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1986 World Exposition - Vancouver, BC
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The creation of sophisticated high-technology equipment for use by both industry and home consumers is an important component of research in Canada. A few of the more recent innovative technological developments in the country are outlined in articles on pages 4-5.

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ASEAN trade boosted by new strategy

International Trade Minister James Kelleher, accompanied by 40 Canadian businessmen, visited four Association of Southeast Asian Nations (ASEAN), February 11-21, to expand Canadian trade and investment in the area. The successful trip to Singapore, Indonesia, Malaysia and Thailand was part of a two-week "around-the-world" mission in support of the government's global trade strategy. Mr. Kelleher also visited London (see *Canada Reports*, March 5, 1986) and Hong Kong.

The mission was Mr. Kelleher's third official visit to the Asia/Pacific region in the past 12 months. He visited Korea and Japan in February 1985 (see *Canada Weekly*, February 27, 1985), as well as Australia and New Zealand in November (see *Canada Reports*, December 18, 1985).

Successful dealings

Following his latest mission, Mr. Kelleher said, "I am extremely pleased at what we were able to accomplish on this trip".

The Asia Pacific region is now Canada's second most important trading block, noted Mr. Kelleher. "On this trip I have had the pleasure of announcing almost \$100 million worth of contracts awarded to Canadian firms now doing business in this vital area. As for the future, we have opened lines of credit for more than \$65 million to facilitate new exports to the region," he said.

Mr. Kelleher added "the amount of business we have done and the high level of acceptance we have met demonstrate the tremendous potential for Canadian business in

the ASEAN area and throughout the Pacific Rim. This is why, under our national trade strategy, we have been dedicating so much effort in terms of increased funding and human resources, to our Pacific Rim trade thrust".

Technology for Singapore

In Singapore, February 11-12, Mr. Kelleher, announced that Sarnia, Ontario's Polysar Limited, a world leader in high technology petrochemical products, will open a representative office in Singapore in the second half of 1986. "This new office will focus on business development, market research, sales promotion, and providing technical services to the Asia Pacific region," he said.

"From a Canadian perspective, Polysar is making an invaluable contribution not only to strengthening the Canadian presence in Singapore, but to expanding the awareness in the region of the Canadian achievements in petrochemical marketing and research, especially the high technology capabilities Canadian firms offer," he added.



Mr. Kelleher (left) is greeted by President Soeharto in Indonesia during his visit to four ASEAN countries in February.

External Information Services Division



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Canada's trade minister also announced that the Export Development Corporation (EDC) had re-established lines of credit totalling \$40 million with the subsidiaries of four Canadian banks in Singapore. The lines will assist Canadian exporters in the Asia/Pacific region by providing their buyers with accessible credit facilities.

A further announcement indicated that a number of Canadian firms might participate at a Gateway to China Conference, April 17-19, in Singapore. A Canadian solo event involving 20-25 Canadian firms is also under consideration for 1986.

Mr. Kelleher said that over the past few years the success of Singapore firms in penetrating certain sectors of the China market has attracted increasing international attention. Canadian firms have expressed a growing interest in associating with the investment and marketing activities of Singapore companies in China.

In discussions with Singapore Trade and Industry Minister Tony Tan, Mr. Kelleher stressed the importance Canada attaches to co-operation with Singapore in the next round of Multilateral Trade Negotiations (MTN). He said that on the basis of his discussions, he expected Singapore to play a constructive role in the negotiations.

Contracts in Indonesia

In Jakarta, Indonesia, February 12-14, Mr. Kelleher announced contracts valued at more than \$80 million. They included:

- the sale of \$30-million worth of potash to Indonesia by Canpotex and Potocan;
- financing support of \$13.6 million for Sydney Steel Corporation (SYSCO) of Sydney, Nova Scotia for the Bukit Asam Coal Rail Transportation project;
- a \$10-million order for the supply of PT6T-3B twinned turboshaft engines from Pratt and Whitney Canada for the Bell 412 helicopter which is being assembled by (PT Nurtaio) the Indonesian aircraft manufacturer;
- an allocation of \$36.5 million for the supply of telecommunications equipment and services for the Bukit Asam Coal Rail Transportation project in South Sumatra by International Aeradio (North America) Limited of Richmond Hill, Ontario; and
- financing support of \$548 214 (US) for the sale of telecommunications training equipment by Lab Volt Limited of Montreal.

Mr. Kelleher also announced that the EDC and Indonesia had agreed to extend the expiry dates from October 15, 1985, to June 30, 1987, of a \$122.7-million (US) multiple disbursement agreement loan to support the supply of Canadian goods and services for the Bukit Asam Coal Rail Transportation project. The Canadian International

Development Agency (CIDA) loan of \$45 million (Cdn) was also extended.

A Memorandum of Understanding was signed to provide co-operation in earth and field sciences between the Geological Survey of Canada and the Directorate of Mineral Resources of Indonesia. "The agreement will promote a greater awareness in Indonesia of Canadian expertise in the mineral survey sector and of the interest of Canadian seismic and geophysical firms including consultants in this highly technical and specialized area," Mr. Kelleher said.

