

# **McGill: Leadership in a New Century**

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**THE DOROTHY KILLAM MEMORIAL LECTURE**

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Today I want to discuss McGill's leadership role in this new century, and I can't think of a better occasion than the Killam Lecture. Dorothy Killam was a visionary. Her endowments for research and advanced learning in Canada constitute a unique legacy for our country.

Dorothy Johnston Killam and her husband, Izaak Walton Killam, were a remarkable couple. He began his career selling newspapers in Yarmouth, Nova Scotia, and ended up as the leading Canadian industrialist and financier of his time. She was an athletic, outgoing American girl from St. Louis with a passion for baseball, who adopted Canada as her country, and Montreal as her home. With no children of their own, they left their considerable fortune to a number of worthy endeavours.

Of her husband, Dorothy said, "He had a long range plan for his money after death just as he always had a long range plan for his money in life." But it was Dorothy Killam's will that brought Izaak's plan to life at the time of her own passing in 1965.

No amateur at managing investments, Dorothy Killam had more than doubled the value of her portfolio over the final decade of her life. She left an immense fortune by the standards of the 1950's and 60's – more than \$80 million – to hospitals and universities.

"My purpose in establishing the Killam Trusts," she wrote, "is to help in the building of Canada's future by encouraging advanced study. I hope in some measure to increase the scientific and scholastic achievements of Canadians, to develop and expand the work of Canadian universities, and to promote the *sympathetic understanding* between Canadians and the peoples of other countries."... Just think of it - she was a genius!

Five institutions of higher learning, including McGill University through its Montreal Neurological Institute, were the beneficiaries of the Killam Scholarships. The Killam Prizes, administered by the Canada Council, are among the most prestigious and generous in Canada.

So tonight we pay tribute to Dorothy Killam and her vision with the establishment of this new lecture in her honour. I allow myself to think that she would have been pleased at the prospect of McGill's first female principal delivering this lecture in her name, and doing so on the theme of McGill and its leadership role in this new century. Let me say, it is a privilege to serve as the 16<sup>th</sup> Principal of McGill, and an honour to deliver the inaugural Dorothy Killam Memorial lecture.

At McGill, we stand on the shoulders of many. Our university's founder, James McGill, proposed the first act of the legislature after the establishment of Lower Canada in 1791: "An act to prevent the bringing of gun-powder in ships and other vessels into the Harbour of Montreal." He envisioned a peaceful society with a university at its heart. Acting on this vision 191 years ago, he left in his will, "a parcel of land, to the Royal Institution for the Advancement of Learning... to erect and establish a University for the purposes of education and advancement of learning in this province."

We stand on his land. We are the beneficiaries of his imagination.

This year the Princeton Review has ranked McGill among the most diverse of any university in North America, and first overall for the most harmonious race and class relations. More than half of our student population are native Quebecers, and, over 20% of our students are francophones. The remainder come from the rest of Canada and another 180 countries worldwide.

The McGill Diaspora – our graduates – number over 170,000 men and women throughout the world. Among them are Nobel laureates, Olympic medallists, and Prime Ministers. We are currently home to Killam Prize winners, Killam professors, Killam fellows, more than 100 members of the Royal Society of Canada, as well as members of the prestigious Royal Society of London and the American Academies of Science. And, a few of our colleagues, like Dr. Brenda Milner, have been recognized by three or more of these distinguished bodies. The vision and the legacy of James McGill in one century, has been upheld and enhanced by the vision and the legacy of Dorothy Killam in the next.

Now as we set out on the third McGill century, I'd like to sketch out some of the challenges facing us. And these challenges are also Canada's challenges.

Over the next eight years Canadian universities expect a 20 to 30 percent increase in student enrolment. Canada's universities will have to replace approximately 20,000 retiring faculty members, and hire 20,000 more to respond to student needs.

If Canadian universities are to be competitive by international standards, we will need to attract \$6.4 billion in new research funding, and another \$6.2 billion in operating revenues. At the same time, we will award 1.6 million bachelor's degrees and 330,000 graduate degrees.

Canada's university graduates will form the core of this country's educated professionals, entrepreneurs and community leaders. They will form the virtual heart of Canada's economic prosperity, health and social well-being. Canadian university graduates will fan out across the globe to take up positions of prominence and responsibility on every continent.

The competition for the best students, for the best professors and staff, for superb ideas, high impact innovations and for investment is already intense. It is also worldwide. The time when competition was essentially local is long gone. Canada and Quebec will prosper only to the extent that they can place in this worldwide competition. I make this simple pledge on behalf of those who came before me, and on behalf of those who will follow... McGill will rank with the very best public research intensive universities in the world.

