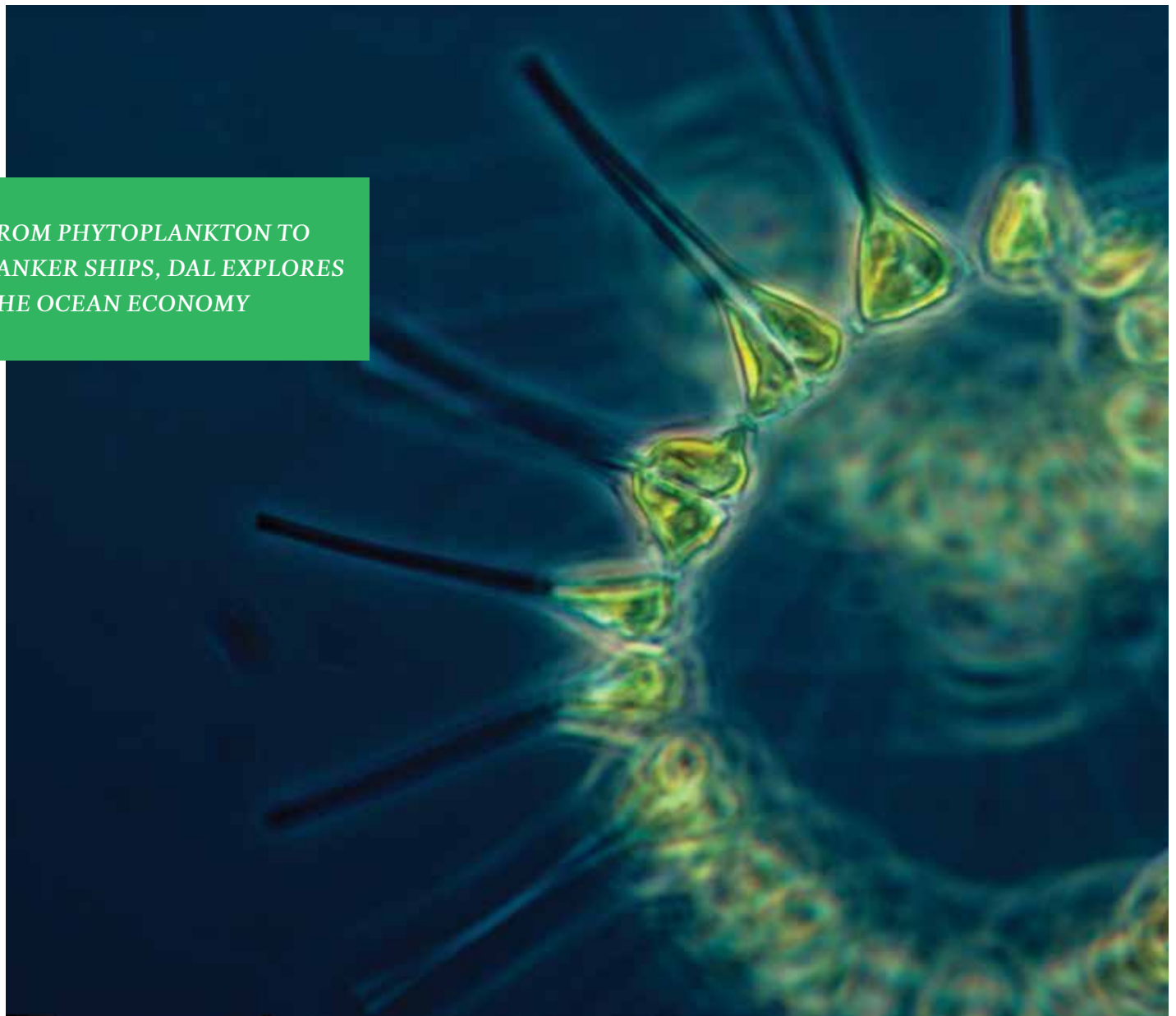


DAL MAGAZINE

SPRING 2015

FROM PHYTOPLANKTON TO
TANKER SHIPS, DAL EXPLORES
THE OCEAN ECONOMY



THE BLUE FRONTIER

STUDENT LIFE SUPERSTARS INVESTING IN AGING PRIZE-WINNING SCIENCE

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BLUE FRONTIER

What role can a university play in developing marine science, technology and management in support of prosperous and sustainable human-ocean relations? By John Cullen and Richard Florizone
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BECKE'S FOCUS

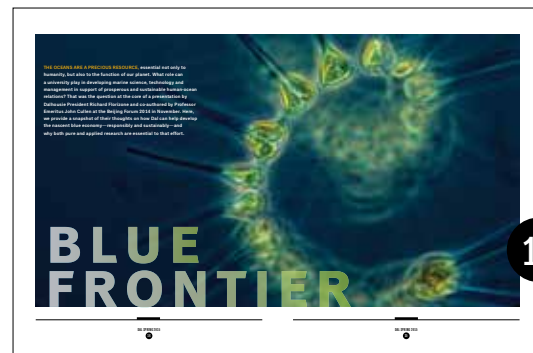
Dr. Axel Becke has spent his career trying to solve one chemistry calculation, in the process becoming one of the most-cited researchers in the world—and now the winner of one of Canadian science's top honours. By Ryan McNutt
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DALMAGAZINE



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EDITORIAL

FOCUS

As writer Ryan McNutt says in his feature on Dal chemist Axel Becke (*Becke's Focus*, p. 22), focus is something that is often in short supply in today's message-inundated world. [Hmm... how many messages are we exposed to every day? I should Google that. Oh look...cat videos... cuuuuute...] Where was I? Right. Focus.

In his book *Outliers*, author Malcolm Gladwell suggested that what separates the amateur from the master—of an instrument, a skill, a field—is about 10,000 hours of practice. There it is again: focus. About 10 years of it.

There are so many things to try in this world. So many possible paths to take. And there is true value in sampling widely, experimenting and exploring. But extended focus brings success, as it has for Dr. Becke, this year's winner of the Gerhard Herzberg Canada Gold Medal for Science and Engineering.

Focus isn't an issue solely for individuals. Institutions succeed when they focus as well, something Dal has demonstrated as the university has developed its focus in the study of oceans (*Blue Frontier*, p. 14). While by no means the university's only focus, achieving a critical mass of expertise in this field—and the facilities, scholars and funding that constitute that expertise—means that as a university, Dalhousie is able to contribute to the study of oceans in deeper and more meaningful ways. The result? Dal is a world leader in the study of oceans.

As Gladwell rightly points out, focus doesn't pay off overnight, and you can't always predict where it will take you. But it does pay off—in new knowledge, new insights and unexpected leaps forward. Dr. Becke is proof of that.

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The Legacy Effect Judy Dunn

“Dalhousie was our family, and it still is. Our hearts remain there. I feel very fortunate to be creating a legacy that will help the university give people that unique Dalhousie experience for years to come.”

Read Judy's story at dal.ca/donors/dunn

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Or get in touch, we're here to answer your questions.

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PG 4



PG 6



PG 8

Student life superstars, girls getting wise and an investment in healthy aging: there's a lot to celebrate in this issue. Plus, read about Dal's new chancellor, our award-winning chef and a new crowdfunding site for university-related projects and initiatives.



SMART WORDS

“DALHOUSIE HAS A CRUCIAL ROLE TO PLAY IN RECOGNIZING THE CONTRIBUTIONS OF BLACK CANADIANS TO THIS CITY, PROVINCE AND COUNTRY.”

Historian, poet and creative writer Dr. Afua Cooper, James R. Johnston Chair in Black Canadian Studies, on the importance of Dal hosting and supporting the only Black Studies chair in Canada.



DAL NEWS

COMMUNITY CONNECTION

Students sleep outside as part of homeless campaign

For the second year in a row, the Dalhousie Commerce Society took part in 5 Days for the Homeless, a national fundraising and awareness campaign focused on youth at risk. For five days in March, students spent their entire week camped outside the Rowe Building. While they could attend their classes, everything they ate or drank had to be donated. They couldn't shower and could only use publicly accessible washrooms. They were equipped with a sleeping bag each and a tarp to avoid the elements.

Funds raised by the students went to Phoenix, a Halifax-based non-profit that offers services and support for at-risk and homeless youth. "We want to help and have an impact on peers and people our age who are experiencing less fortunate circumstances," said fourth-year student Breanne Beckett, the society's community co-chair and also one of the six sleepers. By the campaign's end, the group had raised over \$9,000. —Ryan McNutt



RESEARCH

HEALTH CANADA APPROVES

NEW PSORIASIS DRUG: Cosentyx, a new psoriasis injection and the first treatment of its kind, has been given the stamp of approval by Health Canada. The drug was discovered and tested by an international team of researchers led by Dalhousie Medical School's Dr. Richard Langley. "Using an antibody called secukinumab, we showed that for more than 80 per cent of patients, the secukinumab injection cleared up skin lesions," says Dr. Langley. In one of the largest psoriasis studies ever reported, the antibody proved to be almost twice as effective as some other psoriasis treatments currently on the market and achieved unprecedented levels of clearing even in severe cases. —Allison Gerrard

EVENTS



The Schulich School of Law put Lewis Carroll's *Alice* on trial for its fifth annual Weldon Literary Moot. The event sees local actors and Dal law students and faculty perform a mock trial based on a famous piece of literature. The event raises funds for Halifax Humanities 101, an organization that aims to make university humanities accessible to everyone regardless of financial, social or other barriers. Pictured are local actors Sean Skerry (left) and Bill Wood (right). —Rosalie Fralick

PREVENTING DISASTER AFTER

OIL SPILLS: Deep-water oil spills are messy and dangerous and cleanup efforts can take anywhere from days to years, with huge environmental impacts. But what if there were accurate models to predict where oil will spread so cleanup could be targeted to specific areas? That's what one Faculty of Agriculture researcher is working on. Dr. Haibo Niu of the Department of Engineering is looking at ways to improve oil spill models that are used for predicting the spread of oil in the ocean after a deep-water oil spill, and is conducting experiments that will help him develop computer models to predict the trajectory of such spills. His project is funded by MEOPAR, the Marine Environmental Observation, Prediction and Response Network. —Emma Geldart

WHY I DO IT

ROOTED IN DAL

NAME: Anne McLellan

POSITION: Chancellor

HER BACKSTORY: Dalhousie's newest chancellor has served at the highest levels of government (including as Deputy Prime Minister), has taught in the halls of academia and has donated her time and energy to countless causes across the country. But no matter where Anne McLellan's career has taken her, she's been guided by the experiences she had as a Dalhousie student. McLellan first came to Dal from Noel Shore, Hants County, N.S. as an Arts undergrad in 1968; she subsequently earned her Law degree from Dal as well. She credits Dalhousie and studying at university in the late '60s and early '70s as being a crucial part of developing her feminist worldview: "Dalhousie provided someone like me the opportunity to think about doing things, being things, going places that I would not have thought possible."

HIGHLIGHTS: "Much of my career has been focused on public life, whether teaching or serving in government. I see becoming chancellor as an extension of that public service: it's a role in which I can articulate the values of Dalhousie, share my commitment to the university with others—particularly students—and hopefully build enthusiasm for post-secondary education in general and post-secondary education at Dalhousie in particular."

WHY SHE DOES IT: "Dalhousie has big ambitions. It's an institution that has, in many areas, punched above its weight," says McLellan. "I think we want to build on our areas of strength, but also identify new areas where we can be national and global leaders. This, in turn, will attract students, interest and support from around the world." She hopes that, as chancellor, she can play a small part in helping shape and share that exciting future. "I hope that I'm able to bring the perspective of a woman who has had the opportunity of a first-class education and who then was able to use that education in ways that have contributed to our collective well-being." —Ryan McNutt



"Dalhousie has been such an important part of my life, and the opportunity to give back as chancellor is one I would have never expected, but it's a great privilege."

DAL NEWS

COMMUNITY CONNECTION

Ag Campus inspires the next generation of female scientists

More than 30 junior high girls from Truro and surrounding areas—some from as far away as Halifax and Amherst—attended the first Girls Get Wise science retreat on Dal's Agricultural Campus in March, hosted by the Female Leaders in Academia (FLIA) group. The retreat welcomed girls from grades 7-9 and featured hands-on experiments as well as mentorship sessions with female professors and graduate students.