At a luncheon prior to the first joint meeting of the Canada-Indonesia Business Council and the Indonesia-Canada Business Council, Mr. Kelleher said both councils would "be a powerful force in expanding business between the two countries". He added that the Canadian government was giving \$10 000 to the Canada-Indonesia Business Council "to increase the awareness of the Canadian business community of the business environment in Indonesia".

In meetings with President Soeharto and other ministers, priority sectors targeted by Canadian exporters such as power, telecommunications, oil and gas, and forestry were discussed.

Mr. Kelleher also discussed the forthcoming MTN and encouraged Indonesia to work with Canada in areas where the two countries have common interests, such as trade liberalization in agriculture and resources products, tighter disciplines on contingency protection measures and strengthened dispute settlement procedures.

Priority areas in Malaysia

During his two-day visit to Malaysia, February 15-18, Mr. Kelleher met with Prime Minister Mahathir bin Mohamad and other leading ministers. He emphasized that Canadian industry was prepared to work with the Malaysian private sector in priority areas identified in the Malaysian Five Year Plan. These sectors coincide with areas of Canadian strength such as telecommunications, power, and oil and gas.

A number of contracts and projects were announced for the sale of products and services in Malaysia. They included:

- a \$10-million (US) supplier credit protocol between the EDC and Malayan Banking Berhad of Malaysia to support the sale of Canadian capital goods and services;
- two contracts for \$600 000 with CEGIR Inc. of Montreal for consulting services with the Small-Scale Entrepreneurial Development Project;
- funding amounting to \$300 000 for Walsh Inc. of Montreal to carry out a feasibility study on the construction of an experimental

palm oil mill for the Palm Oil Research Institute of Malaysia; and

- the opening of a Bell Canada International office in Kuala Lumpur as the site for its regional headquarters in Southeast Asia.

The Canada-Malaysia Conference is scheduled to take place in Ottawa, October 7-9, to promote mutual awareness between the two countries. The program will include discussions on economic relations, industrial strategy and social issues.

Funding for Thailand

Contracts and lines of credit worth more than \$25 million announced at the conclusion of the three-day visit to Thailand, February 18-21, included:

- a \$6.86-million contract to Envirocon International Limited of Vancouver to provide technical assistance in the development of a fisheries program in northeast Thailand;
- a \$1.543-million contract to DIGIM Inc. of Montreal to provide technical services to the National Research Council of Thailand in its Landsat project;
- a \$381 600 contract with Acres International of Niagara Falls for a feasibility study for the Sirikit Power Station;
- a \$475 000 contract to Magee Robertson International to undertake an agro-industrial joint venture identification project; and
- a \$485 000 contract to Shawinigan Integ of Vancouver to study possibilities for a pumped storage hydro project at Nam Chern.

Some \$17 million in loans, also announced, will be used to assist Thai private sector firms and government-controlled corporations to purchasing Canadian goods and services over the next three years.

Mr. Kelleher presented \$525 000 to the Asian Institute of Technology for their human settlements program. Under this \$3.8-million (Cdn) project, CIDA is providing scholarships for some 120 Asian students, as well as faculty support, research, and short-term training support to programs.

In addition, Mr. Kelleher announced that the Asia Pacific Foundation of Canada, in conjunction with the Industrial Finance Corporation of Thailand and the Board of Investment, will convene an investment seminar in Thailand in the fall of 1986.

He also said that under the Asia Pacific component of the national trade strategy, market studies in agro-food processing, telecommunications, and defence products are being made in Thailand for Canadian companies.

In discussions with Prime Minister Prem and other ministers, Mr. Kelleher emphasized that "the next round of MTN is the best means open to trading nations to turn back the protectionist tide, lower trade barriers, and strengthen the multilateral trading system".

Canada-ASEAN trade

From 1975 to 1985, two-way trade between Canada and the ASEAN countries more than quadrupled in value from \$350 million (Cdn) to \$1 397 million (Cdn). Canada's exports rose from \$206 million in 1975 to \$741 million in 1985; while imports from the ASEAN reached \$656 million in 1985 compared with \$146 million in 1975.

Canadian exports are centred on resource products, capital goods, and materials for industrial processing/manufacturing requirements. They include metals, minerals, forestry and agricultural products as well as mining machinery, aircraft and aircraft engines, power generation and telecommunications equipment.

ASEAN's priority development sectors coincide with areas of Canadian industrial capability: energy development (oil and gas, coal and power generation and distribution); telecommunications, both urban

Products	Indonesia		Malaysia		Philippines		Singapore		Thailand	
	(\$'000s)	per cent	(\$'000s)	per cent	(\$'000s)	per cent	(\$'000s)	per cent	(\$'000s)	per cent
Live animals	137	—	55	—	560	1	1	—	—	—
Food products	70 602	28	13 289	6	3 361	8	5 383	5	5 943	5
Crude material, inedible	50 806	20	9 510	5	12 573	27	8 995	8	37 392	29
Fabricated material, inedible	96 243	37	47 204	23	21 649	48	47 851	45	38 045	30
End products	34 443	13	124 961	61	6 532	14	42 104	40	19 714	16
Special transactions	5 376	2	9 331	5	1 117	2	2 054	2	25 889	20
Total	257 607		204 350		45 792		106 388		126 983	

and rural; resource development (forestry, mining); transportation; agro-industry; education and training.

