TIES THAT MATTER:
THE IMPACT OF YOUR SUPPORT

Faculty of Engineering
Major Gift Report 2015
McGill University
“UNSELFISH AND NOBLE ACTIONS ARE THE MOST RADIANT PAGES IN THE BIOGRAPHY OF SOULS.”

- DAVID THOMAS (1813–1894)
In being there for your alma mater, you are an important member of a global community of McGill philanthropists that reaches over history and into the future. You are making a difference.
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A phoenix rising from the flames on the south wall of the Macdonald Engineering Building reminds us of the terrible fire in 1907 that destroyed the original structure. The building we know today was rebuilt and re-opened in 1909, once again with the support of Sir William C. Macdonald.
When James McGill bequeathed his land in 1813 to found an institution of higher learning in Montreal, he set a precedent of transformative philanthropy. In the almost 200 years since McGill’s establishment in 1821, numerous other visionary supporters have helped shape the University and the Faculty of Engineering. Both have always been collective ventures. There were setbacks along the way. In 1864 the Applied Science program was discontinued due to lack of funds. So in 1871, a group of philanthropists supported the creation of the new Faculty of Applied Science. Then, in 1889, the Faculty received its first home when gifts from Sir William C. Macdonald and Thomas Workman enabled the construction of the Macdonald Engineering Building.

These early philanthropists from Montreal’s ‘Golden Square Mile’ had the foresight to know that engineering would be essential to the industrial transformation of Montreal and Canada. Their partnership was central to the early success of the Faculty of Engineering... but this is where you enter into the story.

Partnership with you, our alumni, has helped to build the Faculty into its current status as a world-class centre of teaching and research. Your involvement in your alma mater is helping us recruit top-notch researchers, empower a growing graduate studies programme, and, most importantly, provide a rich education for deserving students.

In this report, I wish to celebrate three major thematic initiatives at the Faculty of Engineering—Sustainability, Enhanced Student Learning, and Innovation & Entrepreneurship—and how giving on every level inspires their growth.

Take the Trottier Institute for Sustainability in Engineering and Design (TISED), for example, established through a transformative gift from Lorne Trottier. The Institute owes its reputation for excellence to the dozens of faculty scholarships, awards and programs that are being supported by many alumni. All of these donors are contributing to cutting-edge research in sustainability that is informing public policy in Canada.

Our current initiative to promote technological entrepreneurship was inspired by William Seath’s commitment to innovation. But his passion is shared by other motivated alumni: these donors are driving students and teachers to commercialize their ideas for the industries of tomorrow, by creating technologies that improve the lives of the most vulnerable global citizens.

And, finally, I wonder what would student life at the Faculty of Engineering be without Ian and Helgi Soutar’s gentle prodding and encouragement? Their vision and financial support enabled the Faculty to establish the McGill Engineering Student Centre (MESC), with its many career services and student initiatives that make studying at McGill a rich experience.

All gifts matter—the large, visionary gifts that serve as seed funding for new ventures, and others, such as yours, that make sure that this transformation is enduring. It’s why on behalf of the Faculty, I want to thank you, all of you, for your continued support of our Faculty. You are part of a long tradition of philanthropists and partners who have been brought together from the inception of the Faculty. All of these ties, our ties to the past, and our ties with our current funders, matter incredibly to shaping our future and the future of society.

Jim A. Nicell
Dean / Faculty of Engineering
Lorne Trottier’s vision behind TISED was to leverage the impact on research and public policy by bringing people together on issues of sustainability.

- Subhasis Ghoshal, Director of TISED
"Knowledge sharing is one of our primary goals," says Subhasis Ghoshal, Director of the Trottier Institute for Sustainability in Engineering and Design (TISED). "Lorne Trottier’s vision behind TISED was to leverage the impact on research and public policy by bringing people together on issues of sustainability."

Ghoshal, a Civil Engineering professor, is one of the top-notch researchers and graduate students working together to solve some of the world’s current environmental challenges.

TISED, established through a $10M gift from Lorne Trottier [BEng’70, MEng’73, DSc’06], also serves as a public policy forum for key issues such as energy, water and urban planning. In the three years since its founding, the Institute has held more than 20 events featuring dozens of researchers and practitioners in seminars, conferences and panels—all of which are helping to bring the work of academics and industry leaders to a larger audience.

"The quality of the invited guests and speakers is unmatched, such as a recent talk by renowned environmental researcher Vaclav Smil, distinguished emeritus professor at the University of Manitoba and a favourite of Bill Gates.

In 2014, prominent energy researchers and policy specialists from around North America gathered at McGill to participate in ‘Storage in Sustainable Electrical Energy Systems’, a research workshop focusing on the technological and policy issues of using energy from systems such as wind or solar energy farms.

Creating an institute that brings all those key players together to engage and share engineering and design solutions benefits not only the organizations directly involved, but our collective future.

Subhasis Ghoshal, is a William Dawson Scholar and an expert in the area of geo-environmental engineering.

Five graduate fellowships and 15 undergraduate awards in sustainability have been funded by philanthropic donations.

TISED will launch a Master’s program in sustainability in 2017.
One branch of Frigon’s work focuses on finding a way to simultaneously harvest methane and produce safe biofertilizer from solid waste.
CLEAN-WATER LABS

THE BENEDEK INTEGRATED LABORATORIES IN ENVIRONMENTAL ENGINEERING IS EXAMINING TECHNOLOGIES THAT CAN CONTRIBUTE TO THE PRESERVATION OF THE EARTH’S MOST VALUABLE RESOURCE.

“There are a lot of resources in wastewater—the question is, how can we harvest them?” asks Civil Engineering professor Dominic Frigon. Frigon's research is leading to new approaches for using microbes to treat waste. It’s just one of the many wastewater management projects worked on at the Benedek Integrated Laboratories in Environmental Engineering.

The Benedek Labs were inaugurated in 2010 thanks to a major gift from Diana Mourato-Benedek (BSc ‘81, MSc’83, PhD’90) and Andrew Benedek (BEng’66, DSc’05). The Labs provide researchers—most of whom are also members of the Trottier Institute for Sustainability in Engineering and Design—with the means to examine new technologies available to preserve the planet’s water reserves.

