CELINA CAESAR-CHAVANNES
Hear her now, in her own words

TIFF MACKLEM
steers the Bank of Canada through the pandemic

5 TO WATCH
Meet our new Canada Research Chairs

QUEEN'S ALUMNI REVIEW

THE MAGAZINE OF QUEEN'S UNIVERSITY SINCE 1927

Getting COVID'S number

How Dr. Troy Day is using math to chart the course of the virus

SPRING 2021

20 FEBRUARY–30 MAY 2021

DRIFT: ART AND DARK MATTER

Nadia Lichtig, Josèfa Ntjam, Anne Riley and Jol Thoms

A residency and exhibition generated by Agnes, the Arthur B. McDonald Canadian Astroparticle Physics Research Institute and SNOLAB.

Arthur B. McDonald
Canadian Astroparticle Physics Research Institute

SNOLAB

Canada Council for the Arts | Conseil des arts du Canada

Ontario Arts Council / Conseil des arts de l'Ontario

Kingston

Kingston Arts Council

Queen's University

Image: Jol Thoms, *Untitled (Isometric Dimensions of Land Use)*, 2020, digital print. Courtesy of the artist.

AGNES
ETHERINGTON
ART CENTRE

agnes.queensu.ca
@aeartcentre

CONTENTS

Spring 2021

Tiff Macklem (Artsci'83) in the front entrance hall of the Bank of Canada

COVER SHOT EXCLUSIVELY FOR QUEEN'S ALUMNI REVIEW BY JENNIFER ROBERTS; (RIGHT) RÉMI THÉRIAULT; SPOT ILLUSTRATION SOL COTTI

Features

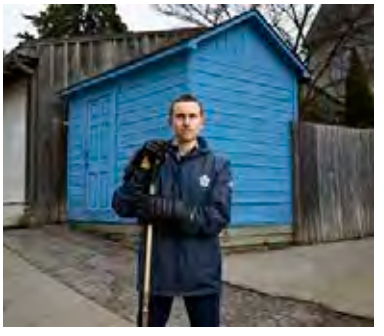
On Campus

ABOUT THE COVER

Dr. Troy Day, Queen's applied mathematician, was photographed by Jennifer Roberts on March 17, 2021 in Kingston, Ontario.

Day is surrounded by symbols of the COVID-19 variants that have changed the trajectory of the pandemic. "I wanted this photograph to reflect the serious nature of the story, which has a darkness about it, but I also wanted there to be a light that reflected the hope Dr. Day's research is bringing," says Roberts, whose clients include the *New York Times* and *Rolling Stone*. "Finding that balance was key to the shoot."

Off Campus



"I found it can be very fulfilling to look outside yourself and consider the people around you and how you can affect their lives in even the smallest way."

— DR. IDARA EDEM, **P. 35**

PHOTOGRAPH BY (CLOCKWISE FROM TOP LEFT) HAMIN LEE, SARAH RICE, COURTESY OF ROCKMASS TECHNOLOGIES, FINN O'HARA, ANTIQUA PRINT GALLERY/ALAMY, O'SHANE HOWARD

PHOTOGRAPH BY BERNARD CLARK

APPREHENSION AND HOPE

So much about this issue of the *Queen's Alumni Review* speaks to the future and to the potential for positive change and development that attends this moment, as our university and communities everywhere are daring to imagine again a life not shaped and constrained by the COVID-19 virus. There is certainly great hope in the moment, but undoubtedly there must also be apprehension, because one important lesson of the pandemic that will stay with us for a long time is that our agency has limits: humans can dream and prepare as they wish, but nature may have other plans.

I believe that heightened consciousness of this fact – which many of our current students will be experiencing as a sudden loss of youthful innocence – is a significant factor in the dramatically increased need for mental health supports both on campus and in society at large. The challenge is not that COVID-19 has emptied the future of promise, but rather that it has revealed the vulnerability and fragility of our longings and aspirations. It has forced us to revise what we take to be "normal" in the trajectory described by the lives of individuals, organizations, and societies; and in doing so it has encouraged us to look more deeply for meaning in immediate, rather than remote, opportunities.

That cooking, pet care, cycling and cross-country skiing have found new popularity during COVID-19 illustrates the point – not just because such things provide comfort during confinement, but because they do not require belief in an assured future. In this way, the pandemic has required us to scrutinize and reconsider the values that underpin our life choices. And because they are such powerful engines of personal, social, cultural and economic development, universities are a natural and inevitable venue in which we might expect this reappraisal to take place.

At Queen's over the last twelve months we have seen that process play out in countless different ways: shifts in the form of academic assessment, flexibility introduced in funding eligibility for graduate students, modified approaches to performance review for faculty members, radically changed assumptions about productivity and working from home, a rapidly evolving relationship to technology for teaching and learning, a new understanding of what is owed to and might be expected from international students, an evolving sense of the physical campus and of what the "Queen's experience" is or might be in relation to that physical space, and a doubling down on questions of relevance and value.

Not all of this was driven by COVID-19. The advent of the pandemic happened to coincide with a planning process for the University which as early as October 2019 had begun to ask questions about our values and purpose – questions that were amplified and invested with greater urgency by the health crisis and the peculiar social reset which it precipitated and which continues today. Like every one of the individual students who make up this institution, we as a community are looking to our future and as we do so, pondering our agency. What do we imagine for the University in the coming years, and how do we negotiate those aims and ambitions in the context of what COVID-19 has taught us is a profoundly unpredictable future?

That unpredictability is cause for apprehension, as I remarked at the outset, but it is also cause for hope, in that it leaves us no choice but to embrace change, creativity, and the reliance on human empathy that has brought us through this exceptionally challenging phase in Queen's history.

Sincerely,
PRINCIPAL PATRICK DEANE

OUR NEW LOOK

Spring is here and change is in the air – not just on campus, but also at the *Queen's Alumni Review*, where our first issue of 2021 marks a new beginning and a brand-new look.

It's a change that's been in the works for almost a year as we connected with our alumni around the world, incorporated community feedback, and took a deep dive into readership surveys to find out what people wanted to see in their magazine.

We listened. We talked. And we brainstormed.

And then we worked with the award-winning Studio Wyse to help us capture everything you wanted in a bold design that reflects the Queen's University of the future.

The end result is a reimagined *Queen's Alumni Review* with a new look and, we hope, a new feel.

In this, Queen's University's 180th year, there seemed to be no better time to look back with pride and embrace the change of the future. We hope the new *Queen's Alumni Review* will help you do both.

INSIDE YOU'LL FIND

- More stories about the incredible research that's happening right now at Queen's – whether it's well established or an exciting proposal about to make waves
- Greater diversity and new perspectives to better reflect the Queen's community
- The Big Picture – a new feature that will take you inside the lab and into the field to unlock secrets of technology and research that are changing the world around us
- If These Walls Could Talk – a walk down memory lane as alumni tell the stories of life in the houses that are landmarks of the University District (be sure to send us your stories!)
- For the Record – a Q&A that lets you hear the full story from the source, in his or her own words
- Profiles – people who are changing the world, and wearing the tricolour with pride, whether they're describing how they landed their dream career, how they got their start, or what it took to get to where they are today
- Plus bigger photos, new voices and all your regular favourites, such as Class Notes, Books, and Campus News

QUEEN'S BY THE NUMBERS

Queen's University continues to attract leading researchers, competitive funding, and awards through a number of national and international programs – in the past year alone, the university has received hundreds of grants for new projects and research infrastructure. A quick snapshot of the numbers reflects our reputation for research excellence.

3rd
in research income growth (medical category) according to national research rankings

47
Queen's is home to 47 Canada Research Chairs – a prestigious national honour created to promote leading-edge research

60 million
Number of dollars Queen's received in major sciences initiatives (MSI) funding from the Canada Foundation for Innovation

Seven
Number of Queen's research projects receiving funding from the New Frontiers in Research Fund

5th
in research intensity (research income per full-time faculty member)

219 million
Number of dollars Queen's has received from international sources in the past five years

PHOTOGRAPH BY DELLA ROLLINS; SPOT ILLUSTRATIONS BY SOL COTTI

Nothing like a good read to start the day.

—@KEEPUPWITHTI

Time to Reflect

This is my first time writing a letter to the Editor since graduating from Queen's over 50 years ago. Not only did I read issue 4 from front to back, I re-visited several articles.

I credit the opportunity to re-read issue 4 to a greatly slowed 2020/21 Christmas and New Year's period. In pre-COVID-19 times, I would be out at holiday brunches with friends and family and would be spending hours browsing the Boxing Day sales even though there was nothing I needed.

I thoroughly enjoyed a slower reading with time to reflect. Perhaps this is one of the pandemic benefits. I was struck by Wanda Praamsma's feature story, "Bearing witness," about Steven Heighton's new book, Reaching Mithymna. Ms. Praamsma describes the author's awareness that living the writer's life can result in a disconnect between text and the reality of the lived experience.

Although his experiences were in 2015, four years before the pandemic, I reflected on the numbness I have experienced at times over the months of the pandemic and see a parallel with some of Steven Heighton's feelings. Wanda Praamsma goes on to describe his courage to travel to Greece to experience what it was like to assist refugees arriving at the island of Lesbos. I ask myself how I can be more present in my life. How can I strengthen my ability to pay attention, and be more aware of actions I can take to improve my life and contribute to a better world?

Wanda's article has inspired me to read Steven's book, and to re-read other articles in the magazine.

Thank you.

SUSAN RUTH PRATTEN, ARTS'70

Still competitive

It was interesting to read about Rhonda Leeman, her passion for hockey, and her reference to Cookie Cartwright. I skated regularly on outdoor rinks and roller skated but didn't play hockey until Cookie Cartwright organized girl's hockey during my first year at Queen's. It was fun, even in figure skates, and when I returned to Thunder Bay, I actually organized a hockey game for the girls in the badminton club. We played badminton from 7 to 11pm and then rented the main hockey arena for an hour of fun, but very unprofessional, hockey. While I never played hockey again, I am still playing competitive badminton, having gone to the last three Canadian Masters Tournaments with my husband, who is over 80.

MARIAN CHILDS, ARTS'65

WRITE TO US

The Queen's Alumni Review welcomes comments at review@queensu.ca. All comments may be edited for clarity, civility and length.

@queensureview

QUEEN'S ALUMNI REVIEW

VOLUME 95, NO. 1, 2021

QUEEN'S UNIVERSITY PRINCIPAL AND VICE-CHANCELLOR
Patrick Deane

VICE-PRINCIPAL (ADVANCEMENT)
Karen Bertrand, Artsci'94

EXECUTIVE DIRECTOR, MARKETING, COMMUNICATIONS AND DONOR RELATIONS
Scott Anderson

DIRECTOR, MARKETING AND PUBLICATIONS
Alex Beshara

DIRECTOR, STRATEGIC COMMUNICATIONS AND EVENTS (ACTING EDITOR)
Ruth Dunley

COPY EDITING AND PROOFING
Lois Casselman, Amy Lee, Cat London (Artsci'03), Anita Murray (Three C Communications), Angel Schur (Artsci'98), Wendy Treverton

ART DIRECTION
Studio Wyse

WRITERS
Tony Atherton, Ty Burke, Rosemary Counter, Scott Cruikshank, Deborah Melman-Clement, Michael Onesi, Tom Spears

PHOTOGRAPHERS AND ILLUSTRATORS
Sol Cotti, O'shane Howard, Johnny C.Y. Lam, Hamin Lee, Callum Linden (Artsci'20), Finn O'Hara, Sarah Rice, Jennifer Roberts, Rémi Thériault, Wendy Treverton, May Truong

CONTACT US

ONLINE queensu.ca/alumnireview
EMAIL review@queensu.ca
TWITTER @queensureview
PHONE 1.800.267.7837
(toll-free in Canada and U.S.)
ADVERTISE IN THE REVIEW advert@queensu.ca

The Queen's Alumni Review is published by the Queen's Office of Advancement. Queen's is a member of the Council for Advancement and Support of Education and the Canadian Council for the Advancement of Education. Subscriptions are free to alumni, $25 cdn/year for others. Opinions expressed in the Review are not necessarily those of Queen's University.
Queen's Alumni Review (circ. 130,000)
issn #0843-8048

TO UPDATE YOUR ADDRESS
or change your subscription to either the online or app version, email: review.updates@queensu.ca or call 1.800.267.7837 (toll-free in Canada and U.S.)

Canada Post publications mail permit #41089017

Queen's Alumni Review
Queen's University Old Medical Building
50b Arch Street, Kingston, ON K7L 3N6
Phone: 613.533.6000 ext. 77016

Queen's University is situated on traditional Anishinaabe and Haudenosaunee Territory

MIX Paper from responsible sources FSC® C011825

Distinguished Service Awards 2020

Inaugurated by the University Council in 1974, the Distinguished Service Award recognizes individuals who have made the university a better place through their exemplary service and extraordinary contributions.

Selim G. Akl

Dedicated faculty member since 1978, current professor, nationally recognized computer science researcher and scholar, and tireless champion for the School of Computing.

Jan Allen

Queen's alumna, former director of the Agnes Etherington Art Centre, expanded the centre's exhibitions, publications, and acquisitions; and promoted collaborative curatorial and research work; nationally recognized curator and arts leader.

Jacquie Brown

Long-serving program assistant in the department of Mechanical and Materials Engineering, committed to student support, safety on campus, and continuous training resulting in positive impact on the lives of students, faculty, and staff.

Jennifer Medves

Former vice-dean (Health Sciences) and director of the School of Nursing, former vice-chair of Senate, and exemplary participant in university governance, devoted to student mental health, innovative programming, and the profession of nursing.

Richard Reznick

Former dean (Faculty of Health Sciences), director (School of Medicine), and CEO (Southeastern Ontario Academic Medical Organization), pioneer of innovative educational programs, internationally renowned medical education expert, and leader of transformative change.

Daniel R. Woolf

20th principal and vice-chancellor, principal emeritus, Queen's alumnus, professor of history, instrumental in the transformational gift for Smith School of Business, introduced governance reform and position of provost, committed to faculty renewal, wellness, and the arts.

Congratulations to each recipient, and thank you for your service to Queen's University.

Send recipients your notes of congratulations through ucouncil@queensu.ca

Queen's UNIVERSITY

ON CAMPUS

Jol Thoms, *The Bulk: Frameworks*, 2021, slotted steel angle with Fresnel lenses and mirror ball motor. Collection of the artist.

PHOTOGRAPH BY TIM FORBES

Drift: Art and Dark Matter is a multi-faceted residency and exhibition that brings artists and scientists together to engage with one of the biggest mysteries in modern cosmology. Scientists know that gravitational "glue" holds the galaxies in place, but no one can yet detect this invisible "dark matter."

What: *Drift: Art and Dark Matter* residency and exhibition project **Where:** Agnes Etherington Art Centre, Queen's University, 36 University Avenue, Kingston, Ontario **When:** February 20, 2021 until May 30, 2021

↓

Artists and scientists alike embark on speculative adventures in search of the intangible, says Sunny Kerr, Curator of Contemporary Art at the Agnes Etherington Art Centre. *Drift: Art and Dark Matter*, now on display at the Agnes, aims to open up transdisciplinary avenues of exchange and to yield new understandings of our place in the universe.

Broader contexts across art and science – disciplines that don't always connect – were vital while organizing the project, says Kerr.

Developed by the Agnes Etherington Art Centre, SNOLAB, and the Arthur B. McDonald Canadian Astroparticle Physics Research Institute, *Drift* builds on previous initiatives.

It is named for the drift, the horizontal tunnel in a mine – in this case, the passageway between a working copper and nickel mine and the clean lab spaces of SNOLAB, an expansion of the original underground facility where McDonald's Nobel discovery was made and where detection work continues.

