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Satisfying year for Export Development Corporation

The Export Development Corporation (EDC) provided a record \$4.6-billion worth of services to Canadian exporters in 1982, its annual report states.

The corporation also maintained its unbroken record of profitability by recording net earnings of \$1.1 million for the year despite stiff competition and abnormally high interest rates.

The report was tabled in Parliament by Deputy Prime Minister and Secretary of State for External Affairs Allan MacEachen, and Minister of State for International Trade Gerald Regan.

In his annual report as chairman of the board and president of the Crown corporation, Sylvain Cloutier said that exports supported in 1982 by EDC's insurance, guarantee and financing services will generate an estimated 155 000 person-years of employment across Canada.

He said that EDC intends to increase both the quality and quantity of its operations in 1983 and that the potential volume of transactions that exporters are actively pursuing has begun to increase significantly after a disconcerting drop in mid-1982.

Mr. Cloutier said that EDC provided financing totalling \$2.5 billion in 1982, an increase of 48 per cent over the 1981 figure. Insurance and guarantees totalled \$2.1 billion, a decrease of \$.7 million, due to the effects of the recession on several major policyholders.

EDC provides buyers of Canadian capital goods with financing for up to 85 per cent of the contract price. Its export credits insurance protects Canadian exporters for up to 90 per cent of their losses when their foreign customers are unable or unwilling to pay their bills.



A \$24-million (US) financing agreement was signed recently by EDC and Lavalin International Inc. to support the sale of petroleum storage facilities to the Republic of Kenya by Lavalin. Participating in the signing ceremony were (left) Peter Kilburn, Vice-President, Project Financing for Lavalin; representing Kenya, Wilson Kitazi, Attaché (Administration); Robert Gathungu, Second Secretary; and Mwabili Kisaka, the Kenyan High Commissioner to Canada; Jean Arès, EDC's Senior Vice-President, Export Financing; and Minister of State for International Trade Gerald Regan.

Canada has new Conservative leader

Brian Mulroney has defeated Joe Clark to become the new leader of Canada's Progressive Conservative Party. Some 3 000 delegates cast their votes June 11. After the fourth and final vote, standings were: Brian Mulroney, 1 584; Joe Clark, 1 325.



External Affairs Affaires extérieures
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Mr. Cloutier said that five of the 110 financing agreements EDC signed during the year were for amounts of more than \$100 million and 44 were for amounts of less than \$1 million, indicating EDC activity at both ends of the export spectrum.

Turning to the corporation's financial picture, Mr. Cloutier said that the challenge facing EDC is to operate without cost to the taxpayer, yet meet the challenge from other nations that subsidize export financing and resort to predatory practices.

OECD consensus arrangement

He said that the greatest single influence on EDC rates is the Consensus Arrangement of the Organization for Economic Co-operation and Development (OECD). Under it, the major industrialized nations of the world set minimum rates for officially-supported export lending.

At the beginning of 1982, the Consensus Arrangement permitted officially-supported export loans at interest rates as low as 11.25 per cent to rich countries and 10 per cent to poor ones despite the fact that the cost of funding the loans was in excess of 15 per cent.

During the year, interest rates fell on the world's capital market and the Consensus Arrangement was revised upward as countries began to respond to the nearly crippling amount of export financing subsidy burdens they had accumulated.

As a result, at the end of the year, the cost of funds was roughly in balance with consensus minimums.

"Given the expectations of a year ago, the positive profit performance of the corporation in 1982 was a satisfying achievement," he said.

By seeking to optimize revenue whenever competitive circumstances permitted, the corporation has been maintained in a healthy financial condition. All earnings have been re-invested in the business.

Reschedulings of principal and interest totalled \$26 million in 1982, a decrease of \$3.5 million since 1981, and claims paid on insurance and guarantees totalled \$9.1 million, an increase of \$1.9 million over the 1981 figure.

Both reschedulings and claims continue to be manageable and favourable in comparison with the experience of similar agencies in other countries.

The major product groups supported by EDC financing services in 1982 were transportation equipment; engi-

neering and trade services; communications and electronics equipment; and aircraft; followed by power plant equipment; machinery; general manufacturing; non-residential buildings; petrochemical equipment; avionics; electrical equipment; and shipbuilding.

The commodity groups supported by insurance and guarantees, in order of value, were forestry products; minerals, metals and chemicals; transportation equipment; other manufactured products; services; machinery; textiles, related products and consumer goods; agricultural and animal products; and electronics equipment.

