has partnered with the Southwest Ontario Aboriginal Health Access Centre—are working not just to keep people fed and full, but to reconnect them with culturally relevant practices, such as hunting and gathering in line with the natural cycles of the land.

"Our partnership is critical—as it is the community members themselves who best know what their challenges are, and how researchers like us can support them," Richmond says.

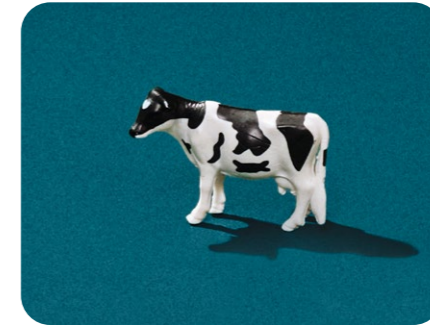
Despite the creative solutions brewing, the path forward remains murky.

"Farming has become an occupation of last resort for people. It's so precarious, and it's become even more so because of climate change," Baruah says. Weis and Baruah agree producers aren't seeing a fair cut of the money made from the foods they grew. Many are now dependent on off-farm jobs. In Canada, less than one per cent of the population now works in agriculture. Yet on a global scale, farming still remains by far the single largest livelihood.

It's especially fraught for women, who make up half of the world's small-scale farmers and an even greater proportion of the agricultural workforce in developing countries. "Women are basically feeding the world," Baruah says.

Yet, they often lack land rights. The inequity can prevent female growers from pursuing the innovative solutions so desperately needed to create fairer, more resilient food systems. The need for visibility and appreciation of all agricultural workers is a broader issue.

"We literally can't live without food. We don't respect farming; we've stopped valuing agriculture. Interest has declined among young people around the world," Baruah argues. Her message is like an echo of the "Farmers Feed Cities" bumper stickers. "We need to recognize and reward farmers," she says. "This is not an industry we should shortchange." ●



What we know, what we eat

Research is proving why food literacy alone isn't enough, and how cost, access and misinformation are shaping what ends up on our plates.

We know we shouldn't be eating junk food. But the fact is, too many of us are.

Canadians are still getting more than half their calories from ultra-processed foods (think packaged cold cuts, chicken nuggets, hot dogs, soda pop and all that stuff in the snack aisles of the supermarket). These mass-produced foods are heavy in salt, saturated fat and sugar. Only 22 per cent of kids are getting their recommended daily intake of what we know is healthy—fresh fruit and vegetables.

There are many reasons—from cost to marketing to convenience—why we so often opt for unhealthy food.

But several Western researchers are working to understand why these foods are chosen so often and designing programs to promote making healthier choices.

One is Danielle Battram, who heads up Western's Brescia School of Food and Nutritional Sciences. Her research focuses on understanding why we eat what we eat (a discipline called food behaviours) and on promoting programs that help children and adolescents understand how to eat healthy.

A registered dietitian, Battram has introduced a number of programs—from school lunchbox information to teaching food skills to teenagers—to help families develop healthy food practices that are easy to embrace.

"We teach them to focus less on trying to adhere strictly to one particular diet and instead to find ways to eat a variety and balance of whole, nutrient-rich foods. A bag of cheese puffs, for example, is not whole, nutrient-rich food."

Battram is working with Growing Chefs!, a London, Ont. not-for-profit organization that provides food education to children, schools and community groups with the goal of getting kids excited about healthy eating. The focus is on promoting local food that's good for you, while keeping things simple and fun. Kids learn where their food comes



You can't put the Mediterranean diet in a pill, because eating healthy is about more than just the food.

from, practise preparing healthy recipes and talk about taste, texture and the cultural aspects of food.

Like Battram, Jamie Seabrook believes this notion of understanding healthy eating and learning how to prepare it is essential in carrying healthy habits into adulthood.

Seabrook is a professor at Schulich School of Medicine & Dentistry. His research has shown the strongest predictor of food skills in university students is learning how to prepare meals during adolescence. Having taken formal nutrition education courses was also very important.

"We call it 'food literacy.' If you're exposed to it when you're young, you're less likely to turn to fast food and pre-packaged meals as a young adult."

Learning about food early can make a difference, but that doesn't always translate into action. Battram says knowledge alone isn't enough.

"We can't assume that lower income families have lower food literacy," she says. "Instead, what we are seeing is a disconnect between knowing what to eat and the ability to eat it."

Seabrook and his team conducted a recent study exploring the factors that influence the consumption of ultra-processed foods in Canada. Aside from food literacy, they also considered the availability of fast-food restaurants versus supermarkets in lower-income neighbourhoods, the cost of pre-packaged meals compared to healthier food and the skills and time required to cook a meal.

Their conclusion: resistance to healthy eating is not just about food literacy or motivation.

Seabrook says price is the core of the problem. In Canada the cost of food rose 19.1 per cent from 2018 to 2022, according to Statistics Canada.

"Food price is the number one determinant of food choice for those living in poverty," says Seabrook. "This is why we need to tackle people's ability to get healthy food, as well as food literacy. Many just can't afford to eat well."

This leads to another crucial factor—food insecurity. The World Food Programme (WFP) defines it as a state in which people don't have "access to enough safe and nutritious food for normal growth and development, and an active and healthy life."

Food insecurity is global, and it's on the rise. The WFP estimates that in 2024, 673 million people experienced hunger. Almost 17 per cent of Canadians were considered food insecure in 2022, up from 13 per cent the year before.

As challenging as the food insecurity problem is, Canada took an important step forward in the spring of 2025 when the federal government made good on a \$1-billion budget promise and launched a National School Food Program to provide meals for up to 400,000 students each year. Prime Minister Mark Carney has since announced plans to make the program permanent. That's good, say advocates, but not enough.

"It's an encouraging start, but lasting change will only come with a universal program that ensures every child, regardless of background, has access to healthy food at school every day," says Seabrook.

But access to food is only part of the story. Equally important is having clear, reliable guidance about what to eat. In today's online world, children and families are constantly exposed to conflicting advice, marketing and food trends that can make healthy choices feel confusing or out of reach.

That flood of misinformation is exactly what Dr. Saverio Stranges, a public health physician and chair of epidemiology at Schulich Medicine & Dentistry, is pushing back against. His research underscores the power of evidence-based eating: plant-based diets rich in fruits, vegetables, fish and healthy fats, like the Mediterranean diet, are proven to reduce the risk of chronic diseases such as cardiovascular disease, stroke and diabetes.

He also looks at the use of dietary supplements in North America. He says the lack of formal nutrition education in schools coupled with a slew of social media influencers touting their products has led to an epidemic of nutrition misinformation.

"One of the challenges in public health is that we live in an era where there are multiple sources of information, including social media and marketing, and people pick and choose what they want to believe, which may not align with current recommendations based on the best available evidence."

He says people are eager to find a quick fix to counteract their unhealthy eating habits—whether that's adhering to a super-restrictive diet or buying supplements online without consulting their health-care provider.

"But you can't put the Mediterranean diet in a pill, because eating healthy is about more than just the food," he says. "It's the social context that's key. The skills you learn, the habits you develop and whether families and communities have the access and support to put those lessons into practice." ●

We throw out too much food, but there are ways to cut the waste and put it to good use.

Every day, in kitchens across Canada, a half-eaten meal or a bag of salad greens slips to the back of the fridge. It hasn't gone off yet, but give it a day or two and it will. And when it does, it will end up where so much of our food does: the composter, green bin or, more often than we want to admit, the trash. We may feel a brief pang of guilt as we scrape the dinner plates or tie off the bag, but then we remind ourselves it's nothing compared to the waste produced by restaurants, grocery stores and supply chains.

We're wrong.

Multiplied across the country and around the world, households throw out the equivalent of a billion meals a day, even as hundreds of millions of people go to bed hungry and one in three experience food insecurity. North Americans are some of the worst offenders. In Canada, up to half the food produced for consumption never gets eaten. That's enough to feed every Canadian for five months, or every person in Denmark, Finland and Sweden for an entire year. This waste is not just an ethical failure. It is an economic and environmental failure too. Every time food is wasted, everything that went into producing it is also wasted.

That leftover lasagna you slid into the bin after a long week carries with it the embedded carbon, water, land, labour and transportation that brought it to the grocery store and then your kitchen. If it goes in the green bin, it's turned into compost or renewable energy. But if it's thrown in the garbage,

it ends up in a landfill, where it can contaminate groundwater and release methane, most of which won't be captured for energy and will instead be released into the atmosphere.

So, what can we do? This is where Western researchers Latifeh Ahmadi, Paul van der Werf and Naomi Klinghoffer come in, each approaching the problem from a different angle, but with a shared sense of urgency that food waste is both preventable and solvable.