In July and October 2019, four artists were invited to engage with physicists, chemists, and engineers contributing to the search for dark matter. Nadia Lichtig and Josèfa Ntjam, both based in France; Anne Riley, who lives in Vancouver and is Slavey Dene and a member of Fort Nelson First Nation; and Jol Thoms, from Toronto and based in London, U.K., visited SNOLAB's surface and underground facilities and toured the Arthur B. McDonald Canadian Astroparticle Physics Research Institute's research facilities at Queen's University. An exhibition of resulting artworks runs from Feb. 20 to May 30 at the Agnes and then will embark on a national tour.

Artists selected for the project didn't have to be versed in physics. Each, however, had to be open to straying from typical art spaces to learn about particle physics, which involved travelling two kilometres down in an active mine, walking through the drift to the lab, showering (dust can compromise sensitive experiments at SNOLAB), and changing into special clothing that reduces dust in the lab.

From a curator's perspective, what is most thrilling about *Drift* is the receptivity to possibility. "Art and science share a sense of adventure, of being open to the unknown," says Kerr.

Of the resulting exhibition, Kerr says he is "pleased with the diversity of the responses among the artists, from visceral and poetic to cerebral and intellectual and even socially critical." In addition, a book, a digital exhibition, and a series of programs aimed at different audiences will be offered. But the process itself, driven by the artists' own approaches and responses, is what's most valuable, Kerr emphasizes. "It's engaging in this process with the McDonald Institute and SNOLAB that has been really eye-opening and deserves attention, aside from the various outputs."

And there's much more to discover. "We're proceeding in a way that we can do this again," says Kerr. "A lot of potent new avenues have materialized, questions that haven't been a sustained focus since the Renaissance, when art and science were much closer together."

PHOTOGRAPH BY (BELOW) HOUR MEDIA GROUP

The Ingenuity Lab Research Institute, where mobile researcher Naveena Pandillapally works with a Clearpath self-driving robot. ▼

The Cause

EDII in Engineering

Queen's Engineering is active on a number of fronts related to Equity, Diversity, Inclusion and Indigeneity. The faculty recently became one of six participants in IBET: the Indigenous and Black Engineering and Technology PhD project, through which Queen's Engineering is offering two $25,000 scholarships each year to qualified Black and Indigenous PhD scholars. And there is great pride in a student-led initiative to join the National Society of Black Engineers, accomplished recently by alumna Thea Rainford (Sc'20) and current student Geneviève Norris-Roozmon. The faculty's commitment to addressing issues regarding marginalized communities in STEM is also active in youth outreach, with the recent creation of Black Youth in STEM, a project for grade-school aged Black youth run by our Aboriginal Access to Engineering program.

The Gift

Women in Engineering

Following the announcement of the Chair for Women in Engineering last October, funded by a generous gift from anonymous alumni, inaugural Chair Dr. Heidi Ploeg has built an online subsection of resources, tools, and opportunities for women in engineering. Concurrent with Dr. Ploeg's work in this area, a group of Queen's engineering students have convened the first annual Q-WASE (Queen's Women in Applied Science and Engineering) conference, which took place at the end of February. The Faculty also remains committed to the "30 by 30" program established by Engineers Canada, with a goal of having 30 per cent of newly licensed engineers be women by the year 2030.

Ryan Riordan in Goodes Commons, Smith School of Business. ▶

The Catalyst

Ryan Riordan's Globe Changemaker Award

Smith finance professor Ryan Riordan has been named a 2021 Changemaker by the *Globe and Mail*'s Report on Business for his research on financing the transition to a low-carbon economy and his leadership in creating Smith's Master of Financial Innovation and Technology. This new award program showcases 50 emerging leaders transforming business today. In his role as the Research Director for the Institute for Sustainable Finance (ISF), Dr. Riordan co-authored the *Capital Mobilization Plan for a Canadian Low-Carbon Economy* (CMP), a landmark research report released in September that provides a concrete, data-driven capital blueprint for Canada's low-carbon transition. Driven by the idea that "what gets financed, gets built," Dr. Riordan, who is associate professor and Distinguished Professor of Finance at Smith, has noted that to build the low-carbon economy of the future, we need to finance that future. He is currently working with multiple government agencies to implement the recommendations of the CMP.

The Road Map

Smith EDII Strategy & Action Plan Publicly Posted

On March 8, Smith School of Business publicly posted its Equity, Diversity, Inclusion and Indigenization Strategy and Action Plan for 2021 at *smithqueens.com/inclusion*. The strategy is the culmination of the work of many within Smith and Queen's who contributed to its development and have been committed to supporting Smith's EDII efforts. Producing the strategy document is not the end point – it is what drives Smith's efforts on equity, diversity, inclusion, and Indigenization and decisions on resources. The

work is challenging and vitally important, and it is driven by the efforts of many and the support of all in the Smith community.

The Development

Faculty of Arts and Science to Introduce Minor in Black Studies for Fall 2021

Scholars in the Faculty of Arts and Science are looking forward to developing a new BA Minor/General in Black Studies with a target launch date of fall 2021. The Minor in Black Studies will create cohesion between existing Black studies courses offered in the Faculty of Arts and Science. These include courses related to Caribbean political economies, water politics in southern Africa, Black sound studies, African-American history, Black feminist thought, Black geographies, and more. This Minor in Black Studies has the potential to open fields of study by introducing Black Studies as an interdisciplinary minor to both Black and non-Black scholars, stimulating cross-faculty conversations and engagement.

The Upgrade

The New Age of Art Conservation

The reality of art conservation is far more varied and increasingly high-tech these days. Thanks to a donation last spring from the Jarislowsky Foundation for the purchase of equipment and the donation of polarized light microscopy (PLM) equipment by the Isabel & Alfred Bader Fund at Bader Philanthropies, Queen's Art Conservation is poised to be at the leading edge of research on paintings, sculpture, manuscripts, historical artifacts, and more.

The equipment was selected to provide the widest range of applications and, particularly in the case of a new Macro-X-Ray Fluorescence (XRF) scanner, to expand the scope for the field of art conservation beyond Queen's.

As the only Macro-XRF scanner of its type in Canada and one of only a handful around the globe, this piece of equipment will open up a wide range of opportunities to collaborate and build relationships with researchers and institutions across Canada and North America.

▲ Queen's Film and Media students had the opportunity to get hands-on experience when a Netflix production shot scenes in Kingston.

The Partnership

When Netflix Comes to Town

When the Netflix production *Locke & Key* set up in downtown Kingston to shoot scenes for an upcoming episode, it provided an opportunity for a group of Queen's Film and Media students to gain some valuable hands-on experience.

The arrival of Netflix is the latest win for Alex Jansen, the Kingston Film Office and Film Commissioner, who is also a lecturer and term adjunct with the Department of Film and Media.

Among the courses that Jansen teaches is FILM 457/458 – Film and Media Practicum, which connects students with industry partners for experiential learning.

When *Locke & Key* committed to Kingston, a special opportunity arose for Queen's students to work hands-on in a volunteer capacity outside the course.

The close connection with the Kingston Film Office has been an invaluable source of learning opportunities. During the 2019–20 course, all the students worked on *Murdoch Mysteries* when the CBC production shot an episode in downtown Kingston. Some also worked on *Star Trek: Discovery* when the science-fiction show shot at Kingston Penitentiary.

Looking ahead, Jansen says that students in the upcoming course will have the chance to work on two larger productions arriving in Kingston this year.

PHOTOGRAPHS BY (TOP LEFT) GARRETT ELLIOTT/KINGSTON FILM OFFICE; (TOP RIGHT) BERNARD CLARKE; SPOT ILLUSTRATION BY SOL COTTI

The Farewell

QAR Editor Retires

In the summer of 2014, Andrea Gunn, MPA'07, accepted her dream job. She had been managing the Alumni Marketing and Communications office and editing the QAR's "Keeping in Touch" section when the magazine's editor post became available for the first time in 28 years.

Andrea stepped behind the editor's desk, determined to respect the traditions of this venerable publication, but contribute significantly to it at the same time. And contribute she did.

She introduced theme issues and brought a new graphic focus to the magazine, overseeing a transition that has augmented exceptional storytelling with equally impressive photos, illustrations, and graphics. She also ushered the QAR into the digital age, introducing new online content to complement each print edition. She built strong relationships and worked tirelessly to keep alumni feeling engaged and connected. Her efforts were recognized with 10 national and international awards.

Although Andrea retired at the end of 2020, her contributions will live on, and not just at the QAR. She was an engaged member of the Queen's community, serving as president of CFRC Radio's Board of Directors, and on the Queen's Senate Library Committee.

Please join us in wishing Andrea all the best in her retirement.

The Display

Raising Flags in Solidarity

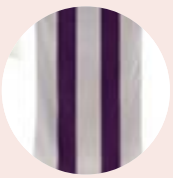
Visitors to Queen's will see a new display of flags across campus. The flags are hung to show solidarity and to celebrate people of all backgrounds. Here is what each flag means:

The Métis flag features a white infinity symbol on a blue background. The infinity symbol represents the joining of the European and First Nations to create the distinct culture of the Métis. The Métis flag is the oldest Canadian patriotic flag indigenous to Canada.

The Anishinaabe First Nations flag is the thunderbird – a bird of protection with the power to bring a cleansing rain upon the earth. The Anishinaabe are a group of First Nations that are related culturally and linguistically and who live in both Canada and the United States.

The Transgender Pride flag features three colours in five horizontal stripes. The top and bottom blue bands represent boys. Two inner stripes are pink to represent girls, and the centre colour is white, symbolizing those who are either transitioning, gender neutral or don't identify with either gender. The flag is symmetrical so that it always appears correct when flown.

The Six Nations Confederacy flag displays a wampum belt representing each of the original five nations. The first symbol represents the Mohawk, followed by the Oneida. At the centre is the Great Tree of Peace, which represents the Onondaga. To the left of the tree is the symbol for the Cayuga, followed by the Seneca. The symbols are connected, signifying the union of the nations.



The Two Row Wampum flag features the Two Row Wampum belt, made of white wampum shells with two purple rows of wampum running alongside each other. The first row symbolizes a canoe representing the Haudenosaunee way of life, while the second row symbolizes a ship representing the Dutch way of life. The vessels travel side by side on the river of life in peace with one another.

The LGTBQ2S+ Pride flag represents the Lesbian, Gay, Bisexual, Transgender, Queer, and Two-Spirit social movements. It is composed of six colours symbolizing life, healing, vitality, serenity, harmony, and spirit. The rainbow signifies a connection with nature.

Perfectly simple. A new ventilator gives new hope

BY TOM SPEARS

Canadian physicists, led by Nobel laureate Dr. Art McDonald of Queen's University, are playing a central part in the lightning-fast development of a new ventilator design that's meant to reduce the global shortage of these devices during the pandemic.

Particle physicists from nine countries – mainly Canada, the United States, and Italy – brought the Mechanical Ventilator Milano (MVM) from the early-concept stage to Health Canada authorization in six months last year.

There has been a supply problem: Manufacturers are making ventilators, but many of them "have so many bells and whistles and are applicable to a much broader suite of things. That helps drive up the price – and also the time it takes to build them," says Dr. Tony Noble, scientific director of Queen's Arthur B. McDonald Institute, which studies astroparticle physics. He said the Milano model is like the Second World War jeep: simple and designed to be mass-produced.

The new device was inspired by the Manley ventilator of 1961. The MVM is designed for large-scale production in a short time and at a limited cost, as it relies on off-the-shelf components readily available worldwide.

The first working MVM prototype was built just 10 days after someone suggested it, which is amazingly fast, Dr. McDonald says. There are now 6,000 MVMs in Ottawa ready for use here or for export to less developed countries.

Simple to operate: The ventilator needs only compressed medical air or oxygen and an electrical supply to power it; there's no motor. Controls are simple: the MVM has two main modes – full ventilation for patients who can't breathe at all or gentler breathing support. The big advantage is simplicity. "We have [about] 50 central components in the device," Dr. McDonald says. Typical hospital ventilators "can have more than 1,000." That means the MVM can be built quickly and in countries that are not industrial leaders.

"The new MVM has sensors and computer software to open and close valves as required for a number of circumstances." says Dr. Noble. "For instance, the machine must react if a patient who wasn't breathing on their own starts to breathe a little." The ventilator recognizes such changes and reacts in a safe way.

Engineers tracked down parts that are available worldwide and designed the hardware based on that availability. Hospital doctors in Lombardy, a region of Italy with high rates of COVID-19 at the time, gave advice from the front lines on what they needed and tested prototypes beginning last April. (The device is named Milano after the capital of their region.)

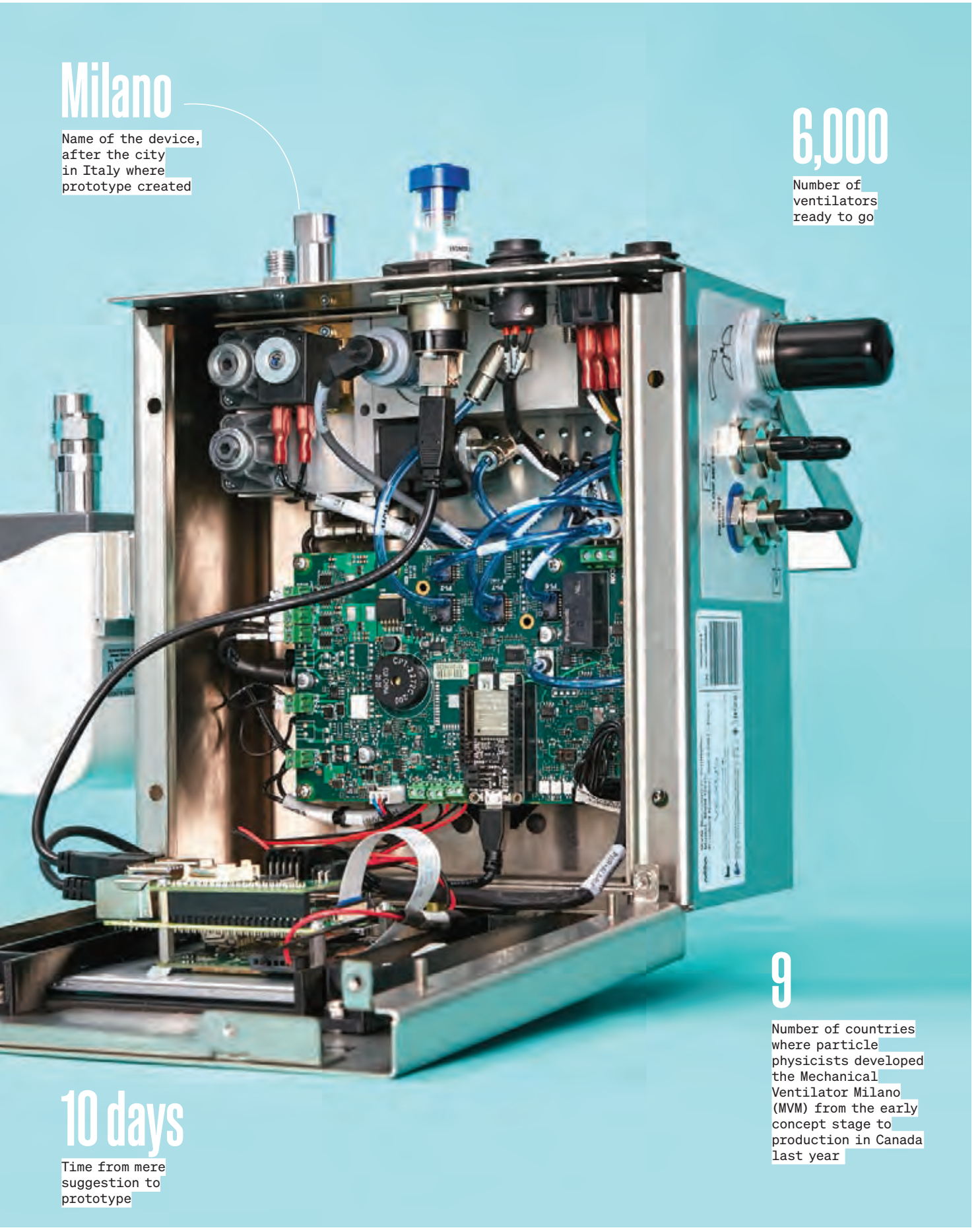
"What really impressed me was the fact that the people who worked on the project pivoted quickly and enthusiastically from what they were normally doing. They were just so pleased to do something that might be of concrete assistance in the pandemic," Dr. McDonald says.