Recent agreements

EDC recently announced the signing of five financing agreements. They are:

- a \$24-million (US) financing agreement to support the sale of petroleum storage facilities to the Republic of Kenya by Lavalin International Inc. of Montreal; the \$39.5-million (US) sale involves the engineering, procurement, and construction of additional petroleum storage capacity at the existing marine terminal in Port Reitz near Mombasa;
- a \$4.05-million (US) financing agreement to support the sale of the design, manufacture, and commissioning of a Landsat processing system by MacDonald, Dettwiler & Associates Ltd. of Richmond, British Columbia, to the Ministry of Finance of Indonesia on behalf of the National Institute of Aeronautics and Space (LAPAN) of Indonesia;
- a \$154 440 (US) forfeiting of promissory notes to support the sale of 65 head of Holstein-Freisian breeding cattle by Luzza International Livestock Corporation of Mississauga, Ontario, to Alcides Gonzalo Aranda of Caracas, Venezuela. The notes are guaranteed by Banco de Comercio S.A. of Caracas. This is the first application of a recent decision to provide forfeiting financing for exports of breeding stock;
- a \$107 003 (US) allocation under a line of credit agreement with Magyar Nemzeti Bank of Hungary to support the sale of tobacco producing and drying machines, including spare parts, operating manuals, and assembly services, by DeCloet Ltd. of Tillsonburg, Ontario, to Agrotek of Hungary;
- a \$85 000 (US) allocation under a line of credit agreement with Magyar Nemzeti Bank of Hungary to aid the sale of geophysical instruments for surveying mineral deposits by Geoprobe Ltd. of Mississauga, Ontario, to Nikex of Hungary.

Soviet parliamentary delegation visits Canada

A Soviet parliamentary delegation, headed by Mikhail Gorbachev, Member of the Central Committee of the Communist Party of the Soviet Union, recently concluded a seven-day visit to Canada.



Canadian Prime Minister Pierre Elliott Trudeau flanked (left) by, Mikhail Gorbachev, Member of the Central Committee of the Communist Party of the Soviet Union, and Canadian Minister of State for External Relations Charles Lapointe.

In Ottawa for three days, Mr. Gorbachev met with Prime Minister Pierre Elliott Trudeau; Minister of State for External Relations Charles Lapointe; Minister of Agriculture Eugene Whelan; and Minister of State responsible for the Canadian Wheat Board Senator Hazen Argue.

Mr. Gorbachev also met with the members of the Senate and House of Commons Committees on External Affairs and National Defence, and members of the Agriculture Committees.

During discussions, Mr. Lapointe reaffirmed the Canadian interest in developing constructive and productive relations between Canada and the USSR. He noted that, in specific sectors, such as agriculture and trade, the two countries had already made substantial progress. Also discussed were opportunities for future co-operation in the exchange of information and experience in matters relating to the development of the Arctic.

Mr. Lapointe reiterated Canada's keen

interest in human rights, both within the context of the Conference on Security and Co-operation in Europe (CSCE) and in terms of facilitating the emigration of persons in the USSR desiring to join close relatives in Canada.

Optimistic, Mr. Lapointe said: "I attach great importance to meetings of this kind. For only if we talk can we ever hope to bridge the serious gap in understanding between East and West. The potential of our relationship, to which your visit is testimony, can only be truly realized in an improved international climate.

"Take the message home, that Canadians, like Soviet citizens, care about life, care about peace, care about *détente*;

convey the message that we are determined to see a new beginning in international co-operation, that no one has a monopoly on peace but that, together, we can make peace a reality," he concluded.

Agricultural interest

Deeply involved in agricultural affairs, among other responsibilities within the Soviet Politburo, Mr. Gorbachev and the Soviet delegation — accompanied by Agriculture Minister Whelan — toured a number of farming areas in Ontario and Alberta, observing various facets of Canada's agri-food industry.

These included farm facilities, food processing plants and farm machinery

manufacturing plants.

"A visit by such an important representative of the Soviet government," said Mr. Whelan, "is a special event for Canada at the agricultural, commercial and political levels. It provides an excellent opportunity for Canada to outline to the Soviets our views on several international, bilateral and multilateral issues."

Pleased with the cordial relations during the visit, Mr. Whelan noted that Canadian and Soviet agriculture have much in common, including geography and climate.

"We can both benefit from better mutual understanding and greater co-operation in this area," Mr. Whelan concluded.

Major breakthrough in toxic organic waste disposal

A major new breakthrough in toxic organic waste disposal with energy-producing potential has been perfected in Ontario and is attracting attention from the world.

The process, called Wetox, was refined over nine years by the Ontario Research Foundation (ORF) and is now being marketed under licence by WetCom Engineering Limited of Scarborough.

Basically, the system takes liquid organic wastes, oxidizes them and reduces them to the basic elements of water, carbon dioxide and acetic acids. After

carbon filtering, the remaining material is neutral enough to pass through a normal sewage treatment plant.