Girls Get Wise is a program that exposes students to the fields of science, technology, engineering and math. This was the first such event at the Faculty of Agriculture and was initiated by Dr. Sarah Stewart-Clark, an aquaculture professor and leader of the FLIA group on campus.

Explained Rachel Rix, a Master of Science student participating in the event, "I hope these events help young girls who are interested in sciences and engineering to not be afraid to pursue their passions. These girls can see that they are not alone in their interests." —Robyn McCallum



The Girls Get Wise science retreat at the Agricultural Campus gave girls from grades 7-9 hands-on exposure to science experiments and time with female professors and graduate students.

JUST THE FACTS

A legacy in public policy education

During his lifetime, James (Jim) Palmer (LLB'52) was fiercely passionate about public policy and how to make the world a better place—and his commitment to both passions was unwavering. Now, a \$3 million gift from the Palmer family will establish the James Palmer Chair in Public Policy and Law in the Schulich School of Law. The chair will increase the role for both the School and Dalhousie more generally in furthering public discourse and engaging in sound public policy research, a true testament to Mr. Palmer's legacy.

"The Palmer Chair will provide intellectual leadership at the law school and will be actively engaged in projects that have an impact in public policy and law locally, regionally, nationally and internationally," said Dean Kim Brooks in announcing the gift. The chairholder, who is expected to be announced in spring of 2016, will contribute to undergraduate and graduate teaching alongside a research agenda and many other initiatives. —Fallon Bourgeois

#

BY THE NUMBERS

Aging investment

A major study that will provide in-depth understanding of aging has been awarded a \$41.6 million grant from the Canadian Institutes of Health Research to continue its work for the next five years. The most comprehensive study of aging ever undertaken in Canada, the Canadian Longitudinal Study of Aging is led by researchers at Dalhousie, McMaster and McGill universities. Dr. Susan Kirkland of Dalhousie Medical School's Department of Community Health and Epidemiology is one of the three principal investigators. "This landmark study will provide information on the ways in which we can address health outcomes that matter to people—such as maintaining quality of life and independence—as well as contribute evidence that can be used to make improvements to the health-care system to meet the needs of this growing population," says Dr. Kirkland. —Allison Gerrard

20

The number of years the study will collect information on the changing biological, medical, physical, social, environmental and economic aspects of people's lives as they get older

50,000

The number of Canadians being followed under the program

4,500

The number of Nova Scotians being followed

ORIGINAL

WORD POWER

NAME: Bobby Macpherson

ACCOMPLISHMENT: Founder of Dal Gets REAL

THE BACKSTORY: Get REAL is a student-organized movement trying to “unlearn” homophobia in high schools across the country. Since it began in 2011, the movement has spread to campuses from West to East, arriving at Dalhousie in 2014, thanks to third-year History major Bobby Macpherson.

Macpherson says he was a pretty shy kid in high school. Day-to-day he’d hear peers use all-too-common phrases like “that’s so gay” and “you’re a fag.” He knew those words hurt, but was afraid to speak up. “It was difficult hearing people use that language and staying in the shadows telling myself not to challenge it, not to put myself out there.”

That changed last year when Macpherson was browsing YouTube. He watched some Get REAL videos and felt compelled to contact the movement’s founder to volunteer. Before long, he’d started a Get REAL chapter at Dalhousie.

That was last summer; now Macpherson’s team is quickly growing and they’re working toward putting on their first in-school session—where team members share their own experiences with high school students—at Citadel High School in Halifax.

IN HIS OWN WORDS: “With Get REAL we’re trying to put an emphasis on how easy it is to unlearn this language. We try to show students how small changes in word choice can help make these terms extinct. We think targeting a younger audience will really help curb the use of this unacceptable language that is all too common.”

WHAT’S NEXT: Macpherson’s team hopes to have its first in-school session before the high school summer break. After they make the rounds in Halifax they hope to speak at high schools all over the province during the 2015/16 school year. —Tyler LeBlanc



Macpherson’s team is working toward putting on an in-school session—where team members share their own experiences with high school students

DAL NEWS

THE LIST

STUDENT LIFE SUPERSTARS

You could call them "lifetime achievement awards" for student life: the Dalhousie Board of Governors Awards celebrate students' contributions to the quality and vitality of the university through both academic and extracurricular accomplishments. This year's recipients embody the Dal spirit at its absolute best.

KRISTY MCGREGOR-BALES, fourth-year Recreation Management student and captain of the Tigers varsity women's soccer team, holds a long list of impressive on-field accomplishments as well as having held several key leadership roles within Dalhousie Athletics, including co-president of the Special Tigers Society. The society runs events where youth with intellectual disabilities partner with Dal varsity athletes to share their love of sport. "I learned so much about leadership, communication, resilience and time management, all through my sport experiences," says McGregor-Bales. "I want to give back in the same way; that's where my passion lies."

XINYU (LOKIY) WANG has been heavily involved in both the Dalhousie Chinese Student Scholars Association and the Dalhousie International Students Association, but she's particularly proud of her role within the Commerce Society, where she was the first international student to serve on the society's executive. Together with faculty member Dr. Linda MacDonald, Wang also started the Faculty of Management's International Student Success Program, offering supports to international and exchange students, including hosting events to bring the Dal community together in celebration of its diversity. "I've gotten

to see international students feeling like they have more of a place within our program and it's great that another international student will be following me on the executive of the Commerce Society," says Wang.

MAHBUBUR RAHMAN says the thought "I'm in Canada, why not make the most of it?" motivated him to get involved both on campus and beyond in a wide range of volunteer activities. The Master of Civil Engineering student started his degree two years ago, leaving his native Bangladesh to seek new opportunities. While at Dal, he's been the vice-president finance of the Dalhousie Engineering Graduate Society and through the Dal Connects program has volunteered with the YWCA, Immigration Settlement & Integration Services and many other organizations. This year, he's served as vice-president academic of the Dalhousie Association of Graduate Students, president of the Dalhousie Bangladesh Society and president of the Halifax Student Housing Society, which runs the Dal-owned Peter Green Hall, and been hired as DSU vice-president finance and operations. "I work with so many great student groups and communities in the university and I feel privileged to have so much opportunity to do so," says Rahman.

OWEN JOHNSTONE felt he'd found the right academic program—the Veterinary Technology diploma at Dal's Faculty of Agriculture—but the long-time organizer and volunteer within the LGBTQ community worried about homophobia. Still, despite receiving a nasty email after responding to a roommate ad in town and hearing about homophobic bullying directed at another student, John-





RESEARCH

RESEARCH AIMS TO REDUCE PHARMACY

ERRORS: A new project headed by Dr. James Barker, a professor in Dalhousie's Faculty of Management, aims to reduce errors in pharmacies by analyzing and sharing mistakes with pharmacists with the goal of helping to improve best practices. The work is being conducted in partnership with

SafetyNET-Rx, a network designed to support open dialogue among pharmacies, the government, patient safety advocates and university researchers. Its website offers a portal through which information can be shared and then disseminated to the pharmacists and the public. It also provides a safe area for pharmacists and the public to talk about mistakes and learn from them. Partners in

SafetyNET-Rx include representatives from Dalhousie, Saint Francis Xavier University, the University of Cincinnati, provincial pharmacists and the government as both funders and regulators of the project. Through Dr. Barker's project, a large-scale survey will be undertaken to start refining and improving the error-reporting system. —Misha Noble-Hearle

JUST THE FACTS

Sharing the goal of a safe, healthy campus

Dal's Environmental Health and Safety Award recognizes individuals or groups who have undertaken activities that make Dalhousie a safer place in which to live, play, work or study. The most recent recipients are WorkSAFE@Dal—a collaboration between Custodial Services and the School of Occupational Therapy—and the Killam Library's Health and Safety Committee.

WorkSAFE@Dal is aimed at reducing work-related injuries. Under the program, Occupational Therapy students Taylor Corning and Braydon Connell shadowed workers who had previously had work-related injuries, analyzed their job demands and compiled findings that will enable Facilities Management to identify activities that could exacerbate previous injuries. As the project moves ahead, additional OT students will be studying custodians' work in residences.

The Killam Library's Health and Safety Committee has launched a number of new health and safety initiatives in the past year, including a total ergonomic assessment of Killam staff and a detailed fire and life safety audit to identify any deficiencies in the building and fire codes. They have also supported the acquisition of an automated external defibrillator (AED) and initiated AED training sessions. —Lauren Salim and Michele Charlton

stone believed that his new hometown could do better. He decided to start DALOUT Truro, a student society that works to create a space for LGBTQ students to meet, and to keep the campus safe and supportive. He's also been heavily involved in the Vet Tech program, serving as president of its student society and, together with Student Services, helping to organize a peer-tutoring program.

RANDII-LYNN SULLIVAN's Dalhousie experience isn't quite what she expected when she arrived on campus six years ago—and it's all been for the better. The Dryden, Ont. native hoped to join the varsity women's hockey team, but didn't make the cut. Still she moved forward, getting involved in the residence council, working as a residence assistant (RA) and not looking back from there. Now, as she nears the end of her second Dal degree (a Bachelor of Social Work, following her Bachelor of Science in Psychology), she's also completing her fifth year as an RA across three different residences, including three years as senior residence assistant. In addition, she's participated in a plethora of community and volunteer activities, from co-chairing the Think Pink Breast Cancer Fundraiser to volunteering with Habitat for Humanity, Change for Children, the Make-a-Wish Foundation, Feed Nova Scotia and more. She's also been a peer advisor with Dal's Career and Leadership Development Centre. "My life here at Dal has taken so many different twists and turns, and what I've learned is that one person can make a difference," she says. "You don't always have to aim big: sometimes it's the small acts that make a real difference." —Ryan McNutt



**"You don't
always have
to aim big:
sometimes
it's the small
acts that
make a real
difference."**

DAL NEWS

NOTES

Ag alumni named Atlantic Outstanding Young Farmers for 2015

David and Sara Simmons, both Faculty of Agriculture alumni (Class of '07 and '05 respectively), have been named Atlantic winners in Canada's Outstanding Young Farmers Program. The program awards farmers aged 18–39 who have demonstrated excellence in their profession and who help to promote agriculture. It recognizes farmers based on production history, business management and community involvement.

David (32) and Sara (30) own Pure Holsteins, a dairy farm based in Little Rapids, Newfoundland.



Ag alumni David and Sara Simmons, Atlantic winners in Canada's Outstanding Young Farmers program, own Pure Holsteins in Little Rapids, Newfoundland.

They milk 100 cows, have 85 heifers and lease 60 acres of pasture from Hammond Farm, owned by David's family. They've also had cows place in the top 10 at the Royal and the World Dairy Expo.

The pair came from farm families. Together, they purchased their dairy equipment from Hammond Farm in 2011 and have worked since then to grow their operation. "Starting a business is challenging in itself," Sara explains. "We had some growing pains, being young and inexperienced with the financial side, but they have only taught us life lessons." —Emma Geldart

Crowdfunding site launches new era of fundraising at Dal

A new online tool is offering the Dalhousie community a new way to raise funds for university-related projects and initiatives such as academic trips, bursaries or buying athletic equipment. Hosted by External Relations, the projectDal crowdfunding website went live in March. "Crowdfunding sites allow you to tell your story and reach out

to donors in dynamic ways that previously weren't possible," says Kim McDonald Winsor, director of annual giving. She notes that projectDal is unique compared to many public crowdfunding sites in that all donations are charitable and all funds raised go directly to the recipients. "On some sites, there's a fee associated with each transaction. With projectDal, there's no charge. If you donate \$100, that full amount goes to the project involved, so they keep every dollar raised." Anyone from the Dal community—staff, faculty, students, alumni—can create a university-related fundraising campaign on the website. Once the project is approved, fundraisers can also access assistance from External Relations to launch their campaigns. To learn more, visit projectdal.ca. —Mark Campbell

Dal chef wins national competition

Mike Silvester, executive chef for Dal's main food services provider on the Halifax campuses, is



Dal executive chef Mike Silvester took home top prize in the Aramark Chef Competition.

the winner of the 2015 Aramark Chef Competition. Since joining Dal two years ago, Silvester's passion for food that's local, sustainable and nutritional has had a big impact on the campus' offerings, a commitment that may have given him an edge. The competition featured Aramark's top chefs across its various divisions (universities, corporate, catering and more) and involved constructing a menu using Canadian pulses (legumes, peas, lentils and beans) and sustainable fish, ingredients Silvester enjoys using.