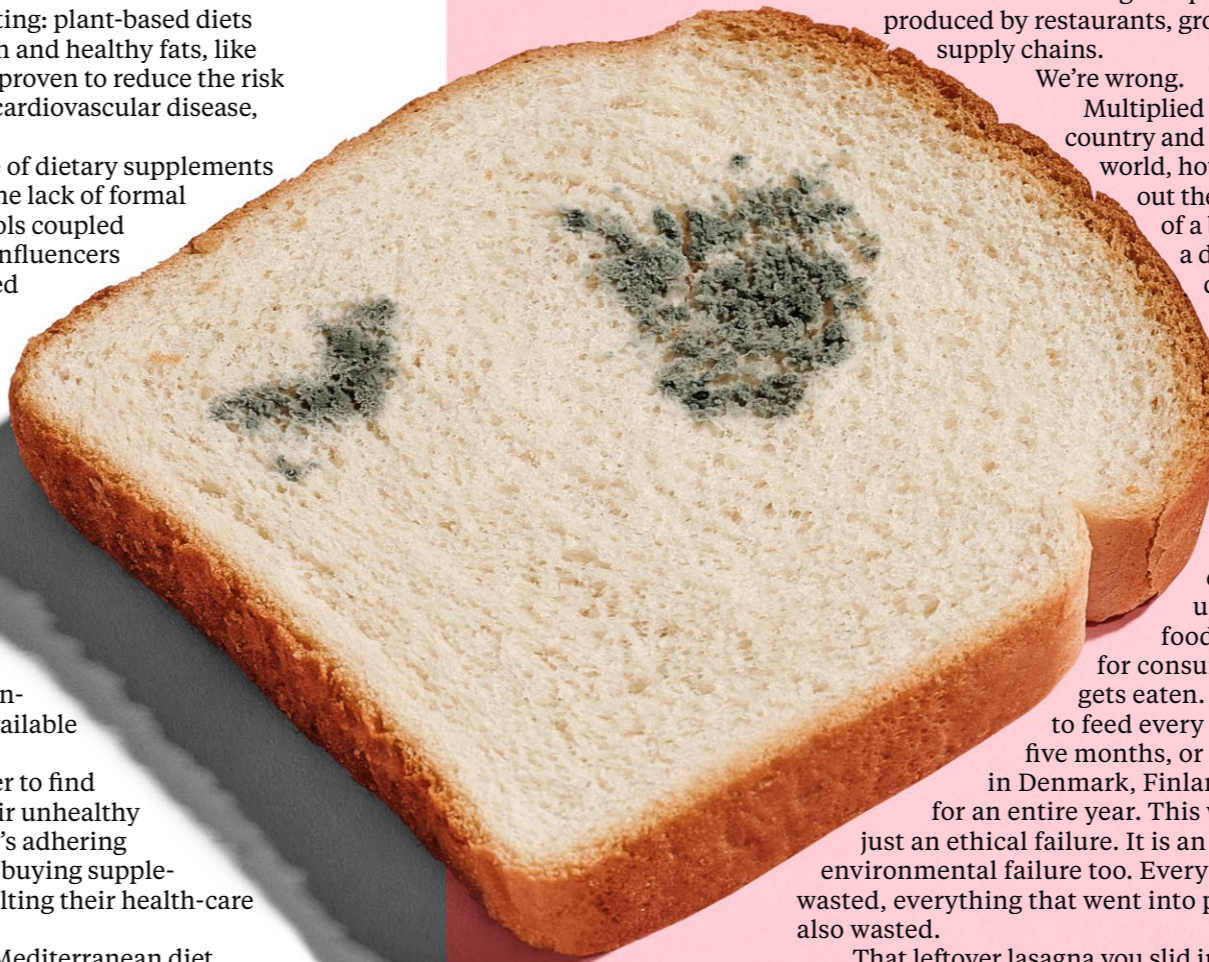
Ahmadi, professor in Western's Brescia School of Food and Nutritional Sciences, sees the home as the front line in the fight against food waste. In Canada and other developed countries, the largest portion of food waste, she says, doesn't happen on farms or in transport, but in our kitchens. "Half of the food we waste happens in a household," says Ahmadi. "Instead of pouring more energy, land, fertilizer and water into producing food, we need to focus on preventing waste."

Worst of all, much of what we throw away is perfectly edible. Ahmadi's goal is to reduce—or, preferably, prevent—household food waste through education and better information. Her advice is simple: plan meals, check what's in your fridge before shopping and know that "best before" isn't "bad after." For foods where there's a safety risk, use expiration dates. Milk can spoil and become unsafe. Yogurt is different—it might taste a little sour, but it isn't harmful even after the date.

She also stresses the value of freezers. Freezing leftovers right away keeps them safe for up to two months, while choosing frozen vegetables prevents spoilage, saves time and money and offers the same nutritional value as fresh produce.

Story by Alice Taylor
Photo by Sarah Wright

Scraps and solutions



But food waste isn't confined to homes. In a study with her graduate students, Ahmadi found it is also widespread in food services. Their research in a campus restaurant showed dinner generated the most waste, consisting mainly of carbs, while plant proteins were rarely discarded. Waste was especially high among those on prepaid meal plans compared with pay-as-you-go diners. Ahmadi argues the solutions are clear: serve smaller, balanced portions, reduce carb-heavy defaults, improve taste and give students options for saving leftovers.

Ahmadi also sees potential in technology: "AI could automatically measure food waste by comparing images of plates before and after meals. Early tests using phone photos show high accuracy with little effort. With the right tools, this data can drive meaningful change."

Data is at the centre of Paul van der Werf's work. An adjunct professor in the department of geography and environment and in the Ivey Business School, van der Werf approaches food waste like a detective. He audits waste streams, surveys households and uses the data to build a clearer picture of what we're up against.

In a study of more than 1,200 households in London, Ont., van der Werf found each threw away an average of six edible portions a week—roughly \$600 per household every year. Households with children wasted even more. And while many assume food waste is a problem of affluence, income isn't the main driver. Lower-income households often waste as much food as wealthier ones, just in different ways.

Access to this kind of information helps municipalities make more informed decisions, from adjusting green bin sizes to developing education campaigns that resonate with residents. Grounding these policies in real-world evidence also allows local governments to establish a baseline for testing and refining strategies and tracking progress—or lack thereof—over time.

Like Ahmadi, van der Werf sees lifestyle shifts as the key to driving behaviour change, which he believes lies in grasping the underlying motivations. Money appeared to be the primary motivator for London, Ont. households, van der Werf and his team found.

"If you tell someone they're wasting \$20 a week, it's like watching them crumple up a \$20 bill and toss it," says van der Werf. "In my research, I was able to use dollars wasted or saved as a motivator and saw a 30 per cent reduction in food waste thrown out at the curb, measured through garbage samples collected before and after the

intervention." What's more, this reduction was still evident when samples were taken from these households a few years later.

In a recent report, *Good to the Last Bite*, van der Werf and his team employed a data-driven model to analyze food-wasting behaviour and provide household consumers with practical advice to help them reduce food waste, which translates to more money in their wallets, while at the same time helping the environment. The report offers five simple steps to stop waste: plan meals ahead of time, make a grocery list and stick to it, store food properly, prepare the right amount of food and use leftovers.

Whereas Ahmadi and van der Werf focus mainly on waste prevention, chemical and biochemical engineering professor Naomi Klinghoffer focuses on reinvention.

We generate significant waste through daily activities while consuming large amounts of energy and materials. Landfills take up valuable land, emit greenhouse gases and contribute to plastic pollution in oceans and waterways.

At the same time, resource extraction is accelerating to meet material demand. Mechanical recycling can handle only certain materials, but chemical recycling breaks down all types of waste, including food waste, into chemical building blocks that can be reused to create materials or low-carbon fuels. This approach supports a circular economy that benefits both society and the environment.



"In nature, there's no such thing as waste," Klinghoffer says. "Everything is reused. We need to shift to a mindset where all by-products are used productively." At Western's Institute for Chemicals and Fuels from Alternative Resources, Klinghoffer and her team work with biochar, a carbon-rich substance created by heating organic waste in an oxygen-free environment, a process called pyrolysis.

Biochar looks like charcoal, but it's far more versatile. Adjust the temperature or heating rate, and you can "tune" it for different uses—enhancing soil health, filtering pollutants from water, reducing the carbon footprint of cement, even creating conductive materials for electronics. Unlike many processes that release carbon back into the atmosphere, biochar locks it in place for centuries.

Looking ahead, Klinghoffer envisions this innovative, environmentally friendly process may have applications beyond industry. Small-scale pyrolysis units could one day allow communities, or larger farms, to process food waste locally, converting scraps into soil amendments, energy or other valuable resources.

Reducing food waste alone won't end hunger. Nor will turning the waste we're producing into alternative products like compost or biochar.

Food insecurity is tied to larger systemic barriers, but every meal we can save is a step in the right direction. Some of the answers are old-fashioned: planning meals, portioning properly and preserving food before it spoils. Some, like biochar, are cutting-edge. Paired with technological innovation and smarter policies, these interventions and simple steps have the potential to transform how we prevent, reduce and repurpose food waste. "The challenge is vast," Ahmadi says, "but so is the potential.