The question is, "What is our vision of McGill's leadership in this new era?" What will we do in the coming decade to create a better nation and a better world? What will McGill do to explore the universe, eradicate disease, reduce poverty, enrich the arts, increase prosperity, and, elevate the virtue of tolerance as our primary value? What kind of human beings will we raise to stand on *our* shoulders?...

Early on, the city in which this university is located, Montreal, quickly found its identity as a port – a trading city – a place that benefited from a mix of cultures and a diversity of new ideas and high aspirations – a place that was open to the world.

Paradoxically, our city is also an island – separated from the rest of North America by water. And this fluid border serves as a subtle reminder for us to stand back from the buzz and clatter of an accelerating, and, increasingly, non-reflective, society.

Just as the brain is surrounded by protective and nurturing fluids, our presence on this island reminds us to think deeply. To question accepted ways. To take the time to seek profound solutions to problems that others may be unwilling to face.

And like our island, our university also has a mountain at its centre – encouraging us to lift ourselves to higher standards. To be truly worthwhile, our efforts must have a higher purpose and we must achieve our higher purpose. And our presence on this mountain facing the St. Lawrence River encourages us to ask ourselves, “What is our higher purpose?” What are we doing – not just for survival or comfort – but, linking out to others, for the benefit of our environment, of humankind, and of the other species with whom we share this world?

The privilege of standing on this mountain confers on us a *duty* to see farther than others, to share what we see, to consider our place in the world, and to act on our insights. To *seize* our distinctive leadership role. And that is what we are doing.

Consider, for a moment, the “information revolution”. Twenty-five years ago, when I was a graduate student, I did my research on huge mainframe computers. To make sure we could get time on them, we had to book these days in advance. At that time nearly 100% of the world’s computer power was in stand-alone mainframes. Today, nearly 100% of it is in small personal computers whose capacity, according to Moore’s Law, doubles every 18 months.

And most of those little desktop and laptop computers are connected by millions of websites to approximately a billion Internet users. But even though we call this the information revolution, these computers, at best manage and multiply information. The university champions knowledge over information – knowledge that continues to be created by human imagination, human curiosity and human intellect. The computers just collate information and move it around quickly and indiscriminately.

Yet even in the case of information, where it is unmanaged, unreflected, or without conscience, the action of moving it around can give rise to computer bugs, viruses, and the spread of non-productive, and sometimes, *destructive* information – hate literature, child pornography, internet predators. Twenty-five years ago, we did not see that coming.

Twenty-five years ago, when I was a graduate student in epidemiology – the study of epidemics – we were told that the age of infectious diseases was over. Conquered. From now on human health considerations would be limited to the so-called “man-made” diseases – cancer, heart disease, psychiatric disorders.

But that vision, too, was limited. It did not anticipate the return of tuberculosis, or the emergence of AIDS or SARS, or the new generations of super-viruses. Twenty-five years ago our confidence in biomedical science was cocky. We let down our guard. Now we find ourselves engaged in a

desperate race with unanticipated immunological diseases and super-viruses. But we can be comforted that at McGill, we have people working on these problems 24 hours a day ... Health professionals. Life scientists. We are a research-intensive university with a renowned medical school... This is what we do.

And there is another – equally dangerous and perhaps more pernicious development that we did not anticipate 25 years ago: the re-emergence of sectarian hatred and intolerance. With the exception of some ancient conflicts in distant parts of the world, we did not see this coming. We did not expect hatred and intolerance to reach across the globe and invade our modern lives. But here it is. And we have to marshal our resources – all of us – our physical resources, our spiritual resources, our intellectual resources, our *human* resources – to pursue ways of eliminating this incendiary ignorance that has reappeared to attack our civil society.

The good news is that we also have people staying up late working on this. Social scientists and others. As a fully internationalized, research-intensive university, this too is what we do. And we contribute to programs like the Sauvé Scholars Program, and others, that bring bright young people from cultural groups in conflict to work and study together and to build bridges into cooperative endeavour.

So maybe that's the way to bring about world peace? Bring everybody to Montreal. Get them a place on the Plateau... share a bagel...

In any case... these programs are a cause for hope. This shouldn't surprise us. We're a university... This is what we do.

In fact, one of the beautiful things about being Principal of McGill, is this: No matter what tough problem you are tackling, you are tackling it surrounded by highly talented men and women, by people opening their minds and those of others; by stunning teaching and learning; by people young and old - building their confidence, falling in love, developing their talents, excited about the collective creativity and the collective contribution happening in our classrooms, our laboratories, libraries and on our athletic fields.

