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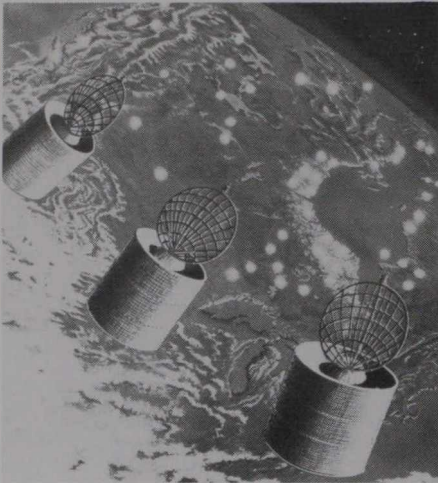


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Cover shows artist's impression of the three Anik satellites which provide the basis for Canada's domestic communications system.

Canada Today



Contents

	Page
Canada launches satellite of tomorrow by Jenny Pearson	2
Are Canadian women equal?	5
Lady directs art gallery	6
Unlock your daughters!	7
Research finds earlier cervical cancer risk	9
Club trains heart patients to run the marathon	10
Future of the North weighed in pipeline hearings	11
One-man fight against development	13
You're not mad if you see a UFO	13
Italian Cattle	15
Computer Patients	15
Economic Digest	15
Was Canada a Land of Promise for Loyalist refugees?	16

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Canada launches satellite of tomorrow

By Jenny Pearson

With three Anik satellites already spinning around the Earth and communications bouncing off them across Canada and the United States, the Canadian space programme is about to take another leap forward with a new spacecraft designed to explore future possibilities for space communication — in advance of anything so far attempted.

The Communications Technology Satellite (CTS), scheduled for launching from Cape Kennedy in Florida towards the end of this year, will be the most powerful communications satellite ever launched. It is not for commercial use as the three Aniks are. It is a test vehicle, equipped with high-powered orbiting transmitters that could bring the most sophisticated communications — at present limited to highly developed areas — to every part of Canada by the 1980s.

The powerful CTS satellite is expected to get over a lot of problems which inhibit further development of communication via the Aniks. Because the Anik systems operate in a frequency band (4-6GHz) shared with other systems on the ground, satellite power levels have at present to be restricted to prevent interference. This has been an important factor controlling the use of the large, expensive ground antennae which pick up signals from the Aniks.

More Earth terminals

The new satellite will be able to operate at much higher frequencies and higher power, so that it will become possible to establish a vast network of small, even portable Earth terminals, which will be simpler and much less costly to use. As the cost of ground stations comes down the number of people served by satellite communication will be able to rise much faster.

It will also vastly increase opportunities of making regional connections: for example, places in the remote north, which at present have their television beamed to them from cities in southern Canada, will be able to link up with one another. There is even talk of creating space links between Eskimo and Indian communities — a move which should satisfy those critics of the present situation who complain that television beamed north from the populous areas is helping to break down and destroy indigenous cultures.

In appearance, CTS has more in common with the birds and the bees than any of its predecessors, though its "wings" are not for flying with but for soaking up energy

from the sun. Light in weight and extending like concertinas from the main body of the spacecraft, these wings carry enough solar cells to provide an initial power output greater than one kilowatt. Other technological advances in the vehicle include a new kind of travelling wave tube; supplied by the United States' National Aeronautics and Space Administration (NASA), it should be capable of producing a 200-watt signal at 50 per cent efficiency (as compared with 30 per cent on the present generation of satellites); and it will be stabilized by three hydrazine jets and a momentum wheel, where its predecessors have been kept stable by spinning.

Social implications

During its expected two-year lifespan, CTS will be used in three kinds of experiment: to test new satellite design and components, to study ground station technology and to look into the social and economic implications of such systems.

The third area of investigation is in keeping with the Canadian Government's policy on space communications from the very beginning, which has been one of careful study and control of the space programme to ensure that its benefits were wisely and fairly distributed. A pamphlet on *Canada in Space*, published by the Department of Communications, says of CTS, "It is one thing to build such an advanced satellite — quite another to determine the wisest use for it. The social significance of the non-technical experiments planned for CTS cannot be over-emphasized."

Interested groups across Canada have been invited to suggest ways the satellite could be used and many will be participating directly by carrying out experiments selected from the original body of suggestions by an independent evaluation committee. Proposed experiments include remote medical diagnosis, community interaction and tele-education.

Thus even before it is launched CTS has started people thinking about new ways to solve their communication problems, acting as a catalyst for groups which might never have dreamed of using a communications satellite if the Government had not offered to put one at their disposal. It will be used by 20 organizations with a total of over 30 experimental services.

Right: Model of the new CTS with "wings" outstretched to capture solar energy.

Though designed and built in Canada, CTS is a co-operative effort with NASA providing some advanced components and doing some pre-launch testing as well as the actual launching. The European Space Research Organization (ESRO) has also provided vital components. The vehicle was constructed and assembled at Canada's Communications Research Centre at Shirley Bay, on the outskirts of Ottawa. The main sub-contractors were RCA for electronics and Spar Aerospace for structure.

CTS is the seventh Canadian satellite to go up since the launching of Sputnik began the space race in 1957. Following the Russian "first," two Canadian Prime Ministers in quick succession — John Diefenbaker and Lester Pearson — declared Canada's commitment to seek peaceful ways of participating actively in space research, in spite of limited resources. Responsibility for the first satellite project was given to scientists attached to the Defence Research Board, because they had the requisite knowledge of electronics, radio physics and communications systems. Their establishment at Shirley Bay was transferred to the newly formed Department of Communications in 1969 and became the Communications Research Centre.

The foundation of a separate Ministry was an important milestone in the space programme. It marked the realization by politicians of the importance of having a national policy for communications, particularly in a country as large and varied as Canada. To quote Christopher

Lorenz in *The Financial Times*, October 6, 1975, "The Department's work has given Canada an international reputation for seeing communications in the round, rather than dealing in isolation with its component parts, like many other countries. Particularly evident has been the Department's concern with the social aspects of telecommunications, an aspect often neglected in Europe."

Commercial company

Canada's official entry into the use of satellites for general communication began in 1969 with the incorporation by act of Parliament of a private commercial company 50 per cent owned by Government, Telesat Canada. Its brief was to "establish satellite communications systems providing, on a commercial basis, telecommunications services between locations in Canada; also, subject to agreement by the appropriate governments, between Canada and other countries."

Before this date, Canada's involvement in space was scientific and experimental. Its main early objective was to improve understanding of the ionosphere, which can be at its most disturbed in the region above northern Canada. The phenomenon which creates the visual effect of the *aurora borealis*, or "northern lights," is also responsible for the unreliability of short-wave radio links in that region.

When the first satellite, Alouette I, went up in 1962, Canada became — after Russia and the United States — the third nation of the world to have a satellite in space.

Designed and built in Canada, it was launched in the United States by NASA, an arrangement that has been repeated for all Canada's subsequent launchings.

The main experiment on Alouette involved sending radio waves at various frequencies into the ionosphere and monitoring their reflection by the layers of charged particles, giving a sort of radar map of the ionosphere from above, which would complement further studies from the ground. This required far longer antennae protruding from the main body of the satellite than had ever been put in space — 150 feet from tip to tip for one, 75 feet for the other. The idea of an antenna stored up rolled, like a carpenter's steel tape, and formed into a tube as it unrolled, had been developed 20 years earlier by the National Research Council for use in tanks. It was just the thing for Alouette. These long, extendible antennae have since become standard elements in every nation's satellite. Spar Aerospace of Toronto, which developed them commercially, have sold C\$12 million worth to foreign space programmes.