By blending traditional knowledge with modern innovation, and pairing individual action with community-scale solutions, we can move toward a future where less is wasted and what waste we have is put to productive use." ●

Critical Minerals

Without critical minerals, modern life wouldn't be possible. Critical minerals underpin every facet of the global economy and are essential for renewable energy and tech like electric vehicles and smartphones. But the global supply of critical minerals is limited and highly vulnerable to supply chain disruptions.

Derived from the Earth's crust, critical minerals include conventional commodities such as copper, nickel and aluminum, and more exotic resources, such as lithium and rare earth elements, which have unique magnetic and electronic properties with highly specialized applications in high-tech devices.

A mineral's "criticality" depends on how essential it is economically and how vulnerable its supply is to disruption. An example of this is cobalt. Cobalt is an irreplaceable component of rechargeable batteries and super-strong alloys (mixed metals) used in everything from jet engines to drill bits. More than 70 per cent of the world's cobalt is mined exclusively in the Democratic Republic of the Congo and refined in China. Any supply disruption in either country due to economic, social, environmental or geopolitical circumstances can hobble the global economy and undermine key sectors, including aerospace, energy, manufacturing and defence.

The limited supply of critical minerals represents a significant bottleneck in the global economy. How nations address this pressure will be crucial for charting their economic and social trajectories in the 21st century.

In this context, Canada stands out. It plays a central role in global mineral markets and is well-positioned as a key producer of many critical minerals, including aluminum, cobalt, nickel, copper, potash and uranium. This is due to its favourable geology, advanced infrastructure, skilled workforce and forward-thinking economic and social policies.

Western contributes to Canada's leadership in critical mineral development through research that advances our understanding of critical mineral resources and teaching that cultivates the specialized exploration and mining workforce of the future. ● Wyatt Bain

Critical (adjective)
having a decisive or crucial importance in the success, failure or existence of something

Mineral (noun)
a solid inorganic substance of natural occurrence



Wyatt Bain is the Robert W. Hodder Chair in Economic Geology in Western's Department of Earth Sciences. He specializes in mineral deposit research with an emphasis on critical minerals, mineral exploration and field-based geoscience education. His current work focuses on critical mineral deposits in northern Ontario, coastal and central British Columbia and the southwest United States.

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DR. ROBYN KLEIN



Interview by Patchen Barss
Photos by Frank Neufeld

Since joining Western in 2024 as Canada Excellence Research Chair in Neurovirology and Neuroimmunology, Dr. Robyn Klein has been spearheading Canada's first research program focused on understanding how infectious diseases affect the brain.

The CERC program is one of the country's most prestigious and competitive research appointments, providing \$8 million over eight years from the federal government to support world-leading scholars.

Recruited from Washington University in St. Louis, Klein is an internationally respected clinician and scientist whose work on HIV, West Nile virus, COVID-19 and other infections is reshaping how we think about the long-term effects of viruses on the brain and central nervous system.

Here she reflects on the potential to prevent and treat infection-related brain damage, her decision to leave the U.S. for Canada and the personal journey that shaped her as a leading voice in neurovirology and neuroimmunology.

What's the big question your research is trying to answer?

For the past 15 years, my lab has been studying long-term cognitive impairments after infections with emerging and re-emerging viruses, including West Nile, Zika, Equine encephalitis viruses and SARS-CoV-2. For example, a lot of treatments for Alzheimer's have targeted a protein called amyloid beta, but they've mostly failed. It turns out it's also an antimicrobial peptide, meaning it's part of the brain's immune response. I'm interested in understanding how exposure to infection leads to the generation of these antimicrobial peptides in the brain. We need to understand the role of that protein in normal brain function. Why is it made? In what context? How do infections contribute to its expression?

So what does that mean for people who've had viral infections?

Patients who've had West Nile virus, for example, have been studied for up to eight years and it turns out those who develop memory issues often see them persist and worsen over time. It's all tied to the brain's innate immune system. I'm trying to figure out who's most at risk, and whether we can step in early, during the infection, to stop the brain from being impacted long-term.

What kinds of treatments or preventions might your research lead to?

We've treated animals with anakinra, an FDA-approved drug for rheumatoid arthritis, during the early stage of the infection and it blocked the generation of spatial memory deficits. I want to better understand this process. We've also studied the brains of patients who died from SARS and discovered that during infections, the parts of the brain that help make new cells for memory stop working. This means the infection triggers processes that hinder learning and memory.

The takeaway is that we need to create tests to predict who is at risk for memory impairments when they present with acute infections. Then we can determine whether to administer treatments based on overall risk for developing long-term cognitive decline.

How did you end up at the nexus of infectious diseases and neuroscience?

I was working in neuroscience in graduate school. I thought the brain was really the most important organ, and I wanted to understand how it worked. I worked on astrocytes—cells that biochemically control the blood-brain barrier and neuronal signaling—which was a neglected area of research at that time.

I was in New York City during the 1980s, the height of the HIV epidemic. In medical school, neurologists were telling us the brain had no immune surveillance or responses to infections. When I went into the hospitals, I found 70 per cent of AIDS patients had opportunistic infections in their brains. That didn't make sense to me. If the brain had no immune surveillance, why would it be so vulnerable to infections in patients with AIDS? It made me realize the brain must be surveyed by immune cells and exhibit immune responses to infections, and that HIV was impairing this, just as it does in other organs.

How did you come to be the researcher you are today?

As far back as I can remember, I was interested in the environment and the biological world. My parents had conservative, sexist views of the world, which was challenging for me growing up, but from a young age I knew they were wrong. I decided to take my own path and ignore all the things they were saying about the proper careers for women.

Why do you think you were able to overcome those messages?

I think I knew by the time I was six they were not right about most things. I realized they didn't really see me and that I would have to find people who did. A lot of that had to do with being noticed in school for excelling in math and science. When my fourth-grade teacher was doing science with the class, she would pull me out and give me separate projects to ensure I was appropriately challenged.

How valuable is that skepticism as a scientist?

When people would tell me certain 'facts' as a child, I would think about them very carefully and pay a lot of attention to what was going on around me to decide whether I thought they were on the right or wrong track. There are times when you're looking at something other people are doing in science, and think, 'Wow, they found something really interesting. I think I can run with that.' And there are times when you go another way.

What kind of influences or mentors helped you on your journey?

In medical school, I first heard of neuroimmunology from a professor emeritus, Berta Scharrer, who discovered the neurosecretory function of neurons—meaning some brain cells can release hormones into the blood or chemically communicate with other cell types—in 1928. I met her when she was 80 and still a professor. She had established the field of neuroendocrinology—how the brain and hormones work together—with her husband, who had died many years before. She emphasized the importance of interdisciplinary work and how there were so many indicators that the nervous and immune systems, which were considered separate at the time, actually work together as one.

You clearly had some intuition that this was an area of research worth pursuing. Was there a discovery or insight that confirmed that for you?

After medical school, I trained in infectious diseases to better understand how pathogens interact with the body's immune system. I joined an HIV lab just as scientists discovered "chemokine receptors," co-receptors that let HIV enter immune cells. I suspected they were also in the brain, linking immune and neural cells, so I began studying them in neurobiology.

I found that deleting one of these receptors prevented normal brain development, showing these molecules may have originated in the nervous system and reinforcing the idea that the immune and nervous systems are connected. I moved to a chemokines lab, published on neurodevelopment and how these receptors control immune cell entry into the central nervous system.



West Nile virus emerged in 1999. That was a perfect virus to learn about the immune response to a viral infection. I moved to St. Louis and took my first job as a faculty member at Washington University. Patients infected with West Nile began presenting with memory disorders. I thought, 'Maybe there's something to treat here.'

Would you say you're primarily motivated by creating knowledge and doing curiosity-driven research or by seeking treatments that will change people's lives?

They're not separable. Clinical questions need to be answered by understanding fundamental mechanisms and those mechanisms apply across all types of neurological disease. That's really curiosity-driven basic science, but to me as an MD, it's always with that 30,000-foot view: how we can use this knowledge to alleviate suffering and address the long-term effects of infectious diseases. It's now pretty clear you don't have to have an infection in your brain to develop a neurologic memory problem. It's all deeply connected. It's very complicated, and I've always felt you just have to embrace the complexity.

You relocated to Canada in 2024 from the U.S. What motivated that move?

There were multiple reasons. My eldest daughter lives in Toronto. I have Canadian friends. The notion of Canada was always there.

I came here because I wanted to share and apply the work I've been doing in a way that makes a real impact. Canada is a great place to do that. Unlike the U.S., which doesn't have many systems in place to help turn research into practical solutions, Canada has strong support for that kind of work.

I had been trying to leave WashU for a long time. But it was hard, especially during the pandemic. I got an email from [Western professor and Canada Research Chair in HIV Pathogenesis and Viral Control] Eric Arts, who was looking for someone researching how viruses change brain function. He said, 'We'd like to apply for a CERC award for you.' I had no idea what that was. They sent me all the information and I thought hard about whether I wanted to make the move. I submitted my application material the day Roe v. Wade was overturned. That was it for me. I was done living in the U.S.

Now that you've had a chance to settle in, how are you feeling about that move?

