



TRENT Breakthroughs

CHALLENGING THE WAY WE UNDERSTAND THE WORLD, WITH NEW RESEARCH AND INNOVATION TRENDS AT TRENT

MAY 2020 EDITION

With a far-reaching grip and intensity around the world, the COVID-19 pandemic has affected people in every country and every sector, including research study being carried out in universities.

Many faculty researchers across academia, including those at Trent, have turned their focus to help the global community better understand the novel, non-discriminating virus. From biologists and epidemiologists, to economists, social scientists and data scientists, a broad range of experts have come forward to eagerly contribute their knowledge and skill sets to help solve the global crisis.



Dr. Neil Emery in the plant hormone lab in the Water Quality Centre at Trent University

Following a special funding call by Trent's Research Office in April, researchers from many disciplines at the University are now undertaking several projects to better understand, learn from and inform the societal response to COVID-19 and potential future infectious disease outbreaks. Researchers are looking to understand how COVID-19 has affected older volunteers in rural communities, food systems, vaccine hesitancy, modeling of infection and death rates, people's sentiments toward public health measures and much more.

The COVID-19 pandemic has also exposed the need to continue existing studies to better understand environmental, social and cultural challenges. At Trent, research projects on aging and long-term care, health, climate change, technological advancement and many others already underway have become even more important in the context of COVID-19 and to the world after.

This issue of Research Breakthroughs, highlights our researchers who are staying focused and on track to deliver findings that help us shape a better future. I hope this array of research investigations inspires a collective optimism during these challenging times.

Take good care,

Dr. Neil Emery
Vice-President, Research and Innovation
Trent University

THE FUTURE IS NOW: TRENT'S IMPACT IN THE NEWS

In the lab, throughout the community, and around the globe, Trent faculty, students, and alumni are conducting research that makes a difference. We've selected a few of our most recent and inspiring research success stories to share with you.



Never Forever Land: The Discourse of Agelessness

From wrinkle creams to blood transfusions, the anti-aging industry is a multi-billion dollar enterprise peddling the desire to look, feel, function and think younger. Drawing on a decade of research on anti-aging technology, postdoctoral fellow Dr. Kirsten Ellison uncovers how the communications on aging plays a fundamental role in shaping the kinds of lives we see as worth living, and bodies we see as worth inhabiting.



Your Connection Has Been Dropped

It hasn't taken long for mobile devices to become common place in our daily lives. Since the first iPhone launched in 2007, they have become a virtual appendage that we rarely leave the house without. Research by Dr. Joshua Synenko, assistant professor of Cultural Studies and coordinator of the Media Studies program at Trent, suggests we ought to be giving more consideration to what these machines are and how they affect engagement.



Flying Squirrels Sing Their Own Tone

The northern flying squirrel lives in every province in Canada, but this nocturnal creature is rarely seen - or heard. At night, they glide silently between the branches. Or at least they are silent to us. In collaboration with the Toronto Zoo, Trent University Ph.D. candidate Sasha Newar is cataloguing the ultrasonic calls that northern flying squirrels use to communicate, to build the largest sampling of ultrasound in non-echolocating mammals in literature.



Women: The Drivers of Automobile Innovation

Prior to World War 1, the racing circuit included female drivers, and they were winning-right up until the time they were barred for being female. Women were also involved in automobile design and production, inventing windshield wipers and signal lights. Cultural Studies Ph.D. candidate Tanya Bailey is investigating why technology, like the automobile, became significantly male gendered in the post-war years.



Should We Set Aside the Pesticide?

Environmental and Life Sciences Ph.D. candidate Verena Sesin spends a lot of time growing plants to understand effects of glyphosate. A pesticide, glyphosate, is used to control invasive species, such as Phragmites and hybrid cattail, rapid growers that can dramatically affect our wetlands. The question Ms. Sesin is now answering is how the presence of glyphosate affects the native plant species in a wetland.

Homeward Bound: Transitioning Out of Hospital Care



Canadian Studies Ph.D. candidate Laura Poulin is studying the experiences of older adults as they transfer out of hospital care. She is studying the experiences of not only patients, but also informal caregivers, front-line and administrative staff with patients as they transition to a long-term care home or seniors residence, in order to better understand their perspectives in real time.