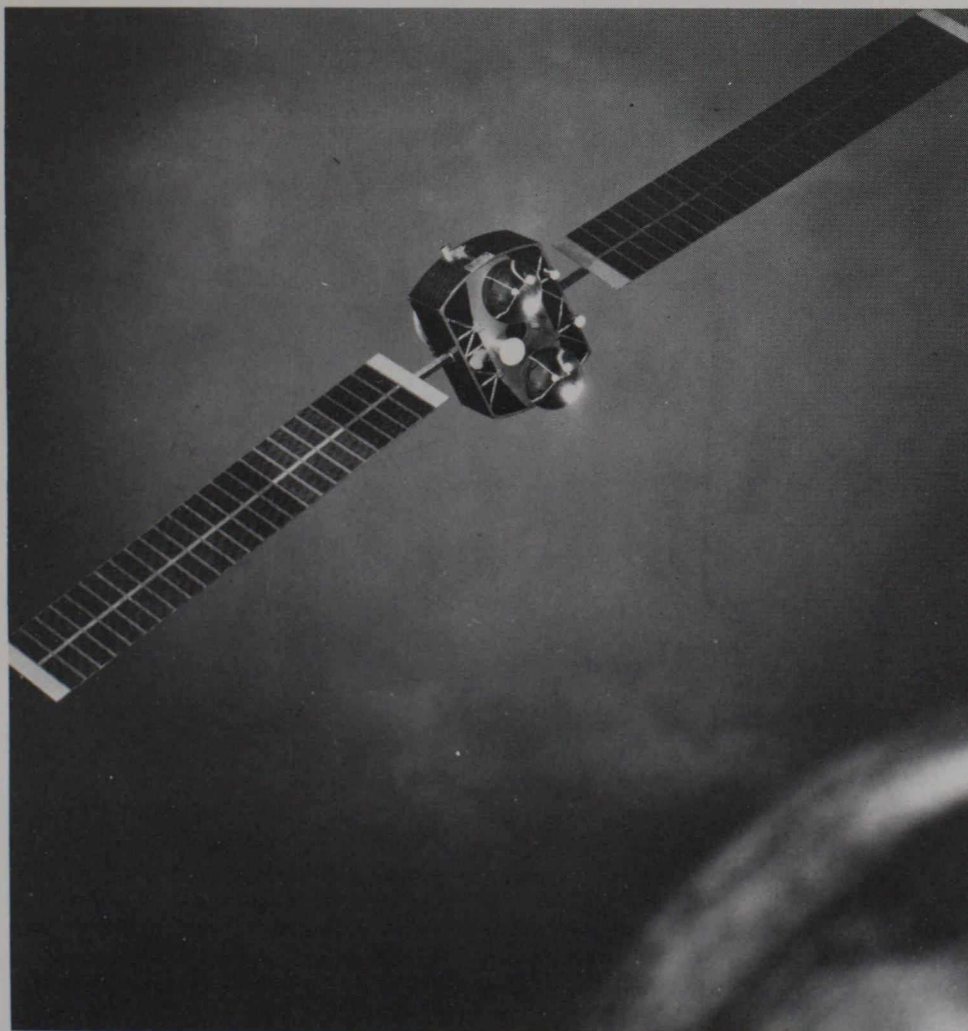
Incredible life-span

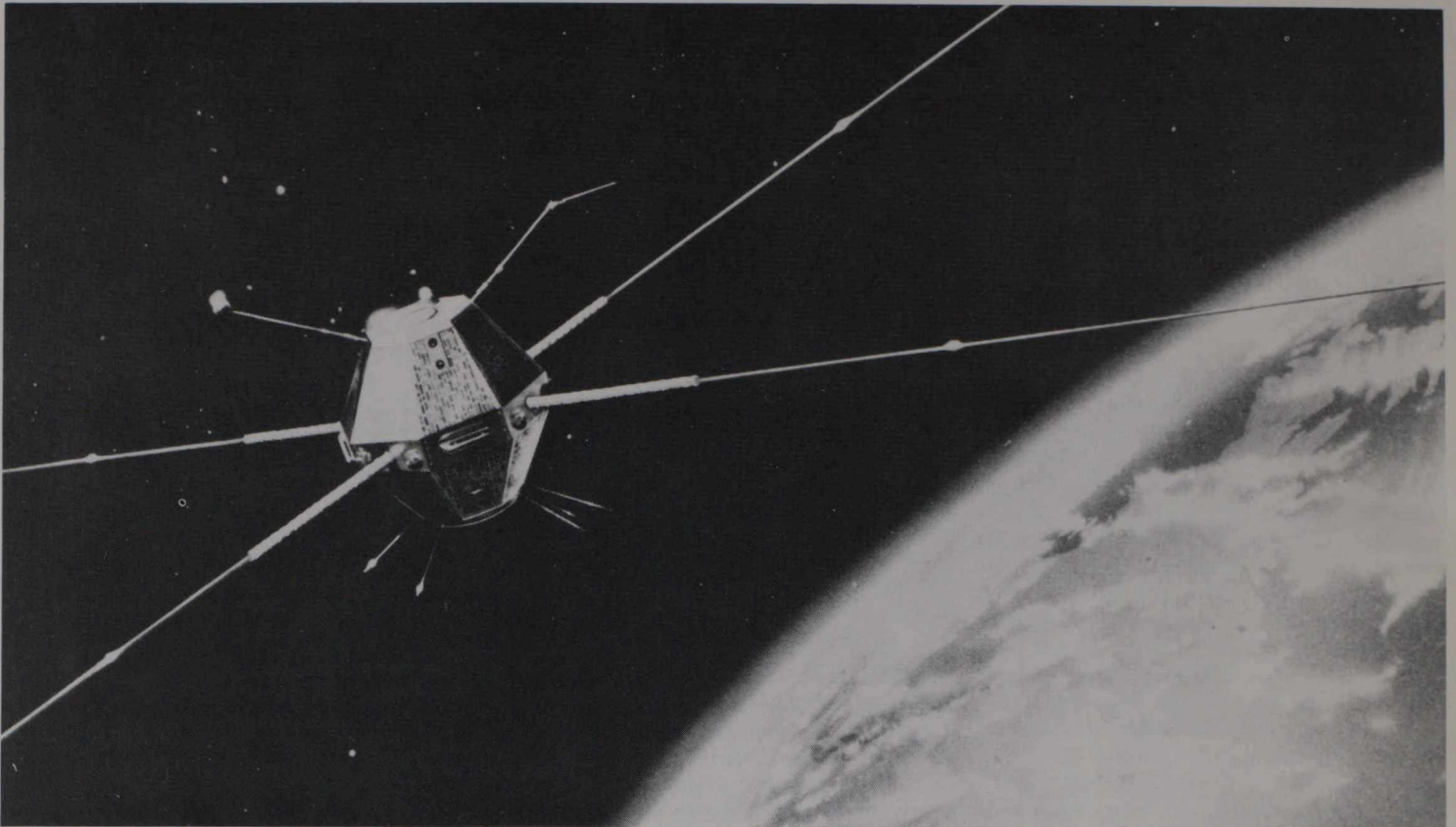
Alouette was put together at a time when most satellites had a useful lifespan of a few months. That it could still send back data after 10 years seems an almost incredible feat. Its builders expected it to last a year; their most optimistic prediction was five years of declining usefulness.

Research with Alouette I resulted in some 400 scientific papers, giving the first global information about the upper regions of the ionosphere. Previously, knowledge had been limited to the region below 200 miles. Sounding the ionosphere with radio from above, measuring cosmic noise, listening to very low-frequency radio signals, counting the charged particles, scientists could now determine better how plasma particles and radiation from the sun react with the earth's atmosphere and magnetic field, how this "solar wind" affects radio transmission and causes such phenomena as the *aurora borealis*.

The satellite's unexpectedly long life added the bonus of comparable measurements over almost an 11-year cycle of solar activity. Following this success, Canada and the United States agreed to build a series of International Satellites for Ionospheric Studies (ISIS). The Canadian Government saw this as a great opportunity to involve industry in advanced space technology: a great part of the design and building of satellites from now on was subcontracted to industry, with Government providing management supervision, setting specifications and contributing special technical knowledge.

The first of the ISIS series was Alouette II, a carbon copy of the original satellite, which had been built at the same time and kept on stand-by in case the first launching failed. This was now modified and rebuilt for a new mission. Where Alouette I was in circular route 625 miles above the Earth, Alouette II was placed in an elliptical orbit





ranging from 320 miles to 1,800 miles. It was used in conjunction with the US satellite Explorer XXXI for measurements that could not be made with a single satellite.

Experience gained from the Alouette-Explorer experiment led to the creation of a new satellite, ISIS I, combining in one craft the experiments carried separately in Alouette II and Explorer XXXI. In 1969, ISIS I was put in an elliptical orbit ranging from altitudes of 2,160 miles to 360 miles — covering the most important areas of the ionosphere. Its sister ISIS II, launched in 1971, was put into circular orbit at 756 miles — making it possible to put together pictures of the *aurora borealis* as seen from above.

Communications venture

The four satellites established Canada's firm position in space and put Canadians in a position to evaluate realistically both the pitfalls and the potentials of future programmes as the new technology moved into maturity.

The most obvious and immediate application of space technology in Canada was for communications. A severe climate, vast distances and sparse population made this a clear priority. From the start, Canada supported the programme of international space communications. In 1968 the Government decided to set about using satellites for domestic communications. At that time only the Russians had a domestic satellite system, requiring multiple satellites and complicated tracking systems; it was reported to be far from successful.

The newly established Telesat Canada set about creating a communications satellite named Anik, after the Eskimo

Isis I, created out of combined Canadian and US experience, was launched in January 1969 to extend studies of the ionosphere.

word for "brother." Anik I was launched in 1972 into an orbit 22,300 miles above the Equator at about 114 degrees longitude. The first domestic geostationary vehicle in the world, it has a high capacity for east-west television, telephone and data transmission and has brought modern communications to many areas for the first time. Anik II, launched in 1973 as a back-up for the first Anik, provided spare channels for Telesat and for leasing to American companies. The project has been so successful that in May of this year it was decided to send up Anik III, originally intended as a stand-by on the ground.

The Aniks represent the current "state of the art" in satellite communications. Their effect on Canadian life, particularly in remoter areas, has been tremendous.

Before Telesat and the Aniks, television was almost entirely limited to the more densely populated areas served by earth-bound systems. In these areas the beaming of television signals through space has gone almost unnoticed by the public. But in the North it is a different story, since even the most basic services were severely limited. Packages of video-tape recordings were flown out to remote communities on a weekly schedule by CBC's Frontier Package System: programmes were then broadcast for four hours a day over low-power, local transmitters. By the time these packaged programmes were shown there was a time lapse of up to six weeks in coverage of news, sports and current affairs.

Less obvious to viewers but of great importance to the CBC is the complex cue and control system which enables the network control centres to switch channels at individual Earth stations wherever they

are. It also enables them at the press of a button to insert live segments into the network programming through eight southern Earth stations.

It has become possible for CBC to have live French-language programming wherever in the country there are sufficient French-speaking pockets of population. Before this, French-language broadcasting was virtually limited to the province of Quebec and eastern Ontario.

Isolation ending

Another major improvement to life in the North is the gradual setting up of a reliable 24-hours-a-day telephone service via satellite in place of the existing radio-relay service. The old system is subject to frequent and unpredictable spatial outages lasting from minutes in some cases to many days in others. During these interruptions to service, whole communities are totally isolated from the rest of the world and must rely on their own resources until the service is restored.

One of the consequences of this isolation is that people working on development projects in isolated parts of the North frequently become disheartened and leave, resulting in turnover rates as high as 15 per cent a month. Even more critical is the fact that local nursing stations often cannot call central hospitals for advice or for air evacuation of serious cases.

Telesat "thin route" services are being employed by Bell Canada throughout the eastern Arctic to provide a reliable, 24-hour-a-day telephone service in such communities. The first two to be served were Pangnirtung on Baffin Island and Igloolik on the Melville Peninsula. Since the "thin route" reached these communities, telephone traffic has increased five-fold.

But the most important effect is the existence of *ready* contact with the outside world. For instance, the nursing officer responsible for nursing stations in the region reports the existence of easy communications has greatly reduced the turnover of resident nurses and virtually ended the need for costly, morale-boosting visits to them.

At Pangnirtung, flights on the scheduled twice-weekly air service were frequently cancelled because it was impossible to get a local weather report to Frobisher Bay just 200 miles away — even though weather conditions might be perfectly acceptable.

Although the impact of the Anik programme on the North has been hailed as its most spectacular and socially useful achievement, the sheer volume of space communications traffic between east and west has in fact been greater and more important in commercial terms.

This year has seen further developments of the Government policy of controlling the spread of communications in the interests of the nation as a whole. A Green Paper, published in 1973 under the title *Proposals for a communications policy for Canada*, has by now been thoroughly aired, first in a federal-provincial conference that same

year and last year in a series of meetings between the federal minister and individual provincial ministers. The upshot was a revised statement of policy last April by Gerard Pelletier, then Minister of Communications, under the title *Communications: some federal proposals*, outlining the basis for further legislation which would revise existing statutes.

Parliament has approved Phase I of this Grey Paper, which merges the telecommunications section of the Transport Commission with the Radio-Television Commission into a new body, the Radio-Television and Telecommunications Commission.

Central control

Phase II aims at allowing the provinces a more effective say in its decision-making, although this is kept firmly on a consultative basis. The Government has refused to yield to requests for a considerable transfer to the provinces of control over cable television and telephony.