Things tend to move a bit more slowly in Canada and that was an adjustment for me. I came in ready to go and at first, I said, 'What do you mean, I have to wait?' But I'm learning to deal with it.

On the flip side, the funding mechanisms in Canada really support team-based science and research that can be translated into real-world impact. It was very hard to get funding to do those things in the U.S. where it's a "me, me, me" culture of individual achievement. It's different here. There's a much stronger sense of collaboration and people have this ability to expand their thinking because they're not so focused on their own success.

Given how driven you've been, is it difficult to find room for the non-research parts of your life?

I've always drawn and painted, since I was a child and all through my education. When I was a resident, with no time at all, I switched to acrylics because they dried faster. I have a painting hanging over my desk of a dream I had when I was a resident. It depicts sharks, one without a head. I had dreamt I was a headless shark and took it to mean that I needed to be more assertive to enact change.

It was hard when my kids were little, partly because I enjoy what I do. It's not like I try to leave it at work. I can't help bringing it with me in my head. I'm always thinking about science. I'm happiest when I'm writing something—a science paper, a grant, an article. I enjoy the process of thinking about it, reading, looking at what other people think. It's just a really joyful process for me and I feel fortunate that I get to do this. ●

FROM WESTERN TO PLANTYOU

Carleigh Bodrug arrived at Western as an aspiring TV news reporter. “Far from vegan and definitely not a cook,” she says she never imagined she’d one day amass millions of viewers, chopping and championing vegetables. But a report from the World Health Organization in 2015 prompted Bodrug to change her diet and the course of her career. Today, she’s a best-selling cookbook author, social media sensation and the founder of PlantYou. She’s on a mission to help people eat healthier, reduce food waste and save money.

Story by Keri Ferguson
Photos by Shannon Bellisle



Bodrug’s also a successful entrepreneur, attracting sponsors and marketing affiliates with creative content that’s engaged more than 11 million followers across her PlantYou social media platforms.

But it’s always been less about money and more about her motivation to help people put more plants on their plate, using simple recipes. “I’d be doing it even if I wasn’t making money,” she says. “And for those first couple of years I wasn’t, so you really have to have that greater mission driving you forward.”

By graduation, Bodrug, BA’14 (Media Theory and Production) thought she was headed toward her dream career, working as a radio news anchor and morning show co-host in North Bay, Ont.

Months later, the World Health Organization declared processed and red meat Group 1 and Group 2 carcinogens. Even though she was miles away from her family in Innisfil, Ont., the news hit close to home. “It was particularly shocking to me because my father is a stage 2 colon cancer survivor. I watched him go through surgery and chemotherapy, but nobody ever mentioned his diet could have played a role. He’d gone right back to eating the way he had before, with animal products in every meal.”

Once Bodrug began learning more about the health benefits of whole foods, she says “the decision to adopt a plant-based diet was easy, but figuring out what to eat was not.” To replace the boxed frozen food entrées that once were her staples, she began teaching herself how to cook in the tiny kitchen of her basement apartment. As she experimented, veganizing her favourite childhood meals, she documented her journey—and all of her “horrible first attempts”—on Facebook and Instagram.

Bodrug found most plant-based recipes were complex and required a lot of specialty grocery items. She took a simpler approach. More and more followers responded to her basic ingredients, colourful images and easy-to-digest format, hungry for more. “There was a real appetite for super simple, healthy, plant-predominant meals, and I knew from my experience, there weren’t a ton of resources out there.”

In 2016, she moved closer to home, working in communications at the Orillia Soldiers’ Memorial Hospital Foundation. That’s also when she launched her PlantYou website for her blog and recipes. As the site gained more traction, so did her desire to become a full-time food blogger. “When I told my parents I wanted to quit my job and pursue this, they thought I was crazy. They were very nervous about my giving up a good job and pension.”

Knowing she’d need to make enough money to minimize her risks, Bodrug created a subscription-based weekly meal plan featuring fast, easy recipes and shopping lists. “It was a massive amount of work. I was working nine to five and then testing recipes when I got home, photographing all of them. Luckily, I was computer literate enough to set up a membership program on my site so I could assemble it myself.”

Bodrug launched “PlantAhead” (now the PlantYou app) in 2019, charging \$7.99 USD (\$11 CDN) a month.

Once her subscription earnings surpassed her full-time

salary, she submitted her resignation. “Leaving my job was one of the scariest days ever,” she says. “I remember thinking, ‘Oh, man, this is all on me now.’”

It was a gutsy move—and a good gamble. Three months after Bodrug resigned, a New York literary agent came knocking, asking if she had ever considered writing a cookbook.

“I told her I hadn’t, but that I’d love to!” As enthusiastic as she was on the outside, Bodrug was battling a severe case of imposter syndrome internally. When she landed a publisher, she panicked.

“I felt sick to my stomach. I had only ever taken photos with a cell phone and had never written a ‘proper recipe’ in my life. It seemed like I’d hoodwinked the publisher and was the biggest fraud in the world.” She dove in anyway, investing \$1,000 of her savings into a lighting and camera kit. Photographing every recipe and every ingredient herself, she created the cookbook she wished was available when starting her plant-based journey.

PlantYou: 140+ Ridiculously Easy, Amazingly Delicious Plant-Based Oil-Free Recipes sold out within two weeks of being published, becoming a *New York Times* best-seller.

As she gained more followers on Instagram and TikTok, Bodrug continued to expand her knowledge about plant-based living and the environment. Some shocking statistics pushed her recipes into a new realm. “I learned 30 to 40 per cent of all food in Canada ends up in landfills and contributes more emissions than the entire airline industry. On top of that, the average family in Canada throws out about \$1,300 worth of unused groceries per year, so it makes sense to reduce the food we’re wasting,” she says.

With a call to “stop throwing out your orange peels,” she posted a 30-second TikTok video showing how to transform fruit waste into gummy worms. Within hours it went viral, drawing a million views.

It became the first episode of her popular *Scrappy Cooking* series, and the inspiration for her second bestseller, *PlantYou: Scrappy Cooking*. She dedicated the book to her late mother, who was diagnosed with a rare and aggressive stage 4 cancer just one week after Bodrug signed the publishing deal. At first, she wasn’t sure she could fulfill her commitment to write and launch the book. But when her mother implored her to “pull up her big girl pants and get to work,” Bodrug hired her sister Jacqueline to help see it through.

Jacqueline remains part of the team

I learned 30 to 40 per cent of all food in Canada ends up in landfills and contributes more emissions than the entire airline industry.

RECIPE

Marry me chickpeas

One of Bodrug's most popular recipes, this version of "Marry Me Chicken" uses simple, affordable swaps to create a creamy vegan dish with just as much flavour as the original.

Servings: 4
Time: 20 minutes

Ingredients

1 tbsp	olive oil
1	small yellow onion, minced
3	cloves garlic, minced
1½ tbsp	tomato paste
½ cup	sun-dried tomatoes
1 tsp	Italian seasoning
½ tsp	red chili flakes
1 tsp	salt
¾ cup	vegetable broth
1 cup	coconut milk
2 × 30 oz	cans chickpeas, drained and rinsed
1 handful	spinach or basil, torn

Instructions

1. In a large pan over medium heat, add the oil, onion and garlic.
2. Saute until fragrant, approximately 5 minutes.
3. Next, add the sun-dried tomatoes, tomato paste, Italian seasoning, chili flakes and salt.
4. Saute until fragrant, approximately 3 minutes.
5. Add the vegetable broth and coconut milk and stir until a sauce is formed.
6. Stir in the chickpeas. Cover and cook for an additional 2 to 3 minutes.
7. Finish with a handful of fresh spinach or basil and enjoy with toasted bread, rice or pasta, as desired.



PHOTO COURTESY OF PLANTYOU



today, along with a core of contractors, including a photographer and blog writer. "I've built my business in a way where I get to spend time doing what I think I do best and enjoy most, which is creating recipes and video content," Bodrug says.

It's a winning formula. She now tops Favikon's 2025 list of leading vegan influencers in Canada—a hard-earned title for a role that's often misunderstood. "It's easy to look at it and assume it's quite simple, but to be successful as a food blogger, you need to be a skilled entrepreneur with multiple streams of income. You need to future-proof yourself because you never know when things are going to disappear."

With a third cookbook in the works and a new monthly newsletter on Substack, she's grateful for her loyal followers, who grow along with her. "The majority of my audience is female, aged 29 to 34. When I started doing this, I was in my mid-20s, and they were too. Now, a lot of them are becoming parents." Just like Bodrug, 33, who, with husband Jesse, welcomed her first child this past June.

She sees this next chapter of her life as a new frontier for her business. "Becoming a mom has given me an entirely new perspective on what it means to cook a recipe for a family and the time constraints parents face. I'm looking forward to creating recipes that fit that need and once my son is old enough to eat solid food, I'm excited to create kid-friendly plant-based recipes too."

This new direction also aligns with Bodrug's original mission to help people eat more plants.

"It's very important to me, for our health and for our environment, and I appreciate the people who follow me for the opportunity to hopefully make an impact." ●

Stories from our community: New beginnings



I began my studies as a science undergrad at Western in fall 2013. Unlike many of my peers, I wasn't interested in becoming a doctor or dentist. I knew I loved science, but I often worried about finding my niche.