Under his leadership, Dal is at the forefront of the sustainable seafood movement, having recently become the second Canadian university to be granted

the Marine Stewardship Council Chain of Custody certification. Dal is also a partner in the Ecology Action Centre's "Off the Hook" program.

So what was Silvester's winning creation? Seared bacon and leek crusted cod, with white bean cake, spinach and brown sugar pears. That main course was then paired with a dessert of warm lentil chocolate cake with vanilla bean whipped cream. As winner, Silvester gets to travel to Napa Valley for the World of Flavours conference at the Culinary Institute of America.

—Emma Skagen

Corrections

In our Winter issue, we incorrectly indicated that a photo on page 10 showed Truro Bearcats Coach John Kibyuk. In fact, pictured was Truro Bearcats owner Stu Rath. Also in that issue, in our story "Mentorship program links students, non-profits" on page 13, we failed to identify Canadian Mental Health Association co-manager of the Halifax–Dartmouth Branch, Marg Murray, who was pictured with student Catherine Giffin. Our apologies for these errors.

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NEWCOMERS, NEW KNOWLEDGE



Whether it's investigating immigration trends and realities or providing services that help newcomers to Canada, Dal researchers are constantly exploring our changing nation. By Matt Semansky



RESEARCH BY HOWARD RAMOS SHOWS HOW NEWCOMERS TO CANADA MAKE A POSITIVE SOCIAL AND ECONOMIC IMPACT.



DAL EXPLORES THE BIG PICTURE

1 REALITY CHECK

Perceptions about immigrants and immigration in our society often don't square with reality, as the research of political sociologist Howard Ramos proves. Dr. Ramos has helped show how newcomers to Canada make a positive social and economic impact. His research also challenges Canada's "econo-centric" immigration system. For example, recent news shows that refugees are more likely to pay taxes and contribute to the labour force in their communities than the "millionaire migrants" favoured by current policies.

2 LOCAL IMPACT

In 2009, Kristin Good became the first female recipient of the Canadian Political Science Association's Donald Smiley Award for the best English-language book about Canadian politics, for *Municipalities and Multiculturalism: The Politics of Immigration in Toronto and Vancouver*. Her research since then has continued to focus on the role of local governments in receiving immigrants and shaping immigration policy. The political science associate professor's current project looks at nine Canadian cities with varying growth rates and ethno-linguistic makeups and how these factors affect local policies and politics.

3 HEALTH STATUS

Constance MacIntosh, associate professor of law and the director of the Health Law Institute, explores how health status, including disability, affects decisions about whether a person is permitted to immigrate and how the state responds to refugee health needs. "An objective of my research is to ensure the needs of migrant communities, who may not be able to petition on their own behalf, are not rendered invisible in law and policy debates."

ONE ON ONE

CONFIDENT SPEECH

It's one thing to read, write and understand a language, but something else to speak it. "We liken it to playing the piano. You have to train your muscles to work in certain ways," says Michael Kieffe of the School of Human Communication Disorders and director of the Dalhousie Accent Modification Clinic. The clinic, the first of its kind in Atlantic Canada, opened in 2013. The goal isn't to eliminate accents. Rather it is to help people who have learned

English but have trouble being understood due to their accents. Speech language pathologist Cindy Dobbblesteyn works with clients to build communication competence and confidence.

A HEALTHY SMILE

A few years ago, Heather Doucette, a course director for second-year students in Dental Hygiene, partnered with the Immigrant Services Association of Nova Scotia (ISANS) to invite interested newcomers for free dental hygiene

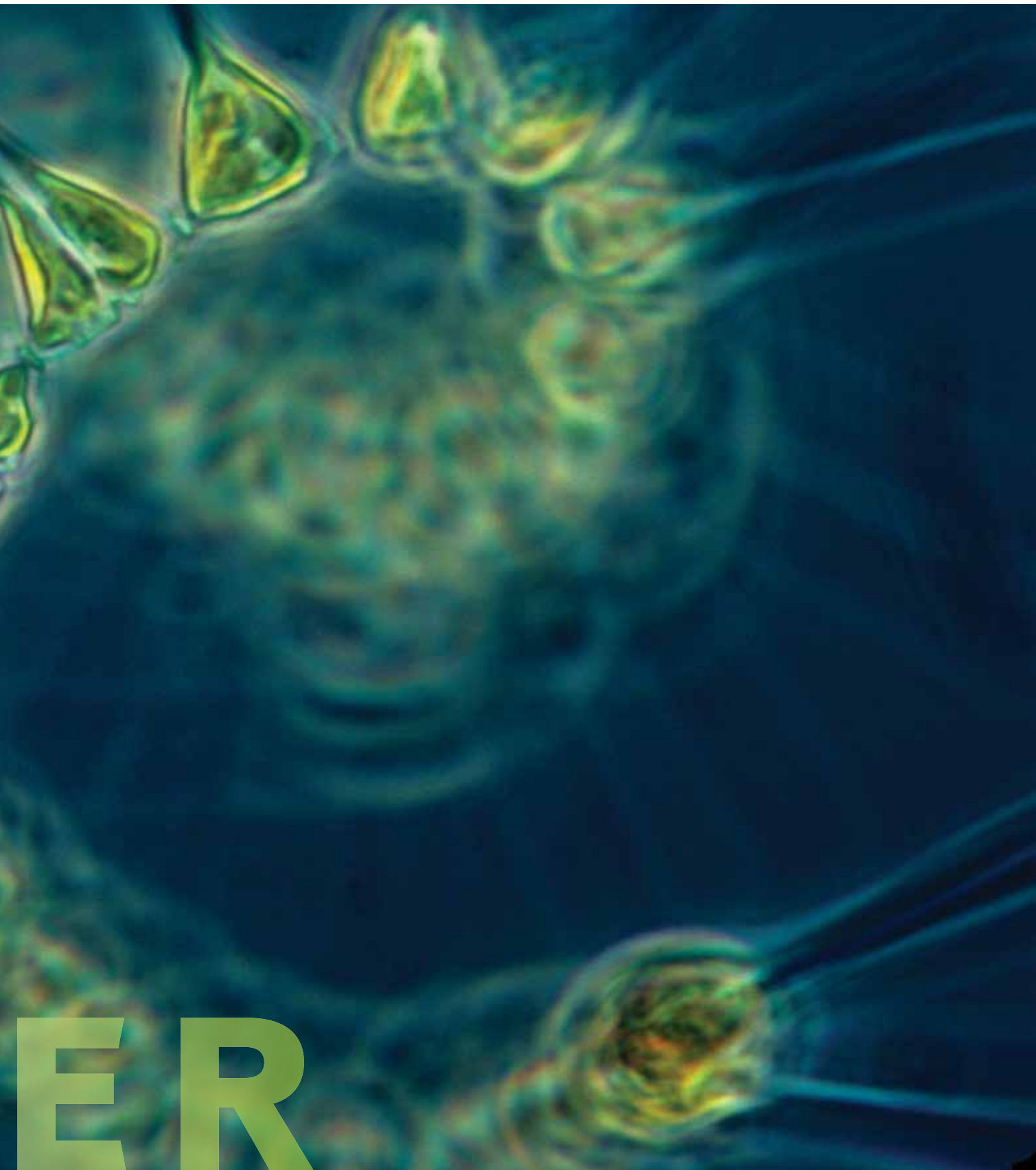
appointments with her students. The patients receive a cleaning and evaluation and the students learn how to navigate language barriers and dental issues they're not used to seeing. Doucette is hoping to conduct research into the impact of the program in immigrant communities, but anecdotally, she knows "there are always members of the immigrant population asking to come because they've heard good things about the treatment from others who have been here."

CONSTANCE MACINTOSH, DIRECTOR OF THE HEALTH LAW INSTITUTE, EXPLORES HOW HEALTH STATUS AFFECTS DECISIONS ABOUT WHETHER A PERSON IS PERMITTED TO IMMIGRATE.



THE OCEANS ARE A PRECIOUS RESOURCE, essential not only to humanity, but also to the function of our planet. What role can a university play in developing marine science, technology and management in support of prosperous and sustainable human-ocean relations? That was the question at the core of a presentation by Dalhousie President Richard Florizone and co-authored by Professor Emeritus John Cullen at the Beijing Forum 2014 in November. Here, we provide a snapshot of their thoughts on how Dal can help develop the nascent blue economy—responsibly and sustainably—and why both pure and applied research are essential to that effort.

BLUE FRONTI



DAL SPRING 2015



AS TECHNOLOGY ADVANCES

and societies develop, economic use of the ocean expands and diversifies. Opportunities come from technological innovation that, if implemented in a framework of sustainability, can develop the nascent blue economy. Tides, waves and wind can provide green energy; aquaculture—possibly including new applications onshore and in open waters offshore—can potentially provide sustainably produced, high-quality food to supplement capture fisheries; new technologies can be used to exploit previously inaccessible resources such as hydrocarbons and minerals in the deep sea and other extreme environments; and advances in shipping technology can greatly increase the efficiency and safety of marine transport while reducing emissions and pollution, including unwanted transport of invasive species in ballast water.

New opportunities for uses of the ocean come with risks, especially if long-term sustainability is not factored in to the development and implementation of new technologies. It is imperative, but difficult, to minimize threats that are at the forefront today, ranging from degradation of ecosystems through overfishing to pollution and invasive species to the hazards of wind, waves, currents and ice. Global change complicates risk management and environmental stewardship because economic use of marine resources is expanding rapidly while the ocean and its ecosystems are changing, subject to natural variability that is increasingly influenced by human activities at the local, regional and global scales.

The challenges of marine management in a rapidly changing world are daunting, but the notion of a blue economy embraces them. Guided by evidence-based research, technology and marine management must advance together. International cooperation is centrally important, recognizing that both prosperous development and environmental sustainability are possible in a new era of human-ocean relations.



THE UNIVERSITY AS HUB FOR OCEAN STUDIES

It is critical that communities work together now—across sectors, regions and nations—to develop and implement strategies for sustainable relationships between humans and the ocean. The natural sciences and technology provide the foundations for responsible development and stewardship of the ocean and its resources; the social sciences, policy and law link evidence and inventions to responsible practice. Universities have a central role in this process. As long-established centres for teaching, learning, research and discovery, they are pivotal in society's efforts to build a sustainable and prosperous future for humankind in relation to the ocean.

Dalhousie has emerged as a national and international centre of expertise in ocean studies, committed to active engagement in the development of marine science and technology in order to achieve sustainable development of the ocean. Our experience provides an example of how the modern university can work with the public, industry and governments to support sustainable use of the ocean in an increasingly complex world.

More than 50 years ago, Dalhousie identified ocean studies as an area of special expertise and established the first Department of Oceanography in the country. Its founder, Gordon A. Riley, is widely recognized as one of the most influential oceanographers of the 20th century, particularly noted for his development of marine ecosystem models that are centrally important to marine prediction and climate change research today. Subsequently, innovative programs of study in marine law and marine affairs were established. Dalhousie developed world-leading programs of research in marine biodiversity, conservation, and observation and prediction systems, among others, while the number of faculty in ocean-related teaching and research increased to more than a hundred, spanning the disciplines of agriculture, computer science, engineering, law, management, natural sciences and social sciences. Dalhousie's faculty are among the world's top experts in ocean-related topics that span disciplines, socio-economic sectors and geography, and the university's graduates are making a long-term impact on marine science, policy and economic development worldwide.



THE IMPORTANCE OF PARTNERSHIPS

This development of Dalhousie's capabilities in marine studies has been systematically fostered through strong partnerships with governments and non-governmental organizations, industry and academic institutions nationally and internationally. Partnerships provide complementary perspectives, expertise and relevance (not to mention resources) to the university's mission of teaching, learning, research and discovery. Recent examples include:

- The Marine Environmental Observation, Prediction and Response Network (MEOPAR), a cross-Canada team of university and government researchers working to help reduce Canada's vulnerability and exposure to hazards and to improve responses to marine emergencies.
- The Ocean Tracking Network, sometimes called "the ocean's Internet," a global partnership to collect, store, share, analyze and use aquatic tracking and environmental data to support sustainable management of valued aquatic species.
- The Transatlantic Ocean System Science and Technology (TOSST) research school, linking two major centres of ocean research in Canada and northern Germany to train graduate students and to promote the ability to manage deep-sea and open-ocean environments.
- The NSERC-Cooke Industrial Research Chair in Sustainable Aquaculture, a partnership between a leading aquaculture researcher and a major integrated aquaculture corporation.
- Fish-WIKS (Fisheries—Western and Indigenous Knowledge Systems), a research partnership including indigenous and non-indigenous scholars from universities and indigenous governance and research institutions.