Bob McCorquodale, president of WetCom (the name stands for "wet combustion"), calls it "a system for oxidizing organic materials under water, applicable to anything that will burn".

To any company which generates liquid organic waste as a result of its production process, the financial and environmental advantages are obvious.

A mobile plant for the Wetox process was developed by ORF after study of a

prototype built by an American firm for the Skylab project. The Ontario government helped with funding, both for initial research and for the pilot project.

ORF refined the technology to the point where it was commercially viable. Mr. McCorquodale formed WetCom in co-operation with Toronto Copper-smithing International Limited and acquired world rights to Wetox.

First commercial application of the process is at Uniroyal Chemicals in Elmira which, with financial help from the federal government, is just finishing building a \$1.3-million Wetox plant to get rid of residues from production of chemicals.

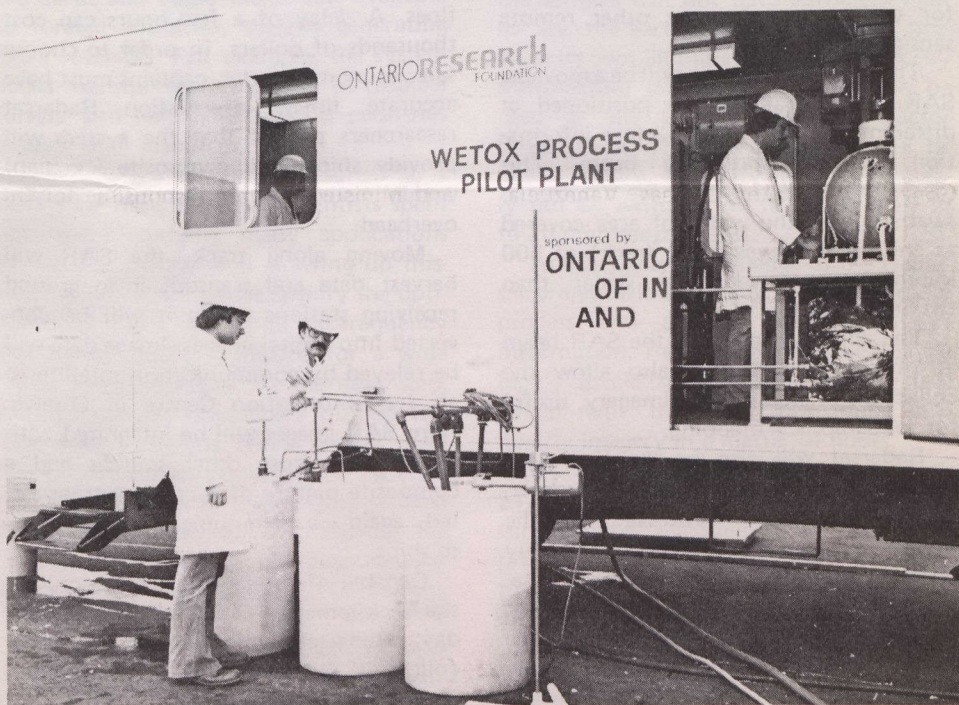
"One of the big benefits of Wetox is that we will be able to destroy, on-site, strong wastes previously shipped off-site," said project manager Louis Klink. He estimates that there will be a \$200 000 annual saving in transportation costs.

In the Wetox process, the liquid waste is pumped through a heat exchanger and then into a reactor where it is mixed with compressed air. The oxygen in the air reacts with the organic matter to produce mainly carbon dioxide and water. The heat produced helps keep the liquid material in the reactor at the required high temperature.

The entire process is co-ordinated by a microprocessor. The processor monitors and controls the process at all times, and can signal when there is a problem.

The company is currently handling requests for demonstrations of the process from the United States, the Netherlands and England.

(Article in Ontario Technology News, November 1982.)



Pilot plant: Ontario Research Foundation's 2 273 litre mobile unit demonstrates capabilities of the Wetox system, a breakthrough in the disposal of toxic organic waste.

Radarsat a sophisticated satellite aid

Shrouded in darkness half the year, choked with three metre thick ice floes, Canada's Northwest Passage is probably the most challenging shipping route in the world.

Yet, by the 1990s, it is possible this treacherous corridor will be traversed regularly, year-round, by tankers and supply ships *en route* to Arctic oil and gas fields. It is also likely that Arctic ship captains will be guided by one of the world's most sophisticated remote sensing satellites — Radarsat — now being developed through the Department of Energy, Mines and Resources Canada Centre for Remote Sensing.

The Radarsat project will cost an estimated \$300 million over five years. But the investment will be worth far more to its users; the oil and gas industry alone could save roughly \$100 million a year in shipping costs. It could repay its investors within its first year of operation.