“Clean water is critical for enhancing human capacity,” says professor Ronald Gehr, the Labs’ Director. “The Benedek Labs give us the capacity to establish proper spaces for some $2M worth of highly-specialized research tools, such as our nanoparticle tracking analyser, nucleic acid microarrayer and epifluorescence microscope.”

Tools such as these are critical to the ongoing research of these civil engineers. One branch of Frigon’s work focuses on finding a way to simultaneously harvest methane and produce safe biofertilizer from solid waste. Frigon’s team is investigating methods of doing this at much lower temperatures, substantially reducing the costs of the process.

Civil Engineering professor and Director of TISED, Subhasis Ghoshal, also bases his research in the Benedek Labs. Ghoshal has led multi-pronged investigations into how nano-materials can be used to clean contaminated water, and he is developing techniques to measure the concentration of nanoparticles in wastewater treatment plants. Last September that research was supported by a TISED-sponsored seminar on ‘Nanotechnology-Enabled Water Treatment’, given by Pedro Alvarez of Rice University.

“Nanotechnology brings huge benefits, but there is sufficient research to show that some nanoparticles can be toxic,” says Ghoshal, whose research demands the latest technology for tracking nanoparticles in wastewater.

“We need to know what nanoparticles come into the treatment plants before we can study what risks they might pose to environmental and human health.”

One half of the Benedek Labs is dedicated to research benches and equipment, and the other half to student workstations for teaching. Demand on both sides is high. Approximately 120 undergrad students are taught each year and over 50 graduate students have worked so far at the Labs. Researchers have produced 61 papers in peer-reviewed journals.

The Labs were also generously supported by Mo Harris [BEng’59, MEng’62] and his wife, the late Yulanda Faris [BA60].

The Labs increased the total lab space for environmental engineering by almost 40%.

The Labs and their research attracted $9.3M in research funding from government and industry.
Imagine filling up your car at the gas station with powdered iron that is low emission, fully recyclable and reusable. This is the potential of metal fuels—granulated chunks of metal that may one day surpass biofuels as an alternative energy source for transportation.

Metal fuels are produced by reducing metals such as iron, aluminum or boron into tiny powdered granules. The increased surface area makes the material highly combustible. What's more, since the metal is only oxidized in the burning process, it creates no pollutants and it can be recovered to be burned again.

Mechanical Engineering professor Jeffrey Bergthorson, an expert in the combustion properties of alternative and sustainable fuels, has focused until now on developing biofuel technologies to reduce reliance on fossil fuels. But recently he has begun to explore metal powder fuels as well.

"Biofuels will not be enough to completely displace current and future fossil fuel demand," says the TISED researcher. "Metal powders can run heavy machinery that cannot be powered by batteries, such as ships and locomotives."

By studying metal-water reactions for in-situ hydrogen production and the direct combustion of metal-fuel suspensions in air, Bergthorson's research group is developing the science and technology needed to harness the chemical energy in metal fuels.

To help him continue that research, in January 2015 Bergthorson was appointed the first 'Panda Faculty Scholar in Sustainable Engineering and Design', as well as TISED’s new Associate Director. The Panda Faculty Scholar Award, established by alumnus Ram Panda, aims to support research activities in sustainable engineering and design.

"There remains a lot to learn before we can use metal fuels in a practical engine," Bergthorson says. "So this award supports our work in studying the fundamental combustion properties of metal fuels, and eventually in developing prototype combustion systems."

POWDERED METALS ARE THE NEW FOCUS OF RESEARCH AT JEFFREY BERGTHORSON’S ALTERNATIVE FUELS LAB.

In 2014 Bergthorson was awarded the Principal’s Prize for Excellence in Teaching.

There are currently 19 undergraduate, graduate and post-graduate students working at Bergthorson’s lab.
“Metal powders can run heavy machinery that cannot be powered by batteries, such as ships and locomotives.”

-Jeffrey Bergthorson, Panda Faculty Scholar in Sustainable Engineering and Design

Mechanical Engineering student Jessica Droujko (right), Eng'16, joins friends in celebrating her winning the S.U.R.E. 2015 TISED Prize. Professor Bergthorson supervised her research in her project titled: Effect of Preheating on Burning Velocity of Aluminum Laminar Premixed Bunsen Type Flames.
Your father was instrumental in shaping your view of philanthropy. How is that?

RAM PANDA: It’s all about community. He lived in a small village in Andhra Pradesh, India that had no electricity and no water system. He knew that agriculture was a fulcrum of economic development, but that without water and electric power the community’s farmers could not become more productive. So my father fought a largely single-handed battle to get those things for the village. I grew up with the idea that unless the community around you prospers, you cannot prosper.

And like your father, you favour education and knowledge as levers of long-term growth. Is that idea of sustainable development tied to your focus on environmental sustainability?

PANDA: Yes, certainly. But the issue of sustainability has to be tackled from different directions—the demand side as well as the supply side. Modifying consumption behaviour is in itself an exercise in sustainability. It’s not just about finding more energy and different forms of energy, but also about regulation, educating the consumer, using products that have a longer life cycle.

“What kinds of materials should I use? Are they toxic to the environment? How long will this product last? How much of it is recyclable?” If we can produce a certain percentage of students who think about these issues, I believe something will come of it that will be world-changing.

Your friendship with Lorne Trottier has been instrumental in bringing the idea of sustainability to the Faculty of Engineering at McGill. Can you tell us how the Trottier Institute for Sustainability in Engineering and Design came about and what you and Lorne intended with it?

PANDA: It’s true that I first proposed it, but I think it was just a matter of timing. If I had waited a few months I think maybe Lorne would have proposed it instead! To my great surprise, with the small amount of money I gave—in combination with support from Lorne, friends like Howard Stotland and the University—the Institute for Sustainability in Engineering and Design (ISEAD) came into being. Lorne later turned this initial centre into TISED. Within the University the students caught on, and other faculty members caught on: they all have become very enthusiastic supporters of sustainability.