FAST FACTS

Dalhousie University is a national and international centre of expertise in ocean studies, committed to active engagement in the development of marine science and technology in order to achieve sustainable development of the ocean.



Aquaculture now accounts for about one-fourth of the world's annual marine harvest and is steadily increasing.

LARS-OLOF JOHANSSON/PLAIN PICTURE



More than
nine billion
tons of goods
are loaded for
ocean shipping
each year.

The ocean occupies
71 per cent of the
Earth's surface and
is critically important
to global climate
and ecology.

Marine phytoplankton
convert the sun's energy
to food for life in the
sea and in the process
produce half of all the
oxygen generated by
plant life on earth.

More than three
billion people live
within 150 km of the
coast—more people
than inhabited the
entire planet in 1950.

The ocean has absorbed
more than a fourth of the
carbon dioxide generated
by human activities over the
past century, mitigating the
effects of human-caused
climate change.

Changes in ocean circulation

such as El Niño regulate regional
and global climate in ways that
can have profound influences
on ecosystems, economies and
societies.



SCIENTIFIC FOUNDATIONS FOR SUSTAINABLE DEVELOPMENT

Universities can and should pursue targeted areas of applied research, but to truly thrive they *must* remain as centres for pure, curiosity-driven research, growing the reservoir of knowledge from which humankind can draw in the decades and centuries ahead.

Our base of knowledge must be continually expanded by observation, discovery and explanation—that is, exploration (or basic) research. Exploration research is driven by curiosity in its most positive sense. Targeted research can follow a similar path, yielding valuable results of immediate importance. But by definition, exploration of the unknown creates new knowledge, the fuel of innovation.

There are many possible examples to illustrate how fundamental research has expanded knowledge of the ocean and earth systems, with important implications for sustainable development. One is the story of fisheries scientist and marine conservation biologist Ransom A. (RAM) Myers and his research on the decline of fisheries. A mathematically gifted and passionate scientist, Dr. Myers began his career working for Canada's Department of Fisheries and Oceans. Dr. Myers and his co-authors felt morally obliged to communicate to the media their scientifically-grounded conclusions about the link between excessive fishing and the collapse of the once-massive northern cod fishery. Reprimanded by his bureaucratic superiors, Dr. Myers moved to Dalhousie in 1997 as its first Killam Chair in Ocean Studies, attaining the right of freedom of expression. During the following decade, he, his students and his colleagues had an enormous impact on the study of fisheries and biodiversity, helping to found the field of fisheries conservation biology. His success, tragically cut short (he died of inoperable brain cancer in the prime of his career), showed how science explained effectively to society can help humanity to live in harmony with the ocean during the new era of the blue economy. Universities have an important role in preserving the freedom to explore and explain.

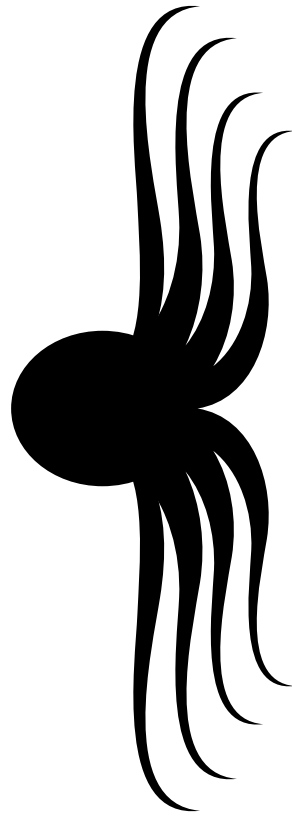


THE SOURCE OF NEW IDEAS TO ADDRESS EMERGING OPPORTUNITIES

Another example: a technical and scientific challenge of immediate commercial and environmental importance, ballast water treatment, illustrates the dependence of problem solving and innovation on the reservoir of knowledge that accumulates through exploration research. Widespread recognition of the threat of invasive species transported by ships has led to global response and the adoption of an international convention that will require all ships to implement a ballast water management plan consistent with International Maritime Organization (IMO) guidelines. In turn, vessels sailing in United States waters will be required to meet ballast water discharge standards created by the U.S. Coast Guard (USCG), which have similar objectives but a different criterion for validating the effectiveness of treatment: The IMO set standards for maximum number of “viable” cells discharged by ships whereas the USCG regulates the discharge of “living” organisms. This seemingly subtle distinction has profound implications: Treatment with ultraviolet radiation (UV), a proven technology for wastewater sterilization, is demonstrably effective for disinfecting ballast water of microscopic plankton. However, UV renders these organisms harmless by damaging DNA so they are incapable of reproduction—they are not viable and can't invade ecosystems, but they retain some signs of life and can appear to be “living” in USCG assays.

The “living” versus “viable” issue presented a challenge and an opportunity to ballast water treatment industries using UV, including Canada's leader in UV treatment, Trojan Technologies. Working with Trojan in a research partnership supported by government, Dalhousie researchers Hugh MacIntyre and John Cullen are addressing the esoteric but critically important distinction between living and viable phytoplankton in a comprehensive program of highly targeted research, the results of which are providing scientific evidence that can pave the way to improved regulations for the protection of coastal ecosystems and the commercial success of UV-ballast water treatment technology. Importantly, the scientific and technical foundations of this program of applied research came from diverse studies that had little or nothing to do with the intentional killing of plant life or any other commercial venture. Exploration research over decades provided the knowledge to respond to an immediate need; solutions for tomorrow's problems will surely depend on continued investigation of the unknown.

5



SUSTAINABLE OCEAN DEVELOPMENT IS A CHALLENGE BECAUSE:

- multiple stakeholders interact with the marine environment at local, regional, national and global scales;
- ecosystems do not respect jurisdictional boundaries; and
- the open seas are a common heritage of all.



For a downloadable colour PDF of the Fast Facts poster on pages 18-19, go to www.dal.ca/news/2015/06/12/bluefrontier.html.

THE UNIQUE ROLE OF UNIVERSITIES

As institutions committed to excellence in teaching, learning, research and innovation, universities have a unique role in partnerships for a sustainable future. They must continue to serve as the reservoirs of knowledge that may or may not have immediate application and also as the founts of new discoveries that will be required to sustain innovation and environmental solutions in the future. A thriving, globally competitive university absolutely needs to take a balanced approach, pursuing both targeted research and pure curiosity-based research. Without the former we risk our engagement and direct connection with broader society; without the latter we would lose our ability to illuminate, investigate and address the unknown. Society critically needs both.

This article is a condensed and edited version of a paper authored by Richard Florizone and John J. Cullen and presented at the Beijing Forum 2014 in November 2014. To read the full text of the paper, go to www.dal.ca/news/2015/06/12/bluefrontier.html.





NATURAL SCIENCES AND ENGINEERING RESEARCH COUNCIL OF CANADA (NSERC)

Dr. Axel Becke has spent his entire career working on one fundamental challenge in theoretical chemistry. While he hasn't found a perfect solution—yet—the formulas he continues to hone have become foundational for the work of thousands of other researchers, making his work among the most-cited in the world. And now he's been awarded one of Canadian science's top honours. By Ryan McNutt

Becke's *focus*

WE LIVE IN RESTLESS TIMES. Our thoughts flutter (and, in some cases, Twitter) throughout the day in rapid-fire succession. With the world at our fingertips, our patience with media has never seemed more fleeting and our thirst for information and connection never less satiated. New graduates leave campus prepared to navigate a complex world, one rife with opportunities to pique their curiosity and test their problem-solving skills.

Career academics share that curiosity, and certainly the taste for problem solving, but what sets them apart is the ability and patience to focus: to channel their curiosity and problem-solving skills to produce insights and discoveries that can, quite literally, change the world as we know it.

Take, for example, Axel Becke. He isn't a household name—unless you live in a household of chemists, that is. But over a career spanning 30-plus years, the Dalhousie professor has become one of the most influential researchers in the world. And he's done so focused almost entirely on a single problem in quantum theory.

That's right: one problem.

Admittedly, it's one heck of a problem. For his entire career, Dr. Becke has been working on models and approximations for an incalculable energy term within what's known as the "density-functional" theory of electronic structure: a faster, more intuitive way of calculating the properties of chemical systems and materials. The theory began to gain traction in the 1970s and 1980s, when Dr. Becke was completing his master's and doctoral studies.

"We were like a band of outsiders, working on a new theory for the sake of fundamental understanding," says Dr. Becke. "Now, it's used in over 80 per cent of electronic structure calculations in chemistry."

And that's thanks, in no small part, to Dr. Becke's research. Today, whether you're a drug researcher trying to improve people's health or a chemist working to create a better solar panel, you're probably using chemistry software employing Dr. Becke's ideas and formulas. In many cases, you may be pressing a button that even has his name or initials on it in a commercial program—and citing his publications in your own papers, adding to the more than 100,000 academic publications so far that reference Dr. Becke's research. Last year, the scientific journal *Nature* ranked two of Dr. Becke's articles in the top 25 most-cited academic papers of all time, across all disciplines—both of them solo publications. One is in the top ten.

"My colleagues, even those who are not theoreticians, tell me, 'everyone knows your name. You're famous,'" he laughs.

DR. BECKE CERTAINLY ISN'T THE TYPE TO SEEK OUT FAME. In fact, he's not much for the spotlight at all. Earlier this year, when it was announced he was receiving the Natural Sciences and Engineering Research Council of Canada's Gerhard Herzberg Gold Medal—perhaps our country's highest award for scientific research—he participated in only a handful of media interviews, preferring to leave much of the talking to his peers.

"He'd rather be back in Halifax, sitting at his desk and thinking about the big problem," said Russell Boyd, Chemistry professor emeritus at Dalhousie and professional mentor to Dr. Becke, speaking to the Halifax *Chronicle Herald* about his colleague's accomplishments.

Still, Dr. Becke did take a break from his work to travel to Ottawa in mid-February so the Governor General could present him with the

Herzberg Medal at a Rideau Hall ceremony. It marked the second time in two years a Dalhousie professor made the trip; molecular biologist Ford Doolittle was the 2013 recipient of the award. The medal celebrates sustained career excellence and influence in research. Dr. Doolittle was the first researcher from Atlantic Canada to receive the award, making Dal's back-to-back honourees even more exceptional.

For Dr. Becke, the prize both celebrates his impressive career as it heads to a close and serves as welcome recognition from the funding agency that has made his research possible.

"It's such a huge honour," he says. "And it's been granted to me by the funding agency that's supported me throughout my career, beginning with my graduate studies. So that's really special."

Dr. Becke is no stranger to awards and honours. He's held a Canada Council Killam Research Fellowship. He's a fellow of both the Royal Society of Canada and the Royal Society of London. He's received medals from the International Academy of Quantum Molecular Science and the World Association of Theoretical and Computational Chemists. He was the first Canadian ever to receive the Theoretical Chemistry Award of the American Chemical Society. This June, he'll receive the Chemical Institute of Canada Medal, the country's highest chemistry prize.

Not a bad haul for a career focused on a single problem.

DR. BECKE'S SCIENTIFIC PATH BEGAN IN HIS CHILDHOOD. His parents encouraged a love of the sciences from a very early age; his father was a scientific glassblower, crafting chemical glassware for McMaster University and solid-state-chip manufacturing glassware for Nortel Networks.

"They would buy me chemistry kits, electronics kits, science books for Christmas," Dr. Becke says of his parents. "I had the LEGO and Meccano sets and everything else."

His journey to theoretical chemistry in particular was a long and winding one. His bachelor's degree was in engineering physics, but he found he was more interested in where the formulas came from than in



Today, whether you're a drug researcher or a chemist, you're probably using chemistry software employing Dr. Becke's ideas and formulas.

Driven by curiosity

applying them. That led to graduate work in nuclear theory, where he was somewhat frustrated by the lack of useful predictive power.