The paper reaffirms that, while Government intends to give full recognition to provincial and regional objectives, it will

continue to fulfil its responsibility for communications on an essentially national basis. Centralized control is felt to be important for technical as well as socio-political reasons.

Gerard Pelletier, addressing the Canadian Association of Broadcasters at the time of publication, laid emphasis on the Federal Government's continuing responsibility to ensure that "the heady promises of the future are tempered with realism" and that resources are wisely spent. ♦

STOP PRESS

The main operations of Canada's domestic communications system were switched from Anik I to Anik III on November 1. Anik III, launched in May, took over as first line operational satellite without interruption of service, according to a statement by Telesat Canada. Anik I now has one half of its expected life behind it and is being held in reserve. Anik II continues as a back-up satellite.

International Women's Year

Are Canadian women equal?

It is a difficult question. It suggests the joke in which the first chauvinist says: How's your wife? and the second says: Compared to what?

Canadian women, in the cold, clear eyes of the law, are now almost equal to Canadian men. They are probably — a difficult measurement — as free as women in the United States, perhaps a trifle less unequal with men than women in Britain. But they are still encumbered. In practical terms there are very few women foresters or plumbers, very few engineers, very few members of the ordained clergy, very few surgeons and not many attorneys. Florence Bird, the head of the Royal Commission on the Status of Women, put it this way: They are "paid less (and) they are relegated to low-level jobs." It is a fact that most working women are in service or clerical jobs, and those doing the same work as men get less for doing it; the average man motor vehicle operator, for example, makes some 48 per cent more than the average woman operator.

There are other, less obvious forms of

discrimination; many men (and some women) do not pay full, serious attention to the opinions of women — on politics, on economics, on religion, on art, on science, on culture and on peace and war. A woman who wishes to be accepted as a thinking, creative adult has often had to focus all her energies in that pursuit, forgoing marriage and children. Agnes Macphail, the first woman member of the House of Commons, once asked hundreds of "fine, alert and very capable women in business, the professions and the arts" why they had not married and found "their reasons were the same as mine; the *person* could not be subjected." Marriage was indeed an impediment to achievement. In early Québec single women, most particularly those in religious orders, conceived and established permanent institutions of great value and efficiency. Mlle. Jeanne Mance (who took vows but never actually entered a convent) built the first hospital in Québec, Hôtel Dieu, and staffed it with nuns of the Hospitalières de Saint Joseph; these women were recognized to be as capable of administering affairs as men. (Québec nuns

maintained the tradition; in the nineteenth century there were ten thousand in the Province who ran schools, hospitals and orphanages of a quality comparable with similar, man-run institutions anywhere in the world.)

Single women in Québec who were not nuns also had certain established rights. They could hold property, and for a short time, between 1809 and 1834, women property owners (who were necessarily single) could vote. The Civil Code of the Province of 1866 put no limitations whatever on the property rights of single women, but married women were chattels. Under the Custom of Paris, enacted in 1510 and introduced to New France in 1627, they were legally incompetent and absolutely excluded from holding public office. They (and their single sisters) were not given the full franchise until 1940.

In the rest of Canada, the situation was different, though it would be hard to say if it were better or worse. There was no group of women with the authority of the Québec nuns, but the married women

"I don't want a hyena in petticoats talking politics to me. I want a sweet gentle creature to bring me my slippers." SIR R. P. ROBLIN, PREMIER OF MANITOBA, 1900-15.

"Politics unsettles men, and unsettled men means unsettled bills, broken furniture, broken homes and divorce. Men's place is on the farm." NELLIE MC CLUNG, HAVING SOME FUN AT THE EXPENSE OF PREMIER ROBLIN.

outside Québec by and large achieved status, as professionals and as persons, sooner than the married women within. Ontario passed the Married Woman's Property Act in 1872. Queen's University in Kingston admitted women in 1869, and in 1879 King's College in Halifax granted a B.A. to Sarah Maude Doane. (She declined to attend the convocation "because of all those men.") In the early twentieth century the Prairies were the most fertile area for women's growth; Emily Murphy and four other celebrated Prairie women forced the Canadian Government to recognize Canadian women as "persons" in the eyes of the law.

Prospects ahead

What are the prospects today? Good but not certain, and in many areas disturbing. As Marc Lalonde, the Canadian Minister of Health and Welfare, put it: "Our society still has a long way to go in recognizing the equality of sexes in fact as in law. . . . Is it part of human nature or an inevitable consequence of biology that the average earnings of Canadian women participating full-time in the work force should be about half that of male workers? We can surely imagine a better society in which this gap would not be so great." In the last decade that gap has actually grown.

But the progress is real, if not rapid. When Ms. Bird's Royal Commission made its report five years ago, it made 122 recommendations for Federal Government action. Seventy-nine have been partially or fully implemented.

As of last March, there were 9,137,000 persons working in Canada and 3,161,000 of them were women. The number has risen spectacularly — over a million women entered the work force in the last decade. Many women have found jobs in the higher paid sectors, but the percentage, in some cases, actually declined.

Wage gap

In 1962, 11.2 per cent of persons classified as managers were women. By 1972, the percentage had climbed slightly, to 14.3. But during the same decade the proportion of women in the relatively well-paid field of communications declined from 55.4 per cent to 49.3, and the percentage of women holding professional or technical jobs went down from 41.6 to 41.2. (These percentages tend to exaggerate the status of women, since women dominate the lower paid professions — nursing, teaching and social work, but are few in the higher paid professions — law, medicine and engineering.)

The wage gap between men and women doing the same work has actually increased in many cases. In 1962, for example, there

was a 6.7 per cent differential between the wages paid men and women operating cigarette-making machines. By 1972 the differential had gone up to 14 per cent. The average full-time woman worker is now paid about 60 per cent of the wage paid the average man.

Lady directs art gallery

Dr. Jean Sutherland Boggs, director of the National Gallery of Canada, is the only woman in the English-speaking world to head a national art gallery. On a recent visit to London, this knowledgeable art historian endeared herself to the British press by being visibly nervous when she faced a press conference at Canada House almost as big as that which attended Prime Minister Pierre Trudeau earlier in the year.



Jean Sutherland Boggs.

Yet anyone who meets her personally must be aware of the iron will behind the velvet smiles. A sharp three-minute radio interview about the gallery's newly acquired painting by Salvador Dali left the interviewer admiring a "model" performance. Speaking of the extraordinary dearth of surrealist paintings in Canada — the Dali has only one predecessor in the major

Canadian art galleries — she remarked drily: "I think that Canadians must be afraid to concede to existence of an irrational, subconscious world and they don't want to see it in paintings."

Appointed director in 1966, Jean Boggs has gone steadily about the task of filling in "gaps" in the national collection — trying to make sure at the same time that coverage of the present age, particularly in Canadian art, does not leave obvious gaps for her successors to fill. She is also deeply involved in plans for the gallery's first purpose-built home in Ottawa, due for completion in 1980.

Purchase of a Bernini bust of Pope Urban VIII last year from an American dealer produced a commotion in the press, as it was rumoured that the Italian Government were out to reclaim this national treasure. Jean Boggs remained unflappable and the rumpus never reached official level. Looking back, she says placidly, "There was nothing to it."

Apart from running the gallery she is a prolific writer, contributing numerous articles on her subject to journals and periodicals. She has published three books on her favourite artists, Degas and Picasso.

CBC Survey

The Canadian Broadcasting Corporation has surveyed the status of its own working women.

The CBC employs 10,445 persons, a quarter or 2,650 of them women. They constitute most of the secretarial and clerical force and only 7.5 per cent of the management. There is only one CBC woman producer outside Montréal, Toronto and Ottawa.

The average CBC woman employee has about the same level of seniority as the average CBC man, but she earns \$3,683 less.

The six-person survey task force, three men and three women, was headed by Kay MacIver. They talked to some thousand women employees in group sessions and interviewed 484 individually. Here are some comments:

"I've applied for promotion four times. Each time I've been turned down without a reason being given, and in each case a young man got the job."

"I've been watched over like a three-year-old."

"Men keep you from being promoted if you're clever. They need you to strengthen their own positions."

"What your real job is as a secretary, is to make or get the boss and his cronies coffee."

Photograph Bill Warhurst.

Unlock your daughters!

Henrietta Partridge looks at some outstanding women in Canadian history.

Until 1634 Canada was essentially a man's country inhabited by traders, soldiers, mavericks, missionaries and pioneers. White women were virtually unknown. The first large scale emigration of women to Canada took place between 1634 and 1673. It was an operation set up by the French Government in order to establish the population of their new colony.

The women, mainly widows and orphans from the west of France and girls from the workhouses in Paris, came to be known as the "King's Daughters." Vetted by civil and religious authorities, they had to be "amenable, hard-working, skilled and intensely religious." Their passage was paid for, and the day each girl signed her marriage contract in Canada, she was given a dowry of fifty *livres* from the King's Privy Purse. Nearly all made successful marriages; very few returned to France. They survived the extremes of climate and the primitive conditions and populated New France with "choice immigrants who by their quality, hard work and devotion deserve to carry into history as a symbol of distinction and honour the unique title of 'King's Daughters'."

"I aspire to fame as eagerly as many men," wrote Marie Madeleine de Verchères, one of the early heroines of Quebec. Born in Canada in 1678, the daughter of a French Army officer, she showed remarkable bravery at the age of fourteen when she defended her father's fort against a horde of Iroquois who were retaliating against the heavy massacres led by Frontenac at Pemaquid and Schenectady. On October 22, 1692, both Madeleine's parents were away from home. She was left with her two small brothers, a couple of women, and an old man of eighty. Early in the morning she was down by the river when she was startled by shots fired by a party of Iroquois. The Indians slaughtered all the labourers working in the fields and Madeleine ran under heavy fire up the steep hill to the fort gate, which she managed to push open with great difficulty. She immediately set about repairing the broken palisade, heaving the enormously heavy pointed stakes back into place single handed. "I found by experience that when God gives us strength nothing is impossible," she wrote in her account of the episode later.

She led soldiers

Having mended the breaches, she went to the redoubt and found two terrified soldiers who were preparing to blow up the

fort as an alternative to being scalped by Indians. Madeleine rounded on them so severely that they gave up the attempt and put themselves under her command. Making as much show and noise of artillery as possible, they helped Madeleine and her two brothers to keep up a constant fire against the Indians.

From her post she noticed a family of habitants in a boat, trying to reach the fort. The soldiers refused to go down to the river through the field where the Indians were now killing the cattle and burning the dead labourers' cottages. Madeleine went herself and rescued the entire family. Later she made another sortie to save the sack of linen which had been left out to dry — an act of foolhardiness which is understandable when one remembers her age.