Recent Canadian contracts for capital equipment and technology in the ASEAN countries are: a \$100-million contract for Babcock & Wilcox to supply power boilers for the Suralaya project to the Power Authority

in Indonesia; a \$38-million contract for Combustion Engineering to supply a power boiler for the thermal plant at Mae Moh in Thailand; a \$143-million contract for Stadler Hurter to build a pulp and paper mill in Sabah, Malaysia; and a contract worth more than \$20 million for CAE Limited to supply aircraft simulators to Singapore Airlines.

Canadian exports and imports with ASEAN

	1983			1984			1985		
	Exports	Imports	Balance	Exports	Imports	Balance	Exports	Imports	Balance
Indonesia	209 890	40 043	+ 169 847	290 487	71 923	+ 218 564	257 607	81 837	175 770
Malaysia	114 003	115 581	- 1 578	187 727	167 965	+ 19 762	204 350	146 067	58 283
Philippines	76 828	88 290	- 11 462	56 781	117 321	- 60 540	45 792	109 080	- 63 288
Singapore	126 735	168 444	- 41 709	143 010	214 273	- 71 263	106 388	210 491	- 104 103
Thailand	146 486	60 554	+ 85 932	116 848	103 384	+ 13 464	126 983	108 681	18 302
Total	673 942	472 912	+ 201 030	794 853	674 866	+ 119 987	741 120	656 156	84 964

Commonwealth Caribbean trade development plan

Caribbean, a new economic and trade development assistance program for the Commonwealth Caribbean, has been announced by Secretary of State for External Affairs Joe Clark.

The program, which will be implemented by mid 1986, will extend preferential, one-way duty-free trade, with some exceptions, to imports from the Commonwealth Caribbean.

In the announcement, Mr. Clark said that Canada's foreign policy has traditionally recognized a 'special relationship' between Canada and the Commonwealth Caribbean as a result of commercial ties that pre-date Canadian Confederation in 1867 and of our common heritage as



Joe Clark

members of the Commonwealth. "In recognition of this special relationship, Canada will institute Caribbean to provide trade and development assistance to the countries of the Commonwealth Caribbean to help them in meeting their economic development goals," he added.

Duty-free access to the Canadian market will be provided for 99.8 per cent of current Commonwealth Caribbean imports. Imports from Anguilla, Antigua and Barbuda, Bahamas, Bermuda, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St. Christopher-Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, and the Turks and Caicos Islands are eligible.

In addition, duty-free access will cover a wide range of goods which may not currently be exported from, or manufactured in, the Commonwealth Caribbean.

Textiles, clothing, footwear, luggage, handbags, leather garments, lubricating oils and methanol will be subject to established rates of duty.

In addition to the provisions for duty-free access, arrangements will be made to resolve the problems faced by Caribbean rum producers on labelling and bottling in Canada, as well as improved access to the Canadian market.

A program to strengthen the exporting capabilities of the region will be established under Caribbean with particular emphasis on the Canadian market. This program includes training seminars for Caribbean officials, a pilot project to provide an inventory of Commonwealth Caribbean manufacturing and export capacity and a system to aid Caribbean trade commissioners with their sales efforts in Canada.

Caribbean will provide further training assistance by making at least 50 new scholarships available for the region.

Technological innovation

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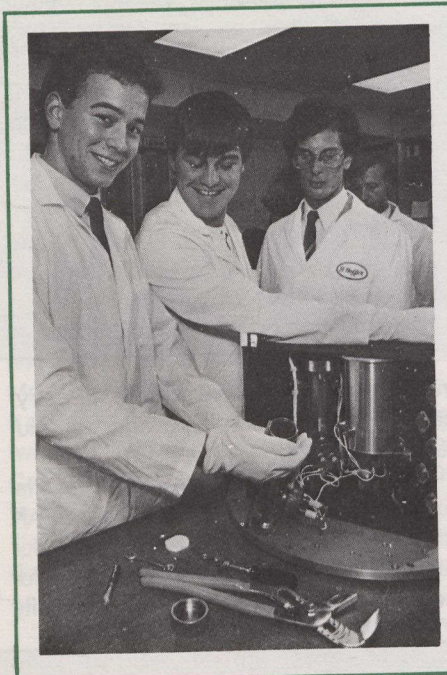
Quality mirrors made in space

An experiment designed by two Canadian students, Daniel Rey and Jean-François Deschênes, has successfully produced shiny silver mirrors in space, beyond the disruptive influences of gravity. The mirrors were manufactured in six metal canisters aboard the space shuttle *Atlantis* which was sent into orbit on November 26.

The students designed the experiment with Telesat Canada engineers. It was part of their proposal which won Telesat Canada's Get Away Special Contest for high school students in 1983, to test whether mirrors made in the near-zero gravity of space have smoother reflective surfaces than earth-made mirrors.

Using the equipment from the space shuttle, the experiment has been re-activated to create a set of earth-made mirrors as a basis for quality comparison. Both sets of mirrors will be tested at different laboratories to determine if the made-in-space mirrors are smoother and more reflective than the control set.

The quality of mirrors is important to scientists who depend on fine precision instruments such as microscopes and lasers.



Daniel Rey (left) and Jean-François Deschênes (centre) examine the mirrors that were produced in space according to an experiment they designed.