"In nuclear physics the forces between neutrons and protons in nuclei are quite complex and difficult to work with," he explains, "but the forces between electrons in atoms, molecules and in all materials are simple. So I liked that there was the potential to actually compute good numbers and make accurate predictions in quantum chemistry."

Or so he thought. It turned out that the methods used at the time to compute molecular structures and chemical reaction energies were incredibly cumbersome: slow, complicated and requiring a great deal of effort to accurately calculate something as simple as a molecular bond energy—the most basic of chemical concepts. Dr. Becke believed there was a simpler way and he found it in density-functional theory (DFT), an approach to electronic structure conceived by theoretical physicist Walter Kohn in the 1960s. (In 1998, Kohn would receive the Nobel Prize in Chemistry, together with John Pople, for his work on the theory.) In contrast to the traditional, older, non-DFT approaches, DFT was beautifully simple and intuitive.

There was one big problem, though—and for Dr. Becke it would become the problem, the one he'd spend his entire career working on.

When Dr. Kohn developed DFT, he identified an energy term—dubbed the "exchange-correlation energy"—in which nearly all of the chemical effects are hidden. No exact expression exists for it; try as they might, scientists will never be able to calculate it exactly. The best they can do is find approximations for it, hopefully better and better ones, but in the early 1980s the approximations weren't good enough for chemists to use.

"It's the holy grail of density-functional theory," says Dr. Becke of the exchange-correlation energy. "We can't determine it exactly, but we know it's there thanks to Walter Kohn, so we have to model it, discover as much as we can about it, however we can. And doing so is challenging and interesting, involving a mix of mathematical and intuitive strategies."

Thus he began putting pencil to paper... then paper into computer code... then code into testing... then reviewing, recalibrating, repeating, each time trying to improve the accuracy of his exchange-correlation approximations. Then, in the late 1980s and early 1990s, while he was a faculty member at Queen's University, came the breakthroughs: new exchange-correlation functional forms that improved the accuracy of DFT calculations by a factor of about 50. Within 10 years, Dr. Becke's methods were included in most computational chemistry software packages in the world, and the rest is history.

HISTORY, YES; ANCIENT HISTORY, HARDLY. Dr. Becke's work continues, now as the Killam Chair in Computational Science at Dalhousie, a position he's held since 2006. Thirty years after he began his quest to find better and better exchange correlation functionals, he's still working on it—and succeeding at it—expanding DFT's applicability throughout chemistry and physics.

"The number of problems that cannot be handled by DFT is getting smaller and smaller, but there are still corners of computational chemistry where DFT doesn't work," he explains. "So we're trying to flesh out all the problematic corners. Bit-by-bit we are expanding the theory to cover all of chemistry."

One of those recent breakthroughs came in the mid-2000s when,

Axel Becke's work has had an impact in everything from drug research to clean energy technology, but it wasn't undertaken with any of those applications in mind. It's part of the body of scientific research often referred to as "basic" or "foundational" research—research driven by curiosity and a desire to advance knowledge within a particular field of study. Often, it's contrasted with applied research, which is driven by specific needs. But while the two types of research are sometimes perceived as opposites, that's not really the case.

"Basic research is the foundation on which applied research builds," says Martha Crago, vice-president research at Dalhousie. "It is an essential component in science and scholarship. Universities cannot encourage innovation without fostering excellent basic research." Many, if not most, Dal faculty and grad students will conduct both basic and applied research over the course of their careers.

with the help of graduate student Erin Johnson, he developed formulas that allowed DFT to be used for dispersion or van der Waals forces. Although the weakest forces in chemistry, van der Waals forces are nonetheless crucial in biological chemistry. The double helix structure of DNA, for example, is governed by van der Waals interactions. Their inclusion within DFT opens up the theory to much wider applications in biological chemistry and beyond.

Now, a decade later, Drs. Becke and Johnson will be working together again. Dr. Becke is using part of the \$1 million research grant that comes with the Herzberg Medal to fund a new research chair at Dalhousie, the Herzberg-Becke Chair in Theoretical Chemistry, to be held by Dr. Johnson—whom Dr. Becke considers "one of the best young theorists in the world".

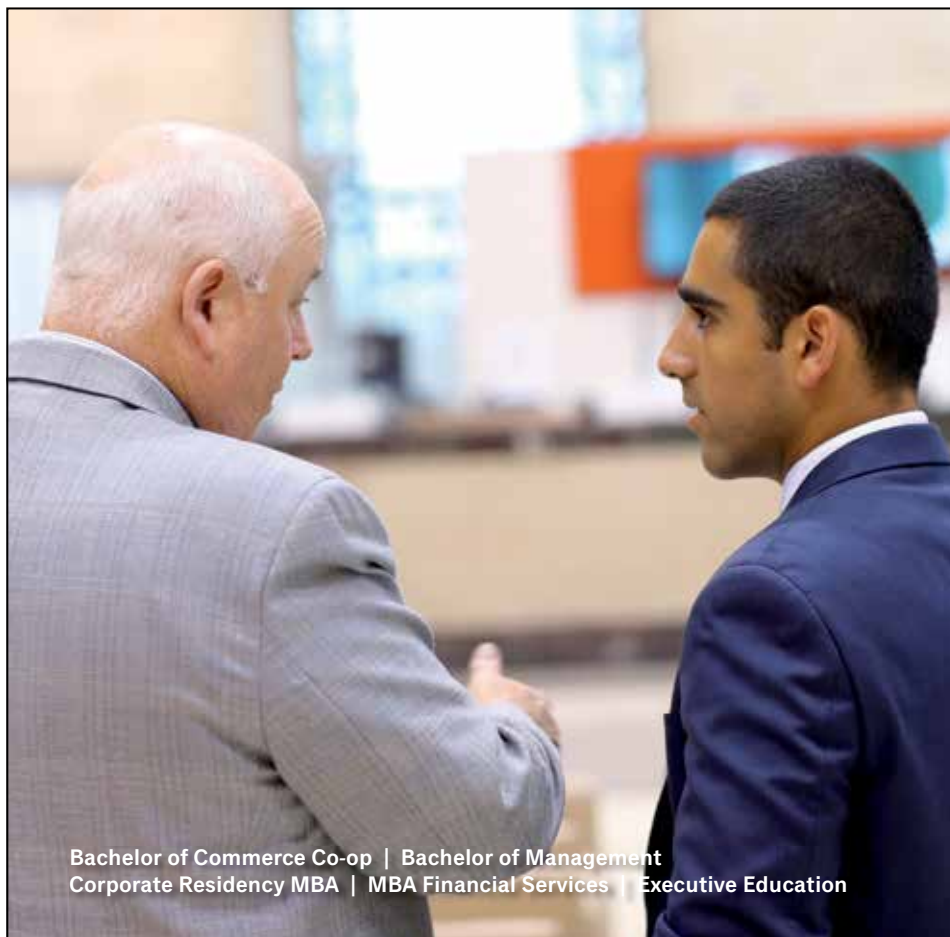
"Axel has incredible intuition regarding theoretical chemistry that has helped make him one of the world's most eminent researchers," says Dr. Johnson. "Having Axel as an advisor, friend and mentor is a pleasure and an honour."

Though he's nearing the end of his career, Dr. Becke is working as hard as ever: still putting pencil to paper, still working on and with his own computer code, still testing his functionals and tweaking them to try and get closer and closer to that DFT holy grail. The ultimate goal, he says, would be a universal density-functional theory, one that could work for all types of chemical problems. Maybe he'll find it; maybe it'll be Dr. Johnson who eventually succeeds. But Dr. Becke says it's his focus on that singular problem that has allowed him to move the field of computational chemistry so much closer to that goalpost.

"I've been working on the same problem for 30 years and I'm proud of that," he says. "Some people's careers are a collection of diverse projects. My career is focused on one goal. One of the qualities you need to really influence a field is perseverance—and I've had 30 years of perseverance on basically the same problem."

"We're getting there. I can see the light at the end of the tunnel, but there's still more work to do."

<h1>GREAT EXPECTATIONS</h1> <p>BY CHARLES DICKENS ADAPTED BY GEORGE POTHITOS</p>	<h1>BOOM</h1> <p>THE MUSIC, CULTURE AND EVENTS THAT SHAPED A GENERATION.</p> <p>WRITTEN, PERFORMED AND DIRECTED BY RICK MILLER</p>	<h1>A YEAR WITH FROG AND TOAD</h1> <p>MUSIC BY ROBERT REALE BOOK AND LYRICS BY WILLIE REALE BASED ON THE BOOKS BY ARNOLD LOBEL ORIGINALLY PRESENTED ON BROADWAY BY BOB BOVETT, ADRIANNE LOBEL, MICHAEL GARDNER, LAWRENCE HOROWITZ AND ROY FURMAN WORLD PREMIERE AT THE CHILDREN'S THEATRE COMPANY, MINNEAPOLIS, MINNESOTA</p>	<h1>WE'LL MAKE YOU A BELIEVER</h1> <p>2015-2016 SEASON</p> <p>NEW THIS SEASON: Check out our BONUS FEATURES including Rick Mercer, Hank Williams & Patsy Cline tributes & more!</p> <p>Neptune THEATRE 902 429 7070 NEPTUNETHEATRE.COM</p>
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<h1>LUNGS</h1> <p>BY DUNCAN MACMILLAN A FESTIVAL ANTIGONISH PRODUCTION</p>	<h1>MARION BRIDGE</h1> <p>BY DANIEL MACIVOR A VALLEY SUMMER THEATRE PRODUCTION</p>	<h1>THE DROWNING GIRLS</h1> <p>BY BETH GRAHAM, CHARLIE TOMLISON AND DANELA VLASKALIC A DMV THEATRE PRODUCTION</p>	



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DAL SPRING 2015

“I made the decision to enrol with the intention to use my training in international development work—poverty alleviation—somehow.”

BUILDING A BETTER WORLD

Fish tales

With his program Fish for Hope, Peter Corey, BSc(Agriculture)'01, MSc'12, is helping to boost the income of families in the Democratic Republic of Congo. By Mark Campbell

Peter Corey (BSc(Agriculture)'01, MSc'12) was disheartened. It was 2008 and the Dalhousie alumnus was touring the fish farms of Businga in the Democratic Republic of Congo. Once sources of sustenance and income for families in this northwestern town, the farms had been abandoned during a horrific civil war that lasted from 1998–2003 and claimed the lives of more than five million Congolese. All the farms sustained now were weeds.

Then Corey saw something that lifted his spirits: a handful of fish ponds that someone had managed to maintain, providing a source of income for a family in one of the world's poorest nations. If one farmer could do this on his own, what, Corey wondered, could the man and his fellow farmers accomplish with some assistance?

“I knew aquaculture could contribute to poverty alleviation in the Congo. I knew it had a good history there and was well accepted. I also knew it wasn't currently supported and that I could help to fill that gap.”

Seven years later, Corey has done just that with Fish for Hope, a non-profit initiative that is helping to revitalize fish farms—and encouraging the startup of new ones—in the republic's Equateur province. Since it launched in 2012, the program has funded training and provided tool subsidies to approximately 700 men and women, giving them a much needed source of nutrition, valuable skills and a steady income.

“One man is using the revenue from his ponds to put his two daughters through college,” says Corey. “A family I talked to when I visited the Congo in 2014 said their 10 fishing ponds provide 75 per cent of their livelihood, even though the mother is a school teacher. But many people don't have employment outside of their farms, so the contribution that aquaculture is making to their livelihoods would be higher.”

Corey may have been born in the heart of New Brunswick's potato country, but he's had a lifelong interest in fish. It was nurtured in part by his family, who were active in the outdoors and raised fish in a barrel in the basement of his childhood home. Fascinated by their lifecycle, he dreamed of becoming a marine biologist until his brother—a graduate

of the Nova Scotia Agricultural College (now Dalhousie University's Faculty of Agriculture)—suggested he look into the relatively new aquaculture program instead.

“I made the decision to enrol with the intention to use the training in international development work—poverty alleviation—somehow. It was a great program in that it honed my research, writing and critical thinking skills. That has come in handy raising funds and building partnerships for Fish for Hope.”

Dalhousie's Agricultural Campus has also provided invaluable assistance to the initiative. “Everyone's made meaningful contributions along the way, from moral, logistical and fundraising support to donations of soccer jerseys and books for Congolese communities. I'm very grateful to the campus for their assistance.”