And that’s the community you have built?

PANDA: That’s what you need. It’s not just about throwing money at it. You need the leadership and the enthusiastic supporters that are members of that community. It is an emotional issue for many people. We now have a structure within the Faculty where you can contribute your funds to fellowships, or specific chairs or specific programs or public education seminars, and so on.
Ram Panda is President of Invera, a metal information technology company, and is a committed McGill alumnus. He arrived in Canada in 1968 as a graduate student from Andhra Pradesh, India.

"I grew up with the idea that unless the community around you prospers, you cannot prosper." - Ram Panda
"If I am getting a full-time job opportunity now, it’s because I had this support in school. I can’t say enough about the MESC." - Christy Genganantha
THE RIGHT PATH

CHRISTY GENGANANTHA’S STUDIES AT McGILL ENGINEERING WERE TRANSFORMED BY HIS INTERACTION WITH THE McGILL ENGINEERING STUDENT CENTRE.

Christy Genganantha was burnt out and somewhat disillusioned after an arduous first three semesters of Electrical Engineering at McGill.

“It was too overwhelming—I really didn’t think it would be so theoretical,” remembers Genganantha. “At a certain point I thought, ‘Why am I doing all this? The torture of studying all night, the torture of trying to get 80s?’”

But rather than give up, Genganantha (BEng’15) took matters into his own hands and sought help from the McGill Engineering Student Centre (MESC). A few months later, he landed an eight-month internship at Dessau (now Stantec), and his scholarship was transformed.

“I got to see what it was like to be out of school and to interact with professionals. I learned that these people are where they are today because they are smart and hardworking. Seeing that was very important for me.”

His internship at Dessau was followed by two summer internships with Genetec, whose CEO Pierre Racz (BEng’90) is also a McGill alumnus.

“The hardest thing for me about the summer internships was to land them,” says Genganantha. “To be honest, the first year I came to McGill I had no idea what a CV looked like except for those for Tim Hortons or MacDonald’s. The MESC helped me with how to approach professional companies.”

But in the end it was the networking aspect of these internships that really was critical to changing the undergrad’s outlook. It is the deciding factor, he believes, that will enable him to enter the workforce right after he graduates in December 2015.

“If I am getting a full-time job opportunity now, it’s because I had this support in school. I can’t say enough about the MESC. They have guided me towards a path which will bring me more success in life.”
When Burnett Johnston took on an internship position with the Summer Undergraduate Research in Engineering (SURE) program in the summer of 2012, he was taken aback by how personal the project would become to him.

“I was working with Mechanical Engineering professor Damiano Pasini on innovative hip replacement materials just at the time my grandmother had a hip implant go bad. It was quite moving to be able to work on a project so close to my heart.”

That internship program run by the McGill Engineering Student Centre gave Johnston the research bug—it hasn’t left him since. Johnston applied to work in Pasini’s lab as a Master’s student and became an integral part of the team working on the project, ‘Fully Porous Hip Replacement Implant Capable of Eliminating Bone Resorption’.

The project is a team effort that includes Johnston, Pasini and Sajad Arabnejad, along with Michael Tanzer, MD, from McGill’s Department of Surgery. Together they are developing an innovative material that has the potential to tangibly improve the lives of hip replacement patients.

Currently, solid metal is used to replace hip ball joints and sockets. As metal is considerably stiffer than the surrounding bone, body weight is transferred to the replacement. This under-loads the bone tissue, leading to what is known as ‘stress shielding bone resorption’, in which calcium and other minerals are reabsorbed into the blood stream, weakening the bones. In turn, this can lead to more fractures and additional risky operations.

Pasini’s lab has developed a fully-porous biomaterial with an added titanium alloy. The material has high strength, but it can be mechanically tuned at each point of bone contact to match the bone’s properties. This decreases the risk of fracture and increases the service life.

For his Master’s degree, Johnston carried out bench-top testing to characterize the performance of the new material.

“I was able to verify the original predictions,” he explains, “and we could start to think about what would be required for a spin-off so the technology could make it to market.”

Thanks to more alumni giving, that goal is looking within reach now. Ava Orthopedics, the company started by the team, won first prize in the Desautels Faculty of Management’s McGill Dobson Cup in the category of Innovation Driven Enterprise Track. They also took home an Innovation Catalyst in Engineering prize via our Faculty’s William and Rhea Seath Awards program.

“The Dobson Award is contributing to the cost of further testing and commercialization,” says Johnston. “Without these awards, this material would have just been a good engineering concept. Now we are looking to make a physical product.”

Johnston continues to work on the project while heading into a medical degree at McGill.

“My involvement in this project has given me incredible opportunities, and has shaped my career,” says Johnston. “The SURE program was my first true exposure to research—it’s when I fell in love with it.”
"I was working with Professor Damiano Pasini on innovative hip replacement materials just at the time my grandmother had a hip implant go bad. It was quite moving to be able to work on a project so close to my heart." - Burnett Johnston
When Peter Fu (Dip. Housing ’91) came to McGill after his architectural studies at the Tongji University in Shanghai, China, he was impressed by the high quality of education at the Faculty. So after his graduation, he wanted to give back. That’s why the president of the renowned Chinese architecture firm K.F. Stone Design International Incorporated set up an exchange program to bring architecture students from McGill to Shanghai to participate in an annual international design competition.

Thanks to Peter Fu, our School of Architecture was one of eight foreign schools invited to travel to China’s largest city this past June to take part in the 2015 Tongji International Construction Festival. Led by professor Howard Davies (BSciArch’81, BArch’82, BArch’84), the team took second prize in the Corrugated Cardboard Design and Construction Competition in Shanghai. They were competing against 15 Chinese schools and seven other schools from around the world.

The McGill students won second prize for their project, ‘Pop-Up Shelter’, which featured a deployable shape-changing structure with potential use as an emergency shelter.

Team participant Ariela Lenetsky (MEng’16) describes her subsequent internship at Peter Fu’s firm after the competition as an “eye-opening experience”. For her, having the opportunity to design a large-scale project in China taught her about what it means to build a community within a larger city.

