

# Canada Reports

Ottawa  
Canada

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## EXPO '86 gears up

The Expo Centre was open to the public this summer and it provided a unique preview for EXPO '86, which will be held in Vancouver, British Columbia, May 2 to October 13, 1986. It was the first time such a preview has been held in world exposition history and the enthusiastic response has generated a great deal of excitement for Canada's second world exposition. (See story page 4.)

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Canada

## New trade agreement sought with US

The Canadian government has asked the United States to discuss the possibilities of a new bilateral agreement on trade. Exploratory discussions for a "mutually beneficial" agreement are expected to begin early in 1986.

In an announcement to the House of Commons on September 26, Prime Minister Brian Mulroney said that he had spoken to US President Ronald Reagan "to express Canada's interests in pursuing a new trade agreement" and he asked the president "to explore with Congress their interest in pursuing these negotiations". Mr. Mulroney further stated that Canada wants to negotiate "the broadest possible package of mutually beneficial reductions in tariff and non-tariff barriers between our two countries".

### US support

A White House spokesman said Mr. Reagan "warmly welcomed" Canada's offer and he indicated he would ask the US International Trade Commission to study the economic impact of freer trade on US industries. US Special Trade Representative Clayton Yeutter added his support in a written statement and promised to begin weighing US reaction by talking to congressional leaders and the private sector.

Mr. Mulroney and Mr. Reagan plan to meet in the spring of 1986 to review progress as well as the prospects for a new agreement.

In his statement, Mr. Mulroney pointed out that trade has been critical to Canada's livelihood throughout its his-

tory. Exports account for almost 30 per cent of Canada's national income and more than 75 per cent of the country's exports are to the United States. The percentage of imports from the United States is almost the same.

### Improvement of trade

Mr. Mulroney said that there is a general consensus "that we must seek to secure and improve our trade with the United States". He added that "economics, geography, common sense and the national interest dictate that we try to secure and expand our trade with our closest and largest trading partner".

The prime minister also pointed out that Canada has consistently pursued a policy of trade liberalization internationally. He said that "in all forums where Canada is present, we are working to remove impediments to trade, aid, investment and development on a global basis".

Mr. Mulroney noted as well that Canada is playing a leading role in promoting and



Prime Minister Brian Mulroney (left) has approached President Ronald Reagan to initiate talks for a new trade agreement that would reduce tariff and non-tariff barriers between Canada and the United States.

Peter Bregg, PMO

preparing for a new round of multilateral trade negotiations in the General Agreement on Tariffs and Trade.

### Canada-US study

The announcement in the House of Commons followed a six-month study by International Trade Minister James Kelleher and Clayton Yeutter, in which they examined ways to reduce trade barriers between the two countries.

Mr. Kelleher's report, which was delivered to the prime minister on September 17, concludes that the time has come to explore with the United States "the scope and prospects for a new trade agreement".

In a separate statement, Mr. Kelleher said the government's decision to seek trade negotiations does not mean it is committed to concluding a trade agreement. "Ultimately, the judgment will have to be made whether the outcome of negotiations represents a deal that serves the interest of all Canadians and stimulates growth in all regions," he said.

### Important objectives

The statement maintains that Canada's negotiating objectives are to install a trade and investment climate that would provide:

- security of access to the US market, particularly by reducing the risks inherent in the US system of restrictive trade measures and the constitutional powers of the Congress to pass protectionist legislation affecting Canada;

- expanded access to the US market in order to provide Canadian industry with a market large enough to realize economies

## Major 1984 Canadian exports and imports with US

|  | Exports to US        |                      | Imports from US      |                      |
|--|----------------------|----------------------|----------------------|----------------------|
|  | Value<br>(\$000 000) | per cent<br>of total | Value<br>(\$000 000) | per cent<br>of total |
| Automotive products                      | 28 748               | 97.8                 | 22 939               | 86.7                 |
| Forest products                          | 11 239               | 74.2                 |                      |                      |
| Petroleum & natural gas                  | 8 261                | 99.8                 |                      |                      |
| Fabricated metal products                | 7 607                | 80.5                 |                      |                      |
| Chemicals & chemical products            | 3 481                | 65.7                 | 4 071                | 78.1                 |
| Computers                                |                      |                      | 3 752                | 91.4                 |
| Agriculture & food                       | 3 444                | 31.8                 | 3 178                | 53.8                 |
| Telecommunications &<br>office equipment | 2 687                | 72.1                 |                      |                      |
| Industrial machinery                     | 2 118                | 74.5                 | 2 878                | 71.9                 |
| All other items                          | 15 182               | 53.3                 |                      |                      |
| <b>Totals</b>                            | <b>82 796</b>        | <b>75.6</b>          | <b>68 450</b>        | <b>71.5</b>          |

