That a crisis I felt when, picking up a newspaper a few months ago, I read that some Canadian MPs had been frogmarched into a Beijing police station and expelled from the People’s Republic because they had been taking too close an interest in China’s human rights! What is it, a Canadian MP for, I exclaimed across the breakfast table that day, but to take a close interest in the rights of humans everywhere? What should Canada represent, I demanded, but some sort of universal conscience? Who better than Canadians to blow a raspberry at those gesticative stiffs in Beijing, with their unspeakable record of inhumanity?

Of course I should not have been excited at all. This kind of thing ought to be happening all the time — Canadian public figures, I mean, hitting the headlines with gestures of theatrical protest and enlightenment. Instead, so rare an event was it that at first I could hardly believe the headline. I think it fair to say that the most generally dispiriting of all news is the news that trickles out of Canada. Belgium is well-endowed with ennui; one is seldom thrilled by dispatches from Portugal or Switzerland; but nothing makes your average foreigner turn the page more abruptly than the looming threat of an Ottawa dateline.

This strikes me as one of the mysteries of life, because Canada is certainly not an uninteresting country; so let me explore for a moment the reasons for the phenomenon.

First, there is the huddlingly tedious size of the place. Whether one is crossing Canada on a train or just looking at it on a map, the country is just too big for sparkle. The mind instinctively shies away from a subject that extends across so much territory. Deserts of prairie and tundra, cities scattered apparently forlorn across thousands of kilometres of evidently featureless landscape, 27 million people either swarmed in furs against the crippling cold or almost invisible in the cab of combine harvesters crawling across limitless wheat fields — these mental conceptions are enough to make anyone look elsewhere for kicks.

Then there is no symbol for us to latch on to, to make us say, “Ah! There’s Canada!” The Mountie fulfilled the purpose once, I suppose, but is now irredeemably associated with musical comedy, and for a time Pierre Trudeau provided a universally recognizable figure. Now there is no icon for Canada — no particular building, except perhaps a railway station, no particular landscape, except the sickly Rocky Mountain scene that sells in wallpaper strips, no charismatic champion, no superstar, unless you’re into literature or ice hockey, no item of dress or uniform that is all-Canadian, no product we think of as uniquely and unerringly Canadian.

We can only just identify a Canadian variety of English. Not all of us know the subtle diphthongs that is the linguistic badge of Canadianism, and I would guess that most people in the world, when they hear your average English Canadian speak, suppose they are listening to a more than usually lisping American. Are there idoms specific to the country? Are there slangs peculiarly Canadian? Are there colourless dialects (French Canadian apart)? If there are, we are in the outside world know not of them.

So — forgive us — we are a bit bored. My purpose in writing this essay, however, is not to argue that we ought not to be Canada is distinctly not boring, and it is largely its own fault that the world sees it so.

To the outsider the country seems to be taking an unsociable time to settle its problems of national unity. Years ago I discovered that I only began to find Canada interesting when I thought of it not as one enormous entity, struggling always to keep itself cohesive, but as a scattered mollusc, of widely differing communities, each far more compelling than the whole. The legend of the railways, plugged so relentlessly as the bond and rationale of the nation, did not do justice to the place. I realised, it was not a linear nation at all, but sort of spoilt.

The protracted effort to keep the political status quo has bored the pants off most of us. It seems, in my view, to have been one long struggle, bitter and exacerbating, virtually involving English and French Canadians, Indians and Inuits, nobody quite winning, nobody quite losing, all starched up in constitutional niceties (or more often matters and furrowed by the interventions of obscure premiers...
THE PRAIRIE LIGHT UPLIFTS
ALMOST EVERYONE WHO SEES IT

we have never heard of from provinces we can seldom quite place.
And all is compounded by the general Canadian acceptance of these matters. Nobody is more scrupulously critical of things Canadian than your archetypal Canadian. He all but claims to be boring himself. He certainly says his country is. The problems of Canada are apparently the fastest breath of life to him, so ready is he to emphasize them for us, and he is for ever respectfully deploring the superiorities of the Americans.

Fortunately I have learnt not to believe him, and I think it is high time he stopped deceiving himself, adopted a bit of chutzpah on his own behalf, threw off the cultural cringes that make him so subservient to Europe and the United States and learnt to proclaim the truth: namely that Canada really is one of the best of all countries—perhaps the best—and that it is boring only because it sees it.

Take the land itself. We may be tired of those damned Rockies, but within the national frontiers there are landscapes of a far more stimulating kind. The Australians have made their awful Outback into a symbol of excitement, wandered over by mystic primitives. How much more thrilling is the brilliant Canadian North, part of the ice lands that circle the globe, inhabited by fascinating native peoples, served by daring bush pilots, with polar bears, dear God, and communities inconceivably thriving far beyond the Arctic Circle! The Prairie light uplifts almost everyone who sees it. Newfoundland seems to me one of the most truly distinctive places on earth, Vancouver island is astonishingly lovely, and Saskatoon, the very name of which is likely to evoke a snigger, is in fact a model city and ought to be an exemplar for civic planners everywhere.

Then what could be more fascinating than the presence here of a vibrant young Francophone province, an island in a consistent of Englishmen, the very last of the best French communities outside metropolitan France? Canada would not be Canada without Quebec—nor because it is part of the Confederation, but simply because it is there, sandwiched between Ontario and the Maritimes; and the

HOW MUCH MORE THRILLING IS
THE BRILLIANT CANADIAN NORTH

more resolutely it marches to a different drum, the richer Canada is for it, the less likely to be swamped by conformation, the more properly itself. E pluribus unum, perhaps; but better still, in variety, strength.

For the variety of Canada is endless, despite the world's idea of it as a vastly monolithic. For almost 40 years I have been intermittently visiting the country for literary ends, and my experiences have been marvellously eclectic. I have picnicked with businessmen beside Manitoba rivers. I have snowmobiled with Inuit on Hudson Bay. I have lived it up with the Israels at mayoral functions in St. John's. I have heard the first spring click in the ice at Dawson City. I have been entertained by Mounties in Regina. I have inspected warships in Halifax. I have eaten our on in Montreal and seat-flipper pie in Newfoundland. I have met Indians, missionaries and seaplane pilots. I have bought a tube of toothpaste in the trading post at Norway House, Man. I have ridden a Canadian Pacific footplate, tested a new car in Toronto, conversed with Robertson Davies, attended a literary festival in Calgary and made a pilgrimage to the house where Georges Simenon lived in St. Andrews, N.B.

Variety! Europe itself could hardly offer a greater range of interest and surprise; yet this is the country that the Canadians themselves have persuaded us all is dull. . . .

One of the things they appear to find most tedious in themselves is their niceness. "Nice," I came to realize quite early, is a pejorative word in Canada, and I could hardly offer a Canadian town a more irritating insult than to say how nice it was. In my own vocabulary nice means essentially good; but then "good," too, if applied to the Canadian national character, apparently does not give pleasure to the indigenes.

To my mind the failure to exploit this undeniable national characteristic is Canada's chief objection. Of course there are failures to live up to it, too, but those the national psyche seems far more eager to advertise. Canada the Good is a slogan that Canadian publicists, it seems, are not brave enough to adopt; they go on and on about those Rockies, those stately Mounties, hired guards of honour and corners of old France, but they are too timid to offer the
T
HEY GO ON AND ON ABOUT
THOSE CANADIAN ROCKIES

grandest of all tourist inducements: that by coming to Can-
ada you are very likely visiting the freest, fairest and kindest
society that mankind has yet evolved.
I can hear the Canadians expostulating already: Canada
has its inequities, corruptions and bureaucratic bumbling.
But they are seeing only the rotten trees and neglecting the
majesty of the forest (if I dare apply the metaphor to a
country that seems to have far too many bloody woods). To
a stranger the goodness of Canada is palpable and instantly
differentiates the country from the added republic to the
south. There has never been a moment during my visits to
Canada, even in the heart of Toronto, when I could have
surmised myself to be in the United States — except perhaps
at times when local pressure groups have too glibly
adopted bids and politically correct attitudes from over the
border. Superficially the two countries may be in symbiosis,
but in matters more profound, as innumerable Americans
are ready to admit, Canada is unmistakably better.

The goodness of Canada is all-pervasive. It ironically
shows in the Canadian reluctance to boast, modesty being
a most distinct Canadian merit. It shows itself in courtesies
of everyday life, in social services, in the relative safety of
the streets, in the general feeling that people care about one
another and about their neighbourhoods. The press is not
generally malevolent. Politicians seem more bemboobed
than vicious. Even Canadian publishers still behave like
gentlefolk. All this is what Canadianness means, yet Cana-
dians prefer to hide it under layers of barbs.

I suppose it is because they consider virtue to be heavy
going. Indeed it can be, but dressed up with a bit of strut,
overtly performed with a trumpet or two, properly leavened with
humour and human weakness, it can also be vivid and
inspiring.

I can think of no other country that has so neglected its
own principal characteristic in presenting its image to the
world and to itself: The Americans glory in their pace and
rip-roar, their endemic sense of drive. The English daze the
world with tradition. The French have food, chic and la
gloire. The Germans never drop a wrench. The Italians are
rebelliously charming. The Greeks break plates, the Austri-

ans seldom stop wafting, the Australians are for ever
drinking lager beside Sydney harbour, the Irish talk, the
Welsh sing, the Egyptians have mummies, the Danes ride
bikes, the Spaniards strike heroic postures, the Swedes
build Saabs, the Scots are killed, the Swiss are perma-
nently, unashamedly and very successfully Swiss.

