C146 Collection Expo 67 et Terre des Hommes

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C146 Expo 67 and Man and His World Collection

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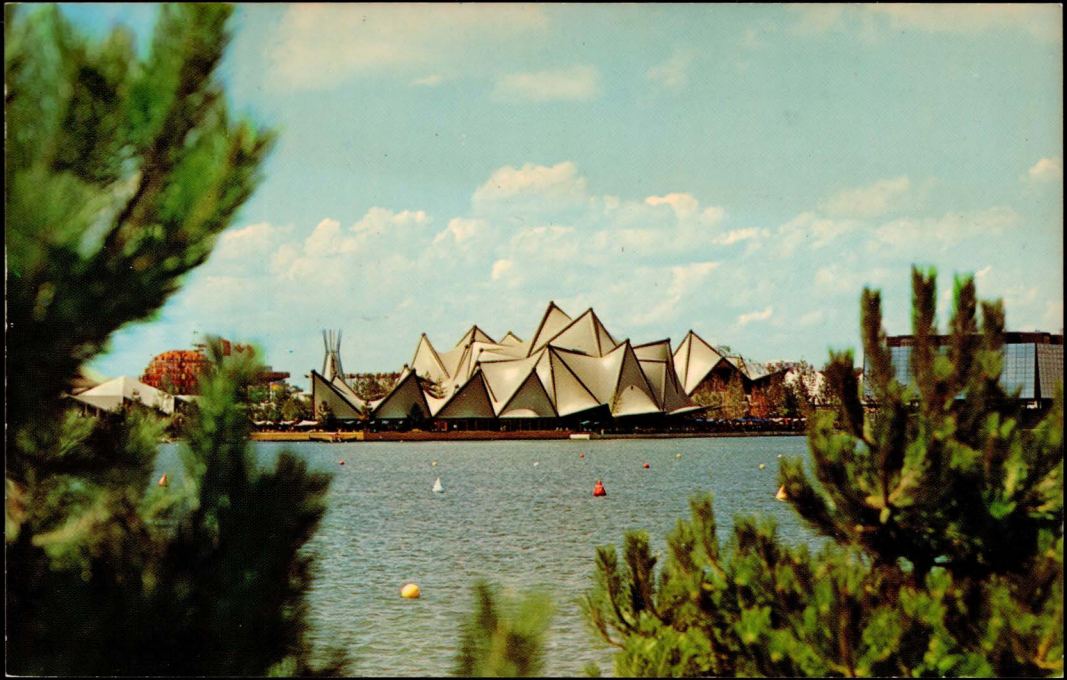


the Ontario Pavilion

Featuring one of the best food values at Expo — choose among 5 exciting restaurants and 2 lounges or view the spectacular film presentation "A Place to Stand."

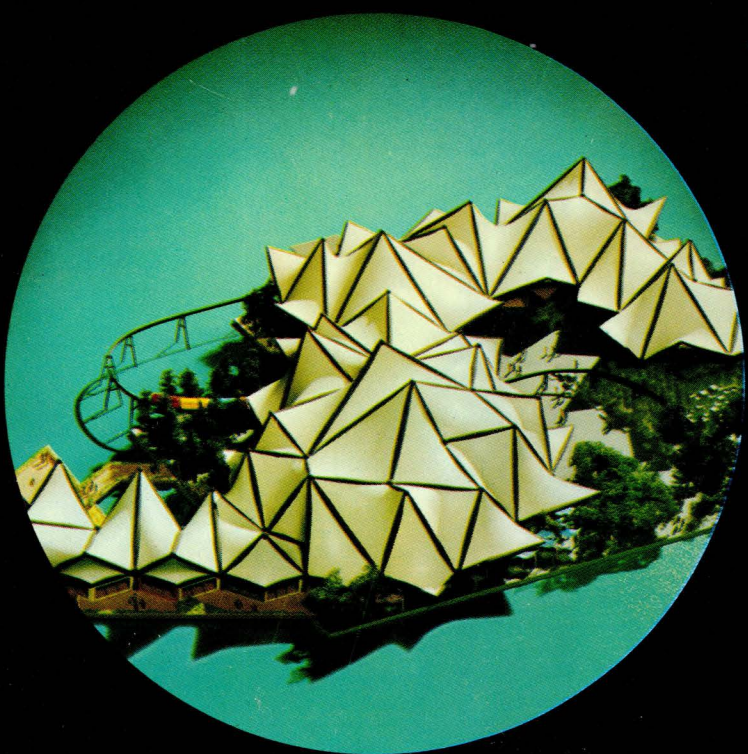
ontario ontario ontario ontario 67

PLACE STAMP HERE

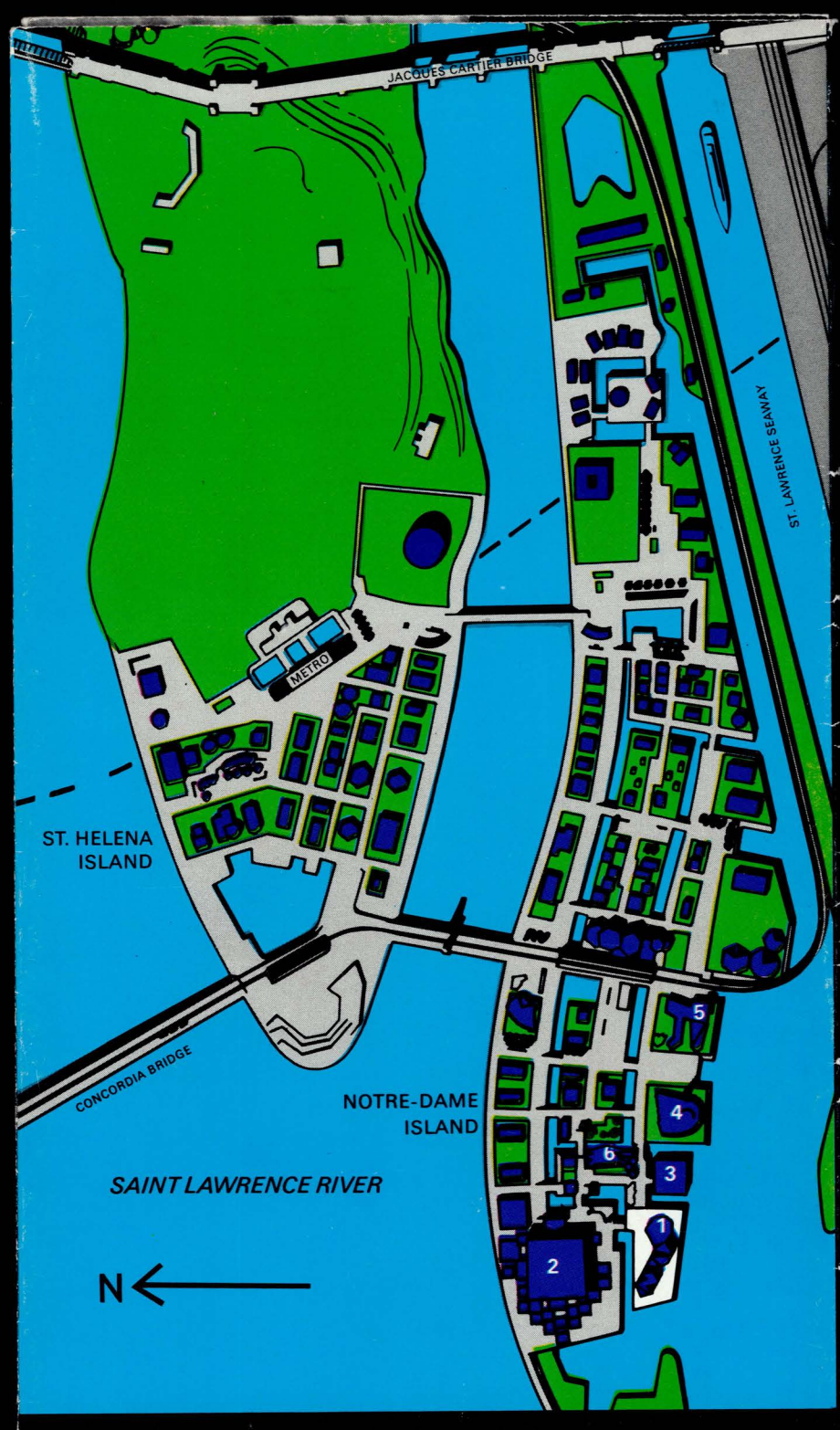
Post Card

27485-C

Printed in Ontario, Canada

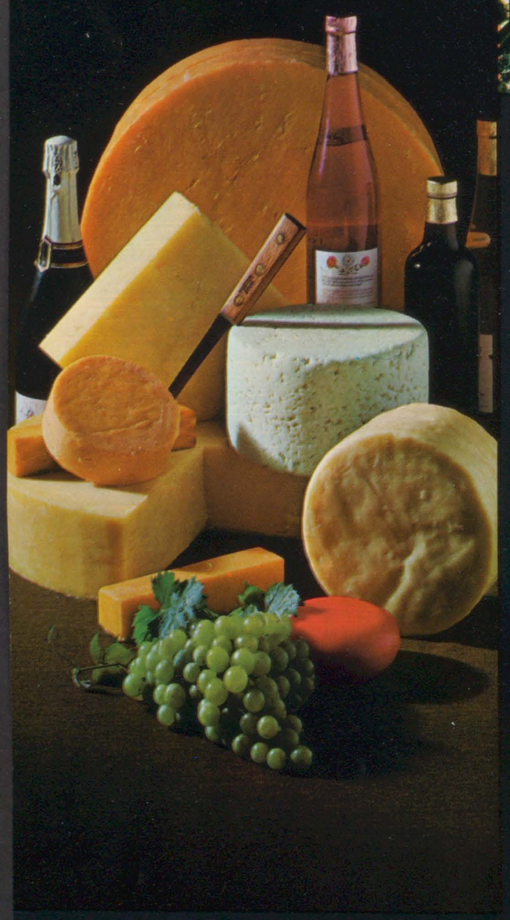


Look out world here comes Ontario!



The Ontario Pavilion (1) is located on a beautiful elevated site at the West end of Ile Notre Dame, the largest of the three Expo areas.
Surrounded on all four sides by water, it neighbours the Federal (2) and Quebec (3) Pavilions. Nearby you'll find the Pavilions of France (4), the United Kingdom (5) and the Western Provinces (6). Just take the Expo Express which has stations in each principal area (*there is no charge*).
Or take the elevated minirail which passes right through the Ontario Pavilion.

Government of Ontario
Department of Economics and Development
Hon. S. J. Randall, Minister
S. W. Clarkson, Deputy Minister



What do you do at Expo when you get hungry? You go to the Ontario Pavilion—meals for as little as $1.
You can go to the Ontario Pavilion *knowing* that good food and good wine will be served in five different showplace restaurants. You can snack at a sidewalk cafe or slip into an air-conditioned dining room. You can sip a cocktail, grab a long beer in the colourful terrace beer garden or eat high off the hog at the outdoor barbeque.

Please be notified that *you will not have to pay through the nose to fill your stomach at the Ontario Pavilion.* You can get a good meal for $1 in some restaurants. You can pay more, of course, but wherever you eat, Expo's best food value will be found in an Ontario restaurant. When you come to our table for a meal, no one wants you to leave hungry.

Ontario's restaurant complex seats over 700. Included is a special go-go spot where teen-agers can mingle as they munch. For thirsty souls there are two bars, and you can get a drink in any of the restaurants as well.

The food will be the finest Ontario can provide. It is selected by hand—by extremely selective inspectors—and shipped daily to the Pavilion's bright, clean kitchen. There it's prepared in a variety of highly imaginative ways by up-to-date chefs who know how to treat food—and served by a young, alert staff who know how to treat people.

Put the Ontario Pavilion at the top of your must see list.

1. Its enclosed area is 60,000 square feet. That's about the size of four professional hockey rinks. The total area of the Pavilion site is 119,406 square feet.
2. The roof soars to 90 feet.
3. 140,000 square feet of glass fibre covering is used on the roof.
4. It is surrounded on four sides by water.
5. 140 red pine, poplar and white birch up to 60 feet high were specially cultivated for the Pavilion. Some of them will grow inside.
6. 1,300 tons of structural steel were needed.
7. 1,500 blocks of granite were used.
8. The floors are carpeted to make you feel at home.

Art comes on in a big way in the Ontario Pavilion, proving to the rest of the world that Ontario's artistic talent is among the best in the world.

The house with the gingerbread roof (at left) is actually *30 feet high*—a piece of sculpture in wood and bronze you could walk right through. It pays tribute to rural Ontario in 1860.

The Walking Woman (lower right) is made of stainless steel. It's 10 feet high, and is made up of 11 different units. You'll see it only at the Ontario Pavilion.

The picture at top right shows a 35-foot long mural describing eight periods in Ontario's history.

There's a great deal more at the Ontario Pavilion, of course, including children's art and floating sculpture.

Air conditioned theatre has amazing new screen—one of the largest in North America.
One of the largest screens in North America, 65 feet wide and 40 feet deep, will burst into colour every 20 minutes with a film about Ontario. This is no ordinary film. It took two years to make. It took film crews through 115 different industries. They photographed in virtually every city and town in Ontario. The 70mm film and multi-image projection make the viewer feel he's actually part of the action (see left). The culmination of your visit to the Ontario Pavilion is here—an indescribable experience awaits you.

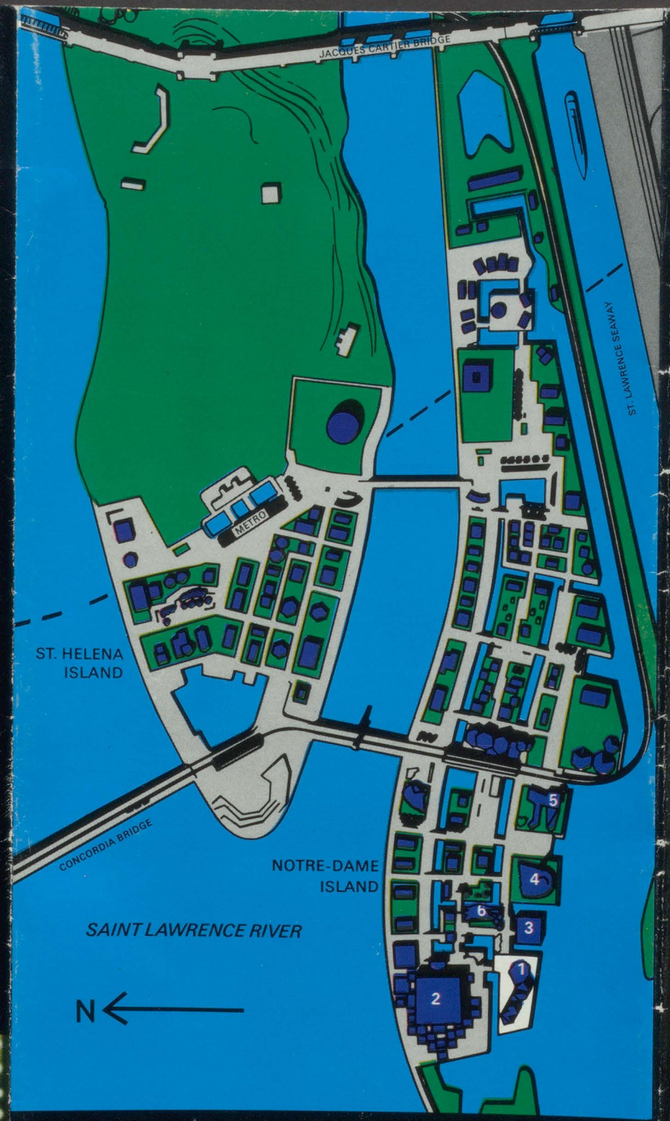
One of the world's first stage shows with mechanical actors
It took 5 men 3 months to design and build that mechanical man at left. Four other man-sized mechanical people will be on stage with him to tell you about career opportunities in Ontario. Think your wife's hats cost a lot? A helmet worn by one of the robots cost the manufacturer more than 350 dollars to make. See it on Miss Science in the Ontario Pavilion.

Admission to Pavilion and exhibits is free
You can wander at your own speed through 17 spectacular new experiences. You will be involved in these exhibits. You will see the unexpected. At the Ontario Pavilion you should not have to stand in line, nor will you be deluged with noise or commercialism.

When should you go? Beginning, middle, end?
Expo opens April 28th and closes October 27th, 1967.
May and June are cooler months in Quebec.
July and August will be the crowded time. If you feel the crush of the crowds isn't worth it, consider the Spring as the time to go to Expo.
Hotel rooms will be easier to get, and restaurants in the Ontario Pavilion won't be jammed. (But the food will be superb.)

What goes on in the world of youth?
What does a teenager do with his (and her) free time? What does he like and dislike?
What can he offer Ontario and what can Ontario offer him? For some interesting answers see THE TEEN SCENE in the Ontario Pavilion.

Three years' output of rock quarry used
To give you some idea of the tremendous size of the Ontario Pavilion, study the picture at the left.
These huge rough-hewn granite blocks, being placed in position in the lower area of the Pavilion, weigh up to 12 tons each. Over 10,292 tons of these blocks will enhance the Ontario site . . . representing three years' output from one quarry.



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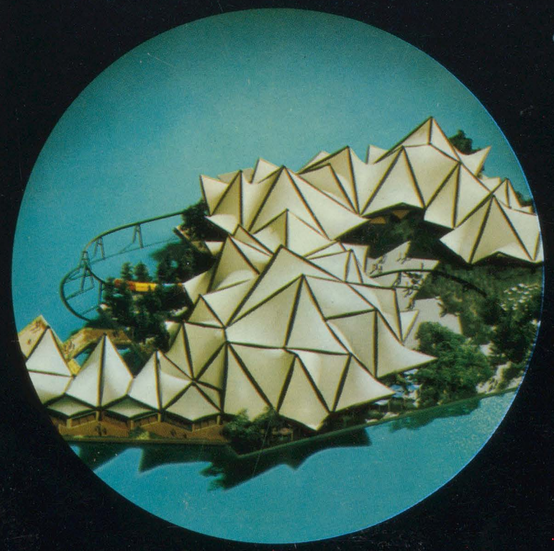
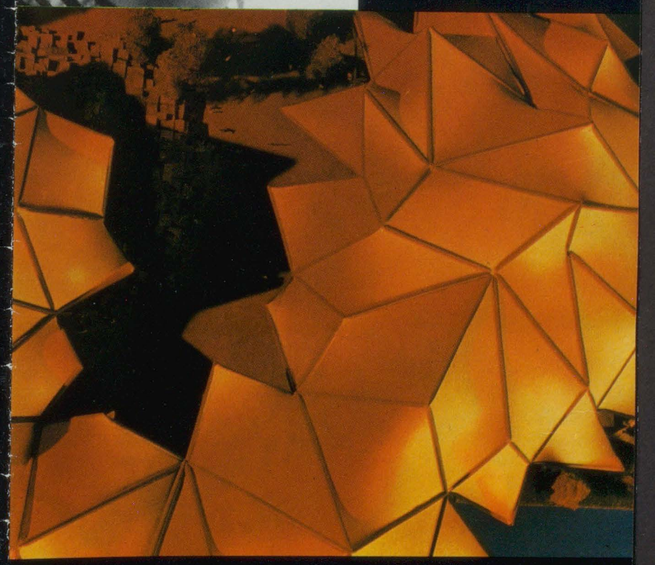


Look out world here comes Ontario!

See that face on the left? That's the look a kid will have when he sees the Ontario Pavilion at Expo. That's the feeling *you* will have when *you* see the Ontario Pavilion—Ontario on display for the whole world to see—at Expo 67



Ontario Pavilion sets new design standards at Expo
Ten years ago, the Ontario Pavilion could not have been built. The covering hadn't been invented. Nor the structure conceived.
But now it exists for all the world to enjoy.
Designed by award-winning architects, Fairfield and Dubois.

Visit the Ontario Pavilion at Expo 67

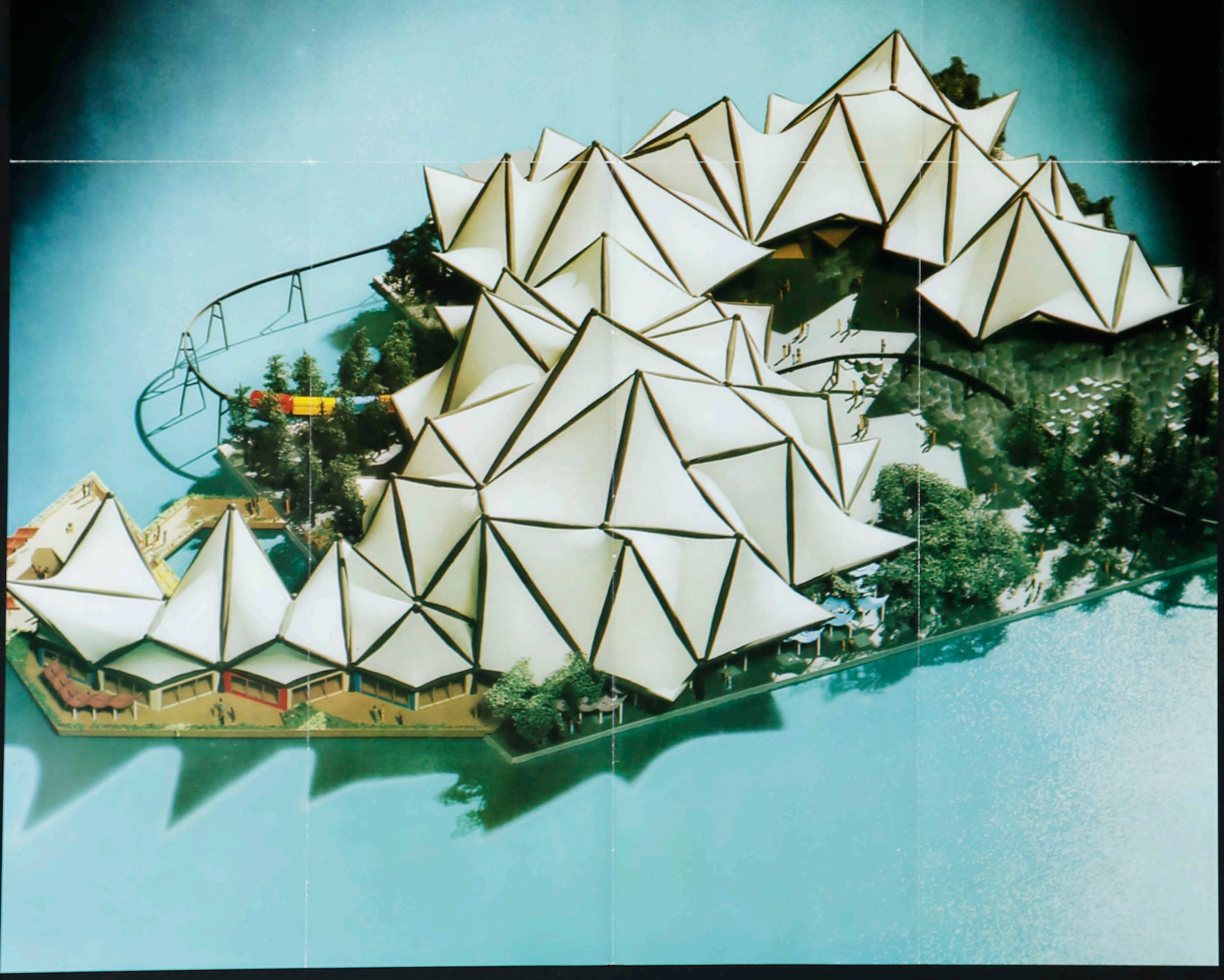
Discover your Province in the form of a major world pavilion, designed to attract 2,500,000 visitors.
A dramatic showcase of glass fibre and steel soaring 90 feet in the air.

Five different restaurants featuring Ontario foods, selected and shipped daily. Meals for as little as $1.00. Service indoors and outdoors. Seating for over 700. One of the largest restaurant complexes at Expo.

More than 16 exhibits specially created to reveal "Man in Ontario." Enjoy a play put on by five life-sized robots. The uninhibited creativity of our children. Ontario 33 years from now.

Art and Sculpture
The boundless creative energies of Ontario people are to be well represented. Larger-than-life sculptures. Fountains. A mural 35 feet long. A new jazz theme for background.

Theatre presentation
A unique, multi-image colour film "spectacular." Never before attempted. Two years to film and produce. Make your visit to Expo complete. Be sure to see the Ontario Pavilion.



November 13, 1967

TO: EX ONTARIO PAVILIONITES

FROM: Trish Roberts
c/o Special Projects and Planning Branch
Department of Economics & Development
950 Yonge Street
Toronto 5, Ontario

RE: ONTARIO PAVILION DIRECTORY AND CIRCULAR

I enclose a copy of the Ontario Pavilion Directory. Would you please note the following points:

(1) On January 18th, 1968, I will send out a correction list to the Directory, therefore, if you have any changes, additions, deletions, etc. to make, please send them in before this date.

(2) Also towards the end of January, I would like to send out an "Ontario Pavilion Circular" to everyone. This might be especially useful to those people in Europe.

So, if you want any news, anecdotes, scandal... blackmail, cartoons, coded messages, etc, also your plans for '68 put in, do send everything.

Will print anything .....(?) submitted before January 18th, 1968

Trish

Trish

enclosure

ONTARIO

With the Compliments of

THE HONOURABLE STANLEY J. RANDALL
Minister

DEPARTMENT OF ECONOMICS AND DEVELOPMENT

Government of Ontario

Toronto, Canada

ONTARIO DEPARTMENT OF ECONOMICS AND DEVELOPMENT

Minister: HONOURABLE STANLEY J. RANDALL
Deputy Minister: STUART W. CLARKSON

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Tel: 661-483

CHICAGO
11 East Adams St.
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U.S.A.
Tel: 922-2170

Herewith is your copy of ONTARIO/67, with our compliments. It is one of a limited number printed for selective distribution in over twelve countries and in three languages. You may want us to forward a copy to one of your associates. If so, kindly send along his name and address and we will endeavour to comply, subject to availability. Below you will find a brief description of the Department which produced this publication. Perhaps at some date you may wish to make use of its services.

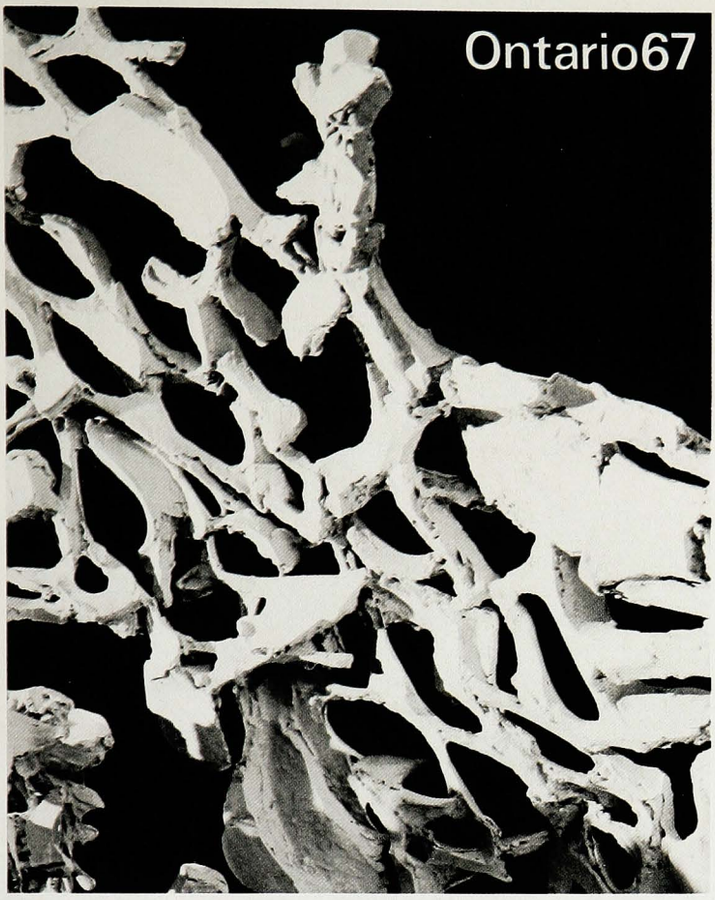
THE ONTARIO DEPARTMENT OF ECONOMICS AND DEVELOPMENT is charged with the responsibility of planning and executing a broad range of industrial and economic programs for the Province of Ontario — programs that are designed to assist economic growth through investment, research, productivity, and foreign trade. The Department carries out many of its responsibilities through "specialized services." A few are listed below:

THE TRADE AND INDUSTRY BRANCH serves to assist importers, distributors and agencies interested in handling Ontario made goods. Offices are listed above. Help is also available to those interested in producing under a manufacturing arrangement with an Ontario company, or in locating a site for manufacturing operations either as a branch plant or a joint venture. Services are completely confidential at no obligation. The Branch also supplies information relating to specific requirements — markets, raw materials, labour, utilities, transportation, taxation and other factors.

THE OFFICE OF THE CHIEF ECONOMIST co-ordinates economic research activity throughout the Ontario Government. It furnishes the Government with general data on economic trends and detailed analyses of specific sectors of regions within the economy. In its Ontario Statistical Centre, the Office has the beginnings of a general purpose information system for future work in economic analysis and planning. In addition, the Office bears major responsibility for co-ordinating Ontario's fiscal and financial relations with the federal government in Ottawa.

Ontario67

Ontario67



Detail from Baroque Tree, 1962-1967,
by Harold Town,
(Hydrocal over welded, expanded,
road lathe and copper screen.)
Mazelow Gallery.

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HUDSON
BAY
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Belcher Is.
York Factory
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L. Nipigon
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Selkirk
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Grand Forks
Crookston
Minot
Bismarck
Fargo
Duluth
Lake Superior
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Marquette
Wahpeton
Aberdeen
St. Paul
Minneapolis
Pierre
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Pittsburg
Indianapolis
Columbus
Peoria
Topeka
Cincinnati
St. Louis
Washington
Louisville
Evansville
Oak Ridge
Knoxville
Richmond
Raleigh
Chattanooga
UNITED STATES

Ontario

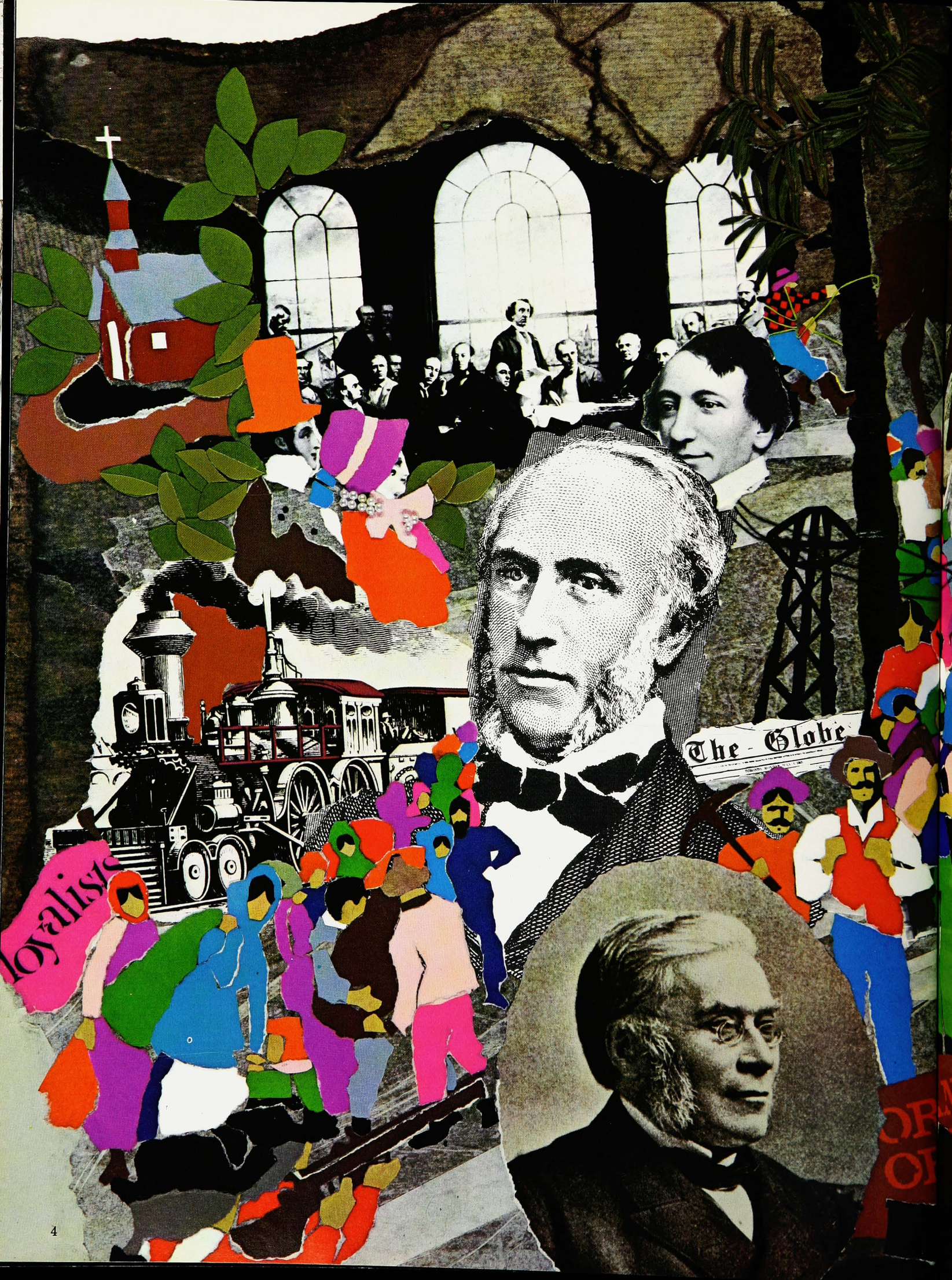
Area, 413,000 square miles

Population, 6,895,000

Labour Force, 2,719,000

Total Capital Investment, $5.0 billion

Gross Provincial Product, $24.3 billion


The Globe


1867
1967
ONTARIO
CANADA
A.R.M. LOWER
FENWICK
NEW AYLMER
ORONO
TIMMINS
WIARTON
Testamur Senatum Universitatis Torontonensis
John Trevor Eyt
boer
war

1867
1967
ONTARIO
CANADA

One hundred years ago, Imperial Parliamentary magic transformed the former half-province of Canada West (better known as Upper Canada) into the new Province of Ontario. At the time, the province contained a sizeable population (about a million and a half) a well-settled countryside, some flourishing small cities, towns and villages. Fronting the St. Lawrence and the Great Lakes, it was an inland maritime province. Sailing ships manned by Upper Canadians dotted the vast waters, steamers plied them. Railroads connected the principal centres. Common schools there were for nearly everyone and grammar schools for those that wanted them. There were four small universities. Today the same province is the home of nearly seven million people, has immensely expanded its communications, contains many fine cities, large and small, great industries and a dozen universities, some with international reputations. If, to adapt Sir Christopher Wren's famous epitaph, you wish to see the monument to its pioneers, look around!

Ontario, though not the first of the Canadian provinces to be settled, is today the most heavily populated and the wealthiest. Why? Again, look around. Good soil, a not unduly severe climate, many natural resources—in such advantages lie the explanation.

The region of good soil is limited in area, consisting only in peninsular Ontario (the part lying between the three lower Lakes) and the other portions organized into counties. North of the counties lies the vast expanse of the "Canadian Shield" with its tens of thousands of lakes, its countless square miles of gray granite, its bogs or muskeg and its forests.

Effective settlement started in the province in 1784, when the United Empire Loyalists, the people who had been on the wrong side of victory in the American Revolution, came up from the south. This first wave of pioneers, determined to make good in the northern wilderness the cause lost in the south, gave the province a character it never lost. That character was strengthened and deepened by the War of 1812, which Loyalists viewed as an attempt by their late friends and relatives to pursue them into their new homes. A third decisive event in the making of Ontario was the mass immigration from the British Isles between 1820 and 1850. Nearly a million people came. They brought with them their social habits, their outlook on life, their political and denominational adherences. They rapidly filled up what was left of the good land. They came close to remaking the province. The Irish and the Scots tended to settle in groups and their descendants remember their origin down to this day. The English are harder to trace, for the English have little tribalism. Those who were "of good family"—not a negligible group—often moved into a city, got into a profession or a public post and passed on to their descendants a certain consciousness of class that's still detectable and is one of the marks of difference between Ontario and its neighbouring American states.

By the 1860s Canada West had outgrown Canada East in population and a tumultuous Scot named George Brown had set up an agitation for what was called "Rep. by Pop." ("Representation by Population"). This and other divisive forces between English and mostly Protestant Canada West and French and mostly Catholic Canada East brought the wheels of government almost to a stop. A way out was eventually found in Confederation, by which the British North American provinces were joined in The Dominion of Canada.

From a constitutional standpoint, the provinces of Ontario and Quebec were, by the British North America Act, 1867, new-minted. Their parliaments were new. Ontario's parliament started with an innovation—one chamber only. There was no Upper House. Otherwise it followed traditional British forms. Within a few years it had elected as premier Oliver Mowat, an able man but with a vision limited to Ontarian horizons. Mowat took a provincial view of the constitution and by winning certain important legal decisions against the Dominion, weakened its power. With the support of the voters behind him, he came as close to being leader of *a people* as anyone has done in Ontario. His province was compact, its settled areas not extending far north of the Lakes. Its rural districts were knit up in intermarriage so that the web of family clans that normally makes up a countryside was already present. It was overwhelmingly of British stock and Protestant in religion. Communication was easy and everyone—or almost everyone—read George Brown's *Toronto Globe*, a newspaper known as "the Scotchman's Bible." So when a provincial election campaign was being waged in the 1880s a newspaper versifier could come out on the "Grit" (Liberal) side with the battle cry "The traitor's hand is on thy throat, Ontario!" The "traitor" was generally understood to be the Prime Minister of Canada, Sir John Macdonald. Mowat won his election. But a little later, Macdonald won his too, partly with the votes of the same people who had elected Mowat: they evidently did not feel the traitor's hand so close to their throats as did the versifier. The very vehemence of the political debates of the time testifies to people being able to speak to each other. In the last third of the century, Ontario, it is clear, had become a community, its people having a considerable sense of their own identity.

The agricultural limits of Ontario's little peninsula were soon reached, however, and almost before that sense of community had flowered, people were

streaming away from it. They went, as the humourist Stephen Leacock later quipped, "to that bourne from which no traveller returns, meaning the United States." So many went, in fact, that Richard Cartwright, another good hand at a quip, declared that the Dominion "which had begun in Lamentations, appeared to be ending in Exodus." Not all went to the United States. A sizeable stream flowed west towards Manitoba. There, spreading out on the prairies, they founded something like a colony of Ontario. To this day relations between Manitoba and southern Ontario, on this basis of kinship, are close. A little later, Ontario people followed the new Canadian Pacific Railway farther west, over the Rocky Mountains to the Coast, taking up lands and building towns, so that all the western provinces became strongly influenced from Ontario. Ontario men and their descendants have ever since been prominent in the West.

In 1883 something happened that heralded a new phase of life for Ontario —appropriately enough in "New Ontario," as the area lying north across the "wasp waist" between the Ottawa River and the Georgian Bay was coming to be called. This was the discovery, right on the line of the uncompleted Canadian Pacific Railway, at a place later to be called Sudbury, of a great deposit of nickel. That mineral find was the first of many. These have thrown up many mining towns scattered about the wilderness of the north. To minerals was added forest production—lumber and pulp and paper. In the 20th century, other railroads crossed "the Clay Belt," farther north still, opening a promising agricultural area. Today, this "Northern Ontario" contains something like three-quarters of a million people and several substantial cities.

These Northerners have a flavour of their own: they are closer to the frontier than are the southerners and they retain the bluff heartiness of the pioneer. They will tell you that they "suffocate" down south.

Southern Ontario, thanks to its Loyalist and British origins, was passionately devoted to the historic throne and empire. When the Red River disturbances occurred in 1870 and the North West (or Riel) Rebellion in 1885, Ontario men rushed to their colours. For many of them, the influence of the Orange Order (a militantly Protestant and pro-British fraternal society), probably the single most potent factor in Ontario life at that time, gave both expeditions something of the fervour of a crusade against the traditional enemy. The same attitudes came out in the agitation led by Ontario's Dalton McCarthy against "separate" (Catholic) schools in Manitoba, over which the decisive Dominion election of 1896 was fought. The victory of Wilfrid Laurier, a French-Canadian Liberal, quieted the waters but when the Boer War broke out (1899), Ontario was foremost in demanding Canadian participation, and recruited a large number of the men. That war, perhaps, saw the zenith of Imperial, as distinct from national sentiment, for in subsequent years it has been slowly replaced by the love of country which grows naturally as the generations succeed each other. The transition is not yet complete. In Ontario—and it is not the only province in this respect—there are probably still many people who feel loyalty to such words as empire, Crown, monarchy, and only secondly to Canada. As the proportion of people of British origin declines, the old sentiments will decline with it. It is a situation that involves the deepest of human perplexities, the allegiance of the heart.

During the first years of the 20th century, Canadian society was again fundamentally recast by another wave of immigration. Much of this flowed into the West, much stayed in Ontario. It is to this period that Northern Ontario owes its numerous ethnic groups and southern Ontario, large additions to its people of English descent. This English immigration was entirely urban: many districts of Toronto today are on this account almost purely English urban stock. The story of immigration has also its modern chapter, for since the Second World War, hundreds of thousands of Europeans of many nationalities have come to Ontario. They, too, have been urban: they are particularly conspicuous in Toronto, where they have been an important influence in changing a thriving provincial city, its people drawn from an English-speaking countryside, into a roaring metropolis.

Toronto, the seat of provincial government, is an Ontario phenomenon whose weight makes itself felt far beyond the bounds of the province. Its growth has been based upon the productive hinterland of southern Ontario and on the much larger hinterland of the North, which reaches far off to salt water at Moosonee, 700 miles away. Its University of Toronto is justly famous, and it abounds in cultural amenities. For all that, it strikes other Ontarians as a city of intense devotion to a somewhat arid commercialism. Outsiders allege that its inhabitants have difficulty distinguishing between the two words *Toronto* and *Ontario*, but that may simply reflect the jealousy

continued

incurred by all successful metropolises. Critics of Toronto probably know little about the streets of quiet, solid homes which make it up. The average Torontonian, like the average Canadian, is still a highly domestic animal.

Nevertheless, Toronto is not Ontario. If the stranger wishes to find the province's heart, and perhaps its soul, let him look in the little towns and in the countryside, where people, generation after generation, go on building themselves and their children into the community their forefathers hacked out of the bush. Yet Ontario's farmers are far from being untouched by modern ways: machines of every kind tie them to city markets. They will do well in the years to come to preserve vestiges of their rural way of life.

One agency of government has had so potent an influence on Ontario's evolution that it must be singled out for mention—the Ontario Hydro-Electric Power Commission. The Commission supplies, at very cheap rates, practically all the power consumed in Ontario and has carried its lines into every nook and cranny of the province. Of material influences, it is easily the most socializing agency in the province. More and more, as the automobile carries the "rural non-farm" folk into the countryside, it is affecting the distribution of Ontario's population, to say nothing of the growth of its industries.

Ontario, as Canada's most populous province, sent large quotas of men to both World Wars. The military spirit has always been conspicuous here and because of it, it was easy to enlist and organize fighting men. Like that of other Canadian troops, their reputation was high.

Today the province is reaching the stage where people understand that their forebears went before them and built for them. The evidence is visible in the shape of historical museums, which in some cases reconstruct whole settlements, and in efforts to preserve buildings of historical and architectural significance. Interest in what has been bequeathed to us is accompanied by efforts to conserve soil, water, forest, and to fight pollution. The Ontario government has multiplied the vast system of provincial parks, so that all citizens can share in the extraordinary variety of forest and lake and river. Nature is everywhere close at hand, there are scores of thousands of "summer cottages" and everyone who wants to can get out and swim or sail or fish or hunt. In idyllic fashion, Ontario combines the din of the modern city with the repose of the murmuring pines and the hemlocks.

Two questions remain. Is Ontario's strength in the best interests of the country as a whole? Does the province engage the hearts of its people? As to the first, a strong entity is always valuable, and its strength has often abled Ontario to blaze a useful pioneering trail for the rest. But it may be argued that the major Canadian provinces are too strong for the good of the whole. It might be better if they were less able to force their will on Ottawa. As to the second question, while Ontario people have a great affection for their home town or district, with respect to the province itself, well, it's part of Canada, isn't it? There is marked contrast between the provincial loyalty of, say, Nova Scotians and the sentiments of the Ontarian towards his province, whatever they may be. Ontario is too large, too varied, too scattered, to be grasped as a whole by most who live in it. Ontario is magnificent but it is first of all part of Canada, and only secondly a province.

Yet it is the corner stone of Canada and the province which rests most easily within Canada. It does so by reason both of geography and history. Geographically Ontario is central, the bridge between east and west. Moreover the stretch of country along the north shore of the St. Lawrence and the lower lakes has always been the effective backbone of Canada. This country was long ago dubbed "The Front." Montreal, Quebec, once an English city rather than a French, may be considered as its eastern end, Windsor its western. Historically, Ontario is the province in which the treasured inheritance of the English-speaking world—the spirit of freedom and the free institutions that embody it—has had the widest scope for its expression.

All the Canadian provinces, of course, are heirs to the institutions of freedom: public trial, the presumption of innocence, habeas corpus and trial by jury. Self-government and free institutions have been the province's since its beginning. As time has gone on, these have been broadened. One of Ontario's sons, Robert Baldwin, was the father of the constitutional device which proved to be the foundation stone of the future British Commonwealth—"Responsible Government." Another, John A. Macdonald, was the most prominent "Father of Confederation." Still another, Egerton Ryerson, was the major architect of the Ontario school system, which has been an example for all provinces lying farther west.

It would be invidious to imply that Ontario has maintained the heritage of liberty more fully than other provinces; but its compact areas of population, its general well-being and the self-consciousness a strongly established system of liberal education has brought to many of its people—such things have provided room for discussion, for life-giving controversy and for experiment. Ontario has tested its institutions and continues to test them. Like the islands to which sixty per cent of its people trace their origin, Ontario can claim to be a land

. . . that sober-suited Freedom chose,
A land where, girt with friend or foes,
A man may speak the thing he will. ■

SCIENCE CITY

At Sheridan Park, near Toronto, an exciting new community for industrial research and development . . .

By Ian Sclanders

Seventeen miles west of Toronto, and just a short jog off the busy Queen Elizabeth Way, three hundred and forty acres that grew grass for cattle until fairly recently are starting to grow new products for industry. The tract, called Sheridan Park Research Community, is the first of its kind in this country.

Within a few years, says Ontario Economics and Development Minister Stanley Randall, it will have $100 million worth of buildings, plus nobody knows how much in equipment; will be occupied by the Canadian laboratories of more than a score of the world's two hundred largest companies, and will pay two thousand scientists and technicians at least $42 million annually.

If it measures up to the expectations of Randall and others behind it, all prominent in government, industry, science and education, it will exert a strong influence on Canada's future, add untold millions to the national income, help stem the "brain drain" to the United States, and play a prime role in creating the employment required by our burgeoning labour force.

To understand its real significance, you have to realize that the scientist, traditionally a curious fellow hired at a starvation salary and stuffed into a dingy room to puff his pipe and putter with his test tubes, has suddenly emerged as the top dog in Space Age industry. He is so essential and in such demand that he can live where he chooses, and dictate the location of many types of factories, since they need him if they are to survive.

Take the case of New England which, not so long ago, was plainly ailing. In textiles alone, New England had lost two hundred and fifty thousand jobs when mills either folded up or shifted to the Deep South, where cheaper labour was available. Boston's population decreased while that of its suburbs remained static. Then the scientist came into his own. As a result, in the last decade, New England has had an industrial renaissance. Why? Chiefly because researchers congregated in the Boston area, with its Massachusetts Institute

continued

of Technology, its Harvard, its Brandeis, its Tufts and its complex of research facilities, where they could find the academic atmosphere they like and men who speak their own strange language.

In the same decade, California has been overtaking New York as the state with the biggest population, and an important reason seems to have been that the San Francisco Bay region, with its Stanford and Berkeley, had a similar appeal for researchers. When Clevite, a Cleveland company manufacturing transistors, decided to set up shop where it could obtain better R & D—research and development—experts, it polled more than two thousand scientists, asking where scientists prefer to work. The answers were so closely divided, between Boston and San Francisco Bay, that Clevite erected plants at both.

While such places, abundantly supplied with researchers, have been leaping ahead, such states as Mississippi and South Dakota, which train a limited number of PhDs, and Illinois and Indiana, which train more than their share but only manage to hang on to one in five, are lagging in the newer and more sophisticated fields of industry.

It is so true that industries flourish where scientists are, and wither where they are lacking, that several companies have studied the care and feeding of PhDs.

One authority on the subject is John Griefen, of Boston's Cabot, Cabot & Forbes, an organization that has participated in the establishment of half of the scores of R & D plants on Route 128, the "ring road" that skirts Boston. Bostonians old enough to vote can remember Route 128 when it was farmland. But now it is, in a sense, the symbol of what science means to industry, and the setting in which the scientist wants his laboratory. Griefen says an R & D outfit—and most of those in the U.S. have defence and space contracts, as do many in Canada—is utterly dependent on scientists. "A firm," he asserts, "must be able to attract and hold them, perhaps lure them from other firms. It can't do this by money alone, for in the end most firms pay about the same for men of equal ability, so it does it by offering nice surroundings. A scientist likes a quiet office with a blackboard, a window, and a tree outside, and it is better still if the tree has a squirrel in it."

This, of course, is an oversimplification. Research and development have had an unprecedented boom—so much so that where five billion dollars were spent on them in the U.S. in the 1930s, the expenditure was $25 billion in the 1940s and $93 billion in the 1950s. It is currently $21 billion a year. Real-estate men south of the border, seeking to cash in on the trend, have promoted hundreds of so-called research parks with trees and squirrels. Most of them flopped so dismally that all they have are trees and squirrels.