Eight days siege

During the night a storm blew up, giving the Iroquois even more favourable conditions. "I posted my two young brothers on two of the bastions, the *youth* of eighty on the third, and I took charge of the fourth." The others she sent to the comparative safety of the redoubt. "Despite the whistling of the north-east wind... the snow and the hail, the cry of 'All's well!' was heard at close intervals echoing and re-echoing from the fort to the redoubt and from the redoubt to the fort. One would have fancied, to hear us, that the fort was crowded with warriors."

They were besieged for eight days before de la Monnerie, a French lieutenant, arrived from Montreal with forty soldiers to relieve Madeleine and her party. The story of her courage spread and she was asked to write an account of her experience to satisfy the curiosity of the French Court. Not only did Marie Madeleine de Verchères achieve her ambition to become famous, but she was one of the first Canadian women to make history.

Peter Kalm, the Swedish naturalist, visited Quebec in 1749. "The ladies of Quebec, especially the unmarried ones, are not very industrious," he wrote. "They get up at seven and dress till nine, drinking their coffee at the same time. When they are dressed, they place themselves near a window that opens into the street, take some needlework and sew a stitch now and then; but turn their eyes into the street most of the time. When a young fellow comes in, whether they are acquainted with him or not, they immediately lay aside their work, sit down by

him and begin to chat, laugh, joke and invent double-entendres; and this is reckoned very witty. There are some differences between the ladies of Quebec and those of Montreal; those of the latter place seemed to be generally handsomer and of a more becoming modesty." But he adds that the Montreal ladies envied the former, because they got the pick of the young men from France, who had to land at Quebec — and that was the end of them.

"Queen of Bluestockings"

Frances Brooke, author of the first novel written in Canada, arrived in Quebec a few years later to join her husband, who was the garrison chaplain. Before her marriage, Frances had been a member of the brilliant literary group in London which included Goldsmith, Garrick, Fanny Burney, Samuel Richardson and Dr. Johnson — who once described her as being the "Queen of Bluestockings." She wrote several novels, plays and a highly successful opera, *Rosina*, which appeared at Covent Garden. Intelligent, gay and versatile, Frances swiftly became one of the most vivacious members of Quebec society, although she never reconciled herself to the harshness of the Canadian winters. "Genius will never mount high where faculties of mind are benumbed half the year," she wrote during one particularly bleak moment.

The History of Emily Montague, published in 1769, is a novel of great charm written in the epistolary style introduced by Frances Brooke's friend Richardson. Its chief interest today lies in the descriptions she gives of life in Quebec during the early years of British rule. She describes Quebec as resembling "... a third or fourth rate English country town, where there is much respectability but little society — where there are cards, scandal, dancing and good cheer, but where the politics are as difficult to understand as the Germanic system."

Ice frustrated love

The women, she says, are "gay, sprightly, and coquettish... playing at cards, playing the fool, making love and making moral reflections." It was a society where billets doux flitted from pillar to post, where officers flirted with young ladies at assemblies and at balls, and where, for six miserable months, transatlantic love affairs were frustrated until the frozen waters of

the St. Lawrence river had melted and the boats with letters from England could get through once more. "A ship from England! You can have no idea of the universal transport at the sight; the whole town was on the beach. . . ." She describes skating parties, the bitter cold ("the strongest wine freezes in a room which has a stove in it; even brandy is thickened to the consistency of oil"), the Canadian women's costume of cloth cloaks and sable hoods in winter and cloaks of India silk in summer "which, fluttering in the wind, look really graceful on a fine woman."

Frances Brooke is outspoken on the subject of equality for women. "Women who have conversed much with men are undoubtedly in general the most pleasing companions; but this only shows of what they are capable when properly educated, since they improve so greatly by that accidental and limited opportunity of acquiring knowledge."

"Indeed the two sexes are equal gainers, by conversing with each other; there is a mutual desire of pleasing, in a mixed conversation, restrained by politeness, which sets every amiable quality in a stronger light.

"Bred in ignorance from one age to another, women can learn little of their own sex."

Early settlers

But her strongest enthusiasms are reserved for the beauties of the Canadian landscape. "Sublimity is the characteristic of this western world; the loftiness of the mountains, the grandeur of the lakes and rivers. . . a landscape painter might here expand his imagination, and find ideas which he will seek in vain in our comparatively little world."

Not all women led such frivolous lives as the ladies described by Peter Kalm and Frances Brooke in eighteenth century Quebec. Conditions were by no means easy for the early settlers arriving in Canada. A pitiless climate, a continual struggle to maintain a home in a virgin land, lack of supplies and creature comforts were only a few of the hazards which faced the pioneer.

None of the contributors to the literature of pioneer life rank higher than the Strickland sisters, Catherine Traill and Susanna Moodie, who arrived in Canada in 1832. They came from a large English literary family, and they both wrote classic guides for emigrants. Neither misrepresented the immense practical difficulties involved, unlike most other contemporary accounts which were misleadingly optimistic.

Susanna, who married Major Moodie, was of a melancholy disposition. She disembarked in Montreal to the tolling of death bells, and, driving over the rough roads to Port Hope, all her best china was irreparably smashed. When the Moodies arrived at their property, they were forced to live in the cattle shed until an ill-natured tenant had been evicted. Furious

at being ousted, the tenant undermined the foundations of the house and left a dead skunk in a cupboard. In 1836 the house caught fire and Susanna extinguished the blaze herself by flinging brine and snow upon the flames.

Emily Stowe

In 1865 Emily Stowe, then 33, applied for admission to the University of Toronto to study medicine. "The doors of this University are not open to women," Rev. John McCaul, the university president, told her, "and I trust never will be." "I will make it the business of my life that they will be opened," she replied, "that women may have the same opportunities as men."

She trained in New York and returned to practice in Toronto. Here (male) doctors said she was practising illegally, since the law required that doctors be members of the Ontario College of Physicians and Surgeons and she could not join, having never attended a Canadian medical school. She was first fined but then, finally, allowed to attend classes at the University. Her male classmates drew pictures on the walls designed to shock her. The walls had to be whitewashed four times during the year.

In 1880 she was accepted as a practitioner. She helped organize Women's Medical College in 1883, and she established the first women's suffrage club in the city under the protective title of The Women's Literary Club. Her daughter, Augusta Stowe-Gullen, was the first Canadian woman to be granted a degree by the Toronto School of Medicine.

Things went from bad to worse. Neighbours stole the Moodies' pigs; Major Moodie's arm became paralysed from an old war wound; the family was reduced to poverty; Susanna was forced to labour in the fields. But, in spite of these setbacks, she wrote prolifically. Both *Roughing it in the Bush* and *Life in the Clearings* are standard works on pioneer life. Later she moved to Belleville and became editor of *The Victoria Magazine*. By the end of her life she had become deeply attached to her adopted country. "Canada has become almost as dear to me as my native land," she wrote. "What a magnificent scene of wild and lonely grandeur. . . savage in its primeval beauty." The author of many children's books besides her better known works, she became recognised as one of Canada's leading literary figures before her death in 1885.

Her sister, Catherine, who married Thomas Traill, a hard working widower by whom she had nine children, was altogether of a different temperament. She combined gaiety and a sense of humour together with a logical and scientific mind, and is at her best when recording her experiences and observing her environment.

Between 1832 and 1835 Catherine wrote constantly to her mother back in England, and these letters she later published as *The Backwoods of Canada*, a guide written for "the wives and daughters of emigrants of the higher class."

She describes Indians fishing by torch-light, squirrels stealing the Traills' precious harvest of corn. She gives recipes for making vinegar, maple sugar ("our experiment was on a very limited scale, having but one kettle besides two iron tripods"), soap made from woodash, candles and bread. Indian rice, she notes, "forms an excellent article of diet. When nicely cooked it is a favourite dish in many families."

But she does not gloss over the hardships. "One time no pork is to be procured; another time there is a scarcity of flour. . . Then you must have recourse to a neighbour if you have the good fortune to be near one, or fare the best you can on potatoes. . . the poor man and his family without the potato must starve."

Dr. James Miranda Barry

Dr. James Miranda Barry (a woman in disguise) was appointed the first Inspector General for Hospitals in Upper and Lower Canada in 1857. She died, at the age of 68, eight years later. During a long, tumultuous career she had won fame as a doctor and surgeon (she performed one of the first Caesareans in which both mother and child survived) and a reputation as a difficult, eccentric person to work with. The fact that she was a woman — and indeed a woman who had at some time given birth to a child — was discovered only after her death.

Lord Albermarle had met her when she was young. "I beheld a beardless lad, apparently of my own age," he wrote many years later, "with an unmistakably Scotch type of countenance — reddish hair, high cheekbones. There was a certain effeminacy in his manner, which he seemed to be always striving to overcome. His style of conversation was greatly superior to that one usually heard at a mess table in those days of non-competitive examination."

Carlotta Hacker, author of *The Indomitable Lady Doctors*, (Clarke, Irwin & Company Ltd., \$8.50), has concluded that "James Barry" was probably the daughter of James Barry, an Irishman who was a member of the Royal Academy, and a Mrs. Bulkeley. Barry, a friend of Mary Wollstonecraft, who wrote *A Vindication of the Rights of Women*, believed in the rights of women and the value of education. Mrs. Hacker thinks the mystery of Dr. Barry is no great mystery. She was a very intelligent young woman who wanted to be a doctor and the only possible way she could be one was to pretend to be a man.

"Once our stock of tea was exhausted. . . so we agreed to try a Yankee tea — hemlock sprigs, boiled. This proved, to my taste, a vile decoction. S. laughed at our wry faces, declaring the potation was excellent, and he set us all an example by drinking six cups of this truly sylvan beverage."

Flower and plant books

Catherine was a keen botanist and author of *Canadian Wild Flowers* and *Studies in Plant Life in Canada*. "I have made out a list of plants most worthy of attention near us." She describes in detail sarsaparilla, ginseng, a yellow water lily which she names "Queen of the Lakes," fireweed, various orchids and the profusion of edible wild berries. In one of her subsequent

books, *A Female Emigrant's Guide*, she stresses the food value and medicinal uses of native Canadian plants as well as different ways of cooking them. "Among our wild fruits we have plums fine and abundant; these make admirable preserves especially when boiled in molasses. Wild cherries, bush cranberries, blackberries are brought by the squaws in birch baskets." A fern, *A. Marginale* (Swa) Traillae, was named after her.