In the first weeks of my introductory biology course, we studied how HIV spreads and how it changes the way our cells use genetic information. Given HIV's global impact, I was fascinated and decided to take a course on the biology of infection and immunity in my second year to learn more. Taught by HIV researcher and Schulich Medicine & Dentistry professor Jimmy Dikeakos, the course had me completely hooked and I enrolled in the microbiology and immunology with pathology program at Schulich Medicine & Dentistry.

I quickly realized HIV research wasn't just a passing interest, it was something I wanted to pursue long term. I went on to pursue a PhD under Jimmy's supervision, focusing on how the HIV protein Nef enables the virus to evade the immune system and survive during treatment.

In November 2024, I successfully defended my PhD, nearly 11 years after those first fateful bio lectures. It was a full-circle moment and reminded me that not having all the answers at the start can actually lead you to where you're meant to be. I'm now a postdoctoral researcher in the Dikeakos lab where I'm studying how blocking Nef could improve HIV treatment and help the body clear the virus more effectively. ●

Mitchell Mumby, BMSc'18, PhD'25
Postdoctoral associate

LEFT: PHOTO COURTESY OF MITCHELL MUMBY; RIGHT: PHOTO COURTESY OF MAHIMA PATEL



I arrived at Perth Hall on a humid September morning in 2021 carrying more doubt than luggage. The sky was leaden grey, and everything felt too big—the buildings, the expectations, the silence between my heartbeats.

My room looked out onto Western Road. No sweeping trees or cinematic skyline, just cars arriving and departing, like they knew where they were going. I didn't. I sat on the edge of my mattress and listened to someone's speaker down the hall playing a song I didn't recognize.

Later that day, I got lost looking for my first lecture and stumbled into a philosophy class by mistake. I stayed, not out of fear of judgment but sheer interest. The professor asked, "What if the soul isn't something you have, but something you build?" That was the first time Western spoke directly to me.

That night, my floormates and I sat cross-legged in the hallway, a mismatched mosaic of strangers with microwaved ramen and half-open hearts. We swapped stories and Spotify playlists. Someone cried about missing home. I started to feel a pulse. Not mine alone, but something collective. Something alive.

That first day didn't unfold the way movies tell it. But it was real. It peeled something open in me.

Western, from that first imperfect day, taught me meaning doesn't always bloom in picturesque places. Sometimes it finds you in cinderblock rooms and accidental classrooms, asking questions you didn't know were yours to ask. ●

Mahima Patel, BA'25



Above: From left: Rajul Ghelani, Vaidehi Sadrani, Mahima Patel, Shabare Nagasundaram, Anoushka Harnal

Do you have a "Western Moment" to share about your experience with a club or sport? Send it to us at magazine@uwo.ca by Feb. 1, and we'll contact you if it's considered for the next issue.

Answering the call

It was 1997. Schulich School of Medicine & Dentistry professor Eric Arts, BSc'90, still early in his career, was working as a virology chemist at one of the top-ranked medical research institutions in the United States: Case Western Reserve University in Cleveland, Ohio. Arts enjoyed the work but sitting in a lab with no windows, day after day, he knew there had to be more. And there was. It was only 12,000 kilometres, the Atlantic Ocean and a trek across Africa away.

One day, there was a figurative knock at the door. In fact, it may have been literal. He can't remember. Regardless, it was a knock that changed his life.

"I was originally hired at Case Western by two researchers at the very top of global health: Jerry Ellner, a tuberculosis specialist, and Adel Mahmoud, the world's leading parasitologist," recalls Arts. "They said, 'We don't know much about HIV in sub-Saharan Africa. Will you go there and help us set up some clinical studies?' I thought, 'This sounds cool. I'd love to be able to get out there and do something different.' So, I stepped in and honestly, it's where I made my mark."

At the time—nearly two decades after the first outbreak of the ongoing HIV/AIDS pandemic, which has claimed more than 40 million lives worldwide—infected disease doctors were doing their best to treat patients, but had only a few drugs that were not yet making a meaningful difference for people living with HIV. Epidemiologists were also trying to understand how the disease spread around the world, but few researchers were studying the virology or immunology of the disease, or how it developed and progressed in the body. Even fewer were focused on the region hit hardest by HIV: Africa.

Arts has been doing just that for the past 30 years with his colleagues at the Joint Clinical Research Center (JCRC) in Kampala, Uganda; originally, through

Story by Jeff Renaud
Photo by Mac Lai

a clinical partnership with Case Western, and now as an advanced research collaboration with Western University.

"What we found was just how genetically diverse HIV is," says Arts, Canada Research Chair in HIV Pathogenesis and Viral Control. "You have 39 million people with 39 million different viruses, all under the umbrella of HIV. It's the most diverse virus to ever infect humans, except for maybe Hepatitis C."

Working with Peter Mugenyi, founding director of the JCRC, and Mugenyi's long-time research partner and eventual successor Cissy Kityo Mutuluza, Arts helped develop early studies at the JCRC in Uganda to expand HIV testing and established new tests to

monitor and prevent resistance to the anti-HIV drugs.

"The basic problem in Uganda, like much of sub-Saharan Africa, was that lab facilities just weren't equipped to handle the complexities of HIV disease and future treatments," says Arts. "Researchers were relying on science and very expensive tests developed in North America and Europe, hoping these would work the same in sub-Saharan Africa. And that became a huge issue."

In the early days, the JCRC treated people in Uganda with new drugs and therapies as they emerged globally, but all the clinical bloodwork samples were shipped to the U.S. for monitoring and analysis. The work gave Arts, his collaborators and the broader global health community valuable insight into how HIV developed and spreads but offered no real benefit to the people living with the disease. Arts calls it "safari science."

"In the U.S. and Canada, we were studying HIV for every individual patient to inform them, and us, about treatment for their specific strain of the disease. In Africa, samples were simply collected and shipped to the U.S. for analysis, bringing little benefit to the people who provided them," says Arts. "New drugs are even being tested in Africa, but when they become available, people living with HIV there are the last to gain access."



Eric Arts

That, says Arts, had to change. With support from Mugenyi, Kityo Mutuluza—who received an honorary degree from Western in June—and the JCRC team, Arts established a Centers for AIDS Research (CFAR) laboratory at the JCRC to respond to these changes.

"One of the first things we did was provide actual treatment for those involved in our clinical study," says Arts. "Before that, it was unheard of in Africa, which was a bit of a surprise to me. It took far too long, but eventually things did begin to change. Researchers from the U.S., Canada and Europe, including me, began setting up labs in sub-Saharan Africa. We started working with Ugandans to help expand their research programs and ensure they could secure funding to lead their own studies."

CFAR is federally funded in the U.S. by the National Institutes of Health with a goal of enhancing and coordinating high-quality, multidisciplinary research on HIV/AIDS around the world. Another funding stream is the President's Emergency Plan for AIDS Relief (PEPFAR), a global health fund first set up by President George W. Bush in 2003 to address the HIV/AIDS epidemic. When PEPFAR needed a framework for success, the Bush administration relied on the JCRC, through Mugenyi and Kityo Mutuluza, to make it happen. And did they deliver. This PEPFAR initiative has now saved the lives of more than 25 million with

HIV in sub-Saharan Africa, thanks in large part to the JCRC. Unfortunately, these funding opportunities are now under threat.

"There are still lots of problems that exist. About 90 per cent of the people who need treatment for HIV in Uganda now receive it. So that's fantastic, but it's such a fragile situation," says Arts. "We saw what happened this past year. Senators in the U.S. voted to keep PEPFAR funding, which was critical, but it was down to the wire. An estimated 500,000 people could have died in the first year if that funding was cut. That's the extreme, but minor fluctuations in funding or mass global events like the COVID-19 pandemic all have a major impact on treatment availability and outcomes."

That's the bad. Here's the good: PEPFAR and the Global Fund that provides HIV treatment remains intact—for now. Its important research and clinical

care continue. Through Western's Frugal Biomedical Innovations Program and Schulich Medicine & Dentistry's Imaging Pathogens for Knowledge Translation (ImPaKT) Facility, a team led by Arts is working closely with Kityo Mutuluza at the JCRC and Peter Zandstra, director of the Michael Smith Laboratories at the University of British Columbia, to develop an HIV cure.

"We're combining our knowledge to develop and implement a cure for HIV," says Arts. "We want to free people from having to rely on HIV treatments and extensive lab tests, so they can start living HIV-free. That way, they can't transmit the disease anymore and the pandemic goes away."