MVM began as the brainchild of Cristian Galbiati of Princeton University, who was in Milan when the pandemic arrived. Besides Queen's, Canadian groups involved include the Arthur B. McDonald Institute, Canadian Nuclear Laboratories, TRIUMF in British Columbia, and SNOLAB. In Canada, the device is built by Vexos Inc. of Markham.

50

Number of central components in the device. Typical hospital ventilators often have more than 1,000

Photograph by Hamin Lee



Milano

Name of the device, after the city in Italy where prototype created

6,000

Number of ventilators ready to go

9

Number of countries where particle physicists developed the Mechanical Ventilator Milano (MVM) from the early concept stage to production in Canada last year

10 days

Time from mere suggestion to prototype

Celina Caesar-Chavannes is the new Senior Advisor, Equity, Diversity, and Inclusivity (EDI) Initiatives in the Faculty of Health Sciences – and the author of a new book, *Can You Hear Me Now? How I Found My Voice and Learned to Live with Passion and Purpose*. The former Member of Parliament reflects on her past role in politics and her current role at Queen's – and what she sees for the future.

Tell us a bit about your new role as Queen's Senior Advisor Equity, Diversity, and Inclusivity (EDI) Initiatives in the Faculty of Health Sciences.
This really is an opportune role for me, and I'm really excited to be at Queen's. I understand the role of some of the policies that Queen's has had and how they have really disadvantaged students, especially Black students, through the ban on Black students in medicine. Post-2020 there's an opportunity to really leverage this moment and redress some of the inequity that has existed at Queen's for students, in particular Black and Indigenous students, and also to change the culture at Queen's. My role offers the opportunity to do both, to really look at that transformation that is required to shift the culture toward equity and to support students, allowing them to graduate feeling like their optimal selves.

You have spoken before about how you see your role in a communications capacity, opening conversations with everyone, not just BIPOC students. How do you go about getting everyone involved, and making everyone feel a part of the process?
When we talk about equity, it's not just related to race, it's related to gender, sexual orientation, ability, religion, socioeconomic status, and more, and I think everybody could see themselves fitting into a particular category. Most importantly, when we think about equity, it's about making sure that people – no matter what their background – have an equal opportunity to not just survive but to thrive in an institution. At the same time, if we're doing a lot of great work at Queen's and nobody hears about it, then how good is that work? So as much as we want people

Photograph by O'shane Howard

to really feel welcome within the Faculty of Health Sciences' (FHS) EDI office, we need to do as much communicating as possible, not just within the Queen's family but outside the Queen's family too so that this leadership moment for the university is capitalized and becomes a benchmark for how future institutions change and adapt.

Under Principal Deane, the university released a Declaration of Commitment to Address Systemic Racism. And the Principal's Conversation Report, released last fall, spoke about the need "to address once and for all the intractable problem of racism at Queen's, and to entrench more broadly and deeply the principles of Equity, Diversity, Inclusion, and Indigeneity (EDII)." Tell us about the things that first struck you when you arrived at Queen's that you wanted to address immediately.

When I think about increasing equity in a workplace, I look at Robert Livingston, who is a professor in the U.S. He's created a process called the PRESS process. Number one, or the P, is to understand the problem, and Principal Deane's Conversation Report clearly identified the problem. The R is the root, and he clearly identified the roots of the problem as well. We didn't just get to this situation where there's racism on campus, he knew that this has been stemming from a long history of problems at Queen's. E is empathy, and in Principal Deane having these conversations he actually displayed to leadership what is required in order to address systemic racism, which is to have empathy to connect with people to listen to their stories and then be able to respond.

Then, the first S is strategy, and Principal Deane is using this conversation to develop that strategy. And the final S is sacrifice. He's willing to put the skin in the game, he's willing to have resources put in to redress the situation, he's doing the model of what an institution should be doing.

I think with Patrick Deane and Dean Philpott in FHS we're seeing leadership at the highest level in Queen's come together and that's the most important thing. The tone is always set from the top. They may or may not know about the PRESS model from Robert Livingston but they're certainly acting it out. That is how anti-racists behave.

You have a new book out – *Can You Hear Me Now?* Can you tell us why you chose that title?

I chose the title because we're not listened to most times. I look back on my time in Parliament in 2018, talking about racism and being gaslit for it.

▲ In her book, Celina Caesar-Chavannes says she used her time in Ottawa to speak up for people who were not often heard in the House of Commons.

Now fast-forward, and 2020 happens and everybody's talking about it. So, when I was talking about it two years ago, I was too early.

But now we're in the middle of a pandemic, having conversations about climate change and the global crisis around refugees, so can we talk about racism now? Can we talk about the disparity that exists between people, especially racialized people, that causes them to die and that causes them to not have the services that they need? That's why that title is so important. Can you hear me now? Let's have this conversation because we should have been having it two years ago and now we're kind of catching up. We should have been leading in this domain.

There's a scene in your book when you describe how it was critical to you that you not be considered a "token" in government – and yet, you continued to feel as if you were. Can you tell us a bit about how Queen's can move forward with diversity and inclusion initiatives but simultaneously guard against tokenism?

When you add diversity into an organization in which the culture of that organization is toxic, that's tokenism. You add diversity, but you know that those individuals will not be supported, they will not be sustained, and they end up

"We're changing the culture from one that is very elitist to one that is striving toward equity."

PHOTOGRAPH BY ADAM SCOTTI/PMO

leaving and you never get to a point of equity. That is the definition of tokenism, when you don't want to actually listen to people.

What I think Queen's is doing right now, because we're changing the culture from one that is very elitist to one that is striving toward equity, is that when we sprinkle that diversity in, we actually have those conversations like the principal did with his report. It is very intentional what Queen's is doing, to prevent that tokenistic behaviour, which is typically found in organizations that just say, "Oh, well, something happened, and we need to increase the amount of Black people or Indigenous people in our organization," without actually taking time to figure out whether they'll be able to survive and thrive in that organization. What Queen's is doing is having that cultural assessment. Once you understand where the pain points are, that's when you can build strategies to make them better and to drive forward the process of making change.

You are an immigrant, coming to Canada from Grenada when you were a child. Tell us some of the ways the immigrant experience shaped you, and helps or hinders you in your work at Queen's.
I think one of the things that it does is it allows me to understand the experiences of a lot of students. Being first in their family to go to university, being first-generation Canadian, or coming to another country to make life better for themselves and the pressure to do well. Some people are coming from poorer countries, some people are escaping conflict, and some people are well off, but they still hold expectations that their family places on them. I've had opportunities to speak with a couple of students here who have had challenges, and as a Black woman I think they get a sense that it might be easier to talk to me because I understand what they've gone through.

How did your background in entrepreneurship and in politics prepare you for the work you are now doing at Queen's?
My background is in health care-based research management, so there's a clear line there to FHS. There's a lot of disparity in medicine and not just for racialized people. I worked with people who had neurological conditions, and socioeconomic status plays a huge role in that. You have people who cannot afford their medications and they have to leave a province because their drugs are not covered under one plan or another.

With the leadership of Dean Philpott and Patrick Deane, we are seeing real action and ownership. They're taking responsibility, they're changing the culture, they're not afraid to talk about some of their own challenges and not afraid to say "Yes, we know what the history of Queen's is like." Just to speak up like that, it contrasts with the leadership that I experienced in politics. To have an environment where leadership is ready to act and I can bring my experience of action around equity, that's just a beautiful recipe for transformation and change.

You start your book by recounting how you had "zero political aspirations" and had always thought that philanthropy would be the way you would give back to society. What was it that drew you to philanthropy, and what advice would you have for alumni who share that goal?
One of my mantras is "To whom much is given, much is expected" and I've received a lot to get to here. A lot of people helped me, a lot of people saw my struggle and pushed me toward being better. Having the capacity to give back and having the capacity to create that for someone else is critically important for me. In fact, it's an expectation for me; it is something that I live by.

Your book deals with gender and how you were treated as a woman in politics giving voice to women's issues. What is the most important lesson you learned that you would share with women trying to carve out a career today?
I would tell them that their voice matters. That standing in their principles and their truths and their values matters. I often quote Clayton Christensen, who was a Harvard professor, and in his essay "How Will You Measure Your Life?" he says it is easier to stand by your values 100% of the time than to stand by them 98% of the time. If you stand by your values 100% of the time and you're on the right side of history, do not be silenced, do not cower, do not be afraid, stand boldly in your truth.

Tell us a bit about what you hope the Queen's of tomorrow will look like.
Tomorrow will have students who feel like they are part of a university that sees them, that welcomes them, that allows them to be supported and sustained. I think the sustained piece is the part that is most important to me because I want students to feel like they're not just brought into Queen's because they're a paycheque for the university; they're brought into Queen's because we actually have a responsibility to them. We have a responsibility to shape their minds and to grow them and sustain them while they're in this environment. A lot of students are feeling frustrated and feeling like they have to do extra work to make sure that there's equity, and that's not their job. Their job is to go to school and do well and graduate. That's all I want them to do.

AT A GLANCE

From her years serving as a Member of Parliament to her most recent role as author, here are a few things you should know about Celina Caesar-Chavannes.

- became the first Black person elected to represent the federal riding of Whitby, Ont.
- served as a Member of Parliament (MP) from 2015 to 2019
- was the Parliamentary Secretary to Prime Minister Justin Trudeau
- founded ReSolve Research Solutions Inc. for which she was named Business Entrepreneur of the Year in 2012 by the Toronto Region Board of Trade
- named one of the Global 100 Under 40 Most Influential People of African Descent in 2017
- named one of *Chatelaine* magazine's Women of the Year in 2019

Dr. Smol's time machine

Queen's biologist finds key to unlock mysteries of the natural world.

BY TOM SPEARS

A Queen's University biologist is using "ecological time machines" to decipher ancient environmental records left by the natural world in places where no human records exist. To fully understand today's environment, says John Smol, it's necessary to learn what that world looked like before we changed it.

"Many of the answers [in environmental science] lie in the past. You go to a doctor when you're sick, and the first thing the doctor does is try to get your medical history," he says.

Dr. Smol has shown that the medical history of an ecosystem exists in sediments at the bottoms of lakes, rivers, and ponds.

They preserve a large spectrum of indicators, such as fossilized, single-celled diatoms, which are algae with tough, glass-like outer shells that stay intact in sediment for thousands of years. There are thousands of species of diatoms, identifiable by their distinct shapes, much like seashells.

The key is that different types of diatoms thrive in different conditions – more or less acid in the water, for example, or different temperatures, levels of salt, and so on. Learn which diatoms lived long ago, and you can begin to understand what past conditions were like.

This ability to look back in time has put Dr. Smol into headlines around the world for tracing climate change, wildlife, pollutants, and now, with Queen's PhD student Matthew Duda, the curious declines of huge numbers of Canada's Atlantic seabirds.

In an age where biology is heavily focused on the molecules inside a single cell, Dr. Smol and his team still study whole ecosystems. For example, he has traced the spread of a species of smelly, brown algae in Canadian Shield lakes and the possible links to climate warming, and his team found clues as to why cottage owners don't see crayfish anymore; acid rain damaged their lakes years ago, and though acid rain has declined, it had stripped away calcium from the lakes that crayfish need to make their shells.

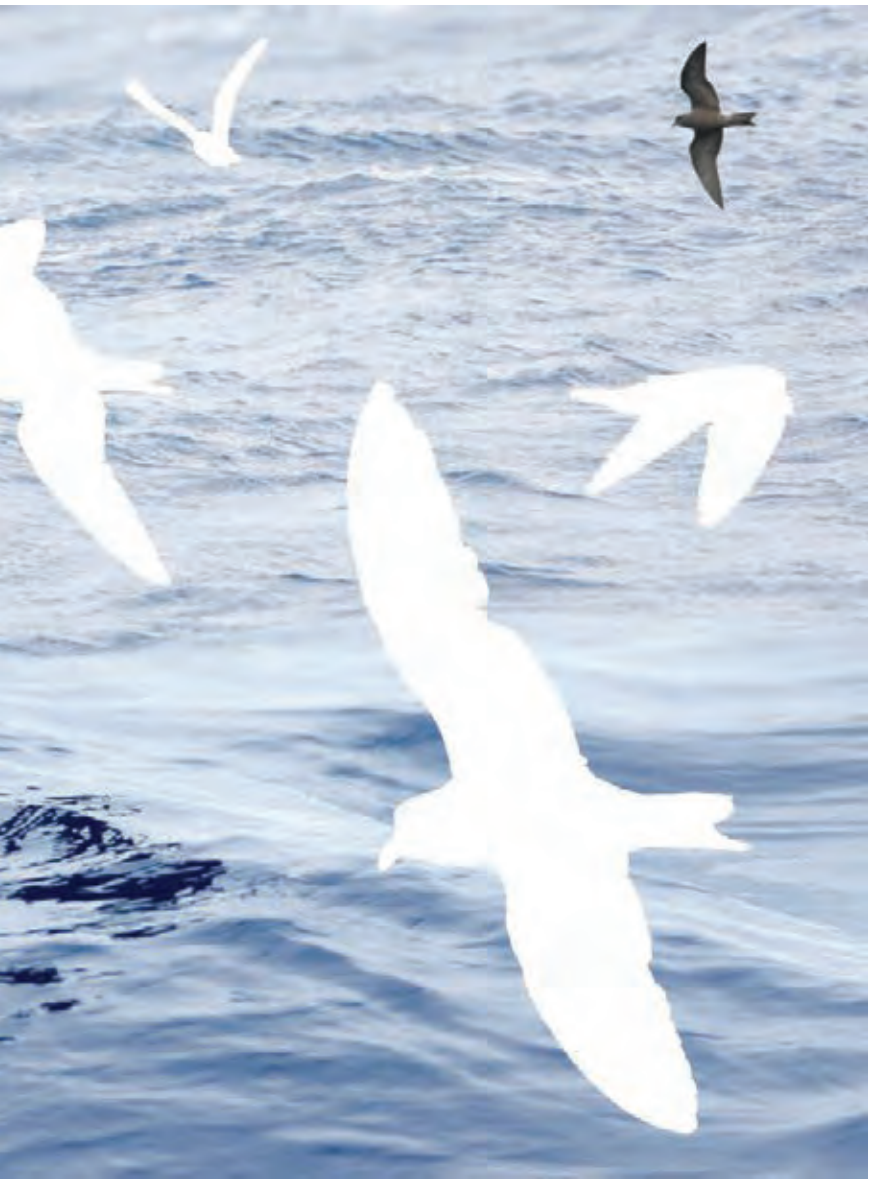
> "To fully understand today's environment, it's necessary to learn what that world looked like before we changed it."

Diatoms are at the heart of much of Dr. Smol's work.

Collecting them is done by taking vertical core samples of lake sediment. Dr. Smol and Mr. Duda use an instrument called a corer to retrieve a record of mud and many indicators, including diatoms, which are preserved in layers that can be dated.