Bruno Schlumberger, The Citizen

High-tech train on track

Canada's first microprocessor-controlled locomotive, the *SD60F* has been presented to Canadian National Railways by General Motors (GM) of Canada Ltd., Oshawa, Ontario.

Irwin Schinkel, a GM spokesman said the company is confident the technologically-sophisticated transportation vehicle will prove successful in the railway industry.

The \$2-million locomotive uses three Motorola 6803 microprocessors to control, monitor, and even correct its operation.

The "logic" microprocessor controls the locomotive's direction, motor switching, engine speed and other functions previously governed by relays and wire harnesses.

A second computer sets power and brake operating ranges, based on throttle and brake information received from the logic system. It also increases rail traction 33 per cent over the traction of GM's previous locomotive, the *SD40-2*.

The third microprocessor controls a menu-driven diagnostic system that monitors operation and analyzes failures. Throttle position, speed, and other conditions are recorded the moment a fault occurs, making it easier for repair workers to find the component and cause.

In some cases, the computer can correct faults. For example, engine power automatically is reduced if the locomotive's cooling water overheats.

The microprocessor also records mileage, kilowatt-hours, and other operational data that allow maintenance schedules to be based on actual work done.

Three *SD60Fs* are able to replace four *SD40-2s* pulling loads of equal size.

Low-cost insulated glass

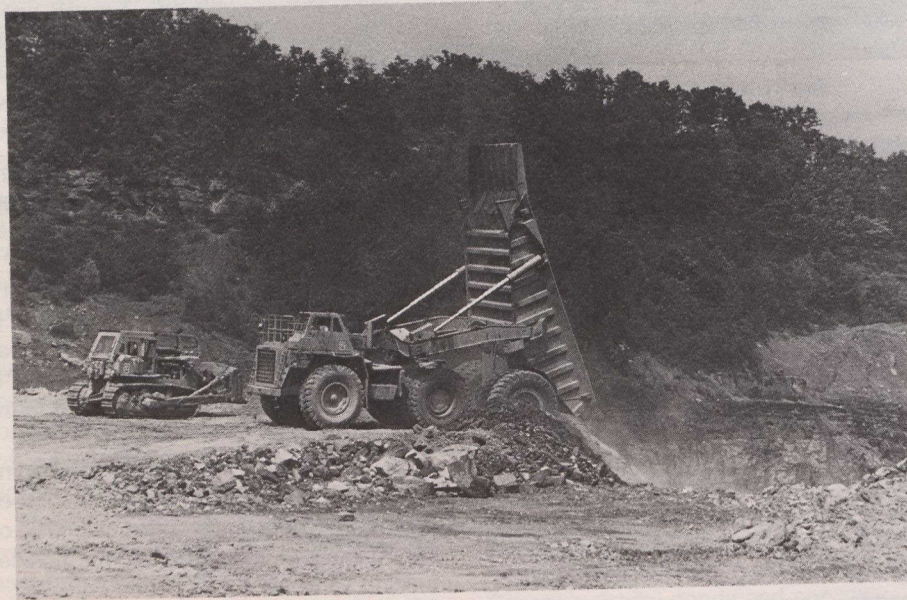
Tempa Industries Limited of North Vancouver, British Columbia, has begun to develop a low-cost insulating glass technology that was conceived at Simon Fraser University in Burnaby, B.C.

Gary Bruendl, Tempa's president, said the company hopes to begin manufacturing insulated double windows by next August.

The technology involves heating glass in a horizontal furnace and coating it with a transparent film of tin oxide. The film allows visible light to enter but stops radiative heat from escaping.

Within three years, Tempa hopes to introduce defrosting windows that will take advantage of the film's ability to conduct electricity.

Dumping demands met by new design



An advanced model RD-150 articulated rear dump hauling unit which can be attached to off-highway tractors or trucks that can be converted to tractors, has been introduced by Atlas 2000 Inc. of Montreal, Quebec. The new design includes improvements in hydraulic cylinder design and a hydraulic circuit to increase the dump cycle time. There is also greater manoeuvrability as the draft arm assembly of the unit was designed as three components rather than a full weld design. The two arms are fitted to double pins for alignment, then bolted to the rugged centre beam.

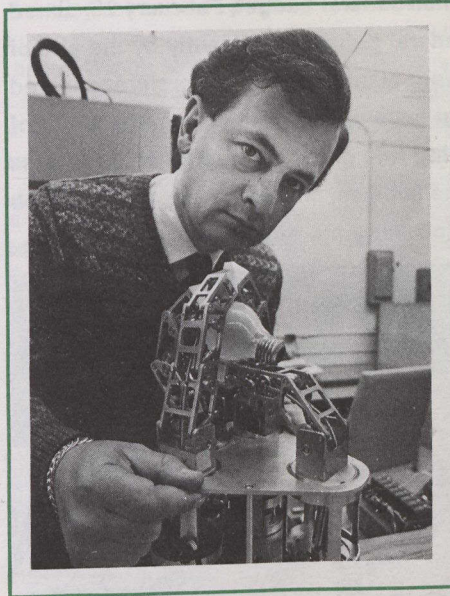
Small robotic hand a boon for industry

A five-member mechanical engineering team at the University of Toronto, led by Andrew Goldenberg and Jacek Wiercienski, has developed a four-fingered prototype of an electro-mechanical hand for small industrial robots that could expand the flexibility of manufacturing systems.