And the Canadians? What they are is decent, and what
they do is usually generous, but they seem ashamed to ad-
mit it. If I were Canada's minister of propaganda I would
plug goodness assiduously. I would display Canada as the
very paragon of modern civilized living: a nation that does
not depend upon strength or the threat of strength, that
flourishes by diversity, that stands always for the right,
even if it means being bundled off to durance vile by Chi-
inese gendarmes. The 18th-century British statesman Ed-
mund Burke once said of England, in that country's palmy
days, that she should not be "amusing herself with the
puppet show of power" but ought to be "sympathetic with
the adversity or with the happiness of mankind, feeling
that nothing in human affairs was foreign to her." How
apoposite the saying is to Canada, which has never had an
empire, never started a war and has never, even by its most
exasperated critics, been accused of arrogance.

It is none of my business anyway, and writing a piece like
this for a Canadian publication is pure impertinence. I
write it, though, only out of affection. Canadians do not
like to seem sentimental about their country, but as a
foreigner I am more liberated. I love the place, and I would
dearly like its values to be better appreciated both at home
and abroad. I am tired of the partial and misleading mes-
sages it sends out to the rest of us — Anglos versus Fran-
cos, whites against browns, provinces squabbling among
themselves. I would like Canada to come out, as it were.
It has little to be diffident about, much to be proud of, and
I believe the world would welcome the more assertive pres-
ence upon the international scene of an amiable, slightly
eccentric young giant with a bit of swagger. No other
country can quite fill the role: only Canada the Good —
and the Bold.
CARING FOR KIDS

Born in 1875 with six beds in a slum dwelling, Toronto's Hospital for Sick Children is considered to be among the top three North American pediatric centres

BY TED FERGUSON

It is 2:10 on a grey, windy afternoon, and the young nurse standing near the ninth-floor elevator at Toronto's Hospital for Sick Children is worried. The clock hasn't shown up. He was due for a patient's birthday party 10 minutes ago. "I hope he hasn't forgotten," she says. "These kids deserve something special on their birthdays. They've been dealt a rough start in life."

The ninth floor is reserved for cancer cases, 24 young patients undergoing treatment for different forms of the deadly disease. It isn't, as one might expect, a joyless place. A couple of adolescent boys are rolling on a bed laughing, a younger boy runs to his room with a stack of comic books, three patients are singing along to a Michael Jackson video. Near the nursing station, a large notice board is festooned with snapshots of patients, many of them wearing headscarves to cover chemotherapy-caused baldness; the lettering above the display reads "Ninth Floor Gander."

The elevator doors slide apart, and an orange-clad clown appears. He turns left, toots a tiny whistle, and hurries toward the toy-filled playroom. Moments later the sound of spontaneous clapping bursts from the room. Walking along the corridor, the young nurse says she wouldn't want to work anywhere else. "You build a long-term relationship with the kids and their families, a closeness you don't get in some nursing jobs. What are the children like? Same as other children. Fun to be around. It can be emotionally draining when one of them is drastically ill, but you always feel you're doing something valuable. More than just giving needles and flowing pillows."

Sick Kids. Nobody remembers who coined the nickname, but for decades, if not generations, it is what people have called the hospital. Not that the name is important. What really matters is that Sick Kids provides the finest care to thousands of children and hope for many more. Since the hospital opened with six beds in a slum dwelling in 1875 it has evolved into North America's biggest pediatric centre — with 520 beds and a staff of about 4,200, it admits roughly 18,000 patients a year and records more than 260,000 outpatient visits. It has gained an international reputation for excellence and is considered to be among the continent's top three children's hospitals. It is renowned not simply for its innovative approach to treating and caring for children, for the broad range of its programs and its top-notch staff, but also for the ground-breaking research it conducts at its 800-person research institute.

Sick Kids is a very busy place. The hospital embraces the philosophy that mental and physical activity are more therapeutic than bed-bound passivity. Patients are encouraged to use playroom computers, video games and pool tables and to socialize at ward snack kitchens. Every day dozens of volunteers teach crafts, read stories and supervise playroom activities. The hospital also believes that parents have a vital role to play and, unlike many hospitals, works with them — rather than around them — in caring for children. "We've made it a policy to act as though there are three people for every bed," says Claudia Anderson, the director of public affairs at Sick Kids. "The child, the mother and the father." In addition to having volunteers keep in close contact with parents whose children are undergoing surgery, the hospital lets parents visit their children whenever they want and provides cots so they can stay overnight with them.

The corridors and wards of the sprawling brown brick buildings on University Avenue give the impression that the hospital does everything it can to make younger patients feel comfortable during what, for most of them, is a strange and unsettling experience. Children's drawings are pinned to walls, doll trucks and other toys are yard staples; clinics are identified not by ominous technical terms but by brightly coloured animal logos — lions, seals, bears and zebras.

In the emergency department, an eight-year-old girl with a fractured leg sits in a wheelchair gazing appreciatively at an antique rocking horse engraved in glass. "I'd like to own one of those some day," she says. "I'd put it in my front room. Everyone coming to my house would see it and be happy."

A short distance away a young mother wearing a waitress' uniform under her raincoat waits for an elevator. The small boy next to her is clutching a black teddy bear. The mother says her son was hospitalized at Sick Kids two months earlier with abdominal problems. Now her daughter has been struck on the head by a swing. "She's been getting dizzy spells and seeing double," the mother says. "I sure hope it's nothing serious." Her son asks his teddy bear if it's hungry. "He loves that drowsy bear," she adds, smiling. "When he was here two months ago he told the nurses he wanted a teddy and it had to be black. They didn't have a black one, so a nurse bought it for him. The staff here is great. Really great."

Having a special affection for and understanding of children is, of course, a prerequisite for Sick Kids staff members. That caring attitude has led almost all of the doctors to donate their services to the hospital's renowned international program, which is financed through the Herbie Fund. About 20 patients requiring serious surgery unaffordable in their homelands are treated at Sick Kids every year; in its 12-year history the program has assisted 191 children from 82 countries.

It began with a $17,000 contribution. Toronto's Metro Council had heard of a seven-month-old Brooklyn baby, Herbie Quinones, who needed an operation best performed at Sick Kids to correct a malformed trachea. Herbie's family couldn't afford the expensive and weren't eligible to receive compensation from the state. Together with private donors, Metro Council raised the necessary funds. Eventually, however, the state of New York covered the costs of the operation, so Sick Kids used the money to start a fund to help other children living outside Canada. Under the program doctors provide their services free of charge while the fund covers all the hospital costs. Currently about $500,000 is raised annually for the fund through such events as school bake sales and a society gala that brings in about $270,000. The children who have been helped (the hospital receives about 30 applications a month) have undergone a variety of operations: a Greek average.
Although the facilities and tools of medicine have changed a great deal since the hospital's early days, the level of caring has not.

bov had facial surgery to correct a severe disfigurement; a girl from Guyana had a brain tumour removed; and a

nese twins from Myanmar (formerly Burma) were sepa-

rated and fitted with artificial legs.

Suppling health care to children may be the hospital's main purpose, but it owes much of its sterling international reputation to its research achievements. The first major breakthrough that put the institution on the world re-

search map occurred in 1930. That was the year a scientific team led by Dr. Fred Tisdall and Dr. Theo Drake tackled the problem of producing a baby cereal that wouldn't cause diarrhea or constipation, which can be serious in babies. The researchers developed a nutritious, dry-grain powdered cereal that included only ingredients that babies could easily digest. The cereal was responsible for the good health of millions of infants and became a staple of babyfood under the name Pablum.

Perhaps the best-known advance next to Pablum is the Mustard Operation, which is widely performed today in hospitals around the globe. In 1963 the late Dr. William Mustard operated on a girl to correct an often fatal heart defect in which the great arteries are transposed.

During the 1980s researchers at Sick Kids received world-

wide acclaim when they identified and cloned the genes that cause cystic fibrosis and Duchenne muscular dystro-

phy. Working in conjunction with a University of Michi-

gan clinical team, Dr. Lap-Chue Tiu and Dr. Jack Riordan headed the study that pinpointed the cystic fibrosis gene. Dr. Ron Worton and his team were responsible for the mus-

cular dystrophy breakthrough. And this year a team led by Dr. Manuel Buchwald and Dr. Craig Shulman identified the gene that causes a form of Fanconi's anemia, a rare but extremely serious blood disease. While none of these ad-

vances constitutes a cure, they are carrying scientists a long way down the road in that direction. Identifying defective genes can lead to early treatment that might slow a dis-

ease's progress or show researchers the route to developing new therapies.

“We have only discovered the tip of the iceberg in terms of understanding genetic disease,” says James Friesen, director of the hospital's research institute. “We are really getting closer to understanding the disease.”

One area that the hospital specializes in, human organ and tissue transplants, is expected to benefit enormously from ongoing research projects. Sick Kids scientists are studying the immune system to determine why it recogn-

izes the difference between original donors, lungs and bone marrow and donated specimens. By understanding how cells and antibodies interact and by identifying growth factors, Friesen says, doctors will be better equipped to deal with rejection and increase transplant survival rates.