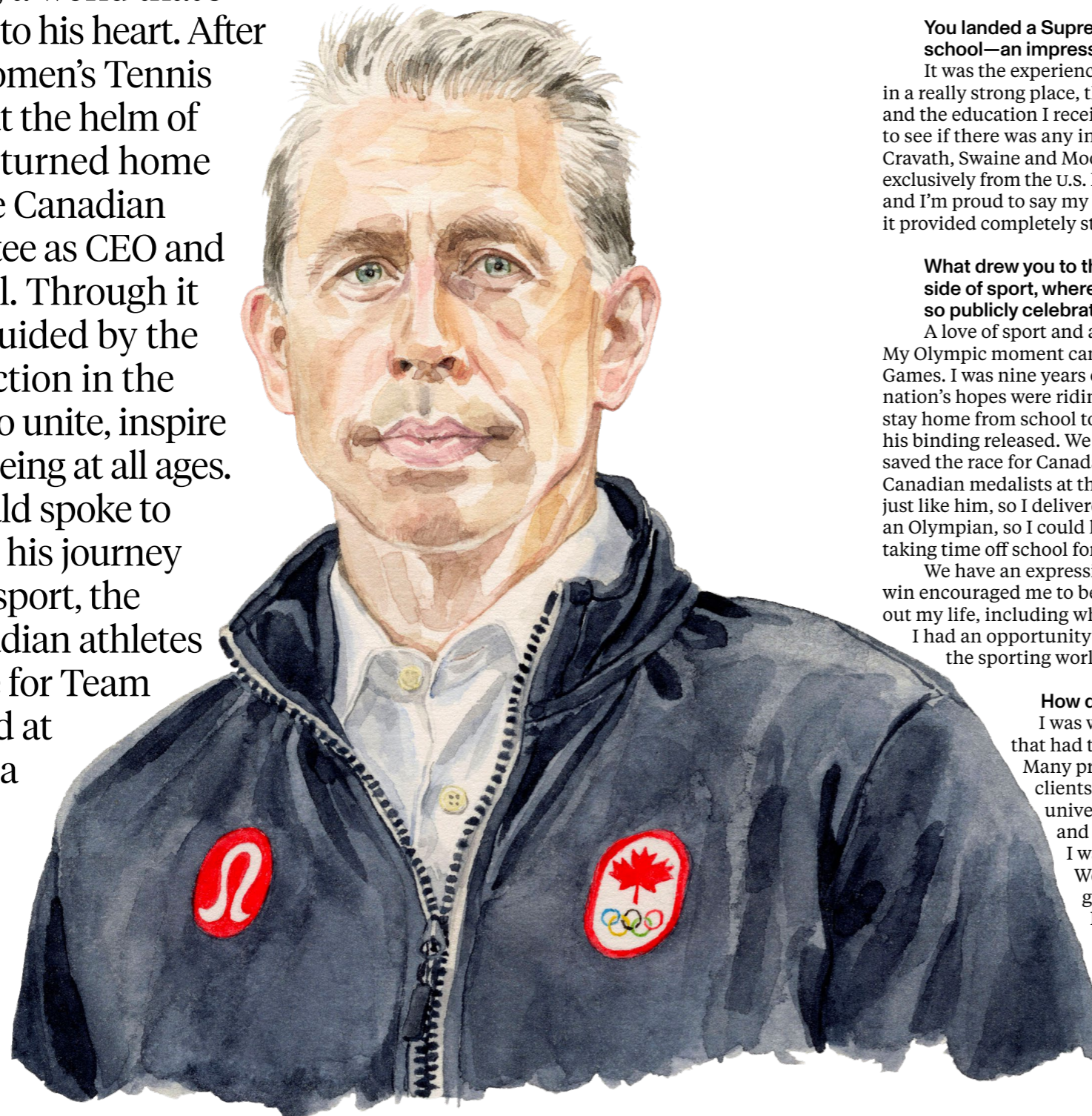
That singular goal is why Arts is so excited about Western's new \$44-million Pathogen Research Centre, slated to open in 2027. The centre will advance infectious disease innovation, enabling Canadian-made vaccines and biotherapeutics for clinical trials in Canada, Uganda and across the globe (more on page 13).

"Having this capacity in Canada is a major step forward for research and clinical care," says Arts. "And while we await a parallel approach in Uganda, hopefully at the JCRC, we can partner with them and find solutions together at the Pathogen Research Centre for people in sub-Saharan Africa and around the world." ●

Game on

David Shoemaker, LLB'96, left a high-powered New York law firm for a job in sports, a world that's always been close to his heart. After stints with the Women's Tennis Association and at the helm of NBA China, he returned home in 2019 to lead the Canadian Olympic Committee as CEO and Secretary General. Through it all, he has been guided by the same deep conviction in the power of sport—to unite, inspire and bolster well-being at all ages. Colleen MacDonald spoke to Shoemaker about his journey merging law and sport, the trajectory of Canadian athletes and what it'll take for Team Canada to succeed at the Milano Cortina 2026 Olympic Winter Games.

Interview by Colleen MacDonald
Illustration by Melinda Josie



Has sport always been a prominent part of your life?

My mom and grandfather were pro tennis players. He was the top player in Canada in 1933 and my mom won the Canadian Open in doubles in the era of Billie Jean King. From a young age, I had a passion for virtually every sport. If there was an Olympics for the school yard, my brother and I would've captured gold. At Western, I played intramural basketball, ball hockey, ice hockey and touch football. To this day, I find it so important, not just for my physical fitness, but for my mental well-being, to have sport as an outlet.

You landed a Supreme Court position right out of law school—an impressive feat. What gave you the leg up?

It was the experience of a lifetime. Western Law put me in a really strong place, through both the pedigree of the school and the education I received. A year later, on a whim, I decided to see if there was any interest from New York law firms. Cravath, Swaine and Moore took a chance on me. They hired exclusively from the U.S. Ivy League schools—no exaggeration—and I'm proud to say my Western degree and the training it provided completely stacked up.

What drew you to the administrative leadership side of sport, where the successes may not be so publicly celebrated as athletic victories?

A love of sport and a belief in its power. I'm living it. My Olympic moment came in 1980 with the Lake Placid Winter Games. I was nine years old and an aspiring alpine skier. The nation's hopes were riding on Ken Read, and my parents let me stay home from school to watch him race. But he crashed after his binding released. We felt shattered. But then Steve Podborski saved the race for Canada, capturing bronze, one of only two Canadian medalists at the Lake Placid Games. I wanted to be just like him, so I delivered newspapers and shovelled snow like an Olympian, so I could help pay for my own skiing and justify taking time off school for ski racing.

We have an expression here: 'Be Olympic.' Podborski's win encouraged me to be Olympic in everything I did throughout my life, including when I wasn't working in sport. When I had an opportunity to combine my legal profession with the sporting world, I jumped at the chance.

How did that happen?

I was working for Proskauer, a New York firm that had the world's preeminent sports practice. Many professional leagues and teams were my clients. I was teaching sports law class at two universities in New York and New Jersey, and I was in my partner year at the firm. I was offered the opportunity to join the Women's Tennis Association as its general counsel—for a massive pay cut. I took it.

My colleagues thought I was crazy, but I took the chance because I wanted an inside role in sport's capacity to shape lives for the better. Perhaps I also thought, 'This will make my mom and my grandfather proud.'

What's a typical day like for you at the Canadian Olympic Committee?

There isn't one. On my first day with the COC, I showed up and Steve Podborski was on the board! I thought, 'Wow, here I am sitting next to the guy who defined my Olympic dream.' I work very closely with many athletes who are or will become Canadian icons.

My day-to-day also involves a heavy dose of interaction with government, as we advocate for more funding for the sport system, and frequent interaction with the private sector, because the COC is almost 100 per cent funded privately via 37 marketing partnerships or sponsorships with very supportive Canadian companies. And now, a significant part of my day is preparing Team Canada for the Milano Cortina 2026 Winter Games in Italy.

You've been a strong advocate for boosting federal funding to Canada's 62 national sport organizations that haven't had an increase in core funding since 2005. Why is it so critical?

The COC is an honest broker in this conversation, because although we're almost entirely funded through the private sector, we advocate for the federal government to invest more in national sport organizations so they're able to support athletes at all levels of sport.

Sport can have a tremendous positive impact—and not just supporting Olympic dreams. Sport is good for both your physical and mental health. Sport brings communities together across a huge country. It unites us. It inspires us. It teaches life lessons on how to lead and persevere, even under adversity. And it teaches not just how to win, but how to lose. The power of sport is worthy of the federal government's time and investment. The sum of money we're talking about is an incredibly efficient way of investing in the well-being of this country.

Amid global turmoil and the polarized political climate, what role does sport play?

It has an enormous role. I saw it firsthand in Tokyo after the 2020 Olympics were delayed a year by COVID-19. When the world finally came together, it was incredibly cathartic and inspiring. When we won our first medal, the silver in the women's

swimming relay, and then London's own Maggie Mac Neil won gold in the butterfly, the country erupted with excitement. The women's soccer team went on to win gold, Kelsey Mitchell won in track cycling and Damian Warner, another Londoner, won the decathlon. It was incredible, and it wasn't just a Canadian experience; the world was experiencing it.

Now as we're feeling challenges to our sovereignty, patriotism is on the rise. Canadian athletes who've been training throughout their lives to represent this country are competing with the maple leaf on their chest, doing us proud. So there's a little extra riding on sport now. But at the end of the day, we shake hands and move on. It's the last thing on Earth where the world comes together in that spirit. It's real, not idealistic—sport can bring the world together, even in times of real tension.