Sheridan Park isn't ignoring trees and squirrels and for good measure is tossing in ornamental shrubs, fountains, reflecting ponds, flower beds. But it has far more going for it than the scenery. Indeed, it has passed the stage at which it could fail.

Already installed there, in buildings modern enough to fit into the future, are British American Oil Research & Development, a BA subsidiary that has invested $4,000,000 at the site; Mallory Battery of Canada ($500,000); Consolidated Mining & Smelting ($1,800,000); and Dunlop Research Centre ($1,500,000).

Under construction are buildings for Atomic Energy of Canada ($5,500,000); Abitibi Paper ($1,800,000); International Nickel ($2,000,000); Warner-Lambert Research & Development ($1,500,000), and, as the core of the entire scheme, the striking structure of the Ontario Research Foundation ($5,500,000), which will house fourteen ORF departments now scattered through eight different buildings. The move of ORF, which for years has nursed the idea of a community wholly devoted to research, is costing about $7,300,000—a figure that includes land and service installations.

Donald MacRae, Sheridan Park development manager, says that $27 million worth of construction will be completed there by mid-1966, another $25 million by mid-1968, and that the target of $100 million in buildings, with six thousand scientists and technicians on October, plans were concluded for the first section set aside for commercial purposes, which will contain a twelve-storey tower, much of it to be devoted to "prestige" offices for architects, engineers and consulting scientists. Probably one storey will be a club for scientists. Also in this part of Sheridan Park will be a computer and data-processing building and eight smaller buildings for such amenities as stores, a barber, restaurants. The tower and contiguous buildings will be owned by the United Lands Corporation and cost more than four million dollars. Later, the same company may put up a second commercial section. Eventually, there will also be a conference hall for national and international scientific meetings.

What will Sheridan Park mean to Canada? First, it will be a stride toward overtaking nations with which we compete in foreign markets and which spend more of their gross national product on research and development. In the U.S., R & D spending rose from $11,100,000,000 in 1958 to $20 billion in 1964, and went up another billion in 1965. In Canada, R & D spending has been less than $500 million, and possibly the lowest for an industrialized country of our size.

In June, in the House of Commons, Canada's minister of industry, C. M. Drury, noted that the U. S. government finances industrial research to the extent of $1.26 for each $100 of GNP. In Britain the ratio is sixty-seven cents per $100, in France thirty-nine cents, in Sweden thirty-seven cents and in Canada six cents.

Privately financed research in Canada has also been far below par, although our tax regulations favour it. Industry can write off one hundred per cent of its scientific research expenditures in each taxation year, plus a further fifty per cent for the amount by which such expenditures are up over those in the twelve-month period ending April 11, 1962. In 1967, instead of the further fifty per cent in tax relief, the federal government will begin to pay industries grants equaling twenty-five per cent of their increased research outlays.

What has retarded research in Canada is the fact that most of our major companies are subsidiaries of U.S. parents that have their own laboratories and research staffs and have difficulty seeing why they should duplicate them, on a smaller scale, north of the international boundary line.

Why *should* they duplicate them? I asked Francis Kelly and Frank Przybyla, both holding doctorates in electric chemistry in the Sheridan Park lab of Mallory Battery, that question.

"Why shouldn't they!" replied Kelly. "Most of the labs in the U.S. are working overtime as it is. Give them a problem, and you may have to wait months for what you want."

"Why shouldn't they just enlarge their laboratories and increase their staffs?"

"Why," Przybyla countered, "should you open a new university, instead of just expanding an existing university?" He offered the opinion that a lab, like a university, can get too big—so big it loses efficiency and may thwart originality.

Kelly and Przybyla and told me that Canada produces first-rate scientists who could be encouraged by wider opportunities and better research facilities to stay in their own country instead of emigrating to the United States.

Those who depart for the U.S., generally speaking, have the best qualifications for research and the more creative sort of engineering. In 1963 they numbered more than a thousand. Jesse E. Hobson, who has headed the Armour Research Foundation and the Stanford Research Institute, estimates that one PhD or creative engineer will generate jobs for ten slide-rule engineers and one hundred and fifty technicians. Thus, the PhDs and creative engineers we lost in 1963 cost us the tens of thousands of jobs they had the potential to generate in Canada. Since the outflow has gone on year after year, this nation has, beyond doubt, suffered, its industrial growth slowed.

Sheridan Park won't stop the outflow. But combined with other factors—the National Research Council, new federal research incentives, the new and expanded laboratories of the Ontario Research Foundation, a new Quebec research programme, the rash of new universities and the extension of science and engineering in older universities—it may slow the outflow.

This is certainly the hope of Ontario Economics and Development Minister Randall, who, before entering politics in 1963, was president of General Steel Wares, the largest Canadian-owned appliance company, and managed to open world-wide outlets for his products. "There is nothing the U.S. can do," he says, "that we can't do here, and research at Sheridan Park will help us do it. A subsidiary of a U.S. company with laboratories there will be better able to meet the needs and preferences of Canada and the laboratories will produce new products useful to the parent concern."

Underlining the constant need for research and development to maintain a competitive position, Randall told me that when he left General Steel Wares, most of its products were different from those it had made ten years earlier. Ten years from now, the public will be buying things that don't exist today.

The Ontario Research Foundation tells a similar story: twenty years ago thirty per cent of the merchandise being sold in 1965 had not been conceived. The ORF, which has been in operation for thirty-five years, obtains six tenths of its funds from private industry, three tenths from the provincial government, and one tenth from interest on investments. The funds from industry and government are, to a considerable degree, payments for assignments it undertakes, which range from studying the diseases of wild animals and the hazards of pesticides to developing wet strength in facial tissue and wrinkle-resistant cotton fabric. One task it took on from a private company—and it does innumerable chores like this for clients throughout Canada—has so far created seven hundred man-years of new employment. Increased employment is not uncommon from a minor but successful piece of research, and ORF has long since lost count of the workers it has kept working, and who, without intelligent R & D, would have been laid off.

With some of Canada's best scientific brains crowded into the attics and cellars of dilapidated buildings that had once been rich men's mansions on Queen's Park Crescent in Toronto, ORF decided it finally had to have new quarters. The provincial government agreed to buy its land, close to Ontario's legislative building, so that ORF could move to a place

continued

where it would have breathing space. The government promised financial aid, over and above the price of the Queen's Park land, and ORF, polishing its old dream of an entire research community, went looking for sites. It looked at dozens, and eliminated all but three—one of them owned by the United Lands Corporation, the managing director of which is Leonard W. Finch, an English-born architect. The deal was closed when Finch agreed to sell the acreage ORF wanted at what he insisted was one thousand dollars an acre below the going rate. United Lands Corporation had a lot more land in the vicinity, some zoned for industrial and some for residential use, and Finch was willing to gamble that the proposed Sheridan Park would increase its value so much that he could afford to give ORF a bargain.

The land that the Ontario Research Foundation has resold on a non-profit basis to private firms is controlled by covenants that prohibit it, with certain exceptions, from being put to purposes other than research and development. The exceptions are the two areas set aside for commercial buildings, and Mallory Battery, which, while heavily engaged in research, was already within the Sheridan Park tract radius, doing light manufacturing.

With ORF as the hub of the privately-owned laboratories, its multi-million-dollar accumulation of scientific tools accessible to the scientists in those laboratories, and all of them linked to the computer and data-processing building and, by special telephone and telegraph lines, to most of the scientific libraries on earth, Sheridan Park will inevitably be the nearest thing Canada has to the unique community that is Cambridge, Mass., where you can't stay five minutes without hearing the phrase, "cross-pollination of ideas." The metallurgist, for instance, will stroll over and consult the chemist, who, in turn, will consult the physicist. This is typical of what happens at Cambridge, where I recently spent a couple of days exploring that famous and fascinating brain factory, the Massachusetts Institute of Technology. One of the professors told me over the luncheon table at the Faculty Club that there are no more scientists, in the old-fashioned sense of one man being able to embrace any one entire field of knowledge. There are, instead, men who specialize in narrow sectors of the field, so that the ordinary research project involves teamwork: a pooling of knowledge.

MIT at Cambridge, as the ORF will be at Sheridan Park, is closely associated with the government and private industry and accepts assignments from both. Washington since the 1940s has been its principal client and patron. MIT scientists are permitted, and occasionally encouraged, to act as part-time consultants, collaborating with scientists and engineers in private laboratories, and MIT is pleased, rather than hurt, that such a lot of them, with training acquired at MIT, go out as entrepreneurs and set up plants of their own.

The industries strung like beads along Route 128, which have meant so much to New England's economic revival, are mostly what are known in the lexicon of Cambridge as "spin-off" industries—by-products of MIT and Harvard research.

The picture at Sheridan Park will not be the same, naturally, because the research there will not revolve around universities, and will, as the scientists say, be "production-oriented." The drive will be to discover and develop products that will reach the market reasonably quickly, although the men who run the labs now functioning at Sheridan say they will look further into the future than most production-oriented researchers, and not operate as though the company that employs them will be out of business in two or three years—a tendency that is common in privately financed laboratories.

These same men say, with emphasis, that Sheridan Park, within a two-hour drive of nine universities, will maintain a close liaison with these institutions and take full advantage of McMaster's nuclear reactor, the University of Western Ontario's biochemistry centre, the University of Guelph's animal-research centre, and the University of Toronto's notable assortment of scientific talent and facilities. In a nutshell, there will be a determined effort to have the universities assume an R & D role not unlike that of MIT, Harvard or Stanford.

But, above all, Sheridan Park will be a place—the first of its kind in Canada—where scientists from the whole country, and from other countries, can exchange information and reasonably anticipate that their combined ideas and shared knowledge will bear fruit. And, while Sheridan Park happens to be in Ontario, with the backing of the Ontario government, it has implications for all Canada and for the world. ORF will accept assignments just as readily from Newfoundland or British Columbia as from Ontario. The benefits of the research by Atomic Energy of Canada, a Crown company, will flow to the whole nation, and perhaps to other nations. The private corporations that have built or are building there are national and international in scope. And the three hundred and forty acres that grew grass for cattle until two or three years ago are rapidly turning into the biggest and boldest adventure in the history of Canada's research. ■

Neighbourly News

A sampler of Delight from the Small Town Newspapers Chosen by Arthur Phelps

THE SWEET SOUND OF DRIPPING SAP FILLS PRINCE EDWARD MAPLE WOODS

—Picton Gazette

One of his sows gave birth to two litters within 20 days. The first produced eight pigs and the second 10. Dr. M. E. Poland, local veterinarian, said it was extremely rare and that he thought it was caused by two conceptions.

—Paris Star

A seven member delegation, somewhat younger than usually appear at council, entered the council chamber Monday night to protest the anti-loitering by-law.

Their spokesman Jim Egerton, 16 Queen Street, stated he felt the law is one sided. "Just before council meeting all you members were standing outside talking," he said quietly, "but a passing policeman didn't ask you to move along." He claimed there is nothing to do, and could see no harm in standing talking or watching the girls.

—Georgetown Herald

Do you remember the jingle of the little bell when you open the door? The many varied smells as you stepped into the semi-darkness of the place? It was generally quite dark; the only light being that which came from the front windows. Under the counter were bins of sugar, flour, rice, oatmeal, salt, prunes, raisins, currants, beans, split and whole peas.

—Powassan News

Regardless of prayers and loss of those sweet things there is also another phase of Maidstone community life that is a must every Sunday night in the community hall of St. Mary's. Lenten series euchre parties draw fold from far and near to hammer the table and enjoy a first class lunch after.

Just in case you go by on a Sunday night and hear a roar or a hard thump, the banshees have not flared into a good Irish brawl or your motor has not dropped out, it's just somebody trumping a partner's ace.

—Essex Free Press

The superlative "Prettiest" in its relationship to Goderich's position among other towns in Canada gives it something to live up to.

—Goderich Signal-Star

A group of Canada's highpowered brains has been at work for the past year educating the Premier of Ontario —a committee representing the greatest dedication of brainpower to the education of a single individual since Aristotle tutored Alexander the Great.

—Peterborough Review Weekly

We are grateful to the people, including the Manitoulin Drama League who were responsible for having this production come to the Island.

—Gore Bay Recorder

The Medicine Show act recently put on the Jean Smith and Peter Martin at Black Creek Village, with the former's little daughter, Jennifer, in a supporting role, was a feature on TV last Saturday morning. The skit was moved to Hamilton and reproduced for the TV audience with John Bradshaw later interviewing the participants. It came through exceptionally well. The players will be receiving a professional contract one of these days if they continue to provide such finesse in their presentations.

—Bolton Enterprise

Mr. Sam Croker, Main St. W., reports a second crop of black raspberries in his garden. One branch has 70 berries on which are about ¾ of an inch across. Mr. Croker also has a second crop of vegetables. At Easter he planted potatoes in part of his garden which he harvested July 1st. After harvesting the potatoes he planted corn on the same grounds and is now enjoying green corn from this planting.

—Norwich Gazette

Punkeydoodles Corner

Mr. and Mrs. Harvey Mueller called on Mr. and Mrs. Kenneth Emslie on Saturday evening.

—New Hamburg Independent

In the near future agriculture will be the hottest subject in the country and the new farmer, not the old jackass that has existed for the past few centuries, will say: "Not what will you give them, but this is the price, take it or leave it."

—Napanee Beaver

Guests, while they warmed themselves at the fire, consumed literally thousands of oatmeal cookies (baked by domestic science students of Crestwood Secondary School) and drank gallons of hot chocolate and tea. In addition, they munched bushels of rosy apples and cracked hickory and black walnuts.

All this time Dr. Gastie drove about the farm in his scarlet cutter taking favourite guests for trips behind his lively 3-year-old mare.

—Gananoque Reporter

OLD WELL FILLED

After supplying water to the Twomey Homestead for 140 years or more, the old well has been closed and filled in with rocks and stones to avoid accidents.

—Fenelon Falls

Some weeks ago, as we were walking home, we noticed a heavy road truck parked on the street at the Associate Presbyterian Church. One of the rear tires was on the edge of the sidewalk. Now we note that there is a large gouge out of the walk at this point. If somebody tripped on this spot, we wonder if the town wouldn't be liable for a damage claim. It should be fixed. The next time Jim McClure goes to church, he might take a look at the spot, caused by a careless driver who left a wheel of his heavy truck on the sidewalk.

—Chesley Enterprise

Mr. Vanderhoeven was critical of the inconsistencies in the prices offered on this year's market.

"Just the same," he added. "I'd rather be a tobacco farmer than any other kind of farmer. It's more interesting."

—Tillsonburg News

Watford Public Library continues to serve this village and area in an outstanding manner and is used to a great extent.

—Watford Guide Advocate

A piece of hollowed oak water pipe from the original village water system is now on display at the library museum. Miss Amy Cosh states that according to the late Clifford Beck, who donated it shortly before his death, this pipe was in use until about five years ago.

—Bobcaygeon Independent

We do not hesitate to say St. Mary's community is a better one by far because of the many citizens who do attend church regularly, as a habit in their life. We can heartily recommend the habit—and it can certainly do no one any harm.

—St. Mary's Journal-Argus

Drink in all of the sunshine that you may; linger through these soft summer evenings until your bed beckons. Make the most of this grand summer time in Glengarry where our biggest trouble is the threat of a long winter to come.

—Glengarry News

PARSON'S RED-FACE, a slightly disfiguring affliction, is caused by wearing a clerical collar half-a-size too small—and not from secret tippling, as some cynics have suggested.

REV. J. A. DAVIDSON,
Parry Sound North Star

A pair of turkey buzzards has been noted flying around at the Reforestry Farm here.

The pair has been seen in Charlotteville Township for a great many years. Every spring they come back to their nesting place, supposedly in the Ted Reeves woods.

—Delhi News-Record

At Cooper at the home of Mrs. Coole they have as a pet a yellow Coon. The Coon was caught in their hands and was along the road at the time.

We don't know how rare yellow Coons are, but this is the first time we have heard of one.

—North Hastings Review

If the reeves and deputy reeves don't do a good public relations job, the rift between neighbouring municipalities and the barrier of understanding between the local council and the county council will never be removed.

—Milton Canadian Champion

Unanimous admiration greeted the second experimental hanging flower basket unveiled at Tuesday night's meeting of the centennial committee.

—Northland Post

Out of that canoe there lightly steps a little white-haired old man standing no more than 145 pounds, if that. His face is tanned and seamed with many lines, and in his eyes is the strange light so often seen in those whose life is spent in wandering far afield, away from the haunts of men learning Nature's secrets . . .

—Dryden Observer

Alas, Poor Belleville!

Nothing in a long time has so tickled Trenton residents as that Belleville fishing contest which got exactly ONE entry, weighing a gigantic 12 ounces, and that a fish from the Trent River.

We have always known that this town's pickerel fishing was second to none.

—The Trentonian

They resembled a band of freebooters. Most of them were very athletic, and had the sharp physiognomy and sparkling eyes of a Canadian. The red glare of the fire communicated additional animation to their rude features; and their bushy black beards, and discordant voices, rendered them rather a formidable-looking set of people.

Brockville United Counties Packet on Early Canadians

The grey stone bridge at Pakenham is part of our Valley. When a fellow has been away, it makes him feel good to drive up 29 Hwy., past the old bridge on the Mississippi River, and on up the hill.

—Arnprior Guide

Lost, a white dog which answers to the name of 'Lady' with black spots on her hindquarters.

—Comber Herald North

Whether or not man discovers, or even decides in his own mind, the guidance system of migrating birds, their flights will continue with the changing seasons. Spring and fall, V's and long wavering strings of Canada Geese to an accompaniment of honking, will thrill the human spirit.

—Gananoque Reporter

We add our word of praise for this season of gentle sunshine, blue skies, and warmth after the arrival of chill winds—fall's ever-surprising, generous encore.

—Leamington Post-News

It is winter on the shore and all around town. "A good time of year," says Frank, "to sit by the window and watch the snow come down!"

—Midland-Free Press Herald

There are more than 180 weekly newspapers in Ontario. Each Sunday morning the Canadian Broadcasting Corporation broadcasts a selection of excerpts from them. The programme, *Neighbourly News*, has had the longest run of any CBC productions. Its three editor-reporters have been Andy Clark, Don Fairbairn—and now Arthur Phelps.

A people on the move

By Morley Callaghan

The land is rich and varied enough in natural resources to sustain an empire. The people have been generally thrifty, practical, sensible, industrious and not given over to nonsense of any kind. This is the place in Canada where a man comes to get along in the world. Across the country they say knowingly, "You're an Ontario man, I see," and yet as a land it never was a simple fabric.

Even the solid northern bush country is not the one thing it seems to be at first glance. Fly over it in a plane and look down—the whole vast area gleams with hundreds of silvery lakes. It is really a lake country, waiting for the coming of a new, voyaging people to work in what is a great bank, a bullion bank for an empire, richly stocked with copper, nickel, iron, gold, uranium, cobalt, sulphur, and lumber; a treasure house beyond the dreams of any Caesar. Indeed, Ontario is more like an empire than a province, not only in the new blending of its peoples, but in the vast sweep of its territory. The southland is further south than northern California or part of the New England states; the northland reaches into the great waters of Hudson Bay.

Ontario is vast, full of vivid and dramatic contrasts. The sharp cold of the winter magically becomes a Mediterranean hot summer. Comfortable cities in the north are set against bush covered granite hills. And to the south, in the Niagara peninsula, is a fruit belt with a brilliant blossom time. The most fascinating contrast of all has been between the people of British stock, with their equable, comfortable temperament, and the wild, lonely grandeur of so much of the country. But just as the people work the land, the land begins to work on the people. It is harder now to recognize the Ontario man.

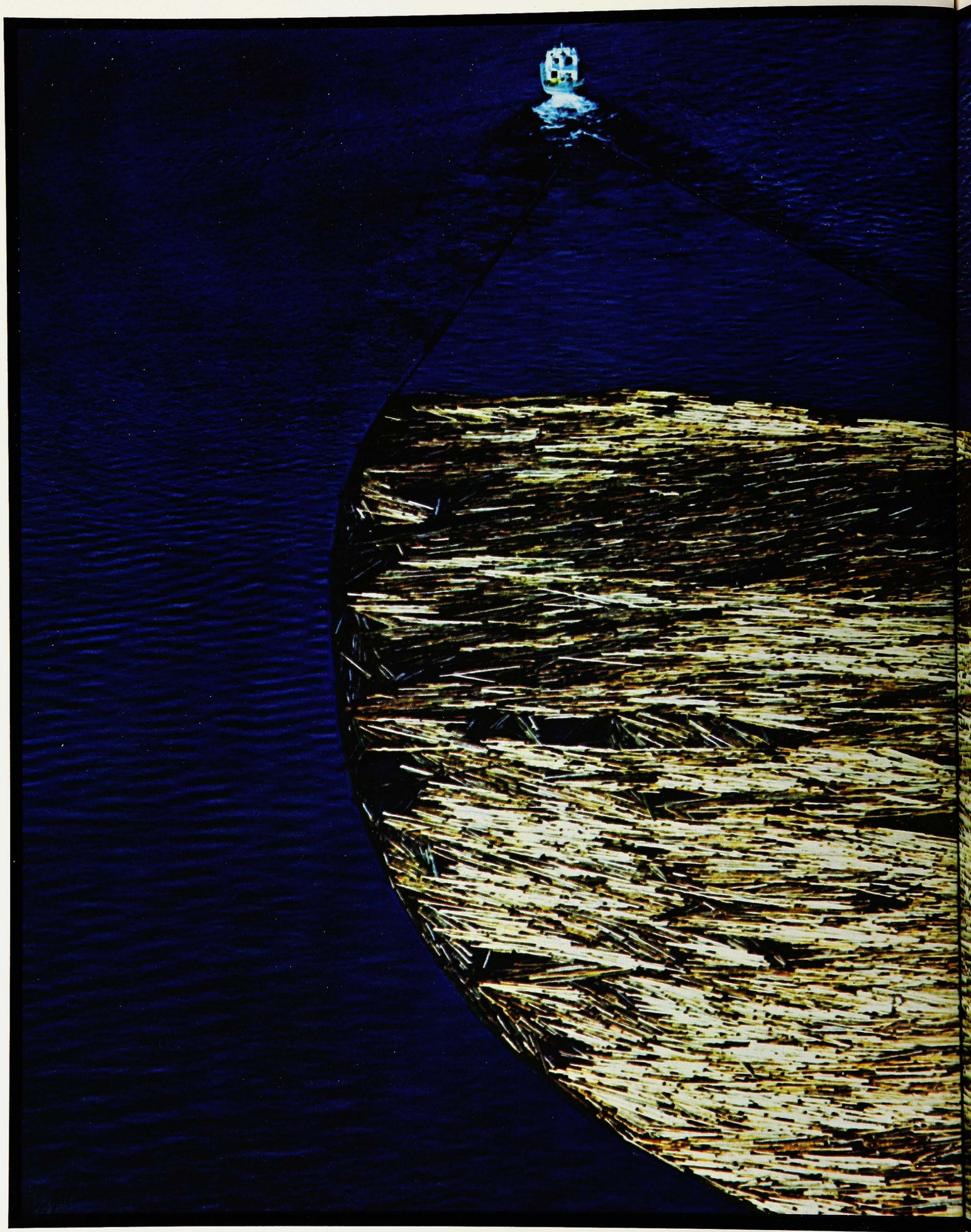
On a train coming down from James Bay through the Algoma Hills to the north shore of Lake Superior, one used to feel a little awed by the operatic colouring of those hills and the sunsets, and by the strange names of the towns —Oba, Hawk Junction, Michipicoten. Often the lonely cry of the train in the hills would bring a mother and her children, waving from a clearing in the woods—Finnish, Ukrainian, Polish families. These isolated little clearings once seemed like hidden patches on a British coat; but they were really a cultural prefiguration for the whole province. Now, the patches have remade the coat, the new, many coloured coat of the province.

Another strange thing about this empire-province is that it can be seen almost as an island, or at least as a giant peninsula, for it is water-girdled by Hudson Bay on the north, by the great lakes to the west and south, and the Ottawa River to the east. If you come down through the Rideau locks from Ottawa on a cabin cruiser, you can come out to the St. Lawrence and the Thousand Islands, a fantastic yachting pleasure dome, an age away from Kubla Khan's decrees.

The cultural tone of the province has

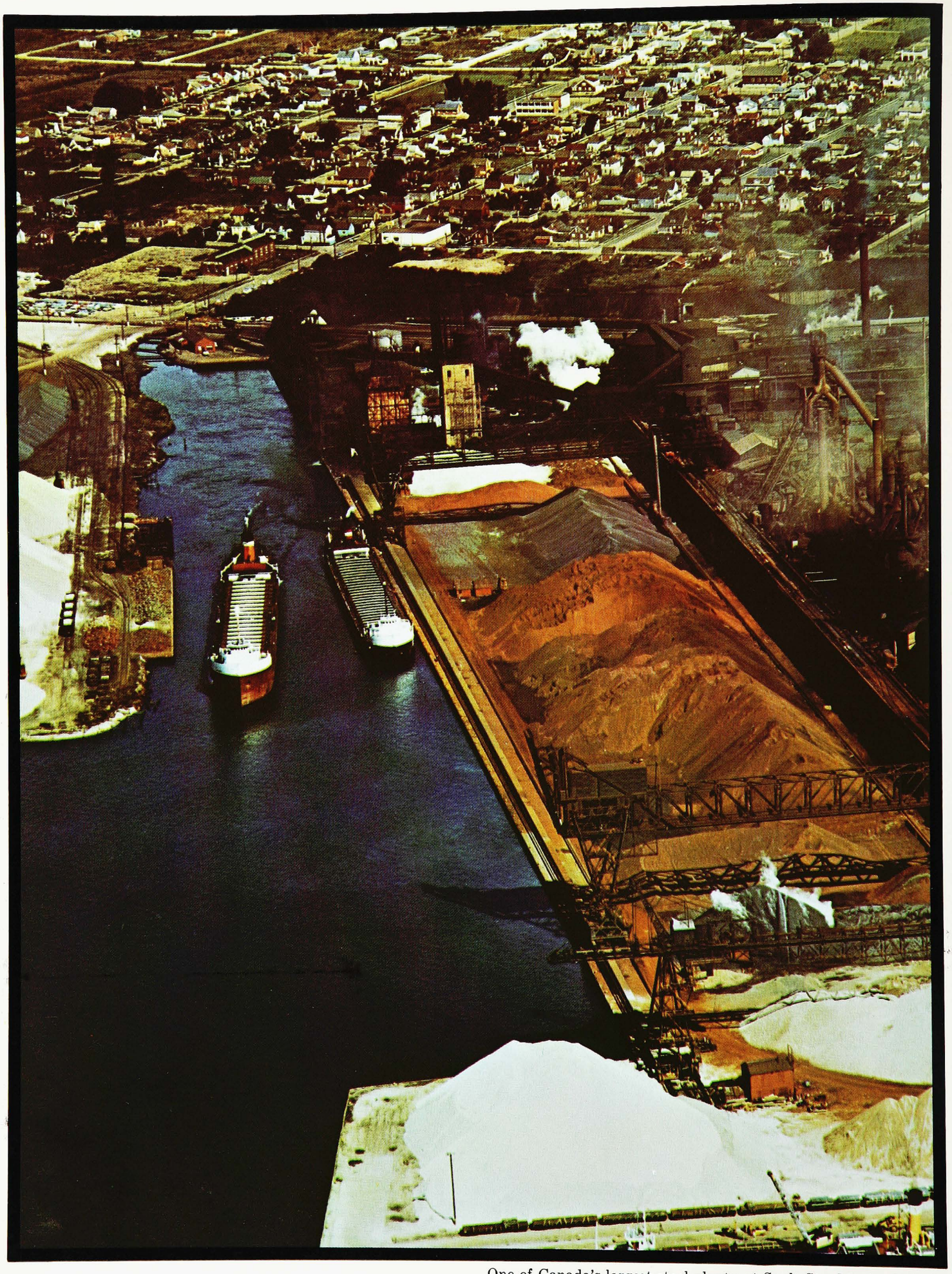
continued

Summer crowds at Toronto's Canadian National Exhibition.



A log boom on the Ottawa river. A quarter of Canada's pulp-and-paper output is Ontario's.

Ontario's biggest growth-industry: education. One answer to the campus revolution is University of Toronto's new Scarborough College.



One of Canada's largest steel plants at Sault Ste. Marie, Ontario.

always been set by the cities and towns in the south, where the land, once it had been cleared and farmed, must have reminded the English settlers of their native country. There is the corn belt of Kent county, the fruit belt of Niagara, the tobacco belt around Brantford, and the earth outside the cities is rich for the market gardener. Until about thirty years ago, this pleasant community seemed to be cut from the one cultural cloth. The frugal and thrifty Scots, the English merchantmen, the Irish, the German communities and the ubiquitous French around Windsor, all, whether Protestant or Catholic, or from towns or cities, shared a common view of life; a God-fearing, sober, prosperous, industrious people in a settled, comfortable and envied community. They were the people who could build up an empire of a province—but not necessarily have too much fun in it.

Yet the province could not possibly remain a cut off, inland place, the one cultural thing. Its situation is too diverse. Though close to the heart of the continent, it is, nevertheless, wide open to the sea. With the completion of the St. Lawrence Seaway, the old lake cities have become new ocean ports on a world sea channel that leads deep into the province. Seamen speaking strange tongues, off ships with cargoes from exotic places, are in harbour neighbourhoods now. And before the ships came, just after World WarII, hundreds of thousands from the Mediterranean and central Europe had come to melt or merge or make corners in the British Canadian cities.

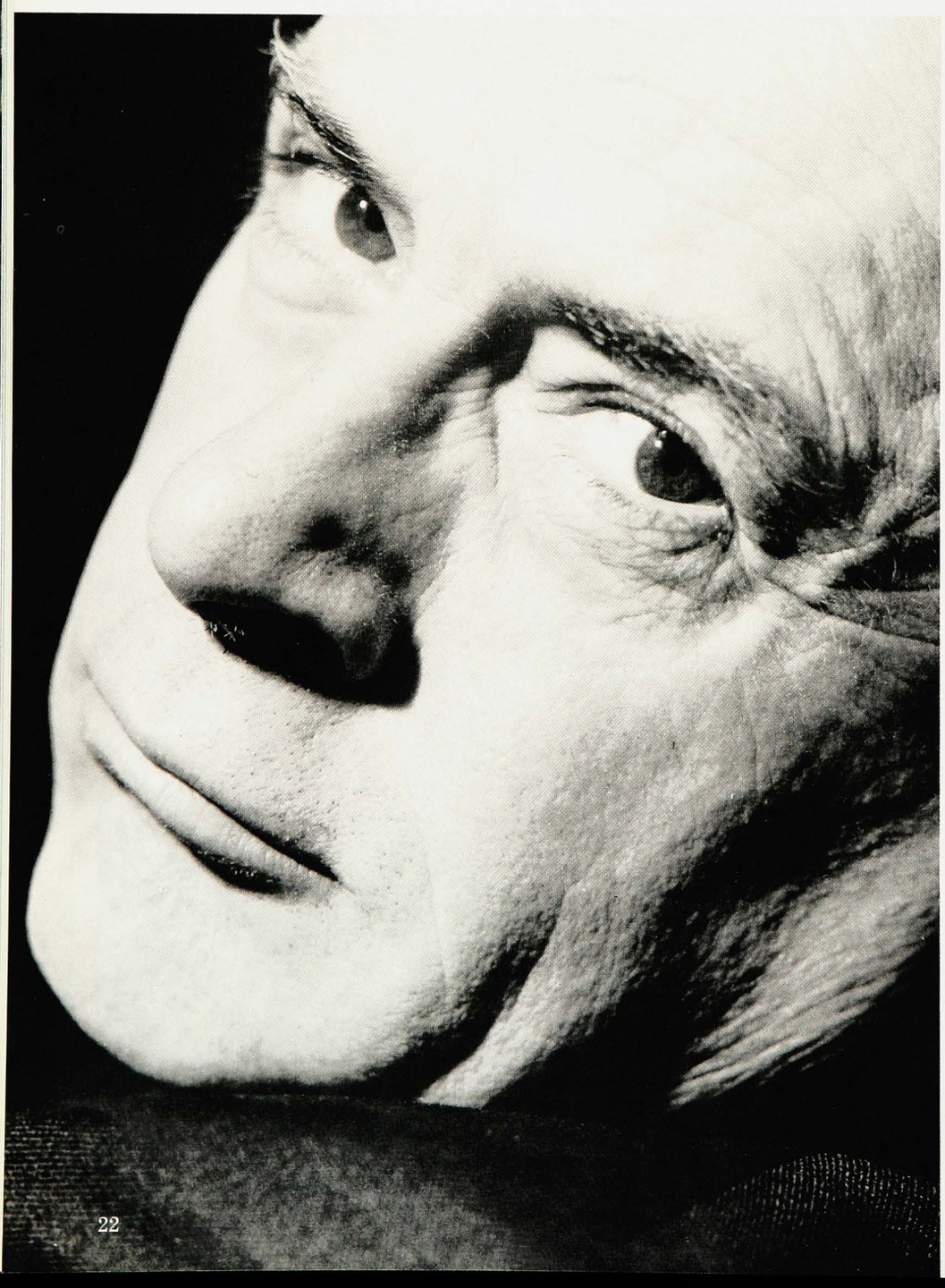
The Ontario megalopolis sprawls in a crescent stretch around the lake, an unbroken hundred miles through Hamilton and Oshawa with Toronto at its centre. It is like an ever expanding molten mass seeking some limit, some elusive form. It is a giant industrial complex, with a vast suburbia; a place of plazas, supermarkets and big universities; of super highways and expressways; of new public housing and old slum streets. The wrecker and the builder walk hand in hand. The astonishing new Toronto city hall, silo-shaped with its pool and fountain, stands shoulder to shoulder in an awkward, but vivid, contrast with the old one. Toronto is the great market place for the province. Ambitious, brainy men from other parts of Canada and from all over Europe head this way, to this community of builders, labourers, sportsmen, students, actors, industrialists, TV workers and ambitious newspapermen—all the ingredients of the megalopolis are here.

Toronto, the core of it all, is now a chameleon of a city, the colour and tone changing; the old tone forced to blend with disparate new tones, giving a fresh vitality. As for the people here, well, the British were always the stock of the soup, but the others have added spice and flavour; the largest Italian community in North America, hundreds of thousands of Ukrainians, Jews, Germans, Hungarians. It is now a city with a society in flux, a swinging city of new little restaurants and art galleries and coffee shops; and old Yonge Street late at night is a blaze of neon signs over bars and bargain basements and strange night people.

In the long run the great cities give the hinterland places their colour and form. The urban way of life is spreading in ever-widening ripples. In such a shifting social scene there are inevitably many casualties. Business methods, social patterns and styles of production grow obsolescent or get trampled on. Pockets of poverty appear. Some small towns look bleak enough to be abandoned. Some businessmen take on a bleak look too. A man from an old Toronto family can now walk for blocks along Bloor Street and feel that he is a stranger in his own city. But as he watches the faces—faces that belong to faraway places by his reckoning, he feels that he has been caught up in a river; he has to go along with the powerful current. That's what Ontario is now—a mighty river, always changing and becoming, and no man knows how wide the waters are to be. ■

A PRIDE OF PERSONALITIES

by Alexander Ross/photographed by Paul Rockett



MARSHALL McLUHAN

Sage for the pop era

He's been compared to Freud and Marx, as one of the seminal thinkers of the twentieth century. He's been called the Homer of the electronic age, the one man in the world who really knows What's Happening. Because of his love of paradox, he's also been widely misunderstood. But however his claims are regarded, there's no question that Dr. Herbert Marshall McLuhan, director of the University of Toronto's Centre for Culture and Technology, is one of the most widely discussed scholars of his time. He has been an important influence on contemporary thought for more than a decade and now, at 55, since his recent discovery by the mass magazines, he has become an authentic celebrity—a person who, in his own definition, "is well known for being well known."

All this celebrity stems from McLuhan's provocative notions of how our means of communication affect our senses and change our lives. He sums it up in his now-famous dictum, "the medium is the message." In other words, the ways in which a culture communicates information—by words or print or electronic

means—are much more significant than the information itself. For McLuhan, it doesn't matter whether a Verdi opera or the *Beverly Hillbillies* is shown on the TV screen; what's important is the effect on our senses of the medium itself. The advent of electronic communications, he says, is ending our reliance on print and imposing new sensory patterns on western man. We're changing from a visually-oriented print culture to an electronic "global village" where, like primitive, pre-literate man, we use all our senses to communicate with each other.

McLuhan is essentially a literary scholar. Through the influence of the late Harold Innis of the University of Toronto, he came to study the effect of communications on culture. It was Innis, the great historian of the fur-trade, who first explored the subject. McLuhan went a step further by evaluating the French symbolist poets and James Joyce in terms of communications. Their break with earlier, more orderly literary traditions, he claims, coincided with the invention of media such as the telegraph. In three books (*The Mechanical Bride, The Gutenberg Galaxy* and *Understanding Media*), and countless articles and lectures, he elaborated his theories into a fullblown body of doctrine.

McLuhan's theories have enabled him to make intriguing predictions about tomorrow's world, most of them related to his notion that tomorrow's consumers will demand products which involve all their senses. Thus, McLuhan predicts the decline of packaging (it's too visual) and the dominance of the small car (which doesn't insulate the driver from the feeling of motion and speed.)

Predictions like these make marketing men nervous. What if he's right? On the off-chance that he is, McLuhan is frequently retained as a consultant by corporations like Time-Life Inc. and General Motors, who have an urgent interest in knowing what people will want several decades from now.

Mostly, the executives he instructs come away confused and disturbed, for McLuhan talks like a cross between a symbolist poet and a mis-programmed computer. But for those who, after contemplating the Beatles, pop art, the frug, television, computer technology and Happenings, have concluded that something strange and basic is happening to western culture, McLuhan's confident interpretations can be deeply comforting. But is what's happening good or bad? "I don't make judgments," says McLuhan. "I just make observations."

OSCAR PETERSON

The well-tempered jazzman

On the night of September 18, 1949, a shy, shambling young Canadian named Oscar Peterson walked onstage at New York's Carnegie Hall, perched his bear-like frame in front of a concert Steinway and launched into a dazzlingly inventive, frantically up-tempo rendition of *Sweet Georgia Brown*. *Down Beat*, the authoritative U.S. jazz magazine, later reported that Peterson's performance "stopped the Norman Granz Jazz at the Philharmonic Concert dead cold in its tracks." The 22-year-old Canadian had established himself, in a single triumphant evening, as a jazz musician of international repute.

The event was unique for two reasons. First, it was almost unprecedented for a jazz performer to acquire so large a reputation with such apparent suddenness. Second, it turned out to be the beginning of a uniquely stable career. While many of his fellow jazzmen have succumbed to the occupational hazards of their trade—waning popularity, unstable employment, to name only two—Peterson has maintained intact his critical reputation, his public following and his impressive income for almost twenty years.

The reason? Peterson planned it that way. He'd been studying piano since the age of seven in Montreal, and, by the time he was in his late 'teens, had acquired a substantial local following. But for several years he turned down offers to join famous American bands, on the ground that he wasn't ready. By the time impresario Norman Granz gave him his Carnegie Hall debut, he was abundantly prepared. It wasn't too long afterward that Leonard Feather, the American jazz critic, called him "the greatest living jazz pianist."

That happens to be a minority assessment among jazz critics. But the fact that Peterson's shimmering, heavily-ornamented style is not always highly regarded by younger musicians has not affected his standing with the public. The Oscar Peterson trio has been playing to sold-out audiences around the world for over a decade for fees that, in an average year, total about $100,000.

Despite his frequent travels he is a permanent resident of Toronto. He lives in a penthouse apartment overlooking Lake Ontario with a $7,500 Steinway, a fully-equipped recording studio and his second wife Sandra. Late last year he formed a new trio (with drummer Lewis Hayes and bassist Sam Jones) and expects 1967 to be a good year, just like most of the others. With a full schedule of concerts booked in Europe and North America, he's joined a select company of jazzmen (Count Basie and Duke Ellington among them) who have risen above the ups and downs of jazz. "There's no reason," says one admirer, "why he can't go on forever."

GREGORY BAUM

A theologian of Christian unity

Gregory Baum was born a German Jew, raised a Protestant, became an agnostic as a teenager, attended a Baptist university and, after studying the writings of Protestant theologian Karl Barth, became a convert to Roman Catholicism. And so it was probably inevitable that Father Baum, now an Augustinian priest who teaches theology at Toronto's St. Michael's College, should become the leading Canadian exponent of Christian unity. He is a living treatise on ecumenicism.

"We have to learn over again that other Christians are still Christians," he once told a Catholic gathering, and most of his career has been devoted to furthering that idea. He is the founder and director of the Centre for Ecumenical Studies at St. Michael's; the editor and chief contributor to *The Ecumenist,* an influential journal of Christian unity; a controversial advocate of liberalizing the Church's position on birth control; and, during the 1964 Vatican Council, he was instrumental in drafting the Church's historic declaration that the Jews were blameless for the crucifixion of Christ. These activities have given him an international reputation as one of the Church's most effective young progressives. And at home he's been called (by a Protestant magazine) "the most dynamic expression in Canada of the new mood of the Catholic church."

At 44, Father Baum looks more like an athlete than a theologian of international repute. He seldom wears a clerical collar and his conversation (he's fluent in French, German and English, but *not* Latin) is worldly, witty and very unpompous. When his appointment to the Vatican Council's Secretariat on Christian Unity arrived in the mail, it was several days before Father Baum learned of the honour. "It was written in Italian, so I put it aside," he explains. "I thought it was an advertisement for spaghetti."

Naturally, his elastic approach to Church reform has dismayed some conservatives. One U.S. cleric, the Rev. Gomar de Pauw, attacked Father Baum's efforts to "protestanize" the church. And last year, after he had declared in a magazine article that birth control was a matter of conscience for individual Catholics (since the Church's opinion on the point is currently divided), the entire theology faculty of the University of San Francisco joined in a statement of rebuttal. Not surprisingly, so did a number of bishops.

Such controversy does not dismay Father Baum. On the contrary, he regards it as a healthy expression of ferment within the Church. But it bemuses some of his colleagues, who are torn between admiration and a wistful desire that he wouldn't be quite so progressive. One priest put it nicely in a recent conversation with Father Baum. "The poor Augustinians," he told him. "First they had Luther, and now they've got you."

Dr. John Polanyi (centre) with students.

JOHN POLANYI

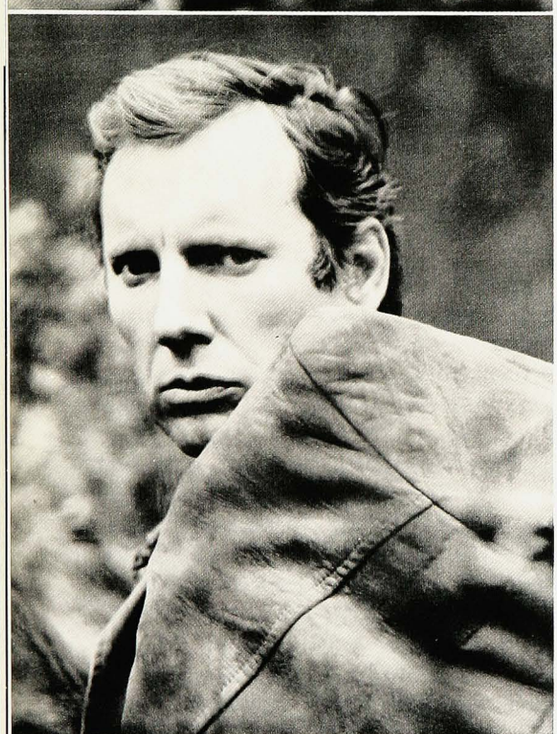
Dance of molecules

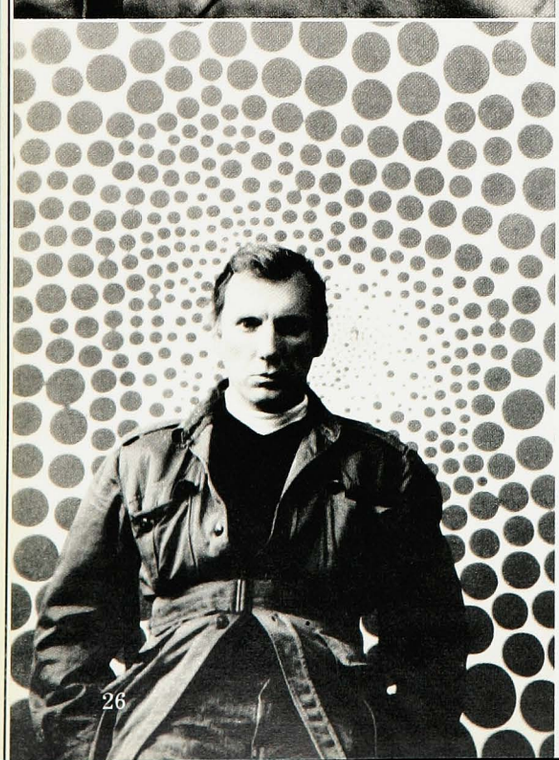
The apparatus looks like a golden ornamental ball for a gigantic Christmas tree, and on its surface is mounted a single perfect sapphire. It looks fanciful and slightly frivolous—almost as though its inventor, a witty, youthful chemist named John Polanyi, had deliberately planned it to look that way.

But there is nothing frivolous about its purpose. The big glass ball, coated with gold on the inside to reflect infra-red rays, is a major component of a sort of chemical microscope. By pumping hydrogen atoms and chlorine molecules into the ball, scanning the resultant infra-red emissions with a specially-designed spectroscope and analyzing its readings with a computer, Dr. Polanyi and his research group at the University of Toronto have achieved a notable advance in pure chemistry. They have succeeded in charting the intimate choreography of molecules as they combine to form new compounds. Although their findings are expressed mathematically, not visually, the Polanyi group can almost be said to have "seen" the dance of individual molecules as they hesitantly approach each other, embrace, change partners, and then snap apart as new molecules. They know, or at any rate, have formed plausible mathematical models, which explain how freshly-formed molecules vibrate, and how they rotate.

Dr. Polanyi's work is part of a fairly venerable tradition at the University of Toronto. In the late 1940s, Toronto physicists did pioneering work in the spectroscopic inspection of hydrogen. And today, at the university's Institute of Aerospace Studies, physicists are spraying streams of gaseous molecules onto a metal surface and, with unprecedented accuracy, measuring the energy transferred to the metal. Apart from the practical applications of such experiments (they might, for instance, shed new light on the re-entry problems of space capsules), they represent a substantial advance in our basic knowledge of how matter actually behaves.

Berlin-born Dr. Polanyi, 38, took his doctorate at Manchester University. After post-doctoral work with Canada's National Research Council and at Princeton University, he joined Toronto's chemistry department in 1956 and has worked on molecular analysis ever since. His efforts have been recognized by several notable awards, including the Marlowe Medal of Britain's Faraday Society, Canada's Steacie Prize, and participation in four Pugwash conferences. He once observed that every molecular physicist "dreams of holding a molecule in each hand, and bringing them together in a controlled fashion." Dr. Polanyi and his colleagues have come close to realizing that dream.





HAROLD TOWN

The techniques of innocence

To judge by his public statements, you would suppose that almost everything displeases, exasperates or enrages a 43-year-old Toronto artist named Harold Town. "This is the garden of the world," he once wrote about Canada, "and grows nothing but weeds." But his own person contradicts him; in any nation's garden, he would be a brilliant flower. On the night in 1960 when Town, after years of obscurity, sold $18,000 worth of paintings at a single triumphant one-man show, he put his foot through a record player in a fit of pique, and later explained: "All night I'd been thinking, 'So where was everybody ten years ago when I really needed them?' "

But the quotations are misleading. The truth is that almost everything delights him: the smell of paint, baseball games, long walks through Toronto's wild ravines, beautifully-tailored suits, rock-n'-roll, Vivaldi, eastern Canada's autumns, good food, women — everything. He is a life-enhancer, an enjoyer, a rediscoverer of the techniques of innocence.

Despite the jazzy abstraction of his style, Town's vision is firmly rooted in nature and history. He draws like an angel. According to Elizabeth Kilbourn, a Toronto critic, he is "the true heir of the Group of Seven, Canada's first native art movement. Whereas they sought their landscape in the vastness of the Canadian north, Town finds it in the urban environment of Toronto, in the exciting tension of the city emerging from a raw, provincial towns to be a booming, cosmopolitan metropolis."

For Town, critical recognition preceded financial success. A native Torontonian who's seldom ventured outside Canada ("There's enough here to keep me busy for a lifetime"), he was thirty before he sold his first painting — for roughly one-fiftieth of what it would fetch today. Four years later, his work was selected to represent Canada at the Venice Bienniale. Exhibitions followed in Sao Paulo, Lugano, Brussels and London, but major commissions did not. He used to paint in a basement studio so damp that he developed a fungus infection in his ear; its ceiling was so low that he wore a football helmet to avoid bashing his head on the roof beams.

Even Town can't explain why his Canadian breakthrough came when it did. But suddenly he was hot. His prices quintupled overnight. Today, no Canadian collection of any importance lacks a Town painting or print. His work is in the permanent collections of New York's Museum of Modern Art, the Guggenheim, Amsterdam's Stedelijk, the Tate Galley, the Cleveland Museum of Art and the Detroit Art Institute. He's been commissioned by patrons as diverse as Canada's Department of Transport (which commissioned a mural for the Toronto International Airport) to the National Ballet of Canada, which had him design scenery and costumes. He's even had the ultimate accolade: one of his paintings has been reproduced as a jigsaw puzzle.