“After many long hours of discussing design ideas in Peter Fu’s office, when our concept finally took significant shape, I felt like my education was translated into professional practice,” she says. “It’s one of those instances where all the hard work you have done in your education is finally applied to the real world into something concrete!”
THE SCHOOL OF ARCHITECTURE WAS ESTABLISHED IN 1896 THANKS TO A GIFT FROM SIR WILLIAM C. MACDONALD, McGUILL'S LARGEST BENEFACOR.

- BSc(Arch) students: 165
- Graduate students (MArch & PhD): 130
- Full-time professors: 13.5
- Part-time professors: 17

Our Faculty's School of Architecture took second prize at the Corrugated Cardboard Design and Construction Competition in Shanghai.
Ian Soutar's (BEng'56) inspiration to create the McGill Engineering Student Centre (MESC) was inspired by—of all things—his wife Helgi’s Estonian origins. Helgi Soutar (BSc'58) wanted to give back to her native country, so the pair funded four exchange students from Estonia to come to McGill to obtain their MBAs. At the end of the program, one of the students in the group, a brilliant scholar, told Ian that he would have stayed in Canada if he’d had more support from the University to prepare him for the demands of the workplace.

“It seemed to me at the time to be something that was missing from McGill,” says Soutar from his office in Montreal’s Scotia Tower. “I spoke with Helgi and said, ‘You know, we should really invest in this. We need to help students prepare to get a job when they leave school.’” Thus the MESC was born.

The McGill Engineering Student Centre is an integrated career and academic advising centre. Soutar’s vision was to help students build skills and provide them with career guidance and academic support. Ten years on, Soutar is amazed at the success of his initial $1M investment (he gave a similar amount to the Desautels Faculty of Management), which has snowballed via the help of major donors who have contributed to the Centre’s evolution. Every year first-year engineering students log more than 2,000 unique visits, taking advantage of the Centre’s skilled team of academic and career advisors, as well as its 60 student-affiliated clubs.

“I am delighted at the involvement of the students,” Soutar continues, “especially the peer tutoring activities—there’s no better way of learning than student-to-student.”

Soutar’s attraction to students supporting students may have come from his own days at McGill in the 50s, when he was deeply involved in McGill’s extra-curricular life.

“I came to Montreal after growing up in the small town of Asbestos, Quebec and then I attended a somewhat strict boarding school with my older brother. So coming to the big city without the structure of that school or parental control was a real eye-opener—although it was kind of hard to get any work done,” Soutar laughs. “I became president of my fraternity and got involved in student life.”

It was these formative experiences and powerful memories that kept Soutar, an investment banker, coming back to his alma mater over the next five decades. He has given his knowledge and time to numerous fundraising campaigns, while serving on McGill University governing boards. All this, in addition to his financial support—the fruit of his long and successful career at Pembroke Management.

“My wife always says to me, ‘What’s the money all for, anyway?’ But I doubt people start out by saying: ‘I really want to give.’ I’ve been lucky enough to have people around me who taught me early on about the value of giving. John Dobson [BCom’49, LLD’96] was my mentor. He was incredibly generous and quiet about that giving. He taught me that it is wonderfully rewarding to spend your money on helping people. It’s like eating candy. It’s really fun.”
Career Services are an integral part of the McGill Engineering Student Centre (MESC), providing students with opportunities to gain career-related experience. Recently:

- 157 companies and 3,167 students attended McGill Engineering & Technology Career Fairs.
- 1,633 students attended 54 workshops and events and 1,791 students received individual advising, including mock interviews with recruiters from industry.
- 1,129 students and 124 professionals attended 36 Speaker and Networking Events, co-hosted with student clubs, industrial partners and McGill alumni.
- 49% of employed new graduates found their job as a direct result of myFuture job postings and events organized by the Engineering Career Centre.

"I've been lucky enough to have people around me who taught me early on about the value of giving." – Ian Soutar
More compact and flexible than traditional packaging, TemperPack products offer low-cost, high-performance and compostable insulation for e-Commerce groceries.

Above are the company's co-founders, Charles A. Vincent and James McGoff.
Commercializing engineering is about bringing innovative ideas to market that address the needs of industry—they’re even better when they also protect the environment. This is the case with TemperPack, a company that is commercializing innovative cold-chain packaging materials and processes developed by two Faculty of Engineering undergraduates, who were helped along the way by the William and Rhea Seath Awards in Engineering Innovation.

TemperPack Inc. is a company that produces light-weight, highly-insulating and environmentally-friendly shipping containers that can be used to transport temperature sensitive materials such as perishable foods and medical supplies. Compared with traditional shipping packaging, such as Styrofoam containers, TemperPack substantially reduces the burden on the environment by using earth-friendly, compostable materials without compromising thermal performance.

The company was founded in 2013 by Mining and Materials undergraduate students James McGoff (BEng’15) and Charles A. Vincent (BEng’13).

During their studies at McGill, they examined the unique properties of the material ‘aerogel’ as a material for a cooling product. They developed a product they called LifePack. But as they shopped their ideas around, they soon realized that it was not going to be commercially viable.

“The aerogel market is still maturing and there is not quite enough demand in packaging to justify the price point aerogel products require,” says James McGoff, from the company’s head office in Richmond, Virginia. “It’s an awesome material though—definitely keeping an eye on it for the future.”

Instead, following the suggestions of their clients, the pair took a look at the insulating properties of natural fibres as an alternative to non-renewable materials.

The entrepreneurs realized that hundreds of millions of jute bags (used to hold products like coffee and cocoa beans) were being discarded in the U.S. every year and could be repurposed as insulation. McGoff and Vincent developed a manufacturing process to grind these bags up and reprocess the fibres into an insulating material through a technique that creates minimal contact between the fibres and maximizes the air to reduce heat conductivity.

“In June 2015, we successfully launched Jutebox—an earth-conscious shipping container derived from 100% recycled plant fibers,” Vincent says. “Within six months, we had disrupted the once Styrofoam-dominated market, and are now seeing industry leaders switching to our product.”

