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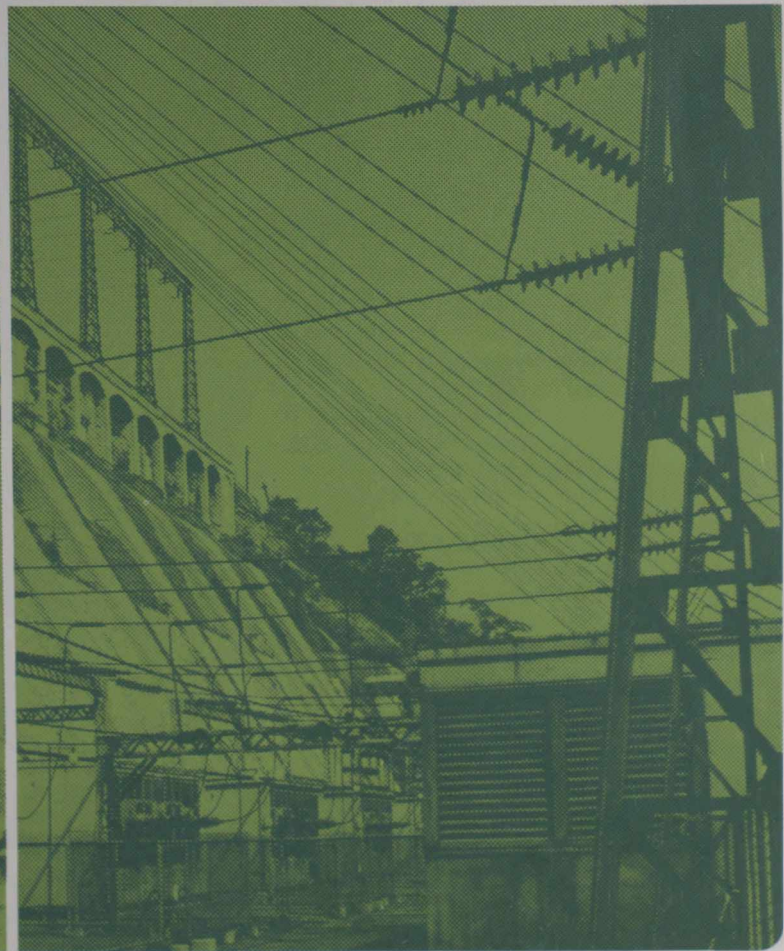
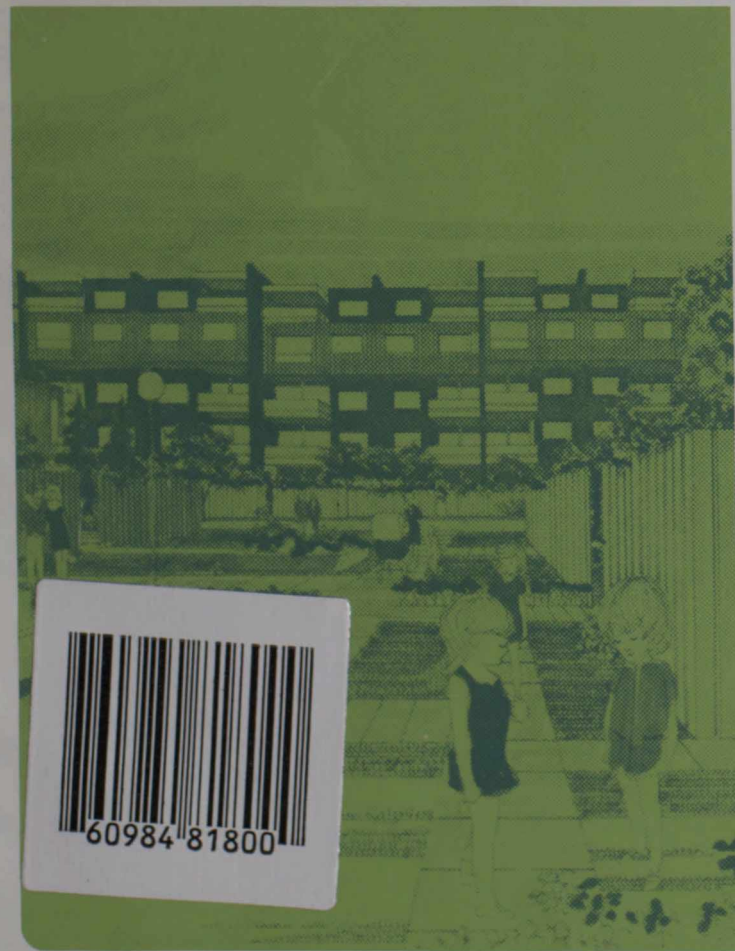
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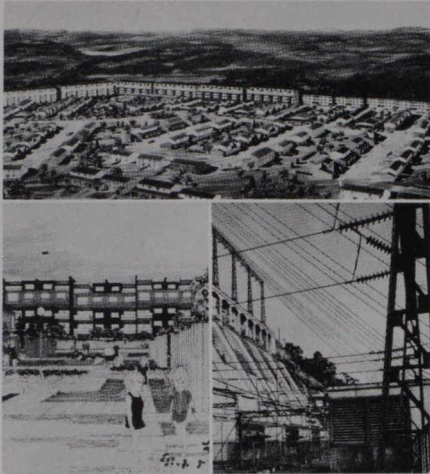
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Cover picture shows aspects of a new venture in town planning, the all-electric town of Fermont, being built to withstand winter hardship in northeast Quebec.

Canada Today



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Electric town has a climate all its own

By Alan Harvey

Canada is taking the shivery br-r-r out of winter living in a new town in northern Quebec that is probably the world's first all-electric community.

Windbreaks, climate-controlled "walkways" and compact siting of facilities are among the distinguishing features of a bold new venture in town planning designed to tame sub-Arctic temperatures and permit a relaxed North American lifestyle. So meticulous is the planning that even the fire hydrants are heated.

This June-in-January urban experiment is improbably shaping up in Quebec province 500 miles northeast of Montreal and 15 miles west of Labrador City, Newfoundland. It isn't exactly Camelot, and the weather can be bleak, but every skill of man is being used to make it cosy.

The new town is called Fermont, from the French for mountain of iron, and it is rising on a site where only trees grew before. It will provide homes for some 1,500 employees of the Quebec Cartier Mining Company, which hopes to produce 16 million tons of iron ore annually at its Mount Wright mine.

Two large transformers, each powerful enough to supply a city of more than 100,000 population, will provide the electricity for Fermont, named for a village near *Trois-Rivieres* where Canada's first iron works was established in 1736.

The iron ore deposits now under development lie in the so-called Quebec-Labrador trough extending from Lac Jeannine to the far northern area of the Ungava Peninsula. The Labrador coast is believed to have been the first part of the North American continent visited by white men. Norsemen visited the coast as early as the 10th century, and probably much earlier.

A striking feature of the present bid to beat the elements in an intimidating area is a windscreen building more than 2,000 feet long across the north and northwest sides of the townsite. This "coupe vent" or windbreak will provide shelter from howling below-zero winds through its curving structure, dipping to three half storeys high at each end from a peak centre point of five half storeys. It will also contain, or be joined to, a hotel, flats, shops, recreation centre and offices.

At ground level, an enclosed pedestrian passageway protected from the weather will run the full length of the building, which is designed to enable any house-

holder to reach some point on the walkway in really rugged weather.

The site holds 297 bungalows, 194 semi-detached houses and 144 town-houses. They are planned so that 35 per cent of the residents do not have to set foot outdoors.

Considerable savings were achieved in Fermont's construction through compactness of design of roads, sidewalks, power distribution and so on, resulting in shorter walking distances within the built-up area. Conventional sub-Arctic towns have a population density of only about 11 persons per acre. Fermont, with 190 acres for 5,000 inhabitants, has a density of 26.3 persons per acre.

Compactness is cheaper

Professor Norbert Schoenhauer, Hungarian-born Dean of the School of Architecture at Montreal's McGill University and partner in the firm of Desnoyer and Schoenhauer which designed the new community, says that the compactness of concept makes possible a saving of some C\$8 million in capital investment on paved roadways, curbs, sidewalks, storm sewers, water mains, street lighting and hydrants.

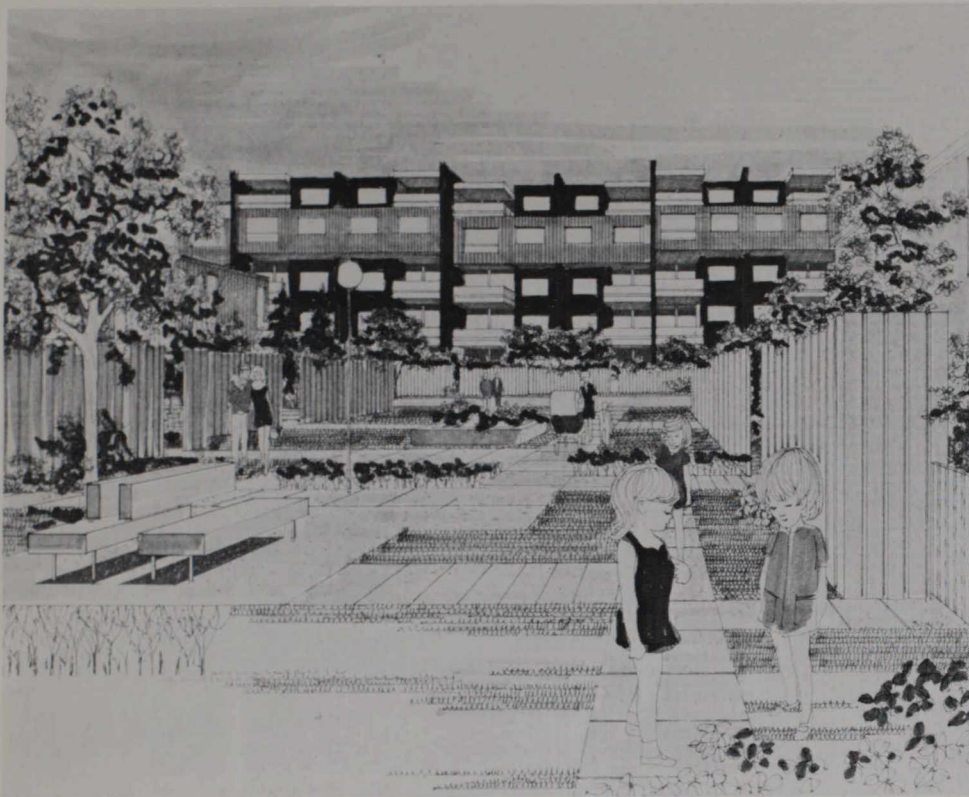
Road maintenance, snow clearance and policing will be less costly because of the reduced distances, he says, and shorter driving and walking distances will also be useful.