MAUREEN FORRESTER

The serene contralto

There is nothing tempestuous about Maureen Forrester, a Toronto singer of Wagnerian dimensions who's been recognized for a decade as the world's leading contralto. Serenity, in fact, is a major ingredient of her success. "Maureen is a fulfilled woman," says her accompanist John Newmark. "and you can hear it in her singing. She is getting better all the time, and she improves each time she has another baby."

Miss Forrester, married to conducter Eugene Kash, has had five of them and motherhood clearly agrees with her. She claims that having children has extended her range by two-and-a-half notes on top and two-and-a-half on the bottom ("one note for each baby.") Just before the birth of her fifth child she sang in New York's Philharmonic Hall, with an obstetrician on call just in case. A week after the delivery, she gave another recital. Nothing seems to faze her. She eats and drinks heartily, skis and swims, and is unaffected by stage fright. "She is probably the only girl in the business," says her husband, "who can and does put away a steak before a concert."

Among the rewards of such serenity are critical acclaim (one New York critic compared her voice to "sunlight through a stained glass window") and an impressive income. The main drawback is that she's unable to spend as much time with her family as she'd like. She gives forty to fifty concerts a year, which keeps her away from Toronto ten months out of twelve. And last year she accepted an appointment as chairman of the Philadelphia Music Academy's voice department, an assignment which has increased her commuting commitments. In one six-day period last year, she flew from San Francisco to Toronto to New Orleans to Vienna to Puerto Rico to Vienna to Toronto.

Last fall, a decade after her U.S. concert debut in Town Hall, she staged another New York triumph: her U.S. operatic debut in Handel's *Julius Caesar*. Now, in addition to her role as a singer of classical songs, she's prepared to accept challenging operatic roles as well. This may complicate an already hectic schedule, and it detracts from the plausibility of a wry remark she made a few years ago: "God gave me success young, because he knows I want to retire early." Her admirers may not allow it.

Power for a growing province. From Niagara Falls, from many swift rivers, from coal, from nuclear reactors—Ontario Hydro's miracle of cheap energy. By Anastasia Erland.

"Niagara is an awful symbol of infinite power—a vision of infinite beauty—a shrine—a temple erected by the hand of the almighty for all the children of men."

From a speech made in 1926 to a group of engineers by Edward Dean Adams, New York Consulting Engineer and pioneer of early Niagara power development.

AS A CHILD, standing on the deck of the tiny boat that flouts the swirling river below Niagara Falls, I remember looking up at the great heavy rush thundering over the lip and thinking, "It means something, it must mean something." We may have been worlds apart, Adams and I, in our involvement with the great cataract, but our emotional response was the same. The falls, to view, are still an experience so inner, so grand, so personal, that thousands of people return again and again to look and then turn away, as I did, beaded with mist, bewildered yet satisfied.

Nowadays, aware of the vast impact of Niagara hydro-electric power on the industrial and agricultural development of Southern Ontario, I can say, "Niagara is power." Two kinds of power. The physical kind that captures over two-million kilowatts from the waters and sends it singing along cables and wires into homes and factories and the economic kind, vital to social and cultural as well as industrial development—the kind that spells progress.

Low-cost power, so important to industry, is also vital to farmers—agricultural development should pace industrial growth. Nowadays, 97 per cent of rural Ontario is electrified —from the vast dairy and fruit farms of the south to the smaller mixed farming areas throughout the province. These rural customers, and those not in areas not served by municipal power-companies, buy power direct from Ontario Hydro. They pay about 1.30 cents per kilowatt-hour compared to similar users in the U.S. and Britain who pay 2.25 cents and 1.83 pence (a little over 2 cents). Industrial users in the U.S. pay an average 0.92 cents per kilowatt hour, British about 1.5 cents while Ontario industrial customers average only 0.7 cents. Ontario's lower costs are directly attributable to the economics of hydro-electric power.

World power owes a debt to Niagara. Here, before the turn of the century, the world's first major hydro-electric power station was built at Niagara Falls, N.Y. After that, each succeeding power plant built on the Ontario and New York sides of the river in the early 1900s contributed massively to hydro-electric development skills and power technology.

The River

The Niagara river is one of nature's miracles—35 miles of compact, unceasing energy determinedly funneling the drainage waters of the Great Lakes to Lake Ontario—and dropping them 326 feet in transit. In its short span the Niagara runs the gamut of rivurine character. The swelling majesty of its breadth at the Lake Erie end, where the river drops only a quiet 10 feet in 20 miles, contrasts sharply with the boisterous tumult of the rapids above the falls. Below the falls themselves, the torrent cuts a channel of deep rocky gorges, sometimes only 300 yards wide. There's even a whirlpool before the river reaches serenity in its lower reaches and the tranquil mouth of the Lake Ontario end. In the eight miles that make up the falls complex, the river completes 97 per cent of her drop—and here is where power-engineers have tapped the unique assets that make Niagara ideal for power development.

Even when water levels drop in the lakes, the river has a steady pulse. The flow, 200,000 cubic feet per second, generates enough total energy in 15 minutes to hurl a rocket into space—in one hour it generates enough friction heat to boil 5,000 tons of water.

In the 1800s, power was provided for Ontario towns by thermal generating plants—using coal fires to turn water into steam. An expensive proposition, for though Ontario is a fabulously mineral-rich province, coal had to be imported. An engineer gazing at the enormous energy pouring over the falls in those days must have felt a tooth-gnashing kind of frustration. He knew the power was there; he just didn't have the technology to harness it. But the technology was not long in coming and the early builders were sound planners—some of the first plants built on the river are still operating today. But as men, money and materials were vigorously organized by private capital to exploit Niagara power—others were organizing, just as eagerly, to ensure its public ownership. Low-cost power attracts industry—and that couldn't be ignored for long.

Ontario Hydro

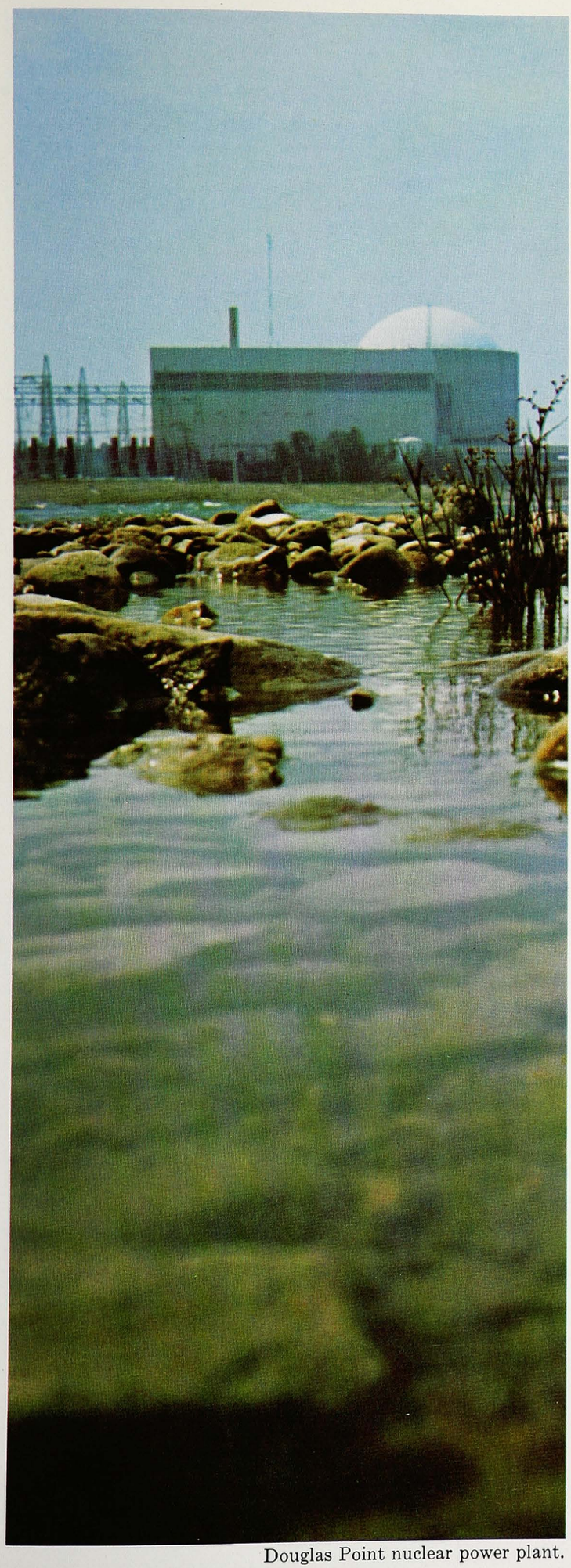
Men who wanted to push the industrial development of Ontario organized and organized well. In 1906 the provincial government passed an act providing for the Hydro-Electric Power Commission of Ontario. One of the pioneers of the public power movement was Adam Beck, first chairman of the non-profit hydro company—later knighted for his contribution.

At first, Hydro—as Ontarians familiarly call it—merely bought power from the various private Niagara power companies to transmit and sell at cost to municipalities. Then it began building generating stations of its own all over the province and gradually buying up existing private companies. Today, Ontario Hydro provides 90 per cent of all Ontario electrical power, has total energy sales of over 40-billion kilowatt hours of electricity.

In 1922, Ontario Hydro opened the first of the great Sir Adam Beck generating stations (known then as the Queenston-Chippawa Development). This was built downriver from the falls to take advantage of the further drop in the river. A twin plant but with three times the generating capacity was built in the 1950s. Both plants utilize water collected above the falls, whence it travels down to the powerhouses through rock-cut channel or underground tunnel. Power generated in this complex serves not only Ontario, but feeds into the linking grids of the whole North American continent. Behind the Beck stations is a huge reservoir ensuring water supply during periods of peak demand.

Demands and Resources

Demands for power are constantly on the rise. Hydro tries to keep ahead of demand by forecasting and continually building new plants. They estimate that in the next 10 years they will have to provide as much total power as



Douglas Point nuclear power plant.

they did in the preceding 60 years, since their beginnings in 1906. Something in the neighbourhood of an additional eight to ten-million kilowatts of power—the equivalent of nearly five new Niagaras will be needed at a cost of over two and a half billion dollars.

The last major source of economic hydro-electric power in Ontario went into operation in 1958. This is a power dam on the St. Lawerence river built as a joint project with the New York State Power Authority. Next to the Adam Beck Niagara plants, it's the second largest single hydro power producer in the province. Though there were still untapped water resources in the northern remoteness of Ontario, they were far from the markets for power. Once again technology bridged the gap. New developments in Extra High Voltage transmission made it economically feasible to bring the power south along new line systems. There are further untapped water resources in the province and it may become possible to divert small streams into larger ones and then dam and store the water for power plant use. Water diversion schemes have already been tried to some extent and promise much for the future.

Thermal power generation is on the rise. Both coal-fired and nuclear plants are coming into production. Automation has made it possible to build giant coal-burning plants to produce power by steam at economic rates. Though coal-fired plants still have the same disadvantage—coal must be imported—they have the big advantage of location. A coal-fired plant can be built where needed, right at the marketplace. They use fuel only when operating—an important economic factor. A hydro installation without storage capacity must operate continuously, power demand or not. Though coal-fired plants take longer to build up power, they can be phased to generate as a supplement to hydro power at precisely those times of peak demand. Almost a quarter of the power now generated in Ontario comes from thermal power stations.

It was natural for the people of Ontario to assume in the late 1950s that before long they'd be using atomic power. Ontario is not only rich in uranium to fuel a nuclear system, but Canada's major atomic research facility is sited in the province at Chalk River. Hydro had been studying nuclear possibilities since the early fifties and had plans on the drawing board but they shocked some people in 1957 when they announced they would build new coal-fired installations. Weathering a blast from the press, which denounced the move as a "reactionary decision" and "a return to 19th century practices," Hydro went ahead and built the plants, both needed to meet increasing power demands in the early 1960s.

Meantime, work continued on the nuclear programme. Nuclear plants are best suited for filling base load needs. Since they operate continuously, they can feed power out in a constant stream, allowing other types of plants to handle peak loads. N.P.D., the first nuclear experimental station at Rolphton, Ontario, has been feeding power into the provincial system since 1962. A small prototype for subsequent stations, it worked out the kinks for the Douglas Point station, a full-scale plant now nearly completed. A giant $266-million twin reactor station is in cement-pouring

continued

stages of construction near Toronto.

As the world moves towards greater exploitation of atomic power, Ontario is once more involved in the pioneering. But the natural-uranium-fueled, heavy-water-cooled reactor system developed here is not without its critics. Other systems use enriched uranium fuel in a direct water-to-steam process.

Two of these systems are bidding against Canadian General Electric Company for a contract to build a $100-million plant in Finland. CGE built the first Canadian power reactor at the Nuclear Power Demonstration plant, working in tandem with Atomic Energy of Canada Limited and Ontario Hydro. They're also supplying reactor equipment for Hydro's other nuclear plants and are building a nuclear plant in India. Technical staff for the Indian plant are currently being trained by Hydro at NPD.

If CGE should win the Finnish contract, Hydro and AECL feel it will further vindicate the Canadian design they've backed so strenuously—plus paving the way for future plants based on this design. Seven other countries have shown interest already in the heavy water concept. By 1971, Ontario will have 68 Hydro-electric, six coal-burning and three nuclear stations in operation.

That's a long way from 1910 when the total demand for electricity in the province for a whole year was only 4,000 kilowatts. Today, 4,000 kilowatts can handle only the power demands of 2,500 households.

Electricity

What is this mysterious substance that travels well, gives light, warmth and mechanical power? What magical process turns river water or a radioactive lump into useable energy?

In practical terms, electricity is the result of a disturbance to lines of force in a magnetic field, To generate it in any quantity, you need to spin magnets rapidly—and that's where water or steam power comes into use. All power plants are alike in that the primary energy source has to rotate a turbine attached to a shaft. The shaft spins the magnets. In power plants the magnets send out alternate positive and negative pulses and one set of them is called a cycle. The power generated is collected and released from the plant at great strength. Electricity can be built up to very high voltages for transmission and then brought down again in strength gradually until it reaches the consumer in amounts he can use.

Because electricity is so pervasive—as close as the nearest plug or switch—especially in big cities, we tend to take it for granted. Precisely how much we depend on it and how frightening it is to be without it, millions of people in Eastern Canada and the U.S. discovered in November, 1965.

At 5.16 p.m. Tuesday evening November 9 the initial power-break occurred. Within minutes, with all the maddening caprice of a ricocheting bullet, it blacked out city after city. Not only Southern Ontario but seven U.S. states were affected—an area encompassing 80,000 square miles and 30 million people. Power was restored to some areas in hours, but others had to wait till nearly first light Wednesday before the power hummed in.

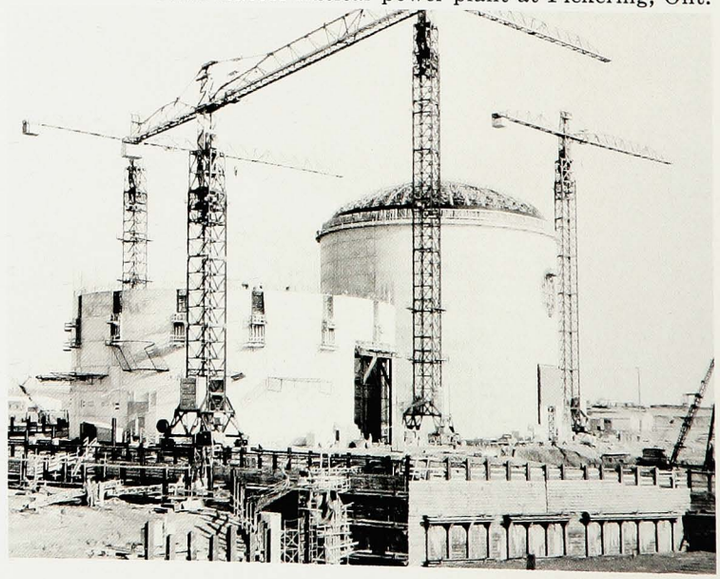
The cause of the failure was eventually traced back to a faulty transformer relay at the Sir Adam Beck generating station in Niagara. Ontario Hydro released an apology, Washington investigated and things returned to normal. The blackout was so widespread because most North-American systems are now interlinked in grids. The power blackout was a million-to-one freak. Following it, the 22 U.S. and Canadian utilities in the interconnecting system had to re-assess their position. Despite criticism, they decided that the general security of linking grids overpowers any thoughts of discontinuance. The fact that during peak hours one system can buy power from another—and that all can purchase cheaper power at other times—or supply it at good rates is too much of a convenience to be ignored. Hydro reckons sales and purchases of energy through the grids netted them savings of $12.7 million over five years.

Sources of Power

There are no new sources of power. There never were. Nature provides and man invents. The power to generate electricity has always been with us—it needed only man to set himself to seeking ways to capture and produce it. Ontario so far has always been able to be placed somewhere in the front ranks of power pioneering. Now, all over Canada, the last vast hydro-electric power sources are being developed. Thermal power is coming into its own age and still the demands for power grow.

Just as the theoretical engineer gazed in frustration at Niagara Falls long ago, another like him may be wondering today how to generate power from some other source. The basics of power generation remain the same—only the technology grows. Maybe some day in the 21st Century, people will be reading by vegetable power produced by voracious enzyme energy. Man invents. ■

Twin-reactor nuclear power plant at Pickering, Ont.



COLD
the surgeon's newest weapon

By Barbara Moon

A team of Toronto researchers have pioneered dramatic techniques of hypothermia — chilling the body to allow safe surgery on heart or brain.

On April 20, 1950, at Colorado Springs, Colorado, U.S.A., a 37-year-old heart surgeon from Toronto, Canada, showed the annual meeting of the American Surgical Association a short film. It recorded an operation done in his Toronto laboratory on a dog.

The surgeon had cooled the anaesthetized dog 30 degrees Fahrenheit below its normal temperature. Then he had succeeded in cutting open and closing its heart. Rewarmed, the animal had made a full recovery. At the same time the Canadian surgeon, Wilfred Gordon Bigelow, reported the implications: now, for the first time, with the aid of total body cooling, surgery inside the heart under direct vision was possible.

Most medical research is the slow painstaking accumulation of data and the tedious mastery of techniques, and even dramatic discoveries like Banting's insulin and Salk's vaccine have been based on the previous work of many hundreds of investigators. Yet Bigelow's report of that day in 1950 is now regarded as a landmark not only in heart surgery, but also in the significant and exciting new field of hypothermia (hypo—low; thermia—temperature).

At the time, hypothermia was a mere cross-reference in the medical literature for articles mainly concerned with death by exposure. Little was understood about the gross effects of cold on the human body, and less still about any subtle changes an altered body temperature might work. Even the way cold killed people was not known.

Now Bigelow had worked out a safe way to cool and rewarm living bodies in laboratory conditions. The first application was clinical: total body-cooling is a commonplace today all over the world including the U.S.S.R. and Japan, and it is used not only in heart surgery but in brain surgery and the management of severe head injuries. But the impetus to research into the effects of cold on living tissue was equally important. The actual freezing of body parts was already being investigated. This companion-study, called cryobiology, also had a clinical application: morbid tissue such as tumours or bad tonsils could be pinpointed and quick-frozen for easy surgical removal. But knowledge gained in the course of proving both kinds of surgical procedure is leading researchers not only into sophisticated new knowledge about chemistry but also straight into science fiction. Human blood, eyes, sperm and aortic valves are already routinely stored frozen for transplant. But in 1965 Professor Isamu Suda of Kobe University demonstrated that, contrary to the long-held dogma that the brain is permanently dead once deprived of oxygen, a cat's brain can be kept frozen for almost seven months and then restored to unimpaired function.

Suspended animation is close to becoming a clinical reality. So is the achievement of artificial hibernation. Death itself is being re-defined. The

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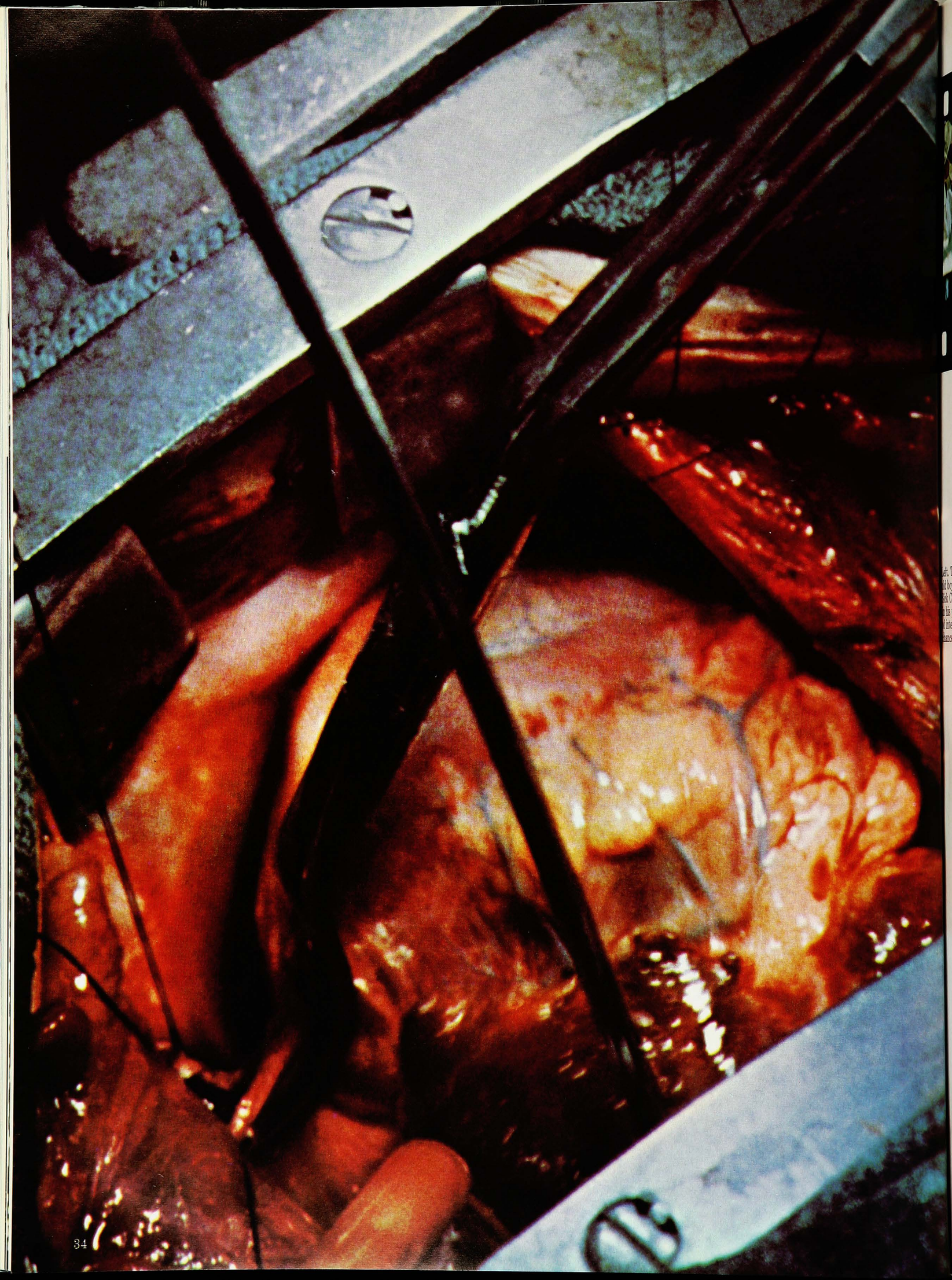
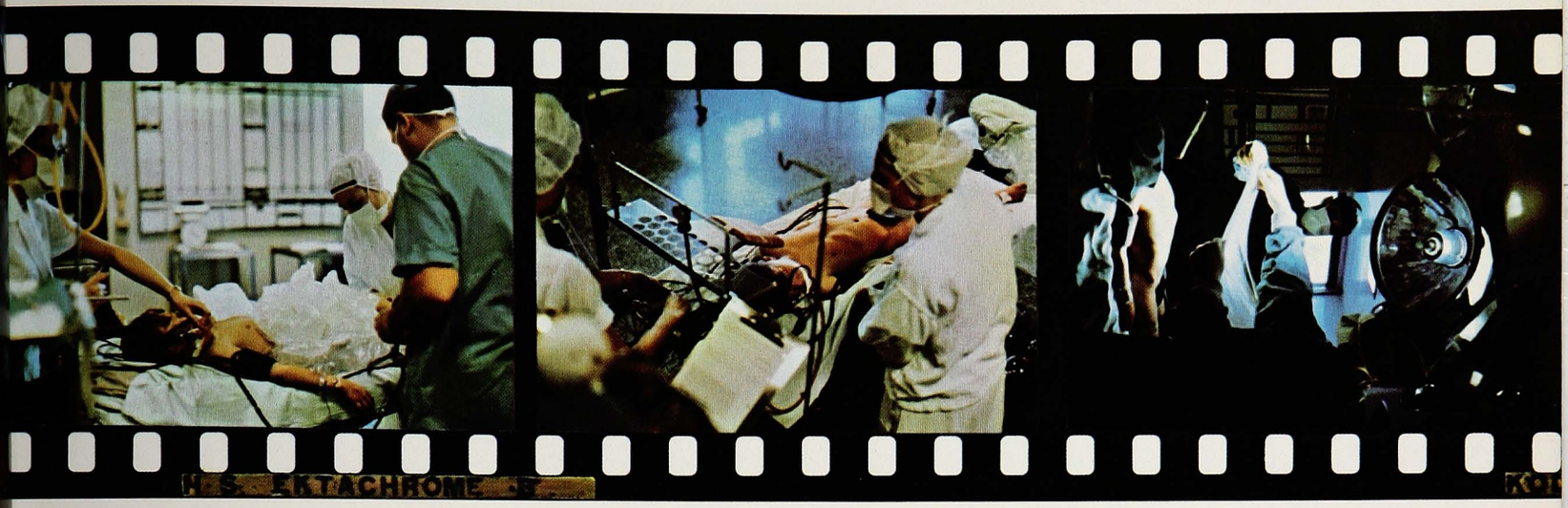




8.30 a.m. In the operating room, two anesthetists chill the anesthetized child with ice-packs and refrigerating blankets. A ventilator—power-driven bellows—helps him breathe.

8.59. Top blanket and ice-packs removed, already the boy's temperature has dropped to 92 F. It will go all the way down to 88 F.

9.07. Adhesive plastic drape isolates the operation area. Ribcage has been painted with antiseptic Merthalate.

eft. This is the living heart of a six-year-
d boy. At Toronto's Hospital for
ick Children, surgeons mend a defect
his pulmonary valve. Up to 10 minutes
interrupted circulation give them their
nance—thanks to cold.

literature on hypothermia is so voluminous these days that the titles alone fill the columns of a dozen pages in the *Index Medicus*.

As for the impetus to cardiac surgery: the ability to repair the living heart has opened up what Bigelow calls "another surgical world." Not long ago he reviewed a 1962 medical-surgical conference he had picked at random from his hospital's weekly records. (He heads the cardiovascular division at the Toronto General Hospital.) Ten grave heart cases had been considered for surgery. Ten years earlier none would have been eligible. In 1962, six of the ten were rejected as hopeless. Today seven of the ten would be accepted. Sometimes the doctors themselves seem stunned at the cardiovascular miracles that are now possible.

It was the original "blue baby" procedure, pioneered midway through World War II by the late Professor Alfred Blalock of Johns Hopkins Hospital in Baltimore that gave other surgeons courage to interfere with the great blood vessels and even with the living heart. Military surgeons began going into the heart after shrapnel. "But," says one of them who served with the RCAMC, "you'd go in blind. Just put your finger in and feel around. And you'd be drowned in blood." What the surgeons badly needed was a chance to see what they were doing.

Wilfred Bigelow, too, had served with the RCAMC. Born in Brandon, Manitoba in 1913, he had taken his medical training at the University of Toronto and the Toronto General Hospital and then served overseas as a cardiovascular surgeon. On his return from war he became a research fellow at Johns Hopkins University, working under Blalock himself. As all cardiovascular men were aware, the main problem in heart surgery was blood, and the obvious way to eliminate it was to cut off the circulation. But body tissues—the brain for example—thus starved of oxygen began to change and break down in only minutes.

Was there any way to counter the oxygen starvation?

Bigelow, who had once published a paper on frostbite, found himself thinking about cold. A healthy human's body temperature may vary from 97 to 100 degrees Fahrenheit, even in the course of a day. But it has only to rise a few degrees above that and he is dead: though temperatures of 110 degrees F. have been recorded just before death, the upper survival limit for fever is no more than 107 F. The upper heat limits of man's habitat are also oddly circumscribed. Even the record high—136 F. in Tripoli one September day in 1922—is only 38 degrees higher than his own constant temperature.

But cold—on a planet moving towards its own cold death—is another matter. The temperature in Siberia has fallen as low as —94 F., or 126 degrees below freezing, and 192 degrees below normal

continued

9.10. The operation begins. Direct surgery on the heart is now routine—but no one takes it casually.

9.31. Dr. Goldman makes the first incision. Resident in surgery, he's assisted by Dr. Gold, a senior interne. Not yet on the scene is Dr. William T. Mustard, the team's leader.

9.35. The atmosphere is growing tense. The boy's temperature is now at 88 F ; his heart-beat has slowed perceptibly.

human temperature. Perhaps this is why, down through the ages, curious stories have recurred of an animal ability to withstand extreme cold. There was, for example, a report in the seventeenth century of a party of Poles, digging in the Ukraine, who unearthed the frozen corpse of an animal called the Bohack, which came to life when they started to skin it.

And there were other stories. Even today such anomalies have persisted. What they tantalizingly keep suggesting is that under some conditions, if only they could be understood, man might achieve hibernation—that state of torpor, with the temperature only a degree or so above freezing, in which some warm-blooded mammals like the groundhog winter. Their body-functions are at idling speed. Their metabolism—and hence their oxygen consumption—is drastically reduced.

Bigelow, in Baltimore in 1946, found most of the available literature indicating that cooling the body actually increased its oxygen requirements. In this case interrupting the circulation for surgery would be twice as damaging as at normal temperatures. But another intriguing set of findings suggested that an initial rise in oxygen consumption in cooled animals was followed by a steady fall. Full of excitement, Bigelow returned to Toronto in 1947, assembled a small research team and began to experiment.

At the same time a group in Philadelphia headed by Dr. John Gibbon had started trying to invent a heart-lung pump that would circulate the blood but bypass the heart: a totally different solution to the same surgical problem.

In two years the Toronto team had cooled 176 dogs and at the end of that time they knew quite a few things about how cold works. For example, that the major functions failed successively, each at its characteristic temperature level, as the body was cooled. In humans, shivering ceases around 91 F.; respiration fails between 82 F. and 79 F., the heart stops working at about 68 F. In accidental hypothermia, shivering is the warm-blooded animal's involuntary mechanism for maintaining body temperature. Invoked by the body's thermostat—the hypothalamus, located in the forebrain—shivering means the metabolism has speeded up and oxygen is being burned by the muscles to produce heat. It was this initial response that had led earlier investigators to believe cooling the body raised, not lowered, its oxygen consumption.

If the struggle to maintain heat fails, the body gives up, shivering stops, and the temperature drops unimpeded. For their clinical purposes, Bigelow and his team needed to forestall that first vigorous oxygen-consuming battle and they learned how to knock out the heat-regulating mechanism with the proper combination of drugs. In accidental hypothermia—in blizzards or icy water or on mountaintops—death comes with

9.40. Dr. Mustard, a pioneer of the famous "blue baby" operation, is in charge. Chilled, the body needs only half normal oxygen, metabolism slows, the heart beats at half normal rate.

9.52. The heart exposed. Clamps already on its great veins will cut off circulation. Clearly visible is the pale tube of the pulmonary artery—where the trouble lies. Valve to this artery has been so constricted since birth that the heart strains pumping blood through it to the lungs.

9.57. Minutes of crisis. Clamps tight, the small body is without oxygen. Normally, incurable damage to brain and other tissues would ensue within three minutes. Here's where cold counts; the flow of blood can be stopped long enough to operate safely.

failure of the lungs. In their clinical cooling, though, this was no problem: techniques of artificial respiration were routine. They found, too, that failure of the heart itself was not crucial. Even at the lethal temperature its action could be artificially maintained by rhythmic shocks from an electrode; once the body was rewarmed the heart miraculously resumed its spontaneous action.

Two members of the group, John C. Callaghan and John A. Hopps, constructed an electric stimulator for this purpose. The size of a mantel radio, it was useful only in their immediate situation, but with the later development of transistor batteries the two men were able to make a unit small enough to bury under the skin. It was a remarkable and important byproduct of the project: the first implantable electric pacemaker for the heart.

But if cooling did no irreversible damage to the obvious body functions it still produced some mysterious and dangerous effects, including the so-called "re-warming shock": sometimes heart-failure would occur during the re-warming period. This seemed to have to do with the duration as well as the depth of cooling. It is still not fully understood, but possibly cooling may derange the elegant co-ordination of the body's chemical reactions.

In any case, given their knowledge and skills at the time, the team found that the lowest safe body temperature in humans was between 88 F. and 83 F. This was no more than moderate hypothermia, but the important thing was that within this range the body's oxygen requirements were reduced by fifty per cent. Hence circulation could be safely interrupted for twice as long as was possible at normal temperatures. And this gave the surgeon between six and ten minutes to open a virtually bloodless heart and do what he had to do. With careful preparation and a skilled surgical team it was long enough—which three minutes was not—to correct many of the congenital heart defects that were killing infants and shortening other lives.

Bigelow's epoch-making paper was presented in 1950 but it took three more years of research and testing before he was prepared to submit his procedure as safe for clinical use on humans.

Ironically, neither of the Toronto cardiovascular teams was the first to operate with hypothermia. In 1953, while Bigelow and his colleagues were still waiting for a suitable case, a Minneapolis team headed by Dr. John Lewis performed the first successful open-heart operation using general body-cooling.

Still, Toronto was in the vanguard of the new cardiovascular surgery, a position earned not only by the work on hypothermia and the electrical pacemaker for the heart but by other major contributions ranging from Dr. Gordon Murray's first human homograft valve transplant in 1954 to the sophisticated new "blue baby" operation perfected by

continued

10.01. So far, all's well. Dr. Mustard, cutting swiftly through the artery, has disclosed the valve and deftly widened it. Now the repaired valve is back in place, the artery sewn up. Circulation has been interrupted for a full 3 minutes, 55 seconds.

10.58. The wound has been methodically closed and sutured. In nearly an hour, the boy's temperature has risen only one degree. He's still in danger.

11.05. Surgery completed, the team watches intently as the child goes through the critical rewarming stage. He's not safe yet.

Dr. William Mustard, of the Hospital for Sick Children, Toronto. It was, again, a Toronto neurosurgeon, Dr. William Lougheed, working with Dr. W. H. Sweet of Boston, who performed the first brain surgery using hypothermia, in 1955.

In 1954, in Philadelphia, Dr. John Gibbon perfected his heart-lung pump. The pump both by-passed the heart and maintained circulation. Oxygen starvation of the rest of the body was thus not an urgent problem, so the pump allowed time for repairing quite complex heart defects. But it required a cumbersome and tricky bank of equipment and was much more taxing to the patient than surgery with hypothermia. Hypothermia remained the preferred method for repairing simple congenital heart defects, particularly in children.

By 1960 most heart surgical centres in the world were trying something new: by combining hypothermia with the heart-lung pump many of the risks of the latter could be reduced while still allowing heart surgery that lasted as long as 55 minutes. Instead of using refrigerating blankets, the body temperature is lowered and raised quite simply by passing the blood through both the pump and a heat exchanger before recirculating it in the body. Today this too is commonplace. So is the application of hypothermia in some kinds of brain surgery and in the treatment of severe head injuries: hypothermia in effect shrinks the total contents of the skull. Since head injuries produce swelling and pressure, which in turn produce still more damage, accident victims are routinely kept in mild hypothermia for as long as a week, until the danger is past.

The scientist being what he is, though, these tried and manageable uses of body cooling, these modest levels of cold, have not been enough.

The anomalies beckon: the super cooled animals that are still alive the next day, the drunken survivors of sub-lethal temperatures, the frozen corpses reanimated, the hibernating mammals with metabolism banked for the winter. In England Charles Drew, a cardiovascular surgeon at Westminster Hospital, London, has been using the combined heart-lung bypass and hypothermia in a unique manner. He pumps blood through the patient's own lungs for oxygenation, then pumps it outside the body through a cooling chamber, to achieve a very low body temperature—well below the level of heart standstill—very fast. (The body must be rewarmed equally quickly afterwards).

On the other side of the world, a Tokyo neurosurgeon has been performing brain surgery lasting up to an hour and a half in a bloodless field by tapping into the brain's own circulatory system and using it to cool the brain alone to about 43 F. (Even at 68 F. the body-tissues' oxygen requirements have already plummeted to fifteen per cent of normal.) And it is in Japan too that severed dogs' and cats' heads have been kept alive in ice water

12.15. Still in the operating room. Hot water bottles, thermal blankets and infra-red rays slowly raise his body heat. Close check is kept on his pulse, temperature and general condition. At 12.30—suddenly, astonishingly—he stirs, briefly opens his eyes. The nurses smile. It's a happy moment.

12.31. Temperature at 93 F, he's on his way to the Intensive Care Unit. A nurse carries aloft the blood transfusion apparatus.

12.50. Temperature 97.5 F. Safely tucked into a crib in the Intensive Care Unit, the child is under sedation in an oxygen tent. He'll live. For the hospital, one more routine operation. Fifteen years ago it would have been impossible.

or in refrigeration for hours, days and even months. Reports of such experiments have—prematurely perhaps, given impetus to the freeze-wait-reanimate groups currently attracting disciples at the rate of twenty a week in Canada, the United States and elsewhere. The idea is to have one's corpse quick-frozen against the day when science can reverse the immediate cause of death.

The same reports, more seriously, imply re-definition of death, at least as a clinical state.

Meanwhile the Toronto group has not been idle. They have already perfected a technique of using intravenous alcohol as a sort of anti-freeze to allow cooling to lower body-temperatures than are in standard clinical use. Ten years ago, they established a groundhog (*Marmota monex*) farm north of Toronto. For they believe the exciting secret still to be unlocked is hibernation. A hibernating animal can be cooled to 38 F. and at this temperature its circulation can be interrupted and its heart opened for a period of at least two hours with survival and no ill effects. "Perhaps," says Bigelow, "if we could convert a human into a temporary hibernator by an injection, we could do the same." So the research team began the exacting job of trying to isolate some chemical or hormone from the groundhog that might be the hibernating trigger. After six years' work they thought they had it: an active substance extracted from the groundhog's hibernating gland that allowed the team to cool other, non-hibernating, test animals to very low temperatures.

Today, at 54, Bigelow is a quiet, grey man with an impersonal air of authority but the telltale crowsfeet of underlying humour. He himself described in a recent journal what happened next: "This appeared to be a momentous discovery which would perhaps affect many disciplines. We prepared for this in many ways including a request that the University of Toronto manage the future patent rights.

"After a year and a half of hard work, about the time we had decided upon publication, we found unbelievably enough that we were not dealing with an extract of the hibernating gland but an extract of plastic tubing used in the process!"

It was a setback, but not a stopper. (The team still maintains the groundhog farm.) For these are researchers—in a northern land at that—determined to find out how to use cold to help cure people.

"Cold," Bigelow observed dryly not long ago, "is a very powerful weapon."

Banking with imagination

Burgeoning branches, pretty tellers, computerized accounting, as a sober profession learns to swing.
By David Crane

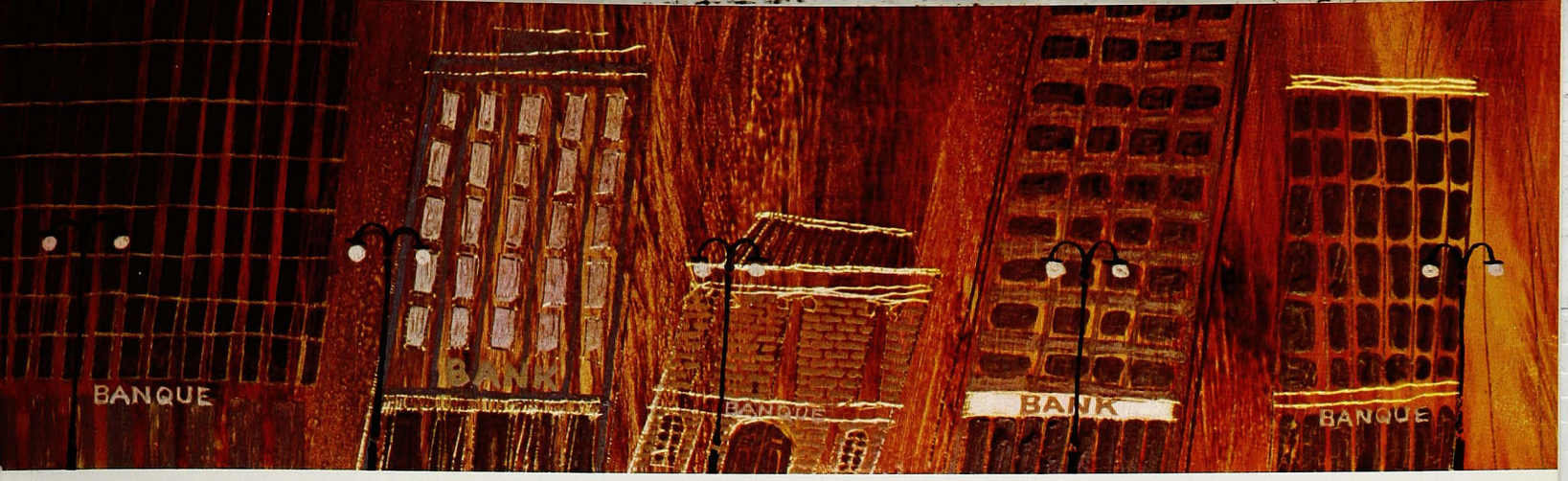
Canadian bankers have kept the spirit of the frontier. True, you don't find them setting up business in a tent or log cabin these days the way they did 100 years ago. But you do find them where the action is, from the new mining or pulp-and-paper towns of Northern Ontario all the way to the even more remote Hudson Bay port of Moosonee. But the frontier is not just a matter of geography. Ontario's affluent citizens are entering a new world of leisure and their bankers are opening the way for them, financing vacations and travel, ski resorts and summer cottages, marinas and golf clubs. Canadian bankers are helping local businessmen set up new leisure companies. They are assisting others from many nations to invest in Ontario's leisure opportunities. In the cities, bankers are joining the young swinging set, helping them establish cheese and wine shops, mod boutiques, discotheques and gourmet restaurants.

Look for the bankers too on another frontier: international trade. Exports account for more than 20 per cent of Canada's gross national product, and two-thirds of that trade is made up of goods fully manufactured or partly processed in Canada. In fact Canada depends on foreign trade more than such trading nations as Japan, United Kingdom, Germany or the United States. Today bankers from Ontario are active in government trade missions they exhibit in international trade fairs and give Ontario manufacturers seminars on exporting.

Not that these bankers are newcomers to international ventures. Two Canadian banks have been providing full banking services to the people of California for more than a hundred years. Recently Bing Crosby sold his California bank to the Canadian Imperial Bank of Commerce, the sixteenth largest in the world, with head office in Toronto. Canadian bankers are well known in the West Indies, too, where they serve most of the island's financial needs.

These bankers from Ontario are travelling around the globe for other reasons too. More Ontario enterprises such as Massey-Ferguson, International Nickel and Moore Corporation, are expanding their business around the world as they join the age of the international corporation. At the same time, Canadian bankers are putting Canadian savings to work by financing business and governments from Chile to Japan, Nigeria to Yugoslavia.

This frontier spirit explains why Ontario's banks are so deeply involved in the computer revolution. The bankers first used computers for the daily clearing of cheques (more are cleared in Toronto than in any other city on the North American continent, except New York, Chicago and Philadelphia). Now they are looking at computerized tellers, cash register-like units linked to central computers with giant customer-files stored in the computers' memories. One "near-bank," Waterloo Savings & Trust, will start using them this year. Computers make it possible for the banks to plan new customer services. The one being examined more closely now is the bank credit-card that allows the holder to do all his shopping for goods and services with one card. Although Canadian bankers dismiss the view that computer and



credit-cards will make cash obsolete, there's little doubt that a bank credit-card will do much to cut down on the use of cash and cheques.

For the businessman, the computer is already bringing new banking services. For some time banks have offered business—a payroll accounting service, where they eliminate the need for employee accounts. One bank is now using its computer to work out all the payroll deductions and calculate each employee's take-home pay, as well as depositing it in their individual accounts. Another computer service, now being examined, is professional billing for doctors, lawyers and dentists.

Stephen Leacock, the famous humourist of Orillia, Ontario, was frightened by banks. Writing in the early 1900s, he confessed: "When I go into a bank I get rattled. The clerks rattle me; the wickets rattle me; the sight of money rattles me; everything rattles me." Whatever the reason—some blamed the dour Scottish influence in Canadian banking, others the cold marble architecture, and a few the aloof male tellers—Canadians 40 years later still shared Leacock's qualms about entering a bank.

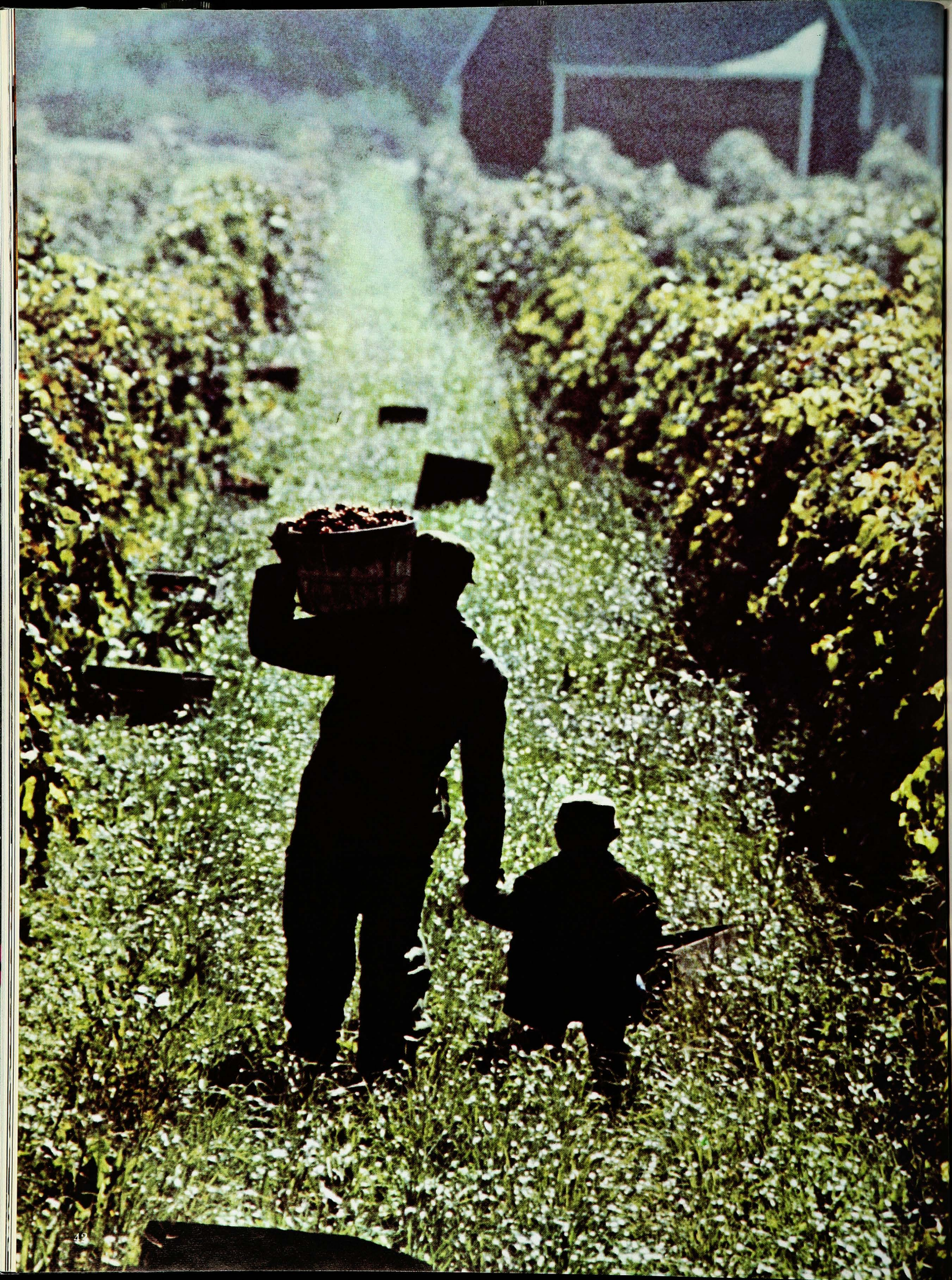
Leacock would hardly be rattled in today's banks. The branches are bright contemporary buildings decorated in the vivid hues of interior designers. The banks even run charm schools for their pretty young tellers. And more people borrow money for their new car or colour-TV from the bank than from any other source in the country. Leacock might not even understand why banks have been hiring the best design houses to devise new corporate symbols.

Although they don't talk about it much, Canadians feel a certain pride in their banking system. Admired the world over for its stability, there hasn't been a bank failure in Canada since 1923; and in 150 years of banking, depositors have been hurt only once or twice by bank failures. Not a single Canadian bank closed its doors in the Great Depression of the 1930s.

Canadian banks are big, like their new office-buildings. The Toronto-Dominion Bank's new 56-storey tower in Toronto is the tallest building in the world outside Manhattan. Of the 16 largest banks around the world, in terms of total assets, two are Canadian. Of the 55 largest, five are Canadian. In fact, there are only 10 chartered banks in Canada, two of them just starting up in business now. The father of the Canadian banking system was an American who admired Scottish banks, Alexander Hamilton, the brilliant first U.S. Secretary of the Treasury. He believed in large national banks with a broad system of branches. Another U.S. president changed the system in favour of small regional banks, but the early settlers of British North America took Hamilton's advice. Today the eight chartered banks active in Ontario have more than 2,075 branches in the province.

