Toronto, June, 1993

Mr. President, Madame Vice-Provost, Members of the Graduating Class, Ladies and Gentlemen:

I was dismayed upon discovering, to my surprise, that the honorary degree so generously awarded me today entailed not only an obligation to festoon the stage with my undistinguished presence but also an obligation to entertain your, no doubt, no longer innocent, but still, I hope, curious and receptive ears with a few remarks both edifying and amusing. To do justice to the occasion, they should, I suppose, have a serious element; on the other hand, most of you have probably had enough homilies from dull professors to last a lifetime. That is, after all, one of the purposes of a university education: to put a lot of dull things behind you. So I'll try not to overdo it.

Indeed, although I have not reached the age at which the chronicler of early Canadian life, Philippe Aubert de Gaspé, began his memoirs with the remark "Je ne prends riens au sérieux à mon age si ce n'est la mort", I'm getting there, and a simple calculation reveals that I have about as much time left as you have used up. That means that I have more experience, but that you have more hope and more strength. The advantage is all on your side.

Mathematicans are, however, often extremely egoistical creatures and in my immediate family the common view is that I take little seriously besides myself and, in second place, mathematics.

Today I would like to speak of myself, as a mathematician, but also as a Canadian. I have some right to do so. Three of my four children live and work in Canada, where four of my five grandchildren were born and are being raised. My professional career has been spent almost entirely abroad, but I have participated to some extent in the mathematical life of the country. Although my experience here with particular individuals has brought great profit and pleasure, my experience with the mathematical community as a whole and with institutions has been frustrating and often disappointing. To be blunt, I failed in my purposes

It may be useful to comment on the reasons. First a few general words on expatriates, for, as you have heard, that is what I am, and on failure.

George Orwell observed, in a striking phrase, that, viewed from the inside, every life is a failure. A French diarist expressed a similar sentiment in a mitigated form, "plus les projets de cette vie étaient ambitieux — plus le décalage entre ce qu'on a souhaité et ce qu'on a accompli est grand". It may be that the failures of the very great result from overreaching ambition, but my guess is that the failures of most of us are inevitable consequences of misguided aims. Our misapprehensions lead us to attempt what is impossible not because of its magnitude but because of its irrelevance.

In retrospect, I was disappointed because I was informed by purposes and sentiments that were obsolete. In my formative years, during the distant eras of Mackenzie King and Louis St. Laurent, Canada was perhaps more conscious of its European origins than today, so that Europe and its culture often offered a hope of liberation from the mediocrity of our surroundings, but at the same time instilled a fear that we could never master it. Curiously enough the desire for redemption by the foreign still haunts us, but the fear and exaggerated respect that mark earlier novels by Robertson Davies or Gabrielle Roy are gone.

The anguish and doubt of her own experience is reflected in Gabrielle Roy's portrait of the destruction of natural but unschooled talent by the historical and cultural weight of the mother countries, England and France; but Robertson Davies's world has no harsh face, and the heroine of "Leaven of Malice" is less severely tried. Indeed, the heady European air transforms, in the gentlest of ways, an ugly Canadian duckling into a magnificent English swan.

The list of Canadian expatriates is long. For some, like the painter David Milne or the singer Félix LeClerc, it was a temporary, accidental condition; but the exile of the surrealist painter Paul-Emile Borduas was reluctant, a consequence of his rather feverish opposition to the oppressive climate of the Duplessis years in Quebec. The writers Mavis Gallant and Anne Hébert, on the other hand, chose deliberately to remain abroad permanently.

These are, I hope, familiar names. There is perhaps more emphasis on the neighbouring province than is seemly in Toronto; but, seen from abroad, Quebec is not so different from the rest of the country. Certain characteristics, for example the assumption that there is little about the inhabitants or their history that could arouse the interest of outsiders, or that even deserves some serious attention from themselves, are oddly enough more intense there than here, or in the West. So is the timidity of those with genuine skills in face of a rampant, and far too confident, bureaucracy.