In addition to having a great deal more dexterity than conventional pincers on current industrial robots, the device and associated mechanisms weigh only about 2.3 kilograms, well within the capability of small industrial robots. "The goal of our research is directed entirely to industrial applications, and so the greatest challenge has been to design a hand within a 2.3 kilogram limit," said Dr. Goldenberg.

The prototype has clutches under the base of the hand. Each finger joint has one clutch for each axis of motion.

A single electrical motor drives four fingers, each about 20 centimetres long. One



Dr. Goldenberg demonstrates prototype hand for small industrial robots.

finger is fixed and acts like a thumb while the other three are multi-jointed and can each rotate 360 degrees forwards or backwards.

A command to move a joint results in the motor sending energy to the appropriate actuator and clutch by a unique, flexible transmission system: it lengthens or shortens, much like a tendon. The joints are locked when the clutch is de-energized.

The researchers are currently working to have each finger driven independently by its own motor. Also, in conjunction with computer scientists, they are attempting to develop more specialized control sensors and to link them with an artificial vision system.

"There is an entire discipline developing in electrical engineering to solve problems in the area of real-time control. What this hand must have for flexible manufacturing systems is a computerized control system sophisticated enough to correctly find a desired part or tool, then to position the hand and, finally, to apply the correct amount of force to manipulate and move the object," said Dr. Goldenberg.

Jeff Wasserman, The Globe and Mail

Powerful chips for computers of the future

Scientists at Bell Northern Research (BNR) Ltd's new \$35-million laboratory in Ottawa are using an advanced process called molecular beam epitaxy (MBE) to produce quality experimental gallium arsenide chips for very high-speed integrated circuits.

These integrated circuits are more powerful than conventional chips made from silicon. Electrical signals can travel through the chips much more rapidly, making gallium arsenide chips desirable for future computer products and communication systems.

The new process to make gallium arsenide chips "gives BNR a virtually defect-free surface on the wafer, and produces materials with excellent electrical and optical properties for our experiments", said BNR scientist Anthony SpringThorpe.

BNR is producing the chips for high speed data processing systems and for fibre optic communication systems. The company's experimental systems can transmit more than two billion pieces of information a second along a single fibre.

Layering wafers

Chips are made from thin wafers of silicon or gallium arsenide, built up with layers of materials that conduct current through microscopically small circuits. The performance of the circuit depends on creating layers that are uniform and atomically smooth.

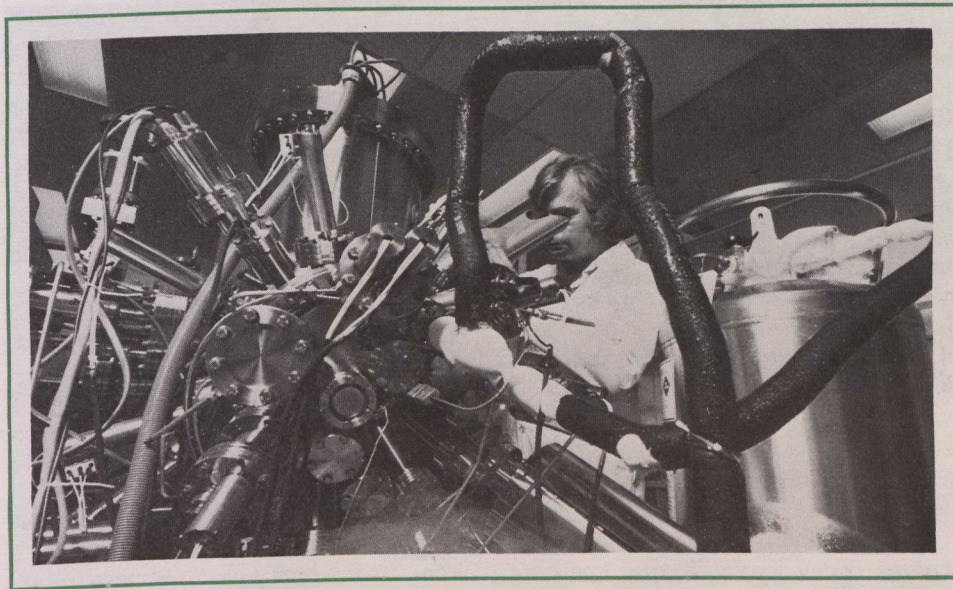
To produce gallium arsenide circuits, an

unprocessed gallium arsenide wafer, called a substrate, is placed inside the MBE's sealed chamber. Atomic beams of the elements gallium, aluminum, arsenic, silicon, or beryllium that are generated in separate small furnaces are then uniformly deposited on the gallium arsenide wafer in layers. Each smooth microscopic layer may be as thin as 150 billionths of a centimeter.

The depositing process is controlled by manipulating mechanical shutters in front

of openings in the furnaces. The smoothness can be monitored using the MBE's internal electron microscope.