More compact and flexible than traditional packaging, TemperPack products offer low-cost, high-performance and compostable insulation for e-Commerce groceries. Currently, TemperPack provides hundreds of thousands of packaging products to several of the largest e-Commerce food companies in the US, the UK and Canada.

“The most interesting thing for me is our product design,” continues McGoff. “It’s what wins the hearts and minds [and contracts] of our customers. We’re always coming up with faster and cheaper ways of making our products. It’s a great marriage between engineering know-how and profit potential. I love knowing that a different way of folding something or heating or sealing something could lead to that next million-dollar contract. It’s the perfect motivation to put the materials engineering learning to work.”

The $20,000 from the William and Rhea Seath Awards in Engineering Innovation that McGoff and Vincent won back in 2013 was used to scale and sustain the company’s growth.

“That award was critical for us at that time because we had ideas, but no money. Customers want prototypes, prototypes cost money, money requires revenue via customers, but customers need to see prototypes before ordering. The William and Rhea Seath Awards helped us break out of a vicious circle and win our first contract [who is still a customer] by allowing us to pay for a prototype.”
THE INNOVATION CATALYST:
WILLIAM SEATH

THANKS TO WILLIAM AND RHEA SEATH’S PASSION FOR IMPROVING THE HEALTH OF THE QUEBEC AND CANADIAN ECONOMIES, INNOVATION AND ENTREPRENEURSHIP HAS BECOME A HOTSPOT AT THE FACULTY.

It all started over a coffee in Kingston in the fall of 2011, when a University Advancement Officer paid a visit to William Seath (BEng’52) to thank him for his loyal annual gifts to the Alma Mater Fund.

Seath had indicated that he might wish to make a major gift to the Faculty—he wasn’t convinced though about the ideas that were being suggested to him. He had tremendous respect for the research engine at the Faculty of Engineering, but he had questions: How does all this research benefit society? Does it lead to job creation and economic growth?

Over a period of time and after various meetings, the frank questions Seath asked led to him establishing a $2M endowment fund at the Faculty. Seath’s idea was to place more emphasis on the ‘development’ aspect of research and development, to encourage entrepreneurial start-ups, to increase industry partnerships, and to advance the Quebec and Canadian economies.

The new William and Rhea Seath Awards in Engineering Innovation, established in honour of his wife Rhea who passed away in 2006, support and recognize annually two outstanding individuals in the Faculty of Engineering—whether undergraduate students, graduate students or professors—who are conducting ground-breaking research with a potential for commercialization.

Another portion of the gift was used to establish the Innovations Catalyst in Engineering (ICE) office and to hire a full-time Industry Liaison Manager in the Faculty of Engineering. ICE has the dual mission of facilitating R&D collaboration between industry and the Faculty of Engineering and of promoting entrepreneurship within the Faculty of Engineering through funding (including the annual William and Rhea Seath Awards in Engineering Innovation), education and advice, and networking.

As a result of Seath’s seed funding, over the past three years a new venture has emerged at the Faculty. Tentatively named the ‘McGill EngInE’ (the Engineering Innovation and Entrepreneurship Centre), this new hub will focus on technologically-based innovation at the Faculty of Engineering, enabling students and researchers to grow their ideas in a creative, co-working environment, and serving as a resource centre for other technologically-driven entrepreneurial ventures across McGill. It will be the centrepiece of a concerted program that nurtures innovative ideas and projects, coordinates entrepreneurial efforts and enhances education.

Seath asked the Faculty important questions about how it educates and how research should benefit society. He also provided the Faculty with the incentives to embark on actively promoting innovation at the Faculty. His reason for choosing to invest in McGill at that Kingston meeting was simple:

“Without my McGill Engineering degree, I don’t know what I would have done with my life,” he says.

About William Seath
An aviation engineer by trade, William Seath spent his entire 39-year career with Pratt & Whitney Canada, the country’s largest designer and manufacturer of gas turbine engines. He retired as vice-president in 1991 and currently lives in Kingston, Ontario.

The William and Rhea Seath Award in Engineering Innovation
In April 2015, awards worth $249,469 were given out and many new donors have stepped in to establish new funds to help provide support for commercialization. Since 2012, there have been six recipients of the William and Rhea Seath Awards. This gift has also inspired others to step forward and establish a new Innovation Fund at the Faculty.
Seath’s idea was to place more emphasis on the ‘development’ aspect of research and development, to encourage entrepreneurial start-ups, to increase industry partnerships, and to advance the Quebec and Canadian economies.
WILLIAM SEATH HAS BEEN THE CATALYST FOR A GREAT TRANSFORMATION AT THE FACULTY. BUT THE STORY OF JOHN D. THOMPSON [BENG’57] ALSO ILLUSTRATES HOW ALL ALUMNI SUPPORT PROVIDES AN EDUCATION THAT IS RELEVANT FOR ENGINEERING, ARCHITECTURE AND URBAN PLANNING STUDENTS.

John D. Thompson always wanted McGill students to think entrepreneurially and acquire skills to help them in the workplace. In the early 90s, he contributed a prize to recognize outstanding business plans for engineering technologies, but there was no real home for this stand-alone prize at the Faculty until William Seath helped found the Innovations Catalyst in Engineering (ICE) office at the end of 2012.

In 2013, University Advancement approached Thompson with an idea to repurpose his donation to fund a seminar in entrepreneurial development. Thompson agreed. He decided to build up the original endowment and established the annual ‘John D. Thompson Entrepreneurial Development Seminar’, a flagship seminar on entrepreneurship at the Faculty. The annual seminar includes successful entrepreneurs, most of them Faculty of Engineering alumni, who come to McGill to discuss their experiences starting and building their companies, the challenges they faced, the skills they required and acquired, and lessons learned along the way.

As a result of discussions with the Faculty, Thompson’s support was targeted to enhance the entrepreneurial spirit at the Faculty and to inspire our students to think and act like entrepreneurs, whether they create their own companies in the future or are employed by start-ups or large corporations.