Ten women forming a special citizens' committee advised on house and apartment plans, including heated basements or cellars and special "mud rooms" for shedding outdoor clothing. All living areas face south, overlooking the town and benefiting from the "windscreen" structure of the main apartment complex. Belts of trees, also to the north and northwest, will provide additional shelter from the winds.

Fermont and its 979 dwellings will be supplied solely by electricity, providing a pollution-free environment. This will power all heating, cooking, lighting and other services.

To heat the fire hydrants — necessary to keep them from freezing up in temperatures well below zero — a heating cable will be strung around the hydrant pipes.

The electric power for Fermont comes from Churchill Falls through two trans-



Left: an artist's view of sheltered urban life as it will be experienced by the citizens of Fermont.

Below: a model of the new town, showing the "windscreen building principle" first used in the arctic regions of Sweden.



formers built to rigid specifications by ASEA, Canadian member of the Swedish-based world group. The transformers are the first produced for the mining industry at ASEA's new plant at Varennes, which opened in October 1971 and filled its first export order, to Colombia in South America, in 1973.

Windscreen building

One of the most interesting features of Fermont is the "windscreen building principle" first used by architect Ralph Erskine in town design for Sweden's Arctic regions.

In earlier times, primitive man used simple windbreaks and the protection of trees as rudimentary barriers against extreme conditions. Tests show that a windscreen obstructing the flow of wind creates a zone of shelter, mainly on the leeward side but to a lesser extent to windward. According to Professor Schoenhauer's estimate, "the wind is abated over a distance approximately equal to 40 times the height of the wind-

screen, one-quarter of the protected area being on the windward side and three-quarters downwind of the barrier."

The wind reduction, says Professor Schoenhauer, provides a local or "micro-climate" in the sheltered area. "As anyone who has taken shelter against the wind will know, this is very different in character from the feel of the climate where the wind has full play."

In Fermont's case, the "wind shadow" or climatic abatement offered by the 55-foot-high windscreen building should moderate conditions for almost two-thirds of the townsite area. The concentration of population through compactness of planning and the use of stretches of black spruce forest to shelter other residential precincts will combine to protect homes outside the "wind shadow" area.

Snowfall averages 150 to 200 inches a year in the area, but the windbreak and southern exposure will assist the sun's action in melting the snow.

The Fermont experience is seen as of special value to the Canadian building industry at a time when northern con-

struction—involving climatic problems and environmental questions not encountered in southern areas—is resulting in spiralling costs. Despite these costs discoveries of natural gas, oil and metallic mineral discoveries are tending to open the Arctic regions much more quickly than was thought likely even five years ago.

To Prof. Schoenhauer, Fermont represents a more advanced concept than any sub-Arctic community known to him, including those in the Soviet Union and Sweden. Russian Arctic cities differ little from ordinary Russian cities, it is said, while Fermont is more closely adapted to the North American lifestyle than Sweden's Arctic cities of Kiruna and Swappavara. Partly through the influence of women on the committee advising Fermont's planners, there are some differences between the new town and Southern Canadian communities. For instance, garage floors consist of concrete slabs supported on gravel beds eight feet thick. Driveways are restricted to less than 24 feet in length to reduce the amount of snow clearing. Sidewalks on east-west streets are built on the north side only, permitting snow to be pushed to the south side. Water mains are buried 10 feet underground and looped to keep water circulating.

Broadly, the compact-planning concept recognises that northern communities simply do not require the big gardens, sweeping driveways and luxurious lawns favoured in the south of Canada.

Another planning concept involves a climate-controlled pedestrian access route indoors linking homes to community facilities such as restaurants, recreation centres and shopping plazas. But an alternate outdoor route is seen as providing biological and psychological benefits.

Fermont's windscreen building will have at ground level a pedestrian mall linking community facilities grouped to form three main centres. These are an education centre comprising elementary and secondary school amenities centre including shops, hotel and entertainment facilities, and a recreation area encompassing hockey rink, curling club, bowling alleys and indoor swimming pool.

Essentially, the windscreen building and its services is expected to prove the heart of the new community—the town centre, in fact.

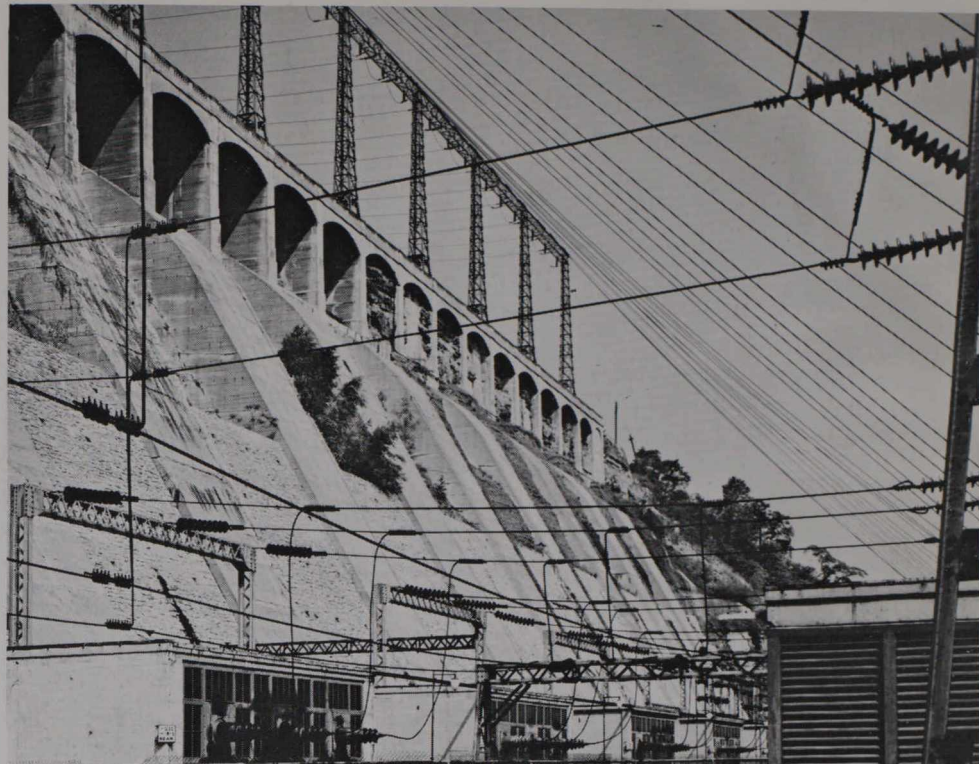
The community is being built by the Quebec Cartier Mining Company as part

of its Mount Wright iron mine development. The project, intended to become a major open-pit iron ore mine, was announced on Sept. 4, 1970, jointly by Quebec Premier Robert Bourassa and the Cartier Company president, L. J. Patterson. The Mount Wright reserves are located 70 air miles northeast of Lac Jeannine. They form part of the same geological formation as does the company's existing Quebec, Labrador, iron ore trough.

The project includes construction of a concentrator capable of producing 16 million tons of concentrate annually. Dimensions of the ore body are about four miles long by 4,000 feet wide.

In the past, northern communities have tended to be carbon copies of those in southern Canadian cities, with more elaborate heating systems being the sole concession to lower temperatures. Fermont marks a sharp break with the past in an experiment that town planners should watch with interest.

Power and heat from electrical sources will make for a pollution-free environment.



NFB Photo

Native rights acknowledged in cash payments

By Roy Turman

The conversational catchphrase, "Give it Back to the Indians," is literally coming true for Canada's northern native peoples.

By agreement with the federal government, and the provincial government of Quebec, 10,000 of them are to receive a tax-free cash gift of C\$150 million, plus royalties and exclusive rights for hunting, fishing and trapping in a 25,000-square-mile territory.

The award goes to 6,000 Cree Indians and 4,000 Eskimos after a three-year battle with the provincial government of Quebec. It represents compensation for lands lost through development of the C\$12 billion hydro-electric project in the rugged James Bay area of northern Canada. Other settlements are to follow later.

Premier Robert Bourassa of Quebec, a youthful-looking leader who acquired some of his urbanity at Britain's Oxford University, hailed the mid-November signing of the agreement as a "historic precedent" for Canada.

Leaders of the native peoples gave the accord a qualified welcome. Billy Diamond, Grand Chief of a Cree leadership body, said the agreement must be confirmed by November 1, 1975, or the native peoples would resume legal action against the controversial James Bay project. But he said the accord, signed by representatives of the federal and provincial governments

as well as by the native peoples, was the best way to see that "our land is prevented as much as possible from white man's intrusion and white man's use."

The agreement coincides with a growing militancy among Canada's oldest inhabitants — the native peoples who were there before the white man and now seek to right wrongs they say date from pioneer days.

Multi-billion dollar bargaining is in prospect over claims by some 270,000 Indians, 18,000 Eskimos and several hundred thousand Métis (of mixed Indian and European descent) based on longtime occupation of lands later settled by white peoples. Their demands will involve complex negotiations lasting possibly a generation and entailing an eventual cost estimated by civil servants between C\$3 billion and C\$5 billion.