Hunters and Gatherers Can't be Choosers

For thousands of years, Neanderthals used stone tools and hunted large game like European bison and reindeer. Now, research by Trent's Dr. Eugène Morin suggests early hominids were less picky eaters than we thought, showing that they hunted smaller animals, like rabbits. Hunting small, difficult to catch animals means that Neanderthals had broader diets and were more concerned with efficiency than previously understood.



The Links Between the KKK and American Religious Music

When Jared Asser started exploring the music of the Ku Klux Klan for his M.A., he discovered no one had written a systematic account of the Klan's music. His study of primary sources, including a Klan publication called *The Fiery Cross*, revealed that in the early 20th century the Klan recruited its members by imitating the religious music and practices of popular evangelists like Billy Sunday.



When Big Data Meets Biology

North American mountain goats are revered for their sure-footedness on steep terrain, and an ability to thrive in harsh climates. However, industrial development, recreational activities, and climate change are testing their resilience. In describing the first genome assembly of the North American mountain goat, Trent Ph.D. candidate Daria Martchenko seeks to explore questions about mountain goat adaptations to the environment using genetic data.

BREAKING BARRIERS: TRENT RESEARCHERS MAKE HEADLINE NEWS

The breakthrough research conducted by faculty at Trent has not gone unnoticed in the news. Check out the buzz these Trent researchers are making regionally, nationally, and around the world.



Searching for New Words to Save our World

The New Yorker

Professor Brent Ryan Bellamy argues our inability to imagine a future that doesn't lead to planetary extinction is because of a limited vocabulary. Prof. Bellamy recently co-authored, "An Ecotopian Lexicon," a collection of essays that seeks to expand the language we use to describe the present-day climate crisis and its possibilities.



15 Minutes Outside Can Save You Seven Years

National Observer

Dr. Lisa Nisbet, assistant professor of Trent University's department of psychology, has spent a career studying the health benefits of time in nature. Once the stuff of folk wisdom, the connection between health and nature is supported by a growing body of scientific research, including Professor Nisbet's.



Why Passenger Pigeons Went Extinct Over a Century Ago

The Conversation

On Sept. 1, 1914, the world's last living passenger pigeon Martha was found dead resting beneath her perch. Forty years earlier, Martha's ancestors numbered in the billions. Research by archaeologist and Banting postdoctoral fellow Dr. Eric Guiry suggests how, in a few short decades, one of the world's most prodigious bird vanished from the sky.



Generation-based Views of Ageism

Stria News

The "OK, Boomer" meme is just the latest example of an ongoing tense dialogue between Millennials and Boomers. But what about the members of Generation X? Sociology professor emeritus Dr. Stephen Katz of the Trent Centre for Aging and Society explores the perspectives of today's 40- and 50-somethings, identifying a few of their unique age-based challenges.



Trent Joins Canada's Digital Technology Supercluster

Daily Hive

For the past eight years, botanist Dr. Barry Saville has been studying the attack strategy of the fungus wheat leaf rust on Canadian wheat. Dr. Saville has uncovered large sets of genetic indicators for how strains of wheat leaf rust are able to overcome wheat's defense mechanisms. Now, this research will be used to develop new biotechnologies that help control pests and pathogens that cost Canadian farmers more than \$100M annually.



Diet of Walleye Key to Species' Management

Global News

One of Ontario's most popular sport fish and an iconic native fish species, the Walleye, is shifting how and what it eats. Environmental & Life Sciences master's student Ayden Ricker-Held made a significant discovery that walleye feed significantly on mayflies while they hatch in on- and off-shore lake waters. These findings could be an important element to future conservation and management plans for the species.

RESEARCH ON DISPLAY: FOSTERING INNOVATION

Funding is the lifeblood that helps pave the way for Trent's innovators to make new and important discoveries, advancing the way we understand the world and the environment we share. Here is a sampling of recent funding Trent researchers have received.

Four researchers at Trent University received a total of \$567,089 in funding from **the Ontario Research Fund for Small Infrastructure** to advance innovations in health care, agriculture and Ontario heritage.

The Integrative Wildlife Conservation Lab at Trent University, led by Dr. Dennis Murray, received **\$144,096** from **the National Science and Engineering Research Council of Canada's (NSERC) Research Tools and Instruments (RTI) grant program** to advance research in Canada's northern ecosystems, where ecological changes are occurring very rapidly.

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