What is the COC doing to develop the next generation of athletes?

Over the next 10 years, we're going to get a million more young people in Canada into organized sport. We think if no one else is doing it, we ought to.

If we're going to continue to be competitive and grow our Olympic performance, we must radically broaden the base of athletes who are getting into organized sport in Canada. Facilities are getting harder to come by, clubs are harder to get into and participating is very expensive, even in sports you might not think of as costly. We're committed to trying to change that by lowering the barriers so a diversity of Canadians can access organized sport.

With mental health increasingly a challenge facing elite athletes, what is the COC doing to help?

Many high-profile athletes have joined the conversation on the importance of being mentally well to compete. We agree. It's important to destigmatize mental health issues so people are willing to seek help, and then, it's equally important to have the support in place. That's why the COC and Canadian Paralympic Committee have partnered for over 10 years with Deloitte on a program we call Game Plan. It evolved from a performance tool to help athletes show up at the starting line free from mental pressure into a total wellness resource centre including mental health support for all our athletes.

Interview has been edited for length and clarity. See more content online at magazine.westernu.ca.

How do we ensure athletes are competing in a safe environment?

Abuse and harassment cross all sectors, but in sport we'd been letting national sports organizations decide for themselves how to respond to allegations. That was the wrong approach. It needed a national solution that I'm happy to say is now in place. About three years ago, Canada established an Office of the Sport Integrity Commissioner where athletes can take complaints of abuse or harassment and have them investigated and adjudicated independently.

What still needs to happen is that all provinces—not just some—must create similar provincial bodies. The reality is the national body is responsible for about 3,000 athletes who compete and train at the national level, but the majority of sport takes place at the club level in cities, so we need alignment across the country. It has begun, but not with the level of energy that it should.

What moment stands out for you from your career?

I was in the stadium with my wife and three boys when the Canadian men won the gold medal in the 4x100m relay in Paris. That team believed in themselves, when few others did. The moment crowned an illustrious career for Andre De Grasse. What made it even more special was seeing them come around with the flags draped over their shoulders, celebrating for Canada. Bruny Surin was in the crowd right near us. Everyone in his section went over to Bruny and hugged him, because he had won the 4x100m in Atlanta in 1996.

We were sitting behind Kamala Harris's husband, Doug Emhoff. He was representing the U.S., but he had to begrudgingly high-five us when we won.

Beyond medals, what other ways should we measure the success of Canadian Olympians?

Even when we don't win, our athletes represent Canadian values and give their all every competition. We lead the world in that. One of my favorite Olympic moments was a heartbreaking one at the Tokyo Olympics, when our women's 4x400m track team came fourth. I'm getting emotional just thinking about it. The way those women put their arms around each other and expressed such raw emotion. It was so hard to hear them say they felt they let the country down. And then they said they were going to come back and go for the podium. I was as proud of them in that moment as if they'd won the gold medal.

I think we should also measure Olympians by what they're doing off the field of play. Many of our athletes are devoting significant time to their communities or to sustainability in the Olympic movement.

What are you most looking forward to at the winter Olympics in Milano?

I'm looking forward to seeing Mikaël Kingsbury in freestyle skiing moguls. He's probably the most successful skier in our country's history, and I'm not sure enough Canadians know that. We should all watch what speed skater Isabelle Weidemann has in store after winning gold, silver and bronze in Beijing. We're also a powerhouse in short-track speed skating. Our snowboard athletes are incredible and our figure skaters are world class. I'm especially looking forward to seeing double gold hockey performances for our women's and men's teams. We own winter and I can't wait to see that. ●



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Raffie with producing partners Christian Palomares (left) and Duncan Miller (right)

Winnipeg native Rafaella (Raffie) Rosenberg, HBA'16, caught *Oh, Mary!* off-Broadway and was immediately hooked, drawn into the comedy that reimagines the life of Mary Todd Lincoln in the lead-up to her husband Abraham Lincoln's assassination.

Rosenberg joined the show's team for its Broadway run as a co-producer, working alongside former interns she met while working at *The Late Show with Stephen Colbert*, earning a Tony Award nomination for "Best Play." The show was also nominated for four other Tony Awards, winning two, and was named a finalist for the 2025 Pulitzer Prize for Drama.

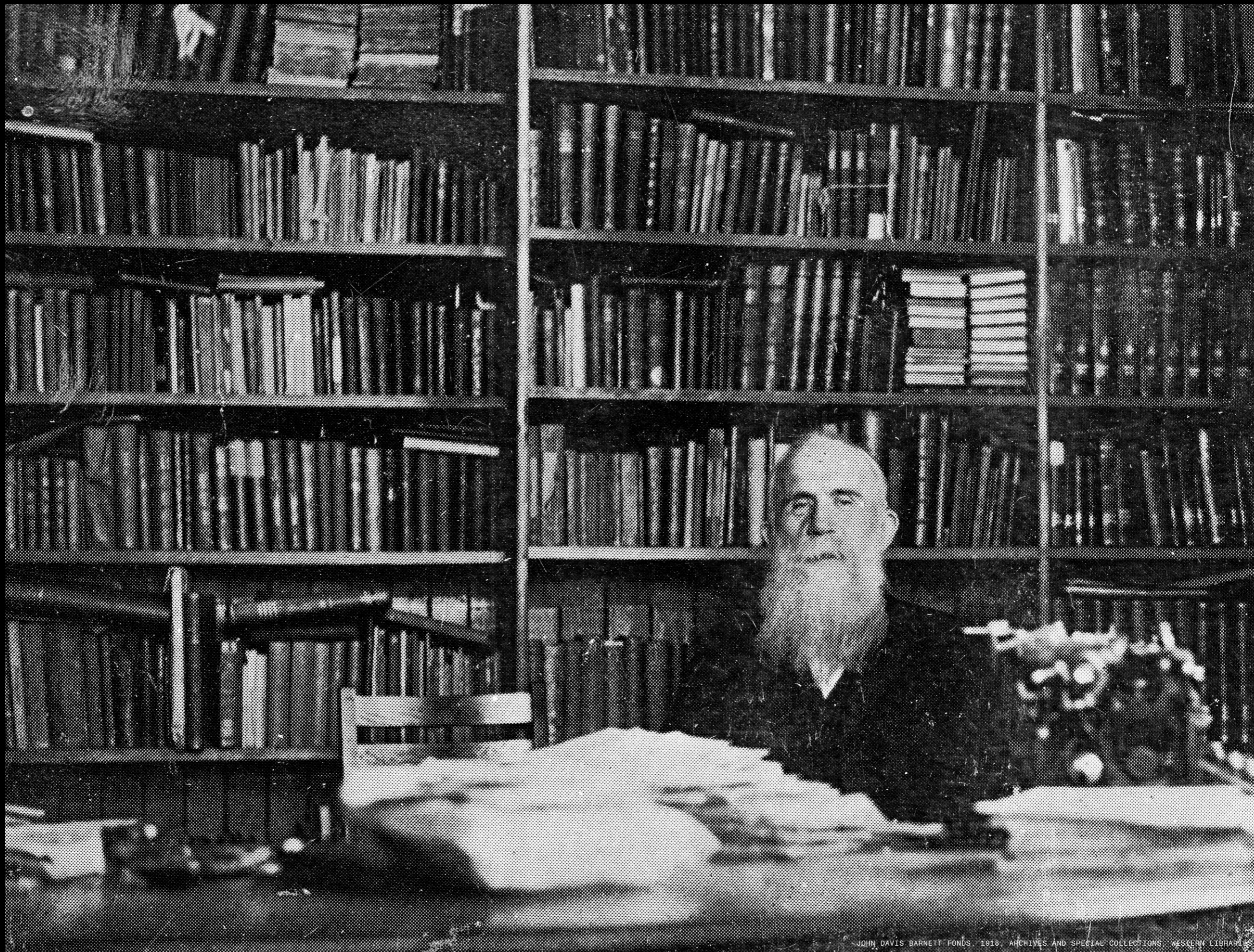
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John Davis Barnett, LLD'1919, hoped his books would enrich learning and exploration for “any earnest seeker of knowledge.”

It's what led the engineer and railroad worker to donate his personal collection—a staggering 40,000 books—to Western in 1918. Barnett's gift, the single largest received by a Canadian library, was foundational. Western Libraries' collection, which at the time numbered about 3,000 books, swelled to include literature, books on history, science and technology, alongside government publications, magazines, monographs and bulletins.

Barnett became Western's first librarian, managing the collection from 1919 to 1922 before his health deteriorated. Some of his items have since been digitized by the Archives and Special Collections team in Western Libraries, which also holds Barnett's personal papers.

A book lover who believed in the importance of unrestricted access to information, Barnett's goal was to create “the nucleus of a library.” One of the conditions of his gift was that his books be available to anyone. His donation gave rise to a flourishing library collection, now boasting more than 5.8 million print or digital books, journals and other materials. ●



In 1918,
a landmark
donation

To build a just, sustainable world,
we must value agriculture and
reward the farmers who feed us.