Dr. Fred Saunders is still wearing his surgical greens when he arrives at his third-floor office. He has just finished performing a bone marrow transplant on a 14-year-

old leukemia victim. “Surgery’s the easy part,” says the di-

rector of the hospital's bone marrow transplant program.

“The difficult part is managing the recovery.” During the postoperative period there is the risk of infection, which can be fatal, and the fear that the marrow will not take.

The procedure is far from risk free, but Saunders and his team are working hard to develop new techniques that will make it safer and more effective; last year more than half the transplants they performed were experimental. “We want to expand horizons for bone marrow transplants by using new types of donors and treating a wider range of diseases with the procedure.”

Practice and facilities are essential to such research, which is why the bone marrow transplant team is particu-

larly excited about the new building the hospital will open next year. It will include seven additional isolation rooms (currently there are five), permitting Saunders and his col-

leagues to perform 75 (rather than 35) transplants a year and meet the current bone marrow transplant needs for children in Ontario. “The more procedures we do,” says Saunders, “the more we learn.”

Two-thirds of the transplants Saunders and his colleagues do involve cancer patients, most of whom suffer from leu-

kemia. Other transplant patients suffer from a variety of genetic conditions, such as SCD (severe combined im-

munodeficiency disease). Bone marrow is the source of both the body's immune and blood-forming systems. When a transplant succeeds, immature donor cells grow and divide in the recipient's bone marrow, eventually providing the bloodstream with healthy cells to combat disease. The transplant itself in-

volves removing marrow from the donor's pelvic bone with long needles and injecting the red soup-like liquid into the recipient through an intravenous line.

In the early 1980s many hospitals considered bone mar-

row transplants a last-resort tactic. Saunders doesn't think that way. He treats people when the disease is in its early stages, hoping to cure patients before they reach the terminal stage of the disease.

Another approach Saunders, and his team takes that differs from the traditional is that of transplanting the patient's own bone marrow. Last year the group per-

formed 15 such transplants on patients with certain types of leukemia and tumours. The marrow was removed, treated to destroy cancerous cells and then returned to the body. “We won't know precisely how successful the proced-

ure is until we know how many patients live to a ripe old age,” says Saunders. “But so far the results have been extremely encouraging.”

The hospital admitted its first patient on a chilly April day in 1875. Her name was Maggie, she was three years old, and she was brought to the shabby three-storey building on Avenue Street — close to the hospital's current University Avenue location — after she scalded herself with boiling water. A physician and nurse treated the child's injuries, and then a volunteer ministered to her spiritual needs, teaching her how to say her prayers.

Religious instruction was part and parcel of the hospital's formative years. Founded by Elizabeth McMaster, the 28-
By 1957 the hospital had been settled in its current building for six years and had earned an international reputation for excellence.

Over the years Sick Kids has had to cope with countless outbreaks of contagious diseases, the worst, at least in terms of magnitude, being the influenza epidemic of 1918-19 and the poliomyelitis epidemic of the late 1930s. During the winter of 1918-19, 458 children crowded into the hospital's wards, and although archival records show no one died of influenza, 150 patients died from an associated illness, bronchopneumonia. The late 1930s outbreak of poliomyelitis, which can result in paralysis and death, affected more than 2,600 Canadians. The worst cases were placed on mechanical respirators, commonly known as iron lungs. Unable to round up enough machines, Sick Kids staff built 32 of its own in hospital workshops.

Epidemics notwithstanding, the most emotionally wrenching experience for the staff occurred in the 1980s, when, following the deaths of a number of infant cardiac patients, murder charges were laid against a nurse. The charges were dropped for lack of evidence, and a subsequent inquiry exonerated her but determined that eight babies had died as a result of overdoses of the drug digoxin, which, it concluded, couldn't have happened accidentally. The mystery remains unsolved, but, says Claudia Anderson, "the hospital accepted the inquiry's findings without comment. It was time to get on with our future."

The controversy didn't result in a noticeable shrinkage in patient admissions. Nor did it hurt the provincially funded institution's ability to raise the extra money it needed to buy medical equipment and finance research projects. That the hospital managed to emerge from that ingushing period is a tribute to the calibre of its staff and reflective of the international respect it deserves.

Valerie Wilkins is walking through a cramped room next to the ground-floor emergency department, explaining how the hot-line service she runs, the Medical-Poison Information Centre (MCPI), operates. Twenty-five nurses alternate 12-hour shifts operating 30 telephone lines 24 hours a day. Roughly 145,000 people, medical professionals and other individuals use the service each year. "This is aicky job," and the nurses have to undergo special training for it," says Wilkins. "They can't see anyone or physically examine them. It's like giving an assessment blindfolded and with their hands tied."

Started in 1977, the service aims to ease the pressure on hospital emergency departments and to provide advice when the physician the caller would normally contact is unavailable. "Some parents won't phone doctors in the middle of the night because they don't want to disturb their sleep," Wilkins says. "If we weren't here, they might decide to wait until the doctor's office opened, and the delay could seriously affect a child's health."

By far the greatest number of calls, about 92,000 a year, concern accidental poisoning—very often they have to do with children who have swallowed substances such as household cleansers and pills found in medicine cabinets. The hot-line nurses have a computerized data system at their disposal, giving them thorough breakdowns of nearly 20,000 drugs, cosmetics and industrial and home products.

A recent case concerned a Toronto woman whose two-year-old son had taken a sip of rubbing alcohol when she had turned her back to answer the phone. The frightened mother, realizing the substance can be fatal if ingested, called MCPI. A nurse advised her to induce vomiting, and to ensure that the child was not in any danger she stayed in touch with the mother until he had recovered sufficiently to digest a meal.

Eighth percent of MCPI's inquiries result in home treatment. Then, Wilkins says, constitutes a major saving for the province's financially strapped health care system. Each hot-line call costs the system less than $2, compared with the minimum $100 it costs to register a hospital patient. "Most of our emergency calls come between five and 7:30 p.m.," says Wilkins. "Parents are busy preparing dinner or getting ready to go out for the evening; children are tired and there's more opportunity for them to do things they shouldn't."

Do callers ever tell Wilkins what they think of the service? She answers the question by taking a letter from a desk drawer. A woman from Chatham, Ont., sent the letter last year after her baby had had a high fever. The telephone helped her deal with it, she said, and she was grateful that she didn't have to spend part of Christmas Day at a local hospital.

The letter unintentionally summed up the feelings of thousands of people who depend on the hospital every year. Sick Kids, wrote the grateful mother, is "a wonderful, helpful lifeline."
THE DRIVING FORCE

Once regarded as a largely useless by-product of oil refining, gasoline has helped shape our lives and our culture for nearly a hundred years.

When one thinks of the revolutionary inventions of history—those cleverly conceived objects that have irrevocably changed the course of human life—one thinks, perhaps, of the wheel, the printing press and the steam engine. But there’s another, one that’s vital to our lives today: the internal combustion engine. Providing power for a variety of vehicles, this engine has helped reshape the way we live: the ambulance has brought prompt medical aid to the sick; the school bus has extended the reach of education; and the family car has enabled people not only to live more than a few kilometres from work but to journey where and when they choose, bringing an end to the concept that travel is the domain of the wealthy.

For those of us who sometimes recoil at the noise and congestion the automobile has brought to cities, it’s pleasant to imagine a kinder, gentler time, when the dependable workhorse plodded the streets and worries about pollution were nonexistent. But the image is a dream. The reality was much different, as the author and journalist Pierre Berton pointed out a few years ago in a Canadian Geographic article.

BY SARAH LAWLEY
tried "Wheels — the Car as a Cultural Driving Force." "Today we think of pollution in terms of automobile exhaust," he wrote. "We forget that in the city of Toronto, in 1890, tons of manure had to be swept off the streets every day."

A car, he went on, cannot be credited with bringing about such change, for without fuel the car is, well, just another place to sit. While the automobile has been powered by such means as steam and electricity, the fuel of choice for nearly a century has been gasoline.

But what exactly is gasoline? Quite simply it is a mixture of various compounds of hydrogen and carbon, known as hydrocarbons. Crude oil, from which gasoline is made, contains a multitude of these compounds, which vary in size and complexity. When crude oil is refined, these compounds are separated and then joined together in certain combinations to create the various products of crude oil, such as heating oil, kerosene, solvent, and, of course, gasoline.

Originally, gasoline was a by-product of kerosene manufacturing, kerosene being the primary cooking and lighting fuel before the advent of electricity. Gasoline was generally viewed as a useless substance, but the odd entrepreneur tried to press it into service. Its first recorded use was in 1861, when an imaginative Boston surgeon decided to use it as a local anesthetic. His idea was not a success.

Later, it was sold in chemists' shops as a glue cleaner. Its volatile properties were understood, however, and here and there in the late 1880s a few farsighted people were trying to create "horseless carriages" with engines powered by gasoline. Eighteen eighty-six brought success when two German engineers named Niemann and Daimler produced the first gasoline-powered car. Henry Ford, encouraged by his friend Thomas Edison, produced his model three years later. Gasoline had found its use.

The relationship between car and fuel was not initially harmonious. It seems that getting gasoline to the cars was, to say the least, a bit of a challenge. People bought their gasoline from gasoline dealers and carried it to their cars in cans or open buckets, using funnels to pour it into the gas tank. Sometimes they bought directly from oil company warehouses.