To prevent contaminants, such as water and oxygen, from interfering with the growth of the surface layer, the MBE system must be maintained at very low pressures, which are about ten trillion times less than normal atmospheric pressure. This is partially achieved by pumping liquid nitrogen from a tank through cooling coils in the MBE's chamber. As the gas exits through the system, it causes water vapour to condense.



Dr. Anthony SpringThorpe monitors the smoothness of the surface being layered onto a gallium arsenide wafer using the advanced molecular beam epitaxy system.

Deficit-reducing budget to secure economic renewal

Finance Minister Michael Wilson presented a new federal budget, February 26, aimed at controlling public debt and reducing the federal deficit significantly by the end of the decade. Reduction in government spending, elimination of tax preferences and raising finances to pay the full cost of present government programs and a share of the interest burden were the means of achieving this goal. The budget also contains a number of new programs to assist low-income families, farmers, trade, research, job creation, small business and other sectors. Following are highlights:

Today I will announce further measures to implement the economic renewal plan set out in November of 1984, measures that will restore fiscal stability by the end of the decade.

The deficit next year will be \$29.5 billion, a reduction of 14 per cent from this year. Financial requirements next year will fall to \$22.6 billion, a decline of 22 per cent from this year's level. By the end of the decade financial requirements will fall to \$11 billion.

Increases in taxation contribute to this result. But fully 70 per cent of the debt reduction will be achieved by spending cuts.

As a result of expenditure reductions, total program spending will be held to \$86.6 billion — lower than last year's spending.

Expenditure restraint

To achieve the goal of fiscal stability, the government is adopting measures to restrain government expenditures even further.

The government will continue its efforts to privatize those Crown corporations which no longer have a public policy purpose.

In government management there will be a \$500-million special reduction in non-statutory spending for the 1986-87 fiscal year, equivalent to 2 per cent of the cost of all non-statutory government programs, with the exception of foreign aid and defence. After 1986-87, operating costs in all departments will not be permitted to rise by more than 2 per cent per year. These initiatives will result in savings of \$850 million in 1986-87, rising to \$2.8 billion in 1990-91.

The government has requested Canada Post to prepare a new operating plan that will reduce its operating deficit to zero by the end of fiscal 1987-88.

The government has also re-examined its funding commitment for foreign aid in light of the tight constraints being imposed on domestic programs. Growth in Canada's aid program is accordingly being reduced by \$1.5 billion over the next five years. Over this period, foreign aid will now grow, on average, by 8.7 per cent per year.

The government is also reducing the rate of growth of defence spending by 1 per cent in each of the next two fiscal years. This will result in savings of \$285 million.



Mr. Wilson is applauded by the government during the budget presentation.

By the end of the decade, government spending on programs will fall to the same share of the economy as at the beginning of the 1960s.

Tax restructuring

The budget implements the first phase of the restructuring of the corporate income tax, based on the proposals in the May 1985 budget.

- The 3 per cent inventory allowance will be eliminated effective February 26, 1986.
- The general investment tax credit will be phased out starting next year.
- The 20 per cent investment tax credit will remain to encourage investment in Atlantic Canada and the Gaspé Peninsula.
- The Cape Breton investment tax credit will remain at 60 per cent and will be improved.
- The special investment tax credit for manufacturing investments in designated areas will be extended past its termination date at the end of this year at a reduced rate of 40 per cent.
- Corporate tax rates will be reduced over a three-year period beginning July 1, 1987 from 36 per cent to 33 per cent of taxable income.
- The tax rate for manufacturing companies

will fall from 30 to 26 per cent by 1989.

- The federal tax rate for small business will fall from 15 per cent to 13 per cent.

The budget also proposes a number of changes to corporate and personal income taxes to tighten the system and prevent erosion of the tax base. These include: the introduction of new "at-risk" rules for limited partnerships; new provisions governing salary deferral arrangements; limits on the deferral of tax through deductions for unpaid remuneration; changes to the married exemption allowed in the year of marriage; and the introduction of reporting requirements for treasury bill income.

The budget announces the following tax increases: a 3 per cent surtax on federal personal income taxes commencing July 1, 1986; a 3 per cent surtax on all corporations effective January 1, 1987; an increase of 1 percentage point in federal sales tax, effective April 1, 1986; and an increase in excise taxes and duties on alcohol and tobacco of 4 per cent and 6 per cent respectively, effective midnight, February 26, 1986.

The net effect of all tax measures will be to raise \$1.5 billion in 1986-87 and \$2.4 billion the following year.

Programs for those in need

To provide more timely assistance to low-income families and to reduce the need for tax discounting, a prepayment of \$300 per child will be paid in November 1986 to families whose income in 1985 was \$15 000 or less; a refundable sales tax credit of \$50 per adult and \$25 per child will be provided for families and individuals with incomes below \$15 000; and the disability deduction will be increased by \$250 for disabled Canadians. The government is committing up to \$100 million a year for the next three years to target training programs to social assistance recipients and help them find employment.

To preserve a viable farm sector, the government is adopting a new Farm Financial Assistance Policy that includes: increased resources to the Farm Credit Corporation to establish commodity-based mortgages; the establishment of Farm Debt Review Panels; and the creation of a Rural Transition Program to assist farmers who must seek alternative employment. The Minister of Agriculture will also be announcing measures to assist tobacco farmers to diversify crop production.