One of their current projects is investigating the suspected decline of large numbers of one of Canada's most common seabirds, the Leach's

PHOTOGRAPH BY RICHARD CROSSLEY; ILLUSTRAION BY ANTIQUA PRINT GALLERY/ALAMY



storm-petrel. The bird is tough to study: it lives on the open ocean and comes to land only at nesting time. It is also nocturnal.

Storm-petrels "are very abundant but they seem to be in decline everywhere," Dr. Smol says. "But are they in decline? We have so little data. We need to reconstruct past seabird trends. The key lies in sediment cores."

Dr. Smol and Mr. Duda could see the effects of the bird's droppings in freshwater pond sediment on the uninhabited Baccalieu Island north of St. John's, Nfld., where storm-petrels nest by the millions. Droppings in turn influence the growth of diatoms, forming a pattern for anyone able to read it.

That's Dr. Smol's job.

"It's like a time machine," he says.

The storm-petrel produces very acidic guano. It both fertilizes the pond water and makes it acidic. So, for periods in the past, "when we find acid-type diatoms in large numbers and also diatoms indicating high nutrients [i.e., fertilizer], then bird populations were higher."

Four years of work show the bird's numbers are dropping severely, and the reason is closer to a solution.

Dr. Smol developed some of his techniques decades ago, when acid rain posed a frustrating puzzle in the 1980s. Lakes were acidic and fish were dying, but nobody knew what the natural state of the lakes was.

"I cut my teeth on acid rain," he says. "You could go to Adirondack Park, where we did a lot of work, or to Algonquin Park, and the lakes were acid in the 1980s. But how do you know they weren't always acid?"

In the Adirondacks, they found the 1980s diatoms were species that live in very acidic water, but often before about 1930 there were types adapted to much less acidic water. And that helped settle the debate over whether the lakes were naturally acidic.

Dr. Smol arrived at Queen's as a young PhD student in the fall of 1979 and now holds the post of Canada Research Chair in Environmental Change and is President of the Academy of Science, Royal Society of Canada.

He has a long list of major awards and has done many projects with his brother, Jules Blais of the University of Ottawa. The brothers were jointly the Royal Canadian Geographic Society's environmental scientists of the year in 2008 and were awarded the NSERC Brockhouse Prize for interdisciplinary research in 2014. In 2004, Dr. Smol won the Gerhard Herzberg Canada Gold Medal, Canada's highest award in science and engineering, given to one person a year.

"Scientists live in a different world, a charmed world. They don't ever want to retire at 65," he told the *Ottawa Citizen* a dozen years ago. He recently turned 65 and isn't retiring.

CAREER HIGHS

- Is the founder and co-director of the Queen's research lab called PEARL, which studies long-term changes in environments around the world using lake sediments.
- Showed that droppings from seabirds entering lakes can be used to track past changes in bird populations, as well as a source of pollutants in parts of the Arctic and elsewhere.
- Showed how historical approaches can be used to reveal how other wildlife move nutrients and pollutants, such as Pacific salmon swimming upstream to spawn. Such data can be used to track long-term changes in populations linked to both natural and human impacts.

GETTING COVID'S NUMBER

HOW DR. TROY DAY IS USING MATH TO CHART THE COURSE OF THE VIRUS

BY
Tom Spears

PHOTOGRAPHS BY
Jennifer Roberts

WHEN A NEW VARIANT OF COVID-19 RECENTLY APPEARED, WITH THE ABILITY TO SPREAD MUCH FASTER THAN THE ORIGINAL VIRUS, MANY PEOPLE WERE TAKEN BY SURPRISE.

BUT NOT TROY DAY.

Dr. Day is an applied mathematician at Queen's University who for years has been studying the evolution of microbes that cause infectious diseases, and he knows how quickly these can mutate into new versions. His expertise has now made him a key member of the Ontario COVID-19 Modelling Consensus Table, a group of experts trying to forecast where the virus is headed next.

Very little about this virus's sudden change is surprising, Dr. Day says. "Given what we know about evolution and about infectious diseases, it's a pretty standard sort of thing to have happen. We actually published a paper last April that was exploring what sorts of things might be expected to happen evolutionarily," he says.

This virus has taken a major leap in its ability to replicate and spread.

Dr. Day developed a model this winter that showed for the first time that the new variant can cause case numbers to double every 10 to 15 days, as opposed to 40 days for the original virus. When he got this result, he was so surprised that he asked colleagues to check whether he had made a mistake.

He hadn't. And his finding showed that the new variant has a greater potential to overwhelm hospitals than the original virus.

Ontario has brought together people "from all over the place" – virus experts, epidemiologists (who study patterns of disease), geneticists, mathematicians, and more.

Their role is similar to hurricane modellers, who forecast which route a major storm is likely to take and when it will hit land.

"We're all volunteers. We got into it because we're interested and want to help."

They are somewhat self-directed, he says, since they all have their own ideas and approaches, but there are also questions from Ontario's policy-makers and public health officials – the people who have to make decisions for the province.

"So, should we be testing in schools? If we test in schools, how should we be testing? What would be the consequence of that?"

Other questions could include "anything that is quantitative," and this is where his combined specialty in mathematics and biology works.

"It could be projections of numbers of cases. It could be projections of how or when the hospitals could be overwhelmed. It could be projections of how much sequencing do we need to do on viruses in order to monitor the spread of this variant through the population." (Sequencing is identifying the virus's genetic code.)

The pace is relentless.

"Really, since it started it has been crazy, and super-crazy again since late fall," he says.

A Kelowna, B.C., native, Dr. Day did one degree in biology, then a master's in math and biology combined, followed by a Queen's PhD in math. He taught for three years at the University of Toronto before joining Queen's in 2001. He will be assuming the role as Head of the Department of Mathematics and Statistics at Queen's this July. He's 52.

So, is he mainly a biologist or a mathematician?

The question gets a laugh – "on a good day I'm both, on a bad day, I'm neither."

P.22

The group's job is "to come to some sort of consensus on what the modelling says – models that we ourselves do but … also models that people elsewhere in the world are building."

They work together, all on Zoom, either bringing different skills together on one problem or taking separate runs at a question and comparing results afterward. "I'm impressed by how well it [Zoom] works, but I'm so sick of just sitting in the same chair all day."

Results have to be useful to policy-makers, and the researchers work hard on how to present their work clearly to people who are not scientists.

"I think it has been really successful, just evidenced by the fact that there's a continued dialogue between the decision-makers and the modellers. They must be getting something out of it," he says.

He wonders what his career will look like in a post-COVID-19 world, when the skills that shot him into demand a year ago "will go back to being not of interest to anybody else." But infectious diseases are always evolving.

"There is going to be no end to them," he says. "Habitats are changing. There are going to be new interactions between things. Lyme disease is here in Kingston, and all that kind of stuff. There will be no shortage of problems along these lines to work on. One day at a time!"

WHEN A VIRUS MUTATES

Viruses mutate regularly – some more than others – but it's normal and natural for all of them. The viruses whose genetic material is made of RNA (including coronaviruses, flu, measles, and various cold viruses) mutate the most often. Mutation happens when a virus reproduces: It sometimes fails to copy a small part of its RNA accurately, in effect injecting a typo into its genetic code.

The mutated virus is not always more dangerous than the original. Some mutations make it weaker.

Mutations can do two harmful things, however: They can make a virus cause a more severe form of illness or make it better at spreading. The UK variant of COVID-19 is more transmissible than the original strain. Recent research also indicates that this variant causes more severe symptoms. But the good news is that vaccine makers say current vaccines are effective against both the original and later strains.

And there's a paradox: if a virus becomes too deadly, this can actually reduce its impact because the hosts – meaning us – do not spread a virus efficiently when they are very sick, or dead.

The science journal *Nature* reported last fall that researchers had found some 12,000 mutations in the virus that causes COVID-19, but "scientists can spot mutations faster than they can make sense of them. Many mutations will have no consequence for the virus's ability to spread or cause disease."

—Tom Spears

Canada Research Chairs support research excellence, and five emerging researchers at Queen's University have been awarded new chairs. These new research chairs will provide five years of support to researchers in fields as diverse as plant immunology, humanitarian health equity, and labour practices in African cities.

FIVE ON THE RISE

BY TY BURKE

PHOTOGRAPHS BY MAY TRUONG

Grace Adeniyi-Ogunyankin —*Youth and Africa Urban Futures*

Africa is rising – and urbanizing rapidly. Over the past decade, domestic businesses have grown and foreign ones have set up shop. In cities such as Lagos, Nigeria, modern office towers house banks and corporate offices. Youth are a majority of the population, and there is a need for a critical understanding of the relationship between youth, labour, and urban transformation.

"Employers aren't really held accountable, and workers see themselves as disposable," says Grace Adeniyi-Ogunyankin, an assistant professor in both the department of geography and planning and the department of gender studies.

"I'm interested in how workers are negotiating this and examining the investments they make in themselves."

Dr. Adeniyi-Ogunyankin was awarded a Social Sciences and Humanities Research Council Canada Research Chair to better understand youth labour practices in Nigeria and possibly Kenya.

Nigerian workers' rights were updated in 2004 with a comprehensive labour act that enshrined minimum wage, pension, and paid leave. Yet workers remain vulnerable.

"Some women encounter demands to engage in aesthetic labour," says Dr. Adeniyi-Ogunyankin, "to 'look good' and 'sound right' to cater to heterosexual desirability as a way of attracting clients.

Failure to do so could result in ostracization at work or employment termination."

There is both extraordinary wealth and extreme poverty in Lagos, and Dr. Adeniyi-Ogunyankin is exploring the interplay between them.

"EMPLOYERS AREN'T REALLY HELD ACCOUNTABLE, AND WORKERS SEE THEMSELVES AS DISPOSABLE."

Laura Thomson *—Integrated Glacier Monitoring Practices*

Satellite images of retreating glaciers are symbols of Earth's changing climate. To track glaciers' retreat, glaciologists conduct research in some of the most remote locations on the planet.

"WE WANT TO PUSH OUR UNDERSTANDING OF GLACIER CHANGE BACK IN TIME."

"Glaciers make an easy visual for communicating climate science, but a lot of people don't know what goes into making measurements of glacier change," says Laura Thomson, an assistant professor in the department of geography and planning, who was awarded a Canada Research Chair in integrated glacier monitoring practices.

Relative to other regions, Canada's Arctic glaciers have been understudied, but there are records that can help Dr. Thomson understand changes that have already occurred.

"We want to push our understanding of glacier change back in time," she says. "We'll work with historic photos and maps to study changes over the decades."

Dr. Thomson will continue to manage the glacier monitoring program at White Glacier on Axel Heiberg Island, Nunavut. It's one of North America's longest-running monitoring programs, and the opportunity to continue the work of retiring researchers is what drew Dr. Thomson to become a glaciologist.

The study will also collect data about the impact melting glaciers could be having on Arctic ecosystems.

"We want to understand how glacier runoff could affect the volume and quality of water reaching the Arctic Ocean. It's been really rewarding to make connections with oceanographers who study ocean circulation and coastal ecosystems and see our research contribute to the work of others."

"WHEN SEXUAL VIOLENCE IS USED AS A WAR TACTIC, WOMEN ARE DISPROPORTIONATELY TARGETED."

Stéfanie von Hlatky —*Gender, Security and the Armed Forces*

Women experience war differently than men do, and their full participation in peace and security efforts is critical to forging lasting peace.

In October 2000, the United Nations Security Council passed Resolution 1325, which recognizes the important role women have in preventing and resolving conflicts. The Women, Peace, and Security Agenda grew out of that resolution and, 20 years later, has catalyzed changes in how peace and security organizations approach conflicts. But each organization has charted its own path.

"Traditional conflict resolution didn't properly acknowledge how war was experienced differently," says Dr. Stéfanie von Hlatky.

"When sexual violence is used as a war tactic, women are disproportionately targeted, while men represent the majority of combat deaths. These different experiences should inform conflict analysis and response. Yet in the past, interactions between multinational contingents and host societies were often limited to male members of the military talking to male members of local security forces or host communities," she says. "You can't do counterinsurgency, capacity building, or nation building by only talking to half the population. Inclusive security delivers better results, but it is a slow process of change."

An associate professor in the department of political studies, Dr. von Hlatky was awarded a Canada Research Chair in gender, security, and the armed forces. She will examine how organizations such as NATO, the UN, and the European Union have implemented the Women, Peace, and Security Agenda.

"They have adopted new norms, following the UN's lead. There is now more female leadership and gender-based analysis to guide programming," says Dr. von Hlatky.

"There is recognition that women weren't being included, and it's been a revolutionary shift in how these organizations do business, recruit, and deploy resources. This project will take stock of this shift and compare how organizations have rolled out this agenda."

Jacqueline Monaghan *—Plant Immunology*

Plant diseases can be catastrophic for farmers. Like drought or severe weather, pathogens can destroy an entire season's crop.

"It is an Achilles heel of major agricultural production," says Dr. Jacqueline Monaghan, an assistant professor in the department of biology.

"Monoculture farming allows for increased efficiency and production, but you have a field of genetically identical material that can easily be overcome by disease. Microbial pathogens can evolve much faster than plants, and adapt more easily to environmental changes. Fields with a single crop are a kind of sitting target."

Dr. Monaghan was awarded a Natural Sciences and Engineering Research Council Canada Research Chair in plant immunology to research how plants defend themselves against pathogens.

"All organisms battle pathogens every day," she says. "We study genes involved in the immune responses of plants."

Understanding these processes at a cellular level could enable the use of genetic editing tools or molecular breeding to modify plant genomes precisely so they produce the proteins necessary to fight disease. This could help prevent crop failures and reduce the need for pesticides that currently keep pathogens at bay.

"We want to understand how cells respond to pathogens. We study how immune proteins work together to clear infection," says Dr. Monaghan.

"ALL ORGANISMS BATTLE PATHOGENS EVERY DAY. WE STUDY GENES INVOLVED IN THE IMMUNE RESPONSES OF PLANTS."

Photograph (above) by Johnny C.Y. Lam

"I WANT TO BRING RIGOUR TO COLLECTING EVIDENCE THAT CAN INFORM POLICIES AND PROGRAMS THAT AFFECT WOMEN AND CHILDREN."

Susan Bartels *—Humanitarian Health Equity*

More than 80 million people have been displaced by conflict, insecurity, and natural disasters. That's roughly one of every 100 people on Earth.

Most displaced people are women and children, and Dr. Susan Bartels has been awarded a Canadian Institutes of Health Research Canada Research Chair in humanitarian health equity to study the social determinants of health for these groups.

"This type of research often takes place in difficult socioeconomic and geopolitical situations with limited infrastructure," says Dr. Bartels, a practising physician and associate professor in the department of emergency medicine.

"Traditional methods of data collection can take too long and can be methodologically challenging in these contexts. I want to bring rigour to collecting evidence that can inform policies and programs for affected women and children. To do that, we need to use innovative methods."

Dr. Bartels has ongoing projects in Lebanon, Haiti, and the Democratic Republic of Congo and will also study the displacement of Venezuelans across three countries in Latin America.

"There can be a tendency to focus on how many refugees have been resettled, but there are millions of others left in very challenging situations, and they don't get emphasized as much," says Dr. Bartels.

"When people live in precarious circumstances, without access to health care and education, and you layer forced displacement and insecurity on top of that, it greatly exacerbates health risks. Mitigating those risks is the focus of my research."

CRISIS

TIFF MACKLEM'S JOB IS TO HELP STEER THE COUNTRY'S ECONOMY DURING THE COVID-19 PANDEMIC. FORTUNATELY FOR CANADIANS, THIS ISN'T HIS FIRST TIME TRYING TO SAVE THE ECONOMY DURING A GLOBAL CRISIS.