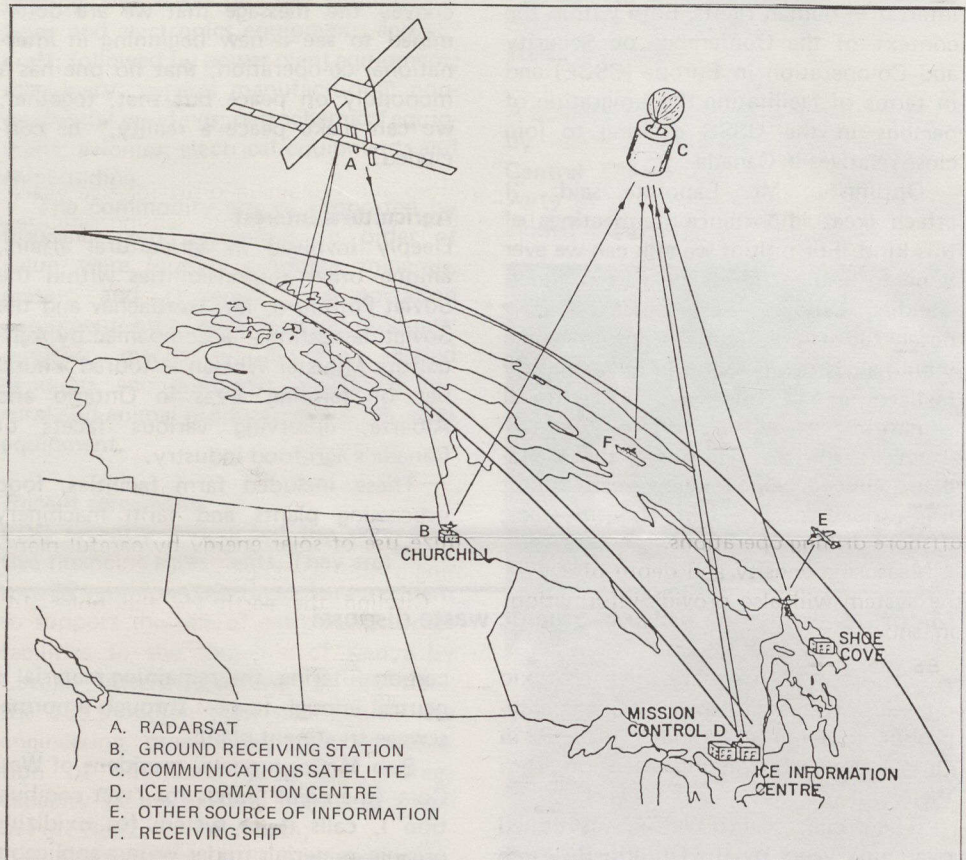
Scheduled for launching in 1990, Radarsat will carry a highly advanced radar technology, synthetic aperture radar (SAR) which can 'see' day and night in any kind of weather, and is especially effective in forecasting northern ice conditions.

SAR is a side-looking radar system transmitting microwave impulses obliquely at the earth's surface as it is carried along a path. The system then synthesizes images from the backscattered radiation. Relatively small, the SAR antenna functions as if it were extremely large by recording and combining, through computer, signals received at different positions along track.

The first satellite to carry SAR was the US Seasat, launched in 1978, which gathered vast amounts of information around the world through numerous experimental projects. The success of this mission convinced Canada, a major participant in the Seasat program, to develop its own SAR-bearing satellite. In 1980 the Radarsat project was initiated.

First envisaged as a means of exercising Canadian sovereignty over newly extended offshore limits, the scope of the Radarsat project soon broadened to include a host of possible sea and land applications such as ice forecasting, crop monitoring, oil spill detection and resource exploration.

Unlike Seasat, Radarsat will be suited specifically to Canadian needs and will



have a primarily commercial rather than scientific orientation. Its data will be marketed to specific users.

New technology

Radarsat will also feature a number of technical innovations making it superior for certain uses to any other remote sensing satellite developed.

The major innovation will be a movable SAR beam that can be positioned at different angles to gather more information than a stationary beam. This means that Radarsat can have a potential swath width (the width of area covered as the radar moves along track) of 500 kilometres — five times wider than the Seasat swath.

The ability to position the SAR beam at different angles will also allow the collection of stereo radar imagery, useful for topographical mapping.

Radarsat will also be the first SAR system to operate in C-band, a short, higher resolution microwave than the L-band used by Seasat. Though technically difficult to implement, C-band is versatile. It can, for example, distinguish different kinds of ice. It is sensitive to moisture in vegetation, and can therefore be useful in analyzing the health of crops.