Catherine Traill was enthusiastic about the future of Canada. "Canada is the land of hope; here everything is new; everything going forward; it is scarcely possible for arts, sciences, agriculture, manufacturers to retrograde; they must keep advancing; though in some situations the progress may seem slow, in others they are proportionately rapid," she wrote in a letter to her mother.

Towards the end of her life, the Canadian Government presented her with £100 and an island in Stoney Lake where she spent her last years. Her final book, *Pearls and Pebbles*, was published when she was 92.

Ordinary women

Most of the first emigrant women to make their homes in Canada were neither rich nor especially well educated. They were perfectly ordinary women who accompanied their husbands to a new and largely unexplored land. For the most part they lived and died leaving little tangible evidence of their existence — of the transient round of their daily hardships and difficulties. But a surprisingly large proportion of Canadian women, from the "King's Daughters" down to the present day, did record their experiences and have gone down in history as being courageous, intelligent and remarkable women. ♦

Medicine

Research finds earlier cervical cancer risk

By Michael Jeffries

New evidence about women and cervical cancer, discovered by one of the world's medical pioneers in the field, promises to lower death rates from the disease even further.

More than three million checks on women living in the Canadian province of British Columbia over the last 25 years have produced a changed picture of women at risk.

"We have noticed a doubling of carcinoma in situ, the pre-clinical stage of the disease, in women between the ages of 25 and 29," said Dr. David Boyes, director of the Cervical Screening Service of the Cancer Control Agency of British Columbia.

Numbers have increased from five women in 2,000 in 1962 to nine in 2,000 following checks carried out at the service's headquarters and laboratories in Vancouver.

The cause, says Dr. Boyes, is twofold. "Average age of first marriage and the number of sexual partners a woman has, not only increases the rates but apparently lowers the age at which the pre-clinical form of the disease first appears."

But the news is not as glum as it might at first sound. Provided these women are screened early, treatment means cure, declares Dr. Boyes. He is also Assistant Professor of Obstetrics and Gynaecology at the University of British Columbia.

By recognising these at-risk women now, it could prevent some of them developing cervical cancer.

Dressed in his white laboratory coat, Dr. Boyes broke off from his assessment of patients to talk about his pioneer research programme that has led the world in long-term mass cervical cancer screening. Undoubtedly, it has already saved many lives in Canada.

He is a sparely-built, humorous man, whose main relaxation is to slip the moorings of his ocean cruiser and sail out into the Pacific waters around Vancouver Island with his wife aboard. To some extent it is escapism from the headaches and problems of the marathon screening programme he is carrying out among women aged 20 and over in British Columbia.

Reduction in disease

However, the results of his research have been extremely fruitful. There has been a reduction in the incidence of the disease of no less than two thirds in the past 20 years. Only eight women over 20 in every 100,000 now develop cervical cancer in British Columbia.

This is fewer than in most countries — though the figures are not always comparable because of varying definitions and

differences in collecting data. It was following Canada's studies in British Columbia that Britain's Department of Health decided to introduce similar checks for women, with priority for those aged 35 and over.

At first sight, part of Dr. Boyes' laboratories within the large Vancouver General Hospital complex might be taken by the visitor to be the inspection department of, say, a watchmaking or instrument firm. There are rows of tables with a dozen or so young women technicians, peering down microscopes. Each technician spends up to 10 minutes looking at a "colour-slide" under the microscope — the patient's cervical cells. A "staining" method colours the tissues vividly, producing a contrast which outlines cancer and other abnormal cells. So colourful are the slides that they carry a suggestion of surrealist art.

The girls, in their 20's and 30's, are expertly trained in distinguishing the subtle difference between healthy and pre-cancerous cells. "We are looking for a certain pattern or grouping of pre-cancerous cells," explained one. "Usually, it takes us a minimum of two minutes to look at each slide. But if the woman has a history of suspected carcinoma, we can spend ten minutes looking at one slide."

Two thousand smears a day pour into the laboratory by post — mainly sent by the women's family doctors. They cost

the service only \$1.70 (about 75 pence) each to check. Each of the technicians assesses about 100 slides a day. Their concentration must be absolute. One slight distraction or loss of attention could make them miss a tiny clue which could save a woman from cancer.

"I find, maybe, about one positive slide a day," the technician said. How likely is an abnormal slide to be passed as healthy? "It might happen if there are only a couple of abnormal cells on it," she replied. But the patient would probably be picked up again when next she had her routine smear check 18 months or so later, and before it had progressed to cancer.

Each time a woman is screened, her slides are compared with her previous ones. This is where 'Samantha' and 'Ophelia' are worth their weight in gold. They are great wurlitzer-like automatic retrieval storage machines — affectionately named — which contain a storehouse of 85,000 case records and slides.

About 100 positive cases a day discovered by the technicians are passed to the chief technician. His job is to whittle down the false positives, and he passes on maybe 40 a day for Dr. Boyes and other cytology experts to pronounce on.

"The other doctors and myself meet at noon each day to look at the slides we get in this way," said Dr. Boyes. They are enlarged in a powerful microscope until the cells themselves are the size of plums, and displayed on a closed-circuit colour TV. This allows the team to study and discuss minute cellular aberrations in borderline cases.

Once a suspicious or positive case is decided, the service moves swiftly into action. The woman's doctor is informed of the result and he or she arranges for the patient to have rapid treatment. It might mean her admission to the special 50-bed cancer hospital the service uses. Often, though, the early pre-cancerous patients can have the dangerous cells destroyed in a simple out-patient procedure at a clinic.

Mortality halved

This fine screening net is paying handsome dividends for each 75-pence smear check among the 741,000 women over 20 in British Columbia. Eight out of every ten women at risk are now screened — a rate that is among the highest in the world.

"We have had only one death following detected pre-clinical cancer among women screened — that was in 1966," said Dr. Boyes. He looked sad for a moment as he recalled the case, for he is convinced that with the knowledge the doctors there now have, the woman need never have died.

By contrast, the mortality rate has been halved. Incidence of clinical carcinoma in the province among the population over 20 has dropped to about 8.2 per 100,000 women, compared with 28.4 in 1955. In human terms, it means that only 71 women have to face the fact that they have invasive cervical cancer. The commonest age for this is 50.

Dr. Boyes maintains he now has

evidence that refutes critics of mass screening campaigns who say that the disease may spontaneously regress in a great many cases. His research, involving collaboration with British doctors, shows that once the early stage of the disease is present, the condition nearly always proceeds insidiously to cancer proper.

Warning to Britain

"The disease must be taken seriously," he insists. "Remember, every case is important — these are sometimes young women, and the loss to their children and husbands has an important effect on society. The more you screen, the lower the mortality among women. Treatment is 100 per cent effective if caught early."

Confirmation of Dr. Boyes' findings is expected soon from a World Health Organisation report, which will show that countries like Canada, the U.S., Netherlands, Norway, Switzerland, Australia and New Zealand, could expect a declining rate for cervical cancer in future. But Britain appears to be one of the countries where the rate was likely to increase.

This could be overcome by women going to the doctor or clinic for a simple smear test at least by the age of 30, he said. "After all, every woman who goes early for a check is getting good news if it is discovered," he declared.

She can be cured in almost every case — and once started on periodic check-ups, the woman is unlikely to become a victim in future. ♦

Club trains heart patients to run the marathon

They have a fractured heart for a symbol and call themselves "the sickest track club in the world." The walkers, joggers and runners at the Toronto Rehabilitation Centre are all heart-attack victims.

Recently a member of the club became the first post-coronary patient ever to qualify officially to run a marathon — 26 miles, 385 yards — by covering the distance in 3½ hours or less. Herman Robers, 34, ran the Honolulu Marathon last December, completing the course in 3 hours 15 minutes to finish 50th in a field of 400. His clubmate Don Costello, 44, was timed 3:28 in the same race.

This remarkable running club was started in 1967 by Dr. Terry Kavanagh, director of the centre, who keeps a careful watch on members to see they do not overstrain themselves. When Robers gained official admission to the Boston Marathon earlier this year (he was placed 626th in a field of 2,363) Dr. Kavanagh himself ran

the race along with five other members of the club who entered unofficially. A former sprinter and long jumper at the University of Manchester, the doctor is the only person at the centre with a track and field background.

Although the centre has more post-cardiac marathoners than any other club in Canada, they comprise only about five per cent of its 400 heart patients. All have been referred by their cardiologists.

Dr. Kavanagh says that many theories point to physical activity as likely to reduce the chances of initial or recurring heart attacks. "Just how physical activity works and why, we don't know. One way to measure the effects of exercise is to compare fit guys with unfit guys. We know the fit person has lower blood fats and his heart actually functions better. Then there is the psychological boost that goes with being fit . . .

"We have achieved the best results with our patients using endurance exercises — walking, jogging, running — rather than sprinting. But this physical activity is under a medically supervised, carefully monitored programme. No one should start a fitness project until he has been medically tested. You can do damage by bullying your body."

The long-distance runners, who put in up to 75 miles a week, never try anything without Dr. Kavanagh's supervision. Anyone who wants to take up long distance running must first go through a standard procedure, walking the centre's corridors 20 minutes to the mile while electronic equipment keeps track of every beat of their damaged hearts.

Any day, 100 or so of the centre's patients can be found working out. Some walk inside. Some make use of the outdoor track. Still others make lengthy jaunts through the streets of Toronto. ♦

Future of the North weighed in pipeline hearings

Reprinted from *The Globe and Mail*, Toronto, as filed by their correspondent at Fort Norman, Northwest Territories.

There were six of us in the freighter canoe, which was powered by a 25-horsepower outboard motor, or "kicker" as the Indians say.

It was about 5 a.m. and we had been on the Willow River for about two hours, huddled under blankets, eating dried moose meat and Dad's cookies. We were in the lead canoe and watched the three bit canoes behind us cut through the mist of a spectacular northern morning.

As we rounded a bend, the film cameraman beside me could resist no longer. "Heah come de judge," he said.

He was referring, of course, to Mr. Justice Thomas Berger, who is conducting a one-man inquiry into a proposal to build a 2,600-mile gas pipeline up the Mackenzie River valley. So the judge was right behind us in the second canoe. It was his idea. He could have flown to Fort Norman in the relative comfort of a single-engine Otter but chose to go by canoe, which meant no sleep that night.

Flew to camp

He adjourned a community hearing the day before in Fort Franklin at Great Bear Lake, then flew to an Indian fishing camp at Brackett Lake. The fishing camp hearing was in a tent with the judge sitting on an oil drum. It lasted until 2 a.m.

Children played baseball in a field not far from the tent. Dogs howled in the night, howled at the sun that never sets. We waited for the Indians to prepare the canoes and by 3 a.m. we were off to Fort Norman. The children still were playing outside in the sun.