Then, one auspicious day in 1907 a driver pulled up alongside the horse-drawn tank wagons at the Vancouver country clubs. The price of gasoline, it seems, was falling fast back then — not a uncommon phenomenon for the early motor. The horses went wild and the warehouse foreman had had enough. The next day he opened Canada's — and probably North America's — first service station, a crude affair consisting of a three-sided shed that was open to the street and housed an attendant and a large hot water tank that dispensed gasoline through a garden hose. Needlessly to say, the concept was widely adopted.

By 1910 there were 6,000 automobiles in Canada, and the figure was growing steadily. So, too, was the demand for gasoline. Oil companies engaged in a feverish campaign to meet that demand, searching for ways to squeeze a higher proportion of gasoline from crude oil — the reverse of what they'd been doing just 20 years before. The breakthrough came in 1913, when an American, Dr. William Burton of the Standard Oil Company, developed a way to break, or crack, the large hydrocarbon compounds into smaller ones that could be used to make more gasoline.

The process involved heating crude oil under pressure. A year later Imperial had secured the rights to use this thermal cracking process and installed Canada's first cracking, or pressure, plant at its refinery in Sarnia, Ont.

During the First World War demand for gasoline reached unprecedented heights as trucks, tanks and airplanes replaced horses as the primary vehicles of war.

On the home front the internal combustion engine was rapidly replacing the workhorse — cars and trucks were moving people and goods, tractors were tilling the fields. ("A gallon of gasoline can do as much work in an hour as a horse can do in a day," claimed this magazine in 1917.) It was during these years that Imperial introduced its first major brand, Premier Gasoline.

But the automobile revolution was far from perfect. Driving was a challenge, and only the foolhardy dared to venture forth without a tow rope.

Knecking was a particular problem for early cars. The term refers to the noise that occurs when the usually or

After the war "people went car crazy," wrote Pierce Burton in "Wheels — the Car as a Cultural Driving Force." The restraints of the Depression and the war years had given way to a more carefree, carefree "automobile craze". New models were eagerly anticipated, and gas stations sprang up at every intersection to keep pace with the changing needs of the changing car. The catalytic crackers that had provided high octane gasoline to warplanes could now be used to manufacture gasoline for automobiles.

The car continued to change, demanding the same of its fuel. To meet the needs of higher compression engines during the late fifties and sixties researchers developed new, highly complex techniques for refining crude oil and manufacturing gasoline.

The seventies brought still more change. The oil shortage, environmental sensitivity and slowing economies all played a part in putting an end to North America's love affair with big cars. The compact car became the vehicle of choice, the emphasis was no longer on power but fuel efficiency and preserving the environment.

Both these areas have posed major challenges for gasoline refiners over the last two decades. One has been to formulate new gasolines to power increasingly fuel-efficient, computerized engines. An even greater challenge has been presented as a result of increasingly stringent environmental regulations and the public's demand for a cleaner and healthier environment.

Cerry Felsky, a researcher at the Ecor Research Centre in Sarnia, is well versed in these matters; he holds a PhD in organic chemistry from Oxford and has done post-doctoral work in environmental health with the Ministry of Health and Welfare in Ottawa.

"Do you know that auto emissions have been reduced by about 90 percent since 1975?" Felsky asks. He then explains what led to this dramatic improvement.

"Three things are responsible," he says. "First there was the move to unleaded gasoline, prompted partly by government action and partly by the introduction of catalytic converters in automobiles. Catalytic converters, which became common in North American cars in the late seventies, are antipollution devices, they simply stated, render some of the more harmful parts of car exhaust relatively.
harmetal. One substance they can't deal with is lead, it
close them. But it's just as well, for lead, has been discov-
ered, is not the wonder additive it was seen to be in the
1920s—to its emissions can be harmful if enough builds up
in the body. And the corrosion of metal and the deteriora-
tion of the central nervous system. In the mid-sevent-
ties Imperial led the way in introducing Canada's first un-
loaded gasoline. Finding ways to make high-octane gasoline
without lead was a challenge. Refiners have, to
say the least, but the company's researchers altered the
gasoline "recipe" and developed new additives, even-
ually producing an unloaded gasoline that ran smoothly in
cars while keeping catalytic converters happy. Says Fel-
sky: "Catalytic converters remove 80 percent of pollutants
from engine emissions—anything we can do to make sure they continue to work well is
very important."

The second thing that helped to reduce overall auto
emissions was the introduction of detergents to gasoline
(Jaguar Imperial led the way in Canada, introducing No
Trouble gasoline in 1966). Detergents were added to clean
dirty engines and prevent clean ones from becoming
dirty. This became particularly important when fuel in-
jectors came into being. Fuel injectors have, in many cases,
replaced the carburetor, a device that controls gasoline from the fuel pump and mixes it
with air for distribution to the cylinders. A fuel injector is a much more sophisticated instrument; it injects precise
amounts of fuel into the intake manifold, which makes for
fewer emissions because gasoline is used more efficiently.
The problem with these injectors is that their openings are
measured in fractions of a millimetre and can be clogged by
even tiny deposits. The detergents help clean engines so
there are fewer deposits to gum up the works. But cleaner
gasoline also means more efficient engines generally.

The third reason for the reduction in overall emissions has
been the introduction during the past two years of measures
to cut down on the amount of hydrocarbon that escapes
to gasoline before it reaches the engine. Over the
past two years, initiatives of provincial governments have
resulted in reduced gasoline vapour pressure in the summer-
time. Gasoline has to be a volatile liquid—that is, it has to
vaporize readily, because it has to be in the form of a
vapour to burn in the engine. The problem is that in hot
weather it evaporates more easily, and therefore hydrocar-
bon escapes more easily into the air during refueling and at
other times when gasoline is handled. "Two summers ago," says Fel
sky, "imperial introduced reduced-emission gaso-
iline—or gasoline that evaporates less than other forms of lower Fraser
Valley region of British Columbia, which had a particular
problem with smog because of its topography."

Tailoring gasoline to suit various weather conditions is
not without its challenges. Refiners have, to
some extent, been doing that for decades. What is different
about this formula is the ex-
tent to which the volatility has been reduced. But you
have to be very careful, ex-
plains Felsky. "If you go to too low a volatility the car won't start—it's a fine, fine
balance."

He also explains that Imperial has reduced emis-
sions that escape into the air during the transportation and
delivery of fuel. Special equip-
ment has been added to two of its largest fuel terminals and
to delivery trucks that cap-
tures emissions before they es-
cape into the air and recycles them.
"It's a matter of plumbing," adds Felsky. "Exp-
sensive plumbing."

Gasoline, it is clear, is not a simple substance. Far from be-
ing a constant, it is an ever-
changing entity whose evolution relies on the work of thousands of researchers worldwide. Today's gasoline varies in ways that one might not realize. The formula of one brand may be quite different from that of another, despite the fact that both may have the same octave level; the components used to achieve the oca-
tane level vary, as do such additives as detergents.

But what about the future of this mercurial fuel? What
else do the Gerry Felskys of the world have in mind to
improve it? Felsky and a fellow researcher, Dave Shaw,
agree that the emphasis will be on further reducing emis-
sions. But they have a point to make.

"You know what the most effective thing is that you can
do to reduce emissions further?" Shaw asks. "Scrap your
10-year-old car. Even if we do nothing more to gasoline there'll be a further 40 to 50 percent reduction in gaso-
iline emissions over the next decade, because older cars will disappear."

Shaw isn't avoiding the question. He is making the point
that together gasoline producers and car manufacturers
have developed the means to limit emissions to about 10
percent of what they were in the mid-seventies, but many
people are driving older cars with engines that aren't built
to today's reduced-emission standards.

Nevertheless, Felsky, Shaw and their research colleagues are
busy looking for ways to improve the fuel's performance even further. "We're putting a great deal of effort and money into reduc-
ning emissions even further," says Felsky, whose office is in the
Enso Research Centre, a place where the scientifically
oriented can have their

Computerized analysers sweep graphs that indi-
ce the various components of
various emissions, including
甚至 the most minute in-
gredients. Robots prepare samples for contaminated ex-
periments. People are intent.

With a staff of 265, this is the biggest petroleum research
group in the world. It was estab-
lished in 1924, it has been respon-
sible for the development of hundreds of highly complex processes and addi-
tives used to manufacture
gasoline and to make the pro-
duct cleaner and more efficient.

Across the road from the research centre is Imperial's
Process and Automotive Re-
search Centre, the largest and
most advanced facility of its
kind in the country. All the
ideas that Felsky and his fellow researchers come up with can be tested here. It in-
cludes what is known as an all-weather dynamometer. A car, no
matter how large, is driven in a large room, it allows cars and trucks to
drive (without actually moving) at speeds of up to 150 kilo-
metres an hour, going up and downhill or on flat surfaces in
conditions that make it from minus 35 degrees to plus 40
degrees Celsius. Even a snowstorm or a boiling gale can be
produced to order. Products can be tested in almost any
weather condition. On this day the facility is used not only
by Imperial researchers but by researchers from Ford Motor
Company of Canada Ltd. Their visit is symbolic of
the mutual support that the petroleum and car manufacturing
industries need to continue.