To produce commercially useful data,

the Radarsat system will have to be capable of very rapid turnaround, in order to gather, analyze and transmit information to users quickly.

In Arctic shipping, for example, ice condition forecasts quickly become outdated with often unexpected shifts in ice floes. A delay of a few hours can cost thousands of dollars. In order to choose safe, economic routes, captains must have accurate, timely information. Radarsat researchers predict that the system will provide ships with composite ice maps within hours of the satellite's passing overhead.

Moving along track, the SAR will harvest data and transmit it to ground receiving stations where it will be converted into digital images. Image data will be relayed by communication satellite to an Ice Information Centre in Ottawa. Here SAR images will be integrated with information from other sources and a composite picture of conditions transmitted, again *via* communications satellites, to ships.

Capable of processing up to a million square kilometres of surface imagery per day, Radarsat will be well suited to collecting scientific data over Canada's vast, sparsely populated territory. Its usefulness will by no means be limited to Arctic shipping. Radarsat scientists

have been researching hundreds of applications for the new technology so the system will not rely on one kind of user.

Able to measure such things as soil and vegetation moisture and soil salination, the Radarsat system will be especially useful in agriculture. For example, the system will be able to monitor health in crops, predict the extent of harvests and aid in inventory control and marketing. The system will also be able to help in timber mapping, forest regrowth monitoring and forest fire surveillance.

Sensitive to water surface texture, Radarsat will be able to discover new freshwater sources, forecast floods, detect oil spills and monitor currents that affect offshore drilling operations.

Measuring density and depth of snow, the system will also provide information on snow distribution. This is important for reservoir management, crop irrigation and hydro power, and in flood forecasting.

The SAR sensors can accurately detect changing patterns of vegetation and different contours of the earth's surface, providing useful clues on subsurface features for geologists. For instance, gas field structures can be defined from associated surface fracture zones.

Uses for other countries

Though developed primarily for Canadian uses, Radarsat will cover every part of the earth and could make data available to foreign countries, thereby generating extra revenues. For example, the system could monitor the harvesting of tropical forests and help Third World countries manage their resources.

To design a system best suited to a variety of uses, Radarsat scientists spent two years studying many applications of the technology and drawing up mission requirements. These specify the optimal parameters — such as the frequency and swath width — needed for a wide range of applications. In the next step, just completed, researchers studied various design options which would meet the performance requirements. Next, a set of options will be selected and detailed design studies carried out. During the final phases of the project, design requirements will be implemented and technology developed.

In addition to SAR, Radarsat may carry one or more of the following sensors: a scatterometer, mapping winds over oceans; an optical imager, gathering data in both the visual and infrared spec-

trum; a scanning microwave radiometer, measuring emitted microwave radiation; and an altimeter, to determine the shape of land and ocean surfaces.

If all goes according to schedule, the new satellite will be launched in early 1990 and remain in orbit for five years. Further similar remote sensing satellites may follow, depending on user needs and the success of the program.

One of the main technical problems still to be overcome will be to achieve sufficient power for the power-hungry C-band radar. Solar arrays absorbing energy from the sun will be affixed to the satellite, but additional power will have to be provided through potent batteries.

Scientists will most likely try to optimize use of solar energy by careful planning of the orbital path.

Circling the earth *via* the poles 14 times a day, Radarsat will travel in a sun-synchronous orbit. This means the plane of the orbit does not move relative to the direction of the sun. Thus the satellite crosses the equator at the same local time with every pass. The satellite could be positioned in a dawn/disk orbit so that it would always ascend over one side of the earth at dawn and descend over the other side at dusk, thus placing the solar arrays in continuous light.

Remote sensing satellites using conventional sensors which rely on natural light to illuminate the earth cannot be placed in such a dawn/dusk orbit, because the sensors will not have sufficient light to 'see' the earth's surface. But radar provides its own illumination, so to speak, by transmitting impulses, and thus can be used at any time of day. The factor limiting use of Radarsat's SAR will be power supply, so the system will probably not be switched on for more than 15 to 20 minutes *per* orbit.

Another major challenge of the Radarsat project will be finding a way to rapidly process and analyze vast streams of information. Researchers are developing a highly specialized data processing system which will transform raw data into quality imagery in a matter of hours.

Of the estimated \$300 million cost, \$17 million has so far been provided through the Canadian government for preliminary development. Costs may eventually be shared by potential users such as oil and gas companies as well as foreign space agencies such as the US National Aeronautics and Space Administration and the European Space Agency.

(Article by Gabriella Golger in *GEOS*, 1983/1)

Toronto Stock Exchange moves

With the pageantry and fanfare of a circus parade, the Toronto Stock Exchange (TSE) moved May 10 from its art-deco building on Bay Street to a gleaming, futuristic concrete and glass tower a block away.

