Canada Commerce

April 1984

New Brunswick Celebrates 200th Birthday

Helicopters Canada

Canada Commerce

The Honourable Edward C. Lumley
Minister of Regional Industrial Expansion

The Honourable David P. Smith
Minister of State for Small Business and Tourism

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Business Review

1983 Housing Starts Increase

Housing starts in Canada during 1983 amounted to 162 645 compared with 125 860 in the previous year, an increase of 29 per cent, the Canadian Mortgage and Housing Corporation reports. In terms of housing units actually completed, the total was 163 008 compared with 133 942 in 1982.

The increase in starts was due entirely to single-family detached units whose numbers rose from 54 457 in 1982 to 102 385 in 1983. However, the number of rental units declined. It is expected that construction of rental units will be encouraged, at least for the first quarter of 1984, by the large number of units approved in December for assistance under the Central Rental Supply Plan (CRSP).

New Service from Canadian Manufacturers' Association

The Canadian Manufacturers' Association (CMA) will supply lists or labels to those interested in contacting the chief executive officers of Canadian manufacturers. Full name and address of the company and the chief executive officer can be supplied by size of company, geography, SIC code or by export activity. The data base has been created from *The Canadian Trade Index*.

National lists are available either alphabetically or by postal code; provinces by postal code. The SIC code indicates the principal product group of each company.

For further information, please contact: John A. Fisher, Business and Advertising Manager, Canadian Trade Index, Tel: (416) 363-7261.

Textile and Clothing Board Annual Report

The textile and clothing industries were definitely affected by the 1982 recession but encouraging signs appeared in the first few months of 1983, according to the annual report of the Textile and Clothing Board of the Department of Regional Industrial Expansion (DRIE).

Production declined overall in 1982 by 17 per cent and employment by close to 15 per cent but, in 1983, the two industries managed to recover some of the losses.

Farm Survey Under Way

The Farm Credit Corporation (FCC) is surveying 6 000 farms across Canada to gather up-to-date information on the financial structure of the agricultural industry in the country. The information will help the FCC better define the credit requirements of agriculture and tailor lending programs to serve the needs of FCC farmer-clients.

Statistics Canada, Agriculture Canada and the Canadian Federation of Agriculture have collaborated with FCC in the design of the survey and its results will help all to formulate more effective policies.

For further information, please contact: Jacques Doran, research officer, Tel: (613) 996-6606.

Oddities in Importing

While most of the things that made up the $55 billion of goods imported to Canada in 1983 were pretty ordinary, Statistics Canada's publication *Inklings* reports some mighty odd ones.

For instance, we have bought $6 000 worth of tea from Austria; $4 000 of clothing from Albania; $1 000 of books and pamphlets from Iceland; $3 000 worth of watches, clocks and jewellery from Libya; $5 000 of soya beans from China; $7 000 of house furnishings from Nepal; $3 000 worth of aluminum ores and scrap from the Falkland Islands; $10 000 worth of aircraft from South Yemeni; and $55 000 (!) in games and toys from India.

Who says imports and importing is dull?

Trade Perking Up

For the first time in seven months, Canada's trade surplus showed an improvement in November, climbing to $1.77 billion — thanks in part to increased sales to the U.S.

Among the main sectors showing gains were cars and transportation equipment, up 79 per cent from the previous month to $2.65 billion; wood and paper, up 12 per cent to $1.07 billion; and copper and alloys, up 48 per cent to $882 million.

Oil Industry Outlook

The Canadian oil manufacturing industry appears to be "bottoming out" in 1984, according to the preliminary results of the 1984 Canadian Oilfield Manufacturers Association (COMA) industry outlook survey. Strong recovery is anticipated in the second half of the decade.

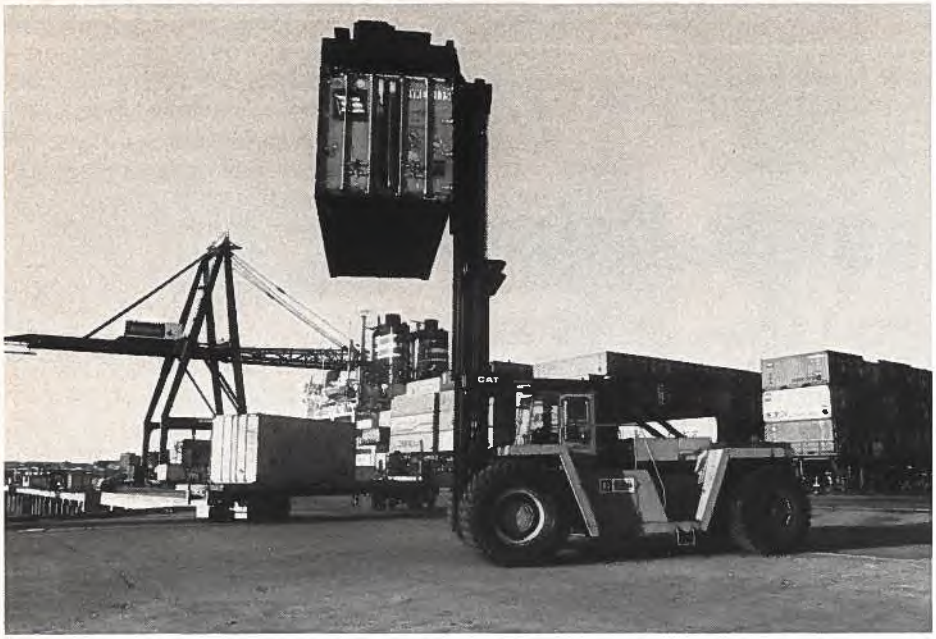
However, the survey shows it is not all good news. Average sales of survey respondents are expected to slip in 1984 as are jobs, dropping from an average of 57 in January 1983 to 47 in January 1984 and to 45 by the end of the year.

For further information, please contact the Canadian Oilfield Manufacturers Association, 10744 — 48th Street, Edmonton, Alberta T6A 2B5; Tel: (403) 468-2078.

Oil and Natural Gas Resource Estimates

According to the Geological Survey of Canada (GSC) latest estimates (at a 50 per cent probability rate), conventional oil resources (excluding oil sands) total 5 893 million cubic metres compared with a 1976 estimate of 4 770 million cubic metres. One cubic metre of oil equals 6.29 barrels.

The estimates appear in the CGS *Oil and Natural Gas Resources of Canada 1983*, a 59-page booklet describing the geology and resources of the country's petroleum regions. The last summary of petroleum resources was compiled by Energy, Mines and Resources Canada in 1976. New oil and gas discoveries, better information and improved methods of assessment have led GSC to make substantial revisions in the 1976 estimates.



Innovative Container Lifter
An innovative new container lifter, the first of its kind in the world, was acquired recently by Brunterm Ltd. for use at the company's terminal in Saint John, New Brunswick.

Built by the Caterpillar Lift Truck Division of Mentro, Ohio, and assembled in Norway, this lifter features the shortest turning circle (729 cm — 287 inches) of any container top-lifter on the market. It can handle both six metre (20-foot) and 12 metre (40-foot) containers weighing up to 34 000 kg (75 000 lb.). It weighs 68 320 kg (150 620 lb.) and has a 260-hp turbo-charged diesel engine.

Trade Publications Available
Three new trade-related publications are now available from The Royal Bank of Canada — *Market Guide, Japan; Middle East and North Africa, Economic Summary Reports*; and *South Asia and Australia, Oil & Gas Overview*.

All three publications can be obtained from any of the Royal Bank of Canada International Centres.

Mineral Industry Up in 1983
Figures released recently by Energy, Mines and Resources Canada show that, after the sharpest downturn in its history, the Canadian mineral industry saw a return to sustained though moderate economic growth in 1983. The value of mineral output increased by $2.2 billion.

Total output of the industry's four sectors — metallics, non-metallics, structural materials and fuels — reached almost $36 billion compared with $33.8 billion the previous year.

Conference Round-up

Automation Theme for Miconex '84
Miconex '84, Manitoba's premier microelectronics conference and exhibition will be held May 9 to 11 in the Winnipeg Convention Centre and its theme will be automation. The program will address various aspects of automation in the factory and offices of the 1980s.

For further information, please contact: Miconex '84, Winnipeg Convention Centre, 253 - 375 York Avenue, Winnipeg, Manitoba R3C 3J3; Tel: (204) 944-1464.

Human Aspects of Automation
A major conference addressing the need for team work in an automated society — the 1984 SME World Congress on Human Aspects of Automation — will be sponsored by the Society of Manufacturing Engineers (SME) at the Hotel du Parc in Montréal, September 16 to 19. This is the second such conference sponsored by SME.

For further information, please contact: Van Doren, P.O. Box 930, One SME Drive, Dearborn, Michigan 48121, U.S.A., Tel: (313) 271-1500, extension 369.

Telecommunications Manufacturing Conference
Labelled the first of its kind in Canada, a national conference on the telecommunications manufacturing industry will be held in Jasper, Alberta, in June sponsored by the Electrical and Electronic Manufacturers Association of Canada.

For further information, please contact: the Electrical and Electronic Manufacturers Association of Canada, One Yonge Street, Suite 1608, Toronto, Ontario M5E 1R1; Tel: (416) 862-7152.

Exhibitions in China
A series of exhibitions are scheduled in the People's Republic of China and Hong Kong and information is available from ConsultAsia Inc. of Montréal, Canadian representative for China Trade Promotions Inc. of New York and for SHK International Services Ltd. of Hong Kong:

- **Process Pack 84**, International Processing and Packaging Machinery and Materials Exhibition — Fujian Province Exhibition Centre, Fuzhou, Fujian — September 20 to 26 — booking deadline, May 31.
- **SEDECON 84**, International Public Security, Criminal Detection, Traffic Control and Fire Prevention Equipment Exhibition — Beijing — September 12 to 18 — booking deadline, May 31.
- **EMETEX 84**, International Environmental Control, Measuring and Testing Equipment Exhibition — Shanghai — October 9 to 15 — booking deadline, June 30.
- **INTER HOTEL 84**, International Tourism, Hotel Facilities and Construction Materials Exhibition — Beijing — October 30 to November 5 — booking deadline, July 6.
- **ADVANTECH 84**, International Exhibition on Advanced Electronic Technology — Shanghai — December 4 to 10 — booking deadline, August 31.
- **FOODFEST 84**, Second International Food and Beverage Festival — Hong Kong Exhibition Centre, Hong Kong — November 28 to December 2 — booking deadline, August 31.

For further information, please contact: ConsultAsia Inc., C.P. 458, La Cité, Montréal (Québec) H2W 2N9; Tel: (514) 845-3031.

Time-Theft — Canada's Biggest Crime?

Are you a "time thief"?

A "time thief" *is not* a little chap who uses a machine to travel back in time and carry out his nefarious deeds when police did not exist.

A "time chief" *is* a person who deliberately wastes, abuses and misappropriates on-the-job time.

Robert Half, head of Robert Half International Inc. — the world's largest financial executive, accounting and data processing recruiter — contends that workers who intentionally misuse the time for which they are being paid to work are, by definition, stealing from their employers.

And in 1982 (the latest figures available) time-theft cost the Canadian economy at least $15 billion. In the United States, in 1983, it cost $140 billion.

Employee pilferage, embezzlement, insurance fraud, vandalism, kickbacks, arson and other recognized crimes against Canadian business are estimated to total no more than $5 billion a year. And yet, what Half calls "the biggest crime of all" — time-theft — goes "unrecognized, unreported and unpunished".

"Time thieves," he says, "do incredible damage to their companies and to the national economy. There is no more precious — or irreplaceable — natural resource than time."

Half, who has been conducting time-theft studies since 1970, says the most common forms of time theft are:

- Being habitually late for work;
- Leaving early;
- Taking extended lunch hours;
- Deliberately slowing down the pace of work in order to create lucrative overtime opportunities;
- Reading, on company time, newspapers, magazines or books not related to work;
- Spending unreasonable amounts of time socializing with co-workers;
- Making excessive personal telephone calls;
- Taking numerous and overly long coffee breaks;
- Attending to personal business on company time;
- Claiming false illness and taking unwarranted sick leave;
- Daydreaming and generally paying little attention to the work on hand;
- Eating lunch on the premises — and then going out for a full lunch hour;
- Operating another business on the side and on company time (e.g. using company facilities and time to sell real estate, insurance, etc.).

Sound familiar?

Premeditated and habitual time-theft is a real and serious crime sapping the economy by millions of dollars.

Most of us are guilty of some of these infractions, some of the time and Half takes that into account. He does not believe that employees should ever be treated like machines or expected to act like automatons. "We're all entitled to a reasonable amount of respite from the stresses and strains of the job," he says. "And almost all of us are going to 'goof off' once in a while."

Serious Crime

But it is the premeditated and habitual time-theft that is the real and serious crime. It saps a nation's economy, weakens productivity and feeds inflation by increasing the cost of both producing and selling goods and services.

Half's last time-theft survey in Canada was carried out in 1982. Conducted from Half offices in Toronto, Mississauga, Calgary and Vancouver, it included detailed interviews with top executives (presidents, vice-presidents, controllers and personnel directors) of 215 corporations throughout the country.

Each respondent was asked for his or her carefully-considered estimate of the amount of weekly time-theft per employee within each company. Responses ranged from as little as 30 minutes to as much as 30 per cent of the time.