Mr. Berger got three hours sleep in a five-to-a-room bunkhouse, then hiked up a hill to begin another community hearing which went on until 2.30 a.m. the next day.

"I feel sharp as a tack," the judge said when the hearing ended. He was not joking.

There is a baseball field beside the bunkhouse in Fort Norman and the 41-year-old judge tried on several gloves that were left at the backstop. After catching a few balls, he picked up a bat and hit flies and grounders to members of his inquiry staff who were still on their feet. When he had done this for half an hour, he walked to the community hall and took part in an Indian drum dance.

The man's stamina is nearly as awesome as his patience. For hours he listens to stories of how fishhooks were made 800 years or 100 years ago, how caribou were hunted, how traplines were set. The stories often are repetitive and must be translated. It becomes so numbing at times that weary interpreters unthinkingly translate English to English and Slavey to Slavey.

Applicants for costliest pipe

The National Energy Board of Canada is examining two applications competing for the right to undertake what has been described as the largest private construction project in Canadian history; a pipeline 48 inches in diameter and some 2,600 miles long to bring natural gas from the Prudhoe Bay area of Alaska and the Mackenzie Delta area of northwest Canada down to markets in Southern Canada and the United States.

One of the applications is by Canadian Arctic Gas Pipeline Ltd., (CAGSL), a Toronto-based company that is a consortium of 17 Canadian and American companies. The other application is by Foothills Pipeline Ltd. of Calgary, Alberta.

Both firms had hoped in original planning to obtain approval from the Board by early 1976. But a decision on whether a pipeline should be built and which company should build it is not expected now before late 1976. This moves back estimated completion dates for the pipeline by a year, to 1980 for Foothills and 1981 for Arctic Gas. The time being taken to examine the applications had also meant new estimates must be made on the eventual cost, if the pipeline is built. Based on the value of the Canadian dollar in early 1975, Foothills says its project would cost C\$4 billion. Arctic Gas, its estimate based on the dollar value at mid-1974, projects a cost of C\$7 billion.

With increases in the Consumer Price Index of 10 to 14 per cent since the applications were filed, an equivalent increase in cost estimates would add C\$1.7 billion to the Arctic Gas estimate and C\$400 million to Foothills'.

Meanwhile, issues other than finding an acceptable basis for updating the cost estimates remain in the forefront of some Canadians' considerations of the value of the pipeline, particularly when measured against its ecological and social impact in the isolated area through which it would be built.

The federal Government of Canada established a one-man commission of inquiry several months ago to look into these other issues. The accompanying article is reprinted from a Canadian newspaper whose correspondent followed the inquiries of Mr. Justice Thomas Berger as he examined the human issues that the economic evaluations of the proposed pipeline might have overlooked.

It is hot, dry and dusty in the North in summer, mosquitoes attack with piranha-like ferocity, and halls where the hearings are held soon become redolent of human sweat and stale cigarette smoke.

In preliminary rulings last year, Mr. Berger said the inquiry "is not just about a gas pipeline; it relates to the whole future of the North." It is his most-quoted line, and perhaps the theme of the inquiry, which alternates between formal hearings in Yellow-knife and informal hearings in the communities along the Mackenzie Valley. The community hearings convey rare insights into native life in the North and the pernicious effect of southern technology, education and attitudes.

Dolphus Shae, a 35-year-old Indian who is foreman of the hamlet of Fort Franklin, told of how when he was 8 years old he and his friends were asked to go for a ride to a fish camp. They were taken instead to a school in Aklavik.

"Before I went to school the only English I knew was 'Hello.' We were told that if we spoke Indian we would be whipped until our hands were blue on both sides. We were told our Indian religion was superstitious. It made me feel inferior to the white man.

"On the first day of school all our clothes were taken away and we were given a haircut — a bald haircut.

"I wanted to go home and I cried for weeks and weeks. I remember an Eskimo boy who cried for weeks under a blanket because he was afraid the sisters would come and spank him.

"We could not speak to the girls. If we did, we had to stand in front of the girls in our underwear until our faces were red and we cried. If we did something wrong, privileges like going to the movies were taken away. We went to the movies with the other children but we had to look the other way."

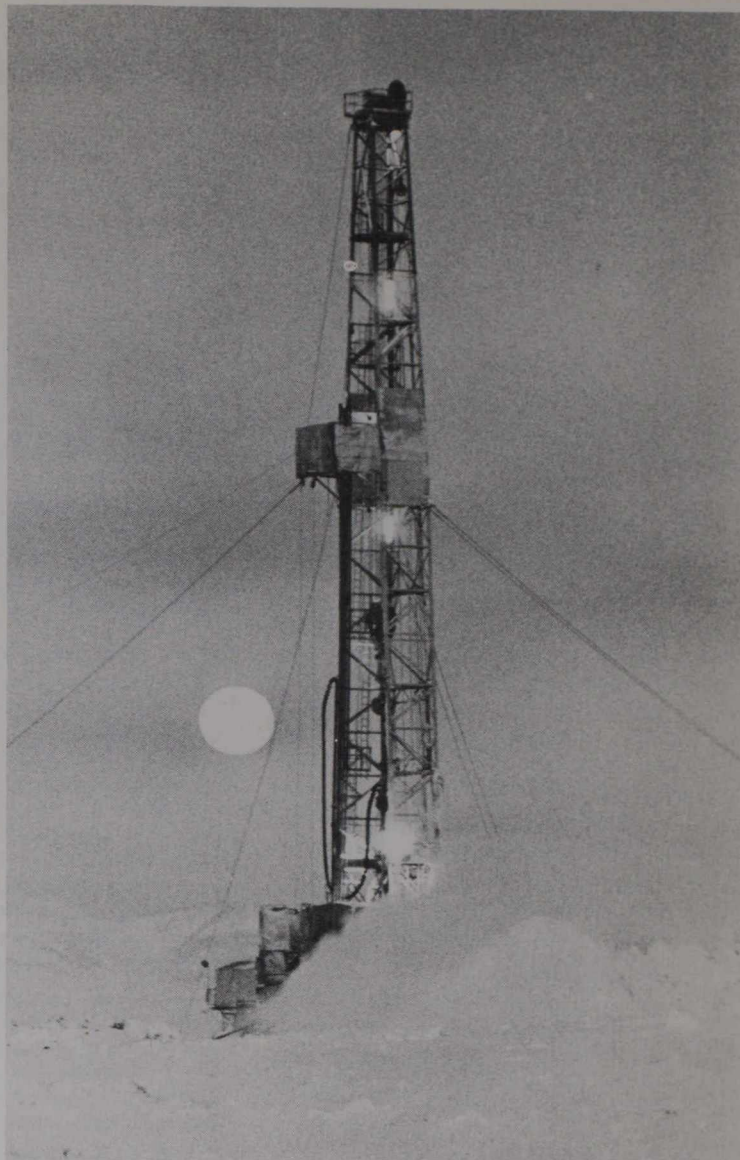
Joe Kenny, another Indian who spoke at Fort Franklin, remembered the day he saw a large boat in Fort Franklin harbor. He was told the boat contained a crew that had come to do a survey for six weeks. "I asked them what they'd think if we came to their backyards for a month. I asked them why they didn't ask the chief and band council and they laughed."

Most of the native witnesses spoke of their relationship to the land, a relationship difficult for southerners to comprehend. They feel it is as much their land as a homeowner in Don Mills feels his backyard is his backyard. Chief George Kodakin of Fort Franklin says the people of Fort Franklin regard Great Bear Lake as their "deep freeze."

"How would you like it if someone came and took away your deep freeze?" he asked. "If animals are poisoned by oil spills are they going to have blood transfusions and be put back on the land for the native people? If there are oil spills in the water is the gas company going to go in the water and collect the damaged fish and replace them?"



Delta of the Mackenzie River, alongside which the proposed Arctic pipeline would be built.



Drilling site in Canadian north.

"When you go down south some times you have to pay to go to the bathroom," another Indian said, provoking a burst of laughter. "You white people travel all over our land and relieve yourselves at no charge. What if we came and chopped down a tree in your yard?"

Paramount among native concerns is a land settlement. "Land, not money," as James Wah-shee, the 29-year-old head of the Indian Native Brotherhood of the N.W.T., says. They want 450,000 square miles and they want it before any further major development, which means the \$10-billion gas pipeline proposed by Canadian Arctic Gas.

Alien to Indians

"The European concept of private ownership is alien to our tradition," Mr. Wah-shee has said. "So we let the white man come to use our land then we find out that he thinks he owns it and is entitled to overrun it and run our lives. Our only resort, therefore, is to ask that our title be formalized within the white man's system of law and property rights."

Southern influence in the North already is pervasive. It presents curious juxtapositions, such as rock music blaring from an Indian cabin, competing with the contagious rhythm of an Indian drum dance in the community hall. Young, well-meaning whites soon take to wearing beaded moccasins and headbands but young Indians invariably wear jeans and Adidas.

I stayed with an Indian family for three days in Fort Franklin, sleeping in a comfortable room temporarily vacated by their 11-year-old daughter. On a dresser were the usual accoutrements of a consumer society: Herbal Essence Shampoo, Breck Creme Rinse, Desert Flower. Frozen TV dinners are sold at the local Hudson's Bay. Across the road from the Eskimo Inn in Inuvik is an A and W.

Even at a seemingly primitive fishing camp at Bracket Lake, where fish still is smoked in tepees, I noticed Heinz ketchup, Taster's Choice coffee, Sel, Tide and Burns pure lard in tents and on cabin windows.

Instant coffee

"I hope you don't mind instant coffee," said John Baton, the Indian man of the house where I stayed.

While old Indians talk of what they learned from their parents, what has been passed down from their ancestors, one is distracted by the "poof" of Coca-Cola cans bursting open.

The community hearings are more than an inquiry into a 48-inch gas pipeline whose champions argue that it would use only 40 square miles of the vast Arctic, "like a thread stretched across a football field."

After a gas pipeline would come an oil pipeline, then a highway, then hydro-electric transmission lines, then a railroad, then telecommunications facilities.

"The pipeline, if it is built, will have a great

impact on the future of northern development and the shape of northern communities and the way of life of northern peoples," Mr. Berger says. "Not simply because a pipeline is to be built, but because of all that is in its wake."

Natives outnumber whites in the territories, and fear what will happen when whites outnumber them. They want to avoid the plight of natives in southern Canada. Among young Indians, who identify with native groups like the brotherhood, there is noticeable anti-white sentiment and scepticism about Government and southern values and institutions.