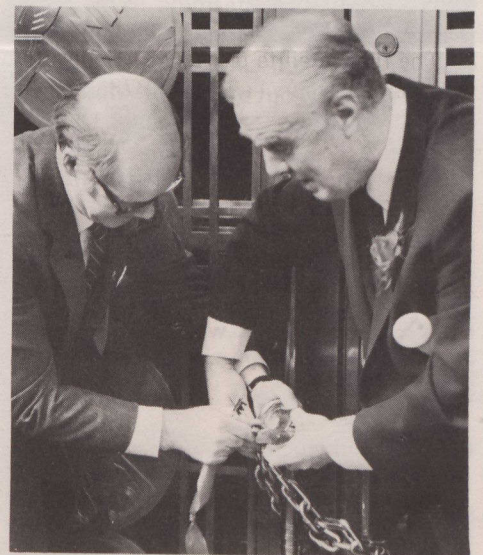
Surrounded by Bay Street's financial elite, reporters and curious passersby, exchange chairman Murray Howe and Secretary of State Paul Cosgrove officially locked the big steel doors that for 46 years had been the site of the exchange.

Then they led a "ceremonial walk", the 800 or so metres up Bay and King streets, to the exchange's new \$25-million home a block west at First Canadian Place.

At the inner portals of the new building, several hundred people watched as Ontario Premier William Davis cut a ceremonial ticker tape to officially open the exchange tower.

After a New Year's Eve-like countdown on the trading floor, Ontario Lieutenant Governor John Aird pressed a siren to officially signal the first trade at 10 a.m. The first transaction — the trade of 100 shares of Bell Canada common stock at \$28 — was carried out by Harry Abbey, 81, and Harold Dawson, 78, the two oldest traders on the floor. Both men began their careers in the mid-1920s before the great crash.

For Howe and exchange president Pearce Bunting, the ceremonies marked the end of three years of planning for expanded facilities. The old TSE had been considered state-of-the-art when it



Secretary of State Paul Cosgrove (left) and Exchange chairman Murray Howe officially lock steel doors of old Exchange.



Toronto Stock Exchange moves to hi-tech tower after 40 years on Bay Street.

opened in 1937, following the amalgamation in 1934 of the TSE and the Standard Stock and Mining Exchange.

But by the late 1970s with some 350 traders keeping track of more than 1 200

stock issues, the 789-square-metre exchange floor was over-crowded. In 1982, \$17.7 billion worth of stock was traded on 1.57 billion shares.

The new location triples the size of the

trading floor to 2 787 square metres. An additional 11 612 square metres is devoted to office space.

It will accommodate 1 700 employees and is, said Howe, the most technologically advanced exchange in the world.

Innovations at the TSE include the Computer Assisted Trading System (CATS) which handles about 800 less actively traded stocks, a personal paging system which vibrates in a trader's breastpocket alerting him to instructions from a broker, and a Traderphone which handles 90 lines on eight handsets. (The old TSE telephone system offered four lines and four handsets per booth.)

Instantaneous readouts from other stock and options markets are displayed on five large screens, or jets, providing constant updates on the TSE as well as exchanges in New York, Chicago and Montreal. The futures area is dominated by a 15 metre display system carrying the latest in TSE quotations relating to the futures market.

Built into the trading posts are dozens of touch-sensitive computer terminals — traders simply touch segments of the screen to receive the latest bid or to ask prices on stocks or options.

Banff springs being restored

One of Canada's national parks was born out of a chance discovery by a pair of Canadian Pacific Railway workers who went exploring in 1883 near a work camp, about 120 kilometres west of Calgary.

They found a steaming vent on a mountainside, lowered a ladder through the vent and discovered hot mineral springs bubbling out of Sulphur Mountain.

The work camp eventually became Banff, the springs became a tourist attraction in the Rockies and in 1885 the federal government set aside a small area around the springs as the first national park.

Now visitors can enter a cave and see the original pool, which still sends sulphur fumes up through the ceiling vent as it did a century ago.

Centenary planned

In 1985, the national parks system celebrates its centennial and the federal government is spending \$14 million to restore the original Banff springs and bath-houses.

A wooden bath-house was built in

1887, and in 1914 a grandiose swimming pool of stone arches and inlaid floors was opened. The wooden bath was demolished in the 1930s and the pool was closed completely in 1976.

The present hot springs that attract visitors are on a different site, three or four kilometres farther up the mountain-side.

Al Peters, project manager for Parks Canada, said the restoration is a painstaking process. "We're trying to preserve everything we can," he said.