The final result was a weekly time-theft average of three hours and 42 minutes per employee!

According to Statistics Canada data, the employed labour force in 1982 totalled 10 704 000. And, to be as conservative as possible, the survey assumed that a full 20 per cent of all employees *never* steal time, reducing the number of time thieves to 8 563 000.

Statistics Canada figures further show that the average hourly industrial composite wage rate was $9.55 in 1982 (including both manufacturing and services). Multiplying $9.55 by the three hours and 42 minutes of weekly stolen time results in $35.33 per week per worker and multiplying that by 50 work weeks brings a yearly time-theft total monetary value for each individual employee of $1 767.

$15.1 Billion Lost

With 8 563 000 time thieves in 1982, that means that $15.1 billion were lost to time-theft in that year alone. Half believes that most executives estimated their time loss "inordinately low" and that the actual cost could be considerably higher.

Looking at the problem in another way, each worker who steals three hours and 42 minutes every week will, in a single year, have stolen 185 hours or almost five full 37½-hour work weeks.

The study also contained some genuine surprises such as finding that the rate of time-theft in Canada had actually decreased in 1982 by 3.5 per cent from 1981 (from three hours and 50 minutes to three hours and 42 minutes). Between 1977 and 1981 the rate had soared by 9.5 per cent.

Half believes this was a direct result of the difficult economic times. Rising unemployment plus growing job insecurity may have led some employees to be much more conscientious than they would under a brighter economic outlook.

For the first time, participants in the study were asked questions dealing with the differences between office workers and manufacturing workers and the correlation, if any, between time-theft and age. The results were somewhat surprising.

White Collar versus Blue Collar — The average office worker (white collar) was estimated as stealing three hours and 49 minutes each week or 18 per cent more than the manufacturing workers (blue collar) at three hours and 31 minutes.

Why? Perhaps, according to Half, it is because white collar workers are not as closely supervised as their blue collar counterparts who, because of time clocks, foremen, etc., have fewer opportunities. In addition, time-theft on an assembly line is usually disruptive and easily detected.

Time-Theft and Age — More than half of all executives surveyed felt that there was a definite correlation between time-theft and age groups — the older the worker, the less time-theft. The tabulated answers: under 30 years, 82 per cent time-theft; 30 to 45 years, 12 per cent; over 45, six per cent.

Obviously, Half concluded, business executives believe that older employees are considerably more conscientious than younger workers.

Half believes "it is essential that we make a concerted effort to combat this massive threat to the entire nation's economic health". He is convinced that, while time-theft will never be eliminated completely, it can be reduced dramatically and he calls upon management to develop, implement and enforce anti-time-theft measures.

Some suggestions for dealing with the problem:

- Executives and supervisors should set a positive example since, when they steal time, they make it seem acceptable to others. If they are blatant, they may appear to give time-theft their tacit approval.
- The magnitude of the threat time-theft represents to a company — and to every employee — should be made as clear as possible to all.
- A sense of participation and loyalty should be developed among the entire work force and the negative impact even one blatant time thief can have on a company's future should be demonstrated.
- Employees should be encouraged to submit their own suggestions for reducing time-theft and should be rewarded for ideas that work.
- Those workers who show consistent good attendance and who refuse to be time thieves should be given special recognition. Cash bonuses or extra vacation days would show management appreciation — and give others incentive.
- Profit sharing plans could reduce time-theft substantially by making each employee a "partner" with a vested interest in the firm's success.
- Attention should be paid to the quality of the work environment as shabby or uncomfortable working conditions erode morale — and increase time-theft.
- Overtime policies should be examined and, if needed, tightened. If they are too liberal they are much more likely to be abused. Overtime work should be authorized only when it is genuinely warranted.
- If flagrant time thieves fail to heed repeated warnings, it may be time to confront them with the very real possibility of dismissal.

Corporations contacted during the 1982 Half time-theft study represented a broad range of manufacturing and service companies. They included chemicals; retail chains; utilities; publishing; waterbeds; mining; real estate; auto parts; computers; appliances; insurance; broadcasting; forest products; transportation; farm machinery; department stores; public accounting firms; oil and gas; printing; banking; and restaurants.

Some Unusual or Blatant Examples

• A Hamilton, Ontario, financial services firm discovered that an administrative assistant was using the company's photocopying machine, letterheads and envelopes, postage — and time — to run a direct mailing advertising campaign for her husband's trucking service.

• A Vancouver publishing company reported that two of its data processors were spending a substantial amount of time standing next to a filing cabinet, opening and closing the middle drawer. It turned out that the drawer contained a magnetic board with their on-going chess game.

• One Calgary organization found that several workers regularly left their jobs and made their way to the employee parking lot where they took naps inside their cars.

• A Toronto insurance company found that one of its more imaginative workers was using a good deal of the firm's time to write an epic science-fiction novel. It noted that the individual is now unemployed and his manuscript unpublished.

"Time-theft is an insidious menace," says Robert Half. "It must be dealt with swiftly and firmly." ◘

Prepared for Canada Commerce *by the Robert Half of Toronto Ltd.*

Pre-production prototype of the Bell Model 400.

Three Years to Project Lift-Off

The October 1983 announcement that Canada would get into the helicopter manufacturing business took many Canadians by surprise. In fact, the decision culminated three years of exhaustive industrial and market research.

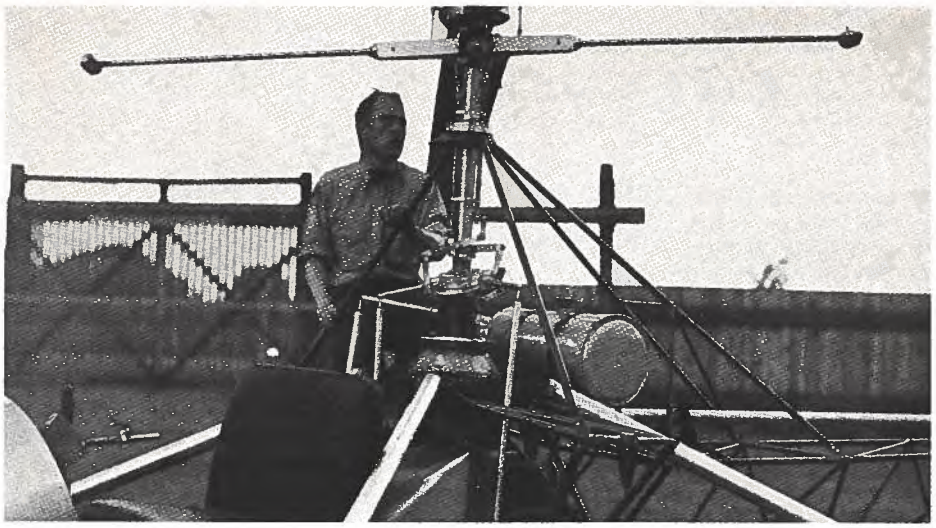
International confidence in this major manufacturing enterprise is reflected in the investments of three aerospace giants.

On July 13, 1982, fully 15 months before the formal announcement that Canada would set up as a manufacturer of rotary wing aircraft, the Toronto *Star* carried a speculative report under the headline "Ottawa may get helicopter industry airborne". Virtually the same story might have been written as early as 1980 when, to quote the Toronto newspaper, "a high-ranking, inter-departmental Canadian government committee" had investigated the economic viability of establishing helicopter production facilities in this country. The *Star* wasn't too wide of the mark in giving 15 000 as the total number of commercial helicopters operational in 1980, with the United States accounting for 8 976 and Canada, the second largest free world user, with 1 467.

If only for reasons of historical accuracy, it should be noted that during the period 1980-82 not one but two groups of experts debated the feasibility of a Canadian helicopter industry. The larger team of investigators — 24-strong and with only five government personnel in its ranks — had actually set itself the task of charting a course for the Canadian light aircraft industry.

Armed with import figures which showed that Canadians had been buying foreign light planes at the rate of 1 100 per annum between 1976 and 1980, the aerospace strategists posed three questions:

- Should Canada manufacture light aircraft?
- If so, what type and how?
- What should be the role of government?



Designer Arthur Young checks Bell helicopter No. 1 before the first flight, June 1943.

The investigation covered a wide spectrum and, as so often happens when researchers in scientific fields apply themselves to detailed analysis of a particular problem, seemingly incidental by-products of the research suddenly revealed themselves as factors of major significance.

Under the Canadian microscope, the international light aircraft industry was identified as winged colonies comprising several rival species. Each individual strain seemed to be busily intent upon usurping its neighbours in the scramble for territorial supremacy and prestige. Profit margins were slim, which begged the question: why commit Canadian dollars to such an unequal struggle? From the research came proof of Canada's increasing reliance upon helicopters and, more important, its total dependence upon foreign manufactures of rotary wing aircraft.

Model 47, awarded the world's first commercial licence, March 8, 1946. Larry Bell also gave his name to the world's first supersonic plane, and a 2 000 mph successor.

Monuments to "Might-Have-Been"

The history of Canadian aerospace is studded with monuments to the "Great Might-Have-Been". In 1938, one year before Igor Sikorsky kept his single-rotor machine aloft for 92 minutes, three Manitoba farmers, Douglas, Nicholas and Theodore Froebe, designed and built what looked like an iron bedstead. Their weird contraption was equipped with a pair of counter-rotating vanes or rotors, and these were harnessed to a de Havilland Gipsy 11 aircraft engine. The farmers' dream became reality when the machine roared to an altitude of one metre. But all that shaking and shuddering proved to be too much for the rotor hub bearings; they disintegrated and, at the same time, so did the Froebe hopes of immortal fame.

Igor Sikorsky, a Russian-born American citizen, pioneered the first practical helicopter. But the first commercial certificate of airworthiness was issued in 1946 to Larry Bell, founder of the Bell Aircraft Corporation and builder of the first American jet aircraft. Ten Bell helicopters were completed in 1946. The fifth machine — Bell 47B-3 — was purchased by a Toronto company. Almost immediately it started shuttling forest rangers to fires in Northwest Ontario. The helicopter's crop spraying activities in southern parts of the province attracted the interest of Skyways Services of Winnipeg. The Manitoba company purchased three 1946-vintage Bells and very soon branched out from its crop spraying activities to airlifting vital supplies to mining camps in remote corners of British Columbia.

Bell helicopters rescued 25 000 wounded servicemen during the Korean conflict.

Rotary wing aircraft have performed many functions in Canada, from fighting forest fires to crop spraying.

Bell quickly established a reputation for light, multi-purpose helicopters, while Sikorsky catered to those who demanded lots of engine power and heavy-duty capabilities. When the Canadian government went shopping in 1950 for a helicopter to operate from the deck of an icebreaker, the obvious choice for that bold experiment was the Sikorsky S-51. However, experience gained during the helicopter's freshman year aboard the *C. D. Howe* convinced both the ship's company and aircrews that a smaller and lighter machine might be a better proposition for icebreaker operations. A Bell 47 was acquired and in the first season it successfully completed 94 missions.

Canada's Experience

Canada's experience with helicopters dates back to the birth of this mode of transportation. And from the outset, rotary wing aircraft have served basic needs: fighting forest fires, crop spraying, airlifting supplies to remote mining camps, air reconnaissance of frozen shipping lanes.

The embryo whirlybird conceived in a Manitoba barnyard in 1938 was not the only venture by Canadian helicopter pioneers. Soon after VE-Day in 1945, a Polish aeronautical engineer arrived in Montréal from the United States, where he had been engaged in the development of rotary wing aircraft. Although the helicopter was as yet unproven as a reliable means of transportation, a group of Montréal financiers decided to sponsor the production of a three-seat, 178 horsepower prototype.

Starting from scratch, designer Barnard Sznycer took three years to get his brainchild into the air. It showed great promise, but modifications and refinements were imperative before the machine could hope to qualify for a Canadian certificate of airworthiness. The refining process actually took another three years, and a lot more money than the backers had bargained for. So in March 1951, complete with Department of Transport certificate, the Silver Gull, as it had been christened, was laid to rest.

Canadian historians might excuse the 1951 abandonment of helicopter development on the grounds that national pride had already been invested in visions of a world-beating supersonic fighter. But at the risk of adding insult to the injury inflicted upon countless champions of the Avro Arrow, whose meteoric progress was terminated at the stroke of a bureaucratic pen, it must be recorded that Larry Bell, builder of the world's first supersonic plane, voluntarily turned his back on exotic projectiles.

Whilst the rocket-powered Bell X-1 research aircraft gave Major Charles Yeager the distinction of being the first man to fly faster than sound (1 223 km/hr. — 760 mph at sea level: 1 060 km/hr. — 660 mph above 10 970 metres — 36 000 feet), Bell shareholders were more impressed by the cash figures alongside sales of company helicopters.

By the mid-fifties, Bell fixed-wing models had become highly prized museum pieces. The company had decided to invest its future in helicopters, and overseas manufacturers were bidding for helicopter licensing agreements with the American giant.

Canada did not join the queue, but in April 1968 the federal government,

Fit to fly where fixed wing aircraft cannot operate.

A boon and a blessing for off-shore operations.

Tilt the engines and this Bell soars vertically.