The ability of humankind to advance is the result of learning and research... And there is no difference, in my mind, between pure and applied research, or, between hard and soft science. In fact, all research is pure until, miraculously, it finds its application. Let me give you an example:

In 1924, a French physicist, Louis de Broglie, suggested that electron beams might be regarded as a form of wave motion. In 1926 it was demonstrated that magnetic or electrostatic fields could serve as lenses for beams of electrons. This initiated the study of electron optics – a new area of research offering the hope of being able to look more deeply into very small things.

It took another seven years before a true electron microscope was built, and an additional thirteen years before the achievement of a high resolution electron microscope was made possible by the invention of a device known as a stigmator a device which compensates for astigmatism in the objective lens. So it wasn't until 1946 that the first *really* good electron microscope became available.

A year later, in 1947, Jonas Salk arrived at the University of Pittsburgh, and in collaboration with researchers at other universities, began studying the polio virus. But with these new high-resolution microscopes, it was possible for Dr. Salk and his colleagues to look more deeply into the polio virus than had previously been possible.

The microscopes Dr. Salk used were of a complexity that he probably could not fully comprehend, and of a design that depended on skills Dr. Salk did not possess. Still, he used the equipment well, and eight years later, in 1955 the polio vaccine was released in North America – the result of a *chain* of research discoveries, largely done at universities, the most important of which *had no practical application at the time of their discovery*.

So if you ask me, “Is research important?”, I will tell you, “Yes.” Vitally important. Research results in knowledge, and solutions, in every human endeavour. Ambitious research attracts the most talented professors, and the most promising students. Research is about pushing the limits of our imagination in every direction. The Eureka moment does not occur in a vacuum – it requires diligence, it requires funding, it flourishes in a culture of optimism and excellence. Which brings me to my main point about leadership and our vision for McGill in this new century...

I believe that McGill has the capacity to be one of the top 10 research-intensive public universities in the world. This is where we are heading. So how do we get there?

First: Academic excellence. This is already already part of McGill’s time honoured tradition. Other universities only dream about having an international reputation like ours. But we cannot be complacent. We will either move forward or fall behind. We have to push McGill’s tradition and contributions of excellence further, and raise the bar higher, and let others know about our successes.

Second: This vision requires world-class personnel and the infrastructure to support it. A culture of excellence creates a *critical mass* of excellence.

James Watson and Francis Crick, who discovered the chemical structure of the DNA molecule, did not work alone. They were theoreticians, model-builders, dreamers. Among the other brilliant minds that surrounded them at Cambridge was a precise, cutting-edge, x-ray diffraction crystallographer named Rosalind Franklin. Crick and Watson needed her work to confirm their theoretical musings. Without her, they couldn’t know if they were on the right path or the wrong one. Ultimately, it was Rosalind Franklin who showed concretely that the DNA molecule was a double-helix supporting a ribonucleic chain halfway out from the central axis. Today, she too, might well have been awarded the Nobel Prize.

There was also an American organic chemist, Jerry Donahue, who happened to share an office nearby. He told Watson to disregard the bonding measurements in the standard organic chemistry textbooks. Donahue said that the traditional textbooks, which had been written without the benefit of the latest electron microscopes and x-ray diffraction technology, were littered with errors.

This freed Watson from certain creative constraints. So, to exist, excellence must be *surrounded* by excellence. And there must be creative interplay. Miracles do not happen in a vacuum. They

happen in a *culture*. McGill hired over 100 new professors last year. And the year before that... and the year before that. And we will hire 100 more each year for the next six years. This is an unprecedented period of renewal in our history. It must be done right. It must be done without compromise.

Fortunately, we are located at the heart of a city that consistently ranks as one of the ten best cities worldwide in which to live. And, we are in a country and a province that have, at least recently, invested creatively in research and researchers.

The McGill name carries a world-wide reputation for research. If we can be reasonably competitive in terms of our resources and enormously strategic in our application of them, we can achieve a very strong comparative advantage when competing for the best talent in the world.

Consider Professor Victoria Kaspi, Canada Research Chair in Physics who says: “I packed my bags and left MIT for McGill.” She is a face of the future. Increasingly, brilliant people have very good reasons for wanting to come here to McGill.

How then do we nurture their talent and all that they contribute?

For starters we need an improved, stable public funding framework that supports effectively and competitively superb teaching as well as research - and teaching linked to our research and its product. Education is at least as important to society as good health care.