MANAGEMENT

BY
MICHAEL ONESI

Photographs by
Rémi Thériault

WHEN TIFF MACKLEM (ARTSCI'83) STARTED HIS NEW JOB AS GOVERNOR OF THE BANK OF CANADA IN JUNE 2020, IT WAS TWO MONTHS AFTER THE COUNTRY WAS SHUT DOWN BY THE COVID-19 PANDEMIC.

Forget about a honeymoon period to get used to the job. The world was, and still is, in crisis.

While doctors, nurses, and scientists work to get vaccines into the arms of Canadians, Mr. Macklem is focused on people's wallets and employment. The main role of the central bank, according to the Bank of Canada Act, is "to promote the economic and financial welfare of Canada," which is why Mr. Macklem is trying to steer the economy toward a resurgence.

"The sooner we beat this virus, the sooner large parts of our economy that have been badly affected can heal and start creating jobs again," he says.

Normal activities such as eating in restaurants, shopping in malls, and taking vacations will hopefully resume in a few months. That's why Mr. Macklem is predicting strong growth in the second half of 2021 and early 2022, although a complete recovery to pre-COVID-19 economic conditions will take some time.

This isn't Mr. Macklem's first experience helping the economy during a global crisis. He was Canada's associate deputy minister of finance (under Minister Jim Flaherty) in 2008–09, when economic leaders around the world feared the global financial system was in danger of collapsing. (The collapse didn't happen, but it was the deepest global recession we'd seen since the Great Depression of the 1930s.)

Mr. Macklem was the top international official in the Department of Finance at the time and learned some valuable lessons. "In a crisis you have to act quickly and you have to be bold," he says. "You need to try [to] overwhelm the crisis."

The pandemic has moved much faster than the 2008–09 financial crisis and is more global, affecting literally every person in the world. Mr. Macklem's experiences in 2008–09 taught him the critical importance of collaborating with both Canadian and international officials, weighing the risks of various policy options, and listening to diverse opinions to come up with the best approach.

Fellow Queen's alumnus David Dodge (Arts'65, LLD'02) knows exactly what Mr. Macklem is going through. Mr. Dodge served as the Bank of Canada governor from 2001 to 2008 and was on a plane flying home from Switzerland in 2001 when the Sept. 11 terror attacks happened.

Mr. Dodge feels Mr. Macklem is doing a great job leading the bank through this challenging time.

"The fact that he has spent the last six years or so in Toronto with the business community means he has a very good and open line of communication with the financial markets, which is always helpful," says Mr. Dodge, referring to Mr. Macklem's term as dean of the Rotman School of Management before taking the governor's job.

The Governor of the Bank of Canada has been described as the third-most important economic figure in government, behind only the federal minister of finance and the prime minister. So it might come as a surprise that when Mr. Macklem first came to Queen's in 1979, he had no idea economics was going to be a part of his future.

He started in geography while taking the odd economics course. He soon found himself drawn to economics because he liked the way it changed his perspective and made him think differently.

He cites an example of how rent control was used because of high inflation in the 1970s. As a student renting an apartment, he thought rent control was good. But when he went to his economics class, they discussed how capping rent would cause people to build fewer apartments, which would reduce the supply of available places to live.

"Economics really broadened the way I was thinking," Mr. Macklem says.

"It makes you think beyond the direct and obvious consequences and think about what might be the unintended consequences of a policy."

Soon he was reading C.D. Howe Institute policy papers and books by now-retired Queen's economics professor Tom Courchene. By fourth year, he took only economics courses to have enough credits to graduate as an economics major and then went on to earn a master's degree and a PhD from Western University.

The only thing more important to Mr. Macklem than discovering a love for economics while at Queen's was starting to date

"THE SOONER WE BEAT THIS VIRUS, THE SOONER LARGE PARTS OF OUR ECONOMY CAN HEAL AND START CREATING JOBS AGAIN."

Rosemary Cuthbertson (Com'83). The two were married three years after graduating. They have been together for more than three decades now and have three children.

Two of their children – Holly Macklem (Sc'17) and Richard Macklem (Artsci'13) – graduated from Queen's, continuing the family's long history with the university. Tiff's father (Dick Macklem, Com'52) and uncle (Peter Macklem, BA'53) are among his many relatives who also called themselves Gaels.

Dick and Peter grew up in Kingston near campus at 18 Barrie St. Dick eventually moved to Montreal (where Tiff was raised), and Peter went on to a groundbreaking medical career that saw him posthumously inducted into the Canadian Medical Hall of Fame.

When Dick and Peter's mother, Katherine Bermingham Macklem, passed away in 1993, the family donated the house to Queen's, and it is now the administrative home for the Faculty of Health Sciences. Tiff Macklem is proud that his grandmother's home, which he used to visit as a child, is now a part of the university.

"My uncle was a physician, so my grandmother had a soft spot for the medical school," he says. "The idea that [Health Sciences Dean Dr. Jane Philpott] is in her house would make her very happy. I just think Queen's has done so much for our family. It's a wonderful feeling to give back."

THE QUEEN'S CONNECTION

An important part of economics is interpreting data and crunching numbers. Here are some stats that will make alumni proud:

- Of 10 governors in the Bank of Canada's 87-year history; 40 per cent of them have been Queen's graduates.

- Three out of the last four Bank of Canada governors are alumni.

- Artsci'83 grad Tiff Macklem is the most recent grad who is part of this impressive run. Mr. Macklem replaced Stephen Poloz (Artsci'78), who served from 2013 to 2020. Before David Dodge (Arts'65, LLD'02) served his term as Queen's Chancellor from 2008 to 2014, he ran the bank for seven years, stepping down in January 2008. A fourth alumnus, Gerald Bouey (BA'48, LLD'81), was in charge for 14 years from 1973 to 1987.

So, why do so many Queen's grads become governors?

Mr. Dodge and Mr. Macklem point to the economics department's connections to Ottawa in the 1960s, '70s, and '80s, when many professors were advising politicians and high-level civil servants.

"I do think in that era Queen's had a strong economics department with a lot of people thinking deeply about economic policy. It was very connected to Ottawa," says Mr. Macklem. "I am sure that rubbed off on all of us."

The economics department was also unique in that lessons went beyond the statistics and formulas that were taught in textbooks. There was a stronger focus on the real-world impacts of economic policies compared to other universities.

"If you are trying to explain why three of us from the Queen's economics department from the 1960s, '70s, and early '80s became governors, you have to put it down to there was a policy activism at Queen's that was really quite strong," says Mr. Dodge. "[The lessons were] more engaging and less academic."

P.33

OFF CAMPUS

Photograph by Sarah Rice

First Up

Dr. Idara Edem, Neurosurgeon

Neurosurgeon Idara Edem, Meds'13, has always been obsessed with the complex nature of the brain. In high school, she knew she wanted a career that involved studying one of the body's most mysterious organs. Today, Dr. Edem, who emigrated from Nigeria when she was 13 years old, has overcome many barriers to (maybe) make medical history – she might be Canada's first Black female neurosurgeon. In the first of a semi-regular series, Dr. Edem tells us about her first job – a long way from the operating room but one of the many steps that led her to where she is today.

I had my first job when I had just started high school, so maybe 13 or 14, and I was a tutor. I started with a few family friends who lived in the area – basically they'd come to my house and I'd do homework with them. I taught math, English, biology, and chemistry for something like $10 an hour. Then word spread and I got more and more students. Soon I was pretty busy.

I remember there was this one kid who was very intelligent but not that great at applying himself; he just →

→ couldn't seem to sit down to do the work. His grades dropped and his parents were concerned. They weren't well-to-do enough for consistent outside-of-school education, so they hired me instead, which actually turned out great because we were able to build a good rapport over time that I don't think would have happened if we had not been close in age.

Because he felt comfortable with me, he could apply himself and pay attention better. It was so rewarding to me because I already knew he was smart and knew the work – he just didn't feel like doing it. Maybe he wasn't getting the attention he wanted or he wasn't feeling fulfilled, because as soon as we fixed that, his grades improved immediately and then even more over time.

During my undergraduate years, I joined a volunteer tutoring program called Project Universal Minds and continued to grow the skills in myself and impart skills in others.

I always liked the idea of education and learning and passing on knowledge. I was inspired by my teachers, who took the time with me. I grew up in Nigeria and had great teachers who indulged my wide array of interests and went out of their way to find books that might interest me or that I wanted to read.

In high school, it was my civics teacher who introduced me to literature, and we developed a rapport that lasted outside the classroom. So it was a natural extension of that to want to do the same for others. It always stood out to me how much of a difference you can make in people's lives when you invest in them. It goes beyond the math or chemistry itself; it's important to notice what makes them tick, how they learn both inside and out of the classroom, how they take in knowledge of their world and process their environment, and how it affects their behaviour. This process was so interesting to me, and still is in my work as a neurosurgeon, which is another extension of this process. I want to grow these skills in myself and impart them to others.

—As told to Rosemary Counter

THE BACKSTORY

▸ Jennifer Turliuk, Com'10

Out of the Shadows

Queen's alumna turned job-shadowing into a blueprint for finding a career — and a book.

When Jennifer Turliuk, Com'10, reflects on her life journey, she thinks about the wisdom Steve Jobs shared in his 2005 Stanford commencement speech: "You can't connect the dots looking forward; you can only connect them looking backward."

When Jennifer took the time to connect her own dots, she realized there was a book in them.

Her journey started early, when a Harry Potter website she coded in elementary school went viral after being featured in a children's magazine.

By the time she graduated from Queen's, Jennifer's interests had evolved and she was ready to enter the corporate world. Less than a year into her first job, though, she realized that world wasn't for her. In search of a new start, she entered a competition to job-shadow a Silicon Valley angel investor. She was so confident in her chances of winning that she quit her job and moved to California. "I didn't win," she says, "but I realized that I still wanted to shadow people."

For the next six months, Jennifer lived in the shadows, job-shadowing everyone from Stanford professors to the founders of Kiva and Airbnb. "I was figuring out what I wanted to do and what kind of environment I

PHOTOGRAPHS BY ASHLEY KLASSEN

wanted to do it in," she says.

After deciding that she preferred small for-profit companies, Jennifer set out to start one of her own. In 2012 she attended NASA's Singularity University, where she learned about using exponential technologies such as 3D-printing to help solve some of the world's most pressing challenges. "I chose to focus on education," she says, "because if you help people level up their educations, you empower them to help in other areas as well."

Remembering how empowering her childhood coding experience had been, she started MakerKids, a Toronto-based company that is inspiring thousands of kids around the world to become entrepreneurs and innovators through virtual camps, programs, and parties.

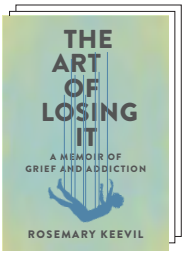
As she connected the dots that brought her to MakerKids, Jennifer realized she had created a viable process that could help people find satisfying careers quickly. "It was all about how to go from a place of overwhelm with thousands of possibilities to a place of knowing what makes the most sense for you," she says.

Her realization led her to write an article for *Forbes* and then expand it into a book, *How to Figure Out What to Do With Your Life (Next)*, released by Dundurn Press in March.

"The productivity crisis in North America is a trillion-dollar crisis, and it's directly attributed to dissatisfaction at work," Jennifer says. "My hope is to move the needle – even slightly – so more people can find satisfying work, and that way we can have more people tackling the world's grand challenges with their full potential."

— By Deborah Melman-Clement

New content from faculty and alumni



01

Rosemary Keevil, Artsci'77, is the author of *Losing It: A Memoir of Grief and Addiction*. When her brother dies of AIDS and her husband dies of cancer in the same year, Rosemary is left on her own with two young daughters and antsy addiction demons dancing in her head. This is the nucleus of The Art of Losing It: a young mother jerking from emergency to emergency as the men in her life drop dead around her; a high-functioning radio show host waging war with her addictions while trying to raise her two little girls who just lost their daddy; and finally, a stint in rehab and sobriety that ushers in a fresh brand of chaos instead of the tranquility her family so desperately needs.

02

Roy M. Paul, Artsci'85, (Th.D., Golden State School of Theology), shines a spotlight on Jonathan Edwards, the American revivalist activist-preacher and theologian who brought Christianity to the Mohican (Algonquin) population in Stockbridge, Massachusetts, and advocated for their rights at the same time. *Jonathan Edwards and the Stockbridge Mohican Indians: His Mission and Sermons* includes a history of the Mohican peoples and a biography of Edwards, as well as an analysis of his sermons, most of which had not yet been published.

03

D.J. (Dave) Richardson, Artsci'86 (JD), is the author of *In Her Own Footsteps: Flora Ross and Her Struggle for Identity and Independence in the Colonial West*, a novel based on a true story. Flora Ross worked as a nurse in the midst of the British/U.S. "Pig War" of 1859, married its American instigator, and then had to find the means to escape an abusive marriage. The book began as a 1985 Queen's history research paper on the San Juan Island boundary dispute. The discovery of Flora's wedding announcement in an 1859 newspaper triggered a need to view these events of west coast history through Flora's eyes. This is the first of a planned trilogy about her life.

04

Robin Rotenberg, Artsci'79, Ed'80 (Law, Western) is the author of *Pound On!! From the Glass Slipper to the Glass Ceiling*. This book explores real ways to effect change, lead with determination, and support women in the workplace. Featuring a collection of stories from female trailblazers at the top of their game in a variety of industries, "Pound On!!" defines what it means to be an alpha woman and offers a road map on how to become one.

238 VICTORIA STREET

BUILDING
Two-storey triplex
STYLE
Suburban modernist

TOPHER LAMM (ARTSCI'14)
Lived there from 2013 to 2014

KELSEY GOODINE (ARTSCI'14)
Lived there from 2012 to 2014

Our Place

The stories of University District houses, as told by the alumni who lived in them.

BY TONY ATHERTON

Victoria Street, just west of the Queen's University campus, is a neighbourhood of mostly gracious pre-war homes, two- and three-storey brick-and-frame structures with steep-pitched roofs and welcoming verandas.

And then there is 238 Victoria.

"It looks like a red brick box," says Kelsey Goodine (Artsci'14), who spent two years in the basement apartment with two roommates. The mid-century triplex – "Let's call it a Woodstock baby," says Topher Lamm, one of those roommates for the second year – is matched by identical red brick boxes on either side.

"You had to be careful when you were coming home from the bar at night that you didn't stagger into the wrong triplex," says Goodine.

The accommodations were snug. Lamm (Artsci'14) remembers the living room being "about half the length of a Leonard (Dining Hall) table." Just big enough to accommodate the floral pink couch donated by Goodine's nana and a battered leather love seat they picked up on the streets of the student ghetto.

Each of the three bedrooms could fit just a single bed and a small dresser/nightstand.

"I built my stuff up vertically," says Lamm. "I'd have my dresser, and then I'd have my

Illustration by Wendy Treverton

little guitar amp on top of that, and then I'd have my record player on top of that, and then ... on top of that would be all my records."

Another roommate who valued his sleeping comfort above all else installed a queen-sized bed that took up the entire room, says Goodine. Everything else he owned was piled on top of the bed.

"In that place you didn't have your own space unless you were in your really small bedroom," she says. And even then, privacy was at a premium, which led to some interesting arrangements, she adds.

"On more than one occasion, I'd come home and (Topher) would have a visitor just sitting outside his (basement) window ... because there was more room outside than inside."

Sometimes, says Lamm, someone entertaining at the apartment would send out "a frantic text to his roommates saying, 'Why don't you stay at campus tonight and I'll buy you coffee in the morning.'"

What the triplex lacked in square footage, it made up for in location. It was central but relatively quiet, unlike some other streets where student housing predominated. The three buildings were filled with students, but the rest of the neighbourhood was mixed, with families and seniors.