Bell and Pratt & Whitney joined forces in the development of the Model 212 transport powered by PT6T-3 turbines. This would be the first twin-engine, medium-size commercial helicopter manufactured in North America. Flight testing got underway in 1968, FAA certification came in October 1970 and the first delivery was made, as promised, before December 31.

During the next 12 years, some 1 300 Model 212 units bore testimony to the fruitful Canada – U.S. partnership. In fact, no legal partnership existed, and when in 1980 Ottawa initiated two independent studies of the helicopter manufacturing industry, Canada was free to negotiate with all of the world's leading makers of rotary wing aircraft.

That is precisely what happened. In December 1982, Ed Lumley, minister of the federal department now titled Regional Industrial Expansion, invited each of eight companies located in five countries to submit proposals for helping to establish in Canada a "helicopter-related design and manufacturing capability".

No Surprise

The minister's letter did not take the industry by suprise — during the preceding 15 months Canadian aerospace experts had met with senior representatives of helicopter companies in the United States, West Germany, Italy, France and England. Canadian aims and objectives were well known to all potential partners, and by January 24, 1983, Mr. Lumley had eight responses which could be weighed against the criteria established by his cabinet colleagues and aerospace advisors.

Bargains are struck when each of the parties concerned is satisfied that the terms offered are the best obtainable — and worth accepting. What Canada sought was the establishment of a helicopter manufacturing industry capable of turning out products of advanced design, competitively priced and with access to world markets. There must also be research and development facilities which would inspire confidence in future breeds of Canadian whirlybirds.

To help transform that mental blueprint into reality, federal and provincial governments were prepared to invest cash and negotiate contracts with one or more foreign helicopter companies. Implicit in any Canadian proposal was the tantalizing prospect of getting substantial orders from Canadian helicopter operators.

The domestic commercial helicopter population — second only to the United States — had progressed from 239 in 1965 to 378 in 1970, 643 in 1975, 957 in 1980 and to more than 1 400 by 1982. A corresponding expansion of the Canadian Armed Forces fleet added another 200 units to the Canadain grand total.

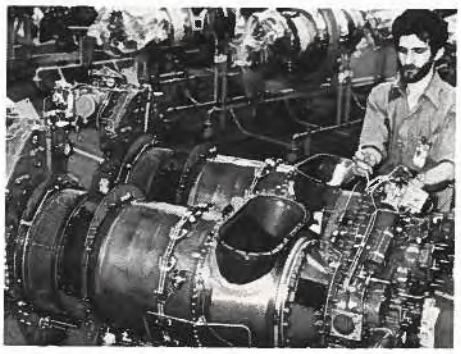
Conservative estimates of domestic requirements (machines and spares) over the next decade put the value in excess of $3 billion. The figure quoted was supported by international analysts who forecast world sales of 15 000 to 16 000 machines during the period 1982-92. That represented a 100 per cent improvement on corresponding figures for 1970-80. Other statistics of vital interest to Canada concerned the ousting of piston engines by types of twin-turbine units which have become synonymous with the name Pratt & Whitney Canada.

Pratt & Whitney, vital to the helicopter equation, epitomizes the great economic potential of the high technology industries in Canada.

The Bell Jet Ranger five-person commercial model.

Vital Factor

Pratt & Whitney Canada was a vital factor in the federal government's helicopter equation in 1983 and epitomized the economic potential of high technology industries. This wholly-owned subsidiary of an American giant in 1957 recruited six Canadian aerospace engineers. Their sole interest was a small gas turbine engine which had been developed in Ottawa's National Research Centre.



Introduced in 1970, the P & W Canada Twin-Pac is first choice for most medium-lift helicopters.

Headed by Elvie Smith from Saskatoon, the new Pratt & Whitney recruits steered their company to premier place among the world's manufacturers of turboprop aircraft engines. Annual earnings jumped from $40 million in 1961 to $770 in 1981. The first 22 000 gas turbine engines brought in $2.7 billion, amassed 63 million flying hours and were selected for 125 different applications. Helicopter versions of the PT6 engine power American, Italian, British and Chinese marques.

Depressed as the aircraft manufacturing industry has been since 1981, Pratt & Whitney plants in Montréal and Toronto maintain a total payroll of approximately 6 500, with 1 535 employees engaged in research and development.

When the aerospace industries of Europe and North America produce separate research studies which come to the same conclusion, namely that helicopter sales will increase by 100 per cent over the next 10 years, one does not need a crystal ball to see promise of bright tomorrows for Pratt & Whitney Canada.

But a more reliable indication of the Longueuil company's prospects arrived on the desk of Minister Ed Lumley on May 18, 1983. It was a letter from Elvie Smith, president of Pratt & Whitney Canada. Mr. Smith reported that Jim Atkins, president of Bell Helicopter, wanted new P&WC power units for Bell 440 models and for the proposed 400 model range which, Bell hoped, would be built in Canada.

Mr. Smith wrote: "Bell has recognized our engine as an effective contender with competitor's engines. . . . This association with Bell in the small helicopter field provides us with the strategic business opportunity that we have been seeking for a long time. . . .We should not let it slip." Mr. Smith concluded: "I am confident too that the sum total benefits flowing to the government would be as advantageous as they have been in the case of past programs undertaken by P&WC."

Pertinent to the question of Canada's entry into the helicopter manufacturing business is the fact that Pratt & Whitney Canada is a subsidiary of United Technologies, which also owns Sikorsky. And Sikorsky was one of the eight manufacturers invited to submit proposals for establishing production facilities in Canada.

Larger than the Canadian model, the Bell Long Ranger has seven seats.

Federal and Québec government ministers joined in the announcement of the important Bell-Pratt & Whitney helicopter program.

Endorsement

Elvie Smith's endorsement of Bell, and Bell's enthusiasm for Pratt & Whitney Canada engines were not motivated by sentiment. The engine manufacturer's parent company occupies 20th place in the *Fortune* 500 listing, with assets of $13.57 billion and 1982 sales worth $7.99 billion. Bell Helicopter Textron Inc. is part of Textron Inc.

A month before the federal and Québec governments announced that Bell would establish a manufacturing plant at Mirabel, the Wall Street Journal reported: "At Textron, the $3 billion company regarded as the first modern conglomerate, few executives are as important as Charlie Chapin and Bob Ames. Along with four other group vice-presidents, they wield enormous power and influence while supervising 24 divisions making products as diverse as Sheaffer pens and air-collision-avoidance equipment. They hire, fire and recommend which businesses to buy and to sell.

"The two men once shared a secretary: and frugal Textron only recently gave them a staff: one financial aide each. With such limited corporate assistance they must spend 70 per cent of their time on the road checking on divisions. Even their offices at Textron headquarters in Providence, R.I., seem inconsequential: Mr. Chapin's measures about 15 feet by 15 feet, no larger than some executive washrooms."

Parsimonious Textron may be when it comes to providing creature comforts for company vice-presidents, but in the matter of repaying development grants, federal government officers in Ottawa have happy memories of the 1968 venture which gave birth to the internationally successful Bell 212 transport helicopter equipped with the Pratt & Whitney Canada PT-6 Twin Pac engine.

The invitation which Mr. Lumley addressed to eight companies on the subject of helicopter manufacture in Canada brought an immediate response from J. F. Atkins, president of Bell Helicopter Textron in Fort Worth, Texas: "I have your letter of December 30th regarding your government's plan to increase the capability of the Canadian aerospace industry and particularly to establish a design and production capability for helicopters. As you know, Bell Helicopter Textron has a particular interest in Canada and has been working with members of your organization for more than a year in investigating the possibilities of establishing a total helicopter capability in Canada. It would be our intention to establish an autonomous division of Textron Canada with its own president and with complete authority and responsibility to make its own decisions.

"Our planning provides for the development of an all-new light twin-engine helicopter with a capacity of five to eight people, depending upon configuration, and priced to sell in the military and commercial marketplace. This helicopter would incorporate the most advanced technology available in the world, including extensive use of the composite materials, Bell's latest four-bladed rotor concept, and a very advanced transmission and drive system."

Various ministers, some federal and others representing the government of Québec, were involved in the October 7, 1983, announcement about Canada getting into the helicopter manufacturing industry. Formal statements were made that Friday afternoon in Ottawa and Québec City. On Parliament Hill, Bell Helicopter Textron displayed a mock-up of the machine which will be produced in Canada. Jim Atkins, president of Bell, had flown up from

Fort Worth for the occasion, and David Caplan, a vice-president of Pratt & Whitney Canada, travelled to Ottawa on behalf of the engine experts.

For those who attended the official press conferences there was a wealth of statistics and background material. Indeed, so many facts and figures were presented — about government and private sector cash investments, plant construction programs, employment opportunities, production targets and sales projections — that it was decided to leave to another day a chronological listing of the steps that led to this milestone in the history of Canadian aerospace.

There is in Winnipeg aviation museum the primitive vertical-lift machine designed by the Froebe brothers in 1938. But not even that relic, though it preceded Igor Sikorsky's helicopter, marks the beginning of the Canadian helicopter story. As early as 1891, Alexander Graham Bell, of telephone fame, was experimenting with propellors that might vertically lift a machine into the air. On June 15, 1891, he wrote: "I shall have to make experiments upon my own account in Cape Breton. Can't keep out of it. It will soon be all U P with us someday."

On February 23, 1909, on the frozen lake below the Bell home at Baddeck, the *Silver Dart* made history as the first aircraft to fly in what was then known as the British Empire. One immediate aftermath was the creation of the Canadian Aerodrome Company (Bell preferred the term aerodrome to aircraft). Two aircraft were built for demonstration to military experts. The gentlemen in question were not impressed, and in 1910 Canada's first aerospace venture faded.

— by Harry Traynor
Canada Commerce

In 1909 the Silver Dart pioneered Canada's air industry but, while the aircraft flew, the industry did not.

The following excerpts were taken from the formal statement of the Honourable Edward C. Lumley, Minister of Regional Industrial Expansion, October 7, 1983:

"Today marks the culmination of efforts begun about three years ago when our department identified the helicopter manufacturing industry as an industrial sector with considerable potential for development.

"Last December we advanced to a final phase when we invited leading helicopter manufacturers around the world to submit proposals for establishing a facility in Canada.

"We have decided in favour of the proposal submitted by Bell Helicopter Textron Incorporated of Texas. The Bell Project will enable a new helicopter engine to be developed by Pratt & Whitney Canada.

"Over $750 million is being invested in these projects which together will create an annual average of approximately 4 000 high technology jobs over the next 20 years and lead to thousands more jobs with Canadian suppliers all across the country. The projects will generate sales valued at almost $10.0 billion, nearly 85 per cent of which will be exports.

"The $514.1 million Bell Helicopter manufacturing facility will provide about 3 000 jobs. It will be established at Mirabel, Québec, and will be financially assisted by both the Government of Canada and the Government of Québec. The new engine will be developed in Pratt & Whitney Canada's Longueuil facility at a cost of $252 million and will create an additional 1 000 jobs. It will be financially assisted by the federal government.

"This promises Canada a world class, fully integrated helicopter design and manufacturing industry with high rates of production in a relatively short time. The new Canadian company will have a world product mandate in what all forecasts indicate is the fastest-growing segment of the world helicopter market — the light twin-engine class. And the product mandate will extend to a family of helicopters not just a single model.

"Under the agreement with Bell, Canada will provide $165.2 million and the Government of Québec $110.2 million towards the helicopter manufacturing facility. Bell is committed to purchase, and install in its next generation of helicopter models, a new family of engines called STEP to be developed by Pratt & Whitney Canada. The research and development needed to produce this engine will cost $252 million of which the federal government's share will be $100 million.

"Bell will pay a royalty of two per cent, and Pratt & Whitney three per cent, on their sales of products manufactured in Canada under the programs."

Canada and West Germany Join Forces

A second major Canadian investment in helicopter manufacture was announced on December 13, 1983. Ed Lumley, Minister of Regional Industrial Expansion, revealed that a joint venture involving Fleet Industries of Fort Erie, Ontario, and Messerschmitt-Bolkow-Blohm (MBB) of the Federal Republic of Germany would give Canada its second plant with a world mandate to develop, produce and assemble high-performance helicopters.

Federal funding of $20.9 million would be matched by $14 million from the government of Ontario. The MBB and Fleet investment will be $37.7 million. This new international enterprise is expected to create 760 permanent jobs, of which 160 will be in the Pratt & Whitney engine plant at Longueuil, Québec.

MBB, the largest aerospace company in West Germany, is engaged in the manufacture of helicopters, fighter, trainer and transport aircraft, missiles, rail and urban transport, marine products, advanced medical equipment and space hardware. MBB has 38 000 employees, including 100 who in 1983 launched new marketing and servicing facilities at West Chester, Pennsylvania. More than 140 examples of the MBB BO 105 helicopter are already operating in North America. It is this five/six-seat model, some versions with the new Pratt & Whitney STEP engine, which is scheduled for production at the Fort Erie facilities.

The BO 105 has already won international acclaim as a high-altitude, hot weather performer. Reliability is another laudable characteristic. Especially noteworthy are the MBB rotor blades: made of fibreglass and minus the customary hinges at the point of attachment to the rotor hub, they carry a 10 000-hour life certificate. In fact, the world fleet of 105s logged one million flight hours without a rotor or blade failure.