The scepticism extends to the Berger commission as well. Native groups co-operate with the inquiry but individuals see the inquiry as window-dressing by the Government — a pro-development Government.

"I question who's running the show," said Fbbie Tatti, a Slavey woman who was an interpreter for the Berger commission at Fort Franklin. "I question how much royalties the Government is getting from the gas line."

Steve Iveson, 26, a field worker for the native brotherhood, says scepticism is more pronounced in communities along the Mackenzie River. "The key thing to remember," he said, "is that native people in the North consider themselves a sovereign nation, and they are as one government dealing with another. I expect there will be trouble if the Berger report is dismissed or shelved."

Another white worker in the North said there is real danger that a pipeline might be blown

up by angry natives. Lengthy explanations have been given on burying the pipeline to protect a delicate northern environment, but the truth is that a buried pipeline is less vulnerable to sabotage.

At the community hearings, however, the emphasis is on co-operation and education and it is obvious that Mr. Berger is highly respected as an individual. He established a reputation as a native rights lawyer long before he was appointed to the British Columbia Supreme Court and before he was named to head the pipeline inquiry.

In Fort Norman, Marie Clement, an old Indian woman, stooped and short, hobbled to a microphone in the community hall and announced that she would like to sing a love song to the judge. She did, too, but the interpreter refrained from translating it because it was too personal. Then Mrs. Clement asked Mr. Berger if he could bring her back a husband from the city.

"Tell her I brought some with me," the judge said, pointing to members of his staff and the press. "She can have her pick."

In Fort Franklin, an old Indian trapper told how he once walked from Great Bear Lake all the way to the High Arctic to live with the Eskimos. He spent 15 years with the Eskimos and remembers the delightful Eskimo women. Now he is old and single and alone.

"Well," Mr. Berger said, "maybe you should take another walk up there." ♦

One-man fight against development

Jerry Paschen of Edmonton calls himself "a scrawny David fighting a mammoth Goliath."

A 37-year-old German-born electrician, Mr. Paschen, single-handedly launched a campaign against the Mackenzie Valley Pipeline, since when he has been called everything from a naive dreamer and a crackpot to "the embodiment of democracy in motion."

"But I'm just an ordinary guy who couldn't know what was happening without making any effort to stop it," he says.

A native of West Berlin, Mr. Paschen has criss-crossed western Canada telling audiences why he is against the proposed pipeline. He has appeared before National Energy Board (NEB) hearings five times in Quebec, Toronto, Calgary, Vancouver and Ottawa, each time to protest against plans for northern development. At first he was "harassed and belittled" when he appeared at his own expense as an independent witness before the board, he says.

But at the end of the Vancouver hearings last January, one board member called him "the authority on authorities," and in Ottawa he was invited as a house guest to the board chairman's home. Mr. Paschen has accumulated more than a ton of reading material on the pipeline. He first decided to make a trip north with his wife and three children after the Federal Government proposed a natural gas pipeline in 1972. They had a skiff built by some native people at Fort Chipewyan and travelled "the entire Mackenzie River from Fort McMurray all the way to Inuvik."

"That way we got a pretty good first view of what the North was like, and had an opportunity to talk to the native people."

The trip convinced him that native rights weren't being protected in the Northwest Territories because the Territories lacked provincial status. It also convinced him that any development in the North "should look 50 years into the future," when the CAGSL Consortium made formal application in March, 1974, for the pipeline to carry natural gas from Alaska's Prudhoe Bay and the Mackenzie Delta, the electrician swung into action. He hastily organized a public meeting at the University of Alberta to discuss the issue, and collected 800 signatures for a group dedicated to saving the North. Called Canadians for Responsible Northern Development (CRND), the group now has 1,000 members across Canada.

Next, he set about examining the CAGSL proposal. "On two pages alone, I spied 10 distortions. The company must have thought no one would have the endurance to go through the 100-pound document." Armed with reports, applications and background, he began journeying to lectures and hearings, last year spending C\$3,000 of his C\$14,000 gross income on pipeline-related expenses. Credited by some NEB members as "knowing more about resources than anyone else," Mr. Paschen said in an interview that Canada can't afford to borrow the necessary C\$7 billion to build the pipeline and can't afford to let the Americans pay for it

because it would mean losing control of the resource.

Flood with fuel

He also said that if the pipeline were completed in five years, the Canadian market would be flooded with gas and oil and the excess would be exported to other countries.

"We'll be setting ourselves up for a shortage of catastrophic proportions in the 1980's," Mr. Paschen said.

"Besides the ecological devastation, and the equally devastating impact of outside influences on the native population, there is the ugly truth that Canada will have peddled off a vital resource for a quick profit." He urges that a freeze should be clamped on all Delta development until a way can be found to exploit the gas fields with minimal environmental and sociological ruin.

He wants a 10-year moratorium to give Canadians time to learn about the project, which would be the largest ever tackled by the Canadian construction industry.

Mr. Paschen, who stays at youth hostels and the YMCA to reduce travel expenses, said it takes "a lot of will-power" to confront the NEB. However, he is conscious of the support of other Canadians who are apt "to leave it up to Joe and feel they can't do much about it." ♦

You're not mad if you see a UFO

People who see "unidentified flying objects" often get upset about it, according to John Musgrave, a thirty-four-year-old Canadian UFO researcher. He has found that a significant part of his activities is to convince people who have sighted UFOs that they are not going out of their minds.

Ever since the early 1950s, when Mr. Musgrave saw a bright, star-like object which split into blue and orange spheres that took off in different directions, he has been a member of the scientific community which takes UFO reports seriously. He says that community has grown in stature in recent years, unknown to the general public.

Mr. Musgrave says that while four out of five sightings can be explained, the rest cannot. Often they leave people sincerely frightened — a situation which isn't improved when they are told that they are perpetrators of a hoax. So that in the process of ferreting out information and talking to people who have seen something strange in the sky, a research project begun in November on a federal government grant, he will make a point of explaining to them that they are not alone and that the vivid experience they have had is consistent with what has happened to a good many other people.

Studying UFOs, he says, amounts to being part of a new science which may provide a revolutionary way of looking at

the world and force all of us to acquire a new framework for our own view of things around us. He is taking a "historical" look at the subject, collecting information in newspaper libraries and government research centres as well as interviewing people who have seen UFOs.

Mr. Musgrave speculates that there may be several different sources of UFOs, including natural phenomena that science does not understand. Canadian UFOs are usually sighted in rural areas, with Alberta an especially fertile field, often on Wednesday nights and usually between 2 and 3 a.m. or early evening. Most recent reports have been of circular objects of various colours, dropping out of the sky and flying back after scooping up samples of earth. They are reported to chase cars. Some people have reported being taken aboard space craft and examined by their occupants, usually described as about a metre in height and either human or robot-like in appearance. The vehicles make sounds varying from beeps to lightning-like cracks.

They have been plotted on radar screens. There have been reports of people temporarily blinded by the intensity of light emitted from the craft.

Mr. Musgrave cautioned, however, against trying to see patterns to sightings at this stage: the research is not yet well enough developed. ♦

Continued from page 16

Our show is putting together those two decades of the 18th century, for which purpose we have driven 11,000 miles in North America trying to unearth those images (portraits, landscapes, uniforms, arms and personal effects) which by shape, significance or colour could help to tell the story of Britain's fight. We were collecting paints for the final picture.

The search began in December, 1973, driving up the Hudson Valley towards Ottawa, racing against weather forecasts which predicted winter heading east from Michigan. Schoolboy delight (mine) at glowing necklaces draped through trees for Christmas time. Hotel dinner served till midnight — Quelle civilisation. I remember wartime Toronto, bars at the Royal York closed at six. Bring a woman in here, Sir! How dare you! Wake up in the morning, draw the curtains. Winter. Ten inches of snow, sound with a sock in it, overshoes like black beetles on backs abandoned in the kerbside drifts.

I learn that morning why, in the middle of my life, I am directing exhibitions. A shop window displaying Indian moccasins evokes a flashback: a small boy clutching a Canadian Indian peace pipe, gift from a travelling aunt, is offering it to a form master as a donation to the class museum — a tatty cupboard with dirty windows. Astonished teacher reacts in only way possible and makes small boy class prefect in charge of said museum. That's how I began. It was in the stars.

Stunning portrait

Flash forward then to that morning in Ottawa, where negotiations with the National Gallery of Canada secure for our exhibition the stunning Romney portrait of Chief Joseph Brant, Iroquois warrior who held the Six Nations faithful to George The Third and who in London in 1776 must have thrilled countless hostesses with his fierce appearance and confounded them with his gentle manner. After all, he had studied Greek, Latin and agriculture at school. How's that for openers?

I owe a lot to that portrait which will hang in London next year. My wife (archaeologist and researcher) and I entered a new world of emigré politics as we put together the Indian side of the show: Brant's war club, tomahawk and shell gorget from the Royal Ontario Museum; Red Jacket's ceremonial uniform from the Woodland Indian Centre at Brantford; beaver and fox furs to come from the Hudson Bay Company. Red, White and Black Loyalists was one of our themes, and a start had been made.

Discussions with the Chiefs and Councils at the Brant and Thayadenga reservations followed to borrow the Queen Anne silver for London. This set of communion chalices and plate, donated by the Queen when the Mohawks set up the first Christian church in the Mohawk Valley in the early

1700s, had been split between two quarrelling sections of the tribe as they migrated to Canada. Our talks were fruitless. The silver has become a totem to the tribe and its removal, even for a temporary loan, was more than the Elders could face. It might be stolen while it was in London, they said. Mention on my part that my newspapers had handled the Treasures of Tutankhamun and China was irrelevant. Why should they trust me?

Commuting on skates

Insight into Indian ways also took us back to that time of close accord between British officers and Indians during the American Revolution when Redcoats were made honorary Indian chiefs. Took us back to Lt. Col. John Caldwell of the 8th Foot, who like some early Lawrence of Arabia, was once portrayed in ceremonial clothes. We have found the picture for London, and, what is even more exciting, a sample of the objects in that painting. Pipe, pouch, garters and knife are being loaned, with great generosity, by the National Museum of Man.

Commuting to work on skates up the Rideau Canal has more going for it, I promise, than catching the 9.15 to Waterloo. But then Ottawa turns out to have even greater advantages: National Archives which never seem to close and private rooms where a trolley-load of work can be digested after dinner. That's where I found myself reading an original journal of the Arnold attack on Quebec. Went to bed that night reading Kenneth Roberts' "Arundel," the American author's own story of the heroic/dastardly attack up the Kennebec to the St. Lawrence, only to find it contained an identical passage. Warm feeling towards Roberts; he did his research well. The Archives are contributing the Randle watercolour of British vessels on Lake Champlain, with the magic date — 1776; an aquatint of Halifax, and a Nova Scotia Loyalist flag.