"It was quick to get to your classes; it was quick to get to the bar; it was quick to get to parties or anything else ... but you didn't feel like you were living on Aberdeen Street, where you couldn't go home and study or go to sleep if you needed to," says Goodine.

Lamm and Goodine figure they were fated to be roommates after meeting in a history seminar at the end of Frosh Week.

"I was just doodling on my paper to try and stay awake," says Goodine. "I was walking out of class, and there was Topher right beside me making some sort of quip about my drawings and my artistic ability, and I thought, 'Yup, this is my friend.'"

They each tried other off-campus housing – Goodine shared an apartment with a colony of ants, and Lamm was so far off campus no one wanted to visit him – but they were delighted to be roommates for the last year of their honours programs.

Goodine is a teacher now in Swift Current, Sask., while Lamm practises law in Toronto, but they still connect whenever they can. And when they do, they inevitably get the giggles about that red brick box on Victoria Street.

▲ Tell us about the University District house you lived in and the memories you made review@queensu.ca

A new light

Change is a powerful symbol. With a new logo and a new magazine, we're bringing in a new era for all alumni.

The Queen's University tricolour has been a symbol of pride for our alumni for generations. The blue, gold, and red waves proudly from our campus, flies high above Homecoming, and is a part of the Queen's experience that all of us carry with us when we graduate.

For these reasons, we undertook the redesign of our Queen's alumni logo, a tricolour flag, very seriously. And, after much debate and exploration, we are very excited to introduce it to our Queen's community.

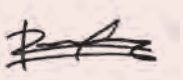
It's worth noting that the last time we updated our logo was in 2007, when we were just starting to use iPhones and many social-media platforms were in their infancy, and we could not have conceived of the pandemic that changed our world this past year. In short, our world has changed, and so has Queen's.

As you know, over the past few years – and especially under the leadership of Principal Patrick Deane – the university has been taking steps, with the input of alumni, to confront elements of the past and chart a new course for the future. It's a future that includes everyone and that connects Queen's to the world around us. This new logo is intended to reflect the best of Queen's tradition while also pushing us forward, into an even brighter tomorrow.

Queen's Alumni

The new logo coincides with the advent of a new *Queen's Alumni Review*, a publication that brings us back to the campus we all called home. It's a place to share stories, reconnect with each other, and read the latest news. You'll notice that it features a bolder design, better reflects our diverse alumni community, and puts all of us in a new light.

Change is itself a powerful symbol, and sometimes we like to hold on to the way things were. It's my hope, and the hope of the QUAA, that we have held on to what makes our logo and magazine so special. But I also believe that the changes we have made have helped us move forward in ways that are not only meaningful to our alumni but that also show where we stand on the issues that matter most. For each of us, the most critical issues will be different – but we hope you will find the common ground that unites us in these new approaches to our logo and the *Alumni Review*.



Sincerely,
RICO GARCIA, PRESIDENT, QUAA

The edge of hockey's new frontier

How one fan's passion for analytics turned his hobby into a top job with the Toronto Maple Leafs

BY SCOTT CRUIKSHANK

The goal wasn't to land a hockey job. Rather, Darryl Metcalf was driven by the need to satisfy his own curiosity.

By day he worked for a Toronto-based marketing and technology firm. But his spare time was devoted to the website he created to fill a void – ExtraSkater.com, an online hobby horse that explored the use of advanced statistics in the assessment of National Hockey League players.

"The primary audience was really just myself," Metcalf says. "I was building something that I had wanted to see."

So, how did that curiosity turn into a top hockey job?

"[The journey is] definitely remarkable if I were to step back and look at it from a broader perspective," he says. "I can't say that I saw any of this coming."

Which is what makes it such a wonderful story.

Metcalf's unprecedented road to the Leafs' front office began in Toronto, where he grew up playing hockey and baseball. He adored the Leafs, admiring the heroics of Gary Roberts and Mats Sundin in the '90s and early 2000s. But, perhaps hinting at his tendency to delve deeper, he also appreciated the contributions of lesser players such as Dmitri Yushkevich and Jason Smith.

At Queen's University, intrigued by math and science classes, he pursued a degree in chemical engineering. Graduating in 2009, he was hired on at Yfactor Inc.

Continuing to follow sports closely, Metcalf noticed the "data evolution" in baseball. The Moneyball approach, detailed by the book and movie of the same name, had thrust analytics into the mainstream.

"That helped me to think about hockey in a different way," says Metcalf, "and wonder if there were things we could learn about hockey and how it's played from the data, like people were doing in baseball."

Were there better ways to measure performance? Were there underlying indicators beyond point totals and plus-minus ratings? Other sharp-pencilled keeners were on the same path, tracking variables such as shots taken, puck possession, and zone time.

Using statistics from the NHL, he was determined to develop his own analytics, and out of that fascination came ExtraSkater.com, which was launched in 2013. Early days saw the website averaging one view per day. Soon, though, daily traffic grew to 10,000. He began to receive positive feedback, first from like-minded fans, then from player agents and hockey writers – and soon from NHL clubs.

Emboldened in the lead-up to the 2014–15 season, he decided to expand the website and include analysis of junior players across Canada. That summer he batted around a few ideas with Victor Carneiro, scout for the Ontario Hockey League's Sault Ste. Marie Greyhounds.

Carneiro brought Metcalf's plans to the attention of Kyle Dubas, the Greyhounds' general manager, who had a productive exchange with Metcalf about the upside of underlying metrics and their rightful place in hockey performance measurement. The timing was fortuitous. Just a couple of weeks later, the Leafs hired Dubas as their assistant general manager, and shortly after, Dubas asked Metcalf, then 26, to come aboard as part of their new analytics department.

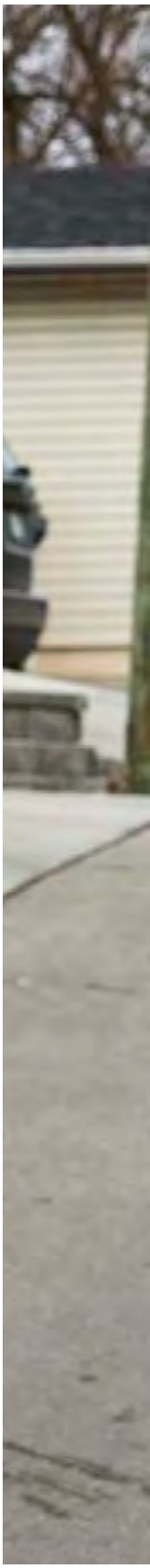
"It was a big decision because, obviously, I hadn't had any realistic [thoughts] of working within hockey – it was just something I was doing for fun," says Metcalf.

Shaking the shock, he shuttered the website and joined the Leafs in 2014. Dubas is now general manager of the team and Metcalf is officially the special assistant to the general manager. On the team's website is a list of its brass – tellingly, only four names are above Metcalf's.

The wave of interest in the emerging field of advanced statistics was significant. The hockey world had been somewhat divided, with the old guard relying on observation to make decisions and these analytics upstarts brandishing their newfangled metrics. Now, you won't find an NHL team that doesn't depend on its own stats crunchers.

Metcalf is an integral part of that new frontier. In 2016, Metcalf was promoted to director of hockey research and development. He currently oversees an advanced stats department of eight full-time employees. Their handiwork influences all branches of the Leafs' hockey operation – scouts, coaches, managers.

"My job is to help us improve our decision-making across the organization," says Metcalf, 33. "The best part of my job – and probably the best part of any job – is being able to work with a team of people who you like and appreciate to make a real impact."



Photograph by Finn O'Hara


TORONTO MAPLE LEAFS
adidas
P.M
FeatherLite

CLASS NOTES

▲ Crabapple trees bursting into bloom outside Fleming Hall are always a sign that spring has arrived on campus.

1960s

Sue (Allcock) Iaboni and Peter Iaboni
Arts'68 / Arts/PHE'70
Sue and Peter are delighted to announce that their daughter, Jennifer Eaman, recently graduated from the nurse practitioner program at Queen's. Sue writes, "Jennifer has university degrees from both Western and Ryerson, but she finally 'saw the light' and joined the ranks of Queen's students. She was especially happy with her decision because many other universities that offer this program had to postpone the practicum requirement due to lack of placement opportunities during the pandemic. Queen's, however, found placements for all of the nurse practitioner students, and Jennifer, along with her classmates, was able to graduate this past fall. Well done, everyone!"

1970s

Eleanor Daley
Mus'78
Eleanor was honoured by the Ontario Arts Foundation (OAF) with its prestigious Louis Applebaum Composers Award in December. The award recognizes excellence for a body of work in the field of composition for young people. Eleanor is the long-time director of music at Fairlawn Avenue United Church in Toronto, where she conducts three choirs. She received her BMus from Queen's organ performance and also holds diplomas in both organ and piano from the Royal Conservatory of Music

WRITE TO US

The Queen's Alumni Review welcomes comments at review@queensu.ca. All comments may be edited for clarity, civility, and length.

@queensureview

in Toronto and Trinity College in England. She has more than 150 published choral compositions and is commissioned extensively throughout North America. Included in her unpublished choral works are dozens of anthems, 12 Missae Breves, four pageants, and hundreds of descants, introits, and psalm settings. Her compositions have been widely performed, recorded, and aired throughout North America, Great Britain, Europe, South Africa, and Asia. The OAF jury was unanimous in its choice, stating: "A prolific composer in many realms, Eleanor Daley's dedication to her work with young people includes music for performance by, education of, and pure enjoyment by young people. Her vast number of published works have national and international reach and are performed around the world. Eleanor's compositions show a deep respect for the capacity of young people, recognizing their intelligence and potential; leading them to explore and grow musically."

Derek Wilson
Sc'71
Derek was awarded the Peter Hulbert Accessibility Award by the City of Port Moody, B.C., in December. This award honours an individual or group doing exceptional work in removing barriers for individuals with disabilities. Derek was recognized for his many years of advocating for the accessibility needs of residents in all parts of the city, particularly in Glenayre, where he helped to bring about a number of improvements – such as curb letdowns, sidewalk installations, and street lighting – that have made the neighbourhood more walkable and safe. From 2014 to 2020, Derek organized and delivered the Handy Helper minor home repair program for clients of the United Way's Better at Home program. Home repairs completed through this program included the installation of grab bars, hand-held shower heads, and single-handle faucets in bathrooms and kitchens to assist clients with disabilities.

1980s

Annette Saulnier Bergeron
Sc'87
Annette recently received the Governor General's Sovereign Medal for Volunteership. In January, she began serving as chair of the board of the Electrical Safety Authority (Ontario).

Tarek Elguindi
MPA'88
Tarek and his colleagues at the United Nations World Food Programme were honoured with the 2020 Nobel Peace Prize for their collective achievement toward fighting hunger in the world during the past 40-plus years. Tarek has extensive experience in international and humanitarian work, leading official missions in more than 20 countries in Africa, the Middle East, Asia, Southeast Asia, and Europe. With the UN World Food Programme, he worked at UN headquarters before being assigned to senior positions at missions in Liberia, Afghanistan, Sudan, Iraq, and East Timor.

Tarek Elguindi has led official missions in more than 20 countries in Africa, the Middle East, Asia, Southeast Asia, and Europe

Stephen Kouri
Artsci'84
Stephen retired from the consumer packaged goods industry in November after almost 35 years in marketing and sales roles at Unilever and Smucker. He celebrated his retirement online with a number of Queen's friends and old roommates in January. Stephen lives in Toronto with his wife Jill (Roberts), Com'84. Stephen managed the QP in 1984 and is looking to organize a staff reunion when that becomes possible. He can be reached at Stephen.kouri61@gmail.com.

1990s

Jamil Mawji
Com'94, MIR'95
Jamil is co-founder of National Care Group, an adult specialist care company which is now the largest privately owned provider in the U.K. His company was recently recognized by the Sunday Times Virgin Atlantic Fast Track 100 as one of the top three fastest growing companies nationally. Jamil and his colleague, Faisal Lalani, were also shortlisted for the prestigious 2020 EY Entrepreneur of the Year award (North of England category). Founded in 2016, National Care Group now employs 2,400 staff who support more than 1,250 adults with complex needs. Jamil says, "As we continue to grow

nationally, we remain committed to our vision of being the best and most trusted care and support provider in the United Kingdom."

Cicelyn Tejada-Slade
Artsci'97
Cicelyn and her husband, William Slade III, welcomed their second child in January 2020. Ashlyn Rose is sister to eight-year-old Liam (William Slade IV).

Graeme Watson
Artsci'98
Graeme was honoured by the Ontario Museums Association with a 2020 Award of Excellence in the category Volunteer Service. Graeme was selected for his work as the former volunteer director of the Murney Tower Museum.

2000s

Jenna Beck and Eric Virtue
NSc'08 / Artsci'08
Jenna and Eric are delighted to announce the birth of their daughter, Beatrice Anne Virtue. Beatrice was born at home on March 19, 2020, in Edmonton. Beatrice is also welcomed by her aunt Sophie Virtue, Artsci'11, her grandparents Clarence Virtue, Artsci'79, MSc'81, and Geneviève Courant, NSc'80, her great-uncle James Virtue, Com'80, and great-aunts Barb Virtue, Sc'83, and Sharon Virtue, Artsci'83, as well as her second cousin, Lindsey Virtue, Com'14.

Sarah Etherden
Artsci'03
Sarah is now VP, global communications, at Blue Ant Media, an international content producer, distributor, and channel operator. Sarah has led the company's global communications portfolio since 2015, most recently as senior director, global communications, overseeing the strategic direction and management of the company's external and internal communications. Prior to joining Blue Ant Media, Sarah owned and operated Phoenix PR.

▲ Nicholas Godwin and Wendy Grace Eddy first met at a QUAA pub night and were married last May in Calgary.

2010s

Thuy-Dan Dang
Artsci'14
Thuy-Dan married Jared Porter at St. George's Cathedral in Kingston on Oct. 3. Thuy-Dan works as a lawyer for the Department of Justice. She and Jared live in Orléans, Ont.

Edward Festeryga
Artsci'13
Edward joined the Houston law firm of Abraham, Watkins, Nichols, Sorrels, Agosto, Aziz, and Stogner as an associate. Edward's current legal practice focuses on a wide range of personal injury matters, including catastrophic injuries, commercial motor vehicle accidents, workplace injuries, plant and refinery explosions, and wrongful death. He is licensed to practice in Texas, Michigan, and in the U.S. District Court for the Southern District of Texas. Edward completed his degree in political studies at Queen's, where he was also a member of the Vanier Cup-winning Gaels football team. He received his J.D. from the University of Texas School of Law, where he was a Keeton Fellow Scholar.

Nicholas Godwin and Wendy Grace Eddy
Artsci'11 / Artsci'13
Nicholas and Wendy married on May 22, 2020, in a small backyard ceremony in Calgary. Their reception on Sept. 26 was a lovely, warm fall evening surrounded by family and friends (Queen's alumni and non-alumni alike). The couple met in 2015 at a pub night hosted by the Calgary branch of the Queen's University Alumni Association. Grace is a medical radiation technologist and Nicholas is an environmental adviser.

Derek Hurst
Com'13
On Nov. 18, Chloe MacDonald proposed to Derek Hurst while feeding the ducks in Hyde Park. The couple recently moved to London to be closer to Derek's prized Arsenal football team while developing their new business making sheer blonde hair products.

▶ Millie and Scott welcomed a baby girl in September.

Millie (O'Brien) and Scott Jay
Con.Ed.'16 / Con.Ed.'12
Millie and Scott are thrilled to announce the birth of their daughter Orla Louise, born Sept. 11. Orla has brought so much joy to her family. Scott and Millie are so grateful they both happened to be at Alfie's for Throwback Night back in 2013!