Still, it's Corey's faith that has served as the main source of motivation and support in this important undertaking. “I believe it's part of God's design for who we are—to contribute to life. It's incredibly energizing to be fleshing out His design and seeing the impacts of what He has influenced me to do.”

It could be said that divine intervention brought Corey to the Congo. He'd been looking for an opportunity to explore small-scale aquaculture as a means of addressing international poverty since completing his undergraduate degree. But nothing panned out until a chance encounter at a church conference with a man who'd spent three years in the Republic. “He said there were thousands of ponds from a fairly ambitious development initiative back in the 80s. That seemed like a viable opportunity, so I made my first visit there.”

That was in 2008, when he encountered the weed-covered fish ponds. Although organizations were reentering the Congo to help rebuild infrastructure, Corey realized aquaculture was not a priority. Meanwhile, the farmers he met seemed more interested in financial aid than retraining, and that led him to launch the first Fish for Hope project in Mozambique. When that project wrapped, he made another visit to the



TOP LEFT, Peter Corey at his home base in Woods Harbour, N.S. RIGHT, Inside the aquaculture facility in Woods Harbour. BELOW, With his program Fish for Hope, Corey is working to develop sustainable fish farming in the Democratic Republic of Congo.



Congo and found a growing demand among farmers for new aquaculture training. In 2012, he started a two-year Fish for Hope project in the Equateur province, in partnership with World Hope Canada, a Canadian relief and development organization.

Half a world away, Corey's role is project manager and fundraiser for the training and tool subsidies provided through the program. They are delivered by regional experts and partners. Since he's unable to visit the Congo more than once a year, Corey also relies on his colleagues for reports on the program's success.

"The average report is that pond productivity has doubled as a result of the training and the new practices that farmers are learning. It's a big deal. It's not just a hobby pond in the backyard that you fish a trout and share it with friends. It's a meaningful revenue-generating initiative."

It is also helping to improve equality in what has traditionally been a male-dominated culture. "Approximately 10 per cent of trainees are women, and that involvement was important to us. They are a major part of the family and the household. Through this training, we're influencing family dynamics, helping to reshape the mentality that men control the finances and the property."

Corey renewed Fish for Hope for two more years during his 2014 visit and he's already thinking of a further extension. He may credit his partners on the ground for its success, but if it weren't for Corey's faith and desire to make a difference, 700 Congolese families now earning a living from fish farming would be struggling to survive.

"I hope my legacy is in part, one of attentiveness to global poverty and food security challenges," says Corey, adding that he appreciates the influence of Dalhousie in shaping that perspective.

"This is what motivates me: making a meaningful contribution to development of the aquaculture sector at home and in support of the world's poor. My desire is to use acquired knowledge, skills and networks in a discipline that I am just generally passionate about. Aquaculture is more than just an occupation for me: it's a purpose."

For nearly 200 years, Dalhousie alumni have made extraordinary contributions that positively impact the lives of others. We're featuring just some of these graduates in our Building a Better World series. **READ ABOUT OTHER INSPIRATIONAL ALUMNI AT ALUMNI.DAL.CA/STAY-INFORMED/BUILDING-A-BETTER-WORLD.**

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“Often it is the most marginalized that are lacking in clean water and sanitation and most exposed to water pollution.”

SPOTLIGHT

On the water front

Alex Mifflin, BA’08, has put exploring water’s importance to human life front and centre in *Water Brothers*, the television series he hosts with his brother

A lifelong love of the natural world has led Alex Mifflin (BA’08) around the world as he explores the world of water in the award-winning television series *Water Brothers*, now in its third season. The series looks at the paramount role of water in people’s lives, from the slums of Nairobi to the fishing villages along the Mekong River in South East Asia to salmon farms on Canada’s West Coast. And it takes a hard look at the role humans have played in the destruction and manipulation of water over the years.

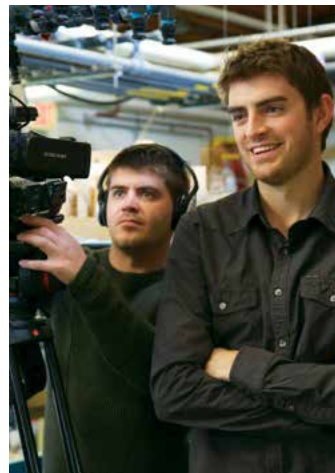
“At school I studied international development and environmental studies. With the marine sciences courses, the more I took, the more I wanted to take,” Mifflin explains during a break from editing at the family-owned SK Films in Toronto, which his parents founded. Those fields of study were the perfect companions to his brother Tyler’s degree in film studies from UBC. The two co-host and co-direct the series.

Their first foray into filmmaking was a documentary about monarch butterflies and when they completed that, they realized they were great partners and wanted to take a run at a series. They traveled to Cambodia and Belize and shot the pilot to *Water Brothers*. It was picked up first by TVO and is now carried in more than 40 countries.

“For me this is the dream job. Everything I do is related to international development issues,” Alex explains, sounding like he still can’t believe he gets to do this for a living. “How we use water is directly related to development and often it is the most marginalized that are lacking in clean water and sanitation and most exposed to water pollution.”

The kinds of development stories the duo cover focus on sustainability and are a lot more involved than just digging wells. “No Woman, No Water” looks at the impact that not having access to clean water has on women, who are often tasked with gathering water. In Nairobi, the duo profiled a community group who manage a local water station and toilet system funded primarily by Canadian donors.

“We spoke with women who had never had stable employment before and now they did,” says Alex. “They managed the project, which was not



TOP: Alex at work on an episode about tracking sea turtle migration. LEFT, with brother and *Water Brothers* co-host Tyler. ABOVE: With Tyler and Dal’s Dr. Boris Worm (left), who served as a consultant on the sea turtle episode.

a charity, fees are charged. For them it is sustainable employment. And that’s one thing I learned in school: the world doesn’t need charity, the world needs sustainable economies.”

For Mifflin, seeing the theories that he learned about at Dalhousie play out in real-world projects is something he feels privileged to be able to share with a wide audience. As well, he’s tapped into Dal experts, including Dr. Boris Worm and Dr. Chris Harvey-Clark, for an episode about tracking shark and sea turtle migration near Costa Rica. Dr. Sue Malloy advised on an episode about tidal energy. To see for yourself, visit www.thewaterbrothers.ca. —Tina Pittaway

“I think it’s a good example of women working together to support other women.”

DONOR PROFILE

A mystery unravelled

Margaret Cameron BEd’76, MA’79 and the Women’s Division honour Emily Bevan Harrington—and a request made over a century ago

Margaret Cameron (BEd’76, MA’79), president of Dalhousie Alumni Association Women’s Division, is self-admittedly curious by nature. “I love to ask questions,” she says with a smile. And it was her curiosity that led to the unravelling of a 100-year-old mystery.

Established in 1909, the Women’s Division has for many years been financially supported by the Emily Bevan Harrington Fund. In 2012, Cameron headed to the Dal archives to find out just who Emily Bevan Harrington was. “I had assumed that she was a wealthy woman who left her estate to Dalhousie,” says Cameron. “I would soon find out that wasn’t the case at all.”

Emily Bevan Harrington was one of the first women to come to Dalhousie, beginning her education in 1888, just seven years after Dalhousie opened its doors to women. She would eventually receive a BA in English and her Master of Arts in 1894. Tragically, Emily was plagued by illness and passed away at an early age in 1906, while she was pursuing her doctorate at Dal. A death notice found in the archives describes her as one of Dalhousie’s most valued members.

As Cameron dug deeper she discovered that Emily’s friends and colleagues started a memorial fund to honour her. A letter sent to other Dalhousians suggested a scholarship supporting women who wanted to further their studies abroad would be the best tribute.

“They had a goal of \$5,000 according to the documents,” says Cameron. “I found papers here and there with donations of \$2, \$5 and so on, raising \$500. But then there is a large gap in the records and no indication as to where the funds went.”

As Cameron read on, she connected the dots. In the early 1900s the Women’s Division was advocating for a residence for women students who were away from home studying at Dal. When Shirreff Hall opened its doors in 1923, the Women’s Division helped ensure the residence was kept “gracious and comfortable” for women who were calling it their “home away from home.” And while the Emily Bevan Harrington



ABOVE, Margaret Cameron (BEd’76, MA’79), president of the Women’s Division. **LEFT,** Cameron in the Dalhousie Archives, where she learned the history of Emily Bevan Harrington.

Fund was used for important projects over the last 100 years, it wasn’t used for its original intent.

“Now that we had all of this history and knew the money hadn’t yet been used for a scholarship the way Emily’s friends wished it to be, we discussed the possibility of using some of the money for a student award.” And that is exactly what Cameron and her fellow executive members did. This fall, the Emily Bevan Harrington Award for International Study will be offered to a female student who will be studying abroad for at least one semester.

“This is really an historical moment,” says Cameron. “It may have taken over a hundred years to support a student with this fund, but we’re finally able to make it happen. I think it’s a good example of women working together to support other women.” — Fallon Bourgeois

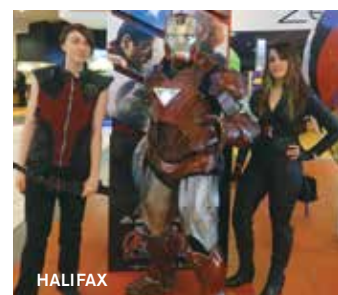
Get in the picture at an upcoming alumni event

ALUMNI EVENTS

Celebrating connections

From Halifax to London, New York to Vancouver, Dal alumni events focused the spotlight on our shared connections both near and far in recent months. Across the pond, U.K. alumni gathered at the Tower Bridge in London for a well-attended reception. Meanwhile, at the upscale Bowery Hotel in New York, Dr. Tom Marrie (MD'70), Dalhousie's outgoing Dean of Medicine, mingled with a crowd of well-wishers in his final public appearance in his official capacity as dean. Closer to home, our annual Halifax movie night was a sell-out success, with local alumni coming out to see *Avengers: Age of Ultron*.

Our West Coast alumni events in Vancouver, Edmonton and Calgary were extra special this year as we presented three alumni with their official Building a Better World designations. Addictions medicine specialist Christy Sutherland (MD'08) was recognized in Vancouver, while in Edmonton, community architect Brad Pickard (MArch'10) and pediatric hematology oncology specialist Dr. John Akabutu (MD'67) were both awarded for their contributions to making the world a better place. The awards were presented by a special guest: Dal's new Chancellor Anne McLellan (BA'71, LLB'74), in town to celebrate her Dal connections with fellow alumni. Read about all of our Building a Better World honorees by visiting alumni.dal.ca



TOP, Dr. Dorothy Saffron (BA'40, MD'57) with Dr. Tom Marrie. ABOVE (l-r), Dr. Christy Sutherland and Dr. Chris Moore (dean of science); Joyce Rowsell (BSc'14) (centre) and friends at movie night. ABOVE, Chancellor Anne McLellan, Dr. John Akabutu, Christine Macy (dean of architecture and planning), Brad Pickard and Nadine Barnes (JD'11). RIGHT, President Florizone at CIS basketball nationals with Dal students Amanda Higgins and Tessa Stammberger.



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“Providing people with the opportunity to learn and grow is extremely important to me.”

DONOR PROFILE

Growth plan

Spouses Eric (BComm'99) and Janet (BComm'99) Aldous hope their bursary for first-year commerce students will help keep talented students focused on learning

There are two things you should know about Eric Aldous (BComm'99). One is that he believes we should all give back to our communities. The other is that he greatly values the power of education to change lives.

“Providing people with the opportunity to learn and grow is extremely important to me,” says the Global Head of Futures and Derivatives Clearing with RBC Capital Markets in New York. “I think Dalhousie, particularly its business school, provides a great platform for growth and I want to help the university maintain that opportunity any way I can.”

The Dalhousie alumnus and his wife, Janet (nee McGregor-Shaw, BComm'99), recently established the Aldous Bachelor of Commerce Bursary to achieve that goal. Funded in part by fees he receives for his service as a board member of the NASDAQ Futures Exchange's board of directors, the bursary delivers financial assistance to first-year commerce students who otherwise might not be able to afford a post-secondary education.

“We felt that giving students support up front, they won't be distracted by the costs and can focus on getting all the benefits out of Dalhousie's exceptional commerce program just as we did.”

Perhaps the biggest benefit for the Toronto-born Aldous was an immediate first-year entry into a co-op program, something few universities offered at the time.