Investing in the future

The government is pursuing more open bilateral and multilateral trading arrangements. The deficit reduction plan and the proposed corporate and sales tax reforms forecast in this budget will support Canada's trade initiatives.

The government is prepared to facilitate

Canapress

the establishment of international banking centres in Montreal and Vancouver. This would be consistent with our desire to broaden our trade and business interests in Europe and the Pacific Rim.

To support investment in university-based research and development and to establish a new partnership between the private and public sectors in R&D, the government proposes:

- to provide a secure funding base for the Natural Sciences and Engineering Research Council, the Medical Research Council and the Social Sciences and Humanities Research Council by adding \$300 million to this base over the balance of the decade;
- further, by matching private sector contributions to the councils, dollar for dollar to a maximum annual increase of 6 per cent.

To help young people obtain a first job and to assist women re-entering the labour market, the budget allocates \$800 million to the Canadian Jobs Strategy in 1987-88. The budget also announces federal funding of up to \$125 million over a four-year period to finance a new Program for Older Worker Adjustment.

Several measures in the budget reinforce the government's support for small business.

- The tax rate on small business income will be reduced from 15 per cent to 13 per cent, beginning July 1, 1987. The tax rate on small business manufacturing income will be reduced from 10 per cent to 8 per cent.
- The 12.5 per cent dividends distributions tax will be repealed effective January 1, 1987.
- The tax rules providing deductions for allowable business investment losses will be broadened.
- The ceiling of the Small Business Loans Act will be increased to \$2.5 billion.

To enhance the rate of private sector job creation in the Atlantic and Gaspé regions the government is launching a major new initiative, the Atlantic Enterprise Program.

To promote northern development and encourage the economic self-reliance of native peoples, the budget announces: a new, permanent system of tax benefits for housing and travel for residents of the North and isolated posts; a \$50 ceiling on the air transportation tax; amendments to the Indian Act to allow bands to levy municipal-type taxes on Indian lands; the extension of the Indian Remission Order; and the allocation of up to \$40 million in 1986-87 to extend the Indian Community Human Resource Strategies program for a second year.

To encourage the work of the voluntary sector the government will continue to examine a number of measures to encourage charitable donations.

Morrice exhibition crossing Canada

A major retrospective of the work of the internationally acclaimed Canadian artist, James Wilson Morrice, who is known principally for his landscapes and urban scenes, is touring major art galleries across Canada until the end of 1986.

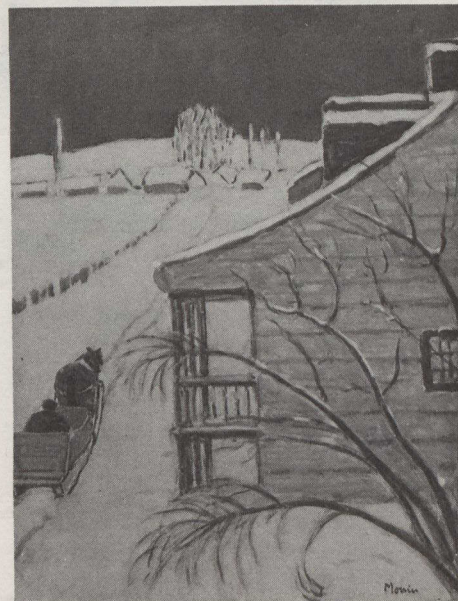
The exhibition, *Morrice: A Painter with a View*, was organized by the Montreal Museum of Fine Arts where it opened on December 2. It is currently in Quebec City from where it will travel to Fredericton's Beaverbrook Art Gallery, Toronto's Art Gallery of Ontario and the Vancouver Art Gallery. The tour is sponsored by the National Museums of Canada.

James Morrice was born in Montreal and spent most of his adult life in Paris, though he also travelled extensively throughout Europe, North Africa and the Caribbean. During his lifetime, 1865-1924, he participated in many exhibitions held in the major cities of Europe and North America.

He won a number of awards for his paintings including a silver medal at the Pan-American exhibition in Buffalo, New York, in 1901 for *Beneath the Ramparts, Saint-Malo*.

The 109 works in the exhibition include 12 water-colours, three sketch books, 20 "pochades" (oil sketches on wood) and 74 oils on canvas. They are from some 30 collections, including those of the Montreal Museum of Fine Arts, the National Gallery of Canada, the Musée du Québec, the Vancouver Art Gallery, the Musée d'Orsay, the Union centrale des arts décoratifs de Paris, the Tate Gallery in London, England and private collections across Canada.