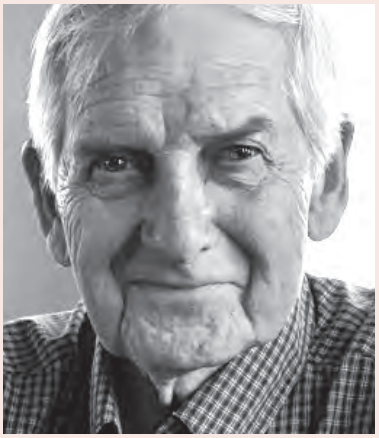
Rupa Karyampudi and Courtney Mulqueen
Law'11 / Law'00
Rupa and Courtney, partners at MK Disability Lawyers, are happy to announce that their firm has won the Women-Led Business Award at the Markham Board of Trade's 30th Annual Business Excellence Awards.

Stanley (Brent) White
MSc'10
Stanley successfully defended his PhD dissertation in interdisciplinary studies at the University of New Brunswick on Dec. 11, 2020. Brent is scheduled to receive his diploma at the May encaenia, and he continues teaching at the Ron Joyce Centre for Business Studies at Mount Allison University in Sackville, N.B.

IN MEMORIAM

Lois (Knights) Barker
BA/BPHE'61
Lois died Sept. 18 after a lifetime of community service and unrelenting advocacy for the underserved. Lois was a fierce, tenacious woman before it was cool. She was a natural athlete from childhood, excelling on the basketball court, in the pool, and even on the ski jump. As a young woman, she obtained her private pilot's licence. As assistant director of water safety services for the Red Cross in Toronto, Lois noticed a failing in the national swimming badge system that resulted in children abandoning instruction. She redesigned the program, keeping kids in swim programs across the country, and thus saving countless lives. In 1980, Lois began her 23-year tenure as CEO of the Fort Erie YMCA. Once a small storefront organization, the Fort Erie YMCA became, under Lois's ambitious vision and perseverance, a state-of-the-art facility complete with daycare centre, running track, and even a waterslide. The building owed its existence to the "Lois Factor," her dedication to the community, and her ability to convince people to open their wallets and contribute. The Lois Factor, of course, extended to her home life, with husband Joseph Barker, Sc'60, and children Karen, Artsci'86, and Kim. She encouraged her daughters to try everything. She taught them that there were no limits on what they could achieve. She inspired them to make volunteering an essential part of their lives. As a mother, friend, and employer, Lois was as tough as she was giving. She often saw more potential in others than they saw in themselves and she never gave up on helping them achieve it. She changed the lives of many. She will be missed.

Robert Greggs, BA'55
Bob died at home on Dec. 3. He is mourned by his wife, Marilyn Hood, Arts'70, MEd'76; their combined family of children



(including Darcie Greggs, Artsci'80, and Jonathon Greggs, Artsci'83) and grandchildren; and by Cooper the dog. Bob was predeceased in 1997 by his first wife, Robin (Howland), BA'54, and dogs Shandy, Georgie Girl, Tamworth, Candy, MacDuff, Tory, Casey, and Terra. Bob pursued knowledge all his life. He earned his BSc in geology from Queen's, then advanced degrees from UBC, before returning to Queen's as a professor of geological sciences. His expertise in sedimentary geology inspired many of his students as well as his own children (with both Darcie and Jonathon becoming geologists). Bob was known for his early work in the Canadian Rockies, on horseback no less, and for detailing the strata around southeastern Ontario. After leaving Queen's, Bob moved west to work in the energy industry in Calgary until he retired.

Margaret Natalie Whyte (McGiffin) Heilig, BNSc'57
Margaret died Feb. 20, 2020, in Toronto, aged 85, with her four children by her side. She was predeceased by her husband, Bob Heilig, BASc'55, in 2017, and by her sister Mary in 2019. She is survived by children John, Katherine, Nancy, and Michael, her sister Kathleen Satchell, Arts'51, and extended family. Margaret and Bob met at Queen's,

where they made lifelong friendships. They were happily married for 58 years and their proudest accomplishments were raising their four children and spending time with their 10 grandchildren. Margaret went back to school while raising her children and completed a specialist degree in history from the University of Toronto. Her interest in history led her to work at the Toronto Mackenzie House, and her nursing education to work at The Gage as a health educator. Margaret spent many years as a Girl Guide leader in Henry Farms, cultivating young women to be independent and caring, and to love the outdoors. Her energy and optimism and love of adventure were what drew people to her. It was her caring and nurturing ways that kept them close. She is greatly missed.

J. Gilbert Hill
BASc'51 (Engineering Chemistry), MASc'62 (Biochemistry), PhD'63 (MD, McGill)
Gilbert died Oct. 25, two days after celebrating Mole Day. While at Queen's, Gilbert's sister, Mary, set him up on a blind date with Ardeth Justus, Arts'52. They married in 1956. In 1965, Gilbert began his career as a clinical biochemist at the Hospital for Sick Children in Toronto. He was a pioneer in laboratory automation and became biochemist-in-chief. He simultaneously rose through the academic ranks at the University of Toronto in what is now the Department of Laboratory Medicine and Pathobiology. He was recognized with a lifetime honorary membership in the Canadian Society of Clinical Chemists in 2011. Gilbert retired from SickKids in 1995 and took on a second career in medical informatics.

Gilbert was an advocate for conservation and an enthusiastic naturalist. His kindness, sincerity, integrity, and calm presence made him an excellent teacher and mentor, and the best father that anyone could hope for. Gilbert was predeceased by his brother Donald, BASc'50. He is survived by his wife, Ardeth; his children Margaret, Janet, Artsci'90, PhD'95 (David Palmer, Artsci'89, PhD'95), and Andrew, Sc'91; his younger sister Mary Summerby, Meds'55; and many nieces and nephews.

From a young age, Gilbert had a taste for adventure. At 17, he was a crew member on the RMS Nascopie, a Hudson's Bay Company ship, when it sank in July 1947 after hitting a reef off Beacon Island near Cape Dorset.

Alexis Hyland, BASc'61
Al died peacefully on Oct. 22 in the presence of Joan, his wife and best friend. Al immigrated to Canada from Trinidad as a young man to pursue his studies as a chemical engineer at Queen's. After graduation, he eventually made his way to Montreal and spent most of his working life at Seagram Distilleries, where he met Joan. Al and Joan enjoyed a loving and wonderful life together for 44 years, travelling on exotic adventures, playing golf and bridge, enjoying their garden and cherishing their time with close friends. Al's intelligence, charm, diplomacy, gentle disposition, memorable belly laughs, and his insatiable appetite for vanilla ice cream will be greatly missed by his family and many friends.

Wayne Hypponen, MBA'62
Wayne died Nov. 17 with Leena, his wife of 52 years, by his side, following a lengthy battle with Lewy body dementia. Wayne is also survived by his children, Taina Phelan, Artsci'93 (Douglas Phelan, Com'92), and Maria Hypponen, Artsci'95, MA'98, and five grandchildren. Wayne is also missed by extended family members and friends in Canada and Finland. Born and raised in Montreal, Wayne studied engineering at McGill before pursuing his MBA at Queen's. Wayne was a true gentleman; he had a kind and gentle soul as well as an impish sense of humour. He loved animals and soaking up some Vitamin D at the cottage. He was extremely proud of his Finnish heritage.

Donald Keenleyside
BA'54, MD'56
Donald died on Nov. 25 in Kingston. He is survived by his wife of 28 years, Linda; children Laura, David, Artsci'84, and Tim, Artsci'86; and extended family. Donald was predeceased by his first wife, Anna. Donald grew up in Kingston, attending Victoria Public School and KCVI (where he was head boy, 1947–1948) before studying at Queen's. He was a caring doctor for generations of families. He had a longtime association with Hotel Dieu Hospital. His special projects through the years included property development of the Medical Arts Building and Ongwanada Hospital and serving as president of the Physicians' Services Incorporated Foundation. He was awarded emeritus status by the Ontario College of Physicians. He had a most fulfilling life. His passions included baseball, hockey (he played for Queen's as a student), golf, curling, and skiing.

William Kettle,
MD'61
Bill died peacefully at home on July 31. After graduation from medical school and three years of family practice and pediatric residency, Bill began practice in Midland, Ont. He was truly an all-round practitioner; he performed minor surgical procedures and delivered hundreds of babies. He was a skilled clinician and educator dedicated to his patients and yet always remained humble. He was well-loved and active in the Georgian Bay community. Bill continued his love of hockey well into his 70s and developed his skills in sketching, woodworking, and model-boat building. Bill was devoted to his family: his wife, Hazel, five children, and 10 grandchildren.

Faculty and Staff

EDWARD FARRAR
Professor Emeritus (Geological Sciences and Geological Engineering), on Nov. 8, 2020.

PAUL WIENS
Former university librarian, on Nov. 19, 2020.

KENNETH (KEN) BALL
Technological Education Workshop Administrator, on Feb. 14, 2021.

GEORGE EWAN
Professor Emeritus (Physics), on Dec. 15, 2020.

VICTOR SNIECKUS
Professor Emeritus (Chemistry), on Dec. 18, 2020.

John Robert MacKay, Com'70
John died peacefully at home on Nov. 3, 2020, at the age of 72. John treasured his family and will be dearly missed by his wife, Shirley, KGH Nursing '71, and his children Geoff, Steph, Artsci/PHE'04 (Kyle Bournes, Artsci'04), and Andrew, of whom who he was immensely proud. John was the adoring "Grumps" to his grandchildren Linden, Rowan, and Juniper and his granddogs. He was also close to his cousin Steve Knox, Com'74, and his family, as well as a large extended family. John grew up in Kingston and went on to spend most of his career in the federal government, occupying several roles, most significantly as a senior program officer and policy analyst, investigating unfair trade practices by foreign exporters to Canada. While Ottawa was home, John considered himself a K-Town boy at heart. He was an athlete and a passionate sports fan. He had a cherished circle of friends from his school days in Kingston, his time at Queen's, and his career in the federal government. Many of these friends visited him right up until he died of advanced prostate cancer. John was a faithful attendee at his class reunions and even managed to make it, virtually, to his 50th reunion, which brought him immense joy.

Merylin Elizabeth (Masters) McKinley, BA'56
Merylin died Nov. 20. She was preceded in death by her husband, A. Colin McKinley, MD'58, and is survived by sons Dougal and Robbie, and two grandchildren. Merylin taught school for several years before becoming a homemaker who excelled at instilling a love of reading in her children, creating magical Christmas memories, and demonstrating how to persevere through challenges. Painting was a lifelong passion she pursued through classes, exhibiting, and volunteering with art galleries. She also knitted and quilted, creating prized family heirlooms. Her grandkids were crazy about their "Nana," who always had fun things to do, treats not seen at home, "Nana rules," and help with special projects. Her nephews remembered her for being a warm, supportive aunt with a great sense of humour. Both Merylin and Colin spoke lovingly about their time at Queen's and gave back to the school through the A. Colin and Merylin E. McKinley Bursary to support medical students. Condolences may be sent to damckin@gmail.com and mckinley.robbie@gmail.com.

Gerald Irvine Mennie, BASc'53
Gerald died peacefully on April 14, 2020, in Toronto. Gerry is survived by his loving and devoted wife of 65 years, Ida; children Sharon and Bruce, Sc'86 (Anita); and grandson Bryce. Gerry had a long and fulfilling career as a civil engineer with Ontario Hydro. He was initially assigned to the expansion phase of the Sir Adam Beck hydroelectric power project in Niagara Falls, where much of his time was spent in underground civil construction as part of an undertaking by mining and civil infrastructure crews to construct a series of 50-foot-diameter tunnels. He was involved with numerous power-generating and transmission stations throughout the province, extending from the Winnipeg River in the northwest to the Abitibi River in the northeast and Lake Ontario to the south. Gerry's happiest and most rewarding times were shared with family and friends. Gerry also valued his solitude and moments of quiet reflection, and is remembered for his congenial and thoughtful nature, wisdom, integrity, and consideration towards others.

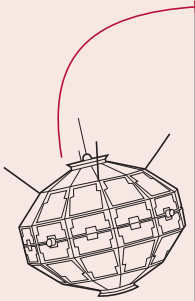
James Mucklow
BASc'85 (MESc, Western University)
Jim died Oct. 28 in Thunder Bay, surrounded by his family. Jim met the love of his life, Cindy Warwick, NSc'85, in first year at Queen's, in residence at Jean Royce Hall. They married in Thunder Bay in 1985 shortly after graduation. Jim worked first in mineral exploration and then in consulting engineering, assessing and remediating contaminated sites and assessing groundwater resources. He also served as manager of environment and community affairs for Fortune Minerals for projects in northern British

Columbia and the Northwest Territories. A significant portion of this work involved consultations with First Nations. Jim learned a lot from the people he met in the First Nations with whom he consulted. One of his proudest moments was when Miluulak, a Sim'oogit (house chief) of the Gitxsan Nation in northwestern B.C. honorarily adopted him into the house. Jim benefited from mentoring by many experienced professionals and, in turn, he mentored those who worked for and with him. Jim loved travelling and discovering new places and people. Jim was a member of the Rotary Club of Thunder Bay (Port Arthur) where he ran the youth exchange program for several years; his family hosted several youth exchange students from around the world. Jim is survived by Cindy, his loving and patient wife of 34 years; his two accomplished children, Gillian and Isaac; his mother, Ines; siblings Nancy, Artsci'86 (Shane Dunne), Peter, Sc'86 (Judy Morash, NSc'87) and Laura, Artsci'93 (Tony Calverley); and extended family. He was predeceased by his father, Dr. James Mucklow, in 2019. Jim is also survived by his surrogate children, the 10 exchange students that the family hosted and continue to keep in contact with. Jim had numerous close friends and their families that he also considered family. Jim led a good and principled life driven by strong morals and the drive to do the right thing.

Jon Mulville, BASc'91
Jon died Dec. 13, aged 52. Jon is survived by his mother, siblings, extended family, and many friends. He was predeceased by his father and his aunt Betty Mulville, BA'68. Jon graduated from Queen's with a degree in mathematical and mechanical engineering; he was on the Dean's List. In 1993, Jon left Ontario for B.C. to go skiing for a year. He fell in love with the mountains and decided to make B.C. his permanent home. He loved curling, mountain biking, golfing, skiing, and kayaking. He made a living as a carpenter, mostly in Whistler, and subsequently bought a home in Squamish. Jon excelled in every endeavour of his life but had to overcome several health issues, including a recent eight-week bout with COVID-19. Sadly, Jon struggled within himself and as he lived on his own terms, he also died on those terms. During the late evening of Dec. 13, Jon decided to take his own life, leaving his friends and family devastated.

Chris Nova (Nowakowski)
BCom'60
Chris died peacefully at home in Washington, D.C., surrounded by family, friends, and dedicated caregivers after a spirited battle with Alzheimer's. Chris began his life as he lived it … full speed. He spent the first four years of his life escaping Nazi-controlled Europe, eventually ending up in Ottawa. A natural athlete and bon vivant, he excelled in football, skiing, and boxing at Ashbury College. Chris later attended Queen's, Carleton, and HEC Paris, where he continued his "extracurriculars" with passion. After 15 years at Wood Gundy in Toronto and London, Chris founded InterSec Research Corporation and never looked back. He took as much pride in the success of that venture as he did in the annual get-togethers of loyal employees decades after the firm was sold. Chris shaped the lives of many. Stories of his generosity, love, misdeeds, and escapades will be repeated for years to come.