“It was a great foundation for building a successful career because you could take what you were learning and start applying it right away in the business world. Combining that foundation and the desire to keep learning, which Dalhousie fosters in its students, helped me get where I am.”

All the more reason, says Aldous, to help the next generation of Dalhousie students to get where they're going. In that light, he'd like to grow the fund so that it is able to support students through all four years of studies. He also hopes the bursary will inspire recipients



“I think Dalhousie, particularly its business school, provides a great platform for growth and I want to help the university maintain that opportunity any way I can,” says donor Eric Aldous (BComm'99).

to start a similar fund one day. “We would be satisfied just helping students complete the program, but it would also be great if we can encourage them to give back to Dalhousie and change someone's life.”
—Mark Campbell

More than 5,000 alumni, friends, faculty, staff and students donate to Dalhousie each year. Collectively these gifts empower our students and faculty and make Dalhousie stronger and more relevant. **FIND OUT MORE ABOUT GIVING AT ALUMNI.DAL.CA/GIVE-TO-DAL/GIVING-NEWS/**

CLASS NOTES

1950s

'53

JOHN VACHAL, BEng (NSTC), is enjoying retirement in Seattle after a career in aeronautical engineering at Boeing and Canadair. He can be reached at jvachal@hotmail.com

'55

DR. R. BRUCE ROSS, DDS, was selected by his American Cleft Palate Association (ACPA) peers to receive the 2015 Honors of the Association Award. The award represents the highest expression of respect and gratitude ACPA can bestow and is granted to those individuals, member or non-member, whose lifetime of research, health-care delivery, or leadership has advanced, significantly and uniquely, the amelioration of physical, behavioral or social handicapping conditions of cleft lip and palate or other craniofacial anomalies. The award was presented during the association's annual awards luncheon in Palm Springs, California on April 23.

1960s

'62

Since graduation from Dalhousie, **DENNIS CATO**, BEd, obtained an MEd (Teaching of History) from McGill, an MA (Philosophy of Education), also from McGill, and a PhD (Philosophy of Education) from the University of Ottawa. He has published numerous papers in scholarly journals, including *Educational Theory* (University of Illinois), *Interchange* (University of Toronto), the *McGill Journal of Education*, the *Journal of Educational Thought* (University of Calgary), *Paideusis* (Journal of the

Canadian Philosophy of Education Society), and *Journal of Philosophy of Education* (Great Britain). He has presented at philosophy of education conferences held at the Froebel Institute (University of London), New College (Oxford University), St Edmund's College (Cambridge University), and Katholieke Universiteit, Leuven, Belgium. In addition to a year teaching English as a second language to adults at the British Institute of Rome and another year teaching Social Studies at the American High School of Barcelona, he has spent his teaching career at the secondary level in Halifax, Calgary, and Montréal. He is presently retired, married to Mary Lou McTague, a graduate of the Halifax Infirmary School of Nursing, and lives in Montréal.

'67

CLARE CHRISTIE, BA, LLB'84 and her English cousin Carol Wills published *My dear Alice: War Letters 1937 - 1950* in 2014. The letters and writings of self-published author, the late E. Alice (Atherton) Christie (BA'28), are available for purchase. Alice was the mother of Fred (DEng'58, BSc'58, BEng(NSTC)'60), the late Innis (BA'58, LLB'62), Garth (BSc'61, MD'66) and Clare Christie, and grandmother of Jill, Iain (BSc'87, MSc'89), Michael (LLB'94) and Kevin Christie. The letters referenced above were thanking Alice for sending parcels to relatives in England during the Second World War. They present vivid depictions of life on the home front. Order your copy at newworldpublishing.com/catalogue Contact clare_christie@auracom.com for her self-published novel, anthologies and booklets.

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1970s

'70

PAULETTE CHASE WHITMAN, BEd, retired from a career of teaching in 2007. She and her husband, Dave, also a retired teacher, are self-publishers and live in Paradise, Annapolis County, N.S. Together and individually they have written and self-published 15 books. Notable in Paulette's collection are *Port Williams to Paradise: From Granddaughter to Grandmother and Living Between the Covers*. Together, she and Dave wrote *Annapolis Valley Connections* and *Premier Stephen McNeil: A Story of a Nova Scotian Family*. Visit them at www.davewhitman.ca

'74

DOUG EVANS, BSc, BEng (NSTC)'76, has published his second book in three years. The first book, *Process Safety Management*, was highlighted in *Dal Magazine* last year. Doug's second book is *7 Fundamentals of an Operationally Excellent Management System*. This book highlights case histories of companies like Exxon Mobil, Chevron, BP and Suncor and focuses on what is important to ensure actual risk mitigation and improved business performance.

'75

MIKE HENDERSON, BSc, MBA'80, retired as Vice President, Manufacturing

at Stanfield's Ltd. after 34 years. He recently served on the Minister's Panel on Education, producing the report, "Disrupting the Status Quo: Nova Scotians Demand a Better Future for Every Student." He and Brenda (NSTC'81) live in Brookfield (where else?), and recently welcomed their first grandchild, Xavi, born to Dane (BEng'10) and Danique. Dane has attained his professional engineering designation, and is a mine geologist at K&S Windsor Salt Ltd., Pugwash mine.

'77

The Art Gallery of Nova Scotia will exhibit "Spring in Cambridge," a selection of drawings and studies by Nova Scotian artist **JOHN DEVLIN**, BEDS (NSTC), from Sept. 5, 2015 to Jan. 3, 2016. Born in Halifax, Devlin went on to study theology at Cambridge University in England in the fall of 1979;

however, by spring of 1980 he had his first encounter with mental illness so his studies were cut short and he left a world of architectural antiquity for his hometown to receive specialized care. Devlin began a creative journey after numerous years in and out of hospitals, discovering that by using simple artist tools he could create a different kind of place. So began his construction of a utopian city, inspired by his memories of England and an imaginary island in Minas Bay, N.S. Devlin has exhibited in Nova Scotia, the United States, England, Switzerland, Beijing and France. Since 2012, Devlin has been represented by Henry Boxer Gallery, London and has works in the collections of the abcd Collection, Paris; the Museum of Everything, London; galerie Christian Berst, Paris; and the Collection de l'Art Brut, Lausanne.

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Long-time performer and soprano **LORNA MACDONALD**, BMEd, who is professor of voice and the Lois Marshall Chair in Voice at the University of Toronto, has been awarded a major Insight Grant from the Social Sciences and Humanities Research Council of Canada. The award is funding the creation and production of her new music-drama, *The Bells of Baddeck*, the story of Alexander Graham and Mabel Hubbard Bell, and their life together in Baddeck, Cape Breton, N.S. A native Cape Bretoner, Lorna combined her childhood fascination with the Bells and her love for creative programming and history with her earlier research at Toronto's Hospital for Sick Children in teaching the deaf to sing. The result is an opera with dialogue about the love and life of the Bells, especially during their 38 years in Cape Breton.

1980s

'81

ANDREW P. BECKETT, BComm, MA, CA, has recently been appointed to the position of vice president finance and administration at St. Francis Xavier University. Andrew and his wife, Wendy Connors-Beckett, moved to Antigonish, N.S. from Saint John, N.B.

J. SCOTT MACKENZIE, LLB, Q.C. was appointed Chair and CEO of the Island Regulatory and Appeals Commission of P.E.I. Prior to his appointment, Scott was a partner with Stewart McKelvey in Charlottetown.

KATHRYN MACLELLAN, BPE, founder and artistic director of KAZAN CO-OP Theatre, was presented with the Mayor's Award for Achievement by an Established Artist by Mayor

MIKE SAVAGE (BA'80), at the 2015 Robert Merritt Awards on Monday, March 23. The event, hosted by Theatre Nova Scotia at the Schooner Room, is the annual celebration of theatre in Nova Scotia.

'86

After 27 years in the airborne geophysics industry with CGG and Fugro, **DWAYNE BEATTIE** (BSc), encountered a fork in the road and moved to a new position as manager, science operations with the Canadian Polar Commission.

1990s

'90

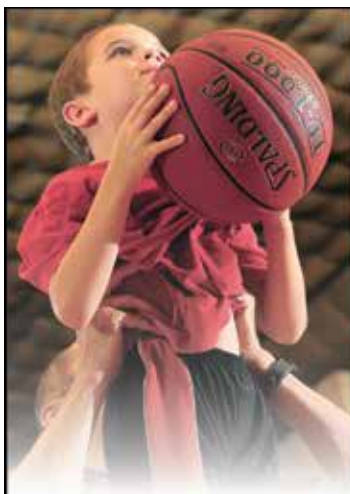
Halifax Dental Studio is pleased and proud to announce that **DR. JENINE ARAB O'MALLEY**, DDS, has been awarded

accreditation status in the American Academy of Cosmetic Dentistry. AACD is recognized as the world's most advanced accreditation program in cosmetic dentistry, requiring the highest level of technical skill and competency in cosmetic dentistry. The accreditation process is rigorous, involving a comprehensive written examination, demanding clinical case examinations and oral examination by the world's leading cosmetic clinicians. Achieving accreditation by the AACD requires dedication to continuing education, careful adherence to a strict clinical protocol and a resolve to produce exceptional dentistry. It is the ultimate display of one's professional dental skill and firm lifetime commitment to the perfection of cosmetic dentistry. Dr. Arab O'Malley is distinguished as one of only 400 dental professionals worldwide to have achieved accreditation

status in the AACD. She will be recognized as the first dentist in Atlantic Canada to have reached this designation. Dr. Arab O'Malley will join eight other international dental professionals at the 2015 AACD Conference in San Francisco, Calif., May 6-9 to be formally awarded the accreditation honor. Dr. Arab O'Malley is a proud Haligonian and lifelong resident of Halifax. At Dalhousie, she received the W.H.H. Beckwith Award for greatest proficiency in operative dentistry.

'98

After the birth of her second child in early 2014, **BOBBI-JO DOW BAKER**, BComm, LLB'01, joined the firm of Key Murray Law in Charlottetown, P.E.I., in Dec. 2014. Bobbi-Jo's general practice focuses on legal services to small businesses and other organizations.



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She also regularly deals with property and estate matters. Bobbi-Jo resides in Stratford, P.E.I., with her spouse William and their son and daughter, ages three years and 11 months, respectively.

2000s

'02

SARAH LYON, BA, received her Fundraising Executive Certification designation.

'03

Since leaving Dalhousie 12 years ago, **ANNIE PORBENI, MA**, has had the university on her mind. She is a human resources director with Open Cities Health Center, a community clinic in St. Paul, Minn. and a doctoral candidate in human resources development at the University of Minnesota. She has three beautiful kids and a wonderful husband. Annie praises Dalhousie for teaching her the skills to be successful in life. She is proud of the university, as well as Canada, for supporting her educational efforts and helping her to grow as an individual. She thanks Dalhousie and Canada for this.

2010s

'12

MICHELLE CHAI, JD, has been elected to the Board of Directors of the Legal Information Society of Nova Scotia. She has also recently been appointed to the Canadian Bar Association's Equality Committee.

IN MEMORIAM

Remembering Dr. David Precious

David S. Precious, CM, dean emeritus and professor of oral and maxillofacial surgery, passed away in February

Dr. Precious arrived at Dalhousie in 1961 from Ottawa, Ontario, enrolling in undergraduate science courses and playing on the varsity football team. He was accepted into the Doctor of Dental Surgery program in 1965, graduated in 1969 and was immediately accepted as the first resident of the university's Master of Science in Oral and Maxillofacial Surgery program, which he completed in 1972.

Shortly thereafter, he returned to Dalhousie to begin his career as an educator and also had the opportunity to train with his cleft surgery mentor Prof. Jean Delaire in Nantes, France in the early 1980s. He served as Dalhousie's Chair of the Department of Oral and Maxillofacial Sciences from 1985–2004 and was promoted to the rank of professor in 1987. In 2003, he was appointed Dean of the Faculty of Dentistry, serving a five-year term before being named Dean Emeritus in 2008.

"When the selection committee announced that they had chosen me as dean, so many people asked me if I was out of my mind and why I would do it," he once said. "Frankly, my experience was remarkable. I just cannot express how kind the senior administration of the university, faculty colleagues and students were to me. It was a totally positive experience and I enjoyed it immensely."