The Messerschmitt-Bolkow-Blohm GMBH trademark incorporates two names that are legends in the evolution of aerospace. Professor Willi Messerschmitt formed in 1932 the company that produced the Messerschmitt Bf 109, a 428 mph fighter that climbed to 41 200 feet and took a heavy toll of Allied bombers during World War II. Another star performer during that same era was the Blohm und Voss Bv 138. Powered by three 880 hp Junkers Jumo engines, this long-range reconnaissance aircraft operated from German-occupied bases in Norway, scouring the North Atlantic on behalf of prowling U-boats.

The West German MBB B0105 is already raising a stir in the U.S., the world's largest helicopter market.

Unique rotor hub and fibreglass blades add to MBB sales appeal.

The establishment of an MBB production facility in Canada opens a new chapter in a company history that had its beginnings in shipbuilding rather than in flying machines. Nor is the Fleet-MBB alliance the first joint venture for the West German manufacturer. MBB has co-operated with aerospace firms in the Philippines, Indonesia, Spain and Japan. A Kawasaki version of the MBB twin engine turbine BK 117 is currently being produced in Japan at the rate of six units per month.

Most Canadians are familiar with Kawasaki motorcycles, but the Japanese conglomerate was originally a builder of

The letters MBB also emblazon fixed wing aircraft, rail and urban transport, marine products.

Technological innovation, better manufacturing techniques and new products all hold promise for this Canada-West Germany venture.

Canadian MBB helicopters will have P & W Canada power units.

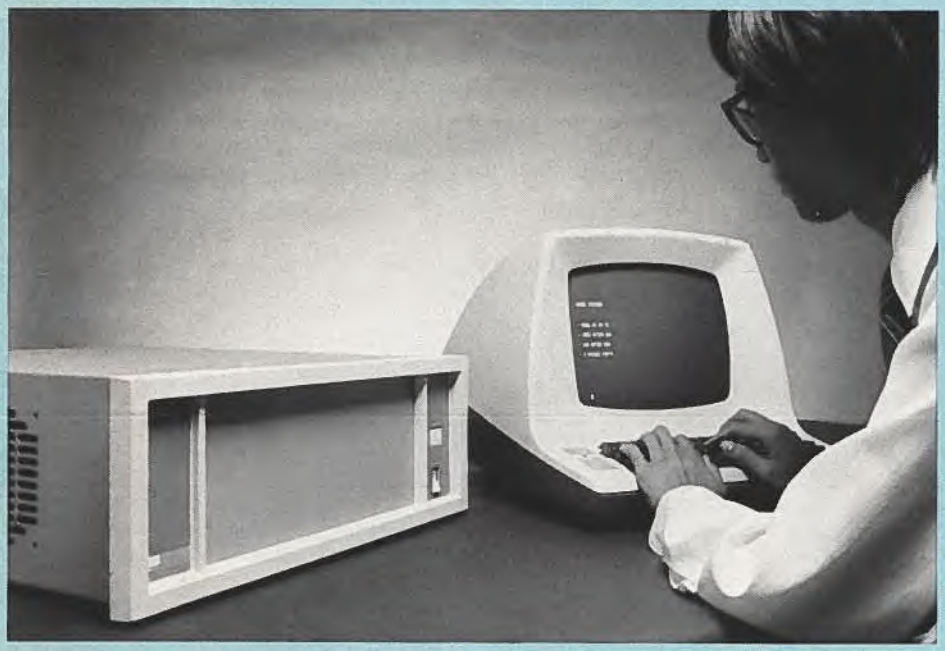
Fleet Industries, Fort Erie, where Canadain MBBs will be manufactured.

warships. Recognizing the increasing importance of aviation, Kawasaki recruited in the 1920s the German aeronautical engineer Dr. Richard Vogt. His legacy was evident in World War II: the Ki 61 Hien (Flying Swallow) Kawasaki fighter resembled the Messerschmitt Bf 109 and was powered by a lightweight version of the German Db 601 engine. It was the same Dr. Richard Vogt who reappeared in Germany in the early 1930s and was associated with the Blohm und Voss Bv 138 prototype.

Fleet Industries of Fort Erie brings to the Canadian – West German partnership a wealth of experience in aerospace. Formed in 1930, the firm makes major components for Boeing, McDonnell Douglas, Lockheed, Hughes Aircraft, Grumman Aerospace, Sikorsky, de Havilland and Canadair. During World War II the Fort Erie plant supplied parts for the four-engine Lancaster, a bomber built in Canada that not even the Messerschmitt Bf 109 could subdue.

The military records of Messerschmitt and Blohm during the Third Reich were not passports to post-war commercial success. Industrial diversification was a compulsory strategy which sent West German designers and engineers into new fields of endeavour. It is perhaps this pursuit of technological innovation, better manufacturing techniques and entirely new products which holds most promise for the latest joint enterprise of Canada and West Germany.

CANADIAN COMPANIES & PRODUCTS



Multi-User, Multi-Tasking Industrial Microcomputer
AMTEL Systems Corporation of Markham, Ontario, introduces an industrial microcomputer that is a multi-user, multi-tasking system with a dual processor architecture based on the Multi-Bus Standard. It uses the 16-bit Intel 8086 and the 32-bit Motorola 6800 microprocessor and is well suited for industrial control, data acquisition/instrumentation, numeric machine control and general data manipulation.

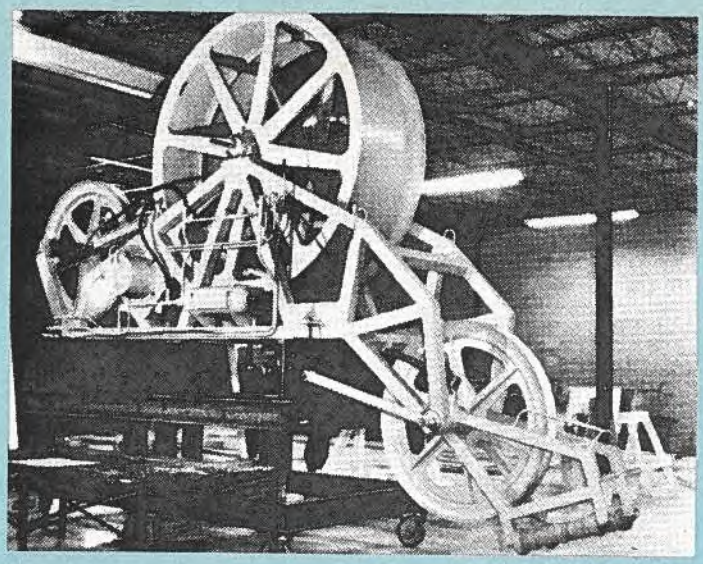
AMTEL first introduced the system in Shanghai in September 1983 and it is gaining wide acceptance in China. A distribution network is currently in the planning with the Department of Regional Industrial Expansion under PEMD.

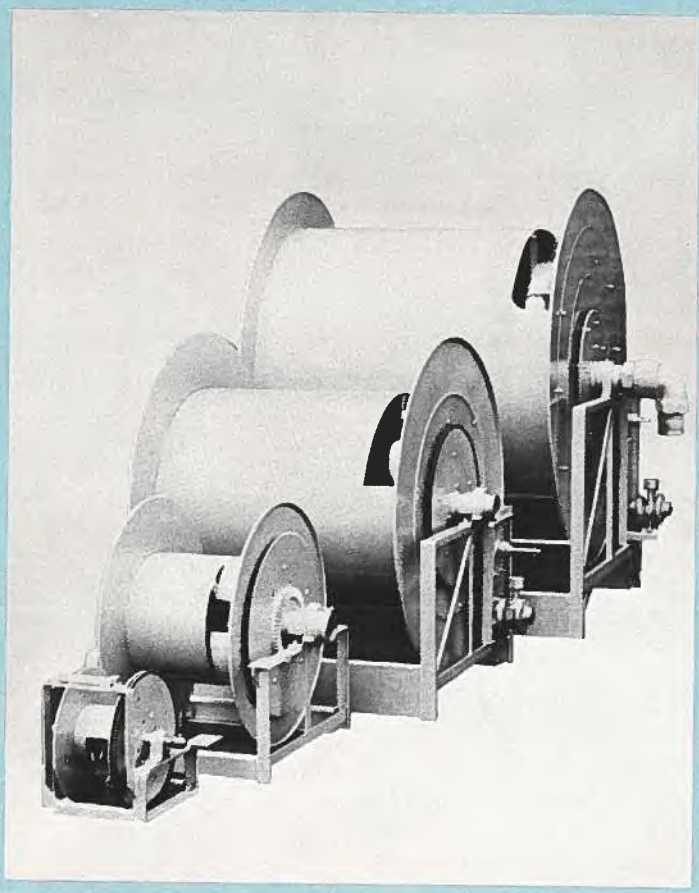
Human Resources Services
Human resources services are available from a relatively young Weston, Ontario, company. Gerry W. Levasseur has had more than 15 years of experience, 12 of them devoted solely to human resources. In 1982 he formed his own company, G.W. Levasseur & Associates.

He offers four distinct services — consulting to employers on the use and benefits of contract employment; general consulting to human resources departments; rental of his own expertise to small businesses as a part-time personnel manager; individual and group career/contract employment counselling.

Specialized Export Management Services
A.D. Burford International Limited of Downsview, Ontario, is the flagship company of the Burford Group, a growth-oriented and highly specialized Canadian export marketing organization. It provides export management services in consulting, export marketing, freight forwarding, project development, material procurement, consortium management.

The Burford Group's main marketing thrust is in the Caribbean, Southeast Asia, sub-Sahara Africa and the Middle East. It represents a large number of Canadian manufacturers specializing in architectural components; building materials; electrical, plumbing and mechanical equipment; fire alarm and security systems; hardware items; agricultural machinery and supplies.





Nordic industrial and fire fighting hose reels.

Multi-Facetted Canadian Company

Panacon Control Systems Ltd. of Oakville, Ontario, primarily engineers and manufactures control panels and systems. However, through two separate divisions, the company is involved in a range of products and services.

Selog Contracting Division specializes in electrical instrumentation and electronic contracting; installation, calibration, pre-commissioning and start-up; design engineering; trouble shooting; programming; contract maintenance. R.L.D. Engineering Products Division is distributor of Nordic hose reels for industrial and commercial use.

Houseboat Industry Grows in B.C.

A new leisure product industry has been started recently in British Columbia's Okanagan Valley. Three Buoys Houseboat Charters Ltd. of Calgary, Alberta, has combined with Western Houseboat Builders in a luxury houseboat manufacturing facility at Kelowna, B.C. The venture was officially launched last December and the first 13-metre (44-foot) vessel to come off the production line was Christened.

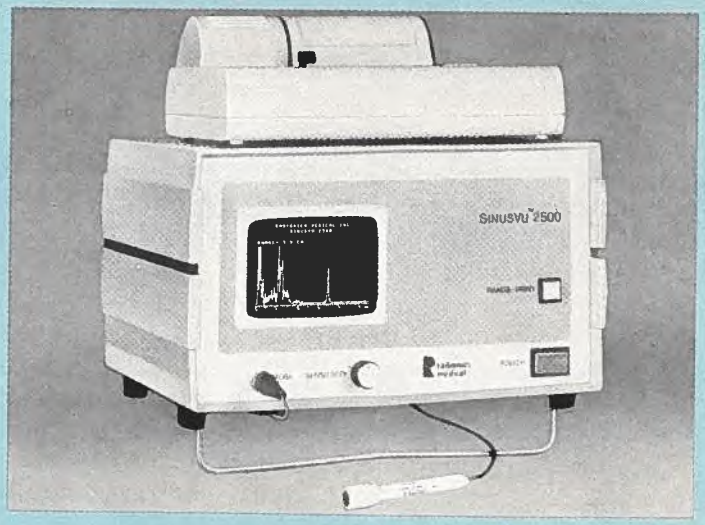
Three Buoys Houseboat Charters and Western Houseboat Builders together have gained a reputation of being the foremost houseboat manufacturers and retailers in Canada.

Western officials launch houseboat building venture.

Ultrasound to Control Sinusitis

Ultrasound procedures have been used for more than a decade to detect fluids in the maxillary and frontal sinuses but now a Scarborough, Ontario, company has developed a device that uses ultrasound for the most advanced and accurate diagnosis and management of paranasal sinusitis — the SinusVu™ 2500 from Radionics Medical Inc.