The settlement in the case of the James Bay Indians was described by Grand Chief Diamond as guaranteeing that Cree Indians would be able to maintain their way of life and pass land on to succeeding generations. "It also guarantees that we can continue to live in harmony with nature," he said. Other spokesmen broadly applauded the settlement but had mixed views on how it might affect claims by other native groups. George Watts, chairman of the West Coast district council of

Indian chiefs, said the James Bay Indians will get only land that was rightfully theirs by a treaty signed more than 100 years ago. He said the federal and provincial governments had split Quebec Indians on the issue.

In Edmonton, Harold Cardinal, president of the Indian Association of Alberta province, said the agreement sounded good. But its terms must be examined closely.

The agreement calls for an initial payment of C\$75 million to native people in the James Bay area during the first 10-year period after the signing, and a further C\$75 million over a longer period, largely through royalties from hydro-electric projects in the area. The native peoples will also receive a share of Quebec revenues from future hydro-electric projects.

In an exchange during question period in the House of Commons at Ottawa, Indian Affairs Minister Judd Buchanan said the James Bay settlement should be seen as a precedent only in the sense that it recognises that native peoples have legitimate land claims. Detailed accords should not be patterned after James Bay, he said. This was because the James Bay settlement was reached under pressure of actual hydro construction in the area. He said the agreement did not take into

account a number of factors, including oil, gas and mineral rights.

The agitation by native peoples for compensation is part of a phenomenon called Red Power. It has seen increasing militancy by native groups for a faster pace of change. About a decade ago, the Red Power movement took on an increasingly sharp edge, especially in western Canada. In some cases, moderate Indian leaders have been outflanked by more radical elements. A number of spontaneous demonstrations demanding swift action took place across Canada, and a group of Indians on Canada's Pacific coast sought to extract tolls from motorists. They said they were fed up with waiting for better housing conditions.

In the James Bay battle, Cree people in northern Quebec chose their own bargaining representatives, flouting the usual provincial Indian leadership.

"It's just that we want to be masters of our own destiny," said one chief. "Only Cree can really know what Cree people want."

Chief George Manuel, President of the National Indian Brotherhood, was quoted in a special Canada supplement published by *The Guardian* newspaper in Britain as saying that the James Bay deal worked out at only C\$15,000 for each Indian over a 10-year period. He said this was less per man than one white civil servant, working in Indian Affairs in Ottawa, earned in a year.

Some Indians have called the agreement just part of the "old beads and blankets game" — a reference to the white man's barter technique in early days.

Indians form three per cent of Canada's total population of some 22 million. Chief George Manuel has said that when such a small group grows desperate enough to take up arms against the overwhelming majority, then the seriousness of the situation becomes apparent.

The James Bay agreement came after a historic decision handed down by Justice Albert Malouf in Quebec Superior Court on November 15, 1973. He ordered the James Bay developers to stop all work and said the province of Quebec could not develop the area without prior acquiescence of the Indians and Eskimos. The work on the project, he said, would have devastating and far-reaching effects on Cree Indians and Eskimos "living in the territory and the lands adjacent thereto."

The Canadian government has moved over the past six years towards a more flexible position on Indian rights. In doing so, it signalled a departure from its rejection of such aboriginal rights in a 1969 policy statement.

One unusual aspect marks the struggle over native peoples' claims. This is that the federal government is financing much of the research to help the claimants find evidence that the native peoples might use against governments in any legal confrontation. (See *Canada Today July/August 1974*.)

Soccer catches on as new Canadian game

By Richard Gibbs

Soccer in Canada is poised on the brink of a dramatic breakthrough.

Interest in the game is booming as Montreal prepares to host the 1976 Olympics for which a squad of keen young players is being groomed under the expert guidance of coach, Eckhard Krautzun.

Canadian soccer obviously has its roots in the stream of British and other European migrants who came for a new future. But for years the game was left to the newcomers while Canadians opted for the more traditional ice hockey and grid iron football.

However, the European influence could not go unnoticed. Televised soccer, especially the 1966 World Cup in England, excited the Canadians and gave them an interest in the game.

Parents realised that soccer was cheaper and safer for their children. They didn't have to spend many dollars on equipping sports mad youngsters with costly equipment. All you need for soccer is a ball — any ball, from a worn tennis ball to a brand new match football.

With the young showing such a healthy interest in the game, soccer's future in Canada looks assured. Already there are more than 130,000 registered players. That's more than three times as many as the United States with its infinitely larger population. And remember, it was the U.S.A. who beat the old World masters, England, including Alf Ramsey, Tom Finney and Billy Wright, 1-0 back in 1950.

Last year's appointment of the 33-year-old German, Eckhard Krautzun, as director of coaching, was a significant step as far as the Canadian Soccer Association was concerned.

Canada's soccer chiefs realise that the only way the country will make progress in the world's most popular game is by encouraging home-grown talent. Coaching is of paramount importance and this is where Krautzun is already playing such an important role.

A former amateur international, Krautzun played for 'Kaiserlautern' and the Swiss club, "Young Fellows Zurich," before two cartilage operations cut short his playing career.

His coaching talent was recognised by FIFA, the world governing body of soccer, who offered him position of National Coach to the South Korean soccer team. During his years in the Far

East, he also worked as Assistant Coach to the respected Dettmar Cramer (recently appointed U.S. National Coach). This involved various coaching courses and preparing the Japanese Olympic team for the 1968 Mexico Olympics in which Japan took the bronze medal for third place.

A further switch of continents took place as Krautzun took charge of the Kenyan National Team between 1970-72 and led them to success in the East African Championship.

Frequent training

Now settled in Canada, Krautzun is only too aware of the problems in building a strong national team. Distance, weather conditions, the various nationalities of Canadian players and finance are all difficulties which have to be overcome.

One hindrance is likely to disappear with the emergence of Toronto, with its easy access to Europe, as Canada's soccer home. The genial German sees the development of young home-grown talent as Canada's policy for soccer success. That's why young midfield ace, Chris Horrocks, who spent a summer spell training with Chelsea last year, became the country's youngest ever international at 17 years.

Training is another problem for the national coach. "Everything in international soccer is done quickly, shooting, passing, heading and even thinking," he once said in an interview. "The pace and speed in our Canadian League game is not by any means fast enough. That is why players who belong to the national team pool have to train more frequently, and in fact all members have been given an individual training programme with the emphasis on improvement in general endurance, speed and individual technique.

"I believe that this is the only way Canadian players can reach international standard and it is the only way that reaching international standard can be guaranteed."

Krautzun says the average Canadian player is physically very strong, but lacks mobility, agility and above all, skill. But they are dedicated and keen to learn which, he says, augurs well for the future.

More competitive soccer at international level is another of Krautzun's goals. He has proposed an intensive travel programme for his Olympic squad and has selected far

ranging countries from Eastern Europe to South America whose teams use different styles and systems.

Later this year, Canada will be taking part in the Pan American Games to be held in Brazil, which Krautzun sees as a good build-up for the Olympics. But no one must escape the importance of the Montreal Olympics for Canadian soccer. "It is the springboard for the future development of the game in this country," says Krautzun.

Canada's quarter final rating in last summer's CONCACAF youth tournament (for players under 19 from the Confederation of North and Central American and Caribbean Soccer Association) shows that it will still be some time before the country can field a team of indigenous players.

Twelve of the 22 squad players were Canadian-born (including eight from Vancouver). Of the rest, four came from Scotland and one each from England, Italy, Cyprus, Greece, Germany and Yugoslavia.

With such strong soccer representation it's not surprising that Vancouver with a largely Canadian-born side, is home to one of the country's two professional soccer sides in the North American Soccer League. Despite their lowly position an average crowd of nearly 10,000 turns up to cheer on the Vancouver Whitecaps.

Vancouver came into the League to replace Montreal Olympiques who folded because of poor attendances and inadequate playing facilities. Crowds numbering between 300 - 1,500 were lost in the 30,000 capacity Autostade where the team played out its last NASL campaign.

Although results have been disappointing, the substitution of Vancouver looks to have been a wise choice. Soccer officials in the province are aiming for a British soccer set-up with five divisions each with ten teams and automatic promotion and relegation.

It is also logical that Canada's other professional team, The Metros, should come from Toronto, another city with healthy soccer support.

New President, Bruce Thomas, is intent to establish soccer as a major Canadian sport. He has listed three major objectives:-

- To make the Metros a financially viable soccer operation.
- To assist the development of a strong Canadian team for the Olympic games.
- To build the Metros into a world class side.

With Canada embracing such a huge land mass, obviously a national league competition on the lines of European countries, is out of the question. Even in England, soccer officials are toying with a return to regionalised soccer for the two lower divisions to cut down on travelling costs.

Instead, each province has its own soccer set-up while the top team each year

qualifies for a national Challenge Trophy competition — something akin to the English F.A. Cup although the final switches venue from year to year.

Further evidence of the upsurge in Canadian soccer comes from the sports goods industry. There have already been reports of retailers running out of soccer equipment. The economics of the situation is again important.

"Look, you can equip 11 soccer teams for the same money it takes to equip one football team," explained one footwear manufacturer.

Surprisingly it is Canada's old ice hockey rival the Soviet Union, which has helped television boost soccer's popularity. When the Russian ice hockey coach revealed that his players stay in shape by playing soccer it gave a whole new dimension to Canadians.

A 'conditioning sport'

In schools, soccer still takes second place to either baseball or American football. But in home communities soccer is the ideal sport. Usually a field is readily available. Additional expenses to run a game are minimal. The basic essential is a ball. Then, if you've got a ball, anyone — girls as well! — can play soccer.

Having realised in recent years that soccer is also an excellent conditioning sport, soccer programmes throughout the country have become over-subscribed.

One Ontario community, for instance, reports that more than 2,200 boys turned out to register for the soccer programme yet only four were interested in lacrosse and so few turned out for baseball that the programme had to be cut back.

Alex Hylan, president of the Canadian Minor Soccer Association, claims that within ten years soccer will be Canada's number two sport to ice hockey.

"I think it's there now at participation level," he has said. "Only the crowds at the professional level are hurting us. It tarnishes the image. There's no doubt that below the professional level we've arrived.

In Ontario, for example, there's been such a dramatic increase that they are seeking a steadier rate of growth. It's been moving at such a pace that it's been racing away from them."