But if Ontario's banks are few, there is vigorous competition for the depositor's saving dollar. Arrayed against the conventional institutions is a mixed army of "near-banks," the trust companies, mortgage loan companies and credit unions, which have been enticing Canadians with the lure of higher interest rates. Twenty years ago, most Canadian savings were in bank accounts. Recently the banks' share was less than 50 per cent.

The banks are fighting back. With changes in the nation's Bank Act, they are offering new kinds of savings opportunities, they are moving into the business of mortgage-lending and planning new services such as lease financing. Far from becoming lazy with success. Canada's banks are moving forward confidently to what a recent Royal Commission called "a more open and competitive banking system." ■



Sun, soil and
the hardy *labrusca* grape.
A Vineyard
in the Niagara peninsula.

Vineyards in Ontario?

But Yes!

and what's more, daring experiment,
a fledgling wine industry,
the hardiest vines in the world...
By Paul Grescoe

Of course, you know that Ontario helped save the whole French wine industry from ruination?

Yes, and it's entirely fitting that this province should have been a saviour of France's noble wines, for Ontario is the great grape-growing region of Canada. It makes 85 per cent of the country's wines, it's home to a bustling, inventive wine research centre and its 22,000 acres of vineyards, lying mostly in the Niagara Peninsula between the moderating Lake Ontario and the luxuriant southern slope of a long escarpment, nicely resemble the wine country of France.

Those French provinces and the province of Ontario have a surprising but clear alliance. It reaches back to the beginning of the last century, when a German immigrant to Ontario, an army corporal named Joseph Schiller, settled near Toronto. Schiller's family back home owned vineyards; when he homesteaded his grant of land in what's now the town of Cooksville, he found wild grapes on the bank of the Credit River, brought cuttings to his farm and began cultivating them. He named the improved strain "Clinton" and by 1811 he was growing the grapes commercially. Those were the years when settlers could buy a gallon of whisky for 25 cents and their palates were insensitive to Schiller's wine. His biggest sales were to churches.

But his vines interested the fledgling wine industry of the northeastern United States and growers there bought slips of the Clinton; it was one of the first of the native grapes used widely in North American winemaking. It was handy and hardy: while delicate, transplanted European vines died in the New World, the tough-rooted Clintons prospered.

By the time Canada was becoming a nation in 1867, a monstrous crisis was confronting the grape-growers of France. A tiny but formidable aphid had infested their vineyards. Within a few years this plague of philloxera had attacked and all but wiped out the country's vines. In 1875, wine production had been more than 2,000,000 gallons; four years later, it was less than 700,000. Vines were stunted, the leaves withered. Nothing but flooding the vineyards could help.

Until 1869. That year a desperate French farmer tried grafting his dying vines to firm American roots. The vines survived. France turned to North America's novice grape-growers for their strong rootstocks. The staunchest were the Clintons—descendants of the Ontario vines Joseph Schiller had cultivated and sold. The once-wild stocks, with graftings from traditional vines, proved sturdy enough to resist the plague's ravages. The French wine industry was saved.

Schiller's successors in Ontario are a dedicated breed of farmers who duel with weather . . . crippling spring frosts and bitter winters . . . and disease . . . berry moths, leaf hoppers, mildew and dead arm, an incurable malady that kills vines. There are 1,200 of these grape-growers in the province and 900 sell to the nine wineries nestled in the Niagara Peninsula.

One of the farmers is Tom Davis, an amazingly agile 77-year-old Irishman who with his son Paddy owns a 50-acre vineyard that grosses about $20,000 a year—an average take. The elder Davis managed a farm for a wine company until he decided to start his own vineyard in 1948. Now he grows seven varieties of grapes and has added an Irish flair to this conventionally French pursuit.

For years he worried about the late spring frost that could destroy a crop. If only he could keep the warm air circulating to the ground! He solved the problem in an outlandishly untraditional way: he built four towers throughout the vineyard and installed 12-foot propellors with V-8 engines to blow away the cold spring nights.

"You'd think there was five or six jets out there when the propellors are going," he says, an Irish lilt still lingering in his voice. Doesn't the noise interfere with his sleep? "I wouldn't sleep at all if they weren't going."

They cost him $8,000, but saved him almost twice that in a single year. "Four years ago, all our neighbours were frozen out and we had a full crop. We would have lost three parts of our crop—$15,000 worth. The man next door had only enough grapes to make three barrels of home-made wine."

Davis and his son grow the black Concord, Ontario's most common table grape, the green Niagara and Elvira, the red Delaware and three French hybrids. "We pulled out another French hybrid and put in Niagara," Tom Davis recalls. "Then, three years ago, the wineries put a $50 premium on that hybrid. That's one mistake we made."

That hybrid was among hundreds tested at the aptly-named Vineland Experimental Station, in the heart of the peninsula, by the horticultural products branch of the Ontario department of agriculture. Under Dr. John Truscott, the branch has become one of the world's most original centres for wine development and research.

Its small staff have contributed mightily to wine lore. Among other accomplishments, they've developed the first honey-wine—or mead—for commercial production in North America; created frozen yeast that can be stored and used at need as a stable, unchanging fermentation starter; and invented an artificial method to make a flor sherry, which within four months tastes like natural flor sherry that's been aged five years or more.

Work on wine began at Vineland as

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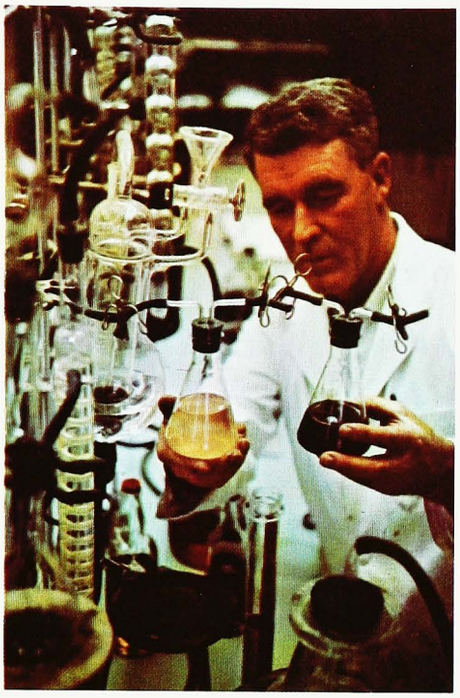
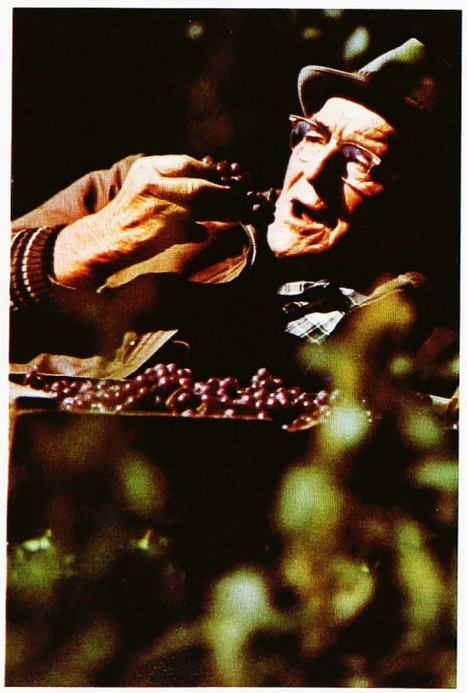


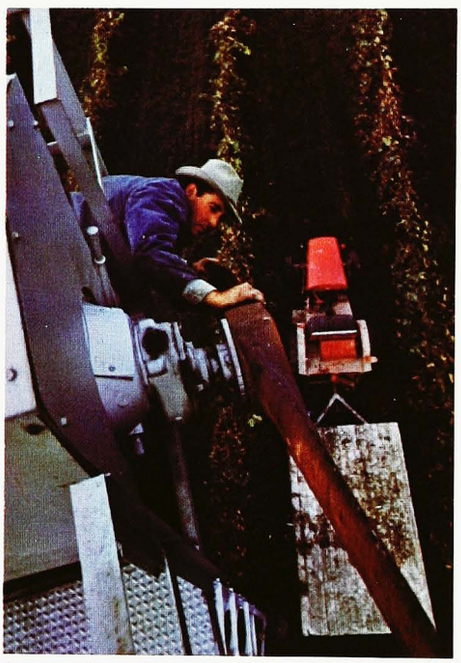
Hard work—but a good harvest makes everyone happy.

Tom Davis, 77, samples his crop.



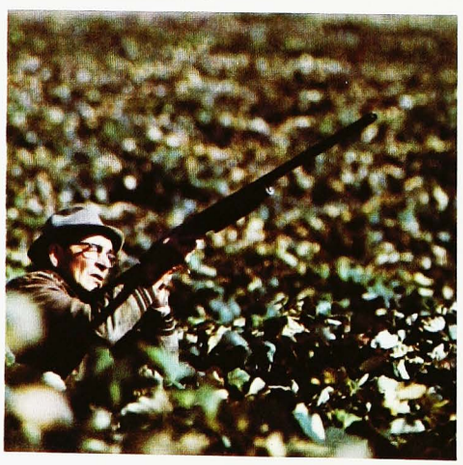
A 50-acre vineyard—and a good life.

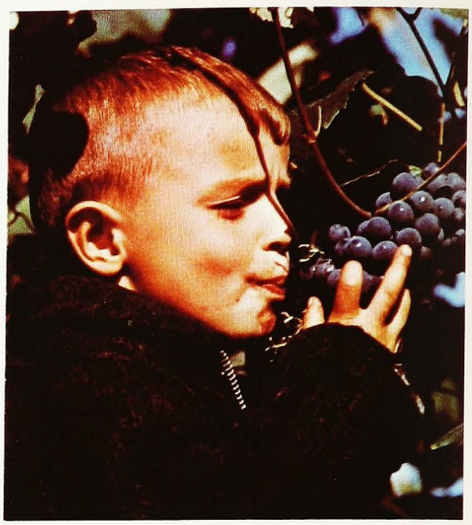
Ontario Department of Agriculture's chemist, Ralph Crowther at work in Vineland experimental station.



Ingenuity. Airplane propellers to blow away late frosts.

Davis on the alert.

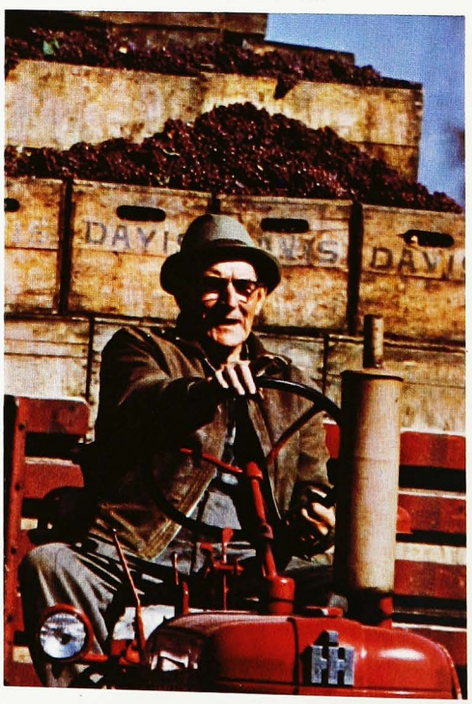




Succulent *labruscas* well within reach. No sour grapes . . .

As in the old world, wine matures in wood.

Vigilance and mechanization bring in the harvest for Irish-born Davis.



early as 1912, but it wasn't until the horticultural products branch moved into its own building in 1950 that research became serious. "Before," Dr. Truscott remembers, "someone might make two or three varieties of wine and take some grapes home to make wine in his kitchen for his wife." Now the work has moved out of the kitchen into the laboratory run by a 48-year-old Malayan-born chemist, Ralph Crowther, the inventor of that fast-acting flor sherry.

Crowther, who had been an assistant chemist for an Ontario wine company, came to Vineland in 1951. A priority project was to duplicate in the province the flor yeast that grows naturally in Spain and imparts a distinctive taste to sherry. "One of the first things I had to do was collect yeast from all over the world," Crowther says. "Even one of our Canadian diplomats went to Spain, dipped in their yeast and sent us back a sample." But no yeast would form that unique film of flor on an Ontario wine.

One day in 1953, after two years of failure, Crowther was walking by some cans of pears being shaken to make them breed better. "I wonder what would happen if I shook the wine." Flor happened. "We struck on it by pure luck." After experimenting, Crowther settled on a pump system that agitates the wine and yeast by sucking them from the bottom of a container and dropping them back again from the top. Flor develops in 21 days. Three Ontario wineries now use a variation of Crowther's discovery. One flor sherry earned a second-prize silver medal in competition with 32 others at the 1957 Ljubljana (Yugoslavia) Fair.

That's flor yeast; there are so many other cultures of yeast that Vineland has one microbiologist doing little else but yeast research. He's Dr. A. M. Adams and he's the one who developed the frozen yeast starter that helps Ontario wineries make wine of unvarying quality. Yeast starts the fermentation that changes grape juice to wine. Ordinary yeast can alter if stored over the years, altering the wine with it. Freezing dried yeast makes it dependable, year after year.

Dr. Adams collects yeast in soil, air and fruit the way some people collect stamps. "It's a world-wide thing," he says. "We exchange yeasts of interest to each other. We had two dozen from Czechoslovakia just the other week."

It's this kind of comprehensive service that makes Vineland the centre of Canada's study of wine. Each spring it holds a temperate wine-tasting party at which the top 15 or so wines of the year are sampled by testers from the Liquor Control Board of Ontario and the Canadian Wine Institute, a trade association that regulates quality. "It's a pretty fair review of the previous year's vintage," Dr. Truscott says. Vineland's wine collection—a tantalizing cold-storage room —holds hundreds of bottles and barrels of aging wines made from more than 160 kinds of grapes and 42 fruits (including such esoteric wines as rhubarb, plum and tomato—it's a fruit, remember). The experimental station makes the grape wine from its own vineyard, 35 acres lush with native and imported varieties.

Ollie Bradt, the vineyard's manager, has been growing grapes there since 1938. He tests foreign vines ("Most of the varieties we bring in one year, something happens to the next year") and mates breeds ("If we have a really good variety that's late, for example, we'll cross it with a variety that's early"). The work is painstaking, the progress slow. One variety, now called Veeport but tested rather prosaically as 29143, was first crossed at Vineland in 1929, but it wasn't until 32 years later that the station felt confident enough to announce that it might make a decent dessert wine. And a fine European wine may have impeccable breeding, but when it emigrates to Ontario it's simply a poor cousin without stamina to survive the microbiologist, says: "You know how hard it is to breed a thoroughbred race horse. It's equally hard here. In fact, we have to breed a flat runner that's also a trotter."

Dr. Adams and Truscott, and Crowther and Bradt have two aims at the moment. One is to create an Ontario wine that can be made entirely with its own natural sugar, like most wines in France where the grapes are sweeter. The addition of sugar tends to flatten a wine's bouquet and flavour. "We want to completely eliminate tabled sugar wine . . . if we can get a grape running well every year," says Crowther. And the other thing is to improve the province's white wines. "We've almost reached the point where we could stop research into the red wines (although we won't) but we're a long way off from a good white wine."

Just how good are Ontario's wines? L.W. Marrison, an Englishman, says in his definitive handbook, *Wines and Spirits*, that many of the standard wines "are admirable and with their own elegance, reputable and reliable." Most Ontario wine men will agree that their products can't yet hope to compete with the great vintage wines of France, but they argue quite reasonably that the best French wine is only an infinitesimal part of that country's production. As vins ordinaires, everyday wines, Ontario's have proved themselves drinkable.

There are no vintage wines made from a single year's growth; the wineries blend wines of different years. "Only in about one year out of seven or eight," explains the president of the province's largest winery, "does the combination of sun, soil and air produce fruit from which a superlative wine is made; in the intervening years the wine is ordinary or less."

The province's wines taste unlike any from Europe, of course, because most are still made from the labrusca species of grape, which has a stronger, fruitier flavour: it's supposed to smell, said one early detractor, "like the effluvia arising from the body of the fox." But Philip M. Wagner, in his book *American Wines and How To Make Them*, drily demolishes that thesis: "I have been at some pains to sniff the 'effluvia' of several kinds of fox, in a number of celebrated zoos, and have been unable to detect the faintest resemblance."

While the resemblance between Ontario and European wines is sometimes just as faint, traditional names borrowed from other countries label the Ontario products they approximate in taste: red, white and rosé, "port," "sherry", "champagne," and sparkling "burgundy." But a couple of names are native to North America: crackling rosé (a very bubbly rosé) and pink "champagne" (disappointingly, just champagne coloured pink).

J. D. MacKenzie, the vice-president in charge of production for Ontario's second-biggest winery, predicts that the province's wine companies will soon stop making odious comparisons with old-world wines. "They're the models now. But eventually we'll have our own names."

His company has a staff of six doing its own quality control and development. But MacKenzie bows in acknowledging the debt his winery and the others owe to the slender research staff at Vineland.

Any story of wines in Ontario must return to that experimental station and its staff. If Ontario once helped save the French wine industry, its wine researchers today are saving the province's own wine companies a lot of time, trial and error. MacKenzie puts it simply. "You name it," he says of those men at Vineland, "and they'll do it." ■

THE NEW NORTH OF BENNY SCAPINELLO.

BENNY SCAPINELLO is an amiable, energetic 40-year-old, who earns $8,000 a year, lives with his merry young wife, their two children and her parents in a pistachio-green frame bungalow, owns a TV, a '64 Chev and a cellar of dry, red wine—his own make—and once a year affords a three-week holiday for his whole family. Benny is a happy man, he says, and he has good reason to be. He has skills he enjoys using. His boss cherishes him. He earns almost twice as much as the average Canadian worker and his living is subsidized by his employer. That three-bedroom bungalow, complete with the latest electrical blessings, rents for only $65.00 a month. The Scapinellos' home community of 3,300 is a model of modern planning; it provides most of the amenities of a city, pure air and a large, lovely lake. "There is everything here that I want for myself and my family," Benny says, summing up.

Yet few Canadians would change places with Benny Scapinello. He's an underground miner and the model community where he lives is Manitouwadge, almost 300 miles northwest of Sault Ste. Marie in Ontario's remote Thunder Bay region. To most native-born Canadians, northern mining stands for unglamorous danger and a narrow life of isolation, attractive only to the recluse or the rough adventurer. That's the way it was 30 years ago; most people, with no experience and only a dim recollection of classroom knowledge of the north, assume that it's basically unchanged today. The mining industry, aside from issuing unreadable annual reports, is traditionally as silent as the wilderness itself.

Benny Scapinello knows only the new north. He came to hard rock mining immediately on his arrival from northern Italy in the early 50s. He has worked in the Willroy Mines at Manitouwadge since the first copper-lead-zinc-silver ore was produced 10 years ago. Now a Canadian citizen and much travelled in his new country, he chooses to make his life in the north.

The good life of Benny Scapinello is the end product of tremendous changes that have overtaken the Ontario north in the post-war years. Technology, by which in earlier times the west was won, now assaults the belt of Precambrian rocks, part of the Canadian Shield that girdles most of the province and two-thirds of the whole country. Producing for Ontario alone almost a billion dollars worth of new mineral wealth annually—about 10 times that of 20 years ago—the new technology is also responsible for vast improvements in working and living conditions.

Today's underground mucker uses his head, not his back. Prospectors plumb for riches, not with picks but with sophisticated electro-magnetic instruments, often dragged by aircraft, and geophysical devices that help them diagnose mineral deposits much as a doctor, with X-rays and other aids of medical engineering detects disease. It was in Ontario that the electro-magnetic technique was pioneered. Falconbridge was first to use it, in 1945. Eight years later the International Nickel Company, operating in the Sudbury Basin, made a break-through in metallurgy. Its entirely new process of extracting ore not only enormously increased production but made it practical to mine material of marginal grade that would otherwise have been abandoned. About the only early mining technique that has survived almost unchanged in 30 years—is diamond drilling; the bits, now made of tungsten-carbide, are sharper and quicker than the old steel ones, but no one has found a better way to get through rock.

As for underground mining conditions, an old-timer wouldn't recognize today's pit, with its fresh-air ventilation, automatic elevators, honed-down, muffled machinery and mandatory safety equipment.

A generation ago, an underground miner was burnt-out in five years. His hearing and balance were gone. It was the racket of big machinery, trapped in mine tunnels, that ruined his ears. Benny's boss, once a mucker himself and half deaf in consequence, remembers working with thundering machinery in an enclosed space, only six-by-six feet, and of suddenly falling down. That was the beginning of the end of his career underground.

The bunkhouse life of yesteryear broke many a miner's spirit. In quarters almost as cramped and evilly ventilated as a pit tunnel and cut off from the society of women and children, a man felt sub-human and frequently behaved that way. If he brought his family north, their housing and general welfare were his own problem, not his employer's. It took a remarkably sturdy woman to cope with earth floors, sub-Arctic privies, a water supply that had to be carried from the lake and groceries no nearer than the next "cat" train. A mine wife beyond middle age will tell you that a log cabin in the wintry wilderness is romantic only when viewed from a considerable distance of time and space.

To this day there's a certain breed that flourishes best in the north. It doesn't conform, though, to the stereotype adventurer or rugged individualist of mining-camp mythology. Benny Scapinello and his wife, Mariette, who are devoted parents, gregarious people, regular church-goers and good citizens—the kind who could carve out a comfortable place for themselves in suburbia—are at home in the new north. Manitouwadge, in most respects, *is* suburbia. Forget the tall pines that creep down to the dark lake, focus on the carefully curved residential streets, swarming with children and young women in head scarves, waiting for the cars to come home at night, and you can easily mistake the place for Applewood Acres, a dormitory to Metropoli-

continued

NO MORE ROUGHING IT IN THE BUSH. TODAY'S PIONEER BRINGS THE WIFE AND THE SUBURBS WITH HIM.

BY JEANNINE LOCKE.
PHOTOGRAPHED BY JOHN SEBERT.

Manitouwadge, Ont. (population 3,300) is a snug mining community carved from the wild north.

tan Toronto. The adjustment to life in Applewood Acres or Manitouwadge is much the same. "If you want to be lonesome or bored, you can," Mariette says. "You stay home and don't let anybody in."

Benny, according to his boss at Willroy, is "the best kind of miner; he's enterprising and cool-headed and he functions like a businessman. His basic rate of pay is $2.45 an hour; what he earns, beyond that, depends on the footage he works. Underground he's a free agent. Benny needs no supervision. He's energetic, resourceful and he doesn't take chances. This is the kind of man who lasts in mining and does well. With the emphasis now on technology, a miner's head is far more important than his back."

The miner-businessman, such as Benny, the Willroy mine itself and the model community of Manitouwadge are all creations of the new technology that is transforming the north. But their story has many of the romantic elements of mining camp lore. In the best tradition of the north, luck had a large part to play.

It was in 1930 that James Edgar Thomson, a student-geologist working for the summer with an Ontario Department of Mines field party, first heard about Manitouwadge from Ojibway Indians. Their band had named it—Manitouwadge means "Cave of the Great Spirit"—and they held it in awe. They described to Thomson a dark lake rimmed by a rugged escarpment and deep forest. The rock, they said, had a greenstone belt with rusty outcroppings—sure signs to a prospector of mineral occurrences. But the only access in summer was by water. For his discovery of Manitouwadge, Thomson had to wait until the following summer.

In June 1931 he hired Moses Fisher, an Indian of the Pic River Reserve, to guide him through the wilderness. Fisher, it turned out, had made the trip only in winter, travelling across-country; he was as new as Thomson to the canoe route. It took them four days, paddling and portaging through country alive with game, to reach the dark lake. They stayed for two days, long enough to make rough sketch maps of the topography and geology of the immediate area and take samples of the rusty outcroppings.

In the log of his exploration trip, Thomson reported "sulphides . . . 50 chains north of the north bay on the west side of the creek" and noted that he had taken a sample for assay. It had come from what is now the main orebody of Noranda's Geco Mines, richest in Manitouwadge.

Thomson also noted "at 130 chains north of the lake . . . considerable development of gossan (outcropping) and considerable magnetic disturbance." Near that spot the Willroy and Willecho mines produce today.

Thomson, who is now the Department of Mines' chief geologist, recently donated his maps and notes to the Manitouwadge Public Library, where they're cherished as historic documents.

But at the time Thomson's discovery had no impact; gold was all that excited the Ontario mining industry during the depression Thirties . . . the price stayed right while that of other metals steadily dropped. The Department of Mines nevertheless published Thomson's report with its accompanying geological map of Manitouwadge.

Eleven years later, in 1943, Thomson's guide, Moses Fisher, returned to the area and staked the sulphide-showing that became the Geco Mine. He could arouse no interest in the development of his holding and after a year he allowed his claim to lapse.

The Thomson map had been around for 21 years when suddenly it set off one of the biggest staking rushes in the history of Canadian mining. It began one Saturday morning in May, 1953 with Roy Barker, a carpenter, Bill Dawd, a timber company foreman and Jack Forster, a car dealer, flying from Geraldton, their base in the northwest, for a weekend of prospecting in Manitouwadge. Guided by Thomson's map, the men went directly to the spot labelled "sulphides," took samples and felt so lucky that they flew back immediately to Geraldton to have them assayed. Incredibly, other prospectors were in the area at the same time. When Barker, Dawd and Forster returned to stake their claims, they found them already taken on behalf of Lun-Echo Gold Mines. But luck was with the Geraldton men. Lun-Echo was looking for nickel; when the Manitouwadge ore samples showed none, the company did not trouble to record its claims. Once the necessary 30 days had elapsed, the weekend prospectors promptly returned to Manitouwadge, staked their claims and flew on to the Lakehead to record them.

After trying seven companies, they found one willing to do experimental drilling. That was in July. By early autumn, Geco Mines had been incorporated, the results of their drilling were known and the rush was on. During the several months that it lasted, 15 aircraft shuttled daily from dawn to dark, between Geraldton and Lake Manitouwadge, 65 miles south east, taking prospectors into the area. Others hiked in from Marathon. Altogether, they staked more than 10,000 claims in a solid band 80 miles long and 20 wide.

But Dawd, Barker and Forster made the fortune. On top of a substantial down payment, they each received monthly cheques of $6,000. when Geco went into production. By then, Willroy —named after Dawd and Barker— had brought out its first ore.

Without geophysical devices, the Willroy property would probably never have been exploited. It and the company's adjoining possessions, Willecho and Nama Creek mines, had their ore buried too deeply to be found, like Geco, by surface prospecting and easy drilling.

That first winter, both companies had to cope with isolation. All construction materials were either flown in, at vast expense, or slowly hauled by tractor-train through the frozen wilderness.

But by the end of 1954 the Department of Mines had driven an access road into Manitouwadge to connect with Highway 17 to the south and the market for cars in the camp was booming. The country's two major railroads, the Canadian Pacific and Canadian National, both constructed branch lines, one from the south, the other the north, to carry ore to refineries.

Meanwhile, the Ontario Government was planning a model community of broad streets, parks, shops, schools, churches and houses built in crescents to fit the hillside sloping down to the lake. The Corporation of the Improvement District of Manitouwadge was born.

continued

At the Manitouwadge recreation-centre, librarian Phyllis Bray records more than 35,000 book-borrowings a year.

A good life for miner Benny Scapinello and his wife Mariette. On his $8,000 a year, they and their two children more than keep up with the big city Joneses.

Sulphide outcroppings in the Manitouwadge escarpment first attracted prospectors in 1930. Today a town thrives on its rich copper-lead-zinc-silver ores.

Underground in the Willroy mine. Today's mucker works with his head. Profits—and safety-records—are impressive.

Badminton, anyone? The recreation-centre also offers curling, skating, potting—or what's your fancy?

Benny Scapinello arrived in 1957, in time to go underground with the first shift at Willroy. His bride, Mariette, a Quebecker of Italian and French descent, followed him soon afterwards and they moved into a company-owned, $13,000 bungalow with a picture-window overlooking the lake. In 1961 Mariette had her first baby, Roberto, in Manitouwadge's newly opened, 30-bed, cottage hospital. Gine was born in the same hospital three years later.

Roberto is now in kindergarten, taking instruction in both French and English. His parents plan that he will go to university; the Manitouwadge high school has the staff and facilities, including science laboratories, to prepare him. He's almost certain to be a star at college hockey, having skated since the age of two. Last winter he began instruction with the Manitouwadge Ski Club. Next summer he'll learn swimming at the community beach, run by a local service club, the Lions. His parents will be his instructors in bowling. The whole family can curl, skate, both roller and ice, play badminton or learn potting and how to produce a stage play at the community's recreation centre, a $1,050,000 gift of Geco Mines.

In the public library on the ground floor of the recreation centre, not only books but also records and paintings are for borrowing. Last year the library's circulation in a community of 3,300 reached the remarkable figure of 35,728. It gets fresh stocks every four months from the bookmobile that services the Thunder Bay region. When the librarian, Phyllis Bray, can't meet a request from a reader—instruction in Gaelic and the Ojibway language, for example—she telephones the Willroy mines, which sends a telex message to the Lakehead central library. There the staff tracks down the book, sometimes in university stacks as far away as Victoria on the Pacific coast. The Art Institute of Ontario, at a charge of $25 per exhibit, keeps the library walls lined with paintings. Alex Eymann, a Geco mill-worker who is a Sunday painter, showed 10 abstracts from what he calls his Manitouwadge series last October. There were buyers but the pictures were not for sale.

At Saturday night dances in the auditorium of the recreation centre, teen-agers and their parents frug and watusi to the big beat of a local combo. Later, at the Cinderella Cafe, they can order drinks and shrimp with lobster sauce. The Cinderella also caters to the cocktail parties in private homes that start with the first snow, usually in October, and continue until May, when the lake begins to thaw and in every backyard a family is scraping its boat. Benny Scapinello, who grew up on a farm in Italy, is one of the few who gardens during the short northern summer. The region's blackflies are more powerful than any insecticide; they drive most people out of their back yards on to the lake. Picnickers, during the summer-long fly season, either eat in their cars or develop a distinctive jerk. Women picking the blueberries and other wild fruits that grow in abundance near the townsite are bundled and veiled, like Victorians.

Black-flies aren't the only reminder of the wilderness at Manitouwadge's back. News stories in the community's weekly, *The Echo*, have the pungent flavour of the frontier. One recent front page was almost entirely occupied by an account of a Michigan hunter's finding what he thought was a human corpse in bush near the townsite. He telephoned the local office of the Ontario Provincial Police, which dispatched its available force and an ambulance at once. The corpse turned out to be a skinned bear left by another hunter. He had gone for help in hauling it to his car. But the incident created almost as much excitement as the night, a couple of years ago, when a party of miners ran amok in the cocktail lounge of the Manitouwadge Motor Hotel. The police were called, herded the offending miners outside and handcuffed them to trees, where they remained for several hours until they could be transported south to jail. Soon afterwards, the Ontario government added cells and a courtroom to the facilities of its model town.

For single men the north is still lonely and often dispiriting. Eligible women are scarcer in Manitouwadge than gourmet food (there's a good selection of that at the Tom Boy Supermarket or the town's new delicatessen). Geco's downtown bunkhouse is comfortable and even stylish, with individual thermostats, studio beds, shutters and a TV lounge—by company order, it's called the men's residence—but the chambermaids are male and the old isolation creeps in. Not surprisingly, many single miners prefer the Copper Lounge of the local hotel for their after-hours entertainment to the badminton courts of the recreation centre.

The bachelors are also more accident-prone than family men underground in the mine. Where the Benny Scapinellos wouldn't dream of walking without safety belts, some young miners insist on being adventurous. Besides being dark, the mines at Manitouwadge are deep. Last fall one young mucker, working with Benny, climbed into an equipment bucket instead of following Benny to the elevator. His clothes caught on a rock during the ascent and he fell 500 feet.

But Benny feels much safer in the dark pit, than he would, he says, in the construction industry. "I know that mine like my own living-room," he reassures Mariette. He points to the local mines' safety record, which, is, in fact, good.

Fire is no longer the menace to a mining community that it was when most of the homes were shacks. But with forest on all sides, it's still a threat. Manitouwadge is better protected than most other small communities, north or south. Its volunteer fire department has the latest equipment and regularly wins a national prize for efficiency.

For the most part, life in Manitouwadge is so secure and well ordered that some say it's dull. Certainly it's a disappointment to those who come with a dream of escaping civilization or the 20th century. They're too late coming. The new north is for the Benny Scapinellos, people who are sound builders, not souls in flight.

Yet the north kept its romantic attraction for men. Benny, like his boss, feels it powerfully. Whenever the Scapinellos are away from Manitouwadge, Benny is a little uneasy; he wants the wilderness at his back, the way a sailor has need of the sea. The north repays his love with a security that is deeper than the economic kind. Where else can a man, in 10 years, make not only a place for himself but an honoured place, as a pioneer? ■

Brave new worlds of higher learning.

On the mushrooming campuses of Ontario's newest universities, a choice of excellences. By John T. McLeod

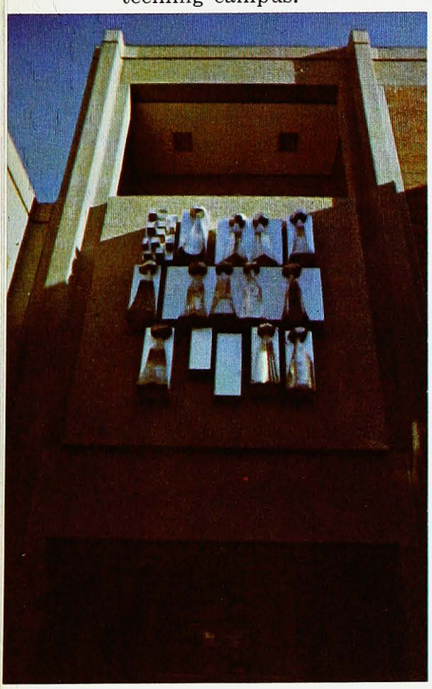
Without courage, it would have been impossible even to begin. The problem was, starting from scratch in 1957, how to create eight new universities in Ontario . . . and create them fast. There were no easy answers, no precise guidelines or ready-made blueprints. Yet, despite all the difficulties, novel solutions were found. Experience soon taught that you could start a new university in one of two ways: You could begin with a large, vacant meadow and fill it. Or you could take over a whole town. Unlikely solutions, it's true—but they happen to work. Peterborough (population 55,000) became a college city almost overnight. Its new Trent University has caught the citizens' imagination and directly involved the entire Peterborough community like nothing else in decades. On the northern outskirts of metropolitan Toronto, the site of York University was an empty field in 1964; now it's an imposing expanse of landscaped halls of learning. Construction will go forward on this campus continuously till at least

continued

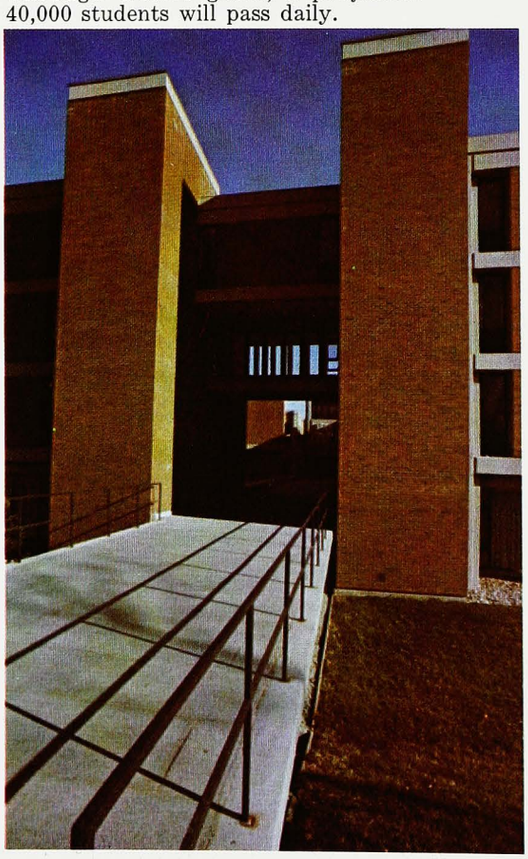
Trent University's 1500-acre campus has made Peterborough, Ont. a college town almost overnight.

But Trent's new buildings reflect humane values: the personal encounter, the human scale.

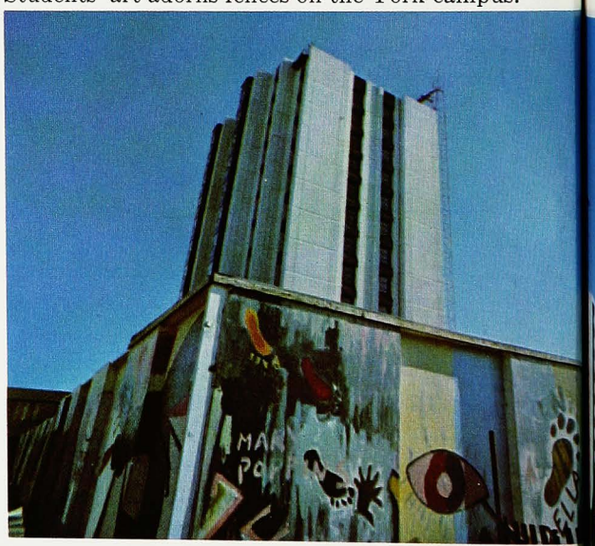
As recently as 1964, an empty field. Today it's York University's teeming campus.

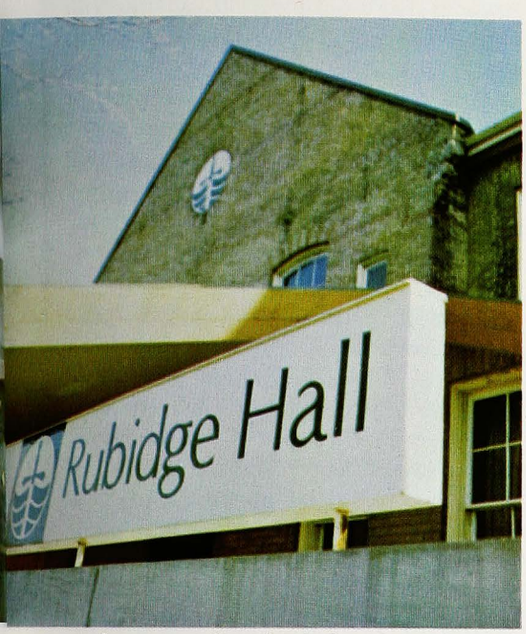


Through York's gates, a projected 40,000 students will pass daily.



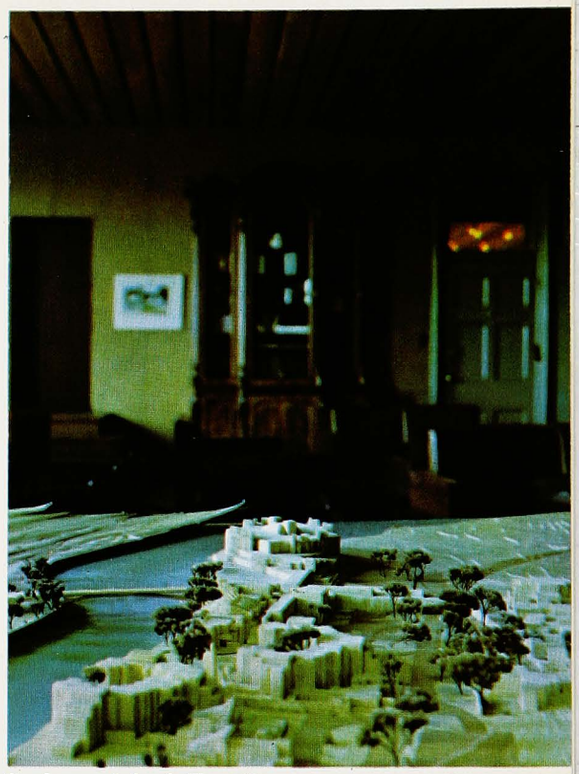
Students' art adorns fences on the York campus.





A community of scholars in make-shift quarters.

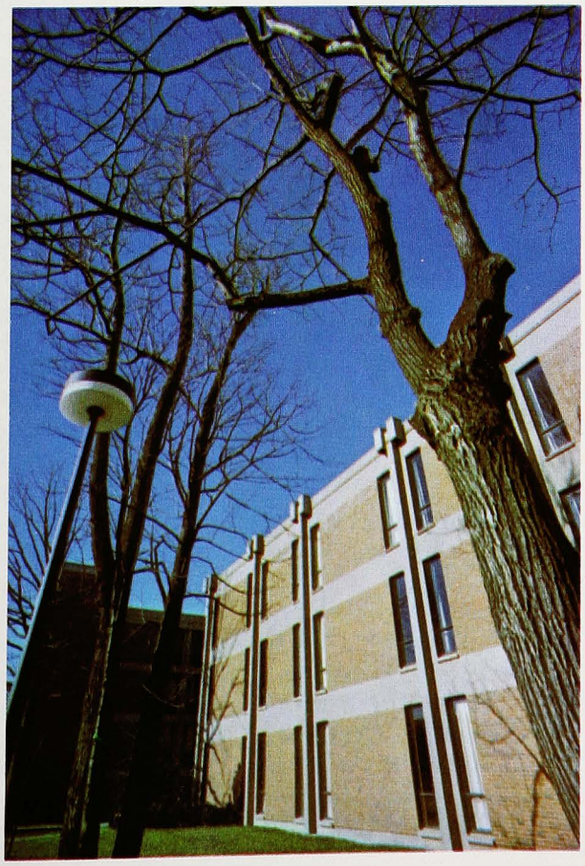
For Trent's students, individual study in graceful surroundings.



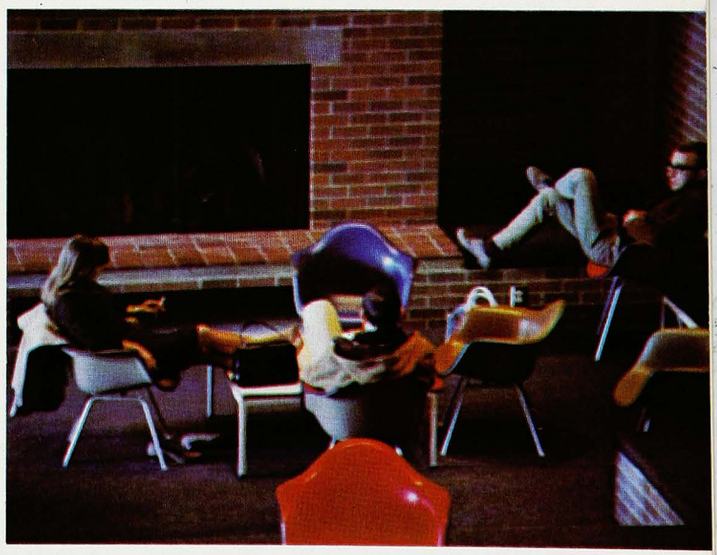
Scale-model of Trent's new campus. Architect Ron Thom's imaginative plan exploits a fine wooded site on the Otonabee river.

But more sophisticated work has permanent place.

Trees soften the face of a leviathan university. York's twelve colleges decentralize the system.



York students relax. All that's required of them is excellence.



1980, by which time the clover in the York meadow will have given place to some fifty new academic buildings providing facilities for new, thronging generations of students.

The mushrooming of new universities during the past ten years is one of the great Ontario success stories. It had to be. The "baby boom" of the 1940s, when the birth rate soared from 23.5 per thousand to 28.0 per thousand, threatened to overwhelm existing academic institutions in a wave of adolescents clamouring for degrees. Enrolment of full-time students in Ontario universities rocketed from 18 thousand in 1950 to 28 thousand in 1960 and 52 thousand in 1965. Estimates of enrolment for 1970 run to 100 thousand, and inevitably the curve will sweep much higher. With the best will in the world, the institutions existing in the mid-50s could not cope with such hordes. Unless qualified students were to be deprived of higher education, new universities had to be created in sweaty haste.

The pressure of time was crushing. Universities are not like hot-dog stands that can be thrown up on any street corner in five minutes. The great universities of the western world developed gradually through decades or centuries, their deep intellectual traditions mellowing with age. But the technological thrust of the mid-Twentieth Century did not permit Ontario the luxury of taking it easy. Lecture-halls, libraries, collegiate residences and platoons of well-trained professors had to be provided at break-neck speed to meet the crisis of numbers. "We have found in this age of instant coffee and even instant tea there is still no such thing as an instant university," ruefully admits Trent's President T. H. B. Symons. Yet the province's educational needs are being met with amazing rapidity.

The problem was made tougher by financial constraints. University expansion is staggeringly expensive. A recent investigation of the financing of higher education indicated that by 1971 annual requirements of Ontario universities will total $663 million. Ontario universities lack the flow of private bequests and huge grants from philanthropic foundations that many American institutions enjoy, and so must rely on governments and the taxpayer for educational funds. Governments are understandably reluctant to levy current taxes for future needs: citizens are disinclined to pay the costs of new facilities until the need is present and urgent. Yet, it takes careful planning and long-term spending to create universities in one decade which will be adequate for the mounting demands of the next.

In the face of these difficulties, experimentation and improvisation have been the rule. A small Veterinary and Agricultural College at Guelph suddenly blossomed out with an additional Arts and Science faculty and took the long stride to full university status. The giant University of Toronto (enrolment 24,000) spun off new satellite colleges in the suburbs of Erindale and Scarborough. A modest Catholic College in Windsor added a non-denominational college and bounced ahead to university rank, while completely new institutions sprang up in St. Catharines, Ottawa, Port Arthur, Sudbury and Waterloo.

Ontario now offers the student a wider choice of institutions and a more remarkable variety of educational experience than any other comparable area in the world. Most Canadian provinces and American states can point to two or three major, publicly-supported institutions of higher learning within their borders. Ontario had six in the early 1950s, and now boasts no fewer than fifteen, all in their own distinct ways striving for excellence.

Peterborough's Trent and Toronto's York University are in the vanguard of the search for academic excellence. They have developed new techniques for meeting expanding educational demands. Each has evolved a unique system, but both generate the kind of excitement that characterizes academic life in Ontario today.

"Pioneering—that's what the new universities are all about," says a young lecturer at York. "Canada has a strong pioneering tradition. The contemporary frontier is between the ears— the frontier of knowledge and civilization. If we on the faculty can't find new ways to cope with the legions of students pressing for admission, the game is up; this country will become an intellectual and technological backwater." "Higher education has always been dynamic," insists the University of Toronto's President Claude Bissell, "but now it is a reflection and a gauge of the dynamism of the whole society."

York University began its pioneering in 1960 when it accepted a little group of 74 freshmen. Classes met in an old brick house on the campus of the University of Toronto with which York was temporarily affiliated during its trial run. One year later the fledgling university moved to its new Glendon Hall facilities on a lovely ravine site. Then, in 1965 York leap-frogged further into the Toronto suburbs and opened its 475-acre main campus, leaving Glendon as a small separate liberal arts college for 1,000 students.

York's academic shock troops are led by President Murray Ross, a dapper, silver-haired administrator who wears the harrassed air of a mother with quintuplets. "A new university grows through three stages," says Dr. Ross: "In the honeymoon stage every idea seems possible, everyone on the staff is enthusiastic and there is terrific community interest and support. The second stage is the moment of truth, when the great enthusiasm and expectations meet reality and crash and crumble; when you have to learn to live on the money the government gives you; when you have to settle thousands of minor and major procedural, academic and administrative problems. The third stage is that of stability, when most of the problems have been settled and the general routine is established." Instead of sliding gently through these phases during two generations, Dr. Ross insists that York has reached stage three in an incredible six years.

Those years have been tumultuous. At first Dr. Ross hoped to preside over the birth of a small intimate college which could stand out against the contemporary trend toward mass education. But events and the swelling tide of undergraduates proved that his modest blueprints for growth were unrealistic. The relentless population pressures of the metropolitan Toronto area compelled a hurried expansion of all plans. Many members of the York faculty, disgruntled and genuinely frightened by the abrupt shift toward the concept of a Leviathan multiversity, resigned at a critical point of the university's development programme. Doggedly President Ross raised his sights. It was still possible he insisted, to make "the question of quantity a problem of quality." Hope persists that York's vast educational plant can maintain reasonable humanity if not intimacy. The staff-student ratio is being held low through vigorous recruitment of professors. Variety of educational experience is the objective of an artfully decentralized system of twelve colleges within the university. Narrow specialization of knowledge is being broken down by a carefully designed general course of interdisciplinary studies.

Situated in the much smaller city of Peterborough, Trent University has been less bedevilled by problems of size. With the marvellous advantage of a rolling, wooded 1,500 acre site on the sleepy Otanabee River, Trent is growing rapidly yet gracefully on the pattern of a

compact collegiate system. Clinging resolutely to traditionalist values, it represents a sort of minority report in education.

"We're actually trying to do things many other universities can pay only lip-service to," says President T. H. B. Symons, "Our aim is to be a community of scholars. This simple ideal remains relevant." Symons, a genial panda-like academic who became Trent's president at the age of thirty-three, is a contradictory conservative-radical. At the risk of seeming quaint in this streamlined era, he champions the passionate belief that "the full value of a liberal education can best be realized through the corporate life of small residential colleges. It is the conviction of Trent that a university education should personally engage each student in a dialogue with members of the faculty and with fellow students. To achieve this end, our teaching focuses on tutorial and seminar work in small groups."

This resistance to quantity and insistence on quality, together with President Symons' pervasive personal influence, had produced at Trent an exhilerating college spirit. The most casual visitor instantly perceives the devotion of both faculty and students to their scholarly community. "Involvement" is the key. To an astonishing degree everybody cares about the institution. "It's a truly civilized place," says a professor of English; "warm and humane," adds a Classicist. "I feel that the Trent experiment matters and that, in it, I matter," chimes in a student, while a Chemist who turned his back on industry in the United States and took a one-third cut in salary to join "all the right values are evident here, and in the right order."