About John D. Thompson
Born in Montreal in 1934, John D. Thompson graduated from McGill University in Mining Engineering in 1957 and received an MBA in 1960 from the Ivy School of Business. He is currently director of Transat A.T. Inc., and is former director of many of the top Canadian corporations. John is on the Board of a number of non-profit organisations and is currently the Chair of the Macdonald Stewart Foundation in Montreal.
Chris Arsenault, Managing Partner, iNovia Capital, and James McGoff, Co-founder and President of TemperPack, at the 2016 John D. Thompson Entrepreneurial Development Seminar.
FROM GOLDEN MILE TO GLOBAL COMMUNITY

THOSE VISIONARY 19TH-CENTURY MONTREALERS FROM THE GOLDEN SQUARE MILE — MOLSON, FROTHINGHAM AND MACDONALD — SOWED THE SEEDS OF PHILANTHROPY TO ESTABLISH THE STUDY OF ENGINEERING AND ARCHITECTURE. TODAY YOU ARE AN IMPORTANT MEMBER OF A GLOBAL COMMUNITY OF PHILANTHROPISTS THAT IS CARRYING ON THAT TRADITION.

HERE ARE SOME OF OUR PHILANTHROPISTS FROM AROUND THE WORLD:

1. Diana Mourato-Benedek & Andrew Benedek (USA) Residents of Rancho Santa Fe in California, Diana Mourato-Benedek (BSc’81, MSc’83, PhD’90) and Andrew Benedek (BEng’66, DSc’05) are recognized internationally for their contributions to the field of environmental engineering. Their links to McGill were forged by Mourato-Benedek’s deep admiration for her mentor, Emeritus Professor Raymond N. Yong (MEng’58, PhD’60), former Director of our Faculty’s Geotechnical Research Centre.

2. Leon Fattal (UK) Leon Fattal (BEng’62) knows the life-changing potential of giving. Born in Kobe, Japan March 29, 1940 to an Iraqi father and English mother, the Pearl Harbour event kept Leon’s family in Japan during the war until they finally got their opportunity to leave after a ‘very kind Canadian family’ agreed to sponsor them as immigrants to Canada. Fattal’s most enduring memories from McGill were living at Wilson Hall, where he made lifelong friends, most of whom were in his engineering class.

3. Sultan Ali Allana (Pakistan) Sultan Ali Allana (BEng’83) came to McGill to study mechanical engineering, but he acquired more than knowledge—he also became part of a vibrant community. “It’s not the brick and mortar, but the people, the professors, who were simply amazing... the caring staff, and the friends I made,” he says. “Those form the strongest memories I carry of my time at McGill, and they still seem very fresh.”

4. Feng Lu (People’s Republic of China) When Feng Lu came to McGill in the fall of 1988, he enrolled in the course Advanced Steel Structures offered by the late Professor Richard Redwood. Later, Lu was accepted to prepare his Master’s thesis research under Redwood’s supervision, and he continued his study as a PhD candidate, still under Redwood. “Professor Redwood vigorously guided me throughout my years at McGill,” says Lu, “but even more, he and his family showed great care and attention to his students.”
When Choong Kong Chen (BEng’67, MEng’69 and PhD’72) arrived in Montreal in the 1960s, the young Malaysia-born, Singapore-raised student faced a number of cultural challenges. “But I was never made to feel like an outsider,” he says. “My classmates were all wonderfully welcoming. There were students from right around the globe—Nigerians, Brits, Australians, Trinidadians—you name it.” Chen has kept in touch with several of his old professors over the years, especially Emeritus Professor Raymond N. Yong (MEng’58, PhD’60).
THE SCOPE OF RESEARCH ACTIVITIES AND THE FUTURE GROWTH OF THE FACULTY WOULD NOT BE POSSIBLE WITHOUT THE GENEROUS CONTRIBUTIONS OF MANY BENEFACtors—THOSE THAT TRANSFORM WHAT WE DO, AND THOSE THAT MAKE SURE THAT TRANSFORMATION IS ENDURING. THE FOLLOWING LIST RECOGNIZES BENEFACtors WHO HAVE MADE A MAJOR GIFT TO OUR FACULTY SINCE THE END OF Mcgill’s ‘MAKING HISTORY’ CAMPAIGN, APRIL 30, 2013. TREMENDOUS THANKS TO ALL.

The Adelson Family Foundation
Eric L. Adler [PhD’66] and Lee Adler [MA’67]
Antje Graupe-Pryor Foundation
ArcelorMittal Mining Canada G.P.
John M. Bishop [BEng’47]
James H. Brodeur [BEng’56] and Barbara Brodeur
Michel Broz [BSc (Arch)’85, BArch’87]
Hugh Cameron and Heather Cameron
Canadian Institute of Mining, Metallurgy and Petroleum (CIM)
Choong Kong Chen [BEng’67, MEng’69, PhD’72]
Paul Cmikiewicz [BEng’86]
Barry H. Cooke [BEng’75]
Pasquale Di Pierro [BEng’76, MBA’80]
Engineering Undergraduate Society (EUS)
The Late Gerald W. Farnell [PhD’57] and Norma Farnell
Leon Fattal [BEng’62]
Patricia Ferretti
Fondation 3E
Sal Furino [BEng’72] and Joanne Furino-Remillard
Toby Gilsig [BEng’61] and Clare E. Gilsig
Google Inc.
Rubin Gruber [BSc’65, DSc’14]
William Jacob Heller [BCom’78]
Brian Bertie Hirst [BEng’76, BEng’77, MLIS’04]
Louis C. Ho [BEng’61]
Ross Hunt [DPK’84]
Hydro-Québec
Veronique Jotterand [BSc’76], Anna Jotterand Bosshard and Bertram Ehrenfried Sohl [MDCM’80]
Nicolas Kauser [BEng’63] and Judy Kauser
Martin Nell Kon [BCom’93]
Steve C. Lachak [BEng’76]
Robert G. H. Lee [BEng’44, DSc’98] and Maude Lee [BEng’50]
Dorothy Li
Yan P. Lin [PhD’92]
Feng Lu [MEng’90]
Peter David MacKinnon [BEng’66, MBA’91] and Karen MacKinnon [BCom’89]
Sylvia Marksfield [Dip.Ed’41]
Ciro R. Martoni [BEng’68, MEng’71], Shirley Ann Sobol-Martoni [BED’79] and Family
A. Allan McAlear [BEng’57]
David C. McCutcheon [BEng’61]
Alexander Anderson McGregor [BSc’48]
The Gwyn Morgan & Patricia Trottier Foundation
Samuel E. H. Nguyen [MBA’83]
Ram Panda [MEng’71, MBA’77] and Durga Panda
Bharat M. Patel [BEng’69]
Norman Pearl [BEng’79]
Pratt & Whitney Canada
Provencher Roy & Associés Architectes
Kenneth J. Radcliffe [BEng’48]
Rio Tinto
Tom Rogers [BEng’55]
William M. Seath [BEng’52]
Mahesh Sharma [Dip.Eng AALD’68, MEng’72, Dip. Man’74, MBA’76]
Shell Canada Limited
Ian Soutar [BEng’58] and Helgi Soutar [BSc’58]
Stendel + Reich Architecture Inc.
Howard Stotland [BEng’66] and Vivian Miller
Peter C. Tekker [BEng’63, Dip. Man’67]
John D. Thompson [BEng’57]
Total E&P Canada
Toyota Canada Inc.
Lorne Trottier, CM [BEng’70, MEng’73, DSc’06]
The Crown Prince Court UAE
Ubisoft Montréal
Les Vadasz [BEng’61, DSc’07]
Nancy Van Laeken
Vigilant Global
Robert Andrew Walsh [BEng’65]