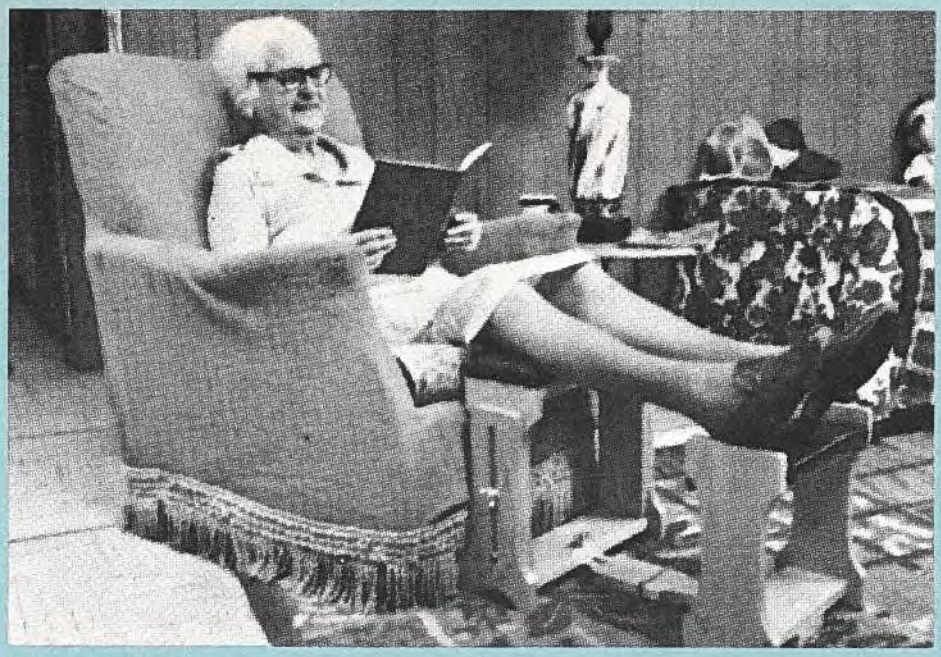
When a sinus is healthy, it is air filled but fluid in the sinus, a sinusitis symptom, is quickly detected by the SinusVu™ 2500 ultrasound safely and accurately. A video monitor provides a clear and bright display.



A Leg-Rest for All Purposes

When Doug Peters, president of Douglas Merchandising, West Hill, Ontario, found that no footstools could relieve his discomfort after a hard day's work, he decided to create something that would. The result is the Peters Leg-Rest, designed to support the knee and give the comfort he sought.

The leg-rest consists of a padded support for the knees and a second lower support for the feet with a spacer between the two that can be adjusted to suit the individual. The device will turn any chair into an easy chair and can relieve back problems. It is also designed to fit easily under an office desk — a boon to weary business persons.



Peters Leg-Rest folds neatly for storage.

For further information about the companies, products and services listed, please contact:

AMTEL Systems Corporation
1001 Denison Street, Unit G101A
Markham, Ontario
L3R 2Z6
Tel: (416) 475-3702, 3703
Telex: 06-986396

G. W. Levasseur & Associates
16 McManus Road
Weston, Ontario
M9P 2K2
Tel: (416) 243-9974

A. D. Burford International Limited
358 Supertest Road
Downsview, Ontario
M3J 2M2
Tel: (416) 661-0842
Telex: 06-23251
Cable: BURFTOR TORONTO

Panacon Control Systems Ltd.
1053 North Service Road East
Oakville, Ontario
L6H 1A6
Tel: (416) 845-8668

Three Buoys Houseboat Charters Ltd.
1842 - 14th Street S.W.
Calgary, Alberta
T2T 3S9
Tel: (403) 229-1272

Radionics Medical Inc.
1240 Ellesmere Road
Scarborough, Ontario
M1P 2X4
Tel: (416) 292-6441
Telex: 065-25335

Douglas Merchandising
4 Grandor Court
West Hill, Ontario
M1E 1E1
Tel: (416) 266-0775

Regional Offices

The Department of Regional Industrial Expansion maintains regional and local offices in each province for your convenience:

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Parsons Building
90 O'Leary Avenue
St. John's, Newfoundland
A1B 3R9
Tel: (709) 772-4908
Local Offices:
Corner Brook
Tel: (709) 634-8202
Goose Bay, Labrador
Tel: (709) 896-2741

Prince Edward Island
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134 Kent Street, Suite 400
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C1A 7M8
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DEVCO Office, Sydney
Tel: (902) 539-1842

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Moncton, New Brunswick
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Tel: (506) 548-8907
Cocagne
Tel: (506) 576-6672
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Tel: (506) 452-3130

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Drummondville
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Québec
Tel: (418) 694-4631
Rimouski
Tel: (418) 722-3282
Sherbrooke
Tel: (819) 565-4713
Trois-Rivières
Tel: (819) 374-5544
Val-d'Or
Tel: (819) 825-5260

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P.O. Box 98
1 First Canadian Place, Suite 4840
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M5X 1B1
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Local Offices:
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Tel: (519) 679-5820
Sudbury
Tel: (705) 675-0711
Thunder Bay
Tel: (807) 345-1011

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P.O. Box 981
400-3 Lakeview Square
185 Carlton Street
Winnipeg, Manitoba
R3C 2V2
Tel: (204) 949-6131
Local Office:
Thompson
Tel: (204) 778-4486

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601 Spadina Crescent East
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S7K 3G8
Tel: (306) 665-4400
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Prince Albert
Tel: (306) 764-6800

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Tel: (604) 388-3181
Prince George
Tel: (604) 562-4451

Yukon
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Whitehorse, Yukon
Y1A 1Z2
Tel: (403) 668-4655

Northwest Territories
P.O. Box 6100
Precambrian Building
Yellowknife, Northwest Territories
X1A 1C0
Tel: (403) 873-6225

Québec Company Successfully Penetrates World Markets

The stability of a company is an important asset when considering the penetration of new markets. Everyone knows that entering the export market is an expensive proposition. Success in business does not come by chance, though particular circumstances sometimes favour certain companies. Progressive Products Ltd. (PPL) has taken advantage of the economic situation to develop export markets in the United States, the West Indies, South America, Central America and Egypt.

In order to survive and flourish in a market dominated by multinational corporations, this company, located in Saint-Louis-de-Terrebonne, Québec, has developed and implemented a strategy based on the integration of manufacturing activities, automation and product diversification.

As a manufacturer specializing in disposable medical products since 1966, Jean Jolicœur met with genuine success in Québec and Ontario. In 1970, the introduction of Québec's health insurance plan contributed indirectly to the growth of his company. The increased demand for medical products enabled PPL to expand to its present staff of 50 employees in Saint-Louis-de-Terrebonne.

The embargo imposed on petroleum by the OPEC countries in 1973 and the resulting leap in prices favoured PPL, since the company had a three-year store of petroleum-based plastics in its warehouse.

Mr. Jolicœur's firm thus avoided rising supply costs and was able to extend its activities to the American market on a competitive basis.

The current economic situation is far from hurting PPL. The investment of petro-dollars to build hospitals and clinics in developing countries has boosted the company's export opportunities as have the growing number of free health care programs worldwide.

Another factor that is unusual to say the least has encouraged PPL to increase its exports. Budget cuts in the health care sector in Québec and Ontario have made it necessary to look for new markets elsewhere, and these have proved to be successful. Mr. Jolicœur says he can sell his products for twice as much abroad as in Canada. "The Canadian market is unprofitable for us," he explains, "because of dumping by multinational corporations."

The European, Mexican and Japanese markets are more difficult to penetrate, however, since their needs for medical products differ from those in Canada. Products in these markets are less sophisticated, and the usual suppliers sell them at very low prices. The company must re-examine its manufacturing processes and transportation

PPL has made specific efforts to cut down its production costs. It began by applying robotics in order to automate some of its manufacturing activities. A new machine that assembles and packages disposable razors for hospitals does the work of 32 employees and guarantees better quality while reducing the production cost of the product. The price of these disposable razors has decreased from $0.34 to $0.18 since the equipment was installed. The company has also quintupled its manufacturing capability and can now produce 60 razors per minute.

In view of the special characteristics of the market and the fierceness of foreign competition, PPL has taken a defensive stance. The vertical integration of its activities is one aspect of this strategy.

The company manufactures all of the components it assembles. It also offers a complete form-fill-and-seal packaging service including the thermoform system or pouch configurations from roll stock. The Saint-Louis-de-Terrebonne plant covers an area of 2 973 square metres.

PPL also sterilizes, quarantines and stores finished products. Sixty-four cubic metres of space are available to the company for ethylene oxide processing.

The company transports its own products in Canada. The steady and continual rise in transportation costs is a serious problem, however, when exports are considered. The solution is simple in North America, since the company can use its own trucks to make deliveries to the United States, for example, as Mr. Jolicœur plans to do in the near future. When goods must be shipped overseas, on the other hand, time and energy must be devoted to finding the most economic means of transportation possible.

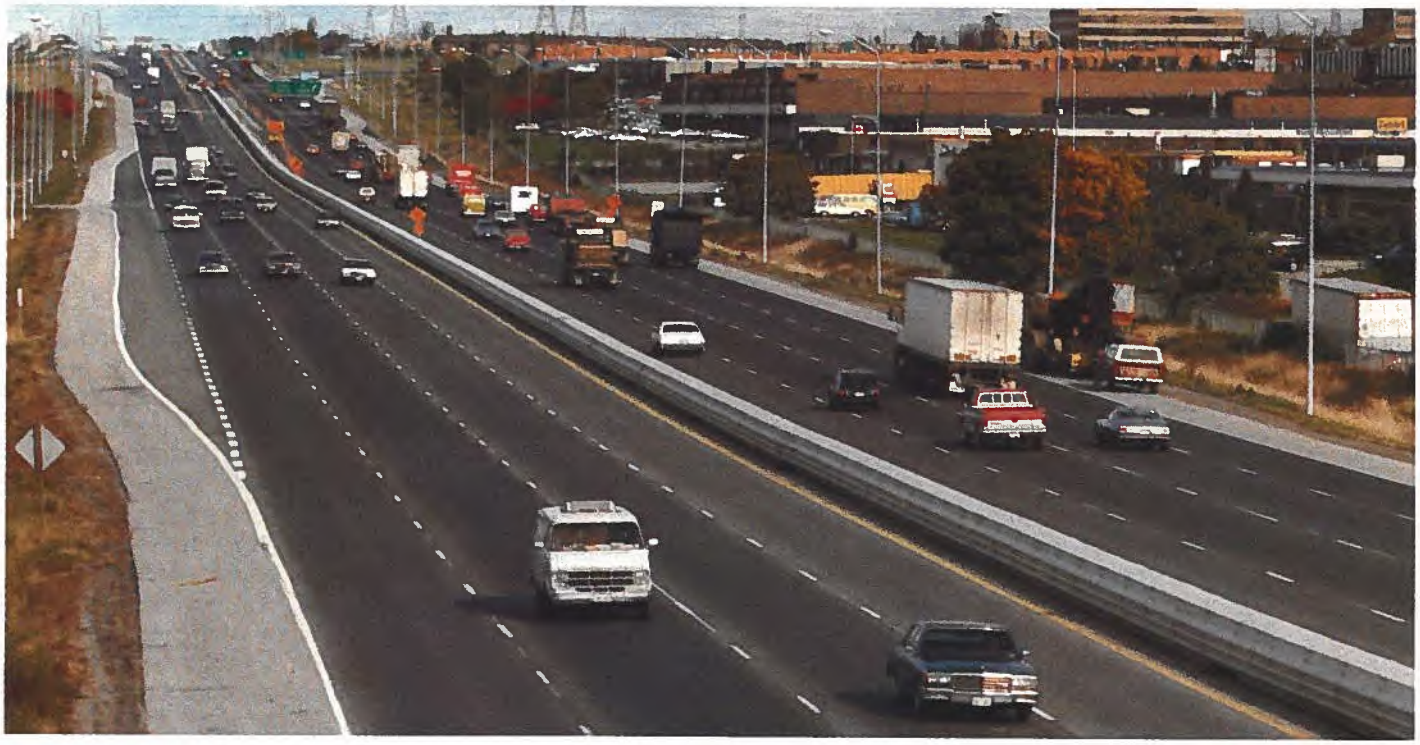
Last year, as a complement to its manufacturing facilities, PPL acquired Northern Medical Industries Inc. of Mississauga, Ontario. This company manufactured medical tubing used in the manufacture of Progressive disposable products.

Northern's manufacturing equipment was moved to the Hawkesbury plant acquired by PPL last December. This plant covers an area of 6 968 square metres and will be completely robotized and automated. Mr. Jolicœur predicts that with only 12 employees the Ontario plant will attain the same level of production as the Québec plant with 50 employees.

PPL manufactures approximately 300 different products. The company's diversification, combined with sound management and the use of automation, is the key to the success of Progressive Products Ltd.

***by* Pierre Simard**
Canada Commerce

Canadian Highway Barrier Makes Impact



IBC Highway Barrier snakes along Florida highway.

"Though the concept is disarmingly simple, the product is going to revolutionize safety on our highways."

That is the kind of enthusiastic endorsement that highway officials in Europe and the United States are giving a new Canadian highway barrier — the IBC MK VII Barrier — produced by International Barrier Corporation (IBC) of Toronto, Ontario.

The IBC MK VII Barrier has been in development for more than five years and at least a million dollars have been spent on research and testing. However, what is attracting increasing attention to the barrier is its radically different design.

IBC Highway Barrier's radically different design is attracting growing attention in Europe as well as in Canada and the United States.

Says IBC president, Kris Harrison, "Our barrier is soft, not hard. It is like a big pillow designed to catch cars that leave the highway. Unlike most highway barriers, ours isn't anchored to the ground."

The IBC Barrier is actually a hollow cylindrical tube 1 070 mm (42 in.) high and filled with sand that runs for miles in the centre median like a steel snake between lanes of oncoming traffic. If a vehicle strikes the sand-filled tube it gives slightly, helping the vehicle to continue in its original direction instead of smashing to a halt or overturning — two of the most serious consequences of standard highway dividers.