Overall, Canadian universities are seriously underfunded. And, Quebec universities are funded significantly below the Canadian average.

The governments who are our partners in this enterprise must accept that top-level university teaching and research nourish unlimited branches of economic growth, population health and community well-being. History has shown us that jurisdictions that commit wholeheartedly to advancing the boundaries of pure knowledge are rewarded. Knowledge is the most valuable product of this Age. More valuable than oil. More valuable than gold. Creating knowledge and defining solutions are a core mission of our university.

And, we know that the public purse alone is insufficient to sustain excellent teaching and research leadership, or to attract and support the best talent.

Supporting the best requires the investment of wise governments to be accompanied by funds from other sources. Part of the cost of excellence is supported by our generous philanthropists. And some of the cost must also be borne through tuition fees but always linked to increasing aid for those in need.

Tuition fees in Quebec have been frozen for a decade since 1994, and not even indexed to inflation. Quebec-based students pay basic tuition fees of approximately \$1800 a year, less than half the cost in Ontario, and one-third the cost in Nova Scotia. Quebec tuition fees are the lowest in North America.

And this, in spite of the fact that many Quebecers choose to pay for a private education for their children when they are in primary or secondary school, and at some CEGEPs. What's more, research shows that low frozen university tuition fees do *not* enhance access to higher education. And they certainly don't sustain high quality programs.

Quebec's university enrolment and graduation rates are below the Canadian average. Nova Scotia, with the highest fees, also has the highest university enrolment rate in Canada. In Ontario, more young people from economically disadvantaged families are now attending university than previously, even though tuition rates have increased meaningfully, but with these increases tied to increases in student aid.

Moreover, in Western European countries that charge no tuition fees, university participation rates are lower still than Quebec. You simply don't achieve high accessibility or sustainable quality on the public purse alone. The evidence also suggests that financially able students who invest *more* in their education, have a greater stake in it. And for those who are financially disadvantaged, even with free tuition they often cannot attend university because they are unable to support their basic living costs.

Quebec students and their families who have the means should pay more than 10% of the cost of their education. And those who are not able should be adequately supported by student aid. Our legislators, our publics, and our universities, each of us, must have the courage to address this issue and to make the needed adjustments. If we do not, we will not achieve sufficient university participation or sustain quality – and quality must become a greater preoccupation of Canadians. Otherwise we will fall behind... But we will not let that happen.

We want a McGill that can guarantee that every qualified student will be able to attend regardless of financial status – something we cannot do today.

Like too many I grew up in a very poor family. I spent my early life desperately worried about money because my parents were. Over the years, I've noticed that money behaves in a very interesting way.

As the years pass, and people begin looking inward, the money they've gathered begins to change in character: Its existence is no longer reflected merely in a number at the bottom of a column. Money behaves less like money, and seeks a larger social purpose. It seeks applications that reflect our nobler instincts. It seeks to transform itself into something more enduring – something that lives beyond the physical body.

This money, that so often grew out of its owner's intelligence, seeks to return to intelligence. It seeks to build libraries, to understand the brain, to cure cancer... to achieve the highest aspirations of the imagination. It seeks to build human capacity and to become knowledge.



And, in the coming years, visionary donors, big and small, are going to come forward with money that they've worked their whole lives to earn. And they will ask McGill to help them convert that money into something as noble and enduring as their souls. As James McGill did. As Dorothy and Izzak Killam did.

We will soon launch the largest fundraising campaign in the history of McGill. We will do so to attract and support brilliant minds; state of the art classrooms and laboratories; to provide student aid; and, we will do it to access the advanced technology that the previous generation of Jonas Salks, Cricks and Watsons, Rosie Franklins, Ernest Rutherfords, Wilder Penfields, Brenda Milners and Vicky Kaspis could not have even imagined – because we are going to house, and nourish, and surround with excellence, the *next* generation of miracle workers, and the ones after that.

And we are going to enrich their minds with the Arts and the Social Sciences, the Life Sciences and the Physical Sciences, and the professions, and, the transporting dances that increasingly take place between and across these intellectual domains. And we are going to inspire their genius and their idealism... And they, in turn, are going to build a stronger, healthier and more tolerant society, a society that cherishes above all else life in a civil community...

We stand, here together, on the side of this mountain... our eyes reaching out to the water below, flowing into the ocean and around the world... And as we do, we are together creating the McGill of the future – building on the best of our historic strengths and values, all the while, innovating and leading in education, research and the preparation of generations of future leaders. This is how we will best serve Quebec and Canada... This is how we will rank with the best in the world.

Thank you.