Even more arresting is the degree to which the townspeople have been caught up in the Trent spirit. Peterborough wanted a university, pressed hard to get one established, and now that it's a reality the citizens feel it's theirs. Why not? They helped pay for it. In the founding year, 1963, a citizens' committee was set up to help in fund-raising. The committee allowed it would try to raise $1.5 million, an ambitious sum, then promptly delivered well over two million together with many other specific gifts and donations including 150 acres of prime land from Canadian General Electric. Professional fund raisers still shake their heads with astonishment that labour unions and salaried employees contributed more than $700,000. This was more, per capita, than any group had yet given to education, anywhere in the world.

Trent is determined to preserve this cordiality between town and gown, and to maintain its strong sense of community by fighting educational mass-production at every turn. It has several fairly spacious "teaching rooms" innumerable seminar rooms, but not one of the vast lecture theatres which characterize most modern universities. Mention even the one-thousand-member colleges of York, let alone York's projected total enrolment figure for 1980 (40,000 students), and the Trent faculty gives a small collective shudder.

"The special qualities of our plan are clear," Vice President Denis Smith explains: "Trent proposes to remain relatively small, with an undergraduate body of some four thousand students. We plan to make every student and every teacher a member of a college within the University, so that he will live and work in a small community of perhaps 300 to 400 persons, representing all faculties and departments of learning. We plan that about 75 per cent of the student body will live in the residential colleges, so that their entire life, for three or four years, will be centred on their academic task. We teach by the tutorial and seminar method, reducing drastically the number of lectures. We intend to make education at Trent an exciting personal dialogue, and to restore some of the advantages of communal, residential academic life that tend to be lost or ignored in the bustle of modern education."

York spokesmen snort with indignation at any suggestion that the size of their university results in assembly-line teaching or any reduction in the quality of instruction. There are certain undoubted advantages to being big. A large university has a large budget. It can afford to pursue interesting experiments with varied curricula and new teaching techniques, including the use of closed-circuit television with top teachers available on video-tape, as well as some small-group instruction. Size affords York the considerable assets of a huge library plus massive investment in research facilities and the best laboratory equipment.

High-powered specialization is more likely to flourish in the large institution. York has already made impressive strides toward the establishment of a novel Faculty of Administrative Studies, permitting emphasis on both Business and Public Administration. Aggressive recruitment of specialists from Britain and the United States with common research interests has enabled York to establish reputable post-graduate studies even at the doctoral level, notably through its Centre for Research in Experimental Space Science. In certain disciplines such as psychology and the natural sciences, York's faculty has already achieved national pre-eminence. This is an institution which demands the highest standards of academic performance from its staff and students; it scoffs at second-rate provincialism or stop-gap expedients to deal with undergraduate mobs, but impatiently aims at international distinction.

By contrast, Trent's more modest aspirations centre on excellence in its face-to-face teaching, instilling in its students a profound sense of civilized values. If York is remarkable for its big departments of hard-nosed research specialists rushing ahead with exciting projects, Trent takes quiet pride in the solid, distinctive character of its scholarly community. The stark differences in their educational approaches are evident not only in their educational philosophies but even in the architecture of the two institutions. York's cleanly efficient campus is impressive but not memorable. Its sheer size and complexity dictated that a whole team of designers, a group called University Planners, Architects and Consulting Engineers, had to be employed in developing the sprawling site.

Trent's elegant buildings and even the designs of its furniture are the product of a single creative mind, that of its architect, Ron Thom. Although Trent lacks grandeur, it rejoices in an abundance of style and architectural panache. Mr. Thom worked closely with the administration and the faculty to meet the requirements of collegiate life in meticulous and handsome detail. "We believe in the basic role of architecture in fulfilling the University's intentions," observed Vice-President Smith. "Surroundings reflect values, and the University should be a place of aesthetic as well as intellectual stimulation." When completed, the Trent campus will rank as one of the foremost ornaments of functional design in Canada.

Wherever one looks in Ontario's groves of academe, from the charm of Trent to the aspiration of York, the rich mosaic of higher education reflects the response of men and institutions to the demands of a restless and impatient society. In a compressed period of time a revolution has taken place in the provision of new educational opportunities. Challenges met and obstacles overcome in the multi-faceted university community have brought fulfilment to present needs and promise for the future.

O wonderful cheese!

O beautiful beer!

Just Two of Ontario's Good Things
By Robert Thomas Allen

A visitor to Ontario, if he tastes nothing else, should sample Ontario cheddar cheese and a bottle of Ontario beer, and preferably both at the same sitting, as they go well together. Ontario cheddar is made from raw milk (the prescribed sixty-day holding period destroys any harmful bacteria) which gives it its special flavour, and the pillow-shaped dollops of curd are stacked in the vats until they're the right texture—the cheddaring process from which it gets its name. Before the cheese has begun to mature, it's a peculiar substance that's rather fun to chew, and makes your teeth squeak, but it has no taste. But after ripening for nine months to two years, it crumbles in your fingers and has a savoury, maddening sharp tang of fermentation that gives Ontario-cheese eaters a peculiar euphoric stare.

Ontario beer, which forms a fine white collar, gets its flavour, bouquet and bitterness from the resins of a British Columbia hop and other ingredients kept as secret as a blueprint for a moon-missile. But you don't need to know what they are to appreciate the flavour. It's a beer with enough carbon dioxide dissolved in it to give it a bite, and should be served chilled. A brewmaster, peering into his great steaming kettles and walking down the aisles between vats the size of small skating rinks, with suds three-feet high spilling over the top and giving the place a smell like that of apples, tries to describe the character of Ontario beer by saying it has "roll" to it or it's "mellow," and searches for other adjectives that mean he thinks anybody who has to drink other kinds of beer is having a run of bad luck.

Other cheeses are now made in Ontario: Cherry Hill Gouda; stracchino, a fresh-butter coloured Italian cheese made in the town of Schomberg near Toronto. Quebec brewers now have major plants in Ontario, and Ontario breweries are now making other types of beer. Labatt's now brew Guinness and Carling's make Toby Ale on license with Charrington Brewers of England. But most natives of Ontario, including myself, have a secret conviction that Ontario beer and cheese possess mysterious and inexplicable properties of goodness bestowed by an inscrutable providence. My father, who is spry and in top-notch health at ninety-one, and who hasn't even retired yet from his trade of jewellery repairman, is dedicated to the peculiar rejuvenating properties of Labatt's Pilsener, and attributes his health and longevity to having two bottles of it every morning. "I've never had a cold

or a touch of arthritis since I started drinking it seventeen years ago," he'll say. "Sleep like a top, too."

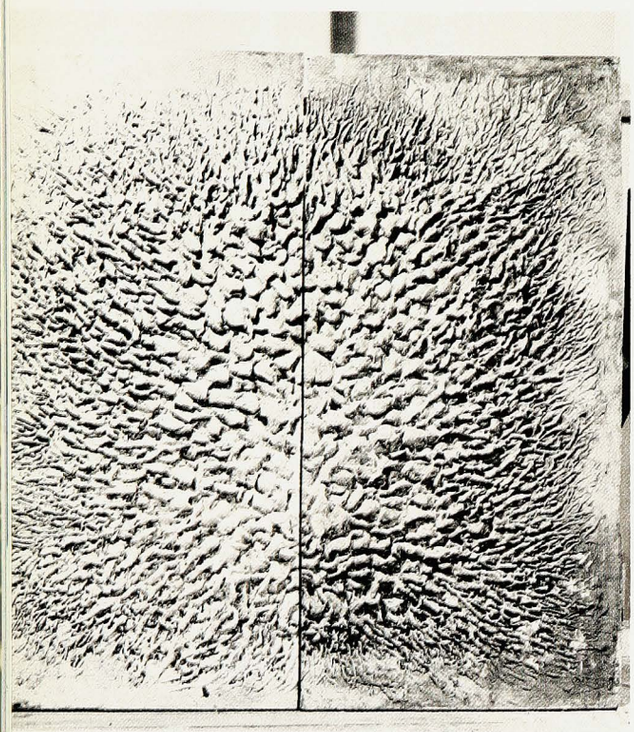
A while ago, down around the rolling farmlands of the Bay of Quinte I ran into a cheesemaker with the same spirit. He operated one of the factories that supply cheese to the Black Diamond Company, and he was rigged up in a white outfit and looked aseptic and as progressive as an astronaut, but underneath he had basically the same mystic feeling about Ontario cheese as my father has about Ontario beer, and put its excellence down to a strip of pastureland left by the ice age, as if an act of God was not an unfitting cause for Ontario cheddar cheese. "*Well*, now, by gollies, I couldn't just tell you what it is," he said. "Just something left by those glaciers a long time ago." He took a secret supply of cheese from a small ice box, and cut me a chunk and took one himself and we both stood there chewing reflectively and agreeing that you can't beat an ice-age when it comes to producing the best cheese.

Good beer and cheese have been made in Ontario since before Canada had one name. John Labatt, an Irish immigrant farmer, started his brewery in London, Ontario in 1838, six years after the arrival of a five-year-old boy from Cork, Eugene O'Keefe, who was to found the Toronto brewery that now makes O'Keefe Ale and Old Vienna Lager. There were many small breweries throughout the country. The German settlers in the Kitchener-Waterloo area were great beer makers. David Kuntz built his own brewery by hand in Waterloo in 1844 and began brewing beer in a wash boiler and delivering it at night on a wheelbarrow and depositing his cash receipts in an empty beer barrel. Kuntz Breweries which were subsequently taken over by Carlings, the makers of Red Cap Ale and Black Label Lager, have special associations with my boyhood. I grew up with a member of the Kuntz family whose father, although he didn't inherit the brewery money, apparently inherited the recipe, for he used to make magnificent beer down his cellar during the depression, which an uncle by marriage, a huge, gentle, black-browed Scot with the Canadian National Railways, used to clean out every now and then at one sitting, gently scratching his chest and singing The Campbells are Coming.

Farmhouse cheese was made by the first settlers of Upper Canada, but it was put on a commercial basis by a man named Harvey Farrington from Herkimer, New York, who adopted Ontario as his home. He was a fine, respected man but, due to the state of photography of the day, he now peers blearily out of old photographs like a captured train robber. He built a cheese factory near Norwich in Western Ontario in 1864, and a hundred years later, 1,300 devout Canadian cheese-eaters attended the unveiling of a cairn and plaque erected by people who thought he'd been shamefully neglected in the annals of the country.

In the 1860s, Ontario cheesemakers were seized by a strange madness to produce big cheeses. The first was made in 1866 by the James Harris factory near Ingersoll, Ontario, and was photographed with 19 people sitting or standing on top of it. It weighed 7,300 pounds and a man named James McIntyre wrote a six-stanza poem about it beginning "We have seen thee, queen of cheese, Lying quietly at your ease, Gently fanned by the evening breeze . . ." which, oddly, didn't prevent its being sold to a Liverpool buyer. In 1893 in the town of Perth, a cheese weighing 22,000 pounds was made from the milk of 10,000 cows, loaded onto two flat cars and shipped to the Chicago World's Fair, where it broke through the floor of the Dairy Exhibit Building. It was bought by Sir Thomas Lipton, an event marred by some scoundrel spreading the rumour that it had gone bad. Lipton cancelled the purchase and it was bought by Jubal Webb, a caterer in London, England, who was rewarded for not listening to rumours, because it was a perfectly wonderful cheese. Ontario still makes wonderful cheese, which brings premium prices on the English market 100 miles from the Somerset town of Cheddar where it was invented, and equally wonderful beer, which is being served as a special treat to beer drinkers throughout the world, all of which to someone from Ontario is nothing to be surprised at.

Towards a multi-sensory art.



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Sculpture for the Space Age
By Hugo McPherson

In Ontario, as elsewhere in North America, sculpture once meant marble statues of Aurora holding up lampshades beside father's chair; in parks it meant gargantuan bronze soldiers or ill-graven images of politicians and hydro developers, often attended by night-gowned goddesses offering wreaths; and in architecture it meant anything from tangled floral ornaments and coats of arms to sterile allegories in low relief extolling Commerce, Prudence, Industry, and even—with a dying fall—the Muses. But to-day a genuine dawn has arrived: young sculptors have discovered that they are citizens, not exiles in Beaux-Artsville; instead of making ornaments they are exploring the mind and the technology of their age. Some are even creating complete "environments" which define in new ways the relations between volume, colour, texture, light and sound. And collectors and museums have grown so hospitable to both native and international artists that Ontario is now entering a new age of "public" sculpture.

Man and his rituals remain a leading subject of much of the new work. George Wallace's nudes—images of man seen as

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a bare, fork'd animal—carry us back to the Renaissance and forward into a perplexed space-age. The figures are hollow—time-worn skins of welded wire, at once heroic and pathetic. One of these heroes wears a chrome helmet of twisted auto-bumpers. another, Daedalus, is a paunchy old businessman with wilted, sheet-metal wings; a third, one of the thieves on Mount Calvary, is a horrifying hanged nude suggesting all the grossness and deformity of fallen man.

In the classic medium of bronze Robert Hedrick has cast doors for a, Torah Ark which develop the Tree of Life theme in a manner worthy of Mark Tobey's sophisticated calligraphy; Harold Town's baroque gold tree, a fountain which may be seen at Expo 67, pits a contemporary vision against the exacting demands of bronze casting; and Sorel Etrog creates soaring abstract bronzes which suggest human strength and dignity.

Turning to the subtle sex, Michael Snow uses the silhouette of a nubile walking woman as his presiding image—a figure which may finally become as well-known as Marini's man on horseback. In paint, film, and construction, Snow has explored the implications of this North-American dreamboat; she stands in cardboard outline among tired, real-life females waiting for a bus; she is seen in many states of dress and undress; and as an image for esthetic analysis she becomes the subject of studies in perspective, colour, subject and ground, image and after-image. Very often she is glimpsed just entering or leaving the composition: we know her by her anterior and posterior profiles.

New materials—vinyl, perspex, stainless steel, aluminum, fibreglass, and *ciment fondu*—are important in the work of Snow and others. Toronto's Ted Bieler, for example, created a two-storey-high sculpture wall for the Expo 67 Administration Building by using styrofoam moulds: with a taut, electrically-heated wire for a saw, he cut huge blocks of the plastic into undulating forms; workmen completed the task by pouring tons of concrete into the prepared space. Gerald Gladstone's space-age sculpture is made of prefabricated steel saucers, cones, and rods which he welds into rhythmic structures bearing such titles as "Moon Orbit" or "Reclining Female Galaxy." Greg Curnoe, London's self-styled nihilist, uses plywood, a wild assortment of enamels or fluorescent colours, and a child's printing set to create such objects as a revolving disk on which the names of thinkers from Heraclitus to

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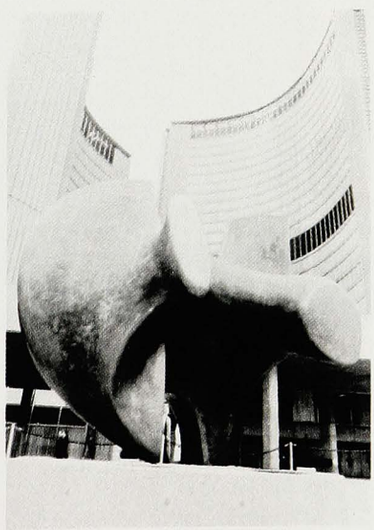

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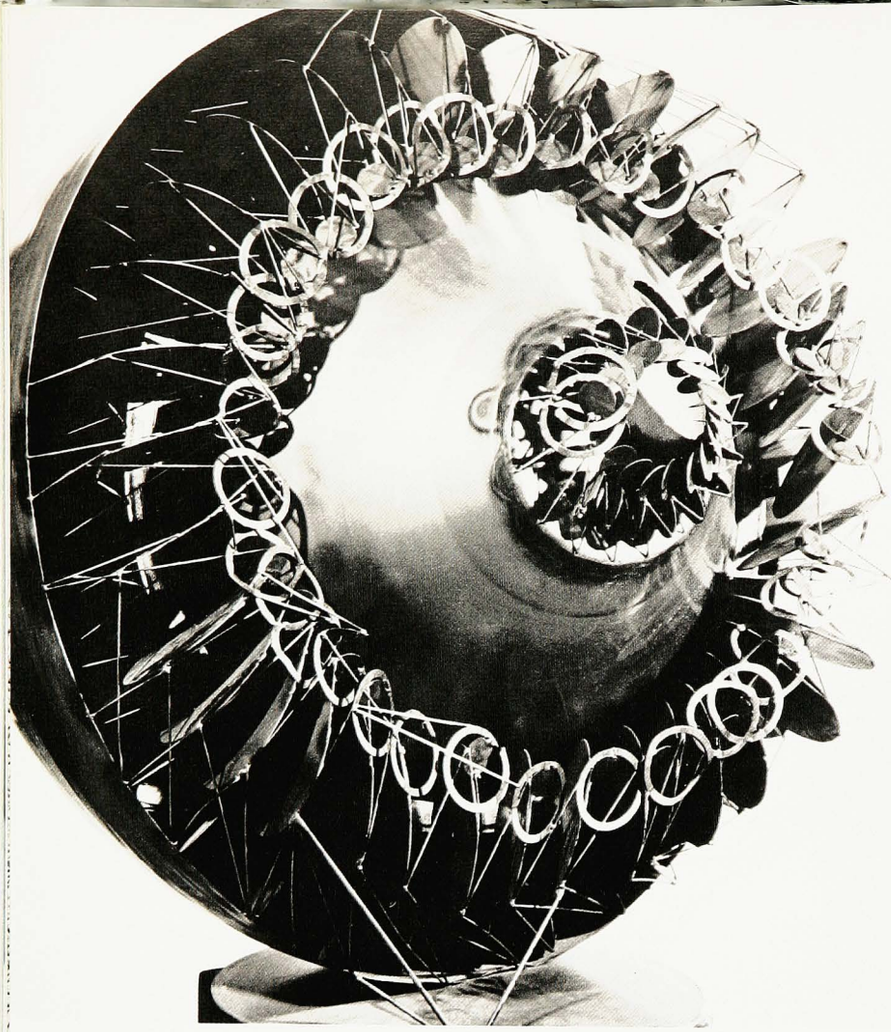
1. Model, Bronze Doors for Emanuel Synagogue, 1964, By Robert Hedrick. (Bronze) Morris Gallery, Toronto.

2. Lazarus, 1961, By George Wallace. (Welded Steel).

3. Study for a Baroque Tree, 1962-67, By Harold Town. (Hydrocal over welded, expanded, road lathe and copper screen.) Mazelow Gallery, Toronto.

4. Bust of Baiadera, 1964, By Sorel Etrog. (Bronze) Gallery Moos Ltd., Toronto.

5. Three way piece Number Two (Archer), 1963-64, By Henry Moore. (Bronze).



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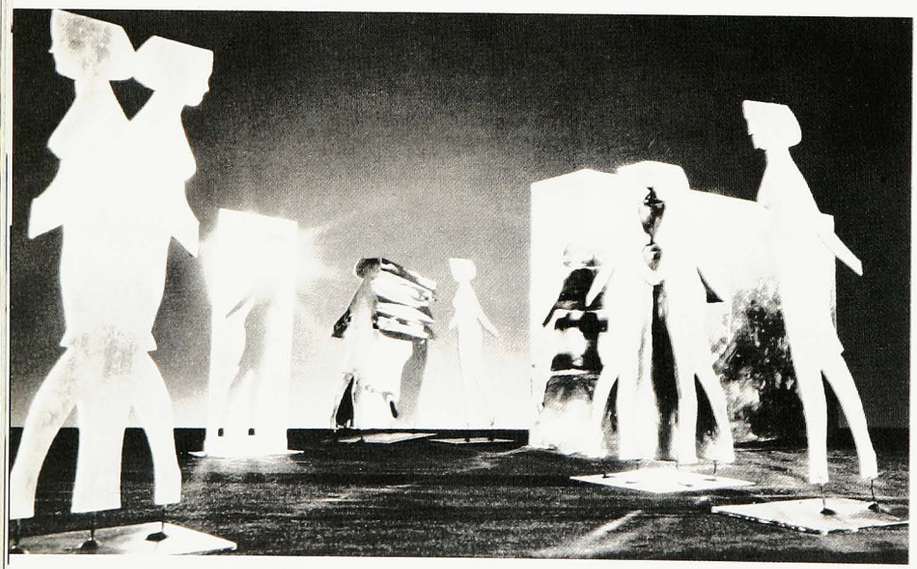

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6. Moon, 1963,
By Gerald Gladstone,
(Welded Steel).

7. Environmental Sculpture—
Walking Woman, 1966,
By Michael Snow
(Stainless Steel).
Isaacs Gallery, Toronto.

8. Tower "B", 1966,
By Walter Yarwood.
(Cast and sawn aluminum)
Mazelow Gallery, Toronto.

9. Slipcover, By Les Levine
Art Gallery of Ontario
Sept./Oct. 1966

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Marx are printed in random order.

More important than the new materials is the sculptor's new insistence on the multi-sensory nature of his art. He creates a total experience in which the resources of painting, drawing, photography, modelling, and mechanical engineering may all be introduced. Two recent experiments at the Art Gallery of Ontario in Toronto converted a gallery into a complete "environment" so that the viewer could enter the work of art and wander about in it. The first, 23-year-old Ziggy Blazeje's "Audio-Kinetic Environment," was a dark room containing a variety of geometrical constructions in wood and plastic—some on the walls, some hanging in space, and some standing on the floor or revolving mechanically. The complicated lighting system was governed by a recording of electronic music which converted the sound impulses into a keyboard of light. As the music played, the light rose and fell; in some tonalities the room became dark, and ultra-violet light produced new and exotic fluorescent colour patterns.

The second work, "Slipcover, a theatrical place," was created by Les Levine, another artist in his twenties. In this environment the walls, ceiling and floor were covered with mylar, the mercury-bright plastic which produces effects like the distorting mirrors of a circus fun-house. This reflecting space was almost filled by a flexible structure resembling eight giant pillowcases, also mylar-coated, which inflated and deflated at random. At the same time, programmed spotlights flashed a bewildering variety of colours throughout the space; a closed circuit television image showed people arriving at the exhibition; and two speakers gave a delayed broadcast of the conversation and noises in the gallery. As Levine hoped, many visitors experienced novel sensations in this fluid environment. Some lay down on the floor and watched the spectacle as Walt Whitman might have lain on the grass and watched the progress of a summer day.

In sum, sculpture is enjoying a vigorous new life in Ontario. As sign and symbol of the change, one of Henry Moore's most distinguished abstract bronzes, "The Archer", has been placed in Toronto's city hall plaza as part of the public environment that this generation wishes to enjoy. It will speak for the international consciousness of the new generation of sculptors, and for their concern not with monuments but with the awareness of space, plastic values, and the hopes of a new age. ■

DISCOVERIES

ONTARIO RESEARCH

Ideas play in the minds of all men. Unlike natural resources which are bestowed lavishly on some regions and meanly on others, inventions and discoveries occur everywhere. Ontario has had its share. Insulin was first synthesized here in 1922; the electron microscope was developed here; also the idea of time zones, the paint-roller, pablum and instant potatoes. Ontario technology developed the battery-free radio, the hydrofoil boat, and the electric cooking oven. Research here goes all the way back to 1796 when Allen MacIntosh developed his famous apple.

Barr Bodies. Boy or girl?

The sex of an unborn child, now deliciously agonized over through nine long months of pregnancy, need no longer be a mystery. Nor need the sex of badly mutilated bodies; nor the true sex of infants born with undistinguishable sexual organs, nor even the original gender of long preserved Egyptian mummies. Human cells bear a sexual signature, an unmistakeable imprint that identifies them as male or female. Romantics, who have always revelled in "la différence", will not be surprised that the obvious difference between the sexes is evident in even the smallest of human cells. Medical researchers, though, were incredulous when Murray Barr of the University of Western Ontario announced that a cell mass they had puzzled over for a century was simply a sexual indicator of the cell and its donor. Incredulity has long since given way to acclaim and recognition. Dr. Barr enjoys the distinction of seeing his cell-masses (formerly called sex chromatin) renamed Barr Bodies.

A key for astronomers.

The pure scientist, like some latter-day Columbus, sets out on an uncharted course and often makes discoveries beyond his imagining. Harry Welsh, a pure physicist at the University of Toronto, set out to explore the properties of oxygen molecules. His findings, important enough in his own terms, have provided an unexpected bonanza of information for space scientists and astronomers. To "see" collisions between molecules was the problem, collisions conjectured about, but never proved. Not only has Welsh succeeded in seeing them collide, but he can now ingeniously manipulate these collisions through a phenomenon he discovered—pressure-induced infrared absorption. The name invokes, perhaps, no poetic image, but using Welsh's discovery, astronomers are now proving the existence of rare gases on the planets —inert gases like neon, argon, krypton, xenon—whose presence may affect man's future in space.

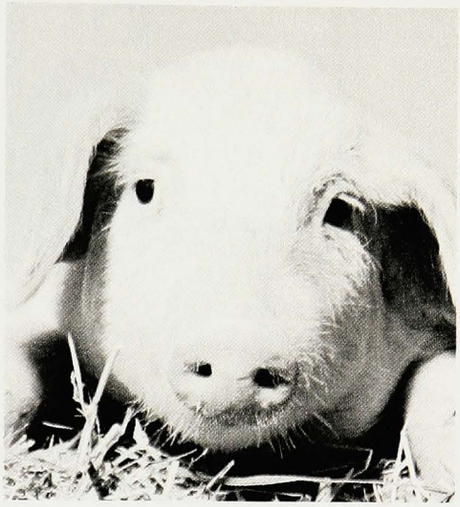
Battlefield computer.

Like an overweight general slimmed down for active duty, the military computer has been reduced to fighting weight, moved out of its plush air-conditioned berth at the rear and into the firing line. Computing Devices of Canada, situated just outside Ottawa, has ingeniously packed $100,000 of computing capability into a metal box no bigger than a typewriter. It can digest facts and give orders right in the field. Since the first portable computer came off the production-line in the Fall of 1966, these sturdy peripatetic brains have been mounted in the planes, ships and tanks of Britain, Canada, and the United States and Germany, to navigate, to interpret radar and sonar signals and to control firing systems.

By Barbara Frum

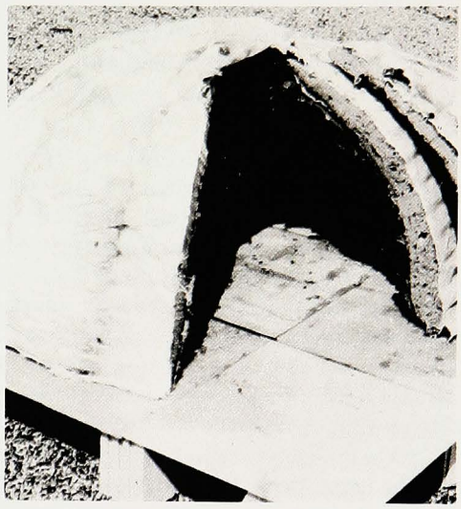
A better rabies-shot.

Agonizing death by rabies still claims thousands throughout the world. It's a slow, relentless strangulation, with convulsions and frothings at the mouth while mental powers remain cruelly unimpaired. Now, doctors at Ontario's Connaught Laboratories have made the first real improvement in rabies treatment since Pasteur's original vaccine. They have developed the first effective alternative to the century-old treatment of painful injections into the stomach wall every day for two long weeks. So unpleasant is the Pasteur treatment that doctors have to weigh its inevitable side-effects against the probability of rabies resulting from the bite. Connaught's vaccine will end this doctors' dilemma. At present the new vaccine is being tested as a rabies preventative for persons most exposed to risk—veterinarians, foresters, naturalists. Its full benefit to mankind will come to fruition once it is released to combat the worldwide scourge of rabies.



It's Superswine!

Charles Lamb once took six pages to pay homage to the suckling pig. "The fat and lean so blended and running into each other," he gloated, "that both together make but one ambrosian result." In 1967, even more fulsome language would be needed to describe the attributes of Connaught's new breed of swine. C-3 (only her name is inadequate) is a superior sort of swine. A healthier, happier, hammier, more prolific, more long-lived pig. And her offspring? Superior in every way to the three swine strains that begot them. It took Connaught six years and 150 experimental matings to get the right cross-breeding formula. Now they have a pig that drops twenty piglets a year instead of twelve, piglets that are ready for market forty to eighty days sooner, and are six to eight pounds meatier when they get there. The only remaining problem is to convince conservative farmers that C-3 and her C-4 offspring should replace the inferior purebreds they now raise.

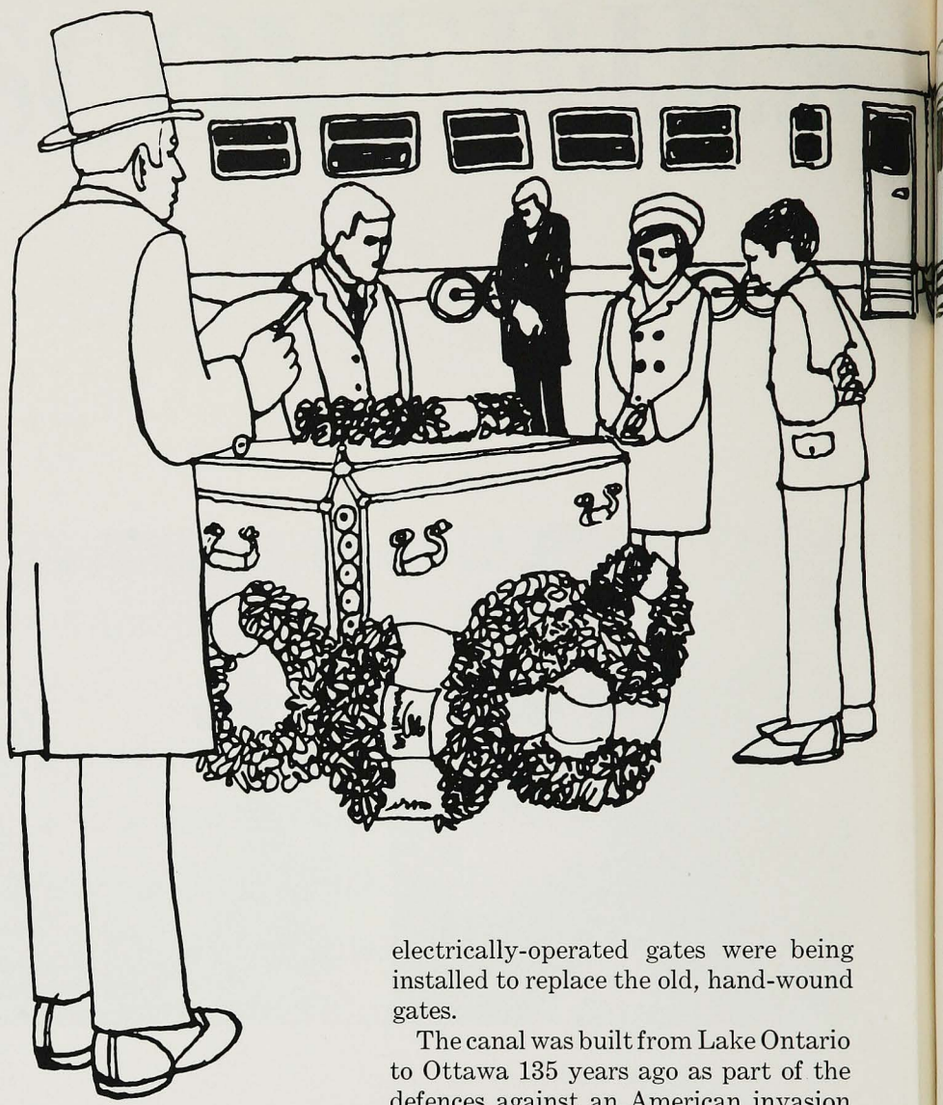


Instant shelter.

With a whoosh of exploding gases, the walls of a revolutionary pre-fabricated shelter magically erect themselves. Ontario Research Foundation in Toronto has developed an inflatable igloo, an instant shelter initially designed for the Arctic, but adaptable to other environments, including the jungle. The igloo is transported to the site in the form of flexible, lightweight plastic sheets that have been quilted with gas pellets. The mere touch of a lighted match starts the chain reaction—heating the plastic to melt the pellets which then release gas to push out the soft plastic sheets into rigid, four inch thick walls. The wall segments just need to be heat-sealed together to form the required shelter, perhaps an instant field military hospital, or a protective cover for air crash victims downed in the wilderness waiting for rescue; or more prosaically, huts for moose-hunters and ice-fishermen off for a weekend in the bush. ■

PROVINCIAL QUIRKS

By Ron Haggart



The Polar Bear Express is the only passenger train in Canada that will stop anywhere to take on or let off a passenger. Stations are few along the 186-mile run from Cochrane to Moosonee, on an arm of Hudson's Bay, backed up from a beaver dam. Baggagemen on the train have had to battle teams of snarling husky dogs being shipped from one trap line to another. The Polar Bear Express once stopped, and waited, while a clergyman conducted a funeral service at a lonely outpost. A moose occasionally squats on the tracks, and the Polar Bear Express stops and waits. The Polar Bear Express really did encounter a polar bear on the tracks in the late 1960s, although they are not usually found so far south. It is a romantic railroad (the Ontario Northland, owned by the provincial government) but a modern one: the tracks are patrolled by helicopter to watch for the beaver-dam washouts.

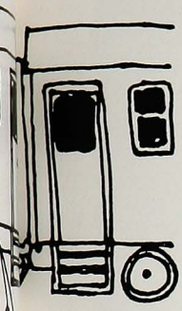
The Parks Commissioner of Metropolitan Toronto, Thomas W. Thompson, has become considerably more famous than is usual for civil servants in Canada. He wrote a single phrase and put it on signs which are to be found in all the parks under his control, a phrase so shocking that visitors to his parks invariably remember it. The signs say: PLEASE WALK ON THE GRASS.

In one hermetically-sealed factory in Ontario, where the air is controlled to contain not a speck of dust, workers who have scrubbed-up like surgeons work on delicate gyroscopes for the space age; similar factories in Ontario make computers, rocket parts, colour TV sets and pharmaceuticals that can be measured with the weight of a hair. Sometimes, however, there is no other way to solve a problem but the old way, and clear proof of this was offered not long ago on the Rideau Canal when modern, electrically-operated gates were being installed to replace the old, hand-wound gates.

The canal was built from Lake Ontario to Ottawa 135 years ago as part of the defences against an American invasion which never came. The largest invasion the Rideau Canal has ever seen is of American yachts, for the canal, where passage through the locks is free, is used only by pleasure boats.

After one set of electrically-operated gates was installed near the village Newboro, it was discovered that although the gates now operated with marvelous push-button ease, they had one disadvantage over the old gates. They leaked. The solution was found in the journals of the British army engineers who had built the canal in the 19th Century. From nearby farms, the canal workers gathered two truckloads of horse manure, and dumped their cargo straight into the water in the locks. The manure became diffused in the water and neatly sealed the gates, not quite so tightly as the hermetically-sealed factory, perhaps, but well enough for a canal gate. Everyone was tremendously pleased except the landowners downstream.

The transit authority in Toronto makes the proud boast that it operates the only subway in the world that



is scrubbed down every night.

The predominant colour of downtown Toronto is the gray of concrete. But in the summertime the commercial streets suddenly display a daub of colour; at the base of the whey-faced financial buildings there is a joyous smear of lipstick, for with the summer comes the blossoming of the vendors' barrows which sell only one product: bright pink and red rosebuds. The street barrows have another asset: marvelously pretty girls to tend them. They park outside banks and trust companies, around the corner from the Stock Exchange and in the busy railway terminal. You can buy a single rosebud, or three, or a barrowful, but rosebuds are the only product on sale except, of course, for impulse and chivalry. Furrow-browed lawyers, stockbrokers, mining promoters, insurance and shipping men, have been seen to stop, to smile, to chat, and then to hurry on with a rosebud. For whom? It is not unusual for men to buy a rosebud and hand it back to the girl at the barrow. But not many men can face the rigours of walking down the financial canyon of Bay Street with a handful of rose buds; many have been seen leaving the street barrows, stuffing rosebuds into a briefcase.

On a single August day on King St., in front of the headquarters of a bank, a pretty 20-year-old Finnish girl named Anneli Erkkila sold 3,000 rosebuds, almost all of them to men.

The fad among teenage boys to wear their hair shoulder-length had perplexed many school principals, to say nothing of pedestrians wondering which is the boy and which his girlfriend. In one Ottawa high school, a 16-year-old was sent home from classes to have his hair cut, and then asked to leave the school because he missed so many classes. But in Toronto, a 16-year-old was allowed to remain at school; all he had to do was sit in the hallway to receive his lessons. In yet another Toronto high school, four or five boys grew their hair to shoulder-length and remained in their regular classes. The story of the Ottawa boy had a happy ending: He inserted a job-wanted newspaper advertisement claiming that he was neat and intelligent but had "long hair for musical purposes." The owner of a music store decided that was exactly what he needed behind his record counter. Said the store owner: "Some boys prefer their hair long. So what? When I was young, anybody caught wearing anything but bell bottom trousers was an oddball."

Is there anywhere in the world where liquor laws do not provide the fodder for local wisecracks? In Ontario, this is particularly true. At one motor hotel in the suburbs of Ottawa, the guests sleep in rooms located in the municipality of Gloucester Township, which is bone dry, where no liquor can be legally served at all. But the guests can still drink, providing they walk across the lobby into the cocktail bar, which is in the same building, but conveniently across the boundary in the city of Ottawa, where liquor is legal. In an Ontario bar, a patron may only have one drink in front of him at a time. This makes it legal to have a shot of rye whiskey and bottle of beer on the table simultaneously, for that is the popular Canadian drink called a Boilermarker. But if the waiter brings a glass of water, he's breaking the law. The patron then has two drinks in front of him, rye-and-water, and a beer.

Queen Juliana of the Netherlands made a gift to Ottawa of 20,000 tulip bulbs, and an annual gift thereafter, as her thank-you to Canada's capital city for her wartime stay. In the spring, the canal-side driveways of Ottawa bloom with well over one million perfect tulips, a blaze of colour along 45 miles of winding road. One display of 121,000 tulips is said to be the largest public display in North America. But spring can be uncertain in the continental climate of Ottawa. In some locations, underground steam pipes help Queen Juliana's tulips to hurry the announcement of spring. ■

BIG CITY

GROWING UP WITH TORONTO

By Peter Gzowski

ALTHOUGH MY FAVOURITE hotel is not Toronto's oldest or its largest or most expensive, it has always seemed to me to have great dignity. Ladies with blue hair live here, sometimes with their maids, and men with colonels' moustaches and two-hundred-dollar overcoats stride purposefully through its lobbies. The Prime Minister of Canada usually stays here when he's in Toronto. Its dining rooms are good places for a writer of travel books to meet his publisher, or for a government biochemist to entertain a visiting delegation of his colleagues from Ceylon. It is quiet and spacious, and people are polite to you, and its book-store is one of the best places in Toronto to stock up for your children. My hotel *is* Toronto, you see. It is dignified and calm and pleasant. But it is also changing, becoming alive, sometimes scandalous, and the people who are changing it are part of a whole new breed.

I WAS BORN—if I may insert a self-congratulatory note—at precisely the right time in Toronto's history: 1934. One or two years either way wouldn't have made much difference, of course. The point was to come of age with the city, and entering your twenties in the 1950s and your thirties in the 1960s was the way to do that. Now while I am still younger than at least four players on the Toronto Maple Leaf hockey team, (although older than at least one member of the provincial parliament), I feel very much as if Toronto were my city. I, and my generation, hold Toronto in much the same affection as, for instance, a certain group of writers held New York at the turn of the last century, or Paris of the 1920s. It is our town, and we are the first people who are enjoying it as it grows near to its real potential as a city.

My favourite hotel was born in the 1930s too. It stood incomplete and empty for a few years when its original builders, like so many people in those days, ran out of money. After the second war, when Toronto began again to swirl with prosperity, it survived on the carriage-trade and in the 1950s, with Toronto one of the fastest-growing cities in the world, it added a sweeping new wing, with displays for boutiques, a new intimate cocktail bar and a new grand restaurant. It too has come of age with the city.

I WONDER if I can explain exactly what I mean by coming of age. Unlike most of the people I know in Toronto—Toronto is very much like New York in this respect—I was born here. Within a two-mile radius of the city's heart are the hospital where both of my parents and I and all of my children were born; the nursery school where I learned to double on triangle and tambourine; the sprawling university where I studied literature and beer and pretty girls and, later, in one of whose several quiet chapels I was married; the house I now live in—the eighteenth Toronto address I have had, I now realize—and even the island cottage where I, like my great-grandfather in the 1890s, spend my summers. And yet the most striking aspect of the city to me is its constant surprise. Even within the two-mile radius where I've lived almost all my life, there is scarcely a corner I can turn and see the city I knew as a child. New buildings, new stores, new parks. Old streets closed off, new throughways slashed through the ravines. Old houses stripped and gutted and rebuilt into "town" houses (as if someone had moved them). High-rise apartments soaring everywhere—swimming pools in the sky. New marketplaces created out of old, and now called malls or mewses. Street-car and bus-lines, whose stops I could once recite like the catechism—gone forever, made instantly obsolete by the subway system. A new, world-famous city hall. A hulking new theatre. A whole new Bohemian "village," literally a village in its self-containment, of long-haired, turned-on, dropped-out young people, right in the middle of the city—so that the quiet restaurant once run by two middle-aged ladies where, in 1955, my grandfather held a small gathering of our family, and over the strawberry shortcake presented me with a crested ring, is now a raucous, joyous discotheque which, I understand, excludes everybody over twenty-one.

But those are physical changes, and no more indicative of a city's coming of age than a shirt size would be of a man's. It is the other kind of change that holds my attention on Toronto. I can remember—not remember reading about, but *remember*—a Toronto when it was illegal to sell liquor by the glass, or to go to a movie on Sunday; when there was a law against sun-bathing in the park, when the mayor made an outraged speech because the University of Toronto was showing a painting that exposed a woman's breast, and when the newspapers used to paint out the woman's navel in any photograph of a two-piece bathing suit. And now within the two-mile radius where I grew up there are bars and night clubs of every description: elegant, corny, gaudy and secret. Sunday is the biggest movie day of the week, and a big day, too, for live theatre and concerts, puppet shows and skating on the city hall plaza, hockey games and bowling tournaments and—perhaps especially—for the Victory Burlesque house, an old movie theatre across from St. Elizabeth of Hungary church, which features (the burlesque house, not the church) amateur strip-tease contests where "you may see the girl next door." If I—to insert yet another personal note

continued

Toronto-Dominion Centre's 56-storey tower dominates downtown skyline. View from the harbour.

wanted to see the girl next door, frankly, I think I'd go next door, but the new Toronto is a new Toronto for everyone, and the Victory thrives.

This is not to say we are having a giant, municipal orgy over here, all two million of us. Toronto the Good, as the city used to be called in a manner not intended as flattery, has scarcely become Toronto the Bad. At its core, there are still the blue-haired ladies and the traditions of Scottish propriety that shaped so much of its early moral thinking. It's still impossible to buy a drink after one o'clock on any morning. Although the parks are pleasant places, lovers seldom kiss there—and the law against taking your shirt off to enjoy the sun was repealed only in 1966.

The easy way out here, in trying to explain my affection for Toronto, would be to go through the magazine-writer's contrast routine. (Munich is a city of contrasts . . . India is a country of paradox . . . South American is a continent on the horns of a dilemma, and so on.) But the point about Toronto, I think, is a subtler one. Toronto was founded by British and Scots in the Eighteenth century; it grew fitfully—the fits triggered usually by the pressures of wars and economics—until the middle of the Twentieth century, when it was still primarily a big *town*, predominately British. (One of the big annual entertainments was the Orangemen's Parade). And then it exploded. What had first been a small Irish ghetto in the lower western half of the city, and then a slightly bigger Jewish ghetto, made up mostly of workers for the garment centre, and then had begun to empty as the second-generation Jews moved their families uptown and into the middle classes, was suddenly filled with Italians. Quickly, they overran the ghetto's edges west and north. Now, Toronto has more than a quarter of a million Italians—one of the biggest Italian cities in the world outside New York—and Italian movies and espresso houses and newspapers too; you can, if you want, live your entire life in Toronto speaking only Italian.

The ghetto, as such, ceased to exist. All over the city the new citizens spread out—Portuguese, Germans, Chinese, Americans, Hungarians, Austrians, Estonians . . . a list as long as the United Nations. They had been coming before, immigrants; now they were coming by the thousands, and, speaking their strange languages and reading their pictureless newspapers, they were becoming instant Torontonians. Where they had been absorbed, they began to absorb —or at least to influence. And with them came the bright young men and women from the Canadian prairies and the Maritime provinces, from the small towns to the big one. Toronto is the industrial centre of Canada. The St. Lawrence Seaway has opened its port on Lake Ontario to the world's seas. Dominion-wide railroads slash across its waterfront. Brand new factories leapfrog out into its exurbs—new ones every day, it seems to us residents, attracting new residential settlements, new schools, new shopping plazas. Its stock exchange trades more shares than any other in the world. It is the political centre of the province, and its metropolitan system of government is a delicate balance between the suburbs and the nucleus city that has been studied by other growing municipalities all over the world. It is also the centre of publishing, broadcasting and the arts in English-speaking Canada. A second university, York, has sprung up as the University of Toronto, where I was one of twelve thousand undergraduates in the middle-1950s now finds its capacity of more than twenty-five thousand is not enough to meet the new demands. True, there is a hectic pace here, the pace of a big city growing bigger. And I know some people react against it. To some of us, though—as to those of us who work on Toronto's three highly competitive daily newspapers—the pace, the rat-race, only adds to the excitement. In trying to outdo each other with each edition, we serve the public better—and, with the added edge of competition, I think we have more fun.

Unlike the United States, Canada has never presumed to be a melting pot of nationalities. Nor has Toronto. And with the pull of its internal energy, Toronto is drawing more and more divergent new people every year. But in that divergency lies our growing identity—a mixed city, unlike any other place in the world. What has happened, in other words, is that the explosion has changed the big town into a big city.

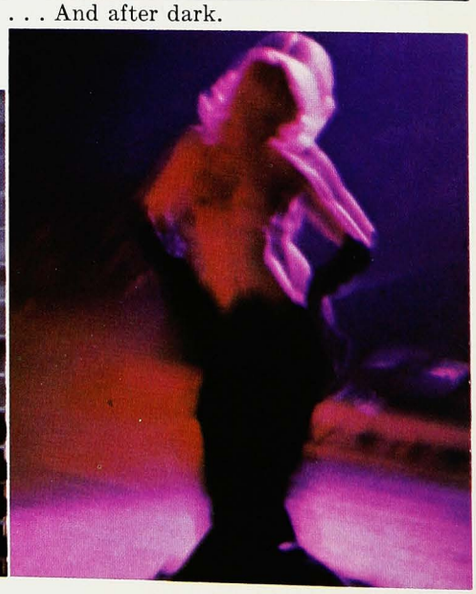
TO ENJOY the new Toronto completely, one has occasionally to move outside the circumference of what used to be the city I knew. The explosion has sent entertainment into the neighbourhoods and beyond, into the suburbs. But the variety of choice is so wide that a visitor could pick almost any area of Toronto and find new delights on any block.

By moving around the whole city, though, a citizen of or a visitor to the new Toronto would be faced with an

Winter pleasures: skating at the new City Hall.

Pleasures of the eye: old barber-pole.

. . . And after dark.



Night town a-go-go

almost bewildering list of things to do. Here, for example, is a partial selection of what was available in just one autumn week. It was a week when two of Toronto's own major cultural attractions, the National Ballet Company and the Canadian Opera Company were away entertaining other cities, but at venerable Massey Hall, the brilliant young conductor Seiji Ozawa led the Toronto Symphony through its first pair of weekly concerts of the season.

In the city's showplace, Nathan Phillips Square stretched out before the city hall, a new sculpture by Henry Moore was unveiled by the mayor and the province's Lieutenant-Governor before 10,000 people, while military bands played and a thin red line of infantrymen fired shots of salute out toward the glowing moon.

In the 3,400-seat O'Keefe Auditorium, George Balanchine's brilliant New York City Ballet played to packed houses with their version of *A Midsummer Night's Dream*.

At the Edwardian Royal Alexandra Theatre, America's finest actress, Helen Hayes, led a repertory company through performances of *The Wild Duck, School for Scandal* and a collection of readings from Walt Whitman.

An Italian tenor headlined the show at the city's biggest night club in its biggest hotel, the Royal York, and another sang his songs over dinner at a newly flourishing club called the Blue Orchid. There were girl singers and piano players-or-better in a dozen other clubs downtown.

In mid-town, the little theatre was in mid-season form: *The Knack*, in theatre-in-the-round, over a row of boutiques—at lunch, a group of revue performers cut capers of their own in the same spot. A double-bill of Edward Albee and Harold Pinter (a perfect Canadian blend of British and American influence) was on the stage of a renovated concert hall. Sartre's *The Flies* was being staged in a theatre in the city's central library. Amateur groups played before crowds, mostly of their friends, in at least six basements or church halls.

Upstairs over one Italian restaurant was a resurrection of *The Drunkard*, with audiences hissing and cheering the

continued

Rainy night on Yonge Street.

action; over another was an original stage-show made out of old Hollywood songs, Toronto-born—but if all goes well—perhaps New York-bound.

In the folk clubs, Josh White, the venerated American singer played only two doors away from his son, also a noted singer. Ian and Sylvia, folk singers who are based in Toronto but better known in the United States, played to a college crowd in the suburbs.