Ian Campbell is also a researcher at the Enso Research
Centre. His specialty is alternative fuels. He, like Felsky,
believes cars will still continue to run on gasoline for a long time to come. "The so-called green fuels such as
propane and methanol may find specialty markets," he
says, "but I cannot see any of them becoming the primary fuel for
many years. None of them, he explains, pro-
vides nearly the fuel efficiency of gasoline—fuel tanks
would have to be much larger or motors would have to be
designed to fill up very frequently. Methanol would corrode conven-
tional metal fuel systems, so the systems would need to be
built of more resistant materials. And what exactly is the benefit of methanol? It may be some reduction in carbon-monoxide emissions, but
there'd be a large increase in toxic aldehydes, like formalde-
hyde, which would have to be dealt with."

"We're looking into alter-
native fuels, particularly nat-
ural gas and propane," Fel
sky comments, "but I be-
lieve the future lies in re-
formulated gasoline. What
he means, in a sense, is gaso-
line which is targeted to be more
and efficient as possible.

Dave Shaw agrees that gaso-
line will continue to serve as
the primary automotive fuel.
"It provides a lot more energy
per litre than any of the alter-
native fuels. It is a great deal
cleaner than it used to be, and it is getting cleaner all the
time. On top of all that it's cheap."

Ah, price. There has been a lot of controversy over the price of gasoline. Bill Innes, senior vice-president of
Imperial's products division, has
had to answer the question
a lot of times. "The problem is tax," he says.

What many Canadians don't realize is that nearly half the price they pay for gasoline at the pump is tax. At the end of 1991, the average price in Canada for a litre of gasoline was 53.7 cents. Twenty-five cents of that was provincial and federal taxes. After paying refining and
marketing costs, the profit to our company on a litre of gasoline was, to put it bluntly, nonexistent. Actually," he says, "the price of gasoline, adjusted for inflation and excluding taxes, has dropped by almost a cent a litre over the last decade. It's a bargaining."

Gerry Felsky gives that notion some thought. As he gazes at the laboratory beyond his office window, he begins to

"What?" he asks, "could take a person and half a
tonne of luggage 100 kilometres down the road for a cost of
about five dollars?" He pauses and smiles. "Gasoline—and, of

Gasoline is in many ways a unique product, one that the
customer never sees and generally is reluctant to buy. And
yet, in our modern, mobile world, it is hard to think of
many products that are more indispensable."

THE MOST EFFECTIVE THING YOU CAN DO TO REDUCE EMISSIONS FURTHER IS SCRAP YOUR 10-YEAR-OLD CAR.
When I arrived in Canada in 1982 I didn't know that there was such a thing as "Canadian Literature." I had read writers who (I found out later) were Canadian — Margaret Atwood, Leonard Cohen, Mario de la Roche—but nothing in the reading had made me realize that their subject was somehow related to the vast geography and secret history of this country. What I mean is that nothing drew my eye to words such as "winter," "survival," "multicultural." Canadian literature, by 1982, certainly existed, but as I went around, the only readers aware of its existence were those whom Atwood, perhaps more than anyone else, had carefully cultivated since the seventies. I should say "English Canadian"; French Canadian literature, above all the literature of Quebec, had by then a much older tradition of faithful readers— even though abroad it shared with its Anglo counterpart a similar invisibility. For the longest time, Canada, both English and French, remained for the great majority of foreigners an almost imaginary place, a sort of North American Shangri-la, never-aging, spacious and empty. It is interesting to note how many fictional characters, when disposed of by their European or South American authors, were sent to Canada to end their days in an unobtrusive manner. In these foreign literatures, Canada was seen as one big quiet retirement home.

Not any longer. The entry of French Canadian writing into the self-perceived nobility of French-language literature can be dated to 1970, the year in which Antoinette Maillet, the Acadian writer par excellence, won the famed Goncourt Prize given then for the first time to a writer who was not a native of France) and appeared on the French TV show Aphrodisies. The Goncourt carries in France far more weight than the Nobel Prize; an appearance on Aphrodisies brought, as no other program could anywhere else in the world, instant literary fame. Before Maillet there had been, of course, other Canadian writers who had been published and sometimes read in Paris. Louis Hémon in the seemingly remote past with Maria Chapdelaine (strictly speaking Hémon is French, but he moved to Canada two years before his death, writing his classic Quebecois novel while in the country); Anne Hébert, generally thought of simply as a French writer, Marie-Claire Blais, as part of that sort of literature that the French call "confidential"—little read but well reviewed, Michel Tremblay, whose plays were sometimes performed "translated" into French. After Maillet French publishers began to court Canadian writers such as Gilles Archambault, Suzanne Jacob and Jacques Poulin; a few French presses, such as the prestigious Éditions du Seuil, sought publishing partners in Quebec.

For English Canadian literature the turning point was 1973, when Atwood's Surfacing was published by two presses in Britain. The success of that novel among the British (and later American) public led publishers to seek out other writers from "the lost colony." When in 1986 two Canadian novelists, Atwood and Robertson Davies, were short-listed for Britain's coveted Booker Prize, publishers no longer hesitated to mention that a writer had been born or lived in Winnipeg or Saskatoon. The words "Canadian author" were used to sell books, just as the phrase "made in Australia" was used to sell films. The big pink space on the map was filling up.

But there are other reasons for this change of foreign heart. Since the days of Anne Hébert's and Atwood's first novels, the number and variety of Canadian writers have grown prodigiously. Not only did the success of writers such as these give others a degree of confidence in their profession (these comments are limited to authors of prose fiction), it encouraged publishers to give the new writers a chance. Certainly in English Canada it is impossible to give a fair account of the writers who have emerged over the past decade; a few must stand for many.

Outstanding among fiction writers are the authors of short stories. Interestingly enough, three of the finest have both continued and renewed a Canadian tradition of realistic literature that can be traced as far back as 1852, when Roughing It in the Bush, the first volume of Susanna Moodie's autobiographical sketches, was published.

In 1982 the Winnipeg publishing company Turtlestone Press published a collection of stories by the Manitoba writer Sandra Bechtell. The book won immediate acclaim. Night Travellers, set in the archetypal Manitoba town of Agassiz, chronicles the lives of its inhabitants in a caustic yet compassionate voice with which readers of Alice Munro are not unfamiliar. The Agassiz saga continues two years later with the publication of Ladies of the House; both books were collected in the Agassiz Stories of 1987. Even though Bechtell's most recent book, a novel called The Missing Child, has not entirely succeeded, her short stories have all the qualities of a modern classic.

The year Ladies of the House was published (1984), a small Ontario press, Observes, brought out another remarkable book, The Elizabeth Stories by Isobel Suggs. This too is a small-town chronicle; the setting is Ontario. The characters are all filtered through the adolescent eyes of the narrator, Elizabeth, a sort of Anne of Green Gables for grown-ups. Huggan's book went on to win the Book-of-the-Month Club's New Voices Award in the United States.

The importance of the small presses in Canada cannot be overstressed: a third small press, Coteau Books, in Regina, published in 1988 the stories of Bonnie Bunnard under the title Women of Influence. A slow, careful writer, Bunnard had been working on her fiction for many years before she allowed it to appear in print. Meticulously crafted, intelligent portraits of contemporary women constructed with documentary precision, the stories won the International Commonwealth Writers Prize for the best first book of 1988, which gave Bunnard the confidence to begin a new book.

Anglo-Canadian readers seem to prefer books written in the documentary tradition; in English Canada, "realistic" has come to be a term of praise, and writers who steer away from the true-to-life canon have
greater difficulties with their public than those who pretend to stick to the facts. Jane Urquhart's *The Whirlpool* (1980) and *Chasing Heaven* (1990), however, are two superb novels that are definitely not realistic. The first is a fantastical recreation of a tragedy that took place at the turn of the century in Niagara Falls; the second conjures up the ghost of Emily Bronte through a woman writing about the author of *Wuthering Heights*.

Susan Swan, who in 1983 saw the publication of her first novel, *The Biggest Modern Woman of the World*, the imaginary biography of the real-life Nova Scotian gymnast Anna Swan (no relation to the author), seemed to change course in 1989 with her second book, *The Last of the Golden Girls*. Set in Ontario cottage country, Golden Girls begins as a traditional adolescence-maturity story, explicit in its treatment of the sexual apprenticeship of a group of girls who explore sexuality during a summer holiday. In the book's second half the mood turns. The characters, now grown, follow up their earlier experiences and reach in the process a hallucinatory conclusion in which the world literally comes to an end. This apocalyptic—terrorists dropping a bomb that wipes out much of North America—proved too much for certain conservative reviewers who found this break from documentary a rule of the reader's confidence. Swan, taking advantage of an interview on TVOntario's *Impulse* program, turned to the cameras and broadcast her critics for not being open to her imagination.

The debate succeeded in bringing her work to the attention of more readers; other writers have not been so lucky. David Curt, who began his career as a straightforward and successful thriller writer, published in 1987 a huge novel called *The Ring Master*, an extraordinary account of the Nazi era told both through the eyes of a Wagner devotee and through the memoirs of Rudolf Hess, recounted in his Spandau prison. A collage of voices and styles, the book is an intellectual feast that demands a concentrated reading. Short-listed for the Governor General's Award, the judges decided not to allot it the prize because they couldn't decide whether the book was a masterpiece (which in the mind of several critics it is) or simply a virtuoso exercise. Curt's following book, *The Voice of the Crane* (1989), proved even more difficult for the literal-minded. Told in a style borrowed from Japanese puppet theatre, it follows the rise and fall of the Emperor Hirohito. Certain sections are told by an American official at the Japanese court, others by the emperor himself, using Japanese speech patterns.

