



TRENT *Breakthroughs*

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

DECEMBER 2019 EDITION

This issue of *Trent Breakthroughs* looks back at some of the remarkable research stories that emerged this year at Trent, from wildlife species recovery to the discovery of innovative biomaterials that can help reduce greenhouse gas emissions.

Trent researchers are advancing what we know about society today. They're inspiring families with genetic research on Batten Disease; they're educating the public on the stories of street art; and they're investigating the role of seniors in community culture.



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

In addition to these stories, Trent was recently ranked as [one of Canada's top four undergraduate research universities](#) this year. In the *Research Infosource 2019* ranking of Canada's top 50 research universities, Trent earned the #2 spot for publication intensity, and the #3 spot in publications impact in the undergraduate category. All together, these achievements showcase Trent's interdisciplinary signature, established deep in academic programming as well as in faculty and students' research endeavours.

I encourage you to take the time to delve into the thought-provoking stories included in this edition of *Trent Breakthroughs*. You will be glad you did, with much to share with friends and family over the holidays.

With best wishes for 2020,

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.

Batten Disease: Health Research Hits Home

Biology professor Dr. Robert Huber secured a prestigious \$670,000 five-year Canadian Institutes of Health Research grant to explore the role of gene and protein mutations in Batten Disease. After reading the news about Professor Huber's award, a mother whose



daughter is living with Batten Disease wrote to Prof. Huber to thank him for being a leader in Canada researching this disease.



Why Are You Procrastinating? Don't put off the answer.

Procrastination can be about more than putting off work to have more fun now. Trent Durham's Dr. Brenda Smith-Chant has been investigating the links between procrastination and stress, and has identified the types of procrastinators - social, overwhelmed and burned out - each with their own unique reasons why and solutions to get productive.



Supporting Plants Through Times of Stress

As the agriculture sector around the world is facing greater challenges to food production due to climate change, researchers at Trent are working on a natural solution. For the past six years, Dr. Neil Emery and his team have been working with industry partners to develop a biofertilizer using strains of bacteria that aid plant production under conditions of stress, and they're seeing very promising results.



Where do the Wild Lynx Go?

Trent has been an integral part of a research team studying the Canada lynx in the Yukon since the 1980s. Dr. Dennis Murray and the Integrative Wildlife Conservation Lab at Trent received nearly \$150,000 from NSERC to use state-of-the-art technology to enhance methods of monitoring the behaviour of Canada lynx, an elusive predator, in response to drastic changes in their natural environment.



What Does it Mean to be Older?

A community's seniors are the keepers of its culture. It's a role that has earned respect, but is not always treated respectfully. Mariana Castelli Rosa, a Ph.D. student in Cultural Studies at Trent, is part of a multi-partner research project investigating aging in seven Canadian cities and looks at international models that could help improve Canada's approach to the topic.

Spawning to Save the Species

For the first time in several decades, aurora trout are once again surviving in the wild as a result of a 'genetic rescue' effort. Professors Michael Fox and Gary Burness collaborated with the Ministry of Natural Resources and Forestry to interbreed aurora trout with



brook trout to counteract inbreeding of aurora trout.



Heat Your Vegetables

Use it or lose it. Industrial processes generate heat, energy that is useful but is often just a waste byproduct. Environmental & Life Sciences Ph.D. student Kosheela Poo Palam developed a bio-based product from vegetable oil to capture this waste heat, with the potential to reduce fossil fuel consumption.

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.



Word on the Street: Exploring the Underlying Stories of Street Art

The Guardian

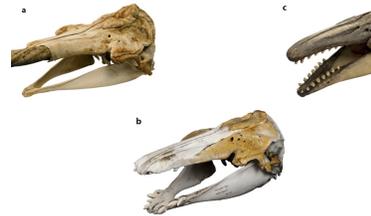
The street art found on buildings or highway overpasses can be a captivating storyteller. Dr. Anna Augusto Rodrigues, an instructor within the Child & Youth Studies program at Trent Durham GTA, examines how feminist or sociopolitical street art has the potential to create public spaces of learning, both online and in real life.



Getting Inked: Tattoos and Post-mastectomy Scars

Chatelaine

Professor Victoria Reid-De Jong, a faculty member in Trent University's School of Nursing, has collected some of the earliest qualitative data about the experiences of women living with post-mastectomy tattoos. Prof. Reid-De Jong shared her story as a researcher, nurse and breast cancer survivor, in this powerful piece about her own personal journey with breast cancer treatments.



What do you get when you Cross a Narwhal and a Beluga?

National Post

After sitting in a museum in Denmark for almost three decades, an unusual skull was uncovered and confirmed as the first-ever hybrid whale, the "narluga." Part of an international research team, Canada research chair and Trent anthropology professor Dr. Paul Szpak performed chemical analysis on the skull showing how the "narluga" lived, including where it fed and what it ate.



How Complaining Brings People Closer Together
CBC Sunday Edition

For something that's so much a part of the human experience, complaining has a bad reputation. It's seen as undignified, weak, tiresome and contagious. Your parents probably complained about all your complaining. But Trent University philosopher Dr. Kathryn Norlock's research shows that complaining, done well, can bring us closer together.

Messy Work Converts Carbon Waste into Carbon Solution
Mining.com

Trent's Inorganic Materials Research Laboratory (IMRL) has optimized a process that can turn carbon waste, such as petroleum coke, into effective activated carbon products—highly-absorbent black powder. Head of the IMRL and chair of Chemistry, Dr. Andrew Vreugdenhil is working with Carbonix to tailor the use of activated carbon for large-scale air, water and land restoration.

Not All Sex Needs to be...Sexy?
Global News

Following the release of research that fewer Canadians and Americans are having sex, Trent's resident sex expert Dr. Terry Humphreys says "maintenance sex" can boost long-term intimacy. "Maintenance sex" is about consenting to something even when you don't feel like it, like visiting in-laws, which serves to maintain a smooth functioning relationship.



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.

Researchers at Trent University received nearly \$3 million from the Natural Science and Engineering Research Council in 2019, with **female scientists receiving some of the largest federal grants making up the total**. A collaborative project between **professors in Forensic Science, Biology and Chemistry and Noblegen received \$800,000** to develop a sustainable green biofiltration technology for mineral extraction and mining waste waters.

Eight researchers at Trent University investigating historical and modern humanities received a total of \$828,445 in **Insight Grants through the Social Sciences and Humanities Research Council (SSHRC)**. These 'prizes for the people' will support studies on pre-Hispanic agriculture in the Andes, water management in pre-historic Myanmar, and how Fitbits have transformed walking into a game.

Trent professors Dr. Aaron Slepkov and Dr. Sanela Martic were awarded a total of \$244,896 from the Canadian Foundation for Innovation to supporting leading-edge research labs and tools. These **grants will help the researchers 'get the money shots' by supporting projects that are advancing disease imaging and diagnosis**.

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