"Imagine slamming your hand into a bag of sand," explains Lincoln Cobb, head of design at IBC. "Now think of doing the same thing to a concrete wall. The results would be completely different. The sand in our barrier supports the steel, but it does so softly. We don't want anything in our barrier to be too hard."

Tests have been conducted on the IBC Barrier at the Calspan Advanced Technology Centre in Buffalo, New York; at the Motor Vehicle Test Centre at Blainville, Québec; and by the British government at the Motor Industry Research Association in Nuneaton, England. Results of these tests have been compared to test results of other standard highway barriers.

Frequently during testing, when a vehicle hit a concrete highway barrier it would flip over. Because of the design of the IBC Barrier's vertical side, no vehicle that hit it has ever overturned.

According to Jack Wear, research engineer at the Ontario Ministry of Transportation, "The barrier has been extremely well designed to present maximum benefit to the driver when contact is made."

Says IBC president Harrison, "Officials of the Ontario Department of Transportation have been fantastic in the support they have given our product.

Barrier "well designed to present maximum benefit to the driver when contact is made" says one Ontario official.

They helped us take our concept out of the development stage and onto the highways."

The IBC Barrier is currently installed on two highways in North America — Highway 400 north of Toronto; and the I-95 outside Fort Lauderdale, Florida.

The section of Highway I-95 in Florida chosen for the barrier's installation carries heavy commuter traffic in and out of Miami. Because adjoining sections are covered by a concrete barrier, the performance of the new barrier can be compared.

During the first four months of installation, the IBC Barrier was hit 22 times — not one vehicle overturned nor was anyone killed! In fact, the drivers of those 22 vehicles suffered no personal injuries and there was only slight damage to their automobiles.

In the same four months the adjoining concrete barrier was struck 25 times. Four cars overturned; three people were killed; and there was extensive damage to the cars involved.

IBC Barrier in close-up.

Officially tabulated results of the Florida four-month testing:

IBC Barrier	Concrete Barrier
• 22 impacts;	• 25 impacts;
• seven police reports;	• 23 police reports;
• no overturned vehicles;	• four overturned vehicles;
• no injuries or fatalities;	• three fatalities in two separate accidents
• slight automobile damage;	• extensive automobile damage;
• no structural damage to the barrier (no maintenance required).	• one automobile impacting a misplaced concrete wall.

"It's quite simple," says Harrison. "We have a safe barrier. We are saving lives. When cars hit concrete there are often disastrous results. We have run everything from a mini-minor to a school bus into our barrier and all of them have been redirected safely."

During 1984 Harrison expects more of the IBC Barrier to be installed in both Ontario and Florida. He also expects to be able to announce installation for England, the Canadian section of the Alaskan Highway, and at least six other American states.

For further information, please contact:
Stuart McLean,
Tel: (416) 863-6344.

Willet — One Stop, One Shop Food Wholesaling

In a nutshell, "Willett is a total one stop, one shop food wholesaling concept which focusses on marketing, service and distribution," according to Walter B. Flewelling, president and chief executive of Willett Foods Limited of Saint John, New Brunswick.

The company's roots, as Mr. Flewelling calls them, cling to the traditions established by J.G. Willett in 1905 when, as a young Nova Scotian with $40 in his pocket, he set up shop as a wholesale commission merchant of fruits and vegetables in rented premises along the North Market Wharf in Saint John.

Today, the company's most outstanding features are its flexibility and adaptability. Although Willett Foods is continually planning for the future it does not yield to every passing fad and refrains from statements such as "The future lies in data processing" or "in high technology" or "in air transportation" or "in bulk transportation".

At Willett, management is sound and well-balanced. A few moments of conversation with management staff brings home the rationality of their approaches.

The company's operations are focussed on what has been described as the way of the future in the food industry with a combination of distribution to supermarkets, independents and food service accounts.

Its retail distribution system well established, the company has concentrated additional effort in the development of the food service side of food distribution. This segment supplies the "food away from home" market — from the fast food outlet to institutional feeding. Today it is able to meet the food needs of any organization.

"We'll help you with your menu planning, cost control, everything," says Mr. Flewelling.

Willett Foods has been involved in the packaging of dried fruit and nuts since 1930 and, with new equipment in recent years, is now packaging for bulk foods, food service and health food sales as well as broadening its offerings of retail products. The Saint John port has been an asset and many goods bought by Willett Foods are imported from overseas and arrive in Saint John by boat.

Automated packaging equipment for efficient operation.

The head office in Saint John encompasses a four-acre plant on Bayside Drive and includes not only a massive receiving and distribution area, but also a cash and carry. It is the heart of the company.

Willett Foods is a "total distributor" with its one stop, one shop network. For many years known as The Willett Fruit Co. Ltd., it specialized in "foreign and domestic fruits and vegetables", gradually enlarging operations into the grocery field.

It is now diversified, offering clients a variety of items such as frozen foods, dairy products, health and beauty aids, tobacco, confectionery and food service. There are several cash and carry outlets in Altantic Canada and Ontario.

At first, the company served retail distributors and caterers in the Atlantic region only. Now it is expanding its operations to Québec and Ontario. The concept of customer satisfaction, linked with traditional business ethics and a firm belief in its employees, has allowed Willett Foods to carve an important place for itself in the food distribution market. Major distribution centres are in Halifax, Nova Scotia, Saint John, Kitchener, Ontario, and Ottawa.

In 1905, when he set up shop in Saint John, John Gilbert Willett, founder, would never have dreamed that the company would progress to the size it is today.

In the beginning, Willett Foods was primarily a produce house and importer of fruits and vegetables. However, the company's founder soon realized that his was a seasonal business, which began to slacken as soon as local gardens started producing, and he began to diversify.

The reason the company has been so successful is its managers' application of a philosophy based on 75 years of experience serving retailers and food service operators in the Atlantic region. This philosophy, which focuses on personalized service, is shared by all Willett employees. The company has earned the

name "The Food Family", a result of its commitment toward not only its employees, but also all those involved in the industry, suppliers and customers alike. Teamwork is essential in order to meet changing customer needs.

One thing that hasn't changed over the years is the company's attitude toward its employees. "We tell our people that this company will be exactly what the employees want it to be — nothing more, nothing less," says Mr. Flewelling.

To this end, the company and unions have introduced a "Quality of Working Life" program at several locations, QWL for short. It is a concept which focuses on designing jobs and structuring an organization in such a way as to strike the best possible balance between the needs of the workers and the needs of the organization. It is a process based on joint control and shared responsibility between union and management at all levels, a process which Everett Healy, director of personnel, describes as being "the only way you'll ever get away from the adversarial approach between union and management".

D.G. MacTavish, the company's secretary-treasurer, talked to *Canada Commerce* about the role data processing has played in Willett Foods. In this day and age, a distribution company with large inventories cannot get by without a computer. However, although data processing facilitates accounting, inventorying, orders and sales, it must be used rationally.

Willett Foods has been using data processing since the machine computer first came on the market and has always updated its equipment as technological advances were made.

However, because the world of data processing is changing and developing so rapidly, caution must be exercised. Thus, the company prefers to lease computer time from a Toronto firm when it requires complex data processing services, rather than invest a million dollars in a huge computer.

Willet Food headquarters in Saint John, N.B.

Modern facilities ensure rapid distribution.

Each distribution centre uses small computers to control its inventories. This makes it possible to replace sold merchandise automatically and to reduce delivery times, since the computer can locate the desired product instantaneously. Each product bears identification and warehouse numbers. Sales representatives can access the inventory directly by using these numbers, which are also known by clients.

Each Willett Foods distribution centre is autonomous at the operational level and is responsible for obtaining its own supplies. Manufactured goods come from the Saint John warehouse but others are obtained from suppliers from the world markets. However, each centre is linked to Saint John so that it can notify head office of accounts payable. Data processing, which was integrated into Willett Foods operations gradually, now allows the company to handle thousands of products quickly and effectively.

Through its expansion program, Willett Foods has set up operations in Fredericton, Moncton, Halifax, Kentville, Ottawa, Kitchener and Sydney. Willett's subsidiaries include Marsh Foods, Windsor; Chef Foods, London; and K-W Foods, Kitchener — all dedicated to food service distribution.

No matter what its president and chief executive might say, Willett Foods is a very "Food Family", since it now employs over a thousand.

— by Pierre Simard
Canada Commerce

Potash in New Brunswick — a Mining Bright Spot

If it wasn't for the vast deposits of potash now being mined near Sussex, New Brunswick, eastern Canada's mining industry would be in the doldrums.

When the first rail cars of potash reached Saint John early in January to await shipment to Denmark it climaxed more than a decade of drilling and testing.

But the real story of potash in New Brunswick goes back even further, more than three decades to the early 1950s when it was discovered — and for more than 14 years ignored.

Potash Company of America, the first of three companies in the Sussex area to announce it planned commercial production (Denison Mines Ltd. in partnership with the Potash Company of Canada, and BP Resources Canada Ltd. are both still in the exploration stage), has so far spent more than $220 million developing the potash mine at Plumweseep. Denison has spent $240 million to date and hopes to bring commercial production on line in 1985. BP Resources has confirmed finding large deposits but is at least a year behind Denison.

The future potential to the companies and the province, which gets royalties on each ton mined, are an exciting base on which the currently slow mining industry of New Brunswick is building for tomorrow.

But it wasn't so exciting when prospectors first discovered the deposit existed.

Around 1954 a group of geological prospectors stumbled on a small salt spring close to the town of Sussex. The discovery was interesting but really nothing to dance about. There were already several salt mines in the Atlantic provinces and another one might be more than the market could bear. But the searchers were interested enough to order an analysis of the spring water, just to see what the earth below might have to offer.

When the analysis was complete they became a little more excited. The readings pointed not only to the presence of potentially large sodium chloride (salt) fields in the area, but to traces of potassium chloride (potash). Though potash, used mainly in fertilizers, was then — as it is now — seven times more valuable than salt, it was not visualized as being present in large enough quantities for mining.

For 14 years the geologists and the New Brunswick Department of Mines tried to attract investors. The response was nil and the province, at that time, had no money to gamble on a project so uncertain.

In 1969, with dust gathering on the analysis of a decade and a half earlier, the provincial Department of Natural Resources talked to the newly formed federal Department of Regional Economic Expansion (DREE). Eager to show its willingness to help the provinces, DREE decided the findings in the dusty old files were right up their street. Evidence from the analysis was convincing. There was enough justification for test drilling. DREE offered to pay the entire cost of 3 000 metres (10 000 feet) of drilling up to a maximum of $185 000. The province was not asked for a cent.

One year later, on November 24, 1970, three bids from companies hoping to do the exploratory work were opened in Fredericton.

A North Bay company, with offices in Bathurst, N.B., Inspiration Drilling (now Ideal Drilling Ltd.) was awarded the contract with a bid of $126 349.50, covering a total drilling depth of 2 820 metres (9 250 feet).

Gravimetric surveys, intricate and technical machine readings, were made by the advanced geological searchers placed at the site in an attempt to prejudge the area covered by the salt deposit, even before the drilling started.

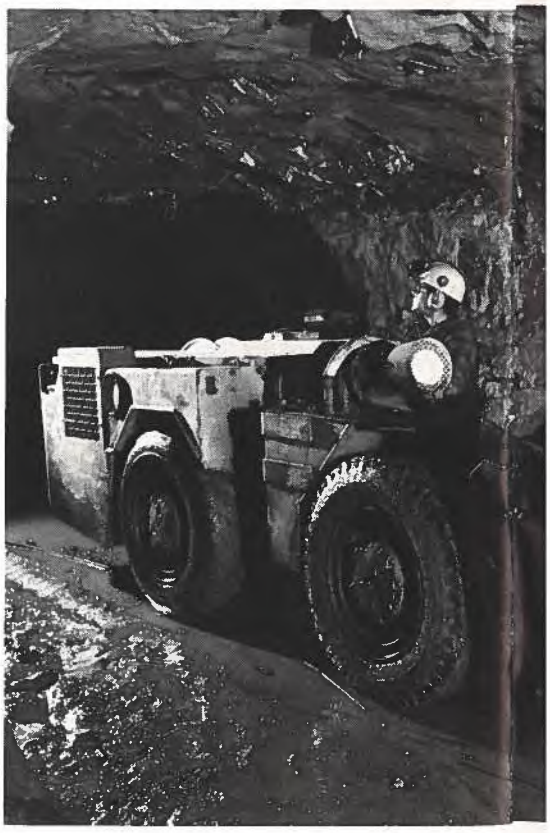
A discovery hole was drilled at Plumweseep, close to Sussex, on January 9, 1971. By the time drilling ended on February 18, 1971, the geologists knew that they had hit the jackpot.

Thirteen years later, in February 1984, Basil Small, the DREE (now the Department of Regional Industrial Expansion — DRIE) representative on the scene from the start, recalled clearly the cool and calm comment by J. K. Worth, geologist in charge of the project, as he examined the first core samples brought to the surface from below the 275 metre (900-foot) mark.

"I believe we've cut some potash," he said.

This simple statement, which soon turned out to be the understatement of all time, was the signal for intensified drilling. Between 277 metres (909 feet), where the potash was located, and 305 metres (1 001 feet), a total of 21 metres (68 feet) of potash was intersected.