An internationally-recognized leader in the field of oral and maxillofacial surgery, Dr. Precious was widely renowned for his humanitarian outreach missions to countries such as Vietnam, Tunisia, Brazil and India. There, he and his team performed free corrective surgery on children with congenital cleft lip and palate and trained local practitioners to be able to provide treatment themselves.

Over the course of his career, Dr. Precious contributed to hundreds of scholarly journals and publications and

delivered lectures across the globe. In recognition of his achievements, he was honoured as a Fellow of the Royal College of Dentists of Canada, the Academy of Dentistry International, the International College of Dentists, the American College of Dentists and the Royal College of Surgeons of England.

Dr. Precious received dozens of significant accolades, including the American College of Oral and Maxillofacial Surgeons' Henry Archer Award (2005), the Order of Canada (2007), Dalhousie's A. Gordon Archibald Award (2009), the Canadian Dental Association's Medal of Honour (2011), the Queen Elizabeth II Diamond Jubilee Medal (2012) and honorary degrees from Université Laval (2011) and Dalhousie University (2013). In recognition of his outstanding service to the profession of dentistry, Dalhousie's University Medal in Dentistry—an honour he received himself in 1969—was renamed the Dr. D.S. Precious University Medal in Dentistry in 2012.

Although he received numerous offers and opportunities from universities across the continent, Dr. Precious never genuinely considered leaving his alma mater.

"I really love the atmosphere at Dalhousie and the Maritime way of life," he once said. "I knew that advancing oral and maxillofacial surgery at an academic health-care centre would require diligence and persistence. My assessment was that the environment here was much more conducive than at any other major university that I've visited in Canada or in the United States. That absolutely cemented in my mind why I wanted to stay at Dalhousie. My father once asked me if I thought I'd stay at Dal and, yeah, I did. I found a home."

Dr. Precious will be greatly missed by his wife, Elizabeth, children Susan and Bruce and his entire Faculty of Dentistry family.



IN MEMORIAM

JOHN LYNTON MARTIN,
DDip'42, MSc'55, Buckfield,
N.S., on Feb. 23, 2015

GEORGE PARKER FIELDING,
DENG'43, BEng'45,
Montreal, Que., on Feb. 12,
2015

**ANN ELIZABETH MARIE
O'TOOLE,** DPharm'44, Halifax,
N.S., on Dec. 26, 2014

**THOMAS ARTHUR
MACINTOSH,** DEdS'46,
unknown, on Jan. 13, 2015

ALEXANDER M BUTT,
BEng'46, Halifax, N.S., on Jan.
4, 2015

HELEN KATHERINE GIBSON,
DPharm'47, Windsor, N.S., on
Feb. 20, 2015

VICTOR M HOLMES, DDip'47,
Glace Bay, N.S., on Feb. 17,
2015

CHARLES R NOWLAN,
DDip'47, Bedford, N.S., on
Feb. 18, 2015

DOUGLAS L. ROY, MD'48,
Halifax, N.S., on Feb. 2, 2015

GEORGE ELDRID FRAIL,
DENG'49, BEng'51,
Centreville, N.S., on Feb. 13,
2015

**JAMES PURVES
ARCHIBALD,** DEngr'50,
BSc'50, BEng'52, Truro, N.S.,
on Jan. 1, 2015

**JEAN RENTON (BAKER)
INKPEN,** BA'50, DEd'51,
BEd'52, Dartmouth, N.S., on
Dec. 27, 2014

KENNETH SMITH MACLEAN,
BSc'50, unknown, on Feb.
6, 2015

DAVID IRWIN MORGAN,
BComm'50, Halifax, N.S., on
Jan. 31, 2015

**NORAH DOROTHY
(SYMONS) PRENTICE,**
BA'50, BEd'51, Dartmouth,
N.S., on Jan. 30, 2015

**GEORGE ALEXANDER
ROGERS,** BA'50, LLB'52,
Sarasota, Fla., on Jan. 17,
2015

FLOYD MURRAY SMITH,
DDip'51, unknown, on Jan. 8,
2015

LEVESON HENRY ROBERTS,
BSc'52, La Scie, N.L., on Dec.
9, 2014

ANGUS J SMITH, DDip'52,
Hamilton, Ont., on Jan. 17,
2015

LESTER LAMONT ATKINSON,
BEng'53, Green Valley, Ont.,
on Jan. 23, 2015

JAMES AUSTIN DELAHUNT,
MD'53, Halifax, N.S., on Jan.
13, 2015

DAVID GILROY SWAN,
BComm'53, Oxford, N.S., on
Jan. 17, 2015

JOHN JAMES O'NEILL,
LLB'54, St. John's, N.L., on
Feb. 2, 2015

**DAVID ANDERSON
HENDERSON,** BComm'55,
unknown, on Dec. 26, 2014

CECIL EDWIN KINLEY,
MD'56, Halifax, N.S., on Jan.
19, 2015

DOUGLAS HILLS KIRBY,
DENG'56, BEng'58, Halifax,
N.S., on Dec. 12, 2014

HAROLD BURGESS SABEAN,
MD'56, Halifax, N.S., on Dec.
26, 2014

**CHARLES HANSON
DOWELL,** LLB'57, Middleton,
N.S., on Dec. 18, 2014

DONALD BRYCE FANCY,
DDip'58, unknown, on Dec.
17, 2014

**JOANN MILDRED (MACKAY)
MORRIS,** BSc'58, Toronto,
Ont., on March 7, 2015

**MARY JANE (REED)
PHEENEY,** BA'59, Middleton,
N.S., on Jan. 14, 2015

BERNARD FRANCIS MILLER,
BComm'61, Halifax, N.S., on
Jan. 3, 2015

**MARY-JOYCE TERESA
JUDITH (MAIER) GLOVER,**
DPharm'62, BSc'65,
Edmundston, N.B., on Dec.
9, 2014

**IDA ELIZABETH (HALLETT)
GRANDY,** DTSN'63, Halifax,
N.S., on Dec. 13, 2014

**FREDERICK HERBERT A
CAMPBELL,** BSc'64, MSc'66,
Nepean, Ont., on Feb. 11,
2015

**LEXENA MARGARET
MACKILLOP,** DPH'64, Grand
River, N.S., on Dec. 23, 2014

RONALD THOMAS CRAIG,
MD'65, Quispamsis, N.B., on
Jan. 30, 2015

DOROTHY HELEN PHILIP,
DEd'67, Victoria, B.C., on Jan.
23, 2015

**DONALD EUGENE
ROUTLEDGE,** BSc'67,
Moncton, N.B., on Jan. 13,
2015

BRIAN CLARK THORNE,
DDip'68, Coldbrook, N.S., on
Dec. 15, 2014

JOSEPH PAUL ELIAS,
DDS'69, Dartmouth, N.S., on
Feb. 19, 2015

**WILLIAM ALEXANDER
NEWMAN,** BEd'69, BA'69,
Halifax, N.S., on March 7,
2015

DAVID STANLEY PRECIOUS,
DDS'69, MSc'72, LLD'13,
Halifax, N.S., on Feb. 3, 2015

**CAROL ANNE MARGUERITE
(HOLLOWAY) CHADDOCK,**
BScPh'70, Halifax, N.S., on
Dec. 22, 2014

VERNON ALBERT OICKLE,
BSc'70, BEd'71, Lockport,
N.S., on Dec. 18, 2014

**ARTHUR DRUMMOND
FRASER,** BA'71, Aylesford,
N.S., on March 4, 2015

RALPH HATFIELD BURNETT,
MD'72, Moncton, N.B., on Jan.
15, 2015

**MARGARET BRONWEN
HARRISON,** BA'72, Halifax,
N.S., on Feb. 27, 2015

**JEAN DAVIDSON
(SAUNDERS) MCLANE,**
DPH'72, Truro, N.S., on March
6, 2015

RIZA REAZUDEEN RAZACK,
BSc'72, Kitchener, Ont., on
Jan. 11, 2015

DAVID THOMAS O'CONNELL,
DDS'74, Charlottetown, P.E.I.,
on Feb. 3, 2015

RICK CLARKE MACLEOD,
LLB'75, Charlottetown, P.E.I.,
on Feb. 17, 2015

**LAWRENCE THOMAS PAUL
WILLETT,** BA'76, BAHC'77,
MES'83, Enfield, N.S., on Jan.
20, 2015

**PAULINE RUTH (VENOIT)
WELDON,** BN'77, Lunenburg,
N.S., on Jan. 8, 2015

**WINSTON THEODORE
HENDSBEE,** MA'78,
Dartmouth, N.S., on Dec. 11,
2014

CAROLE CHRISTINE TRITES,
BN'79, Hantsport, N.S., on
Jan. 21, 2015

**CATHERINE MILDRED
BUDGELL,** MLS'80, Black
Point, N.S., on Dec. 27, 2014

DANIEL LEROY WEIR,
LLB'81, Halifax, N.S., on
March 9, 2015

HILARY ANNE WHITMEY,
LLB'82, Consecon, Ont., on
Feb. 2, 2015

**CHARLES JOSEPH
MEAGHER,** LLB'83, Calgary,
Alta., on Feb. 9, 2015

TERESA ANNE CANAVAN,
DMet'84, MSc'93, Halifax,
N.S., on March 1, 2015

IVAN GEORGE WEBB,
BComm'87, Windsor, N.S., on
Feb. 4, 2015

**DAVID MACNAUGHTON
JAMES-WILSON,** BA'88,
Rochester, N.Y., on Jan. 18,
2015

JEAN ANNE COVERT,
BSc'91, Italy Cross, N.S., on
March 9, 2015

**DOUGLAS GREGORY
RITCHIE,** MPA'92,
Yellowknife, N.W.T., on Jan.
10, 2015

DAVID JOHN MYATT, BSc'93,
Head of Chezzetcook, N.S.,
on Dec. 11, 2014

**KIMBERLEY ANNE VIRGINIA
(COOK) SAVOIE,** BSc'94,
BScPT'97, Lynchburg, V.A.,
on Jan. 25, 2015

**EMMA KATE DICARA
TICHENOR,** BSc'11, Jersey
City, N.J., December 1, 2014

**KIMBERLEY ANNE
MONTGOMERY BURKE,**
BA'12, Montreal, Que., on
Feb. 11, 2015

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DAL DNA: SERVICE

True to our Nova Scotian roots, Dalhousie has a long history of helping out and pitching in. Whether lending support during times of crisis, volunteering time or raising funds for those in need, our students, faculty and staff are happy to be of service. By Stefanie Wilson

2012

Dal psychology student Rebecca Haworth creates The Special Tigers Sports program, featuring fun events where varsity athletes from Dal share their love for sport with youth who have intellectual disabilities.

2013

Dalhousie Volunteer Tax Clinic launches with a group of Dalhousie Commerce students volunteering their time to prepare income tax returns for free.

2014

The Dalhousie School of Social Work pilots a Community Clinic on Argyle Street in downtown Halifax. The Clinic supports those living in poverty (homeless or unstably housed) in the community, complementing existing resources while providing a training ground for students.

1880s

Professor H. Smith of the School of Agriculture (now Dalhousie's Faculty of Agriculture) begins a series of lectures for farm groups as part of the first extension activities in the region.

1908

The Faculty of Dentistry opens its clinic doors to the Halifax community for the first time. The clinic continues to play an integral role in providing oral health care to the local community and beyond.

1915

During the First World War, the No. 7 Hospital forms to meet a desperate need for medical personnel to treat Canadian soldiers at the front. Its 162 personnel, including officers, non-commissioned officers and nurses, are all students and professors from the Dalhousie Medical College.

1970

Dalhousie Legal Aid Service begins operation as the first legal service for poor people in Nova Scotia. It is now the oldest clinical law program in Canada. The service is a unique partnership of community groups, law students, community legal workers and lawyers.

2001

With a focus on education, research and clinical outreach, the International Health Office (now the Global Health Office) in Dal's Faculty of Medicine opens to engage faculty, residents, students and staff in finding solutions to address health issues that go beyond geographic borders and helping to decrease health inequities around the world.

2008

Dalhousie's Faculty of Science introduces Discovery Days—free, half-day, hands-on interactive sessions for grades 4–12 that dig into subjects ranging from biology to psychology.

2009

The first Annual Community Day connects students with a variety of community volunteer opportunities.

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that



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is no reason to be finished with Dal.



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