The 1914 structure is in sad shape. When it was abandoned it was left to the elements, without any maintenance, while the public was consulted for ideas on what to do with the site.

"In the 1960s there was trouble meeting health regulations which had changed very drastically," Peters said. "We were unable to meet some of the modern swimming pool regulations."

But even in disrepair, the crumbling floors and weather-beaten walls have an aura of opulence.

"They were playing to a broad spectrum of visitors," Peters said, "although it was certainly built to the grandeur of the Banff Springs Hotel.

"Even in its debilitated condition, 350 000 visitors a year still go to see it." The pool once was a wonder of the country. "Back in 1914, when it was completed, outdoor swimming pools were almost unheard of," Peters said. "We feel certain that when it opened it was by far the first outdoor pool in western Canada."

The restoration plan calls for rebuilding the 1914 structure to its original condition. Even the quarry tile floor will be restored. "We found a manufacturer who can closely match the original floors," said Peters.

There will be a second-storey interpretive centre, detailing the background of the springs and the national parks. The old 1887 wooden structure also will be rebuilt and the plan calls for a new parking area and interpretive walks around the area.

"There will be a Victorian or Edwardian lounge in the old bath-house," Peters said. "I think the public will be very, very impressed."

The cave into the first spring will remain, allowing visitors to imagine the day the two railwaymen lowered their ladder through the ceiling vent to explore the warm mists of the pool.

News of the arts

Stratford Festival sets off to a bumper season



Elizabeth Leigh-Milne, Seana McKenna and Paddy Campanaro as the weird sisters in *Macbeth*.

This year's Stratford Festival reported a record \$1.37-million worth of advance orders some two months before opening in June. An unusually high level of interest from the local community and from United States audiences was credited for much of the increase over last year's advance sales, which were \$1.11 million at the same period.

The thirty-first season, which opened on June 5 with *Macbeth*, runs until October 22. Productions in the three auditoriums — Festival Theatre, the Avon Theatre and the Third Stage — are (in order of opening) Shakespeare's *Macbeth*; *As You Like It*; *Richard II*; Molière's *Tartuffe*; Gilbert and Sullivan's *The Gondoliers* and *The Mikado*; William Wycherley's *The Country Wife*; and Arthur Miller's classic *Death of a Salesman*. Shakespeare's *Love's Labour's Lost* and *Much Ado About Nothing* open in August and, the Virtuoso Performance series has Douglas Campbell in *Blake*; Lewis Gordon in *Damien*; Edward Atienza in *When That I Was*; and Irene Worth in three — *Letters of Love and Affection*; *Venus and Adonis*; and *Ulysses and Mrs. Dalloway*.

Appearing in concert are Ella Fitz-

gerald; George Shearing and Adam Makowicz; Ray Charles; Preservation Hall Jazz Band; Neil Sedaka; Mel Tormé, Rob McConnell and Boss Brass; Roberta Flack. The lecture series on Sunday mornings features W.O. Mitchell; Anne Lancashire; Don Harron; John Kenneth Galbraith; Richard Wilbur; Martin Esslin; Vivian Rakoff and Arthur Miller.

For program details and box office information write to The Stratford Festival Box Office, P.O. Box 520, Stratford, Ontario, Canada N5A 6V2 or phone 519-273-1600.



The Mikado — Eric Donkin as Ko-Ko.



Richard II — Pat Galloway as Duchess of York, John Jarvis as Aumerle and Douglas Campbell as Duke of York.

Photos Robert C. Ragsdale

Microlight plane-maker's sales soar

In skies throughout the world, a new type of aircraft has appeared over the past five years. Partly traditional airplane, partly glider, partly powered hang-glider (the design's progenitor), the planes are known as microlights or ultralights and have become a popular way to experience the joy of simple, inexpensive and unencumbered recreational flight.

One of the most popular designs, the *Lazair*, is manufactured in Port Colborne, Ontario by Ultraflight Manufacturing Ltd.

"We've been manufacturing and selling the *Lazair* for just over three years now," says Linda Kramer, general manager of Ultraflight's sales and marketing arm, "and the popularity of the design just keeps growing."

The entrepreneur behind the *Lazair* success story is Linda's husband Dale Kramer, a 24-year-old aerospace engineering student who left the University of Toronto in his third year to devote his efforts to perfecting the aircraft.

The microlight airplanes, which usually weigh under 102 kilograms, have evolved from the hang-gliders of the 1960s and early 1970s. By the mid-Seventies, various efforts had been made to add small chainsaw-type engines and propellers to hang-gliders to eliminate the need for cliff-side launching as well as to allow much longer flight endurance.