Working from the gravimetric survey results, a second hole was started on March 11, 1971, at Penobsquis, eight kilometres from the first site. They found plenty of common salt but, as was to be discovered later, the drill hole had just barely missed a rich deposit of potash.



But enthusiasm was high and the drillers were not deterred. When drilling ended on April 28, 1971, a joint decision of DREE and the provincial government had already been made to put the mining rights out to tender.

When November 1, 1971, rolled around, the tender closing date, everyone's hopes had been exceeded. The invitation to bid, advertised in Canadian and United States newspapers and in world mining journals, brought a response from seven highly reputable and experienced companies and consortiums.

By this time salt was a minor player in the game. Potash was the mineral being sought.

In January 1973, the Potash Company of America (PCA) was awarded the rights to drill in designated areas near Plumweseep. DREE, and the province, anxious for the project to go ahead, agreed to provide and pay for a geologist with knowledge of the area to assist PCA in any way possible.

On October 26, 1977, 23 years after the first discovery was made, Premier Richard Hatfield announced that PCA had decided to invest $106 million of its own money in establishing a mine and potash refinery at Penobsquis, six kilometres east of Sussex.

By the end of 1981 the PCA investment had ballooned to $150 million and the hoped for 1982 production date was delayed to "early in 1983".

PCA's decision to go ahead acted as a magnet to other potash producers. International Minerals and Chemical Corporation (Canada) Ltd. was awarded a second lease. It was subsequently transferred to Denison Mines Ltd. and in 1980 Denison sold a 40 per cent interest in his lease to the Potash Company of Canada. The site was at Salt Springs, some 20 kilometres from Penobsquis. Shortly afterwards BP Exploration Canada Ltd. was given the nod to make tests at Millstream, a third point on a triangle, 20 kilometres from both Penobsquis and Salt Springs. This site has subsequently proved to be rich in potash.

Each site has provided construction work to more than 400 semi-skilled workers. Each is expected to employ in excess of 300 workers when it reaches full production.

As the production date grew closer for the first mine, Gordon C. Mouland, National Harbour Board manager for the Port of Saint John, announced an agreement in September 1981. He reported that a special terminal was to be built at Barrack Point, on the southeastern end of the Saint John south end peninsula.

With the potash now moving, the province is starting to look for its share of the revenue. Both PCA and Denison will pay a tonnage royalty that could net the province in excess of $12 million each year when both mines reach their hoped-for production of 900 000 metric tonnes.

Fears in Sussex that the arrival of large numbers of year-round jobs would take away from the farms which dominate the area the vital manpower needed only in the summer months. So far this has not happened and a Sussex bylaw that does not permit trailer homes has driven the majority of the mine workers to sites outside the town on the edge of the mine sites.

But the miners are spending their money locally. A large new mall was built, mainly as a result of the new source of revenue. A club outside the town that was close to going under is now flourishing. Merchants in Sussex report large increases in sales.

At the moment potash is the big thing in New Brunswick, and it can only become even better as prices for the potash rise as all three drilling companies anticipate.

While mines like Heath Steele near Newcastle remain closed waiting for lead and copper prices to improve, and Brunswick Mining and Smelting Corporation Ltd. has put a temporary halt on plans to build a $360 million zinc smelter at Belledune, there are other indications that the mining industry is on the verge of a revival that could create thousands of jobs.

Billton Canada Ltd. and Brunswick Tin Mines Ltd. have completed a $120-million tungsten-molybdenum mine and are almost at production stage.

The antimony mine operated by Consolidated Durham Mines & Resources Ltd. was closed in 1981 but, as Canada's only producer of this deposit, the company confidently hopes it will be re-opened, with a new ore body already located, shortly.

The federal government, through the Department of Regional Industrial Expansion (DRIE) — successor to DREE the department which started the entire potash ball rolling — and the New Brunswick Department of Commerce and Development announced, in May 1983, a joint decision to build an $18.75 million Sulphation Roast Leach Pilot Plant at Morrison's Cove, near Chatham. Part of the Special Recovery Capital Projects program announced by Finance Minister Marc Lalonde in his April 1983 budget, the project will experiment with a new process to improve metal extraction from the complex base metal ores of New Brunswick.

If successful the project could lead to enhanced productivity in existing mines and to the opening of several new mines now not considered viable under the present extraction methods. As many as 3 000 new jobs could be created in the mining industry.

Meanwhile the potash mines are brightening New Brunswick's mineral horizon, perhaps setting the stage for an industry revival that the province's Natural Resources Minister Gerald Merrithew estimates could have revenues annually in excess of $1 billion by 1990.

— by Charlie Foster
DRIE, Moncton

The Ocean Brings "Space-Age" Industry to Nova Scotia

Tucked away in Halifax/Dartmouth's industrial parks, or scattered along streets lined with the usual shops and businesses, a new breed of industry is emerging in Nova Scotia. High-tech firms have sprung up to develop technologies for what some people consider the last frontier — the ocean.

The ocean is an environment every bit as hostile as space and the technology to explore it bears striking resemblances to space technologies. With the needs of an emerging oil and gas industry spurring them on, local Nova Scotia firms are fast developing the means to make us "aquanauts".

Hugh Plant, director of the federal government's Ocean Industry Development Office (OIDO), says that more than 200 oil and gas related companies have moved to the Halifax/Dartmouth area in the last 24 months. "We won't be a Houston or a Calgary, but the offshore activity gives Nova Scotia a chance to create technologies that can be sold worldwide."

Mission to China

Since offshore oil wells supply a third of the world's oil, the market for products that overcome complex ocean engineering problems or increase safety underwater, is considerable. In June, as part of his mandate to assist Nova Scotia ocean industries, Plant will take 12 Nova Scotia entrepreneurs to China to explore potential markets there. Plant and his staff have represented Nova Scotia firms at trade fairs in Houston, Aberdeen, Tokyo and Brighton.

CanDive Services Limited is one of those local firms with international ambitions. With its joint venture partner, California's Deep Ocean Engineering, and federal assistance, CanDive has developed a new ocean vehicle, the Deep Rover. It looks like a one-man helicopter and is as easy to drive as a sports-car. It also has manipulator arms — like the Space Shuttle — which can pick up an egg or a 90 kilogram (200-pound) weight and can sense force, speed and texture.

Deep Rover designer Graham Hawkes says it's safer than a small airplane. He refers to it as the "Model T of the ocean", seeing it as only the first generation of vehicles which will allow petroleum engineers and scientific explorers to examine oil rigs or underwater phenomena.

Another local firm, Lobsiger Associated Limited, has developed an underwater camera system. Company founder Ulrich Lobsiger, a consultant in oceanographic research and development, recognized the industrial potential of a camera designed for ocean conditions. His computer programmed cameras are able to inspect erosion around oil rigs and assist in fish inventory surveys.

Hugh Plant, OIDO director, stands in front of the oil rig Bow Drill 3 in Halifax Harbour.

The Last Frontier — new technologies for offshore ocean industries.

Two men test Narwhal survival suits.

Survival suit makes staying alive for up to 30 hours in frigid North Atlantic waters now possible.

Not all companies go it alone. Bedford entrepreneur Hugh MacPherson has struck an arrangement with Dalhousie University to develop the marine applications of fibre optics. Their venture, Focal Marine, has received federal assistance from the OIDO because it is an excellent example of technology transfer from the research institution to the private sector, says Plant.

Fibre optic cable is so superior to other materials, specially underwater, that all new vessels will be cabled with fibre optic material, rather than copper wire, within 10 years, says MacPherson. It's lighter, cheaper and transmits a signal under the noisy conditions found on ships and rigs. It is also thinner (about the size of a spaghetti strand) than copper yet it can transmit more.

Safety Systems

As more and more people work at sea, safety systems are becoming big business. Crockett, McConnell of Bridgewater and Narwhal of Bedford are, essentially, in the business of buying time; they manufacture survival equipment. In man-overboard situations, sometimes the difference between life and death is measured in minutes.

Reaching the victim as soon as possible is crucial. Robert Crockett and his partner Fred McConnell build aluminum rescue boats with jet-propelled engines. McConnell also constructed *Canada I*, the aluminum yacht that was a challenger in the American Cup Yacht race, so you can bet the rescue boat is fast.

How long can a person last in the icy cold waters of the North Atlantic? "If he's mean," says Narwhal's Larry Bell, "he can last 15 minutes, if he hasn't already drowned or had a heart attack on impact." With the survival suit, which Bell took six years to perfect, he may have an extra 20 hours until a rescue is made. In some cases, people have survived for more than 30 hours with the suits. Narwhal's market is fishermen and, with increasing safety regulation in the oil and gas industry, offshore workers.

A social club will be next, says Bell. "That's for the survivors — those who made it back to land thanks to survival gear."

High-Tech A Natural

High-tech ocean industries are a natural for Nova Scotia because the Halifax/Dartmouth area boasts one of the world's largest concentrations of oceanographic institutions and personnel. The area ranks third, after Massachusetts Institute of Technology's Woods Hole and Scripps Institute in California. The Bedford Institute of Oceanography, the Nova Scotia Research Corporation, the Defence Research Establishment Atlantic, Dalhousie University's Department of Oceanography, the National Research Council's Atlantic Research Laboratory and the Technical Institute of Nova Scotia are main institutional players.

The challenge, according to people like Plant, is to develop the commercial applications of oceanographic research.

A new breed of entrepreneurs is taking up that challenge in Nova Scotia and their innovative efforts are being noted around the world. ◘

— by Winifred Desjardins
DRIE Nova Scotia

Snowmobiling and Tourism — a Happy Marriage

No one knows exactly who invented the first snow-going vehicle. We do know, however, that rudimentary snowmobiles appeared in the 19th century, freeing people from the isolation of the long winter months. They were then used by Arctic and Antarctic explorers.

The first somewhat practical snowmobiles appeared around the 1920s. During the 1950s, a number of engineers began devoting themselves to the development of multi-purpose, lightweight vehicles. The Ski-Doo was invented by Joseph-Armand Bombardier and went on the market in 1959.

Already as a teenager, Bombardier was fascinated by mechanics and spent his spare time repairing or overhauling his father's car, who put a stop to this by buying his son an old Ford. Using the Ford's engine, the 15-year old Bombardier spent the months from the fall of 1922 until early 1923, building his first snowmobile. Driven by a propeller and a four-cylinder Model T Ford engine, the vehicle glided on four sled runners. J.-Armand Bombardier experimented between 1926 and 1960 and marketed various tracked vehicles that could move over the snow. We need only recall the B6 and B12 snowmobiles, the armed B1 snowmobile constructed in early 1942 for the Department of Defence Production, the C18s, the TD trucks and the MUSKEG tractors.

The prototype for the first Ski-Doo was ready in the autumn of 1958. Its sporting and recreational potentials were noticed from the outset. Series production of this machine began in the fall of 1959, and 225 Ski-Doos were sold at $1 000 each.

The key to the Ski-Doo's success lay in the same characteristics that marked the industrial vehicles — lightness, economy, strength and reliability. This was made possible by the rubber driving wheel, while the rubber track with crossbars and rubber-covered metal wheels ensured a flexibility that increased the vehicle's performance. The rubber gear wheel could withstand shocks that would have damaged it had it been made of any other material.

When the first snowmobile was marketed in 1959, little did J.-Armand Bombardier suspect the strides that the industry would make throughout the world. In Québec alone, close to half a million people currently practise the sport of snowmobiling. In 1970, an estimated 129 snowmobile manufacturers were in operation. Today, only five provide 98 per cent of all snowmobiles.

The five snowmobile manufacturers in North America are: Bombardier, Yamaha, Polaris, John Deere and Artco. This last company is none other that Arctic Cat, which has just resurfaced after its 1982 bankruptcy. Bombardier and Yamaha are virtually neck and neck, each cornering one-third of world sales. Polaris is undisputed third, selling 10 000 snowmobiles annually.

Snowmobile caravan heads towards the next stop.

There are an estimated 2.5 million snowmobiles in operation in North America. The average snowmobiler is generally a family man, 25 to 44 years of age. He is a blue- or white-collar employee with an annual income of between $20 000 and $35 000. He has three to five children, and considers snowmobiling a family sport. He is a faithful follower who has been enjoying this activity for at least five years.

Bombardier has sunk considerable sums of money into its Recreational Products Division over the past three years. However, the company looks to the future with optimism. If next winter provides us with the same abundant snowfalls we have experienced this year, there is a strong possibility that the Recreational Products Division will once again show a profit. Development of new products is a crucial aspect in Bombardier's strategy.

"Despite everything, the snowmobile was able to build up a stable and faithful clientèle," states Gérard Parent, vice-president and director general of recreational products at Bombardier. "Even with the recent run of poor winters, snowmobiling enthusiasts remained active."

Mr. Parent admits that the current line of recreational products is not very well suited to the American market. In fact, our southern neighbours like fast and powerful engines. Canadians, however, prefer the more family-style machines. Yamaha and Arctic Cat vehicles appear better-suited to American tastes than those manufactured in Valcourt. For this reason, Bombardier has launched two new models this year, the SS25, which respond more to American preferences.