Although this year's Pan American Games, next year's Olympics and the 1978 World Cup will give a clear indication of how far and how well Canadian soccer has progressed, perhaps the future is best summed up by sports writer Keith Woolhouse writing in 'Montreal Scene.'

He commented: "When all is said and done, the future lies with the youngster with grazed knees and tousled hair, running through the night mist with a ball at his toe. It matters not that a jacket or two must improvise for goalposts, that there are no touchlines or a referee. He can run and tackle and head and kick with the best of them. He can participate and at his age that's what matters." ♦

Bilingual produces students

By Ann Morrow

Bilingual schooling probably gives children some learning advantages over children taught in a single language. This is a probability to be seen in evidence accumulating from Canadian experiments with new approaches to language education, including the introduction of bilingual training from the start of a child's school experience.

The challenging possibility that a child with a bilingual education has decided advantages over a child with unilingual schooling appeared first in experiments started in Ottawa schools in 1969. It has been strengthened into a probability by further evidence from those continuing experiments and newer evidence from Edmonton, Alberta.

While the conclusions to be drawn from the Ottawa studies offer cautious support for the superiority of bilingual over unilingual education, the general conclusion of the Edmonton studies reported in 1974 is unhesitatingly in favour. The findings of the two Edmonton studies, says a report on them, support the idea that "the bilingual child has a greater cognitive (learning) plasticity than his unilingual counterpart. These findings tentatively lead to the premise that the unilingual may be suffering from a cognitive deficit." The report does not suggest the findings are conclusive but puts forward for future inquiry this general hypothesis: "The child who has a continuous bilingual experience during the course of development will experience cognitive advantage."

The findings seem to promise new factual arguments to support the Canadian Government's official policy of encouraging bilingualism across Canada. Initiated as a means of achieving national unity between the English-speaking and French-speaking communities in the country, the policy now seems to hold out tangible intellectual benefits as well, as bilingualism expands.

If further experience supports the general hypothesis of the Edmonton studies, then the spread of bilingualism in Canada will mean an improvement in the learning opportunities for Canadian students accordingly.

The experiments began in 1969 when the kindergarten programme of English-speaking children in Ottawa's Roman

Schooling better

courses are more advanced in language skills not only in French, but, surprisingly, also in English."

In the secular schools system, the Ottawa Board of Education introduced an immersion language training programme starting with senior kindergarten (five-year-olds) in September 1970. Initial enrolment was 130 but had soon grown to more than 1000 pupils. As in the experiments already discussed, this programme has been expanded year-by-year to higher grades. The Board's report about tests carried out with grade-two pupils in the spring of 1973 said results were encouraging indeed.

"The pupils in the French immersion programme at the end of grade two:

- (a) although not at par with native French-speaking peers, have achieved a level of proficiency in French far superior to their English-speaking peers who receive 20-40 minutes per day of French as a second language. They also perform surprisingly well on a test of French comprehension given to grade 8 and 9 students in a French immersion programme;
- (b) perform as well on tests of English language skills, with the possible exception of spelling, as grade two children attending the regular English programme;
- (c) have learned as much mathematics via French as their English peers who have been instructed in English, and can transfer this knowledge from French to English. Furthermore, they compare favourably with native French-speaking peers with respect to mathematic knowledge;
- (d) after three years of attending a French immersion programme, show no signs of any retardation in general mental or cognitive development relative to children in regular English programme."

The Edmonton studies were devised by Dr. Bruce Bain, professor of educational psychology at the University of Alberta. His report was published in 1974 and he delivered a paper about the work to the 18th International Congress of Applied Psychology in Montreal. One test was to measure differences of logical ability in actual problem-solving between bilinguals and unilinguals, and the other differences of ability to think out a situation. The first sought to answer the question: "Does access to and use of two languages systems result in differences in performance on a problem-solving task that demands logical operation?" The second test focussed on contemplation of emotional expressions. "Action is suspended in favour of inspection, judgment and analysis."

The pupils tested were all native-born Canadians, all from Edmonton and all as closely matched in school achievement and home background as possible.

On the results of the first test, Dr. Bain reports:

"In sum, the bilinguals tended to

discover the rules faster than the unilinguals, but the difference was only suggestive of a trend. The total time taken to discover and to transfer the rules was less for the bilinguals than for the unilinguals. The time required to transfer the rules was identical for both groups." The answer was "yes" the bilingual experience did result in differences of performance in logical problem-solving. "As far as this particular study is concerned, linguality does affect performance on problem-solving tasks. But the effect is differential, affecting more the grasping of rules than their transfer or generalisability . . . The evidence suggests that bilinguals tend to discover rules a little more readily than unilinguals . . . The bilingual tends to have some cognitive advantage over the unilingual in solving logical problems; although the advantage is not absolute."

Results of the second test were more decisive. The answer was "an unqualified 'yes'" — experience with bilingualism did result in differences in performance "on a test of sensibility to emotional expression." The children were shown twenty-four portraits mounted on slides, as part of this test. Each portrait, painted by such masters as Rembrandt, expressed a dominant emotion previously classified as carefully and precisely as possible. "The bilinguals were more sensitive to the emotional expressions as displayed in the portraits than were the unilinguals." At a certain level, "the difference was significant." As far as this study was concerned, "linguality does affect sensitivity to emotional expression. Moreover the effect seems to be appreciable . . . The bilinguals have a significant cognitive advantage over unilinguals in sensitivity to emotional expression."

The pupils for this test were selected from grades one and six. Half were French-English balanced bilinguals and the others were English unilinguals. "At both grade levels," Dr. Bain reported in Montreal, "the bilinguals made fewer classification errors than their unilingual counterparts. Each bilingual group performed one age norm ahead of their respective unilingual counterparts." He concluded that the test results show "the kind of language experience a child has affects the course of development of participative cognition, the effect being constant throughout." Clearly, he concluded, "being raised and schooled in a bilingual manner represents a unique form of child development."

An interesting footnote of Dr. Bain's studies is that the bilingual children he used were on average five or six months younger than the unilingual children they were being compared with.

"This sample cannot be considered conclusive in this regard," his Montreal paper says.

"However, it would be of major theoretical and pedagogical consequence if it were universally found that a bilingual upbringing results in a more rapid progression through operative stages and other kinds of development, compared to a unilingual upbringing." ♦

Catholic schools was expanded to include a half-day weekly of French instruction. The following year two new second-language programmes were introduced into grade one. The first was a French immersion programme for the English-speaking pupils in which everything is taught in the second language (French) except religion. The second option was 75 minutes daily in which art, music and social studies were taught in the second language. Each year since, the programmes have been extended to a higher grade.

Extensive tests were made of the children's abilities in grade one each year. A report on the findings after the first two years found the results roughly the same each year. "These findings indicated that both immersion and 75 minute children progressed as expected, with greater progress in French by the immersion children, who also showed a reasonable amount of transfer from a French learning situation to an English testing situation. No significant detrimental effects of immersion were observed."

By the time test results were in for the first two grade-two classes in this programme, some differences in rates of achievement had begun to appear between the immersion and the 75 minute groups — though not dramatic ones. The group being taught in French for 75 minutes a day, says an evaluation report prepared for the Ottawa Roman Catholic Separate School Board, "performed significantly higher than the immersion group on word knowledge, word discrimination, reading and spelling subtests. However, there were no significant differences between the two groups on arithmetic concepts and problem-solving, arithmetic computations, or total arithmetic score." Comparing test scores, it adds, suggests that children in the 75 minute programme "have made very satisfactory progress in their academic achievement and that the immersion children continue to show considerable evidence of transfer from a French learning situation to an English testing situation."

The report says neither group indicates any abnormal learning or language disabilities and that both programmes seem to be beneficial to the pupils' English learning as well as their French. "The children in the revised second-language

Agriculture:

Heavy horses make come-back



The big Dobbins and Nellies who broke the sod on Canadian farmland are regaining popularity — partly for special jobs at which they have been found more efficient than mechanical transport, but mainly in the parading, advertising and public relations business.

In 1906 there were two million horses in Canada, many of them heavy draught animals which farmers used in teams to plough, cultivate, sow and harvest their fields. Their numbers declined rapidly with the advent of tractors and mechanisation, with which the slow-plodding horse could not compete. But now they are no longer a common sight they have acquired rarity value. People in the publicity business have come to recognise that they are a big attraction at shows and fairs.

Ralph Henry, horse trainer for Agriculture Canada's three teams of Clydesdales on their Central Experimental Farm outside Ottawa, speaks of a "growing

demand" for these beautiful great animals — "and there just aren't enough good show horses in Canada to meet the demand."

This has pushed up prices, he says, so that a good Clydesdale or Belgian gelding ready to show would sell for about C\$3,000 these days.

A team of quite ordinary draught horses for farm work would cost C\$2,000, according to Mr. Henry. Add to that C\$600 — 700 for a set of harness and about C\$1,000 a year to feed them, and work horses are not cheap for practical purposes. Even with fuel costs going up, it would be premature to speak of draught horses returning to the farm in large numbers.

However, farmers do use heavy horses for certain special jobs. For example, many cattlemen in the west use a team of horses to haul feed to their cattle during the winter because they can get through more snow than a tractor, and you don't have to worry about them not starting on a cold morning.

Most of the new work done by heavy horses is in parading, advertising and public relations. The brewing industry was one of the first to rediscover the heavy horse, with which it has a long traditional association; draught teams were used away back to haul wagons of beer barrels between the factory and the retailer. One American company used teams of horses for promotion up to 10 years ago, when the heavy horse was at its lowest ebb. When they discontinued the practice, their beer sales slumped. They decided to bring back the horses and today have three eight-horse hitches criss-crossing the United States to shows and parades.

Mr. Henry himself is unsure why heavy horses have become so popular recently. "People, especially children, are impressed with their size; most mature show animals weigh more than a ton. And a good show team has snappy footwork which will really please a crowd."

The fundamental reason for their

popularity is probably nostalgia. People can either remember, or would like to remember, when the work horse had a place on every farm.