The movie-fare ranged from the giant, first-run technicolor cinerama downtown to a festival of new Hungarian films at a repertory theatre in the west end. Movies fight against stiff competition in Toronto—there are three Canadian television channels beamed into the city, and each of the major networks in the U.S. sends its signal across Lake Ontario from Buffalo, New York. The radio dial is full, twenty-four hours a day—and Toronto, in a rare gesture to Canada's official bilingualism, has a French-

Coffee-house discotheque. Yorkville's *Penny Farthing.*

language station, even though French Canadians are among the smallest minority groups. (Several other stations broadcast periodically in Italian, Greek, German and other languages, and two of the available Canadian TV channels include Italian hours.) But the movies survive; Toronto has always been a movie-going town and is rapidly becoming a movie-production centre as well.

It's a sporting city too, with two professional football teams, two professional soccer teams, a professional baseball team, two race tracks, more than ninety golf courses, three yacht clubs on its islands alone, college sports and—the most popular piece of entertainment in town—the Toronto Maple Leafs of the National Hockey League. The Leafs haven't played before an empty seat in their home arena, Maple Leaf Gardens, since 1947. And the fifteen thousand people who get to see those home games are considered a kind of privileged minority—there is a waiting list of more than ten thousand names for season tickets. They have duties to maintain too, of course. The Gardens, where there is no smoking during hockey games, once sent a memo to all holders of season tickets for the best seats to the effect that the standard of dress was not what it should be and, ahem! would gentlemen please wear jackets and ties in future.

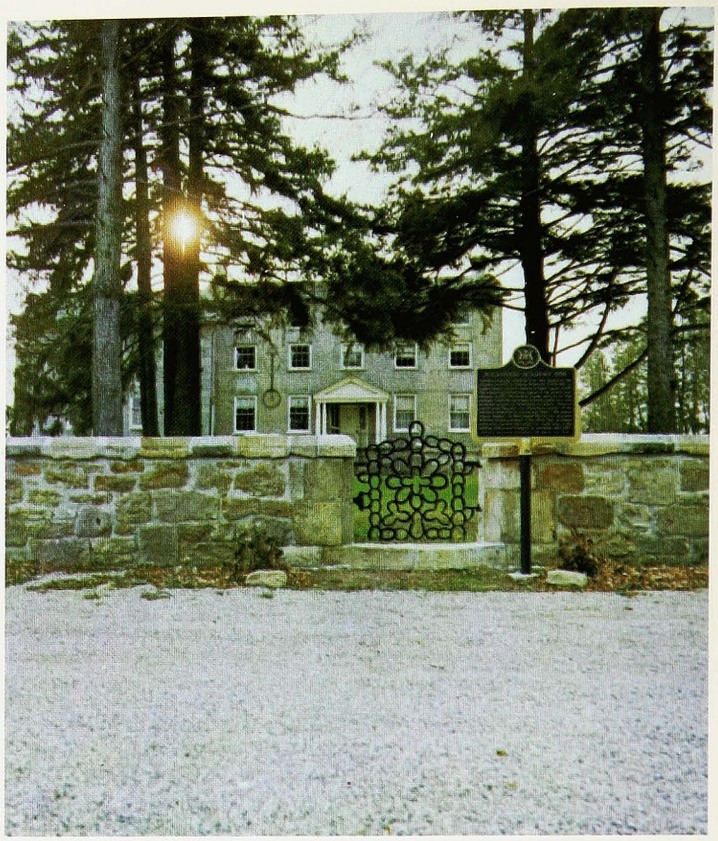
But the Leafs are part of the new Toronto too, part of the scene. The true Torontonian knows as much about their current goals-against average as he does about the subtleties of the new Henry Moore sculpture, as much about the Boogaloo (a new dance) as about mining stocks. It is a mixed city, a city of the 1960s, and from the roof of my favourite hotel, with the bright lights blinking, and the traffic's hum, and the pretty girls and the bright young men behind in the glassed-in bar, it's a pleasant place to contemplate. ■

Maple Leaf Gardens. Not an empty seat since 1947.

SMALL TOWN

The Quiet World of Rockwood Ontario

By Harry Bruce



Rockwood's founder, Col. Henry Strange, built his own mansion to last.

The great thing about Rockwood, Bob Mitchell tells you as he carries some feed down to the snow-white duck that recently came to squat on his creek, is that at four in the morning he can practise a Big Rock sound on his drums, and none of his neighbours will care. Or even know. He can keep four wolf-sized German Shepherds there and, though occasionally *they* don't go over very well with whatever neighbours happen to wander onto his land, at least he knows that the dogs are happy in the fields and in the little bungalows he's built for them. And for ten years he hasn't bothered to lock the front door of his own low-swept stone house.

Then there's the therapy. That's what Mitchell calls it anyway, though he's not sure himself that this is precisely the right word. It's something to do with spending a hot, sweaty and utterly frustrating afternoon at the heart of a polluted city; then, as he drives west in the evening, feeling the tension and spiritual poison drain away; and, finally, only an hour or so from Toronto, sitting out there on his stony hill, sipping tea under one of his sixty little apple-trees with the beautiful long-haired actress who is his wife. Or going for a swim, not half a mile away, splashing around beneath the strange white cliffs that enclose the dark Eramosa River. Or, if it's winter, taking his suddenly giddy dogs for a walk in the snow that drifts along beside the creek at the bottom of his hill.

Therapy. Or perhaps freedom. Anyway, it is managing to *leave* the office back there in the dirty, frantic city and, each day, entering this other and sweeter life. Having two lives is twice as close to immortality as most of us probably get and, to Mitchell, it's worth driving a hundred miles a day.

Mitchell is a 45-year-old city boy who discovered the country about ten years ago, and you have only to see the glazed and amiable look in his eyes as he swaggers purposelessly around his bushland to know that he brings to country living a profound feeling of romance, a quality of visual love that the born-and-bred country boy seldom experiences. Bob Mitchell has *bought* country living with the total conviction of a religious convert. Lately, he's been talking about building a barn and keeping some riding horses.

Mitchell, at work, is a graphic designer with a downtown Toronto art firm; at home, he's a family man, serious painter, land-owner, dog-raiser, drummer, and student of the guitar. He is far from a typical resident of the little village of Rockwood (population 862), but because the town is so extraordinarily pretty, because it's only eight miles from the new University of Guelph, because it's only an hour's drive from Toronto, Mitchell may turn out to be a forerunner of a new commuter society there—a wave of ad-men, professors, artists and businessmen who come to Rockwood in search of whatever it is that he has found. And if too many of them come, they will inevitably destroy their own chances of finding much of anything, and the small-town character of Rockwood will melt away as surely as the great snowfalls of long ago.

Ken Guild, a bearded Toronto sculptor who built the stone house that Mitchell now owns, remembers that as recently as the Depression the snow fell so deeply over Rockwood that, as a child walking along the railway tracks, he could reach up and run his hand along the telegraph wires. And to him, the deep snow isn't the only part of the good, old Rockwood life that the industrial pressures of

southern Ontario have begun to destroy.

Guild remembers when the township began to spread sand on the snowpacked roads, and thereby sacrificed sleighs to cars. He remembers a Scottish uncle, with a white beard all over his chest, who ran a grocery store and was so canny he saved his wooden packing cases and eventually turned them into money-making houses. Guild remembers that in the thirties he used to walk four miles every day after school to fetch a small pail of milk from a dairy-farming relative; that Rockwood was once Canada's greatest exporter of turnips and the kids would run along behind the trucks and knock off turnips for dinner; and that the Depression was a great leveller. Everyone was so desperately broke that envy disappeared entirely, all the traditional small-town virtues of neighbourliness and mutual concern began to exert themselves, and this terrific spirit of *oneness* took over the town. Then the war came, and a lot of transient labour, and since then Rockwood has never been quite the same. It's less of a town, Guild feels, and more of a suburb.

But these are the memories and convictions of a man who grew up there, went away, and occasionally comes home to find things changing. For someone like Mitchell, a virtual foreigner who chose to settle here, or for someone who stayed here all along, or even someone who's just passing through, Rockwood is still very much a part of small-town Ontario. And along its one main street, its boosters are legion.

"There is an intense personal pride and loyalty in the little village exhibited by practically all of the older residents," the late postmaster, Frank Day, wrote only a few years ago. (The present postmaster, George Day, is Frank's son.) Mr. Day went on to tell the story of old Cliff Meadows, a Rockwood boy who "enjoyed the reputation of producing the finest onions in Rockwood" and once took a trip by car to Calgary, far off in Western Canada by the Rocky Mountains. "We were four days in reaching Calgary," Cliff said when he got home. "Three of them were spent passing one big hill. I thought the thing was wired on the side of the car."

"I wouldn't trade one shovelfull of that soil," he continued, pointing at his garden and his onions, "for Northern Michigan, half of Minnesota and all of North Dakota."

Cliff's spirit lives on. Herb Saunders—a member of a Rockwood family which, for half a century, has run a small but rightly famous bakery—leaves his ovens for a moment and, with the flour still on his forearms, comes out to the front of the store to tell you, with compelling sincerity, that really there's no other village or town or city anywhere quite as good as Rockwood, Ontario.

Why, you can throw a line over the bridge on the main street and fish for trout and bass on any sleepy summer afternoon—and, what's more, catch them. Yes, and you can jump in your car and, one hour later, find yourself sitting there in the best French restaurant in Toronto, or watching a Broadway hit in a theatre, or listening to the Toronto Symphony or—forty miles in the opposite direction—attending opening night at the world-renowned Stratford (Ontario) Shakespearean Festival. You can take night courses at the University of Guelph. Your kids can skate each winter on the real ice of the real river that crosses Rockwood, or toboggan on the good little hills that crowd the town. Moreover, there's virtually no crime in Rockwood, and parents don't sit around chewing their nails every time their children visit a neighbour's house after dark.

And the hunting! Just 75 yards from your back door you can start banging away at rabbits, partridge and, for a few days a year even, deer. Herb himself did not get a deer this year but, the moment he pauses for breath, a husky, red-bearded farmer walks in to buy some of the Saunders' notoriously juicy sugar doughnuts, and announces that this weekend he has bagged not only a deer but fifty racoons. Coon-shooting, the farmer explains, is sort of a hobby with him. He ships the pelts to the fur-auctions in Montreal.

Rockwood is a hot town for bowling, softball and spirited trail-riding, and each year these sports inspire a lot of healthy celebration. It is also squarely in one of the more rugged traditions of rural Ontario in that much of its social life still springs from church organization. (Rockwood's greatest exports have been woollen cloth, turnips, limestone and Protestant Missionaries.) The first Rockwoodites were Quakers and, though religious differences have happily declined since the days when a Methodist minister openly prayed to God to make the Presbyterian Minister's heart as soft as his head, the ecumenical spirit has not exactly taken the town by storm.

There are still four churches—Anglican, Catholic, United and Presbyterian—in Rockwood, and the various women's groups meet regularly to talk about such things as the Dead Sea Scrolls; to read aloud poems called *Do All the Good You Can,* or *Give A Word of Praise;* to show slides of one's travels; or perhaps to do embroidering.

The church groups, the scout mothers, the girl-guide mothers, the trail-riding, the mixed bowling and the occasional wedding-anniversary picnic down by the river pretty well sum up the organized social life for Rockwood women. There are movie theatres in Guelph, however, and, like most other small Ontario towns, Rockwood enjoys some swinging little parties.

The houses themselves are a pretty mixture of comfortable frame and brick homes. Most are oil-heated and, though the village trustees are now talking about installing pipes under the streets, Rockwood's domestic water still comes from wells. The town's younger children attend a handsome but cramped old grey school but, by next fall at the latest, an impressive new $350,000 school will be serving the community. The older kids travel by bus to an excellent high school in Guelph.

Rockwood also boasts Al's Groceteria; a couple of variety stores and hardware stores; a candy-making firm; a gun-grease and fishing-tackle firm; a worked-out limestone quarry; a shop where farmers buy such essentials as dependable bovine purgatives and Royal Purple Hog Tonic; and a used-car lot, which is run by a hairy, good-natured giant named Lou Hilts. Hilts is so heavy that his car heels over when he climbs behind the wheel, and so strong he can lift entire small automobiles out of snowbanks.

Another Rockwood business enterprise is The Weathervane. In the distant time when there was a glove-maker, a violin-maker, a hard cider-maker, a barrel-maker and a whisky-maker in Rockwood, there were also four hotels,

continued

and The Weathervane (the Red Lion Inn in those days) was one of them. Now, it's headquarters for Don R. Stewart, collector of Canadiana, interior decorator and busy restorer of old houses.

Stewart likes Rockwood because its people respect one's privacy, because they phone before dropping in, because the eggs are always fresh, and because he knows which roadside stall sells the sweetest corn, the tastiest tomatoes, the reddest strawberries, the peachiest peaches. Stewart also likes Rockwood because he does *not* like crowds and because, along with many other Rockwoodites, he finds the pace of big-city living anti-human. "It's a nice place to visit," a typical Rockwood booster says earnestly about Toronto, "but I'd go crazy if I had to live in a place like that."

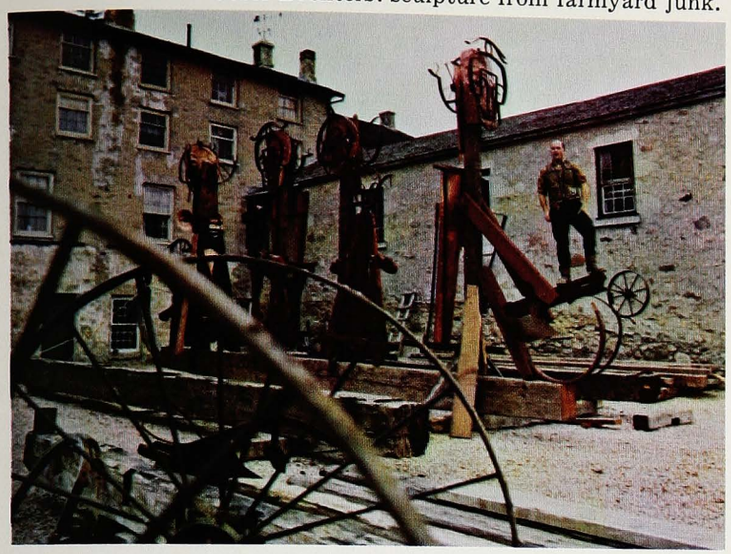
One of the less tangible things that give Rockwood its peculiar charm is the way its older buildings join with the waterfalls and cliffs, the silver birch and the dark evergreens to speak of local history. The whole town has this feeling of age and service about it. It suggests—in the texture of its stone and the sound of its river under the bridge—that although no great truces or treaties were ever signed in Rockwood, generations of strong-minded and hard-working people have built things and died here; and history has taken others away to build and die somewhere else.

This pull of history, this redolence of time, is so strong in the Rockwood country that it virtually rules the daily living conditions of a Flemish man who arrived here fewer than 15 years ago. His name is Josef Drenters and, though he came to the Rockwood district as a farmer, he is now known as the creator of primitive and frequently whimsical sculpture on a magnificent scale.

Drenters chooses to live in a huge, drafty stone building at the edge of town. This place, a century ago, was the Rockwood Academy, an extraordinary Quaker School that helped to educate, among other notables, a premier of Ontario; the founder of Ontario's hydro-electric system; and the pioneer American railway magnate, James J. Hill. Drenters bought the place from an old farmer who'd been living there for decades and now, single-handed, he's slowly restoring it to the condition it enjoyed in its days of glory.

Rockwood's greatest old building, however, is beyond restoration. It lies at the end of a short, pretty road that winds downriver from the main street. It is the yellowish-white wreck of the old Harris woollen mill. An ancient ruin, the place has no window-glass, no floor-boards, no roof—just these big, dangerous raw walls with the wind blowing across the interior rubble, and around the stump of what was once a tower you could see halfway across Eramosa County.

Josef Drenters: sculpture from farmyard junk.



The simple things.

The date 1867 stares from a point above the front door but, although it was only a year or so ago that a mysterious fire gutted the place and although the river still bursts strenuously and beautifully over the nearby falls, the mill has not turned out its superb cloth for almost half a century. It was the biggest industry Rockwood ever had, and employed scores of townspeople. If the story of the mill, the family that owned it, and their feud with the rest of Rockwood had occurred in Pennsylvania, it would be prime meat for a novel by John O'Hara.

The Harris' were stern and upright Quakers who had come to Rockwood in the very beginning, in the time when people still called it Brotherstown. By 1900 their woollen mill was a powerful and famous business and, during World War I, it thrived on making cloth for Canadian army uniforms. Then, at the end of the war, it ran into trouble and, one day, the senior Harris of the time, William, paid off all the workers, shut the place down, and withdrew himself from Rockwood society.

Some Rockwood people claim that William Harris closed his mill because he was bitterly opposed to paying the new federal income tax. Others say it was simply that the pressures of better-equipped competition forced him out of business. Still others claim that deep in the heat of a labour dispute he shut the mill in a fit of pique. The more charitable believe he had tried to do the Right Thing and kept the place running long after it was economically sensible, and at great sacrifice to himself; but that the town, not caring to understand his problems, criticized him for his meanness until he finally said whatever God-fearing men say when they want to say "To hell with them!"

In any event, William Harris and the town stopped talking to each other. He confined himself largely to gladioli-raising at a wooden house that overlooked the silent mill and, except for the more daring boys among the generations of Rockwood children that ran beside the Eramosa River, virtually no one entered the mill for decades. William Harris is dead now. So is his son Edgar, and the local conservation authority, which is turning this stretch of the Eramosa river into a park for picnickers, will soon flatten all that's left of the Harris factory.

Further upriver, right on the main street, there's a smaller mill and time has so softened its stone walls that, coming upon it from the sunny lane behind, you'd swear, for a second, that you were among the hills of England. This place is still grinding feed for district farmers. And across the street, on a rise behind some trees, you can just make out the solemn, square mansion and stone barn that belonged to a man who was once as important to Rockwood as any Harris. His name was Henry Strange, *Colonel* Henry Strange or, as he was known around town, Squire Strange.

Strange once owned virtually all of Rockwood, and he laid most of the town out more than a century ago. He's been dead since 1906 but Rockwood people still refer to him as "a real character." For one thing, his place was a permanent open house to every hungry bum who happened to pass down the road between Toronto and western Ontario. As recently as ten years ago, his last surviving child, a daughter, recalled that Squire Strange once fed a family of nine wandering Negroes at one sitting.

Even now, Rockwood people enjoy passing on the story of what a weird and messy dresser he was, and how a genuine tramp accosted him once on his own front walk and said, "Hey, pard. How's chances of getting a meal up here?" Strange is supposed to have replied that the chances weren't too good but they were probably worth a try.

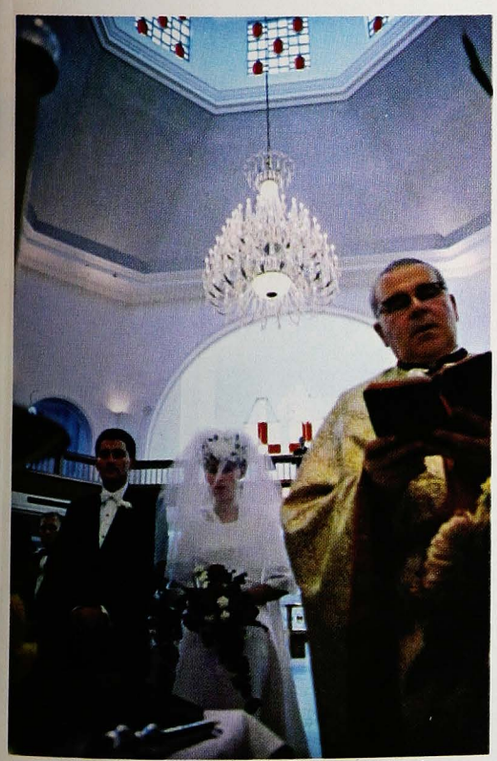
Strange had inherited his land from his father but, even if he hadn't, he was canny enough to afford generosity. When the Grand Trunk railway wanted to cross his great tract he apparently conceded that would be all right by him—*if* they would provide all the stone and the Scottish stonemasons to build a house and barn. The house is magnificent enough, but it's clear that what he really stuck the railway with was the barn. It would be hard to prove, but that barn looks like the biggest stone farm building in North America.

A Toronto lawyer recently bought the Strange property and if he can get along with Bob Mitchell's German Shepherds on the land next door, he should find the life in Rockwood as good as it's been for most of the people who've lived there since shortly after the War of 1812. A quiet life, with all the comforts of the 1960s and with the leisurely decencies of an earlier age. ■

Ritual magnificence.
Detail from a vestment.

The Wedding

Splendours of the old Ukraine in a new setting by John Robert Colombo



In the Ukrainian Catholic Church of Our Lady of Perpetual Help, Toronto.

This Saturday is sacred to Ukrainians everywhere; it is the feast day of the great archibishop and apostle of unity, St. Josaphat, who was martyred over three hundred years ago. Today, in the west end of Toronto, in the Ukrainian Catholic Church of Our Lady of Perpetual Help, he seems very much alive.

2:00 p.m. The Church of Our Lady is barely three years old and its landscaping is still being attended to, but its gilded Byzantine domes, which brighten and dim with the sun, are already part of Toronto's skyline. A blue Plymouth drives up, parks by the church; its doors swing open. Amid a flurry of attendants, in her long silk gown and white fingertip veil, Julia Bodnar steps out, a bit self-consciously. A tall, graceful young woman with deep brown eyes, her fair hair is almost lost amid headdress and veil. Her bridegroom, dark and handsome, appears beside her. Nick Saradoc will be thirty years old in two weeks. He takes Julia's hand and gently leads her up the church steps.

2:10 p.m. The bridal couple stands in the vestibule facing the glass doors that open into the church. These doors suddenly swing apart, and Father Markian Stefaniw is there in his golden chasuble with a prayerbook and tiny cross. "Are you doing this of your own free will?" he asks of both parties. The question is important, but no one is surprised when the bride—beautiful in her white lace, nervous as she tries to keep her bouquet upright—answers, "Yes."

2:15 p.m. Led by the priest, whose robe she clings to, the young woman and her groom walk up the aisle with their two maids of honour and their two groomsmen. The congregation strains to see. Now they are standing before a small altar at the foot of the High Altar. The bridesmaids, anxious, try not to look around, but the two men are enjoying every minute of the service. Father Markian, very imposing, has been joined by Father Wolodymyr Zolkewych, who has the look of a scholar. From the loft, a chantor is singing. The two priests are intoning a long prayer in Old Slavonic, only a few phrases of which the Ukrainian- and English-speaking congregation is likely to catch.

2:20 p.m. Although only the two priests, the couple, and their four attendants can see this, the young woman removes her white gloves and takes a gold ring from Father Markian. She kisses it. The young man does the same. Behind them, lost among the pews, a child demands to know what is going on. The "shh!" is even louder than the child's whisper.

2:23 p.m. All you can hear now is Old Slavonic echoing from the stark white walls. On either side, ikons glimmering with gold mosaic look on as the couple kneels and as the young man takes the young woman's right hand and places it on the huge Bible before them. Father Wolodymyr's chasuble flows over their hands like a river of gold. "Your wife shall be fruitful as the vine that grows on the walls of your house," he chants.

2:25 p.m. The priests turn to the groom. "Nicholas Saradoc, are you fully determined and do you of your own good and free will, take Julia Frances Bodnar, whom you see here beside you, for your wife?" Question and response are in Ukrainian. "Yes, Reverend Father." The same question is asked of the bride.

2:28 p.m. The bride is taking her vows. "I, Julia Frances Bodnar, take you, Nicholas Saradoc, for my husband, and I promise you love, faithfulness, matrimonial honesty and obedience, and that I will not leave you until death. So help me God, one in the Holy Trinity, and all the Saints."

2:30 p.m. From the altar, two rich nuptial crowns are raised up high and set on the heads of the couple. The congregation smiles, especially the children. Little girls are bright-eyed, and little boys, who have been hunched over their pews, suddenly look up.

2:35 p.m. Father Markian escorts the bride to a side altar, as an attendant lights the candles. He touches her veiled and bowed head with a golden cross and blesses her. They return to the sanctuary, and the couple kisses the great Bible. The ceremony is over now except for the signing of the register.

2:40 p.m. In the sacristy the bride is seated, surrounded by the priests and her entourage. Three photographers are snapping still pictures, a movie-camera is grinding away, its bright lights making everyone squint. One of the bridesmaids kisses the bride and

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is the first to address her as Mrs. Saradoc. She beams. "Say, 'Cheese!" says one of the photographers. "How about 'Help'?" Mrs. Saradoc answers. Everyone laughs.

2:45 p.m. The Certificate of Matrimony signed, the party quietly returns to the sanctuary. They bow, and the triumphal departure down the main aisle of the church begins.

2:50 p.m. On the steep cement steps outside the church, the sun is struggling to break through the clouds and almost succeeding. Photographers are posing the wedding party; the married couple exchanges confidences with friends, relatives and well-wishers. Confetti flutters in all directions. It is all over, or just beginning, the newlyweds getting into the dark blue car which by now has been festooned with coloured crepe paper. They drive away to the reception, leaving their friends, relatives and well-wishers standing in front of the church.

CANADA IS A mosaic of cultures, and this notion is so deeply ingrained in Canadian life that it is hard to imagine it otherwise. The legal rights of the two cultures, French and English, are guaranteed by Confederation. But across the country, honoured by custom, a great many traditions thrive. Ontario has benefited from this plurality, and one fine tradition, very much a part of Canadian life, is the Ukrainian one.

The rite by which Julia Bodnar and Nick Saradoc were wedded is tradition, one of the twenty-four in the Catholic Church, and the largest of the Eastern Rites. This Byzantine-Ukrainian Rite goes back to the year 988, and is the form that faith takes for nine million who are either Ukrainian or of Ukrainian descent the world over. The rite is honoured in Ontario, especially by the young, for in the wedding of Julia and Nick both the bride and groom are Toronto-born. Julia is a secretary whose parents came from the Ukraine many years ago. Nick is a clerk, and long ago his parents left Rumania for Canada. Approximately half a million Canadians follow the Byzantine-Ukrainian Rite and have been married the same way, or will be. Many of them live in Ontario; some will be married in churches like Toronto's Church of Our Lady of Perpetual Help. But not all will be lucky enough to be married on November 12, the day that is holy to St. Josaphat.

Intoning in old Slavonic, priests celebrate in the Byzantine-Ukrainian Rite that dates from 988 A.D. The Rite is observed by half-a-million Canadians.

Bride and groom are Toronto-born. Julia Bodnar's parents came from the Ukraine; Nick Saradoc's were Rumanian.

In the evening there's feasting and celebration. Here, too, tradition is lovingly observed.

SHOOTING A MOOSE

A hunter's tale of now—and long ago

By Dave Godfrey

IT WAS COLD again that morning. Outside squalls and drizzle obscured the dawn. A day for bending the scope out of the way and relying upon your natural sight. Horace poured beer into the pancake batter and said it felt to him like a lucky day at last. Swede changed from

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one set of clothes patterned with dried blood to another only slightly less caked.

"Ah, feels good to get into something clean!" Smiling, he looked less than his thirty-five years, more like a college-boy with the stack of girlie fold-outs under his hefty arm. "Had a fellow up from Toronto once claimed he could quarter a moose without spilling a drop on his white shirt. Said that three or four times. Wearing a white shirt. So I dropped a little four-hundred-pound moose calf in front of him one morning, a little grunter I hadn't even gutted. Just dropped two shots from the Lee Enfield into him, before 8 o'clock, and slung him into the boat fresh. 'Go to it,' I said, 'Get out the white shirt, Mr. Mulholland.' But he didn't feel up to it that particular morning, Mr. Mulholland didn't. You bet your hobnails he didn't. I like to step right inside a big grunter, with one boot each side of the ribs, and drive the butcher saw right through that hump. Now let's just put this little lady where the light will shine on her countenance."

He moved Miss August over beside Miss September, onto the door of the food-cupboard over the stove, so that light from the propane lamp-jet illuminated her glossiness, the derringer slung on her nude hip.

But nothing could irritate me, no sign of urban civilization. I had already accepted failure on this slightly absurd trip; I was looking forward only to a few more hours outdoors, even in the squall and drizzle, even if all I had to observe was the bravery of a wind-sniffing beaver, his nose and flat skull barely out of the rain-spattered water, tacking back and forth beyond the reddish Indian-tea bushes that made no attempt to hide my hunter's body. It's scent and noise you have to worry about with a moose; in the north their blindness is proverbial.

Traditionally, they will stand and let even a novice get five or six shots away at them, so long as he's got the wind at his back. And in this season, the heart of the fall, the males enter rut, trumpet across the miles, and come plunging conveniently to the lakeshore as soon as the hunter starts grunting. But we were short even of the trumpeting. The day before I had tried to serenade a distant bugle with no luck at all. Perhaps just as well. For we later decided that the bugle belonged to Swede, who had been working a different part of the lake with two men from Milwaukee. The others were disgruntled at the illusionary nature of this wooing, but it amused me almost as much as it did Swede.

"If I see that white plane spotting again, I'm going to bag a pretty unsporting trophy," one of the Americans from Milwaukee said, somewhat bitterly. They had already been there five days.

My brother told of one such airplane expeditioner who had hopped out of the plane as soon as it landed, braced himself on the pontoon, and fired three shots dead into the engine, forgetting completely the inch or more between the line of sight of his scope and the line of fire of his gun.

It was a good camp; we all joked and played stuke together.

Yet I wanted my brother to have some booty to return with. I felt I had deceived him somehow, by not making my intentions clear. He lives up there, well beyond the Lakehead, in the same town with Horace and Swede. He would be there through the coming winter, long after I had fled back to the slush of Toronto and my mod-tie students of Defoe, Thoreau and Rilke.

"If I'm going to come up all that way," I had said when we were making the arrangements, "I want to go on a *real* hunt."

By which I had meant the exact opposite of what he assumed. For me, the truth of a hunt was tempered by visions and memories of a previous long hunt, just myself and one other lumberjack hunter, Jean Loriginal, pussy-footing for five hours through the bush near Chapleau before we saw anything, slugging out hundreds of pounds of meat by ourselves, and then the discord and bitterness that followed. Bitterness and discord of which I had not often thought.

There is still some real, walk-in hunting done around Fort Francis; Horace prefers it, but other methods are considered more stylish. And since I was coming seven or eight hundred miles, my brother had arranged for us to go the first-class way, the American plan. At Fort Francis we had loaded our gear and guns into one of Rusty Meyer's planes, a yellow Beaver, and flown some two hundred more miles deeper into the hinterland of Ontario.

Below, the land was an artist's mind, a photomicrograph of unidentified cells. As with the Sahara, or the coastal forests of Africa, seen from above, there is so much pattern that the mind leaps to abstraction. The snake's movement of a river. Lakes adzed out of rock in imitation of blackbirds' erratic flights. Such a massive flux that in the riot of shape and form it seems no artist would dare take a stance. We are too high to see a moose, even the largest, but we all peer steadily down.

"Where are we headed," I asked, and saw the first omen of failure arise. Horace pulled a map, properly folded, out of a pocket of his jacket, then spent five minutes before he could point out our lake.

And when we settled down just before dusk, Swede was busily adjusting a second motor on his boat so that he could cruise the entire shoreline in one day.

The first day we did almost the same thing, cruised, but then once Horace had fitted himself into the lake we began moving up creeks to inner lakes, found some fresh sign, watched a few runs and some grassy shoreline. The second day we came around into a bay of exactly the proper

bogginess on shore. Near a beaver hut there were bubbles in the murky water, and a lacework of fresh tracks beyond the shore row of trees.

So on the third morning, with the pick-up plane due to arrive at noon, we felt some hope as we set out in the drizzle. The wind had turned wrong for yesterday's bay, but that left it right for several others we had spotted. It was too overcast for the small, white American plane which had been bothering us, swooping along the shoreline like an aluminum hawk, illegally spotting for the hunters high and dry inside.

"One of these days I'm going to dump a load into his cowling," Swede had said, "A moose is dumb. It only took the wolves a year or two before they'd avoid the sound of engines, but the moose are learning. It may take a generation for our dumber brothers, but you can't tell me Mr. Whitewing's not keeping them up in the timber right now."

My brother and Horace let me off on a long point covering a good bay and went ahead to scout a few others. The wind was hard. We had put up a small flight of teal and they had fled the bay with their belly-down about twenty feet above the water. I settled the boat-cushion on the rocks and faced the rain. No more than five minutes after they had left me I heard a sound perhaps like shots, more like shouting, and I felt for my matches. If they had overturned I would have a cold day of it. I would have gone and looked, but they were both too good boatmen to really worry about.

And the wind came up the lake and across the bay like a hawk. I hunched in further among the black spruce branches, let my mind descend into my body, and prepared to practice the cold austerities of the waiting hunt.

The teal returned.

With the wind, the yellow leaves caught and were caught by the damp sleet.

My gloves became drenched and my hands curved around one another for warmth.

I waited, running my eyes along the beaver swamp of the far shore, waiting for the slightest of movements in the shoreline trees, sighting in the three or four open shoreline spaces, re-estimating the distance across the water. Silent. Only hunter conscious.

One should be able, I know, to rest like that for the entire day. If you're on a good run, success is eventually inevitable. But success wasn't really why I was there. After two hours or so, my city-pampered body switched back on my mind. Look around, it said.

Behind me there was a grove of my favourite conifers, shaggy, old black spruces reaching up almost sixty feet. Not bad for them, this far north. I slid in among their quietness to knead some life back into my hands, to stretch up my back. To feel again beneath my feet that natural deep-pile of moss, needles, and brush you find only in rich, old forests: reindeer-moss, black crowberry, spoonleaf sphagnum, ground cedar, bracken fern, dwarf juniper, running clubmoss. I had no need of identifying them, only of running some of the possible names through my mind, of feeling that inimitable crunch as each particular welcome-mat gave beneath my feet. If that moment's fear were true, if the boat that brought me had really overturned, I could take some reindeer-moss and dry it for flour I told myself. A world of chill possibilities was around me. And of memory.

ON THE MOOSE HUNT I was trying not to remember, we had just pussyfooted up on a whole family of moose, through far thicker brush than this, earlier in the year when all the leaves were still on, through a half mile or so of nearly pure hazed bush and little balsam trees.

They were down in a pothole, just like you'd scooped it out for a washbasin. We could have walked right by them, but they must have decided to come up just as we were passing around the rim.

"Psst, psst," said Loriginal. "Behind you." And he would have laughed if he hadn't been so determined on that trip. He was about ten yards in front of me. He said all he could see was two brown patches, but I was near enough to make out the outline of the bull's hump. I did a more dangerous thing than by then I had ever even considered.

I fell to the matted, tangled rug of the forest to let Loriginal shoot over me. I remember thinking, in small consolation before I dropped: at least neither of them is facing me. Although I knew too how quickly one slug could change their minds about which way to run, and to trample.

We were lucky; we had to be lucky on that trip. Loriginal and I. With one gun between us.

He was a city refugee too, club-footed, who had left Montreal three years previously because there his strength and his flaw both seemed to work against him. Despite his foot, he was strong. In the north he had turned himself into one of the richest lumberjacks of the region, the sound parts of his body hardened and strengthened, the right leg tough as a kangeroo tail. So that he could easily out-run me in his leap-and-hop fashion, the crippled foot barely touching the ground as he hopped on it, almost as though it were not a part of his body, a vaulter's pole that at any moment he might release, at the apogee of his leap.

Me—the university had just finished dumping a year's supply of ideals into my mind; so that I for classroom reasons, and he for experienced ones, had both jumped to the support of a M. Blaise, the union man for that region, in his fight to organize Kapela's mill and camp, in his struggle to get the minimum wages heading up closer towards the dollar-and-hour mark. A bitter fight. It wasn't a

continued

big operation. One man had made it, and was still there, and wanted to see what he had grow and prosper.

The best workers left at the first sign of trouble; a lot of those who remained were old or flawed or refugees of one sort or another. There was violence; and bitterness. Scabbing. Sand-bagging. We won eventually. M. Blaise signed an agreement with Kapela and spent an evening drinking with him. The company store became a cooperative. The mill cut its work-week to only fifty hours. And Kapela took the offered chance to fire seven or eight of the least productive workers and thus make his woodcrews more efficient.

It was for them that Loriginal had gone hunting. Without a gun, I was just a companion and meat-carrier, but I felt some of his guilt. Blaise had been the organizer of the struggle, but Loriginal its hero.

So he took the chance and shot across me, clean into the bull's hump so that it did drop at once and turned not upon us, the source of its pain. The cow just turned from her suddenly vanquished companion and in the turning was gone, with her calf, lost among the thick hazel and balsam.

"Cow's tender, but I like meat with a little character," said Loriginal. And we set to the hard work.

It took us two trips, in and out, more than six miles each way. Loriginal wanted it all there for the presentation he had planned. We slept one night in the woods and it was nearly noon the next day before it was all packed out.

The fired families were packed, into two old Studebakers and a red, Ford pick-up. Bedsprings jangling on the car-roofs.

They refused the meat. Out of pride, or a sense of betrayal, or just because they were unsure of their destination and whether they had room for it, or because it was not quite legally the moose season. I never worked it out.

But they refused it. Bitterly. Telling Loriginal he would need it himself for all the work he would be doing that winter. Suggesting what he could do with one of the moose legs. There are few bitternesses equal to that of a poor man let go for inadequacy.

And Loriginal understood them. Scruffy little men he could have booted into the sawdust pile—even with his bad foot. He didn't press it on them. He just bantered back at them and told them how he would enjoy the heart for lunch.

And he did that. We split it and said nothing about the refusal. But he avoided tradition. He carried the quarters back into the bush and left them there for the lynx cats; he did not divide it among the successful. He gave none to Blaise; none to Kapela; nothing but the heart to himself.

MY HANDS were warm in the black spruce grove. I had been knuckling them and blowing on them all the time the story walked through my mind. "Let's go pussyfooting here," I told myself. And I moved slowly among the drooping trees, and out of them. Towards the beaver swamp and its fallen aspen-polar and tacahahac. Looking in the bog of mud and broadleaves for track. Grunting expectantly, although I really expected nothing.

And it was there my brother and Horace found me. Coming up by the beaver hut, past fallen trees reaching towards them.

"It's not that shallow," I said, "Come up."

"We got one, you know," they said.

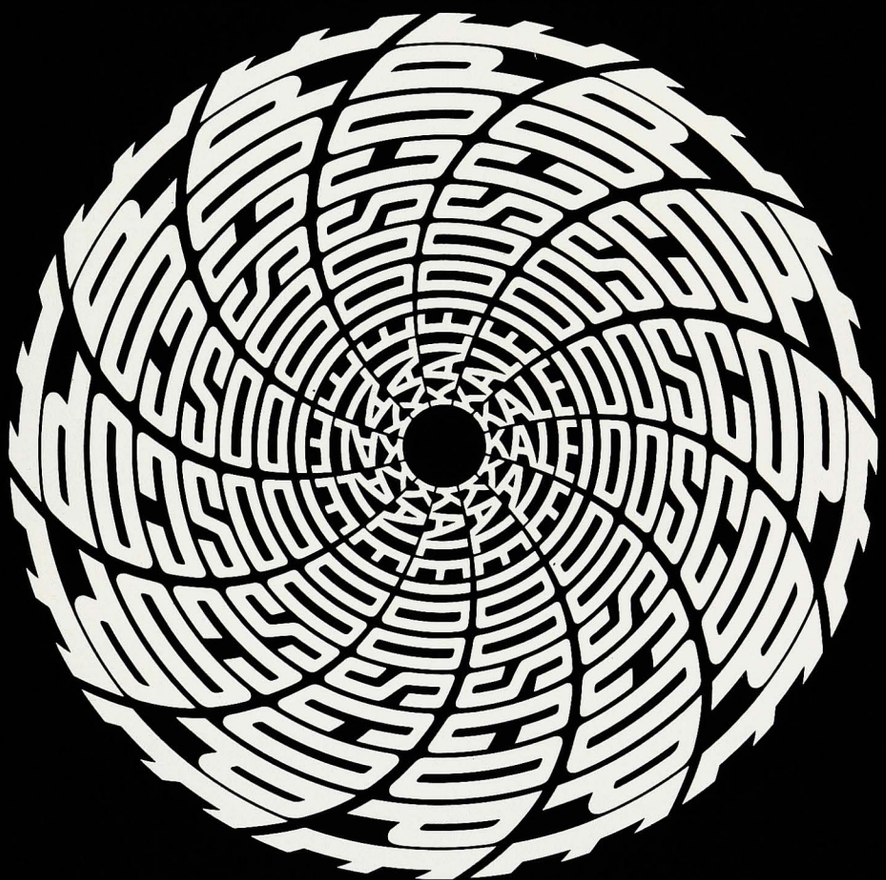
But I hadn't known. The wind disguising the shots. The shouting not disaster but one shot from each of their guns. And perhaps a bit of laughter.

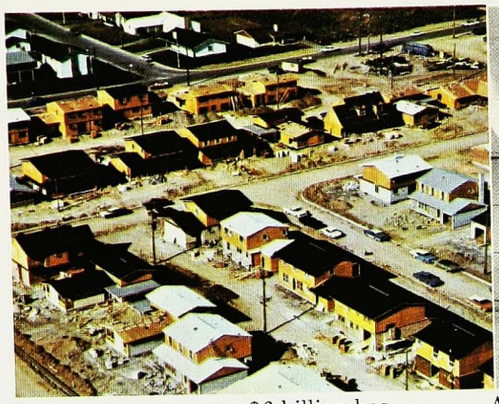
While I had been pussyfooting they had been butchering. There is an essential ugliness to a moose, especially when quartered. This one filled the bottom of the boat, his ribcage exposed to the drizzle, one bare knee-knuckle jostling the wind, the sleet laced and globed in small mazes on the bristly fur.

"Pretty ugly booty," I said.

"A pretty ugly country," Horace smiled.

But just sitting in the boat, it warmed us on the return trip down the lake. And warmed me as I saw one of its haunches, clad in a voyage-stretched old blue duffel-bag, slide out of Air Canada's mechanical luggage sorter at the Toronto International Airport, and hang there for a minute, prevented by its weight and inertia from sliding down the revolving steel cone amidst the shiny luggage of other passengers. And warmed me as I thought of Horace, secretively nodding to me as he slung the unskinned portions up into the Beaver aircraft: "He's not saying much, your brother; but he really enjoyed that. He really enjoyed it all." ■


KALEIDOSCOPE



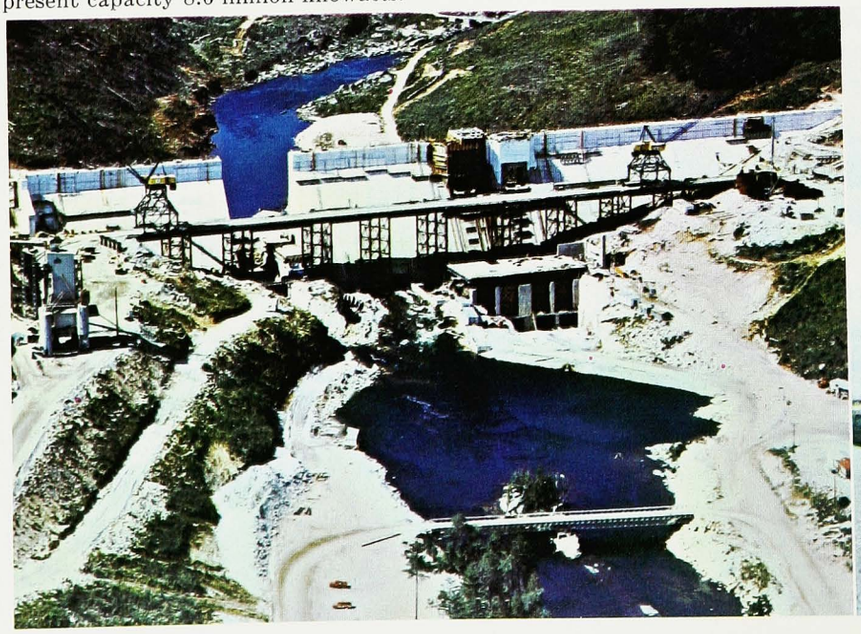
In the past ten years, $6 billion has been spent on residential construction in Ontario.

A subway station in Toronto's modern mass-transit system.

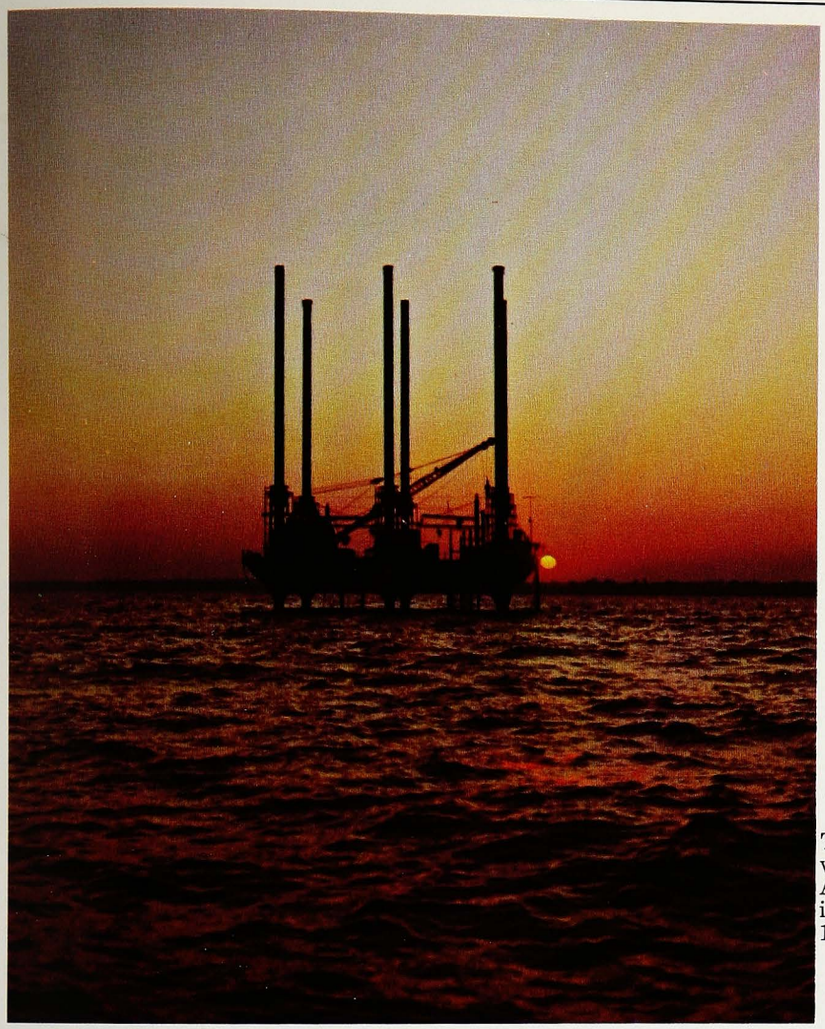
Ontario combine and harvesting machinery earns Canada over $100 million a year in exports.

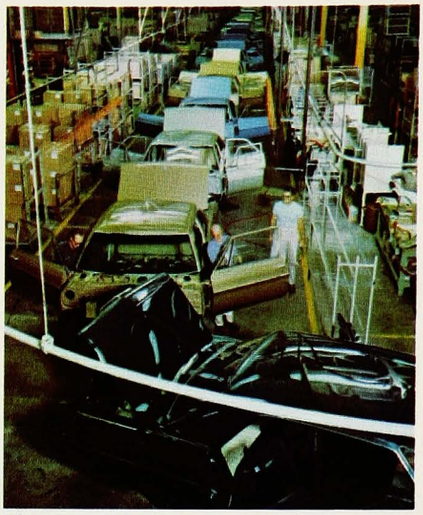
Part of the world's biggest seaway, the 26-mile Welland Canal passes ocean-going ships between lakes Erie and Ontario—a fall of 327 feet.

The Mountain Chute generating station on the Madawaska River is part of the complex that makes Ontario Hydro's present capacity 8.6 million kilowatts.



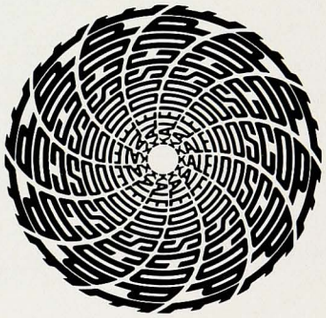
Ontario's Lakehead Ports handled 19.3 million tons of cargo in 1966.



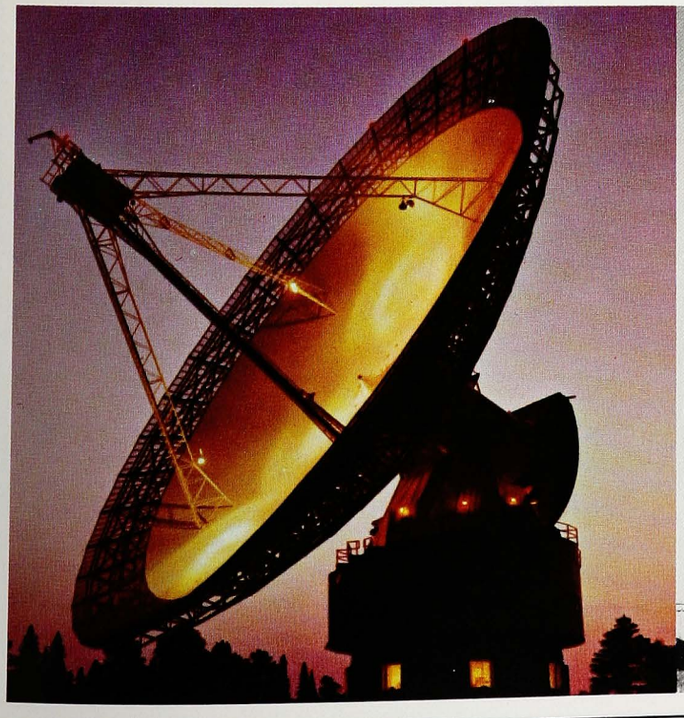


Canada produced 901,230 motor vehicles in 1966. Ontario accounts for over 90% of the nation's output.