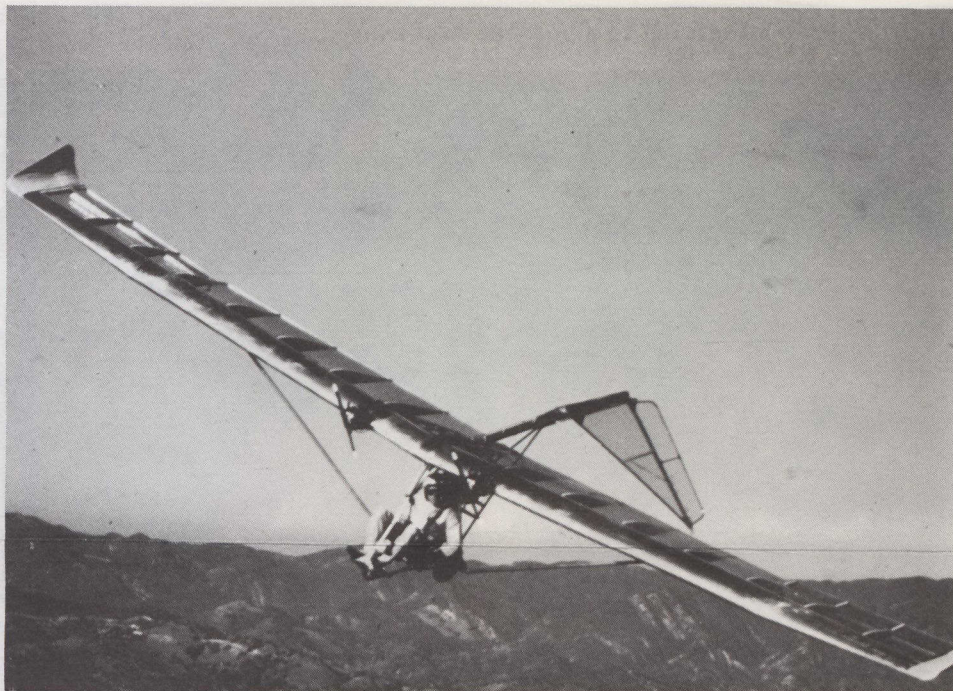
Dale Kramer, a glider and airplane pilot, saw some of these early models at the annual fly-in of the Experimental Aircraft Association (EAA) in Oshkosh, Wisconsin, US, in 1977 and concluded that he could come up with something better.

EAA award

The final result — presented to the marketplace at Oshkosh two years later — won an EAA award as best microlight and launched Ultraflight Manufacturing Ltd. The companion sales/marketing firm followed shortly after. The firm employs 21 people today.

The *Lazair* — the name is derived from lazy air — is sold as a kit, all 400 parts fitting into a 6 metre by 0.5 metre shipping crate. Assembly by the purchaser is estimated to take between 150 and 200 hours. The price is \$5 500.

It is a rather unusual-looking craft, having an open metal-tube structure with no enclosed cockpit and fabric or plastic-covered wings and tail. Powered by a pair of 9.5 horsepower two-stroke engines, the single-seat *Lazair* requires little more than



In terms of the number of units sold per year, Canada's most successful aircraft is the Ultraflight Lazair, a twin-engine machine in the new microlight sector of aerospace.

30 metres for the take-off run or landing roll and becomes airborne at just 29 kilometres an hour.

Top cruise speed is 88 kilometres an hour and flight endurance is about two hours. A special boon of the *Lazair* is its ability to function as a glider, with the engines shut down, once the pilot has climbed to an adequate altitude.

Although there were virtually no government regulations concerning microlight flying in Canada until recently, standards for a microlight pilot's licence have now been formulated. Red tape is still kept to a minimum, however, and the requirements are much simpler than for a conventional private pilot's licence.

One of the most gratifying aspects of the *Lazair's* success as a commercial venture has been the volume of business from outside Canada.

Sales abroad

"Of the 660 aircraft we've delivered so far (another 40 are currently on order), nearly half have been exported," says Mrs. Kramer. "There are about 280 *Lazairs* in the United States, 21 in Australia, six each in England and Sweden, two in the United Arab Emirates, and one apiece in New Zealand, Switzerland and the Netherlands."

Future plans for Ultraflight include marketing a two-seater instructional version of the *Lazair* (a prototype is already flying). This new model should be

available in the summer of 1983. Research is also being done on a more efficient propeller which would go on the dual version first and ultimately be incorporated into the basic model.

"Our distributor/sales rep network outside of Canada will continue to grow," Mrs. Kramer says. "The US can be developed much more, and we want to fill the gaps in Western Europe too. We've had dealer applications from Israel, and then there's all of Latin America..."

It seems safe to suggest that the success of this Ontario-designed microlight has only just begun to take off.

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