Work horses were used at Ottawa's Central Experimental Farm until the late 1950s to put in crops and clear roadways. After this work was mechanised, the horses were put to a new use, pulling wagonloads of visitors on tours of the farm. It proved a very popular enterprise: some 30,000 visitors make the tour in the farm wagon. Mr. Henry drives it, using six big Clydesdales in three separate teams. He also puts them in a four-horse hitch for local parades and later this year hopes to use them all in a six-horse hitch.

A few years ago it was difficult to get harness for heavy horse teams. Now there are a number of harness-makers, but the difficulty is getting the horses properly shod. For saddle horses it is possible to buy factory-made shoes, but for the larger horses iron must be heated and hand-turned to get the right fit. Here Agriculture Canada is fortunate, for Mr. Henry does his own blacksmith work. The horses are shod every five or six weeks.

Clydesdales were probably the most common breed in Canada in early farming days. They are usually brown with four white socks and a lot of silky hair around the hooves. The Belgian horse, which is the heaviest breed and ranges through every shade of brown, is very popular in Canada and the United States. Percherons, a French breed, ranging in colour from white to black but most commonly dapple grey, are also quite popular. The British Shire and Suffolk Punch are less common in Canada. Quebec has a home-grown breed of light draught horse called the Canadian, dark brown to black in colour and very sturdy for its size. ♦

Patients eat well from deep freeze

The familiar outcry of hospital patients over tasteless, luke-warm food, has ceased with the introduction of a system of deep-freeze meals at a regional hospital in Summerland, British Columbia. The system, evolved by hospital staff working with a team of researchers from Agriculture Canada, gets rid of the old steam cabinets and tables so long associated with hospital meals. Instead, whole meals are prepared in quantity and frozen, to be heated only minutes before they are served to patients.

Researchers sampling and testing the meals have found that they not only look and taste better than under the old system, but they maintain their nutritive value better. Loss of vitamins from vegetables is greatly reduced, compared with the old steam-table method. Also, the new system ensures that the hospital will have a good supply of meals in the event of short-term food shortages.

Bacterial tests showed that when basic ingredients were carefully chosen and sanitary methods of preparation were employed, the meals were also very safe. More than 100 new or modified recipes have been developed under the orders of a dietetics director, June Palmer. ♦

Animals have a choice of 8000 dishes

If Canadian farm animals could have smorgasbord, they would have more than 8,000 dishes to choose from. That's how many different animal feeds are registered for sale in Canada every year.

All applications for registration from feed manufacturers and importers go through the federal Government's official feed unit, where they are carefully examined to make sure they are safe for animals, man and for the environment. The foods must also be judged useful and effective for the farmers who buy them, so that the farmer is protected against false or exaggerated claims and gets the product he pays for. Except for customer-formula feeds, tonics and conditioners, all feeds with two or more ingredients must be officially registered before they go on the market.

Dr. Hugh Jeffers, in charge of the feed unit, says that these controls are necessary because of the complex nature of today's formula feeds.

Harking back to the simple old days, he remarks "In the days when farm animals ate mostly farm-grown grains and roughages, there was little need for feed regulation." ♦

Are sexier sheep better sheep?

A hardy band of Newfoundland sheep is being carefully studied by agriculturalists at an experimental farm in Nappan, Nova Scotia, because, unlike others, they are willing and able to breed at any time of the year.

One of the basic problems of the sheep industry, according to the farm's superintendent Tom MacIntyre, is that most ewes will breed during only four to six months of the year. The short breeding period for most commercial strains sends lambs to market only at traditional lamb-eating seasons. During the rest of the year, lamb supplies drop off. Meat packers and retailers hesitate to handle lamb all year round because production is too variable.

At the same time, farmers lose by having to keep up their flocks with the current high price of buildings and feed the

year-round, while they can only market their product during a short few months.

The answer, says Mr. MacIntyre, is to develop sheep which will have the urge to mate at any time of the year. Agriculture Canada's research has extended the breeding season of flocks on four of their experimental farms and several flocks at agricultural colleges are also being used in attempts to extend the breeding season. Some breeds, such as the Dorset and Finnish Landrace, have shown considerable year-round breeding activity, but so far no one has established this trait well enough in any one breed or cross for it to be of use to farmers.

This is why the Newfoundland sheep have been brought to Nappan. By comparison of their breeding rate with that of an experimental flock at the federal

department's Lennoxville research station, the researchers hope to gain information which will eventually help breeders in their efforts to put this desirable trait into a new breed of sheep that will come into heat any month of the year. This would enable the farmer to control his sheep lambing and so, eventually, bring an end to the feast-or-famine cycle of lamb supplies to packing houses and supermarkets.

However, the route to increased steady production is not entirely clear-cut. Year-round breeding seems to suppress the frequency of twinning in lamb production. Wanting the best of all worlds, the scientists also hope to breed the twinning characteristic into flocks of the future. ♦



NFB Photo

The Old Town Clock in Halifax, N.S.

Urban Profile: Halifax

Containers revitalise a historic port

By Alan Harvey

Halifax is a city of history. It has one of the world's great natural harbours and an unrivalled strategic location. Standing as a sentry at Canada's eastern approaches, astride the Great Circle route to North America, it played key roles in the Seven Years' War with France, the War of American Independence, the war of 1812 and the United States Civil War. Romance and adventure crowd its pages.

It is the oldest English-speaking city in Canada and the capital of Britain's first Canadian colony, Nova Scotia province. It was born of a struggle between England and France for mastery of a continent. Its decision to stay loyal to the English Crown

and not to join America's 13 colonies went far to preserve the British Connection, make possible an independent Canada and keep the Stars and Stripes from flying over the entire continent.

Halifax is closely linked with Britain. Royal Princes played, danced and romanced in the seaboard city, sporting scarlet coat and powdered wig, or lined up for morning levees. Prince Edward the Duke of Kent, father of Queen Victoria and imperious soldier son of King George III, spent six happy years there from 1794 and called it the "best place out of England." His brother Prince William Henry, once rebuked by George III for sailing from

Halifax without orders, recalled his good times in the city even after himself becoming King William IV. Old inhabitants recalled the period as a golden age for Halifax.

Named after the Earl of Halifax — fortunately his title was used rather than his name, which was the rather commonplace George Dunk — the city was first settled on June 21, 1749 by what was described as a "rabble of cockneys," recruited on the streets of London and transported across the Atlantic to counter France's growing influence in the New World. The disoriented cockney pioneers died of disease or drifted away, giving

place to hardier settlers from New England, one of America's 13 colonies.

From these beginnings grew a bastion of British power in North America, a garrison city that English author Rudyard Kipling called "Lord Warden of the North." Out of this fortified base Britain's General Wolfe sailed to overpower Louisburg, defeat French leader Louis Montcalm on the Plains of Abraham in Quebec and end French sway across the seas.

In those far-off founding days, Halifax fought off Spanish and French raiders from the sea and assaults by Micmac Indians in the town. It saw many a drunken brawl, and press gangs scoured its cobbled streets, but it soon became the social capital of Atlantic Canada. Life at Government House at the turn of the 19th century was described as consisting of "a levee in the morning, a dinner party in the afternoon and a ball in the evening."

Military strongpoint

In modern times, still a military strongpoint and shrine of maritime tradition, Halifax was the last sight of land for many servicemen sailing on convoy patrol or to do battle in Europe. In December 1917, it was the scene of a searing explosion that killed some 2,000 people in the greatest civilian disaster of the century in Canada.

Halifax is also a city of firsts. First state comprehensive school in Canada, first Protestant Church (St. Paul's of England), first dissenting church, first printing press, first post office, first coal mine, first newspaper, first printed book, first dockyard, first skating rink. It built the first mail steamship to cross the Atlantic — the Britannia owned by Nova Scotia's Samuel Cunard who founded the line bearing his name; and it established the first social club, "The Order of the Good Time," established in 1606 and still going strong.

In 1758 it housed Canada's first elected Parliament and in 1848 its great patriot Joseph Howe brought Canada its first responsible government.

In two world wars, it was no doubt a drab and dingy place. Seedy tenements and wharves formed an uninspiring backdrop for up to 100 ships riding at anchor in World War Two.

Shipping renaissance

Today Halifax is a city in transition, a bustling modern metropolis of some 250,000 people, its wooden frame buildings of an earlier day mostly thrust aside by high-rise buildings of steel and glass. A multi-million-dollar complex of stores and offices stands in the city centre. As a port, Halifax is regaining former eminence; the container revolution has brought a shipping renaissance which saw the city handling 21 per cent of cargo traffic landed at Eastern Canadian ports in 1973 compared with 9.4 per cent in 1968 — the

largest increase for any port in the east. There is no surface way of moving containers from Europe to central and western Canada as fast as through the Halifax system. The container terminal at Halifax is the largest in Canada. Container lines calling at the Nova Scotia capital provide regular services to Scandinavia, Britain, continental Europe, the Mediterranean, Australia and the Far East.

Halifax landmarks

While modernisation of Halifax proceeds apace, conservation groups are fighting to save historical landmarks which give the city an oldtime flavour. L. W. Collins, chairman of the city's Landmarks Commission, speaks of creating an "Athens of the East Coast" by restoring warehouses and other buildings near the waterfront, some of them among the oldest structures in English-speaking Canada. In a report for *The Globe and Mail*, a Toronto newspaper, Harry Bruce said the buildings the sentimentalists would like to save are among the last throwbacks still standing "to the whole fighting, privateering, rum-running, sailing, steaming, trading, politicking, banking, shopkeeping and seagoing history of 19th-century Halifax."

The main part of the city stands on a boot-shaped peninsula, with tidewater on three sides and its sister city Dartmouth just across the basin. It climbs up a tree-studded hill surmounted by the green cone of the Citadel, reflecting the city's role as a sentry looking out to sea. The oldest part of the city is near the waterfront, containing the seat of government (Government House) the main business district, hotels and stores. Museums, parks and shopping complexes abound.