*The above list of Major Gift benefactors is not comprehensive; many individuals wished to remain anonymous.*
MAJOR GIFTS FROM MCGILL’S ‘MAKING HISTORY’ CAMPAIGN

Each one of you is part of that extraordinary continuum of philanthropy that began with the first seminal gifts of the Golden Square Mile residents and Sir William C. MacDonald, and connects our faculty’s storied past with its future. McGill’s five-year ‘Making History’ campaign, which ended April 30, 2013, was an important first for us to bring our alumni community together. The campaign provided a focal point for the deeply human impulse of McGill alumni and donors to give back to their community.

Our engineering, architecture and urban planning alumni joined with industry, parents and friends to raise $86m for the faculty of engineering. And together with other alumni, they raised just over $1b for the university as a whole. We extend our profound gratitude to you all on behalf of the students and professors whose education and lives have been so positively influenced by philanthropists. The following is a list of benefactors who generously provided a major gift to McGill’s ‘Making History’ campaign.

3M Canada Inc.
Jordan Aberman, Liliane Aberman (BA’65) and Arianne Aberman
The Late John Adjeleian (BEng’52) and Elizabeth Adjeleian (BA’54)
Sultan Ali Aliana (BEng’83, DipMan’84)
Linda E. Anderson (BA’64)
Bisera Anderson (BScArch’70, BArch’71)
Antje Grupe-Pryor Foundation
ArcelorMittal Mining Canada G.P.
The Late David Azrieli, CM, CQ and The Azrieli Foundation
John O. Baatz (BEng’62) and Helen Baatz
Barrick Gold Corporation
Andrew Benedek (BEng’66, DSc’05) and
Diana Mourato-Benedek (BSc’81, MSc’83, PhD’90)
BHP Billiton
Ronald C. Biggs (PhD’68) Deanna Biggs
John M. Bishop (BEng’47)
BMO Nesbitt Burns Inc.
Nathan Boersma (BEng’13), Leh-Sih Boersma and Norman J. Boersma
The J. Armand Bombardier Foundation
Roger R. Boudreault (BEng’60)
James H. Brodeur (BEng’56) and Barbara Brodeur
Richard Brown (BEng’61) and Anna Brown
L. Grant Burton (BEng’63)
Caesar Cesaratto (BEng’70)
Alice Chan-Yip (MDCM’62)
Choong Kong Chen (BEng’67, MEng’69, PhD’72)
Ronald Chwang (BEng’72, DSc’12) and May Seto (BEd’75)
Bryan A. Coates and Danielle Gauthier
Crossley Engineering Ltd.
De Beers Canada Inc.
Pasquale Di Pierro (BEng’76, MBA’80)
W. J. M. Douglas
Engineering Undergraduate Society (EUS)
The Late Gerald W. Farnell (PhD’57) and Norma Farnell
Leon Fattal (BEng’62)
Michael M. Fieldman, FAIA (BSc’59, BArch’63)
Mark Firth (MSc(ENG)’71)
Fondation 3E
John F. Frisch (BEng’52) and Joan P. A. Frisch (BSc(PE)’54)
David T. F. Fung (BEng’70, MEng’72, PhD’79)
Gilles Gagnon (BEng’46, BArch’49)
Satyajit Nimu Ganguli (BEng’85, MEng’88)
Samuel Gewurz (BA’61) and Brenda Gewurz (BSc’68, MSc’70)
Abe Gomel (MArch’09) and Rachel Gomel (MA’79)
Our Benefactors