Multiculturalism, a word that brings shudders to the spines of several writers, conjuring up images of castes and ghettos, has encouraged the introduction of other landscapes and themes into the mainstream of English Canadian literature. Neti Bissoondath, nephew of the celebrated novelist V.S. Naipaul and author of two collections of short stories and a novel, *A Casual Beauty*, believes that these "foreign" subjects would have appeared anyway, simply because writers bring their own landscapes to their writing without official encouragement, and does not want to be considered anything but simply "Canadian." Robertson Mistry, who moved from Bombay to Toronto in 1975, says that "while multicultural policies may be beneficial for the communal ethos, I'm equally certain that my writing has not been affected by these policies." His Tales from Freepia Bag, short-listed for the Governor General's Award in 1987, and his novel *Such a Long Journey*, winner of the award in 1990 and short-listed that same year for the Booker Prize, describe and explore an Indian world but are also the parable of all human conditions and don't require any authoritarian sanction to be understood.

The same is true for M.G. Vassanji's *The Gunny Sack* (1989), described in the publisher's blurb as "Africa's Answer to Midnight's Children" but which in fact is told in an absolutely original voice. By and large, these writers feel that a "multicultural" distinction implies that there is in English Canada a central Anglo-Saxon core around which other communities are permitted to exist. It is the notion of "permission" to which they object.

Multiculturalism in French Canada seems to produce a less violent reaction, but writers such as Marilu Mallet from Chêne or Daniel Laferrière from Haiti are still seen, much as their Anglo counterparts, as distinguished members of their national groups. In fact for Laferrière, this political ethnic distinction — being labelled a "Haitian-Québecois writer" — is turned into a parodic subject in his writing. His hero in *Comment faire l'amour avec un nègre sans se fatiguer* (1985) — discreetly translated into English as *How to Make Love in a Negro* — is a Haitian caught up in the sometimes tragic but mostly comic tangles of Quebec society. Mallet, on the other hand is interested in the power of memory: in recalling her abandoned country in *Les compagnes de l'horloge-pasteque* (1981) she provides a fiery portrait of Chile, which she contrasts with the newly discovered setting of Quebec.

In spite of these names, Quebec literature seems to have lost much of the flourish and bravado it displayed during the Quiet Revolution. In this past decade there has appeared no Jacques Poulin, no Hubert Aquin, no Marie-Claire Blais. Writers of the sixties and seventies, such as Jacques Poulin, Nicole Brossard and Victoire-Lévy Beauties, have continued to produce interesting work, and a few new names have been added to the roll of important writers. Among them: Yves Beauchemin with *Le maître*, a fiction tale set in Montreal and Florida that became a bestseller after its 1981 publication; Robert Lalonde's *Le fin du jour* (1980), a novel about male uncertainties and the need for patriarchal guidance; François Barcelo, whose *Agone, Agone, Agone et Agone* (1980) is a comic and fantastical tale that mingle science fiction with village life soup open. It is perhaps impossible to guess the causes of this sudden dearth of great Quebec literature. It may be partly the result of a self-congratulatory, self-centered atmosphere in Quebec today; the lack of critical guidance (though this lack does not seem to affect English Canadian writers); or the temptation of film and theatre, where the best of Quebec writing can today be found.

For David Horsey, ex-president of the Canadian Literary Translators Association and a longtime resident of Montreal, "Quebec artists no longer find inspiration in what is going on. Trapped under the shadow of their elders, the young writers will have to find a whole new set of motivations besides the National Question if we are to have a literature as exciting as in the past." For Horsey, only Laferrière stands out as a new remarkable figure on the Quebec literary scene. "He's someone inimitable, someone around whom they haven't been able to create a literary movement, as they did with Marie-Claire Blais."

What is certain is that a country does not define its literature as much as a literature defines a country. It may not be possible to recognize our private images of Canada in novels about Bombay, about the Nazi era, about the English moors or in new tellings of the legend of Faust. But now, through the publications of books such as those by Mistry, Curt, Urquhart and Beauchemin, these subjects have also become Canadian. Our tradition, like all durable and fruitful traditions, is becoming less self-conscious, more universal. Essentially, by "Canadian Literature" we mean a literature written by someone either born or living in Canada: this bureaucratic categorization serves no purpose except on official statements and tax forms. The deeper sense of the term has to do with the unnatural voice of a people who share a common landscape, a voice that is constantly seeking ways of expressing itself as part of this tiny planet...
THE WEAVER’S DALE

With works in many of Europe’s major galleries, internationally renowned tapestry artist Tamara Jaworska is one of Canada’s cultural treasures

BY MAJA MILLER

When the call came from France three years ago, Tamara Jaworska was thinking about giving up weaving tapestries. Her work had just been featured in a solo exhibition in Toronto, but while the show had lasted only three weeks, the preparation for it had taken three years. She was 63 years old and she was tired. The ache in her shoulders, the neck pain and the eye strain that came from interfacing row after row of yarn by hand and the isolation of working mostly alone in her studio in Willowdale, Ont., were beginning to weigh on her. She felt drained when she took the call from Jean-Louis Inard, but at the sound of his Gallic voice she felt her spirits rise.

Jean-Louis Inard and his brother are co-owners of Galerie Inard, the most prestigious tapestry gallery in Paris, which is to say it is the most important tapestry gallery in the world. Established by their father, the late Robert Inard, a renowned connoisseur of fine tapestries, the gallery is the exclusive agent of the weavers at Aubusson in central France, whose tapestries have hung in the grand rooms of Europe for more than 400 years. In fact, the only tapestries ever to hang in Galerie Inard not produced at Aubusson have been Jaworska’s. Jean-Louis Inard was calling now because he was planning his exhibition schedule for the coming years and wanted Jaworska to be featured in a major solo retrospective of some of her older large-scale tapestries. The show would be held in November 1991; it would be a huge exhibition, featuring eight or 10 of her biggest, most powerful works. And maybe, he continued, to accompany those pieces, she would weave some new tapestries, roughly two square metres, for private homes. They would be the centerpiece of the exhibition and an intimate contrast to the larger pieces. Her misgivings forgotten, it only for the moment, Jaworska accepted without hesitation. Inard told her it would be a magnificent show, a jewel to crown her 40-year career.

Left alone in her studio, Jaworska glanced at the massive wooden loom, her baskets of colourful yarns and her various weaving tools. She looked at her old painted tapestry designs tacked up around her and wondered what she could weave for Inard. The hardest part of making tapestries, she knew, was designing them, and she worried that she might not have any more good ideas left in her.

A small woman with bright brown eyes and soft white hair, Jaworska looks and acts more like an elegant, vigorous, fully contented woman than an intense, highly disciplined, tortured artist. She has won gold medals at three exhibitions in Italy and in 1985 won the International Art Competition in New York City, where jurors selected her work from more than 10,000 entries. Her tapestries hang in major galleries and museums throughout Europe and in public libraries and corporate boardrooms across North America. She is unquestionably the foremost tapestry artist in Canada — indeed, she is the world’s grande dame of traditional tapestry. Her work was described by François Mathieu, curator of decorative arts at the Louvre, as “the peak of modern art weaving.” Richard Demarco, past editor-in-chief of the International Art Review, says her work helped him “understand the significance of weaving as an art form.” And Leon Whitson of the Los Angeles Herald Examiner has written that “she is one of Canada’s proudest cultural treasures.” Yet for all her distinction abroad, Jaworska works in virtual obscurity in her adopted homeland.

Born in Archangel, Russia, in 1926 as a Russian mother and Polish father, she grew up in Poland and was 13 when Hitler’s Nazi armies swept into that country. She entered the State Academy of Fine Arts in Lodz, Poland, in 1947, the same year the Communist government took power. A gifted artist, she studied painting, drawing and art history for four years. In her final year she discovered tapestry, the world’s oldest weaving technique. “I decided to follow weaving because it was a very difficult medium,” explains Jaworska, “I found that tapestry was close to painting, and I was trained as a painter. I can paint, but I feel fibre. For some people it’s just wool or cotton or whatever, but I know each fibre and what I can achieve with it. Once I started to do tapestries, that was it.”

After graduating with a master of fine arts in 1952, Jaworska became a lecturer at the academy and two years later was appointed artistic director of Lod, a state-run arts and crafts cooperative in Warsaw. In 1963 she organized and headed an experimental art weaving workshop called Cefelia, where she taught apprentices tapestry weaving; it too was government sponsored. Jaworska received acclaim for her weavings, and in 1968 the state sponsored a solo exhibition of 15 of her tapestries in the United Kingdom. Dark, organic and brooding, her works were original, accomplished and well received. By this time she was married to Tadeusz Jaworski, a young film maker whom she had first met at the Academy
of Dramatic and Film Arts in Lodz. Passionate, humble and creative, he had an international reputation for his documentary films and in 1967 was honoured by the Polish government for his outstanding artistic contribution. He was a highly regarded director at the Central Warsaw Film Studios, he also taught, and in 1968, when the Polish government began to blame its many failures on what it called “Zygmunt conspirators,” he became loudly and publicly outspoken. Jaworska was fired from the Warsaw studios and in March 1969 was expelled from the country.