Sandy beaches are in easy driving distance. Minutes from the centre by trolley coach is the attractive resort on the North West Arm and not far away are lovely old granite fishing villages with names like Purcell's Cove, Herring Cove and Ketch Harbour. On dark nights, say romantics, you can see the ghosts of burning ships. Landmarks include Fleming Park, with the majestic column of the Memorial Tower, and St. Paul's church, the oldest Protestant church in North America. Fronting the City Hall is a sward of green called The Parade where a piper, recalling Nova Scotia's ties with the Scotland from which its latin name derives, plays his pibroch at the foot of the Cenotaph — perhaps a rousing march or a foot-tapping Strathspey. There is Bedford Basin where the wartime convoys formed; it is large enough to accommodate all the world's navies at one time.

As with most Canadian cities, postwar immigration has wrought a change in Halifax. In 1945, the city lacked a single



The Sailors' memorial Citadel Hill, Halifax, N.S.

NFB Photo

nightclub or sophisticated restaurant. Now there are modern hotels and motels, taverns and cocktail lounges, exotic restaurants serving seafood specialties. But still perhaps the chief attraction is the pervading sense of history, the reminder of days past when Princes of the Blood Royal brought the high life, and perhaps a bit of low life as well, to Halifax.

Just one of the sights that evokes history is the celebrated Old Town Clock on Citadel Hill, built in 1803 at the request of Prince William, one of the sons of King George III. Its four clock faces still tell accurate time. Another historic spot is Dead Man's Beach, last resting place of French sailors who accompanied the fleet of Admiral d'Anville on an ill-fated voyage to Halifax and left their bleached bones on shore, instead of winning the New World for France.

Halifax is the only Canadian city to have been created at a stroke. It began in 1749 with the sailing from England of a fleet of transport ships bearing some 3,000 disbanded soldiers and colonists to establish a permanent British settlement at Chebucto, site of present-day Halifax. The name Chebucto derives from the Micmac Indian word Che-book-took, meaning "at the biggest harbour." Tribal history tells of a Micmac prophecy forecasting that a race of pale-faced strangers would one day come from across the seas to conquer Chebucto.

A forerunner, perhaps, of the pale-faced strangers was Lief Ericson, son of Eric the Red who according to an old Norse saga landed in what is now Nova Scotia around the year 1000. With fuller documentary evidence to back up his story, explorer John Cabot came in 1497, five years after Christopher Columbus discovered America. Then followed the French and the English, closely involved in a recurring ebb and flow of fortunes. In 1713, the Treaty of Utrecht gave lasting ownership to England of Acadia, part of what is now Nova Scotia.

Other visitors included explorer Samuel de Champlain, the first missionary Father Louis Thury and a French governor, Jacques Francois de Brouillon, who said of Chebucto: "This is one of the finest ports that nature could form."

Chebucto's first inhabitants were stocky, brown-skinned Indians who called themselves Meeg-a-maage, corrupted to Mickamuck and Micmac. Champlain noted in passing that Chebucto was a "baie fort saine" — a good safe bay, and soon a fishing station came into being. Brouillon's aide Bonaventure wrote that he did not think the people of the French seaport of St. Malo (whose native son Jacques Cartier made three voyages of discovery to Canada starting in 1534) would settle in Chebucto until a fort was established there. But little heed was taken until the British were alerted to the strategic importance of Chebucto by America's New England colonists, who saw Nova Scotia as a dagger pointed at the heart of Boston and particularly feared the French fortress of Louisburg.

Ties with Scotland

In 1621 King James VI of Scotland — who was also James I of England — granted to Sir William Alexander all the lands lying between New England and Newfoundland for the formation of a colony. The colony was called New Scotland, in its Latin form Nova Scotia. Arms were granted to the province in 1625. A spray of mayflower (floral emblem of Nova Scotia) and Thistle (floral emblem of Scotland) are intertwined on a base, representing a cliff, on which the arms are mounted. The motto is usually translated as "The one protects and the other conquers."

The French were seen as a menace: they paid the Micmac Indians handsomely for English scalps. Yankee hunters and farmers surprisingly captured Louisburg, astonishing its French rulers, who sent a huge fleet to try to recapture the fortress. It was an ill-fated armada which decisively changed the course of history. Storms, scurvy and typhus crippled the fleet, ending a grave threat to the English colonies. Sailors washed ashore at Chebucto gave a morbid name to Dead Man's Beach.

Meanwhile England, newly at peace with the French, in 1748 returned Louisburg to France, causing new fears among the American colonies of a French Empire spreading from Canada down to the Gulf of Mexico. As a sop to their demands for security, plans for a fort at Chebucto to offset Louisburg were drawn up by the Earl of Halifax, a British government minister who had the sonorous title of President of the Board of Trade and Plantations. The man assigned to establish the fort was Colonel Edward Cornwallis, a bachelor who had commanded a regiment in the Scottish Highlands against Bonnie Prince Charlie. Cornwallis' regiment was taken over by a certain James Wolfe, later to become the hero of the Plains of Abraham, the 1759 battle that sealed the English conquest of Canada.

Reluctant pioneers

The birth-pangs of the British settlement at Chebucto were prolonged. A British-born writer who now lives in Canada has written in his book, *Halifax, Warden of the North*, that the "ragtail and bobtail of London had stepped straight out of painter Hogarth's prints into the wilds of Chebucto, and they proved to be reluctant pioneers."

Chebucto was just a hill, a swamp and a plateau of slate rock thinly covered with soil. Nearly half the early settlers died of fever trying to subsist on salt meat and hard tack. Soon hardier immigrants came — New Englanders, Germans or Deutsche who became known as Dutch, some newcomers identified as Swiss but thought to have been Protestants from the French Alps. A north Halifax suburb is still known as Dutchtown. Thus Halifax can boast six racial strains — English, French, German, American Loyalist, Scottish and Irish.

Echoes reaching England of the distant settlement were unfavourable. A deck of playing cards of the period contained an eight of diamonds whose face showed farmers being attacked by bizarre wild beasts above a piece of doggerel about "he that is rich and wants to fool away — a sporting sum in North Americay."

And though Nova Scotia was the key to all Canada, its ports commanding the approach to the St. Lawrence, its citizens forming the only English-speaking part of the whole country, the Mother of Parliaments in London thought little of the province. In 1780 Edmund Burke heaped scorn on Nova Scotia.

Burke's abuse

"Good God!" he exclaimed. "What sums has the nursing of that ill-thriven, hard-visaged and ill-favoured brat cost this nation! Sir, this colony has stood us in a sum of not less than £700,000 . . . it does not even support those offices of expense which are miscalled its government;

Explosion

It happened 57 years ago, but it still haunts Halifax. On a clear cold morning in December 1917, the French munitions ship *Mont Blanc* collided with a tramp steamship called the *Imo*, resulting in an explosion that killed an estimated 2,000 people, injured 8,000 and caused \$50 million dollars damage.

It was the biggest civilian disaster of the century in Canada. It has been described as more spectacular than the San Francisco earthquake, more dramatic than the Great Plague of London and more widespread in its repercussions than the sinking of the Titanic. It combined the devastating aspects of a tidal wave, earthquake and air concussion. Ten thousand people were left homeless.

Flying stilettos of jagged glass plucked eyeballs from their sockets. An emergency nurse, in an interview 42 years later, recalled her horror at seeing a surgeon carrying a bucket full of removed eyeballs through a hospital ward. Today it is possible to see blind adults tapping along the streets of Halifax, their cheeks still bearing faint blue stains of explosive powder. The number of people blinded in the explosion was more than twice the number of Canadian soldiers who lost their sight in battle during the First World War.

the whole of that job still lies upon the patient callous shoulders of the people of England!"

Later references were more flattering. After an 1842 visit to Halifax, the author Charles Dickens wrote that "I carried away with me a most pleasant impression of the town and its inhabitants." He watched Parliament in Halifax and adjudged it as "so gravely presented on a small scale, that it was like looking at Westminster through the wrong end of a telescope."

The links of Government House in Halifax with Britain's Royal Family, tightened in the last years of the 18th century by such Princes of the Blood Royal as Edward and William Henry, were continued by four of Queen Victoria's children. These included Princess Louise whose husband the Marquis of Lorne became Governor-General; and Prince Alfred, there to welcome his sister to the city their grandfather, the Duke of Kent, had known so well.

Edward's son, Prince George, continued the Royal connection, serving with the North Atlantic fleet in 1883-84. In 1901 as Duke of York he passed through Halifax with his wife Mary, Duchess of York, some years before becoming King George V. Their sons also came to Halifax and one of them, Prince Albert, made a return visit in 1939 as the reigning monarch, King George VI accompanied by his wife Queen Elizabeth, now the Queen Mother. ♦

Belly Dancing reduces waistlines

Fitness-conscious women bored with just plain exercising might try belly dancing. Randi Cherry, who teaches belly dancing to 100 women in five Ottawa classes, plays down the burlesque and nightclub connotations of this art form.

"Belly dancing is mainly a good way to get the mind and body together," she said. When done properly belly dancing is described as a series of movements that can be graceful, flowing, winding and erotic.

Mrs. Cherry said many of the women in her classes want to try something different and for most of them it is a fascinating experience. Learning to control the muscles in the body was the most important aspect of belly dancing.

One woman in her 30s said she had reduced her waistline by 21/2 inches since she began the course three months earlier. Aerna Lubbert said she had tried fitness programmes before but found none of them as successful or as stimulating. "Plain exercising is boring, which is why no one stays with it," she said. "This has been interesting as well as physically demanding."

Mrs. Cherry also teaches the history of the dance and helps her students make their own costumes. She said belly dancing may have been originated to assist in the ritual of childbirth since many of the movements are similar to contractions. The dance instructor said belly dancing and yoga can complement each other, noting that much of the same discipline is required.

"I don't think North American people are really ready for the theory of yoga and would be much better with something like this," she said. ♦

Recycling to save environment

Waste newsprint, which previously would have been consigned to garbage dumps, has been incorporated into a recycling process at the Ontario-Minnesota Pulp and Paper Co. Ltd. plant at Kenora, Ontario.