Donald Frederick Page, BASc'51 (PhD, Imperial College, London)
Don died Nov. 20 at the age of 91. Don's PhD research explored the general subject of instability in active circuits using the newly introduced transistor as a practical application. This groundbreaking work led to his writing a major chapter for the Handbook of Semiconductor Electronics. Don joined the design team for Canada's first space satellite, Alouette 1, which proved to be the most complex and reliable satellite of its time. While managing an engineering research group at the Defence Research Telecommunications Establishment in the 1960s, Don was an adjunct lecturer at Carleton University, where he helped develop its graduate electrical engineering program.



Don joined the design team for Canada's first space satellite, Alouette 1, which proved to be the most complex and reliable satellite of its time

On his appointment in 1968 to lead a new Canadian radar research program, Don initiated the original Canadian engineering studies of synthetic aperture imaging radar. Funded by the Department of National Defence and partnering with the Department of Energy, Mines, and Resources and with NASA's Jet Propulsion Laboratories, Don's group produced a ground-based image processor for NASA's Seasat satellite which, when it was launched in 1978, carried the first space-borne synthetic aperture imaging radar. This Canadian image processor provided such excellent earth and ocean images that the U.S. military immediately classified the Seasat project. This exclusion from Seasat led to Don's group transferring its technology to Canadian industry partner MacDonald Detwiler Associates, which resulted in Canada's successful program of satellite-borne imaging radar now known as Radarsat.

Alan Patterson, BASc'60
Alan died peacefully on Nov. 3, aged 88. Predeceased by his wife, Betty Ann, in 2002, Alan is survived by daughters Lesley, Artsci'84 (Tom) and Janet (Derek); grandchildren David, Sc'12 (Katherine), Katherine (Dan), Michael, Charlotte, and Isabella; and two great-grandchildren. Alan's career as a civil engineer took the family to Toronto, Sudbury, and Sarnia. Alan's first major project was building the Don Valley Parkway and he retired as city engineer

in Sarnia. Al enjoyed curling, skiing, Toastmasters, and became a tai chi instructor later in life. He was a supporter of community organizations and generously established a planned gift to benefit the Queen's University General Endowment Fund.

Katharine "Katie" (Gundy) Stewart, BA'50
Katie died Dec. 3 in Quesnel, B.C., where she lived for the last few years to be near family. She was predeceased by her husband, John Stewart, daughter Christine Stewart, BA'73, and granddaughter Katharine Hay. She is survived by her daughters Meg Stewart and Jennifer Hay and grandson David Hay. Katie had many fond memories of her days at Queen's with her friends, the "Happy 12." Their friendships were forged when they resided in close quarters in the "Barracks," and continued lifelong. Katie moved to Nelson, B.C., in 1974 where she lived for more than 40 years, enjoying time with friends and family, travels, mountains, music, weaving, Scottish country dancing, and many other pursuits.

Jonathan Henry Tondeur, BASc'72
Jonathan died Oct. 10. Jonathan is survived by his wife, Thelma; their children Lisa Elliott, Artsci/PHE'82, Ed'83, Jonathan, Cory, Michele, and Paul; and 10 grandchildren, including Sophie Heffernan, NSc'21. Jonathan came to Queen's as a mature student. His classmates in civil engineering affectionally called him "Dad." He worked for the Ontario Ministry of Transportation and Communication until 1978, when he became County Engineer for Northumberland until his retirement in 1996.

Louise Whiten, BA'91
Louise died Dec. 3. She is survived by her husband, Ching Mac, Sc'93; sons Adam and Jake; siblings Paula, Beverley, NSc'91, Richard, and Gary; extended family; and many friends. Louise studied biology at Queen's, where she met Ching, the love of her life. She made many lifelong friends at Queen's, becoming a proud alumna. Louise went on to get her Master of Speech Pathology and pursue a rewarding career in this field. Lou loved to travel the world, drink wine and eat great food at the cottage, walk her dog endlessly and exercise regularly, but most importantly, she loved just spending time with her family.

Philip "Bert" Wild
BASc'82
Philip died Sept. 21. "Mrs. Chartrand, Phil's grade four teacher, had a good eye for the human condition. She wrote on Phil's report cards as follows: First report: Philip does talk too much and enjoys distracting other people. Second report: Philip still talks too much. He enjoys having a good time.

"We lost Phil on Sept. 21 very unexpectedly. It was, however, a miracle that he even survived graduation from Queen's. Our mother had gathered the clan for the occasion from far and wide, including our aunt from England. We had stayed over at a hotel the night before the grand event. Morning of convocation, however, the only one missing was Phil. He showed up only moments before we were to leave for the ceremony, more than a little hung over (gentlemen, you know who you are). We thought Mom was going to kill him then. Since Phil's passing, we have learned of his escapades over the years with his Queen's classmates, some of which he only narrowly survived. Apparently, we were lucky to have had him as long as we did. We will all miss him terribly. The coroner reported he had an enlarged heart, something that everyone who knew him can vouch for. We just didn't think it would kill him. Phil – this is what happens when you leave your sisters in charge!" Submitted with love by Phil's sisters, Cathy Wild, Artsci'79, and Susan Wild, Com'87

From the Archives

1974
The Rt. Hon. Roland Michener named ninth chancellor of Queen's

1922
The first appearance of a live bear cub as Boo Hoo the bear.

1983
Head football coach Doug Hargreaves recognized as Canadian Interuniversity Sport Coach of the Year

David Emmons Torrance, PhD'87
David, age 69, passed away peacefully at home on Nov. 8, 2020, surrounded by his loving family. He earned his degrees from Washington and Lee University, Brown University, and his PhD from Queen's. Kingston held a special place in his heart for this is where he learned to sail, started teaching history, and met and married his beloved Elizabeth. More than anything, teaching was his passion and he enjoyed his career in the history department of Mount Allison University. David will be profoundly missed by his mother; his wife, Elizabeth; his children, Beth, Margaret, Alice, and Charles; his brother, Jim Torrance (Cindy); and Jim's children, Tina and Danny. He will also be lovingly remembered by his extended family, his nieces and nephews, his friends, his colleagues, and his students.

NOTE
Obituaries are posted online as we receive them. If you have memories of these professors and staff members you would like to share, please email us: review @queensu.ca

1924-2020

F.C. Kohli

A surprise scholarship led to the revolution of India's software industry

India's information technology industry is the envy of Asia, posting revenues of $190 billion annually and employing four million people directly and another 10 million indirectly. But were it not for a timely offer of a Queen's University scholarship in 1945, things might have been far different.

Faqir Chand Kohli – revered as "the father of the Indian software industry" – was a pioneer, a visionary, a titan of business, a champion of social reform and, arguably the key to all the rest, a graduate of Queen's University.

Mr. Kohli (BSc'48, DSc'07), F.C. to family and friends, died Nov. 26, 2020. He was 96.

Celebrated as "the Henry Ford of IT services" for the way he industrialized the once-boutique production of software, he has also been lauded for his innovations in adult literacy and water purification.

"He firmly believed that the combined power of technology and education could eradicate poverty and enrich India's enormous human resource," politician and author Sudheendra Kulkarni wrote in December.

As the founder and first CEO of what was to become one of the world's largest IT companies, TCS (or Tata Consultancy Services, which is worth more on the open market than IBM), Mr. Kohli realized early the ways in which computers and software would transform the world.

His ability to see such possibilities was unlocked at Queen's, he told Adjunct Professor Shai Dubey in 2007. Mr. Dubey, who teaches at Queen's Faculty of Law and Smith School of Business, hosted a dinner for Mr. Kohli upon his return to Kingston to receive an honorary doctorate. Mr. Kohli told him that going to Queen's "was the pivotal moment in his life. It changed the direction his life was going to go."

In 1945, Mr. Kohli was at a crossroads. He was in his final year at Government College University, Lahore, in present-day Pakistan, finishing a BA and BSc, when his father died.

▲ Mr. Kohli was known as "the father of the Indian software industry."

"That was a huge blow," Mr. Kohli told the Indian magazine *Seniors Today* last year. "Driven by the emotional trauma of my father's death and the need to be independent, I decided to join the navy."

While waiting for his commission, he saw a newspaper ad announcing a government scholarship to study electrical engineering at Queen's. He figured it couldn't hurt to apply.

"To my surprise, I was awarded the scholarship to study power engineering at one of Canada's premier

PHOTOGRAPHS COURTESY OF TATA CONSULTANCY SERVICES

"He said that what Queen's allowed him to do was to think critically. For the first time in his life, he had an opportunity to question."

institutions," Mr. Kohli recalled. "The navy agreed to release me from their employment, and I set out for Canada in 1946."

Mr. Dubey, who himself immigrated to Canada from India with his family in 1967, can imagine the culture shock Mr. Kohli faced. Within Queen's much smaller postwar student population, "he was a really visible minority," says Mr. Dubey. "The culture was different; the food was different."

But more importantly for Mr. Kohli, the educational approach was different, says Mr. Dubey. "The education that he got [at Queen's] actually helped him to see the world in a different way."

In India, at the time, education emphasized rote learning, Mr. Kohli told Mr. Dubey. "He said that what [Queen's] allowed him to do was to think critically. For the first time in his life, he had an opportunity to question. And that was what led to a lot of the other things that happened [in his life]."

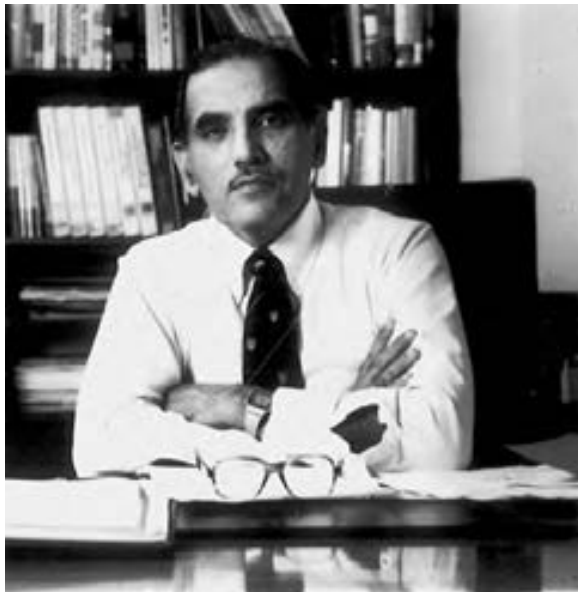
It was a turning point. Software for digital "computing machines" was little more than theoretical at the time, but by choosing to continue in electrical engineering, Mr. Kohli set out on the path that would lead to his future innovations.

His BSc from Queen's earned him a job with Canadian General Electric (now GE Canada), which was focused at the time primarily on the manufacture of small appliances and plastics. The job wouldn't keep his interest long. Based on his work at Queen's, he won a scholarship to the Massachusetts Institute of Technology and earned a master's degree in electrical engineering in 1950.

Meanwhile, his homeland was in turmoil. British India had begun a headlong rush toward independence, resulting in its division in 1947 into two states, the dominions of Hindu-dominated India and Muslim-dominated Pakistan. Millions of religious refugees were displaced in the violence that accompanied partition. Mr. Kohli's own family had to flee Peshawar for India and start over. With an offer of work from the Tata Group, which operated steel and power plants in India, he returned home in 1951.

Working for the Tata Hydro-Electric Power Supply Company, as it was then called, Mr. Kohli oversaw systems operations for power distribution. In 1968, Tata Hydro-Electric became one of the first companies in the world to use a computer to control the power grid.

Within two years, Mr. Kohli and Tata Group chairman J.R.D. Tata, convinced of the transformative nature of computing, created Tata Consultancy Services to produce operating systems for computers at home and abroad. Mr. Kohli intuited early that western countries would not have the capacity to produce all the software that the burgeoning industry required.



F.C. Kohli was the CEO of TCS for nearly 30 years, building success for the company and the industry he was shaping.

Mr. Kohli and his team "believed they were not building a mere business but a new industry for India," Subramaniam Ramadorai wrote in his history of Tata Consultancy Services, "and that was a dream worth working towards."

To realize his dream and produce the talent TCS needed, Mr. Kohli promoted the new Indian Institutes of Technology, created by the country's first prime minister, Jawaharlal Nehru. Mr. Kohli not only found teaching staff for the new institutes, he taught some of the courses himself.

He continued as CEO of TCS for nearly 30 years, laying the groundwork for the success of both the company and the industry.

"Millions who join the Indian information technology sector every year should celebrate F.C. Kohli, because had it not been for him, the sector would not have reached where it is today," said Queen's alumnus Kevin Goheen (BSc'79), in nominating Mr. Kohli for one of the Faculty of Engineering and Applied Science's 125th Anniversary Engineering Awards in 2018.

And had it not been for Queen's, where, he told Mr. Dubey, he learned "a way to see the world in a different way, a way not to see the world as it has always been," his restless mind might never have been unleashed. Even into his 90s and long retired from TCS, Mr. Kohli was still actively pursuing improvements in water purification systems, literacy, and adult education in India.

Mr. Kulkarni, in a memorial to Mr. Kohli, recalls him saying, "Our industry has benefited, but India has not benefited much from our industry. We have to do more, a lot more, for India."

Faqir Chand Kohli put himself in a position to do just that, thanks to his savvy, his determination – and a serendipitous Queen's scholarship.

—By Tony Atherton

The technology the Axis Mapper uses was developed in the Mining Systems Laboratory at Queen's University (co-founder Shelby Yee, Sc'16 pictured).

Below the surface

Queen's alumni named to Forbes 30 Under 30 list for trailblazing work with technology developed during their university years.

When mine tunnels collapse, they can trap dozens of people underground. This can often be prevented by reinforcing tunnels, but if structural weaknesses go unnoticed, the consequences can be catastrophic.

That's where Matt Gubasta (Artsci'17) and Shelby Yee (Sc'16) come in. Their company, RockMass Technologies, helps mining companies better assess the risk through a data collection unit called the Axis Mapper.

They compare it to a point-and-shoot camera for structural geological mapping. With sensors to collect data about the features of a rock face, the unit can orient itself relative to the surface it is scanning. So it works underground, where GPS doesn't.

The RockMass co-founders were named to the 2021 Forbes 30 under 30 list in the manufacturing and industry category, which celebrates dynamic young entrepreneurs.

And the company's roots are at Queen's University.

The technology the Axis Mapper uses was developed in the Mining Systems Laboratory, and Ms. Yee learned of it during a Queen's Innovation Centre networking event at the Grad Club, just off campus.

As a geological engineering graduate, she immediately understood its potential.

"During my undergrad, I did a lot of manual structural mapping – with a pen, paper, and a compass. You always feel like you need five sets of hands and 10 times as much time," says Ms. Yee.

"The Axis Mapper does it with the push of a button."

In collaboration with the mining systems laboratory, Mr. Gubasta and Ms. Yee began to explore the commercialization opportunity. The Queen's Innovation Centre Summer Initiative helped them bring it to fruition.

"They surrounded us with people who were trying to start a business and provided a network of experienced entrepreneurs," say the co-founders.

"We learned that people want to help. When you reach out to someone for their expertise, they usually try to make time. That lesson has served us well."—**Ty Burke**

PHOTOGRAPH COURTESY OF ROCKMASS TECHNOLOGIES

Is it time to reset the way you protect your family's health?

Alumni Health & Dental Insurance can help.

2020 will go down as the year of the great reset. The year we all got back to basics and were reminded of what really matters: family and protecting it. Maybe it's time to reset the way you protect your family's health, with Alumni Health & Dental Insurance. It can help cover the cost of things not covered by your government health plan, like prescription drugs, dental care and physiotherapy, while helping your family get the care you want for them.

Reset your protection.

Manulife

Get a quote today. Call **1-888-913-6333** or visit us at **Manulife.com/queensu.**

Queen's Alumni Review
PO Box 1503
Ogdensburg, NY
13669
Change Service Requested

Non Profit
U.S. Postage
PAID
Permit No. 234
Watertown, NY