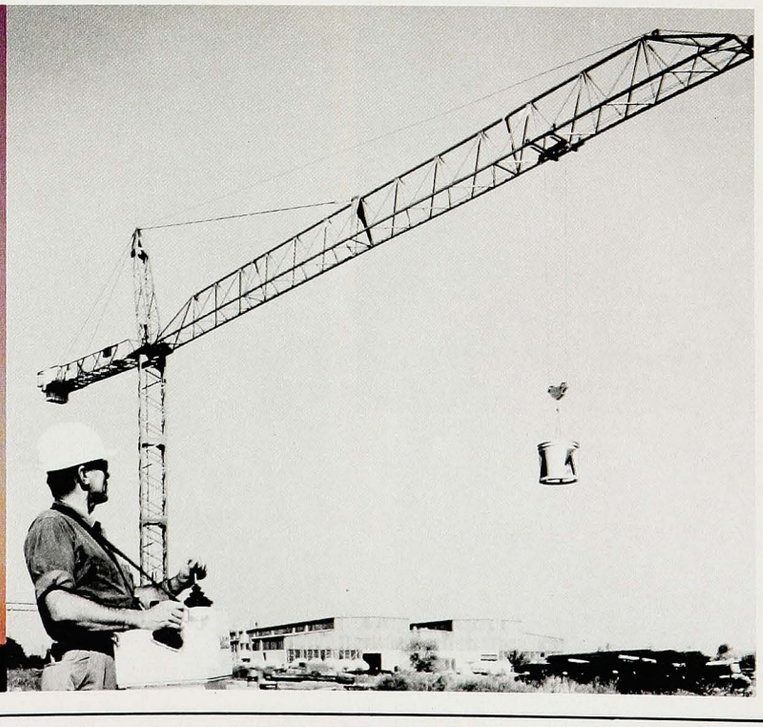
The first offshore well in North America was drilled in Lake Erie in 1913.

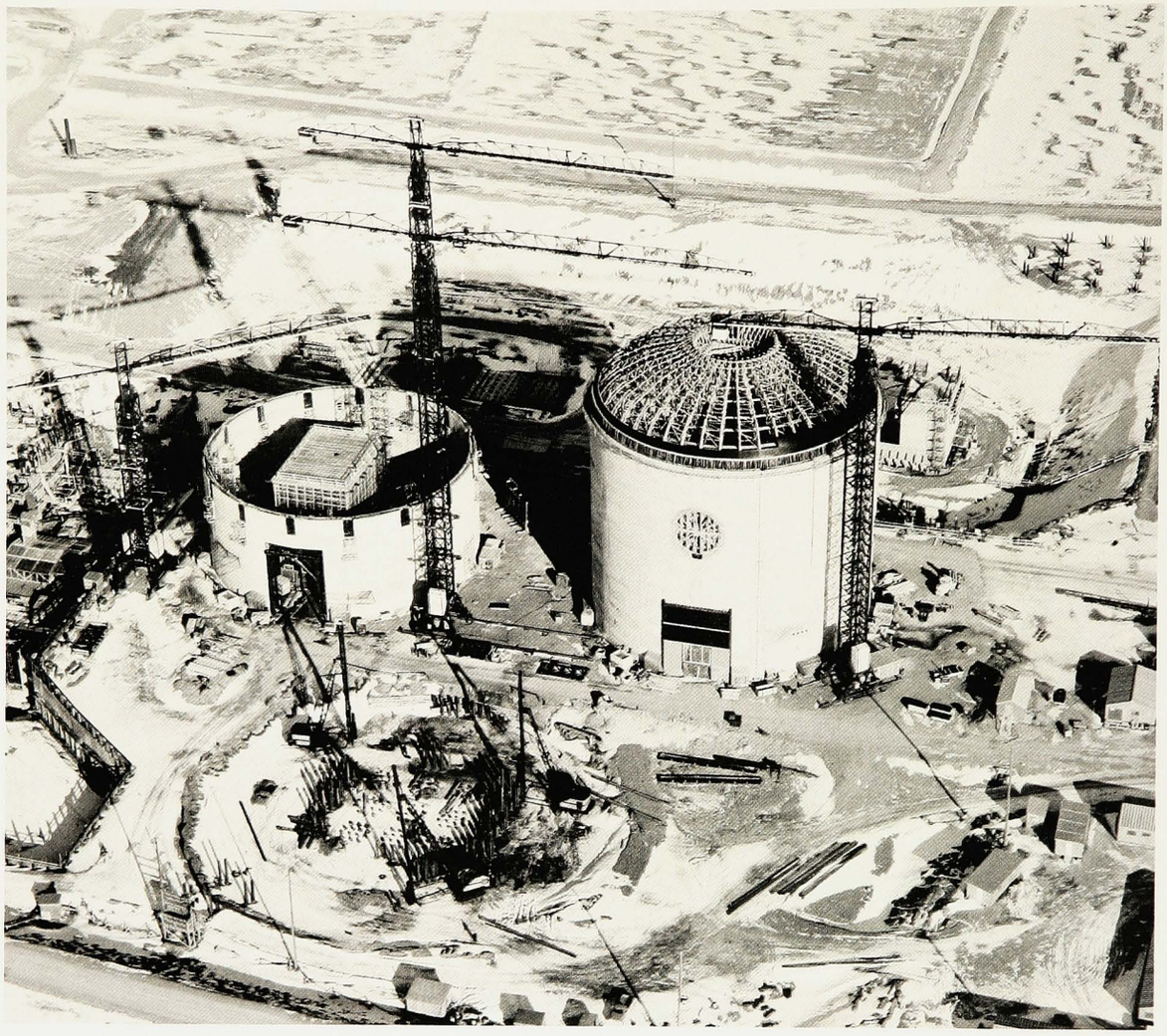


The National Research Council's 900-ton radio telescope at Algonquin Park is among the world's most powerful and versatile.

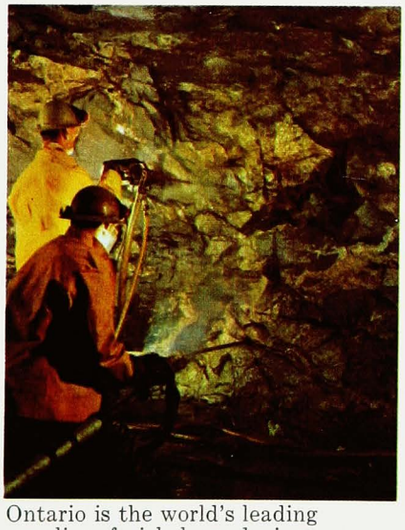


Construction is a breeze with this remote controlled climbing crane, designed and built in Ontario.



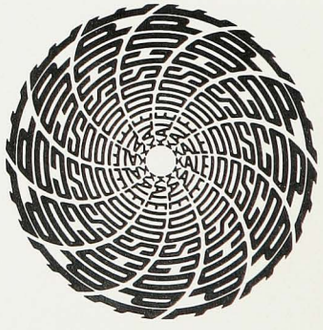


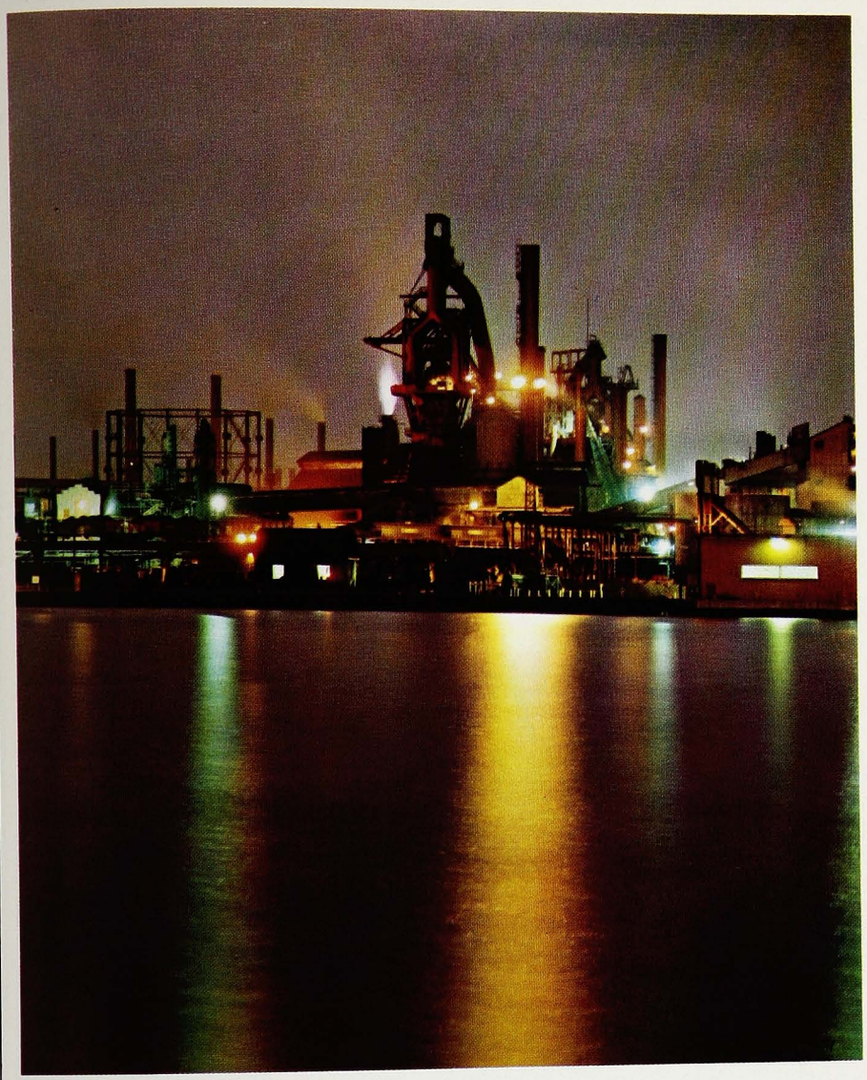
Ontario Hydro's nuclear plant at Pickering is Ontario's second commercial nuclear electric power station. Initial capacity: over one million kilowatts.



Ontario is the world's leading supplier of nickel, producing over 40% of the world's supply.

An assembled bridge at Hamilton is inspected before dismantling into 400 tons of numbered parts to be shipped and rebuilt at Rangoon, Burma.



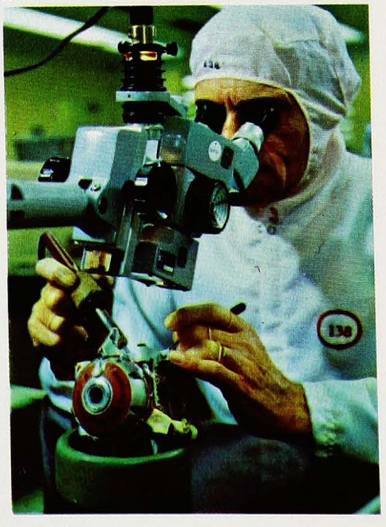


Steel plant at Hamilton.
Ontario accounts for over 80% of Canada's steel production.

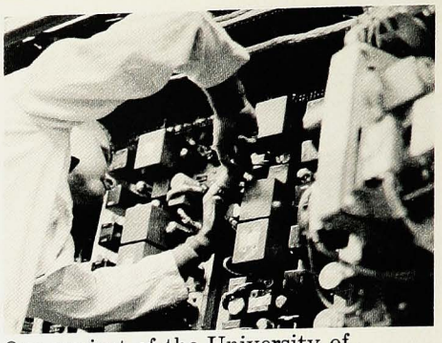
Ontario-built aircraft like the Beaver, Otter, Caribou, and their turbo-powered successors, are in use all over the world.

Group Health Centre at Sault Ste. Marie.
Provincial health services rank with the continent's best.

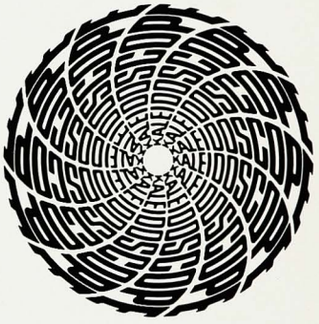
Development of sophisticated guidance systems for the jet age.



A giant paper machine at a Fort William mill. Pulp and paper earn about one-sixth of Canada's export dollars.



One project of the University of Toronto's Institute for Aerospace Studies is a mathematical equation to represent the human pilot in flight.

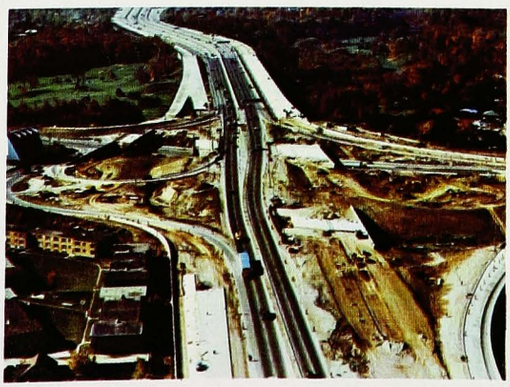


At Canadian National's yard in Vaughan Township, 5,000 cars are marshalled by computer, radio, radar, teletype and old-fashioned gravity, in the world's most advanced freight-handling facilities.

The Toronto International Airport at Malton handled three million passengers in 1966.

The restless search for more mineral deposits in Northern Ontario goes on with the help of the airborne magnetometer.

The 56-storey Toronto-Dominion Bank Tower is the world's tallest skyscraper outside of Manhattan.



The MacDonald-Cartier Freeway, a four-lane highway 510 miles long, is 12 lanes wide where it crosses the northern part of Metropolitan Toronto.

HALLOWE'EN

A night of witching mischief for children of all ages. By Robert Fulford

You make a jack-o-lantern this way: First you buy a pumpkin, preferably a big one, maybe a foot high. Then you mark on it, in pencil, a grotesque face. Triangle-shaped eyes, triangle-shaped nose, and a mouth with most of the teeth missing. Then you slice off the top of the pumpkin and dig out the seeds and pulp. Next you cut through the markings on the face with a knife, so that they become holes in the pumpkin shell. Finally you put a wax candle inside it and place the jack-o'-lantern in your window. You turn out the electric lights in the room and the candle casts an orange glow into the darkness. Your house is now part of the Hallowe'en festival.

For several hours on the last evening of each October the dark quiet residential streets of Ontario cities are filled with life and colour, with shouting and giggling. The orange jack-o'-lanterns flicker in the windows and children go up and down the streets, dressed in outlandish costumes which are used only at this time of year. Hallowe'en is thebriefest of all our festivals: it comes and goes suddenly, in one evening, and sometimes strangers to North American culture are caught unawares. There is a general idea among the young that on Hallowe'en everything is permissible. In rural areas it traditionally meant pushing over outhouses or placing buggies on top of barns. In the cities it has sometimes been more elaborate . . . in the 1890s some exuberant young men stole a herd of cattle and put them in the Toronto City Hall. But even these mild games are a less prominent part of Hallow'en now.

In the Christian Church Hallowe'en is All Hallows Eve, the night before All Saints Day. In the Druid religion it was the one night of the year when ghosts and evil spirits were permitted to wander at large on earth. In ancient Rome it was the festival of Pomona, the goddess of the fruit of trees—from which, you can argue, we derive the apples and nuts we eat on Hallowe'en. The ritual of Hallowe'en spread from Britain and Ireland to North America and flowered here as nowhere else. Now, long since secularized, it survives—as so many things do in our child-conscious culture —as a ritual for little children.

They talk about it for weeks ahead of time, growing steadily more excited as the night approaches. The schools instruct them in the proper form, and many an immigrant father has learned how to make a jack-o'-lantern from his child, who learned it in kindergarten. Mothers make costumes (an old sheet produces a ghost-like apparition) or, in more affluent areas, buy them. The children dress as witches or clowns or trolls or rabbits or devils. Sometimes they "go out" as comic book characters, like

continued

Trick or treat! And guess who?

Batman or Superman. On my street last fall a three-year-old appeared with the words "I am a fallen angel" written on his chest—and, sure enough, there were the paper wings, fastened to his back.

The children go from house to house (young ones are accompanied by their parents, who stay at a discreet distance, watchfully) calling out "Trick or Treat" or "Shell Out." At each door they hold out their wooden baskets or paper bags to receive tribute from the household—apples, candy, popcorn or, in a few exceptional cases, chocolate bars. They also carry little cardboard boxes with which they collect pennies for UNICEF, the international fund for children's relief. What does "Trick or Treat" mean? It means, theoretically, "Give me a treat or I'll play a trick on you." The children learn the slogan before they know its meaning. One father I know asked a child: "What if I say trick? What then?" The child at the door answered: "I don't know. I don't know what it means." But he knew the ritual, and joyfully acted it out.

A child in an Ontario city leads, most of the time, a carefully circumscribed life. His schoolwork is closely supervised and his existence outside school is framed by parent-made rules about what he should do and where he should do it. On Hallowe'en some of these rules dissolve and (if the child is about seven years old, or more) he goes off by himself. He vanishes into the darkness, in disguise, and mingles with others similarly invisible. It is an enchanted moment, and when he returns with his basket full of candies he is likely to be flushed and excited.

There is something in it for parents, too: an unusual sense of community, created by the frivolity of the occasion. In Ontario our *serious* rituals (insofar as we have them) involve not the basic neighbourhood around us but little chunks of it. In religion, for instance, we are heterogeneous and in general we have learned to be indifferent to one another's beliefs: it is possible to live beside a man for years, or work beside him, without knowing what religious views, if any, he possesses. Religious ritual thus has no power to bring us together with our neighbours. But an occasion like Hallowe'en, being a mock-ritual, is frivolous enough to be shared. On Hallowe'en, suddenly our street comes to life, we encounter our neighbours and their children in a fresh way, we exchange observations and jokes, and for a moment we join together in a celebration whose original meaning we have forgotten or never knew. ■

Take a pumpkin . . .

"Jack-o'-lantern."

A night of adventure.

Which witch?

For adults too, a Hallowe'en romp.

ECONOMY

For Canada's richest province, the challenge of untold resources in men and material.

By Ian Macdonald.

There was a time when men measured the wealth of nations in gold and silver. Today, we measure by more prosaic and complex standards—land, labour, capital, technology and entrepreneurship. And by these Ontario is rich and prosperous, a society of diverse and varied opportunity.

An account of land in Ontario is more than a tally of its acres of arable soil (of which Canada has more than enough for the foreseeable future); it is a story of geography and climate and natural resources above and below ground; it is also a continuing chronicle of fresh water in thousands of lakes and rivers—water for recreation and hydro-electric power and industrial thirst. Perhaps, one day, even for export.

Ontario, deep in the rich heart of North America, is in effect a peninsula, with the world's greatest inland waterway for coast. This peninsula thrusts southward into climes less rigorous than the Canadian norm. Over a large part of the province dairying and mixed farming prevail. But a long growing season, good soil and adequate rainfall favour certain highly specialized kinds of agriculture. A domestic wine-industry draws on the rich vineyards of the Niagara peninsula to produce about ninety per cent of Canada's requirements. The tobacco-growers of the southwest supply virtually the whole Canadian market for cigarette tobacco, with a healthy surplus for export.

Although the growth of cities and industry has been accompanied by a continuing reduction of the area under field-crops, so that the farm population has shrunk to some eight per cent of the provincial total, the volume and value of Ontario's farm production has steadily risen. True, some produce must be imported; crops like cotton, oranges, bananas and fresh vegetables out of season don't grow here. But these imports are largely offset by substantial exports of butter, cheese, bacon, tobacco and other farm products. And where the soil becomes unprofitable for the farmer, the land holds out other wealth. The open fields of the south and east form an apron stage to the forests and the lakes of Muskoka, the Haliburton Highlands, and the Kawarthas, where agriculture and cities give way to tourism and summer residents.

The lake areas themselves are at the southern fringe of the Precambrian Shield which sweeps in a wide arc around Hudson Bay, luring the modern air-borne prospector. This is the land of mining ventures like Inco and Falconbridge, Elliot Lake and Steep Rock, Texas Gulf

continued

and Timmins. Nickel, copper, uranium, iron-ore—all are present in untold quantities. Each year more than one quarter of Canada's mineral production is accounted for by Ontario mines. Great personal fortunes have been drawn from this ground—some of the greatest in Canada's history. Great hopes and some heartbreak still create drama in the mineral belt.

In and beyond the mining belt, the Shield country of "the true north" contains more than 100,000 square miles of valuable forest reserves, an area larger than the British Isles or West Germany. A thriving pulp and paper industry has grown up around this resource with an annual product valued at some $650 million. About twenty per cent of Canada's foreign trade is based on pulp and paper, Ontario producing well over one-quarter of its Canadian output. If the primary forest and wood industries are also taken into account, over $400 million of foreign earnings is generated annually by our forests.

If the experience of the industrial revolution in an earlier era meant anything, Ontario's lack of basic coal resources ought to have retarded industrial development. Yet in this century, with oil and natural gas flowing by pipeline from Alberta, cheap hydro-electric power readily available and nuclear power on our threshold, lack of local coal has hardly hindered the provincial economy.

So much for Ontario's geographic and natural endowment. On such a base even an unenterprising people might have done passably well. But to make this land the richest of Canadian provinces, its living standards and per-capita output second only to those of the United States—this was nothing less than a triumph of pioneer daring, individual hard work and creative energy.

From a pre-Confederation population that reached some one and a half million in 1867, Ontario's people have increased to nearly seven million, or about one third of the national total. Since 1945 well over a million immigrants have come here, mostly from Europe and broadly representative of the war's dispossessed, the political refugees, the economically disadvantaged, and in all cases the adventurous. Their reasons for leaving home were as varied as their languages and backgrounds. Two characteristics, though, predominate: their desire to make a fresh start in a new place; and their relative youth and vigour. This was a migration of the fleet, young men with strong backs, skilled tradesmen, and professionals impatient of advancement and opportunity in the old world.

In the past Ontario has been lucky enough to receive large numbers of skilled, highly productive workers by way of immigration at almost no expense to its own treasury. The untrained too have been quickly absorbed, mostly as a result of a construction boom of colossal proportions. Today, over fifty per cent of all immigrants to Canada head for Ontario: in 1966 over one hundred thousand of them arrived here.

Diligent producers and hungry consumers, these new Canadians have helped those who came earlier to stoke the economy to a formidable temperature. But even with the steady stream of immigrants from abroad and from other parts of Canada, and a recent birth-rate higher than that of any other industrial country, Ontario has suffered acute labour shortages in some major centres. Full employment has brought familiar dilemmas for governments and the economist—problems of holding down inflation without drying up the flow of the factors of production.

Right now the population bulge in the youngest group of our society (some forty per cent of the population today is nineteen years of age or under) puts the economy to its most important test. The future quality of the people who produce the wealth has to be assured; a vast range of labour skills must be upgraded if Ontario's true potential is to be realized. In any progressive society, investment in people must be paramount. Where the population is young the necessary outlay can only be massive. At the moment, close to thirty-eight per cent of the provincial government's budget is being channelled into the various levels of education. In financial terms this entails an expenditure of $678 million in the fiscal year 1966-67.

In the same year University enrolment alone (excluding technical institutes and teachers' colleges) totalled about 52,000. As a percentage of the college-age population this is still well below American levels—but considerably above those of Western Europe and Britain. Definitions of what constitutes a university level of education are bound to vary. Yet the trend in Ontario is clear: planning for higher education is being geared to the needs of a modern industrial democracy. In practical terms, this means enough university places to enable all with the requisite ability to study for degrees. By 1970 university enrolment is expected to exceed one hundred thousand students.

Similar efforts are being made in other sectors, through expanded technical and vocational high school programmes. Between 1960 and 1965, 358 new vocational schools or high school additions were completed. Soon the new programme of Colleges of Applied Arts and Technology will transform higher education in Ontario, adding a new dimension in training and diversity.

The land has been more than generous, the people determined to succeed. One result is an eminently visible capital stock of factories, houses, supermarkets, hospitals, expressways, schools and utilities. Over the past decade, approximately one quarter of Ontario's gross provincial product has gone into additions and replacements of capital stock; and this average is distinctly lower than the current rate of investment since it includes a number of slower growth years between 1957 and 1961.

From land, labour, capital, technology and entrepreneurship, Ontario achieved a gross provincial product of $22.7 billion in 1966, an energetic leap of $8 billion from 1960. Measured in constant 1957 dollars, this represents a 5.2 per cent average annual rate of growth; such is the scale and trend of the Ontario economy today. With forty per cent here, the province can justifiably regard itself as the industrial hub of the nation.

The facts of our labour force are themselves a commentary on what our society is like, particularly on its urban and industrial character, since eighty per cent of the population is now concentrated in towns and cities. The activities of the labour force underline this urban and industrial character. With only ten per cent of the workers engaged in primary industry (agriculture, forestry, mining, and fishing), and another thirty-four per cent in manufacturing and construction, fully fifty-six per cent are in the services sector.

In microcosm, the Ontario economy is the Canadian economy. Within its own borders, Ontario has a vast frontier still to be conquered, primary resources far in excess of current needs, and an urban, industrial complex geared to the mass production of goods for highly sophisticated consumers. Yet the province's economy, however significant and successful, is still a regional one within the broader national framework, an economy that both reflects and helps to shape the national scene.

Canada's economy has been a product of conscious design, of a far-reaching plan with railways and tariffs as its chief instruments. The "plan" took definite shape in the 1870s and was called simply

"The National Policy." In essence this policy grew out of the collapse of trade reciprocity with the United States; the new Canadian Confederation sought to build a national economy, on an east-west axis, in the northern half of the continent. The completion of the Canadian Pacific Railway in 1885 gave the new nation a physical link across its continental breadth, and a system of protective tariffs provided the incentive to move goods east and west along its rails. The planners envisioned a flourishing prairie economy based on wheat, complemented by an industrial central Canada, capable of providing its agricultural hinterland with the necessary farm implements and manufacturers.

Ontario, at the centre of this network, grew apace to play its role as workshop of the nation. Today over half of Canadian manufactured goods are produced in Ontario; one in four jobs in the province depends on this secondary manufacturing activity. Although about fifteen per cent of Canada's exports now consist of fully manufactured goods, Ontario's basic market for such manufactures is still domestic. This Canadian market has given the province its greatest economic opportunities; more, it has made possible the existing depth and variety of Ontario industry.

The National Policy fostered the establishment of industrial plants in Canada to supply a Canadian market which, in the absence of tariffs, would probably have been regarded as just one more American market-area to be served from home base. Geographic location and resources made Ontario the chief beneficiary of this development in secondary manufacturing. But the tariff also brought the American subsidiary firm to Canada as the manifestation of large injections of external capital.

In recent years it has become fashionable in some circles to deplore the extent of foreign ownership (chiefly American) in Canadian industry. The charge has never been proven that this ownership has hurt the Canadian economy. No doubt the true grounds of criticism are political rather than economic. Because so much foreign investment in Canada has taken the form of direct equity-holdings, foreign investment is for many people virtually synonymous with foreign ownership and control.

Without question, Canadians are far better off materially, thanks to foreign investment, than they would be if they had been left to generate their own investment-funds from current production. The rates of overall economic growth and technological advance would have been a lot slower without access to the capital and technology of a host of parent-companies in the United States.

It is at least open to question, whether industrial development in Canada would have taken the same shape if Canadians had been left to their own devices in building a national economy. It is doubtful, too, whether industry in Ontario could afford to be so diversified as it is if research, design, and development costs had not, in substantial measure, been written off by a foreign parent. To use an obvious example from the auto industry, the profusion of models and annual design-changes common to the American auto scene would be impossible for an indigenous industry in a domestic market of twenty million people.

Yet in a Canadian context fewer models—and consequently longer production-runs—could be expected to result in cheaper cars. To support such specialization without limiting the domestic consumer's range of choice requires additional imports. At the same time it requires access to wider markets for longer runs of a limited number of models —in short, a rationalization of production on a wider-than-national scale.

Such is the substance of the 1965 auto agreement between the United States and Canada. Critics have denounced it as protection in a new form, falling far short of "free trade." True, the agreement does contain qualifying clauses to ensure that auto production in Canada will not decline as a percentage of Canadian-American output. In the long run, though, current reorganization of the auto industry along continental lines can be seen as a move toward greater freedom of trade in vehicles and parts between the two countries.

It's tempting to look about for other industries where the same approach might bring similar savings through efficiencies of scale or faster growth in a wider market. Already the electrical appliances and machinery industries have been suggested as promising candidates for some version of the free-trade medicine. But in this case the problems are far more complicated, since the number of producers is much larger and foreign ownership much less significant than in the auto industry. Independent Canadian producers incur research-and-development costs of a different order from those with foreign ties. Their ability to round out a product-line by importing additional models is also less certain. Nor is it easy to break into the United States market without pre-sold brand-names. For these and many other reasons, a young economy like Canada's has been understandably reluctant to grapple with the American giant in free and open industrial competition.

Still, a trend to customs unions in other parts of the world and the bigger protected markets they make possible, puts Canada's national economy in a rather lonely position in international trade. In these circumstances, the world's richest market immediately to the south must continue to tempt the adventurous.

Even with existing tariff-barriers, many enterprising Ontario producers have built up enviable export sales on the strength of a quality product and sheer hard work. Examples from the field of home-entertainment products (stereo and television equipment), and from high-fashion women's wear come to mind.

It is this approach which the Ontario and federal governments encourage through trade missions and participation in the great trade fairs of the world. Yet the task of stimulating exports is slow work demanding great patience and determination; the world market still provides a frontier for Canada.

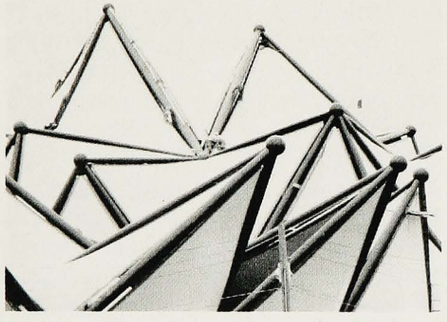
Ontario likes to think of itself as the "Province of Opportunity." Despite special problems, it is an economy with bright prospects in the framework of Canada alone. Business in the current boom has been so brisk that many manufacturers have had difficulty meeting internal demand, let alone trying to build export sales. As Canada's population grows, industry in Ontario will have an increasingly lucrative built-in market. Even with a slight decline in the current birth rate, conservative estimates forecast a Canadian population of about thirty million people within fifteen years —an increase of fifty per cent.

An enormous undertaking is in the offing. The task of providing housing, schools, consumer goods, outlets for leisure services, and jobs for ten million people in a mere fifteen years will require even more rapid expansion than Canada has achieved in the past decade-and-a-half, matched by a determined effort to increase our exports of manufactured goods. Yet Ontario—at the heart of the nation—need have no fear for its economic future. New vistas abound for both the men and material of which this province is made. It is a fitting place for twentieth-century pioneers, men with the imagination and daring to welcome opportunity whenever and wherever it knocks. ■

A Place for Celebration

How the Ontario Pavilion at Expo 67 was dreamed up.

By Jack Batten



The point at which the Ontario Government Pavilion at Expo 67 began to assume the special style—its look of open grace and elegant surprise that makes it distinctive even among the aggressively far-out architecture of other Expo pavilions—didn't occur that day in October 1964 when the government decided that, yes, there really would be an Expo in 1967 and, yes, Ontario really must participate. It didn't come, either, in the Spring of 1964 when the government selected the firm of Fairfield & DuBois over all the old established architects in Ontario to design the pavilion. And it still didn't occur when everyone—politicians civil servants, architects—agreed that Ontario's image at Expo must leave aside the stereotype land of streams and woods that many Americans bless us with in favour of something more sophisticated and with-it, something that speaks of technology and urbanity.

No, the moment that decided the

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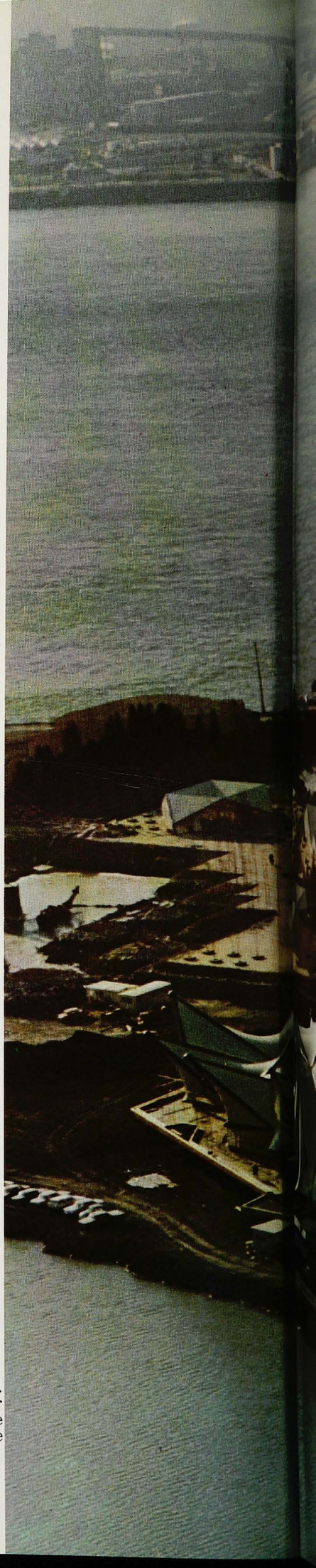
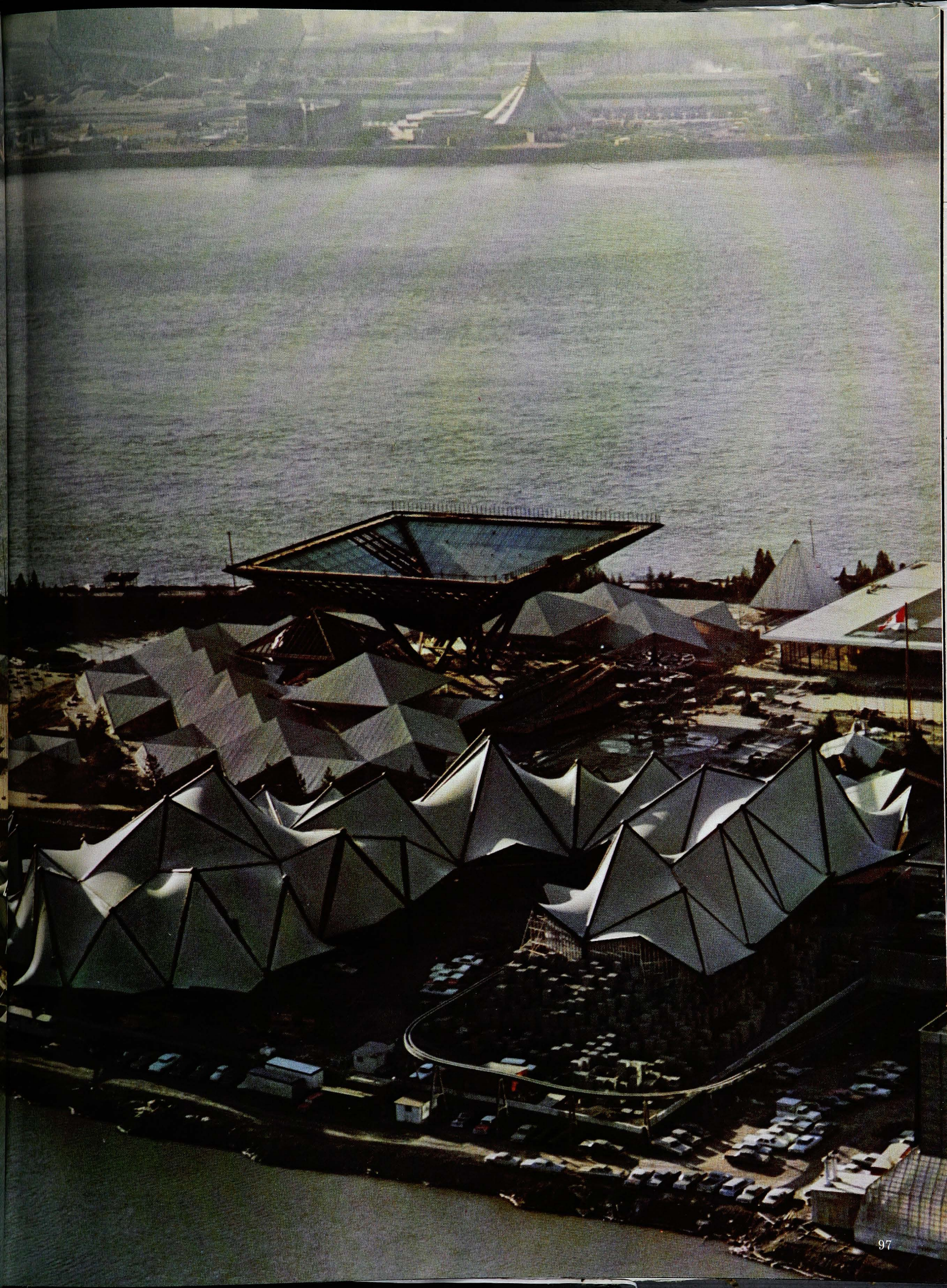


Helicopter view of Notre Dame Island. Foreground, the Ontario Pavilion under construction. Immediately behind it, the Federal Pavilion. Beyond the St. Lawrence is the misty docks area of Montreal.



pavilion's look and style came one sunny June day, precisely at noon, in 1964, when Macy DuBois, the pavilion's designer from Fairfield & DuBois, was standing somewhere towards the centre of an open space in the Joie de Vivre Pavilion at the Lausanne (Switzerland) international fair.

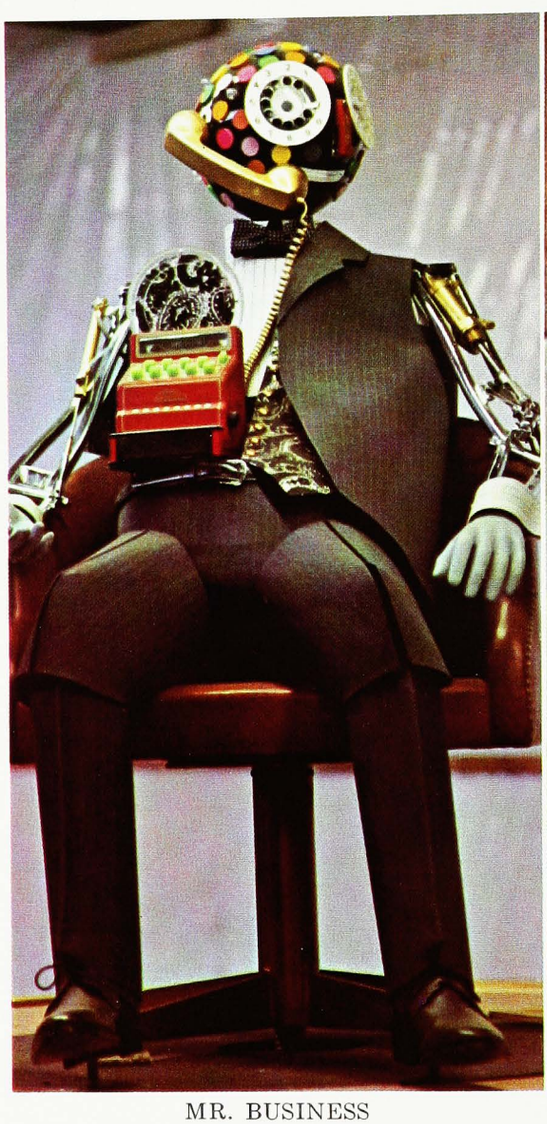
"The noon bells of a little church in the pavilion were ringing," DuBois remembers, "and there were a great many people listening to them this day. But there was no sense of a crowd. It was just a lot of people moving freely through a beautifully sculptured space experiencing a marvelous moment. The pavilion itself was quite a simple building but it made the best use of space I've seen in a 20th-Century building. And that's the idea that stuck in my mind because I knew then that there was one really crushing problem facing everyone at Expo: not enough room. Just too much, too closely together."

And that moment defined the concept that DuBois brought to his design for the Ontario pavilion—a demand for space, motion, flow—and, in a sense, it shaped the thinking of everyone involved in bringing the pavilion to life: the exhibit planners, the landscape architect, the restauranteurs, the musicians, artists and sculptors. For the pavilion, on its miniature two and a half acre site, *did* emerge as a place where the open areas, the spaces in which people actually move, may be more important than the building and the hard physical facts of the pavilion.

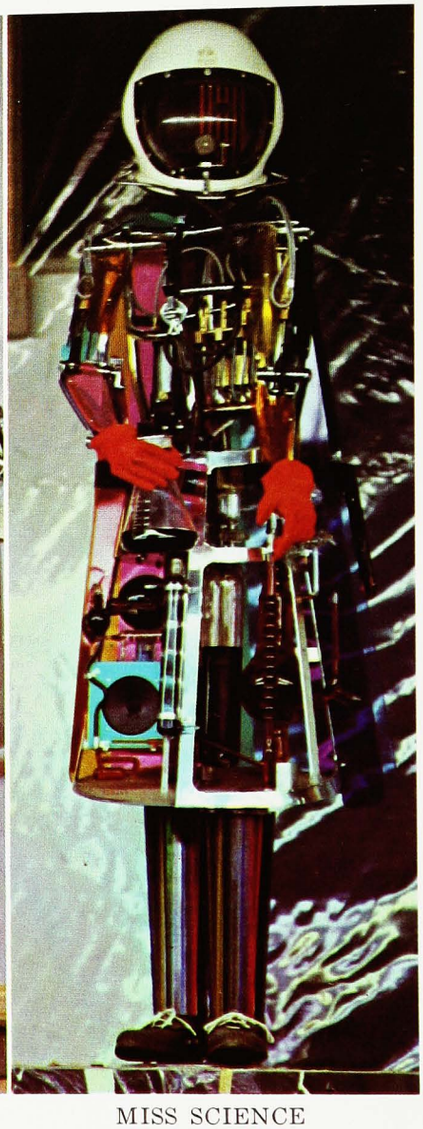
DuBois's solution turned out to be a building open on all sides, full of light and air, with its exhibit floor raised fourteen feet above the pedestrian walk. The walking areas, in turn, were gently sloped to lend a subtle hint of more room than actually existed, and ramps were installed to lead strollers smoothly upwards to the pine platforms holding the exhibits.

Overhead, DuBois draped a thin, light vinyl-coated fibreglass over an ornately complex assembly of steel girders that, in its naked, uncovered state, resembled nothing so much as one of the tangled metal works of the Toronto sculptor Gerald Gladstone blown a thousand times normal size. DuBois took the precaution of calculating by computer the stresses, lengths and shapes he could use in steel, and, thus freed, he designed a pavilion of formidable originality, a building that, viewed from almost any angle, left the impression that a giant exotic African butterfly had somehow dropped momentarily to rest at Expo.

That shape didn't please everyone. To one Toronto columnist, the pavil-

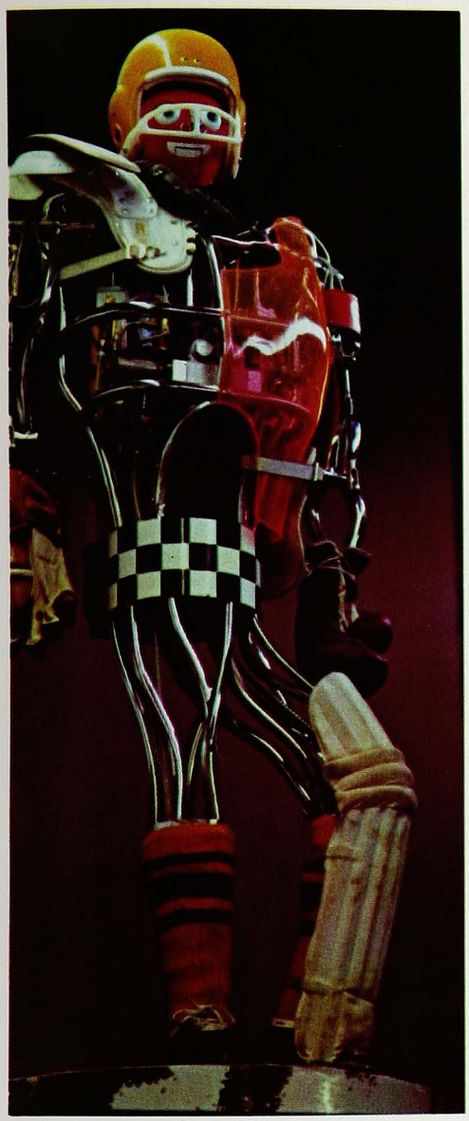


MR. BUSINESS



MISS SCIENCE

CAREERS—one of 17 major exhibits featuring five life-size mechanical men who will talk about career opportunities in Ontario.

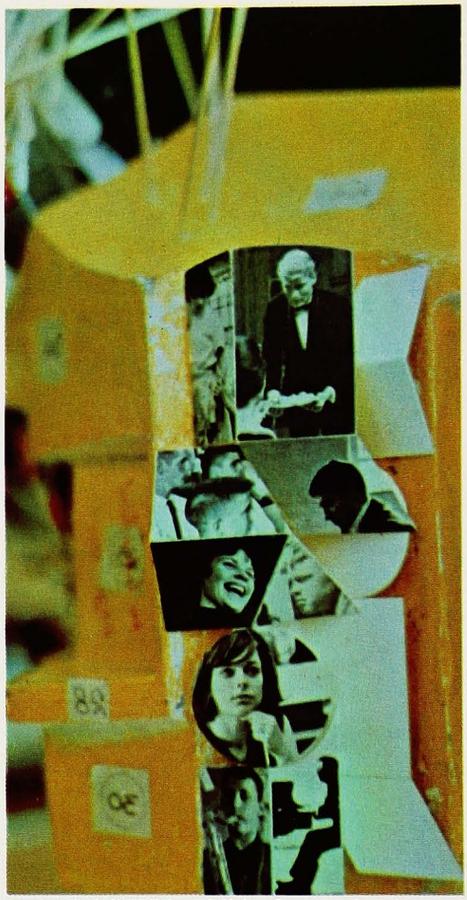


MR. SPORT

ion looked like "a bat struggling under a sheet" and to another it was "a Chinese dragon dance." The design's critics preferred rather to define the pavilion in terms of the staggering array of statistics that surround it: 29,000 square feet of carpeting; a 570-seat theatre with a 30-feet high by 66-feet wide screen on which a 70 mm film impression of Ontario life is shown several times a day; total building costs of $8 million; $125,000 worth of art; 17 major exhibits (ranging from A CHILD'S WORLD OF WONDER, a collection of fifty children's paintings arranged so that viewers can stroll admiringly under, around and beside them to CAREERS, where talking robots discuss Ontario job opportunities); a restaurant complex that seats 700 diners (including a couple of spots where Ontario natives can actually consume a little beer and liquor outdoors, something still forbidden back home); a 20-minute musical suite broadcast through the pavilion ten hours a day; 28 hostesses and 16 hosts, all bilingual and all graduates of a course in good grooming, to show visitors around the pavilion; and, scattered about the grounds outside the pavilion, 10,292 tons of granite—enough, indeed to use up the output of one quarry for three years.

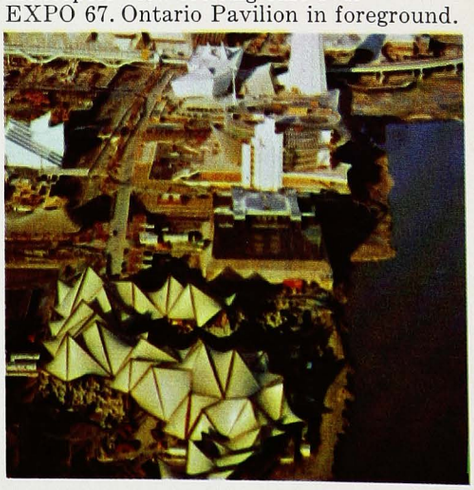
The landscape architect, Dick Strong of Toronto, the man who wrestled with all those granite blocks, faced up to the same difficulties that harried DuBois—the space problem. He solved it by, in his phrase, "going vertical." He brought in 144 trees from Ontario forests, most of them fir and all of them distinctly vertical, and with the trees and the granite, he achieved in a small area "a free abstract Ontario feeling."

What he and DuBois and their associates in fact brought to the pavilion—viewed from inside or outside, from the walking area looking up, a helicopter looking down, from the minirail that sweeps through the building's middle—was a touch of almost every possible architectural experience. The pavilion, mysteriously and subtly, turned into an Expo exhibit itself. It began with a small revelation back there in Lausanne and it became a building that, at least briefly, added a fresh element of grace to the Canadian skyline. ■



TEEN SCENE exhibit shows what goes on in the teenage subculture.

Helicopter view looking east over EXPO 67. Ontario Pavilion in foreground.



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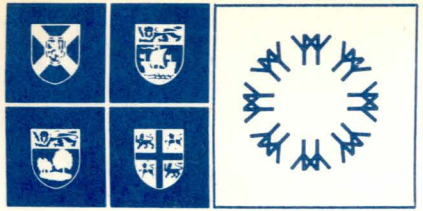

atlantic provinces pavilion EXPO '67 le pavillon des provinces atlantiques a L'EXPO '67 ile notre-dame, montréal, québec, canada

MONTREAL
10 AM
7 XI
1967
P.Q.