The wastepaper, collected by boy scouts and other groups, is sold to dealers who have the equipment to bale it in the required



Artist, Daphne Odjig Beavon in The New Warehouse Gallery, located behind her native arts store in the downtown section of Winnipeg. The gallery is believed to be the first of its kind totally owned and operated by native people in Canada. It is a place where artists can exhibit their works without paying the heavy commissions and fees charged by some galleries. A variety of art forms will be presented, not simply the traditional work often identified in the public mind as the only kind of native art.

unit size. The paper arrives in Kenora in 1,700-pound bales from Winnipeg and Minneapolis.

The process, which is designed strictly for newsprint, begins at the northwestern Ontario plant with the removal of the paper from railway cars by a forklift machine. The paper then enters the production mainstream. Primary treatment involves subjecting the wastepaper to a solution of hot water and caustic soda. Next the moist pulp is pumped over a screen to remove ink and other foreign matter, and mixed with ground wood. Eventually the pulp finds its way into the paper machine operation for the finished product.

Bob Birch, resident manager of the mill, said the recently-initiated recycling process reflects the company's concern about the environment. Every ton of waste paper that was recycled leaves one cord of wood standing in the bush. The scheme is planned eventually to handle 40 tons of wastepaper a day.

The Kenora plant, a subsidiary of Boise Cascade Corp. Ltd., produces as much as 800 tons of high-grade newsprint each day, with most of its production shipped to the United States midwest.

Both ground wood and chemical pulps used in the manufacturing process are made from pulpwood harvested in the surrounding area. The mill has been producing newsprint since 1924. All the wood used in the manufacturing process arrives at the mill by truck, rail or water, in the form of eight-foot logs. ♦

Parable returns profits

A Bible parable and a minister's faith have resulted in a United Church of Canada congregation bringing back profits of more than four times the size of its investments.

Early last December, Rev. Ben Hodder handed out \$2,500 in crisp, new \$5 bills to his Kew Street congregation in Toronto and asked the churchgoers to invest the funds.

On Sunday, January 26th, the congregation, which filled the church to its 650-seat capacity, gave the minister \$11,100 with the promise of more profits to come.

"It's fantastic," Rev. Hodder said in an interview. "The idea got away beyond the dollars-and-cents area — it was a real experience." Rev. Hodder said his inspiration was a parable in which a man entrusted eight "talents" — a monetary unit comparable to \$1,000 — to his servants before departing on a journey. He was given 15 talents on his return.

The minister said the congregation used his money for concerts, bazaars and purchase of materials to produce goods for sale. He said some of the profits may be used to sponsor similar programmes in other churches. ♦



continued from page 16.

This is just the first stage of a development programme in three stages which will eventually multiply the whole museum's floor space eight times at the cost of some \$18 million - \$13 million in the form of a grant from the Province of Ontario and \$5 million raised by trustees and the community.

Before the Moore bequest, the gallery had more than 5,000 works of art in its permanent collection, reaching from the fourteenth century Italian Madonna with Saints (by the Master of the Strauss Madonna) to such 20th century works as Picasso's Seated Woman and Henry Moore's Working Model for Three-piece Sculpture No. 3: Vertebrae. Earlier masterpieces include Tintoretto's Christ washing his disciples' feet, Rubens' The Elevation of the Cross, and portraits by Rembrandt, Frans Hals, Van Dyck, Hogarth, Reynolds, John Singer Sargent and Augustus John.

There are landscapes by Poussin, Claude Lorrain and Salomon van Ruysdale. Gainsborough's The Harvest Wagon, Fuseli's Lear banishing Cordelia and Canaletto's The Bacino di San Marco from the Piazzetta are included in the

eighteenth century collection. Other treasures from the European collection include works by Delacroix, Renoir, Fantin-Latour, the French Impressionists (Pissaro, Monet, Bonnard), Vuillard, Degas and Tissot. In the contemporary field the gallery has key examples of various artists' work.

The largest part of the collection of paintings is nevertheless Canadian, including a large representation of contemporary works and going back through the famous Group of Seven to Cornelius Krieghoff.

The increase of exhibition space, which will enable 25 per cent instead of the present 5 per cent of the whole collection to be on display at one time, is only part of a wide development programme which includes lounges and dining rooms and lots of resting places to help visitors avoid "museum fatigue." The extension department which organises travelling exhibitions is to have its own gallery for previews and the education programme, including a seven day a week studio workshop programme, is to be given increased facilities and space. ♦

McGill professor fights cancer and the 'evil eye'

By Joseph MacSween

Cancer . . . the evil eye. The two concepts are not far apart in the supposedly sophisticated society of 1975, says Dr. Phil Gold, co-discoverer of a new test for cancer.

Dr. Gold told a reporter that grief surrounding cancer is in a class by itself because — unlike heart disease, for instance — cancer remains a "socially unacceptable" disease. "People don't want to talk about it," said the 38-year-old scientist-physician. "They call it by a variety of terms. It

seems almost as though the evil eye has to be warded off if you say the bad word."

That is one reason why Dr. Gold wants lay people to know more about the "unfolding story" of the war against cancer: "It is unfortunate that in most minds cancer remains a terminal illness despite the fact that it is curable in many instances." Statisticians say that medical science can cure nearly one of every two cancer victims and the key to successful treatment is early detection.

This is the field in which a major contribution was made by Dr. Gold, senior "investigator" of the division of clinical immunology at Montreal General Hospital, professor of medicine and physiology at McGill University and senior physician in the department of medicine.

First tests

Phil Gold was only 26 and an intern in 1963 when he and Dr. Samuel O. Freedman, director of the immunology clinic, began the experiments that resulted in the first blood test for cancer. By 1965 the Gold-Freedman team demonstrated by immunological techniques that a substance known as CEA-carcino-embryonic antigen — is present* in cancerous bowel cells, pinpointing for the first time a constituent of cancer cells that does not exist in normal tissues. An antigen is a substance that stimulates production of antibodies and, strangely, CEA is known otherwise only in normal human embryos, vanishing before birth and not reappearing during normal healthy life.

Why did the discovery of CEA in cancer take place in Montreal?

Dr. Gold, a Montrealer of energetic, outgoing personality, said he was fortunate to have worked at McGill as a graduate student in physiology under Dr. Arnold Burgen, now director of Britain's Medical Research Council.

"I have always been interested in the investigative aspect of things and probably would have stayed on in research, but Dr. Burgen suggested I should gain some background in medicine," said Dr. Gold. "As an intern at the Montreal General I attended two evening lectures in rapid succession. I heard at one of them that after all those years of research we still did not know what was different about a cancer cell. In the second lecture, someone discussed the phenomenon of immunologic tolerance, which was then new and exciting. The penny dropped. It seemed to me that the phenomenon might be applied to the investigation of cancer."

He took the idea to Dr. Freedman, immunologist at the hospital, and that was the beginning of a fruitful professional and personal friendship. "Dr. Freedman thought the idea might be feasible and from that time forward, the project came into being," said Dr. Gold. "We asked ourselves: is there some component, function, constituent, in the tumour cell that distinguishes it from the normal cell from which it presumably comes? Scientists had looked at this problem through innumerable other techniques but the immunologic approach seemed promising because it is oriented toward specific things. We then asked ourselves: if we immunise rabbits with normal and tumour tissues under different circumstances, will the antibodies that these animals produce show us something specific about the tumour system that is absent from the normal system?"

CEA discovered

"In other words, we raised antibodies in animals against the tumour cells, then used the antibodies as a probe to point out or identify their corresponding antigens. That is how we found CEA. Then we asked: is there any situation where the tumour cell releases this CEA into the blood? To our complete surprise, after several years of work, we did find this material in the blood circulation. Again the penny dropped: my God, Since we can find this stuff in the circulation, it is of any value for testing people for tumours, and testing them particularly after tumours have been removed? Will the CEA go away? Will it come back before the patient has clinical recurrence of a tumour?"

It was in 1969 that Gold and Freedman — joined by Dr. D. M. P. Thomson — observed CEA in the bloodstream and began devising blood tests to detect the presence of cancer before traditional signs of the disease appeared.

Trials conducted co-operatively by the National Cancer Institute of Canada and the American Cancer Society confirmed the validity of the test.

Detection by blood tests

Dr. P. G. Scholefield, assistant director of the Canadian Institute, told a reporter in a telephone interview from his Toronto office that "What Phil Gold and Sam Freedman have done is open up a new avenue of research against cancer."

But Dr. Scholefield said the institute has no present plans to conduct a national study — as proposed by Dr. Gold — to determine how far in advance of clinical evidence the CEA blood test can spot a recurrence of cancer.

The institute, financed largely through public donations, had no plans beyond a follow-up of some patients involved in the original evaluation study.

Dr. Gold described this field as the "most exciting application of the CEA test at the moment" and he reported recurrence of the disease has been detected by blood tests from two weeks to 10 months before clinical evidence.

An unfolding story

"Hundreds and perhaps thousands of laboratories now are doing the tests in various parts of the world," Dr. Gold reported. It now appeared the test in its various forms will pick up evidence of cancer in such areas as the breast and lung as well as the bowels.

"It is not too much to hope that over the next few years, with a better understanding of the chemistry of the molecules with which we work, we will be able to specify whether it is a bowel tumour antigen, a lung tumour antigen or a breast tumour antigen. It is an unfolding story."

Economic Digest

Housing

A final count of 1974 housing starts brings the total to 222,123 units, about 17 per cent below the 1973 record, Central Mortgage and Housing Corporation, the Canadian Government housing agency, reported in January.

CMCH estimated earlier that 1974 starts had reached 220,000. More than 268,000 units were begun in 1973. Aided by the carryover from the boom in housing starts in 1973, contractors were able to complete a record 257,243 units last year, up from 246,581 in 1973. But because of the decline in housing starts in the second half of the year, there were only 168,406 units still under construction at the end of 1974. This was a decrease from 207,236 units at the end of 1973.

Saskatchewan was the only province to register a higher rate of housing starts in 1974 than in 1973. There were 7,684 starts last year, up from 6,386 in 1973. Housing starts by province with 1973 figures in brackets: Newfoundland, 4,911 (4,831); Prince Edward Island, 1,334 (2,122); Nova Scotia, 6,008 (7,734); New Brunswick, 5,861 (7,235); Quebec, 51,642 (59,550); Ontario, 85,503 (110,536); Manitoba, 8,752 (11,531); Saskatchewan, 7,684 (6,386); Alberta, 19,008 (20,977); British Columbia, 31,420 (37,627).