James Morrice's works are a reflection

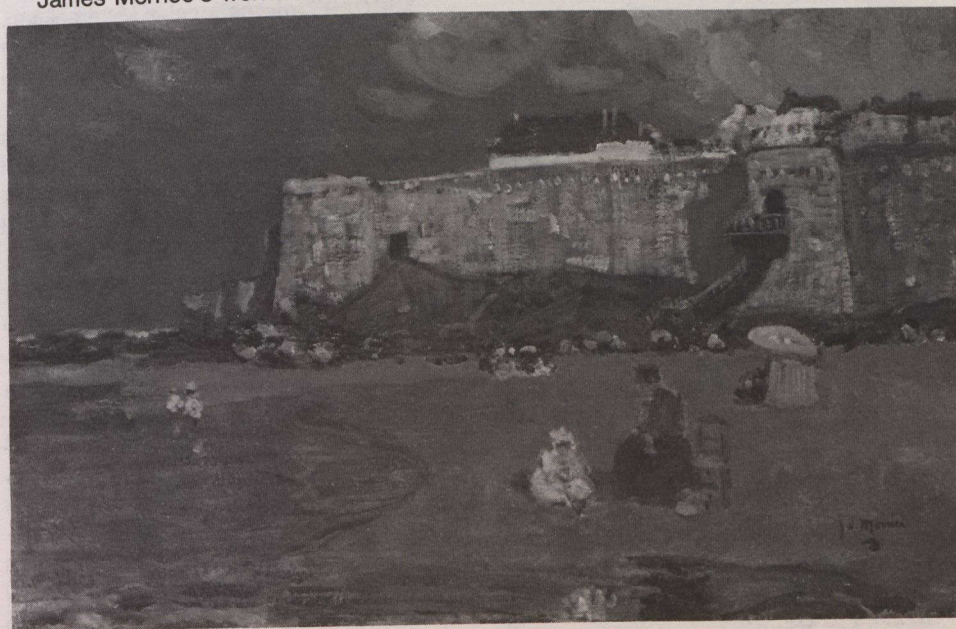


Quebec Farmhouse, oil on canvas, circa 1921.

of his extensive travels. He painted landscapes in Toronto and throughout his native Quebec as well as Paris streets, circuses and European beach scenes.

While his works vary in subject and style, most portray a hazy, almost dreamy world of splendid colours.

His most distinctive achievement in painting is generally considered to be his brilliance as a colourist. Much of his work reveals a fascination with colour and shape. Typical are his skies and clouds of faded pink and yellow, faint oranges, pale greens, violet and light blue. Even the few portraits he painted show expressionless subjects or facial features that cannot be distinguished at all.



Beneath the Ramparts, Saint-Malo, oil on canvas, 1898-1899, won a silver medal in 1901.

Trade update

Export Markets: The Trading House Connection, a practical guide to trading house services and operations, has been issued to inform Canadian companies about trading houses and their role in exporting. The guide also contains information on how to select and work with trading houses to increase exports, particularly to off-shore markets.

The Manitoba government has negotiated three new hydro-electric power export arrangements with a number of US companies. The largest is with six US utilities known as the Upper Mississippi Power Group. They will buy 550 megawatts of firm power annually over 16 years, beginning in 1996. The other agreements are a 200 megawatt-a-year, four-year sale to Northern States Power Co. and a 300-megawatt exchange agreement with the Mississippi group.

CAE Industries Ltd. has signed an \$8-million (US) contract to develop and build an energy management system for Public Service Electric & Gas Co. of Newark, New Jersey. CAE said the system will collect and analyze data and provide controls to maximize cost-effective management of the utility's electric power generation and transmission operations.

Champion Road Machinery Limited of Goderich, Ontario has been awarded a contract from the Canadian Commercial Corporation for the supply of motor graders to the US army in Columbus, Ohio. Initial funding of the three year contract is for \$1.8 million (US) and calls for the delivery of 96 graders.

The **Urban Transportation Development Corp.** of Toronto has given a licence to Mitsubishi Heavy Industries Ltd. of Japan to use its technology and to manufacture and market components of its advanced light rapid transit system. The two companies and Sumitomo Heavy Industries Ltd. of Japan will form a consortium to bid on several Japanese transit projects now under consideration.

Simon-Day Limited of Winnipeg, Manitoba has won a \$1-million contract to build two seed-cleaning plants in Heilongjiang province in China. The project is expected to take up to six months to complete.

Quebec City joins World Heritage list



The Historic District of Quebec City, which comprises an area of 135 hectares, including the upper town, the fortified walls, the private residences within the walls, the lower town, the military works and the civil, clerical and harbour sections, has been designated a World Heritage site by the United Nations Educational, Scientific and Cultural Organization (UNESCO). It is the ninth area in Canada to be recognized as a site of outstanding universal value by UNESCO. Shown above is one of the gates into the partially walled Old Town.

News briefs

Secretary of State for External Affairs Joe Clark has announced that Canada has joined with its North Atlantic Treaty Organization allies and Japan in relaxing export controls on certain strategic goods to the People's Republic of China. Following consultations with the Chinese authorities, Canada now approves exports of more than 20 categories of strategic goods.

TECCART International, a Montreal firm, has signed a \$12.6-million contract, to set up a major public education program in the African nation of Gabon. The total project, called "Media-Villages" in Gabon, includes an education program based on topics such as hygiene, rainwater recuperation, and rural co-operation as well as the education and training of Gabonese instructors.

Canadian skiers won two gold, two silver and two bronze medals in the first world freestyle championships held in Tignes, France in February. On the men's team, Alain Larocche of Lac Beauport, Quebec won the gold for combined moguls, ballet and aerials, while Lloyd Langlois of Magog, Quebec won the gold in aerials and Alain's brother Yves, took a silver. In women's overall competition, Anna Fraser of Ottawa won a silver, and bronze medals were won by Meredith Gardner of Oakville in aerials and Lucie Barma of Lac Beauport for ballet.

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