Bipasha Baruah
Gender, Sexuality
and Women's Studies
professor and Western
Research Chair



From Politics of the Plate,
starting on page 26

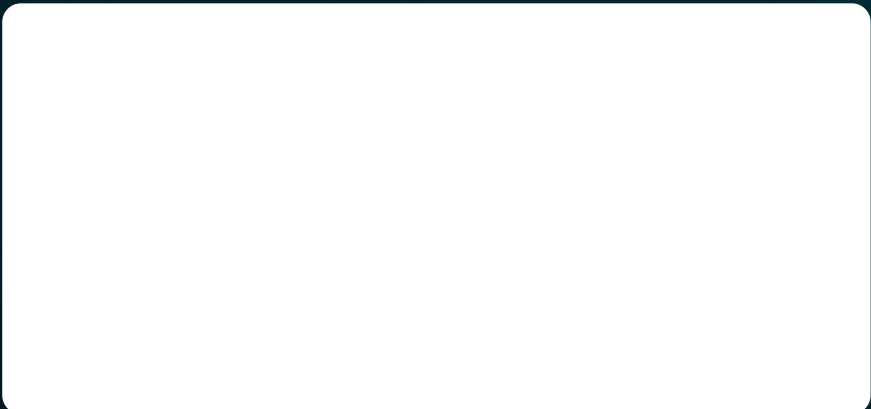
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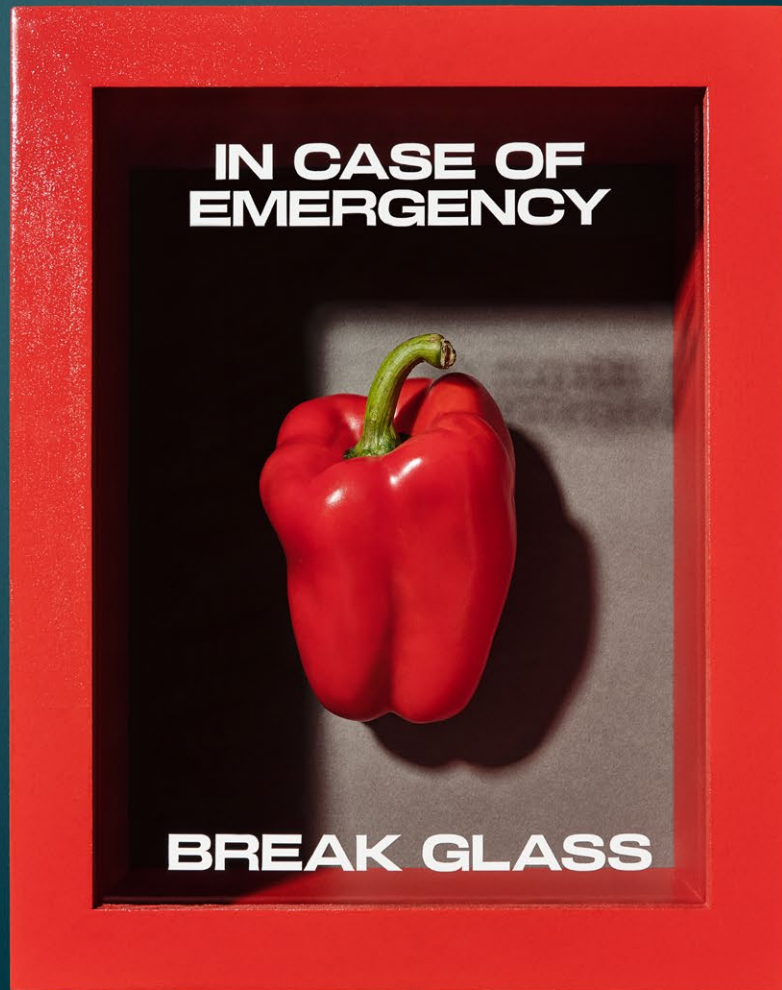
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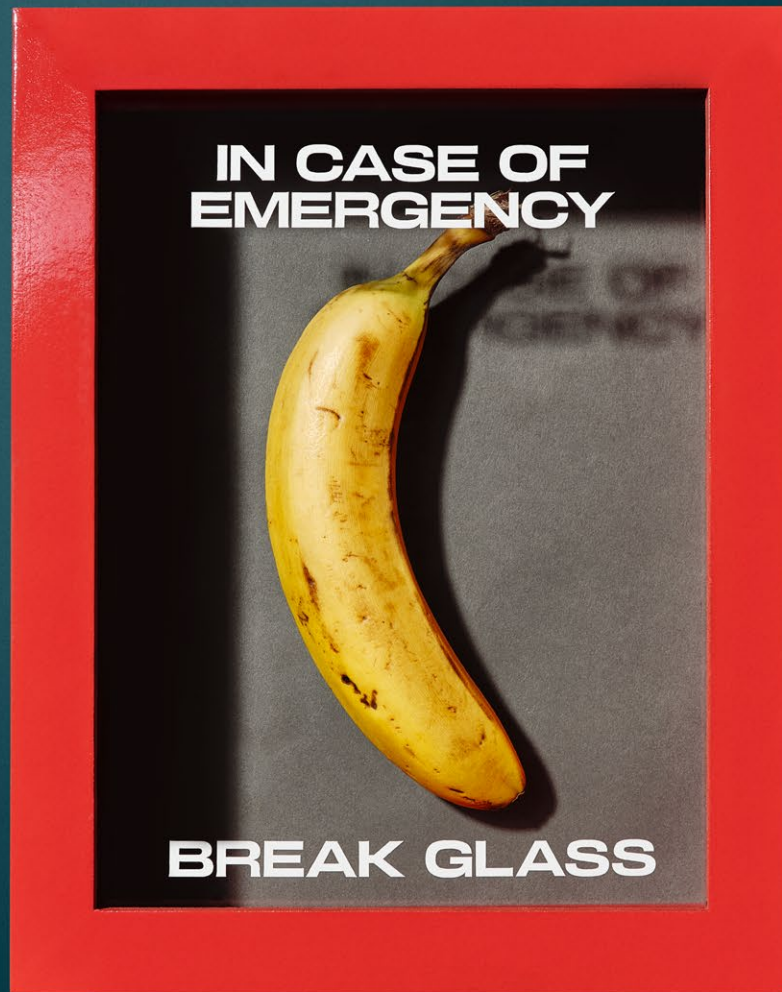
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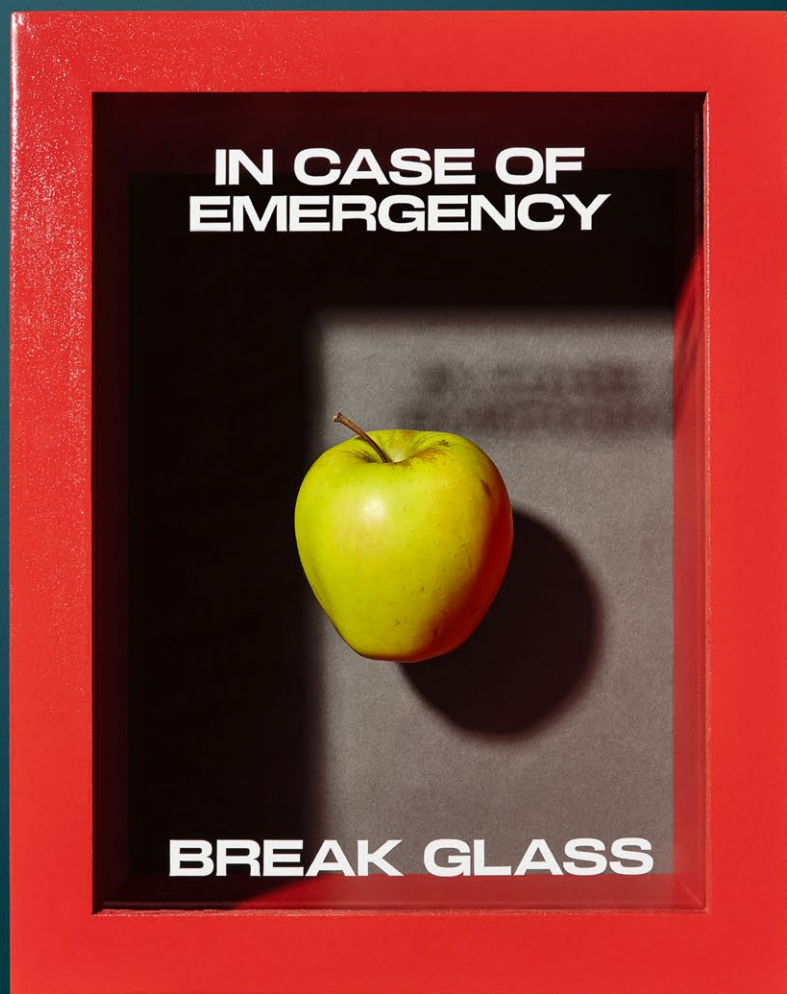
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