Bears in the garden

Two trips covered the preliminary research in Quebec and Ontario, the third, last May, began in the Maritime Provinces in a further hunt for Loyalist material. A Boston lawyer had told me that he often took holidays in New Brunswick and Nova Scotia; they reminded him of the way the countryside must have looked in 18th-century New England. He was right. I found the wilderness astonishing in its scale, except when I had one eye on the petrol gauge and the other, hopefully, searching for a garage. I always hoped my . . . er . . . comfort stops would find me in the woods face to face with a moose. No such luck. But a curator at the New Brunswick Museum in Saint John told me that on the previous day, the wife of a colleague had phoned calling her husband home to deal with two bears in the garden. It just doesn't work that way in the British Museum. Ants, yes. Bears, never.

They speak for centuries of refugees, those Loyalists, grabbing just the family silver as the American mob roars in to burn the house down or tar and feather its owner. Or in the case of a certain Colonel John Murray, run a sword through the head of his Copley portrait in sheer frustration. That picture, hanging in the New Brunswick Museum, along with the Colonel's waistcoat, sabre and his table knife, will travel to London next spring to join the band of brothers one author in the United States has called *The Good Americans*.

I found the waffle iron made by Charles Oliver Bruff, now in the Nova Scotia Museum in Halifax, moving in an odd sort of way. I have an image of this New York silversmith, who was forced to flee to Canada, finding himself without silver to work and making instead a very humble waffle iron so that he can offer communion wafers to the church. There is a small drop-leaf table carved with a penknife by Col. John Beverley Robinson, from Saint John, and on it we will display the jewelled signet ring which belonged to his wife. We found that in Wales.

Green jacket

If ever I should raise a flag for Environment in Canada, it would be in the city of Toronto, above Fort York. Tiny green orderly setting bothered by the encroaching urban presence. . . bothered like a small child in a supermarket crowded with adults. There are two worlds there, and one keeps treading on the other. From this defiantly beautiful centre, we are acquiring the green jacket of Col. William Jarvis of the Queen's York Rangers. Makes a change from the Redcoats.

Canada begins and ends for us in the well-known Province of Peter Winkworth, situated one mile west of Hyde Park and Notting Hill Gate. Mr. Winkworth, London businessman and honorary curator of the McCord Museum in Montreal, maintains this exquisite corner of his native land with a heady mixture of passion and scholarly care.

If 18th-century Canada has a physical presence in our "1776" exhibition at Greenwich, our debt to Mr. Winkworth is great. His Peachey watercolours appear to have been painted yesterday instead of in the 1780s, their state is so pristine. The poignant painting of the Loyalist encampment at Johnstown on the St. Lawrence, despite the delicate handling of its colour, has for me the impact of a Press photograph. I feel I have been there.

The other Winkworth pictures of Montreal and Quebec turn on nostalgia for a lost innocence we no longer share . . . and Quebec brings us back to General Wolfe. There he will be at Greenwich, left arm extended pointing the way into the show, pointing the way from the Seven Years War to the American Revolution.

They don't make hall porters like that anymore. ♦

Italian Cattle

Marchigiana cattle, a breed first imported from Italy in 1973, are doing well in Alberta, according to Ben Schrader who is breeding them on a ranch at Westlock some fifty miles north of Edmonton.

The Marchigiana, one of Italy's five white cattle breeds, accounts for about forty-five per cent of beef cattle raised in Italy. The breed's strong points are its easy calving (even when cross bred) gentleness and adaptability.

Mr. Schrader commented, "One of the real highlights, particularly for me, is their hardiness. They've done extremely well over here in winter."

Canada first opened its doors to the importation of Italian beef breeds in the early 1970s. The first to be imported were of another white Italian breed, the Chianina, followed by the Romagnola. The Marchigiana came third "not because they're inferior, but because it was just the way it happened," says Mr. Schrader.

Computer Patients

Fourth-year medical students at the University of Alberta in Edmonton were faced with a new kind of test this year in which their patients could die if they made a mistake in treatment. The "patients" were simulated cases fed into a computer, including an emergency road accident case, a thyroid problem, an eight-month old baby with meningitis and an obstetrical case.

A television screen gave the patient's symptoms, family history and vital information. The student, using a light-sensitive pen, was required to choose between various treatment options and monitor the patient's condition. If a student selected the wrong treatment or sat too long at the terminal, the patient could "die".

Wayne Osbaldeston, the programme analyst, commented afterwards that 90 per cent of students said they enjoyed the exam. Some suffered anxiety and at least one student was unable to cope with the pressure, "but these are the kind of people we want to watch out for."

After such a test, the computer provides the examiners with a print-out of the student's performance, including the number of correct responses he made. The patient's "death" doesn't necessarily spell failure for the student, because correct treatment may have been administered to a certain point. Moreover, the exam accounts for only 20 per cent of the student's written work.

Computers have been used before for simple multiple-choice tests, but "computer patients" are a new concept in testing students, according to the examination and research centre of Canada's Royal College of Physicians and Surgeons. ♦

Economic Digest

Cost of living

The cost of living in Canada rose sharply in October mainly because of higher prices for shelter and food, Statistics Canada reported at mid-November. The Consumer Price Index rose nine-tenths of one per cent in October. This followed a moderate September rise of two-tenths of one per cent, which had broken a chain of successive sharp monthly rises during the summer.

About one-half the October living costs rise occurred because shelter costs were higher. An average 13 per cent rise in annual residential property taxes (rates) was the main reason.

But in addition, food prices started to move up again after some declines in September. Beef and pork prices were higher as were prices for fresh vegetables, coffee, canned salmon and restaurant meals.

Unemployment

Statistics showing the Canadian unemployment rate in October remained at the highest level in 14 years were issued at mid-November.

Statistics Canada reported that 7.2 per cent of the work force were without jobs in October, the same percentage rate as September.

However, there were increases in rates in New Brunswick, Newfoundland, Nova Scotia, Manitoba and Saskatchewan. Rates were unchanged in Ontario and Alberta and down elsewhere.

It was the eighth consecutive month the national rate has hovered above seven per cent, the highest level since July, 1961, when it also was 7.2 per cent. The figures are adjusted to account for seasonal variation.

On an actual basis, 576,000 persons were officially unemployed in October.

The jobless rate for those 24 and younger increased four-tenths of one percentage point to 12.9 per cent. Unemployment dropped by almost as much, however, for those aged 25 and older. The October rate for men was 4.9 per cent while the women's rate was 4.2 per cent.

Among the increases for the five provinces, the sharpest jump was recorded in New Brunswick, where the rate rose by 2.2 per cent to 12.6 per cent. Newfoundland retained the highest jobless level in the country at 19.6 per cent, up from 18.8 per cent in September. ♦

Rates remained steady in Alberta at 3.4 per cent — the lowest level in the country — and in Ontario at 5.8 per cent of the labour force. The British Columbia rate dropped one percentage point to 8.6 per cent, in part because of provincial government legislation in October ending strikes that had caused widespread layoffs in the forest industry. The Quebec rate declined to 9.1 per cent from 9.3 per cent. The Saskatchewan rate jumped 1.6 percentage points to 3.5 per cent, Manitoba was up one-half of a percentage point to four per cent and the Nova Scotia rate increased to 8.5 per cent from 8.1 per cent.

Sexless credit

Government action is being taken in two Canadian provinces to ensure equal credit rights for women.

The Ontario provincial government is following the initiative last spring of the British Columbia government in this field. Ontario hopes to remove sex as a credit consideration through introduction of broad guidelines intended to ensure women have equal access to mortgages and other forms of credit.

Neither the British Columbia nor Ontario governments is guaranteeing women credit rights as a matter of law. But spokesmen for government and credit granting industries say they believe this is an adequate way of achieving the end desired. The aim is that sex should be used neither as a criterion for determining credit-worthiness nor for influencing the terms of credit offered.

Women now form 34.4 per cent of Canada's total work force, and 62 per cent of them are married. Enough complaints about credit discrimination on the basis of sex have been received to anticipate that other provincial governments will eventually follow suit.

Skiboom

Canada's ski industry is anticipating one of its best seasons in several years, buoyed by the boom in cross country ski-ing, according to Chuck Roberts, President of the National Ski Industries Association (NSIA).

The association reports that annual retail sales of ski equipment and clothing in Canada exceeds C\$100M. A fitness conscious public is turning to cross country ski-ing because it offers several inexpensive outdoor exercises. Cross country equipment sales have trebled in the last two years and now surpass sales of down hill gear four to one. ♦

Was Canada a Land of Promise for Loyalist refugees?

By Kenneth Pearson

A mammoth exhibition on the scale of their Tutankhamun and Chinese exhibitions is being prepared by *The Sunday Times* and *Times* to celebrate the bicentenary of the American War of Independence in 1776. Called simply "1776," it will open on April 15, 1976, at the National Maritime Museum at Greenwich. Kenneth Pearson, assistant editor of *The Sunday Times* and director of the exhibition, has been researching and collecting material for it through the United States, Britain, France and Canada—the "land of promise" to which many thousands of Loyalists fled after the revolution. Here he describes the Canadian end of his researches and asks, how did the war and its outcome affect Canada?

The first time I visited Quebec I thought Montcalm had won. Cherchez le Wolfe, I cried, striking simultaneous blows for bilingualism and British pride. We found him: four feet of folk art carving looking down on the library of the Literary and Historical Society of Quebec, commissioned two hundred years ago by an Englishman who missed him even then.

We were in search of '1776,' a vintage year, when a luckier Benedict Arnold might have captured Canada for those rebels further south, and now the title of



the exhibition I am directing in London next year. But why should we British be bothering with the American bicentennial of their Independence and our defeat? A right to reply, might be one answer. No doubt the United States will stun itself with its own trumpeting side of the story. We thought we ought to bang the drum for ours.

And it occurred to me early on in our deliberations: was not the end of that war the birth of *two* nations, not just one? Had not those thousands of Loyalists who headed north to Nova Scotia, New Brunswick and Ontario fundamentally changed the aspect of Canada? Long-neglected by American historians, should not those sad refugees have a chance to speak? Canada: a Land of Promise? What did happen?

Continued on page 14

Chief Joseph Brant, the Iroquois warrior (left), a Romney portrait lent by the National Gallery of Canada.

Below: Refugees from the American Civil War camping on the banks of the St. Lawrence River: detail from a watercolour by James Peachey, on loan from the Winkworth Collection.