Mrs. I.M. Dobell
McCord Museum
McGill University
Montreal, Quebec

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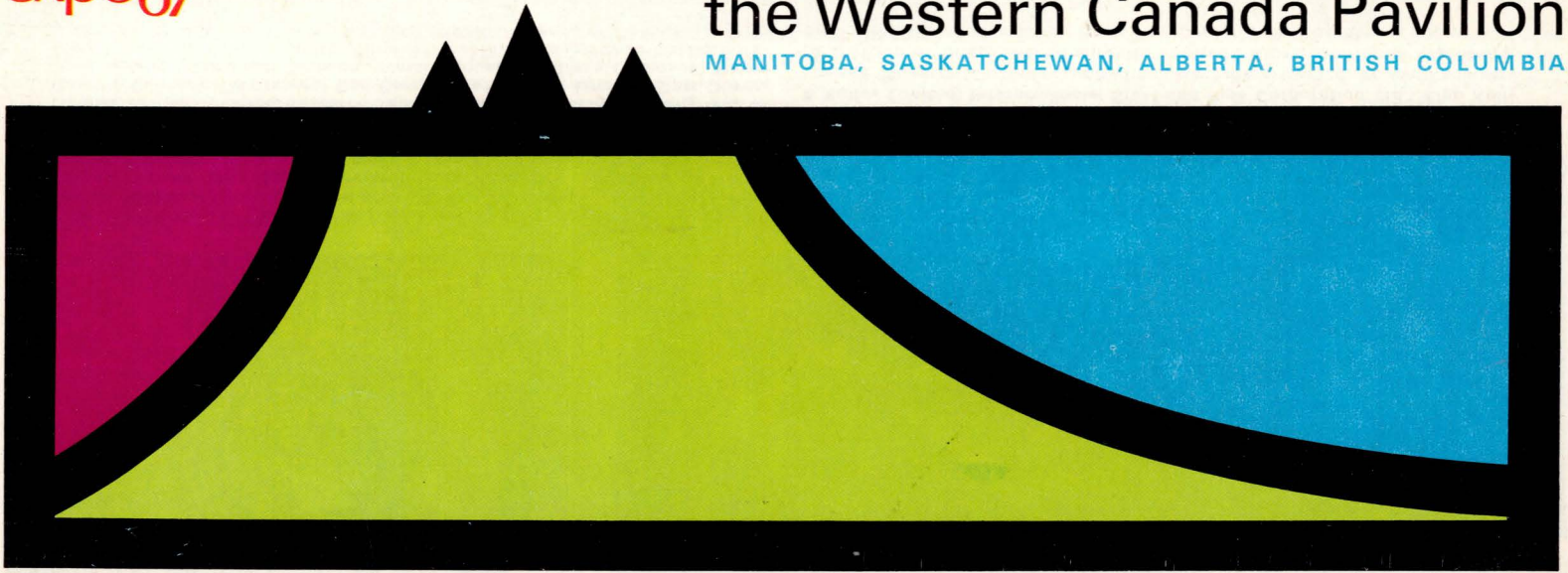
the Western Canada Pavilion

MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA



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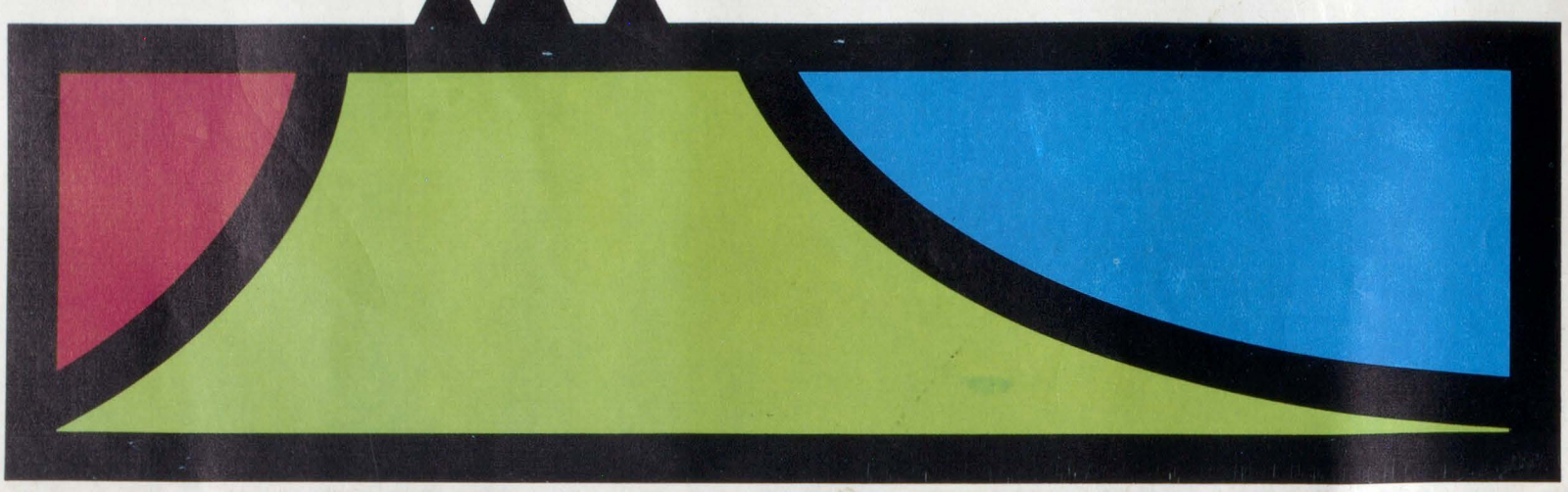
Le Pavillon de l'Ouest Canadien

MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA

expo67

the Western Canada Pavilion

MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA



In less than an hour, you have travelled from Manitoba, through points in Saskatchewan and Alberta, to locations in British Columbia, in your tour through the Western Canada Pavilion. During that time, you have had opportunity to see just a few of the sources of wealth of that vast sweep of country, and to enjoy your participation in the simulated development of those selected resources.

The Western Canada Pavilion has been erected as a joint project of the governments of British Columbia, Alberta, Saskatchewan and Manitoba, and has cost approximately $1,350,000. It is some 12,000 square feet in area, and its roof reaches some 40 feet above street level. Towering above the roofline by some 20 feet are the tips of growing fir trees, from the forest floor within. The shape of the roofline represents in cross section the topography of western Canada, with the flat sweep of prairie, the rising foothills and the tree-clad mountain slopes.

Many of the components of the displays have been contributed by commercial and business firms throughout the west. Their involvement is gratefully acknowledged and their names listed.

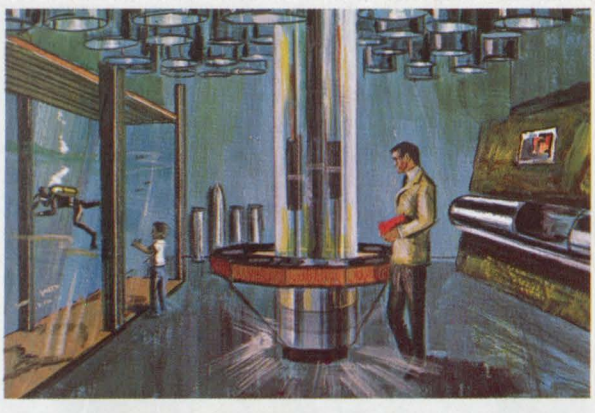
Your hostesses and guides in the Pavilion are from western Canada too, four from each of the four western provinces. It is their hope, on behalf of their respective provinces, that you will not hesitate to write for more information on the area of interest to you. You may write to any of:

British Columbia Department of Industry, Development, Trade & Commerce, Victoria, B.C.

Alberta Department of Industry and Development, Edmonton, Alberta.

Manitoba Department of Industry and Commerce, Winnipeg, Manitoba.

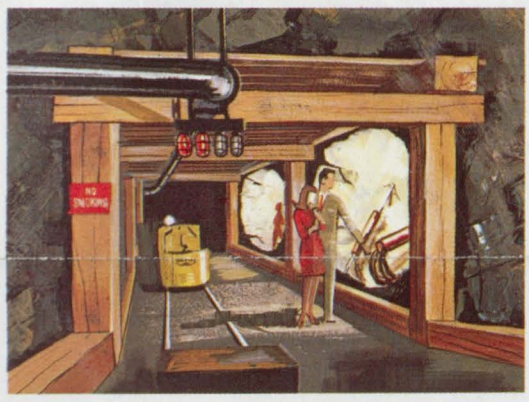
Saskatchewan Department of Industry and Commerce, Regina, Saskatchewan.



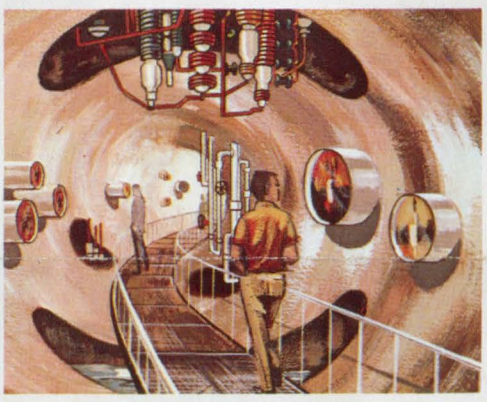
Pavilion visitors find themselves in a realistic western farm scene as they progress through the agricultural display capsule, toward the livestock section.

Research and development, by private industry and by government, has played an important role in the growth of western industry.

The immense logging truck is an overwhelming center of attraction in the forest scene, as surrounding trees project their tops through the open roof.

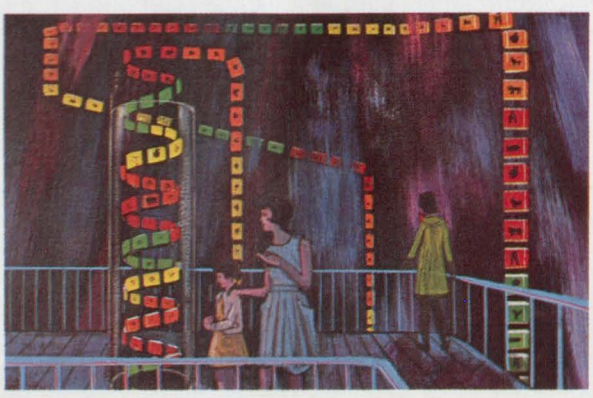


The mine, with its rocky walls imbedded with representative samples of the west's many kinds of mineral riches, depicts Western Canada's underground wealth.

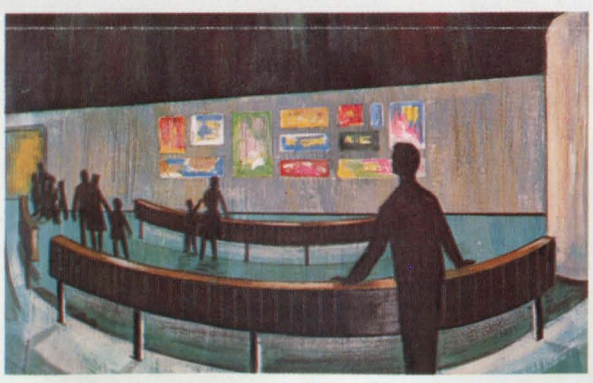


Energy moves by tube, and the energy capsule conforms to this shape as it displays impressions of the tremendous energy resources of the western provinces.

The wholesome odors of processing food and the glitter of moving cans enriches the atmosphere of the food processing section.



Products of western Canadian forests range from plywoods to pulp, and from paper to timber, impressively displayed in this animated experience capsule.



The realistic fishing shed, and the writhing netful of fresh fish dripping from the side of the fishing boat, testify to the importance of the fresh and salt water fishing industry in the west.

The way of life of Western Canada's greatest resource, its people, is presented in a three-screen theatre.

Many firms and associations throughout Western Canada have participated in the development of the Western Canada Pavilion. Included are: **Council of the Forest Industries of British Columbia; Calgary Power Ltd.; Saskatchewan Power Corporation; Manitoba Hydro; British Columbia Hydro and Power Authority; Canadian Utilities Limited; Northland Utilities Limited; the City of Calgary Electric System; the City of Medicine Hat Electric Utility; Atomic Energy of Canada; Bristol Aerospace Limited; British Columbia Research Council; Canadian Fishing Company, Gulf of Georgia Cannery; Continental Can Company of Canada Limited; Dorr-Oliver-Long Limited; Goodman Division, Westinghouse Air Brake Company; Hayes Manufacturing Company Limited; International Minerals and Chemical Corporation (Canada) Limited; The International Nickel Company of Canada, Limited; Research Council of Alberta, Killbery Industries; Canadian Association of Oilwell Drilling Contractors; Canada Bit Limited; Smith Tool Company; Telecables and Wires Limited; W. J. Bush & Co. (Canada) Limited; Connecticut Chemicals (Canada) Ltd.; Airchime Manufacturing Co. Ltd.; Alta Bend (1963) Ltd.; Brandt Machine Mfg. Ltd.; Canadian Tool & Die Works Ltd.; Chicago Blower (Canada) Ltd.; Crown Implement Manufacturers Ltd.; Edwards Industries Ltd.; Galbraith & Sulley Limited; Interprovincial Steel and Pipe Corporation Ltd.; Kipp Kelly Limited; Monarch Machinery Limited; Nuclear Enterprises Ltd.; Power Machinery (A Division of Bristol Aero-Industries Limited); Richardson Road Machinery; Smith-Roles Limited; Sumner Brass Foundry Ltd., and many others.**

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LITHO'D IN CANADA

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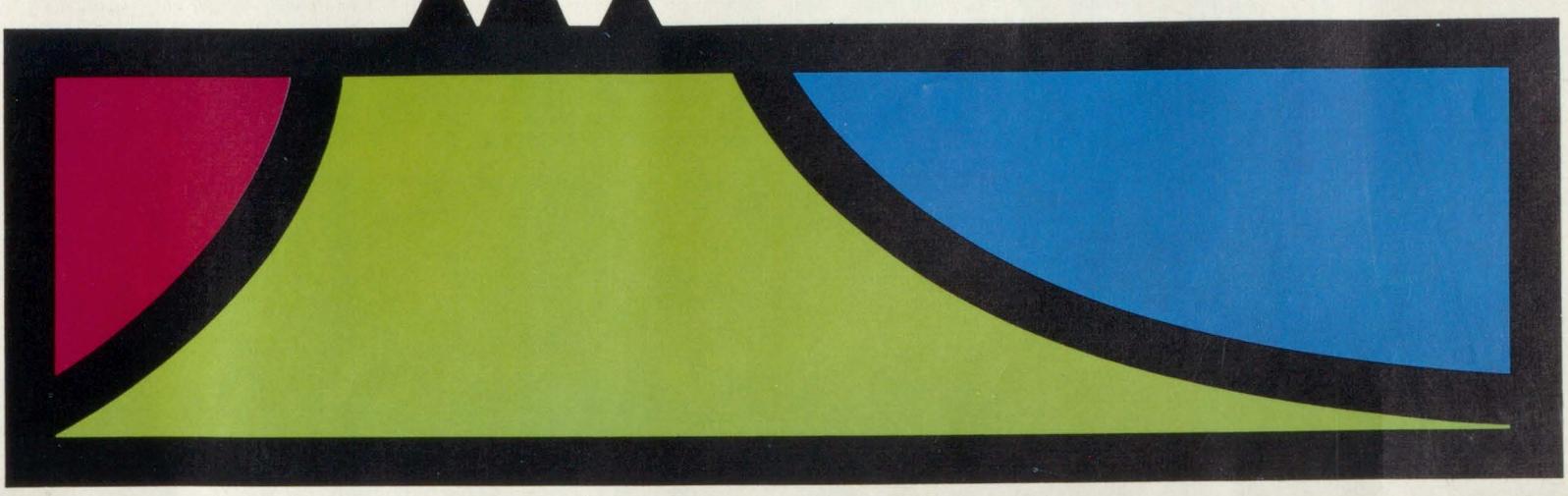
Le Pavillon de l'Ouest Canadien

MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA



Votre visite au Pavillon de l'Ouest canadien vous fera voir l'Ouest en moins d'une heure, du Manitoba à la Colombie Britannique en passant par la Saskatchewan et l'Alberta. En si peu de temps, vous aurez l'occasion de connaître quelques-unes des grandes richesses naturelles de cette vaste étendue de notre pays et de participer à la reproduction de l'exploitation des richesses qui ont été choisies pour le pavillon.

Le Pavillon de l'Ouest canadien est une réalisation conjointe du gouvernement de la Colombie Britannique, de l'Alberta, de la Saskatchewan et du Manitoba. Sa construction a coûté $1,350,000 environ. Il occupe une superficie de quelque 12,000 pieds carrés et mesure environ 40 pieds de hauteur. La tête des sapins de la forêt reproduite à l'intérieur du pavillon s'élève à quelque 20 pieds au-dessus du toit. Le profil du pavillon évoque la topographie de l'Ouest canadien, le passage des prairies unies, le pied des montagnes et les sommets boisés.

Des entreprises commerciales de l'Ouest canadien ont donné plusieurs des éléments de l'exposition. Nous désirons ici les remercier de leur participation. Leur nom figure à la dernière page du dépliant.

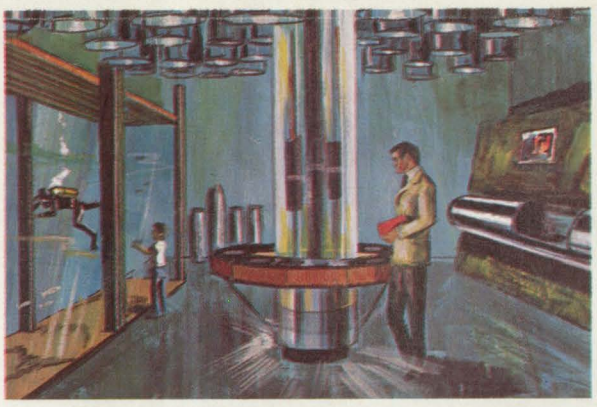
Les hôtesses et les guides du Pavillon viennent tous de l'Ouest du Canada, quatre de chacune des quatres provinces de l'Ouest. Ils vous invitent, au nom de leur province respective, à écrire aux adresses ci-dessous pour obtenir de plus amples renseignements sur les régions qui vous intéressent.

British Columbia Department of Industry, Development, Trade & Commerce, Victoria, B.C.

Alberta Department of Industry and Development, Edmonton, Alberta.

Manitoba Department of Industry and Commerce, Winnipeg, Manitoba.

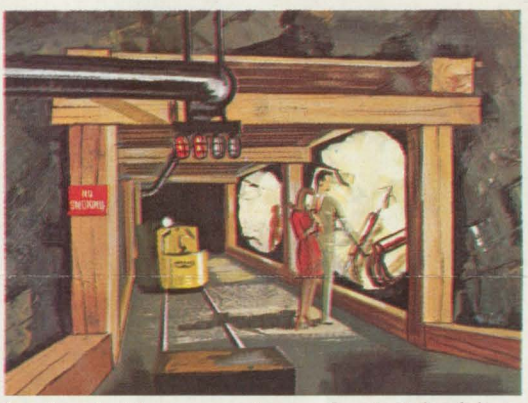
Saskatchewan Department of Industry and Commerce, Regina, Saskatchewan.



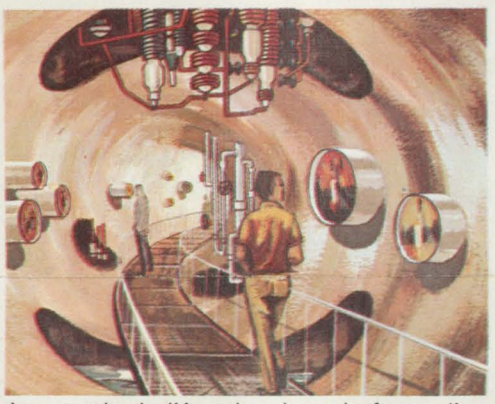
Les visiteurs du Pavillon se retrouveront dans une scène rurale de l'Ouest en passant par le secteur agricole pour se rendre à celui des bestiaux.

La recherche et la mise en valeur, par le secteur privé de l'industrie et par le gouvernement, ont joué un grand rôle dans l'expansion industrielle de l'Ouest.

Un élément spectaculaire du lieu d'attraction consacré aux richesses forestières, est cet énorme camion de transport du bois que l'on voit entouré d'arbres qui dépassent le pavillon par une ouverture au toit.



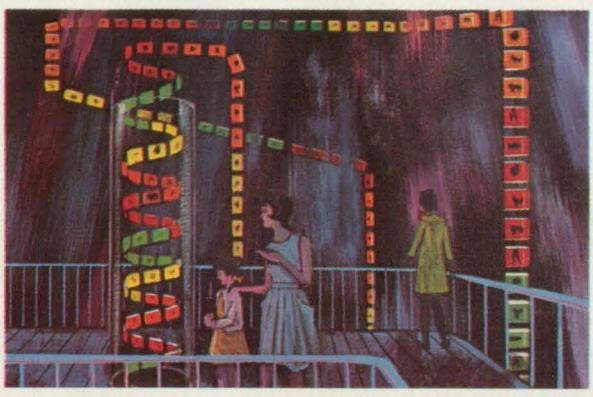
La mine, dont les murs rocheux présentent des échantillons de plusieurs sortes de minerais que l'on rencontre dans l'Ouest, montre l'exploitation de la grande richesse souterraine de l'Ouest canadien.



La capsule de l'énergie adopte la forme d'un tube, moyen de transport de l'énergie, et cette présentation montre les immenses ressources des provinces de l'Ouest en énergie.

Dans le secteur de la transformation des aliments, l'odeur agréable des produits et l'éclat des boîtes métalliques concrétisent l'ambiance.

La gamme des produits que l'on tire des richesses forestières de l'Ouest canadien, des contreplaqués au bois de pulpe et du papier au bois d'oeuvre, est exposée d'une façon impressionnante dans cette capsule animée.



La "cabane" à pêche et le filet plein de poissons frétillants près du bateau, témoignent de l'importance de la pêche de poissons d'eau douce et d'eau salée dans l'Ouest.

Le principal atout de l'Ouest canadien provient des gens qui en constituent la population. Leur mode de vie vous est présenté au théâtre, sur trois écrans.

Plusieurs entreprises et associations de l'Ouest canadien ont participé à la réalisation du Pavillon de l'Ouest. Ce sont: **Council of the Forest Industries of British Columbia; Calgary Power Ltd.; Saskatchewan Power Corporation; Manitoba Hydro; British Columbia Hydro and Power Authority; Canadian Utilities Limited; Northland Utilities Limited; the City of Calgary Electric System; the City of Medicine Hat Electric Utility; Atomic Energy of Canada; Bristol Aerospace Limited; British Columbia Research Council; Canadian Fishing Company, Gulf of Georgia Cannery; Continental Can Company of Canada Limited; Dorr-Oliver-Long Limited; Goodman Division, Westinghouse Air Brake Company; Hayes Manufacturing Company Limited; International Minerals and Chemical Corporation (Canada) Limited; The International Nickel Company of Canada, Limited; Research Council of Alberta; Killbery Industries; Canadian Association of Oilwell Drilling Contractors; Canada Bit Limited; Smith Tool Company; Telecables and Wires Limited; W. J. Bush & Co. (Canada) Limited; Connecticut Chemicals (Canada) Ltd.; Airchime Manufacturing Co. Ltd.; Alta Bend (1963) Ltd.; Brandt Machine Mfg. Ltd.; Canadian Tool & Die Works Ltd.; Chicago Blower (Canada) Ltd.; Crown Implement Manufacturers Ltd.; Edwards Industries Ltd.; Galbraith & Sulley Limited; Interprovincial Steel and Pipe Corporation Ltd.; Kipp Kelly Limited; Monarch Machinery Limited; Nuclear Enterprises Ltd.; Power Machinery (A Division of Bristol Aero-Industries Limited); Richardson Road Machinery; Smith-Roles Limited; Sumner Brass Foundry Ltd., et de nombreux autres.**

RÉALISATION: Dessinateur-projeteur—Opus International, Toronto. Architecte—Beatson Stevens Associates, Calgary. Ingénieurs—Reid Crowther and Partners Limited, Calgary. Construction—A.N. Bail Limited, Montréal. Conception et réalisation des éléments d'exposition—Daly Displays Ltd., Winnipeg. Uniformes—création et confection par l'industrie du vêtement du Manitoba.

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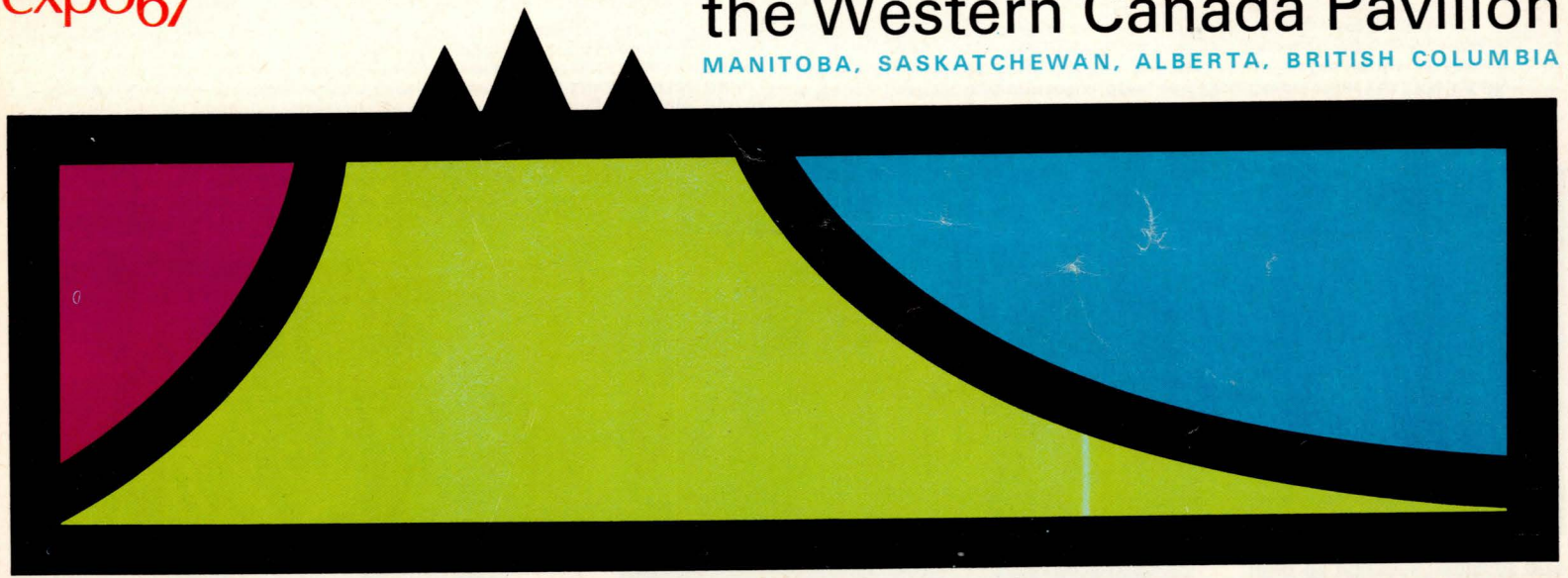
the Western Canada Pavilion

MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA



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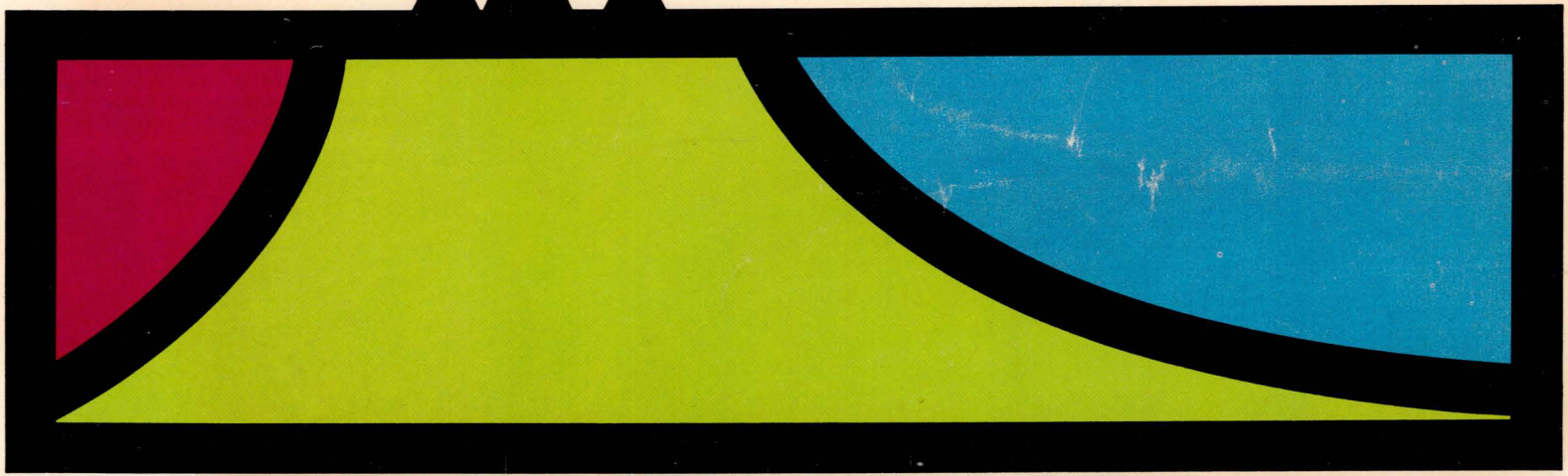

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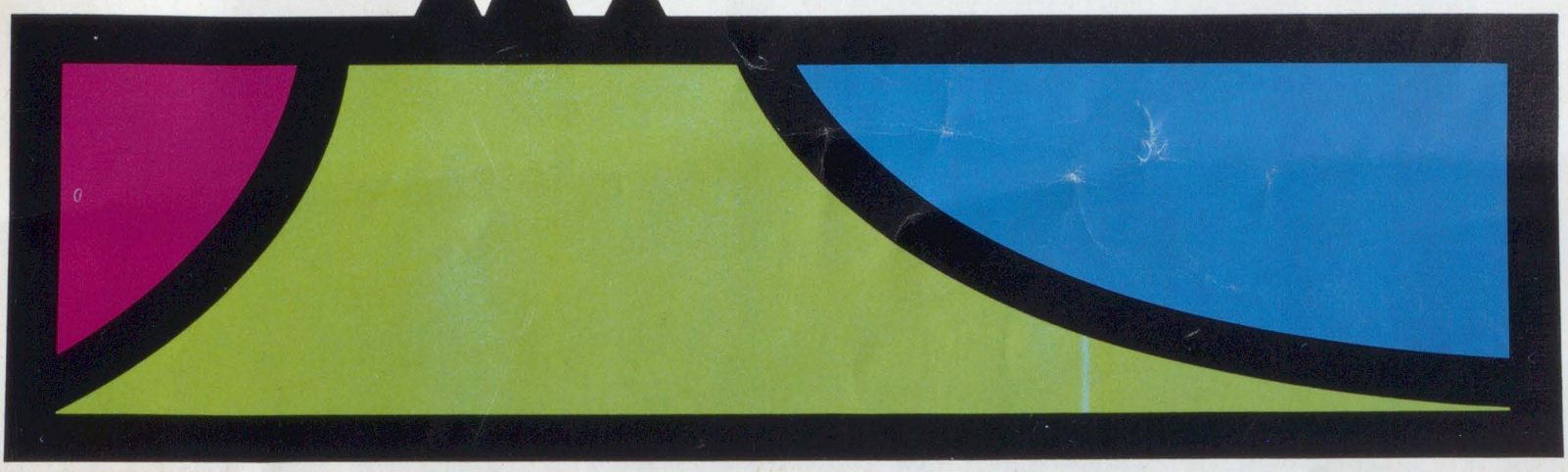
MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA



In less than an hour, you have travelled from Manitoba, through points in Saskatchewan and Alberta, to locations in British Columbia, in your tour through the Western Canada Pavilion. During that time, you have had opportunity to see just a few of the sources of wealth of that vast sweep of country, and to enjoy your participation in the simulated development of those selected resources.

The Western Canada Pavilion has been erected as a joint project of the governments of British Columbia, Alberta, Saskatchewan and Manitoba, and has cost approximately $1,350,000. It is some 12,000 square feet in area, and its roof reaches some 40 feet above street level. Towering above the roofline by some 20 feet are the tips of growing fir trees, from the forest floor within. The shape of the roofline represents in cross section the topography of western Canada, with the flat sweep of prairie, the rising foothills and the tree-clad mountain slopes.

Many of the components of the displays have been contributed by commercial and business firms throughout the west. Their involvement is gratefully acknowledged and their names listed.

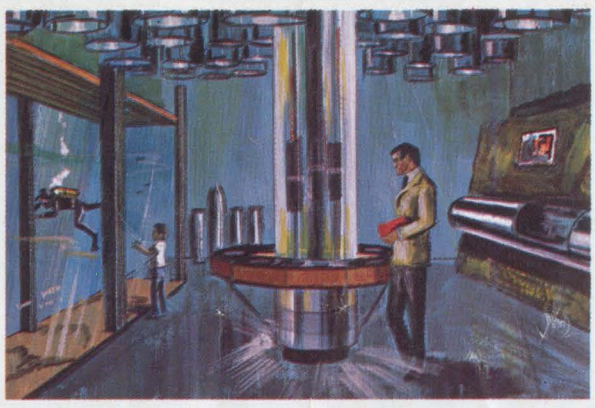
Your hostesses and guides in the Pavilion are from western Canada too, four from each of the four western provinces. It is their hope, on behalf of their respective provinces, that you will not hesitate to write for more information on the area of interest to you. You may write to any of:

British Columbia Department of Industry, Development, Trade & Commerce, Victoria, B.C.

Alberta Department of Industry and Development, Edmonton, Alberta.

Manitoba Department of Industry and Commerce, Winnipeg, Manitoba.

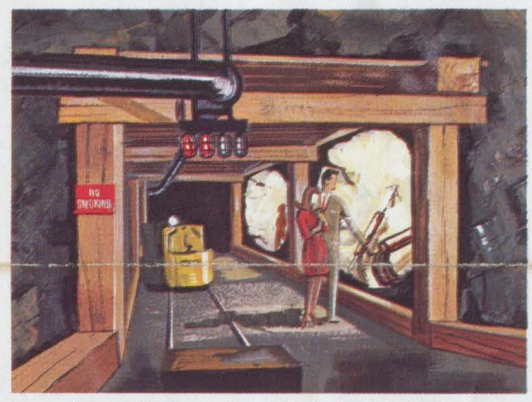
Saskatchewan Department of Industry and Commerce, Regina, Saskatchewan.



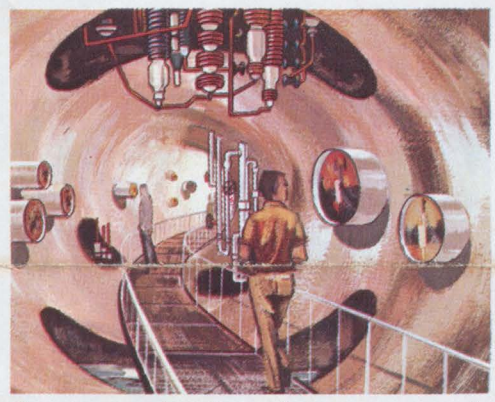
Pavilion visitors find themselves in a realistic western farm scene as they progress through the agricultural display capsule, toward the livestock section.

Research and development, by private industry and by government, has played an important role in the growth of western industry.

The immense logging truck is an overwhelming center of attraction in the forest scene, as surrounding trees project their tops through the open roof.

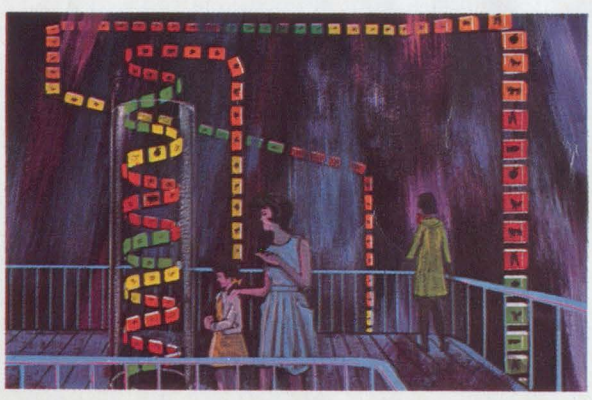


The mine, with its rocky walls imbedded with representative samples of the west's many kinds of mineral riches, depicts Western Canada's underground wealth.

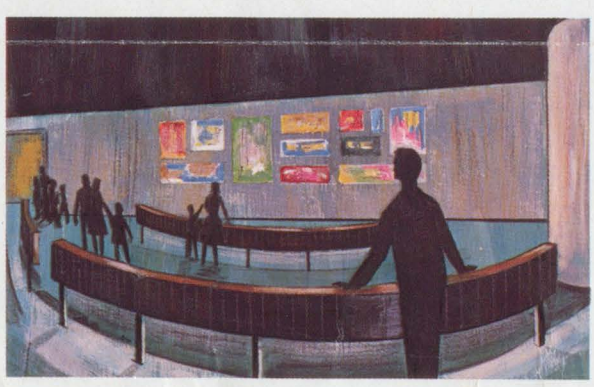


Energy moves by tube, and the energy capsule conforms to this shape as it displays impressions of the tremendous energy resources of the western provinces.

The wholesome odors of processing food and the glitter of moving cans enriches the atmosphere of the food processing section.



Products of western Canadian forests range from plywoods to pulp, and from paper to timber, impressively displayed in this animated experience capsule.



The realistic fishing shed, and the writhing netful of fresh fish dripping from the side of the fishing boat, testify to the importance of the fresh and salt water fishing industry in the west.

The way of life of Western Canada's greatest resource, its people, is presented in a three-screen theatre.

Many firms and associations throughout Western Canada have participated in the development of the Western Canada Pavilion. Included are: **Council of the Forest Industries of British Columbia; Calgary Power Ltd.; Saskatchewan Power Corporation; Manitoba Hydro; British Columbia Hydro and Power Authority; Canadian Utilities Limited; Northland Utilities Limited; the City of Calgary Electric System; the City of Medicine Hat Electric Utility; Atomic Energy of Canada; Bristol Aerospace Limited; British Columbia Research Council; Canadian Fishing Company, Gulf of Georgia Cannery; Continental Can Company of Canada Limited; Dorr-Oliver-Long Limited; Goodman Division, Westinghouse Air Brake Company; Hayes Manufacturing Company Limited; International Minerals and Chemical Corporation (Canada) Limited; The International Nickel Company of Canada, Limited; Research Council of Alberta, Killbery Industries; Canadian Association of Oilwell Drilling Contractors; Canada Bit Limited; Smith Tool Company; Telecables and Wires Limited; W. J. Bush & Co. (Canada) Limited; Connecticut Chemicals (Canada) Ltd.; Airchime Manufacturing Co. Ltd.; Alta Bend (1963) Ltd.; Brandt Machine Mfg. Ltd.; Canadian Tool & Die Works Ltd.; Chicago Blower (Canada) Ltd.; Crown Implement Manufacturers Ltd.; Edwards Industries Ltd.; Galbraith & Sulley Limited; Interprovincial Steel and Pipe Corporation Ltd.; Kipp Kelly Limited; Monarch Machinery Limited; Nuclear Enterprises Ltd.; Power Machinery (A Division of Bristol Aero-Industries Limited); Richardson Road Machinery; Smith-Roles Limited; Sumner Brass Foundry Ltd., and many others.**

CREDITS—Concept Designer—Opus International, Toronto; Architect—Beatson Stevens Associates, Calgary; Engineers—Reid Crowther and Partners Limited, Calgary; Construction—A. N. Bail Limited, Montreal; Display Design and Construction—Daly Displays Ltd., Winnipeg; Uniforms—designed and provided by Manitoba Garment Industry.

LITHO'D IN CANADA

expo67

Le Pavillon de l'Ouest Canadien

MANITOBA, SASKATCHEWAN, ALBERTA, BRITISH COLUMBIA

Votre visite au Pavillon de l'Ouest canadien vous fera voir l'Ouest en moins d'une heure, du Manitoba à la Colombie Britannique en passant par la Saskatchewan et l'Alberta. En si peu de temps, vous aurez l'occasion de connaître quelques-unes des grandes richesses naturelles de cette vaste étendue de notre pays et de participer à la reproduction de l'exploitation des richesses qui ont été choisies pour le pavillon.

Le Pavillon de l'Ouest canadien est une réalisation conjointe du gouvernement de la Colombie Britannique, de l'Alberta, de la Saskatchewan et du Manitoba. Sa construction a coûté $1,350,000 environ. Il occupe une superficie de quelque 12,000 pieds carrés et mesure environ 40 pieds de hauteur. La tête des sapins de la forêt reproduite à l'intérieur du pavillon s'élève à quelque 20 pieds au-dessus du toit. Le profil du pavillon évoque la topographie de l'Ouest canadien, le passage des prairies unies, le pied des montagnes et les sommets boisés.

Des entreprises commerciales de l'Ouest canadien ont donné plusieurs des éléments de l'exposition. Nous désirons ici les remercier de leur participation. Leur nom figure à la dernière page du dépliant.

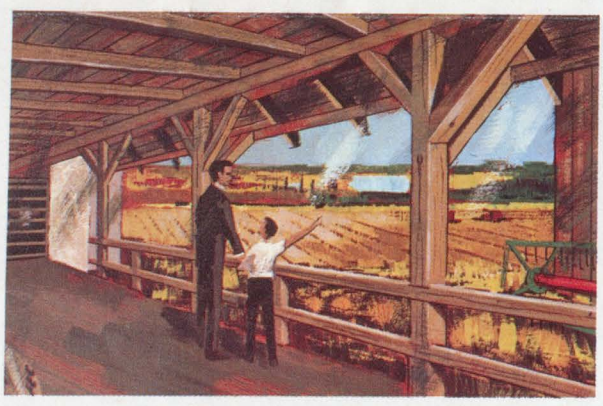
Les hôtesses et les guides du Pavillon viennent tous de l'Ouest du Canada, quatre de chacune des quatres provinces de l'Ouest. Ils vous invitent, au nom de leur province respective, à écrire aux adresses ci-dessous pour obtenir de plus amples renseignements sur les régions qui vous intéressent.

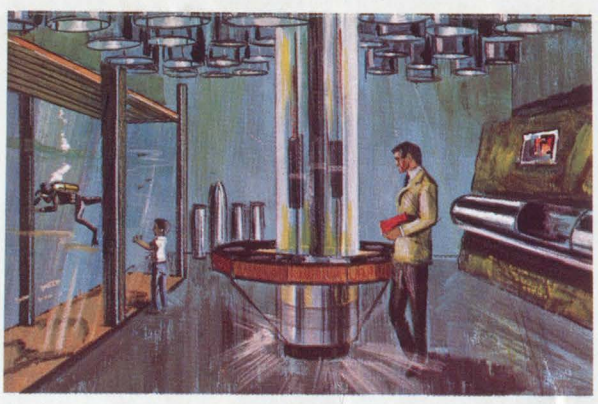
British Columbia Department of Industry, Development, Trade & Commerce, Victoria, B.C.

Alberta Department of Industry and Development, Edmonton, Alberta.

Manitoba Department of Industry and Commerce, Winnipeg, Manitoba.

Saskatchewan Department of Industry and Commerce, Regina, Saskatchewan.

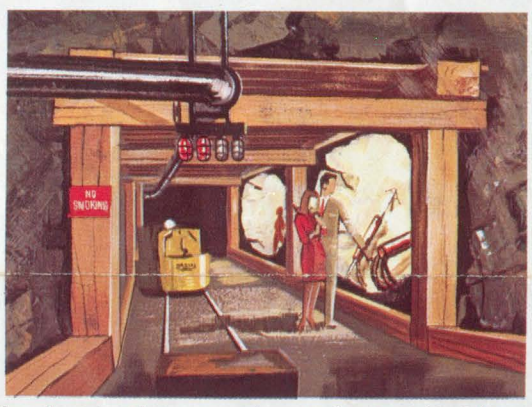




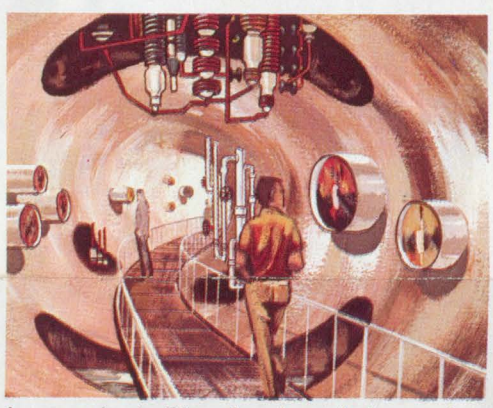
Les visiteurs du Pavillon se retrouveront dans une scène rurale de l'Ouest en passant par le secteur agricole pour se rendre à celui des bestiaux.

La recherche et la mise en valeur, par le secteur privé de l'industrie et par le gouvernement, ont joué un grand rôle dans l'expansion industrielle de l'Ouest.

Un élément spectaculaire du lieu d'attraction consacré aux richesses forestières, est cet énorme camion de transport du bois que l'on voit entouré d'arbres qui dépassent le pavillon par une ouverture au toit.



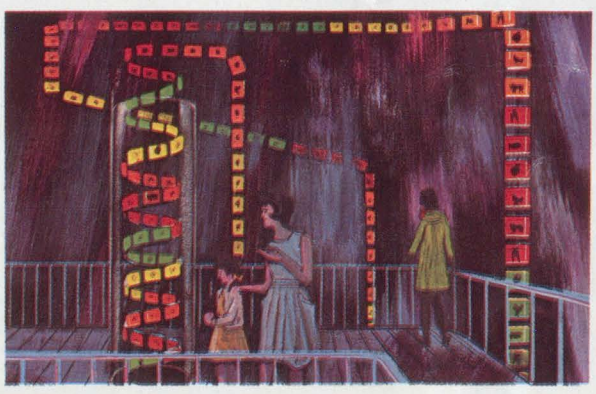
La mine, dont les murs rocheux présentent des échantillons de plusieurs sortes de minerais que l'on rencontre dans l'Ouest, montre l'exploitation de la grande richesse souterraine de l'Ouest canadien.

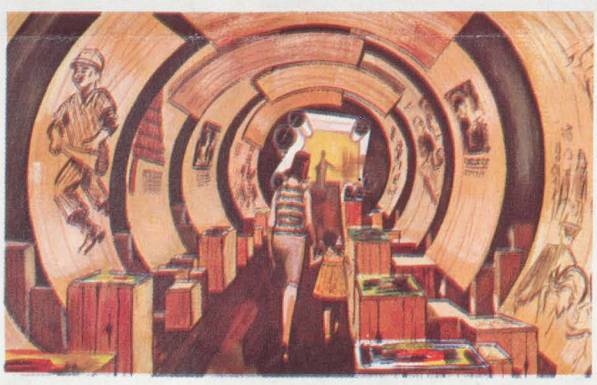


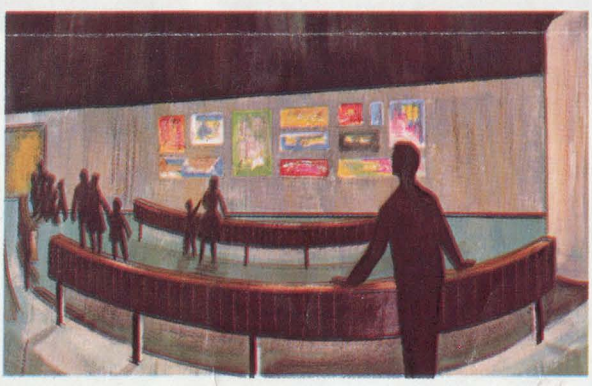
La capsule de l'énergie adopte la forme d'un tube, moyen de transport de l'énergie, et cette présentation montre les immenses ressources des provinces de l'Ouest en énergie.

Dans le secteur de la transformation des aliments, l'odeur agréable des produits et l'éclat des boîtes métalliques concrétisent l'ambiance.

La gamme des produits que l'on tire des richesses forestières de l'Ouest canadien, des contreplaqués au bois de pulpe et du papier au bois d'oeuvre, est exposée d'une façon impressionnante dans cette capsule animée.







La "cabane" à pêche et le filet plein de poissons frétillants près du bateau, témoignent de l'importance de la pêche de poissons d'eau douce et d'eau salée dans l'Ouest.

Le principal atout de l'Ouest canadien provient des gens qui en constituent la population. Leur mode de vie vous est présenté au théâtre, sur trois écrans.

Plusieurs entreprises et associations de l'Ouest canadien ont participé à la réalisation du Pavillon de l'Ouest. Ce sont: **Council of the Forest Industries of British Columbia; Calgary Power Ltd.; Saskatchewan Power Corporation; Manitoba Hydro; British Columbia Hydro and Power Authority; Canadian Utilities Limited; Northland Utilities Limited; the City of Calgary Electric System; the City of Medicine Hat Electric Utility; Atomic Energy of Canada; Bristol Aerospace Limited; British Columbia Research Council; Canadian Fishing Company, Gulf of Georgia Cannery; Continental Can Company of Canada Limited; Dorr-Oliver-Long Limited; Goodman Division, Westinghouse Air Brake Company; Hayes Manufacturing Company Limited; International Minerals and Chemical Corporation (Canada) Limited; The International Nickel Company of Canada, Limited; Research Council of Alberta; Killbery Industries; Canadian Association of Oilwell Drilling Contractors; Canada Bit Limited; Smith Tool Company; Telecables and Wires Limited; W. J. Bush & Co. (Canada) Limited; Connecticut Chemicals (Canada) Ltd.; Airchime Manufacturing Co. Ltd.; Alta Bend (1963) Ltd.; Brandt Machine Mfg. Ltd.; Canadian Tool & Die Works Ltd.; Chicago Blower (Canada) Ltd.; Crown Implement Manufacturers Ltd.; Edwards Industries Ltd.; Galbraith & Sulley Limited; Interprovincial Steel and Pipe Corporation Ltd.; Kipp Kelly Limited; Monarch Machinery Limited; Nuclear Enterprises Ltd.; Power Machinery (A Division of Bristol Aero-Industries Limited); Richardson Road Machinery; Smith-Roles Limited; Sumner Brass Foundry Ltd., et de nombreux autres.**

RÉALISATION: Dessinateur-projeteur—Opus International, Toronto. Architecte—Beatson Stevens Associates, Calgary. Ingénieurs—Reid Crowther and Partners Limited, Calgary. Construction—A.N. Bail Limited, Montréal. Conception et réalisation des éléments d'exposition—Daly Displays Ltd., Winnipeg. Uniformes—création et confection par l'industrie du vêtement du Manitoba.