You will be less familiar with the names and histories of scientists or mathematicians, whose work touches far fewer people directly, than with those of writers and artists. I do not want to make presumptious comparisons, but their fortunes can usefully be viewed in the same light.

There is no reason that you should understand what a mathematician is trying to accomplish, nor what might make it necessary for him, if he is not easily contented, to pursue his goals elsewhere.

Mathematics is an ancient art, coeval with the religion of Jerusalem, the science of Athens, and the laws of Rome, but, like the rest of Western culture, began to assume its present form in Europe after the Renaissance and Reformation. In this century, wars and a displacement of economic power transferred the centre of activity to the United States, with a personnel at first predominantly European or local, but now completely cosmopolitan. I cannot guess how long the centre will remain there.

The future aside, the efforts of the past still inspire emulation; so that a few ambitious youth are eager to add ideas that will endure to those they have inherited, eager — in the language of an English poet – to create for themselves a role in the play of time. The competition for parts is stiff.

It is difficult for those with no experience to understand that most mathematical issues are, in spite of the efforts of our great predecessors, in large part unresolved. Although not so chaotic or undisciplined as the world around us, mathematics does reveal itself in shapes and patterns that, like those of light and sound, can never be seized once and for all. To impose order on them requires often heroic efforts.

Moreover, although mathematics is an art that is anterior to the classical Mediterranean civilizations, it moves slowly. We are not so far from the number theory of Fermat in the seventeenth century, nor from the mechanics of fluids and solids of Euler in the eighteenth. So if we are lucky, we can still contribute to questions that have occupied generations. For Canadians, in particular, this is an opportunity to escape from our endemic sense of mediocrity.

It is easy, however, to be discouraged; and encouragement is rare. Those with modest origins, who need it most, are the most likely to be overlooked or scorned. Unfortunately Canadian academics, teachers and administrators, are rarely the *coureurs du bois* of the intellect evoked by the poet Douglas Le Pan,

> "So you should have travelled with them. Or with La Salle
> He could feed his heart with the heart of a continent,"

Canadians are expected to be the supernumeraries: the extras not the stars.

This is a harsh view that does injustice to many, but I am trying here to make, in a brief time, two points. First of all, because of local caution, recognition and, therefore, encouragement have to come from abroad, so that prudence and common sense recommend going there. This is what happens.

Not only do Canadians go abroad, but they stay there. In a recent renewal of the constitutional debate in the Montreal newspaper, Le Devoir, André Burelle introduces an appealing concept, the *intimité culturelle* of Canadians. It is appealing even though it is a lack of cultural intimacy that is, in my view, one of the persistent weaknesses of Canada. The country is marked rather by the cultural alienation created by the original linguistic and confessional fracture, and by the cultural indifference resulting, in part, from a continual flushing of population (emigration is as important a feature of the country as immigration), so that once abroad, there is, or appears to be, for very many little reason to return.

This is not an indifference I share. The country is small, so that intimacy should not be out of reach, with rich — and profound — sources of intellectual and cultural variety. They are, however, subtle and, except to a very few born into special circumstances, not readily accessible. A major failing of Canadian schools and universities is that they have done so little to impart the skills and knowledge needed to feel at home here.

In my limited but nonetheless serious efforts to contribute to the development of Canadian mathematics, I tried to create a climate in which young mathematicians could strike the roots they need to grow to a stature that matters; not for chauvinistic or provincial reasons, but from a conviction that the best mathematics, the best science, and the best art and literature arise from a happy union of the particular and the universal.

As I observed when I began, I did not succeed. Canadian mathematicians are lobbying for improved institutional support of their subject, but they are trying to create something different: what might be called, evoking a somewhat pejorative catchword from the sixties, a *branch-plant industry*. There is nothing reprehensible about thriving branch-plant industries; they bring happiness and prosperity to many people. They are, however, seldom a source of pride!