“We left by car, with no money, nothing,” says Tama Jaworska gravely. “We crossed the border to Czechoslovakia. When they stopped there knew we were leaving for good. One of them was actually nice, though. He opened the boot of the car but didn’t really look inside. He bowed his head and said, ‘I’m sorry.’”

They went to Vienna and then to Rome, where they applied for visas to Canada; Tadeusz Jaworska admired the work of the National Film Board of Canada and the Canadian Broadcasting Corporation. After a wait of almost a year, they arrived in Toronto, penniless, found an apartment downtown and furnished it with a plywood-topped table, two folding aluminium lawn chairs and a cache of 15 tapestries, the dark, moody ones from England.

“It was lucky,” says Jaworska. “We were out of Poland I sent a letter to the curator of the Manchester Museum, where my tapestries were at the time. I asked him to keep them and send them to me later.”

Only four months after arriving in Canada, in November 1969, Jaworska mounted her first Canadian exhibition at the Art Gallery of Ontario: “It was a truly beautiful show,” remembers Jean Johnson, who curated it and is now manager of craft projects at Harbourfront, a cultural and recreational institution on Toronto’s waterfront. “We sold quite a few works. One was a beautiful grey-brown, very poetic, that had a lot of pearls on it.” The last day of the exhibition, she recalls, was remarkable. “The gallery was completely full all day long. The word had spread. What you have to realize is that people in this country knew no such things, really, as tapestries. People had never seen anything like them.”

In fact, there was almost no tradition of tapestry in Canada when Jaworska arrived. A tapestry programme had been set up at the Ecole des Beaux-Arts de Quebec in 1949, but classical tapestry was called Gobelin and the workshop of that name established by Louis XIV never got much of a foothold in the Canadian consciousness before fibre art, or “new tapestry,” blossomed in the 1970s. Mostly large-scale, experimental sculpture made of loosely woven strings, rope, wood and metal, new tapestry was trendy but mostly vacuous. “Instant art today,” says Jaworska scornfully, “dying tomorrow.”

With the money earned from the Merton Gallery he bought a new room and set to work. In 1972 she completed her first major Canadian commission, a monumental tapestry for the lobby of Place Bell Canada in Ottawa. Called Unity, the piece shows the province’s official flowers blooming in a meadow in front of the Parliament Buildings. At 60 square metres, it is one of the largest handwoven tapestries in North America.

Jaworska fast gained a reputation for synthesizing designs that worked in harmony with architecture and corporate character. In 1975 the Bank of Montreal wanted a tapestry to hang above the escalators in the cold, white marble lobby of First Canadian Place in Toronto. The wall was bisected by a hall, and the setting was further complicated by four pillars that obstructed the view. She solved the problem by weaving four large abstract banners, vivid with warm yellows, reds and oranges, that can be viewed individually, in pairs or as a series. The lively scene as much with its eyes and hands as with her voice. “It was morning and a bit foggy, but the sun was shining and the leaves were falling. I had my rucksack with me, and I started to walk between the trees, just watching everything.”

What she saw that day became the first of 12 poetic tapestries that she called Free Vers. They took more than a year to design and two years of 16-hour days, six days a week, to weave. All based on the moody Canadian landscape, the tapestries are intimate, evocative and stunning. Free Vers I perfectly captures that fall morning in Ontario’s Deep Blue verticals, like tree trunks, edge the tapestry and bracket a forest of gradually pale stems that fade to a soft blue mist in the centre of the piece. A great swirl of delicate golden shapes spiral gently down through the piece like leaves, and here and there little flares of pinks, greens and oranges light up the background. Seeing the tapestry is like watching some timeless, unexplainable stirring in the woods. A puff of wind, perhaps, or fairies playing. God, even.

“Something is in you,” she says, remembering the moment it all came together. “You say to yourself, ‘Ahh.’”

Aside from stipulating their size, Inard had given Jaworska carte blanche to design and weave the tapestries. She threw herself into the commission and in the end produced perhaps her most mature works—subtle, intricate and peaceful.

Jaworska and her husband arrived at the gallery a little early for the six o’clock reception on November 21. The atmosphere was electric. People fell on the tapestries hanging high on the gallery walls. Inard had carefully trained pinpoints of bright light on small areas of each tapestry, making the metallic threads sparkle, the solid colours look saturated and the glossy glosses glow. Already, a few visitors milled around in the darkness, whispering excitedly about the exquisite art that surrounded them. More than 300 artists, collectors, gallery directors and international officials, including the Canadian ambassador to France and the mayors of several French cities, gathered around Jaworska, amazed that such a diminutive artist could have produced such monumental works. After the last visitor had been ushered out, Jaworska was both elated and exhausted. She took one final walk through the gallery, revisiting each of the Free Vers. “When you finally see what has taken you so much energy to produce, either you are disappointed or you are proud,” she says. “Yes, I thought to myself, Free Vers are the best work I have done. They are my own song. I felt very proud.”
FRIENDLY
FERTILIZERS

Helpful microbes and controlled-release fertilizer developed by Imperial are assisting farmers to grow more food while preserving the environment

BY JEAN MARTIN

W

e all have our own private dreams, and, understand-
ably, Morley Handford dreams of the perfect fer-
tilizer. Understandably because Handford, as the
vice-president in charge of agricultural chemicals for
Imperial Oil's chemicals division, spends a good deal of
his life searching for new and better ways to help farmers grow
bigger and healthier crops.

"For me," says Handford in his office in downtown Ed-
monton, "the perfect fertilizer would grow a plant with all
the nutrients for its maximum growth, all the fertilizer would
be used, and thereby give the farmer the most for his money
and avoid any environmental problems." While the industry is
still some distance away from fulfilling Handford's dream, scientific knowledge of how the vari-
ous ingredients of soil interact with one another to make a
plant grow has increased tremendously over the past couple
decades. And, as evidenced by the expanded understanding of
nature with a shortboard for new ideas that promise to
transform modern-day agricultural chemicals into vastly
more effective and environmentally sound products.

It's an evolution rather than a revolution. Canadian
farmers, like their counterparts around the world, rely on
traditional, though improved, products to meet most of
their needs. At its modern manufacturing plant at Red-
water, on the banks of the North Saskatchewan River, a 45-
minute drive from Edmonton, Imperial produces 1.5 mil-
lion tonnes of fertilizers every year for worldwide
distribution.

These fertilizers supply the soil with the basic nutri-
ents—nitrogen, phosphate, potassium and sulphur—needed
to make a plant grow. While the nitrogen comes from the air,
Imperial obtains the remaining ingredients from a variety of sources: potassium from the potash
mines of Saskatchewan; sulphur as a by-product of natural
gas production in western Canada; phosphorus chiefly from the West African nation of Togo—at virtually any
given time four or five ships are plying between Togo and
Vancouver to satisfy the Redwater plant's appetite for 3,000


tones of phosphate rock a day.

But, slowly, the composition of fertilizers is being altered
to reflect scientific advances, the need to protect the envi-
ronment and the demands of agriculture for increased out-
put. "Our business is continually changing," says Hand-
ford. "About 20 percent of the products we sold in 1990
didn't exist five years earlier.

It is the job of the agricultural chemicals technology divi-
sion to develop these products. "Our focus is on products
that are economically efficient and environmentally
friendly," says Arnold Silver, manager of the group. "We
are meeting the industry in developing environmentally
friendly products.

The ability to control the rate at which nitrogen is released
is of critical importance. Delivering higher yields for the farmer with the use of fewer
nutrients.

At Redwater, chemical engineer Tom Devereaux, heads a
team that is at the forefront of controlled-release technol-
ogy. The ability to control the rate at which nitrogen is
released is of critical importance. "A traditional fertilizer,"
explains Devereaux, "releases most of its nitrogen soon after
the farmer puts it into his field, whereas the plant needs
nitrogen throughout its growing period. The mismatch
means that a lot of nitrogen is wasted—which can create
environmental problems. Our aim is to change the fertil-
izer's release pattern to make the nitrogen available to
the plant as and when it needs it."

The process is complicated by the fact that a plant's need
for nitrogen changes over time. A newly planted seed may
require so little that, under adverse conditions, substantial
amounts of the first application of conventional fertilizer
are wasted. Later, however, the plant may need more nitrogen—
a farmer may have to fertilize some crops three or more
times during a growing season to meet the plants' changing
needs.

Imperial is already test-marketing a product that ad-
resses this problem. The company's time-release fertilizer
has granules encased in a plasticlike polymer coating.
In the ground this water-permeable coating allows the fertil-
izer to be released at a measured rate, similar in concept
to controlled-release cold tablets.

Ken MacQuarrie, marketing development coordinator
for the team that is developing the new technology, notes
that there are already products on the market that can
delay the release of the fertilizer. "But," he says, "we not
only delay the release but control it. We can tailor the re-
lease of the nitrogen to meet almost any condition. If you
want a product suitable for places with a long growing sea-
son—such as Florida—with nutrients released over a six-
month period, we can deliver it. Moreover, the polymer
coating is non-toxic and degrades in the soil over time."

During the past three years or so this new generation
of "smart" fertilizers has undergone extensive testing, not
cely in the laboratory but under field conditions, being
tested on as many as 20 different crops at 50 sites through-
out North America.

"We're no longer testing its ability to release—we know it
works," says Al Henderson. "Now we're testing how ef-
fective the product is in a cost-benefit sense. We compare
how a farmer's usual technique—say, five applications of
fertilizer a season—measures up to a single application of our
new product."