Although snowmobiling is primarily a sport, it does have a utilitarian role. The snowmobile is the major mode of transportation for inhabitants of isolated regions in Canada and the United States. Police forces and civilian relief services use it for search, rescue and emergency operations. Surveyors, ranchers, officials involved in maintaining public services, wildlife scientists, as well as many other specialists, rely heavily on the snowmobile. It is used in many cross-country ski resorts throughout North America to open and maintain well-groomed trails in winter. Safety patrols and officials in cross-country ski competitions also use the snowmobile for control and in emergencies.

Impatient to be off!

Canadian and American snowmobilers spend over $2.6 billion annually on their favourite sport. This sum includes the purchasing of equipment, clothing and accessories, as well as travel and accommodation costs. The snowmobile industry has created thousands of jobs for Canadians and makes a major contribution to the Canadian economy.

Snowmobile clubs take in thousands of dollars each year for charitable organizations. They also provide invaluable assistance to police and civil defence services by organizing specially-trained search and rescue teams which patrol holiday resorts; helping police control traffic during special events; supervising trails; helping search for lost hikers, skiers, hunters, children, etc.; and assisting wildlife conservation officers in supplying emergency food for deer threatened by starvation. They are also on call day and night for winter snowstorm emergencies.

In recent years, the noise level of snowmobiles has been reduced by 94 per cent, since the humming of those manufactured before 1969 proved to be difficult to bear over time. At full speed, their noise emissions used to rise as high as 102 decibels at 15 metres. It would now take 252 snowmobiles, operating at 78 decibels and full speed, to produce as much noise as a single machine manufactured before 1969.

Used normally and with consideration for others, a recent-model snowmobile emits noise that is not even heard inside a home.

A study of the U.S. Environmental Protection Agency has revealed that

Mme Janine Bombardier, president of Bombardier Foundation.

snowmobile pollution emissions are negligible and do not add to the problem at all, particularly since the machines are used so little in densely-populated areas.

In Canada, snowmobiles consume about three-quarters of one per cent of all the gasoline used in the country. Therefore, if you own a frost-free refrigerator, your appliance uses twice as much energy in one year as does a single snowmobile.

Does the snowmobile have harmful effects on wildlife? For a long time, the answer was believed to be in the affirmative. However, deer systematically stay and feed near snowmobile trails, even when they are used several times a day. Also, fresh deer tracks were found on trails soon after vehicles had passed. This indicates that snowmobiles do not drive deer from their environment. What appears to disturb deer is the sound of humans on foot, and not the noise of a snowmobile. According to a study conducted by Andres Soom of the University of Wisconsin, deer react more to the presence of cross-country skiers on a trail than to snowmobilers.

Snowmobilers are highly organized people who come together in clubs. The 253 clubs in Québec manage 26 149 kilometres of trails, maintained on a voluntary basis by members at a cost of $9 million in 1984. They must also purchase road machinery and equipment, but they receive grants from the provincial government. Last year and again this year, these grants totalled $486 000, a mere fraction of the trail maintenance expenses. A ski-dozer, which levels the trails, currently costs $75 000. Added to the cost of equipment repairs are other expenditures for the purchase of road signs.

Although the above figures are high, one cannot deny the importance of snowmobiling as a sport, for it leads to economic repercussions in tourism (accommodation, hotel business, restaurants) and in the industrial sector (Bombardier's spare parts market alone has an annual turnover of from $25 million to $30 million).

At the invitation of the president of the Canadian Council of Snowmobile Organizations, Michel Doyon, I participated in the Croisière papillon sur neige from January 28 to February 3 of this year. This was an approximately 2 000-km snowmobile ride through trails in Québec. The course went through Yamachiche, La Tuque, Roberval, Alma, Jonquière, Baie-Saint-Paul, Québec City and Yamachiche. This seven-day trip took me to La Mauricie, Saguenay-Lac-Saint-Jean and Charlevoix county. The some 100 participants came from every region in Québec and even from Ontario.

No, it's not an astronaut!

The Croisière papillon sur neige had three main objectives. First, the participants wished to collect money for the Société des enfants handicapés du Québec. In fact, Québec snowmobilers have been supporting this humanitarian work for five years. They have already greatly improved the lot of these children through their contributions and volunteer work. Second, the organizers, members of the Fédération des clubs de motoneigistes du Québec, wished symbolically to prepare for the 10th congress which will take place in Jonquière's Centre régional des congrès et d'exposition from September 6 to 8, 1984. This will be the first time since its creation that the Fédération des clubs de motoneigistes du Québec (FCMQ) will hold its annual meeting outside Québec City or Montréal. Finally, they wished to draw attention to the second International Snowmobile Festival in February in Valcourt, where Bombardier Inc. celebrated the 25th anniversary of the Ski-Doo. The economic repercussions of this congress are considerable, since the participants' daily expenditures are over $250 000.

Jean-Roch Potvin, collector and avid snowmobiler.

A network of trails extends throughout the province of Québec ensuring a variety of scenic routes for snowmobile excursions.

What is a "croisière sur neige?" First and foremost, it is a drive through a northern region of the country. The trip is organized without troubles or worries. Everything is designed to ensure that you enjoy yourself, eat well and meet interesting people who, like yourself, enjoy snowmobiling. There is generally a fixed price that includes accommodation, hearty meals, snowmobile maintenance (full gasoline tanks and mechanical check-ups) and the services of a qualified guide.

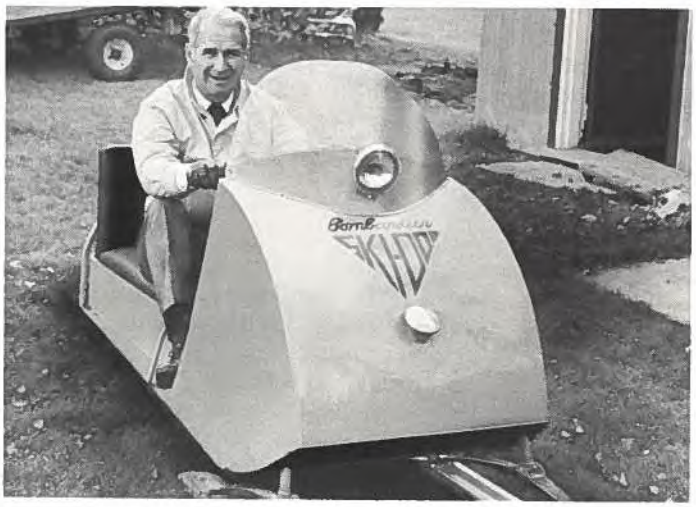
The number of participants varies according to the length and type of drive. For example, the Croisière papillon sur neige attracted some 100 snowmobilers who were well-prepared physically for the great distances. Their objective was to do a 2 000-km circuit within seven days. Thus, they had to travel between 200 and 300 km daily by snowmobile. Forewarned is forearmed — this is not a photographic safari! Here, the emphasis is on driving as a sport, and the trip is designed for a physically-fit clientèle.

There are, however, more relaxed and restful snowmobile drives. A one-week 1 000-km course appears to be more appropriate for the average snowmobiler. The nature lover will want to stop often to photograph scenery, observe birds and wildlife, make a campfire near the trail. In this case, it is better to travel in a smaller group — about 30. It will thus be easier to adopt a rhythm conducive to friendly exchanges and camaraderie.

Destinations vary greatly, since the network of trails extends throughout the province of Québec, and even beyond. Travelling by snowmobile is sure and pleasant. Today's sports clothing offers unfailing comfort and good protection against the cold. Their suspension provides greater flexibility and performance than that of several automobiles, and the engine power would thrill any performance amateur. Trails are marked very clearly and one can drive with the utmost feeling of safety.

The most striking feature in a recent-model snowmobile is the overall improvement in the machine — comfort of the seat; improved driving positions; easily-visible instrument panel; quiet, vibrationless engine; the body's aerodynamic lines; powerful quartz headlight; adjustable shock absorbers; increased traction; responsive handlebars; and virtually limitless possibilities for adding multiple accessories, from the simple luggage carrier to the stereo radio.

Prototype of a snowmobile built by Skiroule but never marketed.



Mr. Potvin displays one of his fine antique snowmobiles.

The Croisière papillon sur neige is a model of organization. The 100 participating snowmobilers had only to drive their machines and admire the enchanting scenery in some of the most beautiful regions in Québec. Before we set off, Lawrence Langevin, honorary chairman of the event and president of the FCMQ, kept telling us, "You are going to see unforgettably beautiful areas!" He was right. The majesty of our forests is unparalleled. Countless clear lakes and streams dotted the snowmobile route. In Saint-Félicien, we watched three moose slowly climb a snow-covered hill. What a sight!

Our luggage was carried by truck. A dedicated team, headed by Claude Pellerin, ensured that we were comfortable. When we arrived at the hotel in the evening, we left the snowmobiles in the parking lot for the team of mechanics, who filled the gasoline tanks at night and checked the engines' injection oil levels.

At the hotel, all we had to do was wash up and eat a hearty meal in cheerful company. Everyone talked "nine to the dozen" about the day. Around 9:30 p.m., we all fell happily into bed, for our wake-up call would come all too quickly — at 5:30 a.m. The phone rang in each room. We got up and in no time, everyone was in the dining room for a breakfast of eggs, sausage, toast, bacon and coffee. There we were, ready for another day. At 6:50, the snowmobilers started their engines. They needed only a few minutes to warm up. Paul Gélinas, the group leader and an avid snowmobiler, gave the go-ahead signal. It was seven o'clock. The convoy quickly left the town and once again found itself deep in the stillness of the woods.

A dedicated team ensured that all Croisière papillon sur neige participants enjoyed themselves with a minimum of worry.

I had the use of a Bombardier Blizzard MX — the Cadillac of snowmobiles, they say. Its suspension was certainly quite remarkable. The raised rear gave sustained comfort and the shock absorbers, which could be adjusted to the driver's weight, made for an incomparably smooth ride.

Courtesy, safety and civility, snowmobiler characteristics.

Snowmobilers love to have a good time but, aware of their responsibilities, they are disciplined and obey the laws. Official safety patrollers watched over us during the entire trip. With their special training, they have the authority of police officers on the trails. They may fine snowmobilers who violate traffic regulations, much the same as for highway code offences.

For safety reasons and also to film and photograph the snowmobilers, a helicopter flew over the convoy, carrying photographers interested in capturing on film the most picturesque areas of the route. Also, thanks to the helicopter, we could quickly find snowmobilers whose machines had broken down or who were lost. Fortunately, there were no major mishaps.

Most of the participants in the Croisière papillon sur neige drove alone on their snowmobiles. Solo driving allows more freedom of movement and

Snowmobiles have come a long way!

As can be seen, aerodynamics are not just of today.

Powerful motors being serviced.

It is hardly possible to talk about snowmobiling without mentioning the name of Jean-Roch Potvin of Desbiens, Lac-Saint-Jean. An enthusiastic snowmobiler, Mr. Potvin joined the Croisière papillon en route.

Talking with him during one of the stages, I discovered that he owns about 50 snowmobiles. Though an amateur collector, he owns some machines that are extremely rare today. As he pointed out, the technical development of the snowmobile has been almost incredible. In less than 20 years, this form of transportation has changed as much as the automobile did in 75.

Mr. Potvin's personal collection is the envy of many, including as it does models from a wide range of manufacturers such as Bombardier, Moto-Ski (Industrie Bouchard), Ski-Roule, Boa-Ski, Snow-Cruiser, Snow-Blazer, Snow-Scott, Autoboggan, Polaris, Snow-Prince, Huski, Diablo-Rouge, Moleba-Ski, Envinrude, Snow-Jet, Moto-Jet, Arctic Cat and Dauphin. For those interested, all these snowmobiles are in operating condition.

greater comfort. Only two or three of the 25 female participants sat behind their husbands. The reason for this is not complicated. These women either did not enjoy driving, or they simply could not yet afford to have their own machine. The women who already owned snowmobiles appeared to be very happy and told us that they would not trade places with anyone. "If you want to sit behind me, buddy, you're welcome, but *I'm* driving!" And they drove well. Despite the maneuverability of my Blizzard MX, it was not always easy to stay on top of the situation. My male pride was bruised on some of the turns.

The Croisière papillon sur neige was financed by three companies: Bombardier Inc., SONIC (Coopérative fédérée de Québec) and the O'Keefe brewery. They helped in various ways and their dedication reveals an unconditional support of the sport of snowmobiling. Most snowmobilers purchase Canadian products and help maintain thousands of jobs in the country. The felllowship that motivates them is similar to, but goes beyond, that found in other sports groups. It actually takes into account the repercussions of the sport of snowmobiling on the economy.

Around $100 000 was spent in the regions visited during the drive. The snowmobilers left Yamachiche with $70 000, and additional expenses during the trip (purchasing gifts, snacks, drinks and even a snowmobile) were expected to be about $30 000.

These economic repercussions are especially welcome in regions which have tourists only in summer. "During off-season, snowmobiling draws tourists into areas that do not have ski hills," stated Paul Gélinas, a dedicated FCMQ member and organizer of the 1984 Croisière papillon sur neige. Other less ambitious snowmobile drives took place during the winter and each contributed to the economic growth of a particular region. Since the sport of snowmobiling is a $250 million industry in Québec alone, it should unquestionably be encouraged.

— by Pierre Simard
Canada Commerce

Snowmobiling opens many areas to tourism.

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