

## Diversity

Thank you all for that very warm welcome. I am proud of the University of Toronto and a thankful Canadian.

Greetings, Professor Andrews.

Good day, President Gertler. Bonjour. Principal Roberge.

Hello, graduates, parents, relatives, friends, collaborators, Matthew, Julia, Montgomery, Cynthia and my dear wife Lorie. She and I are a team.

I am delighted that my now 103 year's old University of Toronto Schools (UTS) mathematics teacher, W. Bruce MacLean, is up here with me. What an honour.

An academic life is made up of teaching, research and service.

Today I will focus on diversity.

### **Toronto**

Toronto is perhaps the most multicultural city in the world. About

half its population is foreign-born. Many times riding the streetcar to school I used to feel that I was the only native English speaker on board. I loved it. I was already travelling the world.

### **New College**

New College pursues a mandate around equality and social justice.

Three-quarters of its students are new Canadians. My university,

Berkeley, also is multinational. I have had 42 doctoral students

coming from 25 different countries scattered around the globe, so far.

You graduates have moved on from elementary school and high

school and now are leaving college. It is a day to enjoy and to thank

the many people that have helped along the way.

Today is a graduation day for me as well. I take this chance to thank

the many people and institutions who helped me get here.

My father died when I was six months old. My mother structured my education and thankfully we had a large loving extended family around us.

As I grew up I had many jobs including caddying, folding clothing at Simpsons, and delivering drugs on my bicycle and I was fortunate enough to attend the best high school in the country, UTS (the University of Toronto Schools), and then I went on to the best university in the country, U of T.

Here today I am in my neighborhood. This is my enclave. I was born in the nearby Wellesley Hospital. I rode the streetcar down here so

many times and then walked along Bloor Street to get to the Schools and later to the U of T.

When I was an undergraduate the President Claude Bissell said,

*“Don’t be well-rounded, be angular.”*

I loved that idea. It became my motto and led to many wonderful adventures, for example taking the subway to my hotel in Tokyo from the train depot rather than a cab. Another was walking along a dock in the Brazilian jungle in a different direction from the rest of the tour. Some boards gave way and I was in the Amazon with the piranhas. I climbed out fairly quickly, some Japanese tourists screamed. My wife, Lorie, came around a corner unsurprised and

took a picture. BRASIL BOA SORTE PELA COPA.

## **Ethnicity and Diversity**

I come from a socially aware place called Berkeley, sometimes the

People's Republic of Berkeley. New College to quote its Principal

has "*a definite affinity with Berkeley and a long history of activism.*"

Perhaps that is why some of you enrolled. Activism is definitely

why I had a postdoc and then a Lectureship at LSE in the sixties.

I am my Berkeley department's Equity Advisor. That feels natural

since in the early 1900s my father was born in China, son of a

pharmacist Canadian Methodist Missionary and interestingly my

mother-in-law was also born there, daughter of an American

Methodist Missionary. NIHAU. On return Lorie's grandfather had a

position at Northwestern University. When he had some African-American students to dinner in 1933 his position was taken away. In 1935 he became Chicago Director, the National Conference of Christians and Jews. My wife grew up an activist influenced strongly by that background. She beat me to China and wrote home postcards to that effect. Throughout the years she and I have together strongly supported many ethnic and diverse causes.

Returning to the U of T and UCB, there are many characteristics in common - their public history, their strong programs, their loud protests and their proud graduates. They both see diversity as a defining feature and as a source of strength. They clearly succeed

with their core missions of public service, teaching and research.

One of your ex-Presidents Robert Birgeneau has just retired as

Berkeley's Chancellor. Soon after arrival in Berkeley He remarked

that he was,

"*shocked*" to discover that the "*diversity and camaraderie across*

*cultural lines*" he had seen was not replicated at Berkeley.

Chancellor Birgeneau set out to change that situation and now we

have a Division of Equity & Inclusion lead by a Vice Chancellor,

with Equity Advisors in each Department who are required to sign off

on the search procedures.

**Research**

Back at Princeton in 1962 as a Lecturer I worked with John Tukey, FRS on developing a large scale election projection model and I had a joint appointment at Bell Telephone Laboratories.

The position of Member of Technical Staff (MTS) at the Labs was the best job I ever had. LSE was lots of fun, but too much economics and too little data.

When I was at the Labs there were countless momentous projects in the air: analog signals becoming digital, digital signals becoming analog, fast computing algorithms and exploratory data analysis under development. There were lasers, microwaves from the universe, and radiation measuring satellites in orbit.

Office doors were wide open. Work day lunches were roundtables with unpredictable topics. There were renowned visitors and there was attending conferences.

Projects I worked on included: developing a digital based vocoder, pitch detection, and exploratory time series analysis. But Murray Hill was in the middle of New Jersey. After a couple of years my wife, our young son and I headed back to London. I received a fraction of the salary, but that was not an issue.

Projects I have worked on since moving to Berkeley include: probability of space debris hitting a space station, cloud seeding, climate change, animal trajectories, risk analysis (Valecitos reactor), fluctuations in temperatures in a moving fire in a wind tunnel, sports statistics (including Leafs' successes – they do exist).

Benefits included: getting to drive a dog team in Alaska (that was fun), becoming a Foreign Member of the Brazilian Academy of Science (that was fun), walking out of an ONR workshop on the effect of strong sonar signals on whale behavior (that was

necessary). They wouldn't let me ask questions. A statistical scientist not asking questions, that's a new one. Next

**Some reasons for becoming a statistical scientist include**

keeper of the scientific method.

collaborator with scientists of all fields.

player of important roles in government and business.

winner of arguments, and if not winner, tie-er.

discoverer of new data types

handler of error

controller of risk

and contributor to society

**Next, Where might you graduates end up?**

That is the question. I hope that you will have magic years, but you are entering a workplace that is very different from the one that my cohort entered. It includes: having science training, big data sets, cloud environments, boot camps, MOOCs (massive open on-line courses), project based and e-learning.

You will also find: teams, short courses, interdisciplinary collaboration, live data streams, multiple career paths, no more one-project one-scientist operations, and team-authored papers. I hasten to tell you that Bell Labs had all that in the sixties.

## **Graduates**

Be passionate about your career. I have been throughout mine. Some people snicker at the idea of a passionate statistician, but they don't know what we do.

You will experience joy and discouragement, but please treasure diversity be angular, question authority, don't be afraid to ask "What happens if I don't?", protest injustice, do not give in, learn mathematics, look for the simplest solution, take risks, have fun, put on the sunscreen, and fix the Leafs.