CMHC said starts on single-family dwellings last year were eight per cent lower than the previous year while there was an even sharper drop of 28 per cent in multiple-housing construction. Multiple-housing includes apartments, row houses and duplexes.

There were more completions last year in all categories of housing except semi-detached and duplex units where there was a decline to 12,509 from 13,479 in 1973.

CMHC financed directly 30,352 starts in 1974, an increase from 29,027 the previous year. But there was a steep decline in National Housing Act-insured loans to 31,057 from 75,649 in 1973.

Conventional private loans were down to 160,714 from 164,033.

Savings

Canadians continue to save at a near-record pace, the Canadian Banker's Association reports.

CBA figures showed personal savings deposits, the largest category of deposits with the Canadian chartered banks, were up more than 21 per cent in 1974 to a year-

end record C\$29.4 billion. The increase was the second-largest of the post-war period, exceeded only by the 23 per cent rise in 1973.

Fixed-term deposits, offering the highest rates of interest, grew at a pace almost double the growth of personal savings deposits. At C\$12.1 billion, these were up nearly 12 per cent. Personal non-chequing deposits, with somewhat lower interest rates, rose more than 23 per cent to C\$11.2 billion.

Since 1964, personal savings deposits at the chartered banks, the country's major savings institutions through almost 6,900 branches, had more than tripled.

Jobs

Unemployment rose in Canada to 6.1 per cent in December from 5.5 per cent a month earlier, Statistics Canada reported at mid-January.

Men were hit hardest as 4.5 per cent over 25 in the work force were unemployed. The rate for men between 14 and 25 went to 12.4 per cent from 10.9.

Among the provinces, the highest rate was in Newfoundland — 16.4 per cent in December compared with 14.4 per cent in November. There were jumps of a full percentage point in New Brunswick, to 10.6 per cent, and Quebec, to 8.1 per cent.

Actual figures show the total of male jobless rose to 431,000 in December, up from 327,000 the previous month, while the total for women remained steady at 166,000 in both months. In December, 1973, the jobless total for men was 374,000 while for women it was 138,000.

Bank Rate

The Bank of Canada announced on 10 January, that the Canadian Bank Rate had been reduced to 8½ per cent effective January 13, 1975. The Bank Rate had been lowered from 9½ per cent to 8¾ per cent on 18 November, 1974.

The Governor of the Bank of Canada, Mr. Gerald K. Bouey, noted that the reduction in the Bank Rate followed a decline in short-term market rates of interest in recent weeks. The Bank had regarded a reduction in interest rates from their peaks last summer as suitable to the economic and financial situation, allowing for the fact the continuing high rate of inflation made it necessary to exercise particular caution in the development of monetary policy. Rising costs rather than demand pressures were clearly now the main driving force of inflation.

Semen sales

Canada's trade in cattle semen is increasing fast: between 1970 and 1973 exports rose by 93 per cent, the Canadian Department of Agriculture reported recently. During 1973 C\$8.9 million worth of beef and dairy semen was exported to 34 countries, the largest customer being the United States which took 78 per cent.

The Arts

Toronto honours Henry Moore

By Jenny Pearson

The opening of the new Henry Moore Sculpture Centre at the Art Gallery of Ontario, Toronto, represents a sizeable chunk in the pattern of world recognition that is at last achieving the proportions due to the great sculptor, born in Yorkshire in 1898 and still heavily engaged in work at Much Hadham in Hertfordshire.

The sculpture centre in Toronto was built mainly for the purpose of housing a gift from the artist of works out of his own collection, valued at \$15m., which the museum's director William J. Withrow has described as "one of the most generous gifts ever made by an artist to an art

museum".

Artists have made gifts to museums before — but it is not often that a museum responds with such lavish enthusiasm as this. The new sculpture centre, occupying 10,000 square feet, has made it possible for all the works given by the artist to be put on view together, in addition to various other examples of his work already in the gallery's possession. As a result, the Toronto gallery now has a collection of Henry Moore's work second only to that of the Tate Gallery in London. It is also being used to show works by other leading contemporary sculptors.

The Moore gift includes 18 bronzes of varying sizes, 41 original plasters and some 200 lithographs and etchings. Among the bronze forms is *Two Forms* (1966-69), weighing about 8 tons, 20 feet long and 12 feet 8 inches high, and an earlier work, the 5 feet high *Warrior with Shield* (1953-54). The original plasters include a 91 inches long *Reclining Figure* (1951) and *Draped Reclining Woman* (1957-58).

Surveyed *en masse*, a collection of works all by one artist gives the sensation of entering an incomparable and overwhelming landscape, the workings of an extraordinary mind made visible. I remember the sensation from years ago on entering the old Palais de Dance in St Ives, Cornwall, where Dame Barbara Hepworth houses and works upon her private world of form.

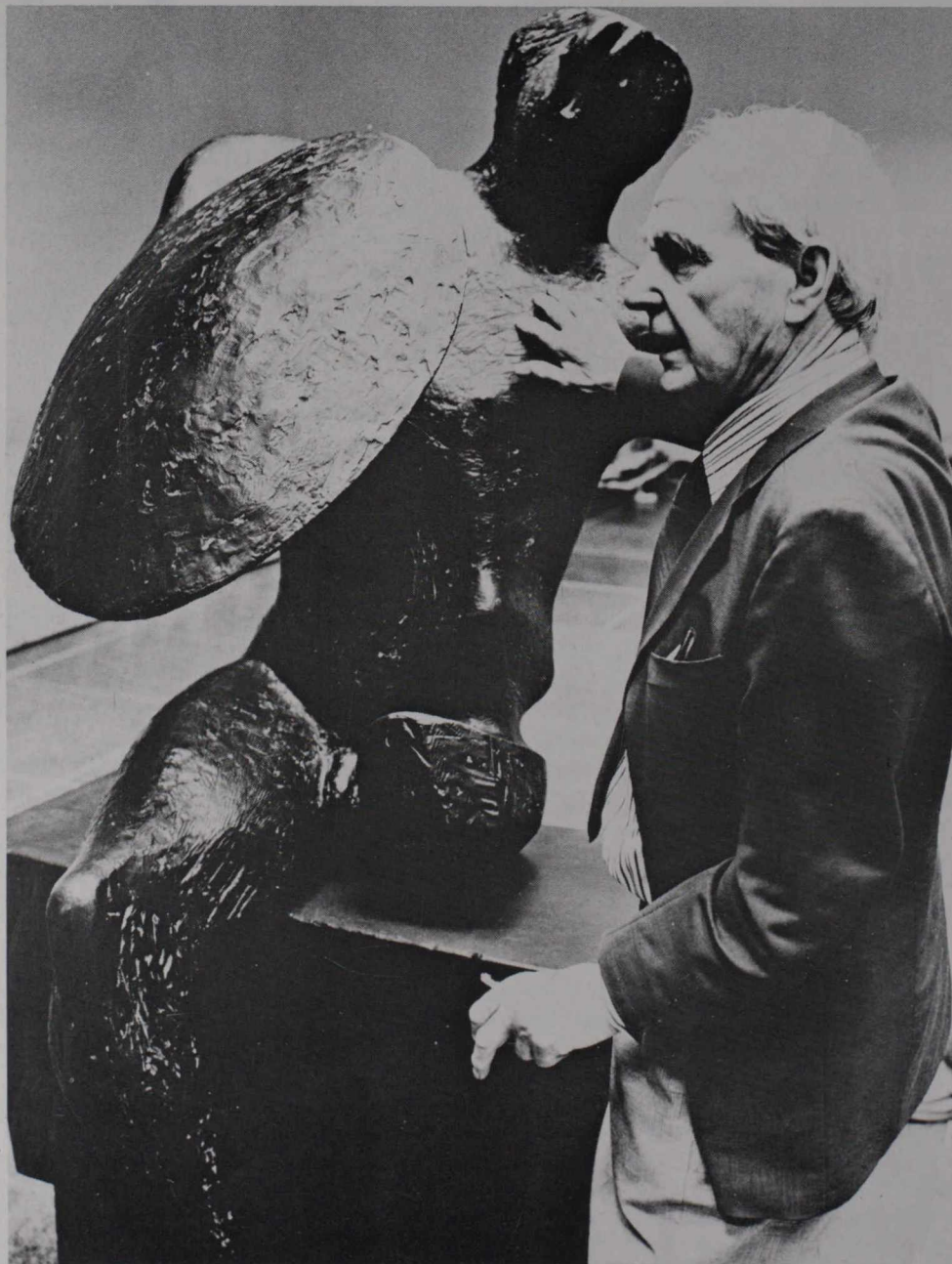
That Henry Moore should be so splendidly honoured outside his own country is in keeping with the earlier pattern of his recognition. Heralding the event in his column last year, Terence Mullaly, art critic of the *Daily Telegraph*, commented that it was "shaming . . . that this recognition has come from abroad rather than from his native Britain."

Mullaly noted that it was North America, not Britain or even Europe, that first acknowledged Moore's international stature with a retrospective exhibition in 1946 at the Museum of Modern Art in New York. Today over two thirds of his pieces of sculpture and drawings are in North American public and private collections and there are a great many examples of the sculptor's work to be found in public places, sited in such a way that they complement their architectural setting and are themselves seen to advantage.

Aside from his gift to the centre Toronto has named after him, Henry Moore has also arranged that in future the museum will be able to buy examples of most of his future bronzes at the cost of casting.

The Henry Moore Sculpture Centre, initiated in response to his gift, is part of an extended programme to enlarge the gallery's facilities so that other collections received in recent years can be properly housed — at the same time creating two large new galleries to be used for major loan exhibitions. A spacious new gallery located between the Moore wing and the Gallery's central area is devoted exclusively to the works of contemporary Canadian artists. There is also a new gallery for prints and drawings.

Continued on page 14.



The sculptor with his bronze *Warrior with Shield* (1953-54).