Annabel M. Griffiths
The Late Philip H. B. Hamilton (BEng'54) and Judy Hamilton (BA'54)
Hatch Ltd.
The Late Gerald G. Hatch, CM (BEng'44, DSc'90)
William Jacob Heller (BCom'78)
Mortimer Hendler (BEng'49)
Brian Bertie Hirst (BEng'76, BEng'77, MLIS'04)
Louis C. Ho (BEng'61)
Hydro-Québec
The Late Geoffrey Fyfe Hyland (BEng'66)
Sylva Jurney
The Late Maxwell M. Kalman (BArch'31)
David W. Kerr (BSc'66) and Sheryl L. Kerr (BCom'67)
The Late Robert B. Killam (BEng'43) and The Windsor Foundation
Eva and George Kostiuk
Phyllis Lambert (DLitt'86), CC, CQ, GOQ
William Lassner
Arthur C. F. Lau, CM (BArch'62, BSc'62) and Crystal Lau (BSc'62)
Normand F. Lepine (BEng'83)
Arthur Levine (BEng'81)
Yan P. Lin (PhD'92)
Ernest C. B. Macnabb (BEng'37)
The Late Louis B. Magil (BArch'36)
Scott T. McCaig (BEng'08) and The Jeffrey and Marilyn McCaig Family Foundation
The J. W. McConnell Family Foundation
Alexander Anderson McGregor (BSc'48)
The Late Arthur H. Mendel (BEng'44) and Beverly Mendel
Newmont Mining Corporation
Benno E. Novak (BEng'60, DipMan'73)
Cornelia Hahn Oberlander, OC, CM (BSc'08)
Bernard and Anne Oppetit
Toomas Paasuke (BEng'64)
Ram Panda (MEng'71, MBA'77) and Durga Panda
Clifford L. K. Pang (BEng'65)
Filip Papich (BEng'83) and Carol Papich (BEng'86)
Paterson Cooke Canada Inc.
Pratt & Whitney Canada
Questek Innovations LLC
James Redpath (BEng'58)
Rio Tinto
Marika Roy (BEng'61)
Jacques E. Samson (BEng'63)
Seymour Schulich, OC (BSc'61, MBA'65, DLitt'04) and The Schulich Foundation
William M. Seath (BEng'52)
SGI Canada
Gerald Sheff (BArch'64)
Shell Canada Limited
SNC-Lavalin Group Inc.
Michael D. Sopko (BEng'60, MEng'61, Ph.D'64, DSc'04)
Ian A. Soutar (BEng'58) and Helgi Soutar (BSc'58)
S. Allan Stephens (BEng'62) and Linda Stephens (BN'67, MSc'87)
Howard Stotland (BEng'68) and Vivian Miller
A. Scott Taylor (BEng'50)
Teck Resources Ltd.
Texas Instruments
Total E&P Canada
Lorne Trottier, CM (BEng'70, MEng'73, DSc'06)
Les Vadasz (BEng'61, DSc'07), Judy Vadasz and the Vadasz Family Foundation
Esther Varkay (BScArch'94, BArch'86),
Ariana Mavaddat and Carla Mavaddat (BA'15)
Edward A. Wilson (BEng'68)
Wilson K. L. Wong (BEng'59, DSc'98)
Garry Zlotnik

*The above list of Major Gift benefactors is not comprehensive; many individuals wished to remain anonymous.*
Sir William C. Macdonald (1831-1917) was one of the greatest educational philanthropists of his day, and a major force in our Faculty’s early development.
PHILANTHROPIC IMPACT IN THE 2014/15 ACADEMIC YEAR

129 STUDENTS WERE SUPPORTED BY SCHOLARSHIPS

64 DONOR-FUNDED S.U.R.E. AWARDS WERE BESTOWED

270 STUDENTS RECEIVED BURSARIES

128 DONOR-FUNDED FELLOWSHIPS WERE AWARDED

FUNDING DISTRIBUTED TO STUDENTS

<table>
<thead>
<tr>
<th>Scholarship Type</th>
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<tr>
<td>In-Course Scholarships</td>
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<td>Entrance Scholarships</td>
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157
PROFESSORS

2
SCHOOLS

6
DEPARTMENTS

3
INSTITUTES

3
RESEARCH CENTRES
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<th></th>
<th>Graduate Program Demographics</th>
<th>Undergraduate Program Demographics</th>
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<tr>
<td>Graduate Students</td>
<td>1,143</td>
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<td>International Students</td>
<td>48%</td>
<td>28%</td>
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<td>Students from Quebec</td>
<td>36%</td>
<td>46%</td>
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<tr>
<td>Students from the Rest of Canada</td>
<td>16%</td>
<td>26%</td>
</tr>
<tr>
<td>Female Students</td>
<td>27%</td>
<td>26%</td>
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SHOULD THE RESERVOIR BREAK,
AND ITS EFFLUENCE TAKE,
A PRECIPITOUS COURSE DOWN THE HILL,
THE WATERS MIGHT COVER,
THEY NEVER COULD SMOOTHER
OUR DEAR OLD MOTHER McGILL.
SHOULD HER STOCKS GO TO SMASH
SHOULD HER HANDS AND HER CASH
BE PURLOINED FROM THE GOVERNOR’S TILL
THERE STILL WOULD BE PLENTY,
FAIR MAIDENS OF TWENTY
LESS SOUGHT THAN OLD MOTHER McGILL.

McGILL, McGILL MOTHER WE’RE PROUD OF,
SHE HER TRUE, HER TRUE, HER DUTIFUL CHILDREN WE
SHOULD THE LIGHTNING COME DOWN,
ON HER WEATHER-BEAT CROWN,
SHOULD THE FLAMES BATTER ON HER AT WILL,
‘MID SORROW WE’D PRAISE HER
FROM RUINS WE’D RAISE HER
WE’D RALLY ROUND MOTHER Mc GILL
E’EN IMPERIOUS TIME
HAS ACCOUNTED IT CRIME
TO USE HER, AS HE USES US ILL,
THE YEARS MAKE US HOARY,
BUT ONLY BRING GLORY
AND HOMAGE, TO MOTHER Mc GILL

SHE HAS GIVEN US MORE
THAN A TARNISHING STORE
OF TREACHEROUS, BEGGARLY GOLD;
SHE HAS GIVEN US TREASURES
OF LABORS AND PLEASURES,
AND FRIENDS WHO WILL NEVER GROW OLD.
WE WILL ECHO HER FAME,
AND OUR LINEAGE CLAIM
AND EXALT HER EMBELLISH CARESS
TO HER THROUGHOUT AEONS
SHALL RISE JOYFUL PEONS
FROM VOICES OF THOUSANDS WHO BLESS

"McGill",
from the The McGill University
song book, compiled by a committee
of graduates and undergraduates,
published in Montreal by W.F. Brown,
circa 1896.

Written by C.W. Colby,
M.A., Ph.D., D.C.L., Ll.D.
Director, Canadian Bank of Commerce
and other corporations;
a distinguished Canadian historian
and formerly Professor of History,
McGill University