Results to date have been very encouraging: in most cases
a 10 percent increase in crop yield has been achieved using
20 percent less fertilizer.

Five hundred kilometres east of Redwater, along the South
Saskatchewan River, lies the city of Saskatoon—which
proudly describes itself as "the Silicon Valley of agricultural
biotechnology." Here a second team of Imperial researchers
is working on a different set of challenges. Whereas their
colleagues upriver are examining the chemistry of the ferti-
zler itself, in Saskatoon biologists are looking into, among
other things, the microorganisms that deliver the nitrogen
to the crop and the relationship that exists between the
fertilizer and the plant.

This group of scientists, which is charged with the devel-
opment of products that promote plant growth or control
plant diseases biologically, works out of offices in the sci-
cence park at the University of Saskatchewan. The team has
access to both the university's respected agricultural faculty
and to government research facilities. Like plant growth
itself, it's a symbiotic relationship, with academia and in-
dustry mutually benefiting from each other's research.

"We know that plants aren't going to take up nutrients unless they can find them," says Rob Rentie, a scientist
specializing in rhizosphere (from the Greek word for "root")
microbiology who heads the group. "Our job is to make
sure plants do find and use efficiently the nutrients they
need for healthy growth."

During the past three years or so this new generation
of "smart" fertilizers has gone through extensive testing.
In Saskatchewan Imperial scientists are looking into the relationship that exists between the fertiliser and the plant.

Rennie and his colleagues spend many hours in field work (literally), searching out plants that happen to be growing unusually well. They take samples of the surrounding soil and isolate its constituent organisms. These organisms are multiplied through fermentation. When sufficient quantities of the organisms have been produced they are tested on seeds, initially in the laboratory, in test tubes or plastic bags, and then in the field to determine which constituent provides the desired effect on plant growth.

Two microbial products are already being sold: Enferrox for lentils and Enferz for peas. Both are rhizobium bacteria and help the plant to increase the intake of nitrogen from the air. Farmers attach the bacteria to the seeds, literally gluing the product to the seeds with corn syrup or a similar agent. As the plant grows, the bacteria attack its roots, forming little red nodules. From inside these the bacteria feed on sugars extracted by the plant. In exchange the nodules act as mini fertilizer factories, making nitrogen from the air available to the plant.

The lentil farmer is rewarded by increased crop yields of up to 16 percent. Equally important, the system allows Prairie farmers to practice continuous cropping, planting a lentil or pea in fields that would previously have been left fallow. "Farmers used to have acreage fallow in the summer," explains Rennie. "But it was actually a major cause of soil erosion, because the weeds would be ploughed in, leaving the soil exposed to the wind. Soil erosion is a real concern, because once the topsoil, which is rich in nutrients and organic matter, is lost you can't get it back."

Rennie and his colleagues are working to develop root bacteria for other crops, including grains. But they are looking for other ways in which to help farmers, including the development of organisms that stimulate hormonal activity to help seeds germinate faster. Such a breakthrough would be of particular help to Canadian farmers, who have to cope with a relatively short growing season, since it would shorten the time in which plants mature. Still other microbes attack and destroy plant pathogens, which cause disease; the use of these could reduce the need for fungicides and pesticides, which can contribute to pollution.

However, the current focus is on those bacteria that promote root growth. "Better roots," says Rennie, "allow plants to 'soak' much wider for water and nutrients, increasing the absorption of what is in the soil."

"Twenty field trials were under way in 1991 into the effects of such bacteria, and Rennie's special refrigerators contain no fewer than 10,000 individual strains of bacteria, stored at minus 80 degrees Celsius to avoid genetic mutation. Extensive care has to be exercised at all times, not only in the laboratory, but since bacteria that are beneficial to one plant may cause disease in humans, animals or other plants.

"Most bacteria don't survive very long," says Rennie, "but the last thing we want to do is introduce an organism to the soil that could be dangerous. We test all bacteria under prescribed guidelines and screen them on dozens of different crops to make sure that they are not harmful. Every stage is controlled by a government agency."

The research being conducted in western Canada on new fertilizers by Imperial scientists and others has attracted considerable attention, both at home and elsewhere in the world. The United Nations' Food and Agricultural Organization in Rome sees it as a model for similar research that it hopes to promote in its developing countries. In Canada, Dr. John Stewart, dean of agriculture at the University of Saskatchewan and president of the International Scientific Committee on Problems of the Environment, is a strong supporter of such initiatives. "I applaud the work on new fertilizers and on rhizosphere bacteria," he says. "This new products will make it easier for us to reinvigorate natural systems. It's entirely in tune with the type of responsible environmental management we need."

Merley Handford may have to wait awhile yet before his dream of the perfect fertilizer comes true, but, clearly, an encouraging amount of progress has been made.

More than 20 field tests were conducted in 1991 into the effect of these bacteria that promote plant growth.

I enjoy the occasional elaborate six-course dinner so much that the next person but one, the spring there's no item of haute cuisine that can compare, to my mind, with a simple dish of sautéed wild morel mushrooms. I don't mean the tinned-looking specimens that you can pay $50 or more for in some fancy food boutiques but the ones that, if you are very lucky, you pick yourself and pop into the pan while the hour.

This spring turned out to be a good morel season in our part of the country. It's been an unusual, as if many morel hunters know. These well-camouflaged delicacies are hard to spot at the best of times, and there's no guarantee that simply because they grew in a given spot one year they will reappear; they're finicky fungi and seem to require just the right combination of heat and moisture. Then one's timing has to be just right; a few days can spell the difference between success and failure.

However, this turned out to be one of my lucky years. The first of my two favourite morel locations (a closely guarded secret) yielded a shopping-bagful of excellent specimens in less than an hour's pre-breakfast picking. My wife and I ate morels for breakfast and for dinner and shared the remainder with a few privileged friends. Three or four days later we returned for more and were equally fortunate. But, also, the more we collected, the more we discovered, and within two or three weeks, apart from a few we stored in the freezer, they will be but a memory, leaving us no option but to possess our souls and taste buds in patience until next spring.

Fortunately the morels are by no means the only treat that nature has to offer. In a week or so it will be time to harvest our first crop of fiddleheads from the flourishing patch of ostrich fern near our barn. When picked at precisely the right moment and cooked within the hour, fiddleheads are perhaps my very favourite wild vegetable.

And no sooner will the taste of fiddleheads recede from our palates than it will be time to seek the succulent stalks of wild asparagus, which grows naturally plentifully in our part of eastern Ontario. Unfortunately, however, the local deer seem to be increasingly addicted to wild asparagus and each succeeding year manage to consume an increasing share of our crop. Last year they ate more than a couple of dozen stalks at my favourite patch.

But who am I to deny the neighbour- hood deer their simple epicurean pleasures? Still come to bear, after all, are the plentiful mushrooms of summer, culminating in September and October with the incomparable meadow mushroom (too much favoured by our gourmet deer), followed a little later, given the right weather, by the puffballs. And that's not to mention the dandelion leaves, lamb's quarters and wild chives, which add zest to any salad, or the darts of berries and wild fruit that, for the country dweller, are literally available for the picking.

And therein, of course, lies much of their charm. A vegetable garden can be fun but, as every home gardener knows, requires a lot of effort, and even home-grown vegetables cost money in terms of seeds, plants and fertilizers. How much nicer it is, in occasion, to let nature do all the work and enjoy the effort-free harvest.

There are some drawbacks, naturally. One has to understand a little about nature before one can enjoy the fruits of her work. One has to know where and when to look and what to look for. No one, for example, should eat — or even attempt to eat — any wild food unless it is certain of its identity. There are a number of poisonous species native to Canada, and some — such as one or two varieties of the fairly common amanita — are deadly. But such knowledge is easily acquired.

It is also true that the life span of many of nature's delicacies — morels are a good example — is very short, and one can only enjoy each offering for the briefest of periods. But this I am inclined to regard as a blessing rather than a handicap. As consumers we tend to be a spot less the miracles of food technology, supported by rapid transportation and refrigeration, have allowed us to ignore nature's natural growing cycle. If you can afford it, you no longer need be deprived of asparagus for 11 months of the year. You can pick it up at local supermarket at any time (let me say as easily available in December as it is in May). Tomatoes are no longer a late-summer treat but a daily staple, and I have seen strawberries suggested for a Christmas Day dessert.

One problem with such out-of-season vegetables, of course, is that their taste doesn't compare to their fresh-from-the-garden counterparts. But over time our jaded palates have accustomed to the substitutes, and we have forgotten the glory of a tomato plucked ripe from the vine; we taste, as Shakespeare said, with a distempered appetite. And surely there is something inherently wrong in seasonal vegetables being available on a year-round basis. I suspect that I would quickly lose my love of morels if I could eat them any time of year. It's the thrill of discovery, that frisson that accompanies the first bite. Fortunately, in the case of morels there is no danger of that happening; they have defied every effort to produce them commercially. If you taste fresh morels you must make the effort to go out into the countryside in spring and search for them.

That is the way nature has ordered things, and it suits me just fine. Every month of the growing season brings another half-forgotten delight and pleasure sharpened by the knowledge that it is destined to be fleeting. Of course, I'll mourn for the asparagus when the all-too-short season comes to an end. But then, just think of all the pleasures to come.

— W. Homer Thomas