of scale and specialization, and to carve out niches for specialty products;

- a stable North American trading system which would encourage a transition in Canada towards an economy more competitive at home and in world markets, and provide increased incentive for investment from all sources; and
- an ordered and more predictable system for managing the trade relationship and resolving disputes.

### Provincial consultations

Both Mr. Mulroney and Mr. Kelleher indicated that consultations in Canada will be held on an ongoing basis with all the provincial premiers as the talks progress.

The prime minister said the issue would be raised with the premiers at the first

ministers' conference on the economy to be held in Halifax in November and, if possible, he would arrange a debate on trade in the House of Commons. He added that Mr. Kelleher is creating a new consultative arrangement with business, labour and other groups.

### 1984 trade partners

|                              | Exports      | Imports |
|------------------------------|--------------|---------|
|                              | (percentage) |         |
| United States                | 75.6         | 71.5    |
| Europe                       | 9.5          | 10.8    |
| Asia (except<br>Middle East) | 8.8          | 10.8    |
| Rest of the world            | 6.1          | 6.9     |

## Tanzanian leader visits

Prime Minister Brian Mulroney and International Trade Minister James Kelleher met with one of Africa's most influential statesmen, President Julius Nyerere of Tanzania, during his two-day official visit to Canada late in September.

At the conclusion of the visit the prime minister said that he had begun "an excellent dialogue" with President Nyerere on how Canada can "be more helpful, in tandem with the Commonwealth countries", in forcing South Africa to abandon its *apartheid* laws. He noted the steps Canada had taken recently to protest *apartheid*, including a voluntary ban on new bank loans and oil sales to South Africa and the appointment of an administrator to monitor compliance with the government's voluntary code of conduct for companies doing business in South Africa. Mr. Mulroney also announced that he



Prime Minister Brian Mulroney discussed bilateral issues with Tanzanian President Julius Nyerere during his visit to Canada.

had appointed a personal emissary to Africa, Bernard Wood, director of the North-South Institute, to confer with the heads of four Commonwealth governments. They will discuss measures that could be taken to force an end to *apartheid* in South Africa and to force that country to recognize the independence of Namibia.

### Trade and development

Bilateral issues including trade and development assistance were also discussed during the visit. Canada has been a major contributor of development aid to Tanzania, giving about \$318 million since 1961.

Trade between the two countries is relatively small. Last year Canada exported \$17.1 million worth of goods, primarily measuring and laboratory equipment, communications equipment and medical and pharmaceutical products. Imports from Tanzania were worth \$4.2 million.

## Specialized electronic components at Paris show

In a marketplace dominated by large international firms, Canadian electronic component manufacturers have developed highly selected and specialized product lines for all types of electronics applications, including computers, telecommunications equipment, aerospace and defence products.

Nine of Canada's leading components manufacturers will be representing the industry and displaying their innovative products and services in the Canadian exhibit at the SALON DES COMPOSANTS ÉLECTRONIQUES 85, to be held at the Parcs des Expositions, Paris-Nord, Villepinte, from November 4 to 8. The exhibit is being sponsored by the Department of External Affairs.

### Many products

A wide range of electronic components will be presented in Canada's display, including multilayer printed circuit board technology in which Canadian firms were pioneers in the field. Precision quartz crystals used for high frequency signal generation will also be presented, along with a number of electronic metering devices.

In addition, there will be a variety of power regulation devices, including potentiometers for electronic controls, vitreous enameled wire-wound resistors with power dissipations of up to 500 watts, switch mode power supplies, and DC/DC converters. A selection of photoelectronic devices for light detection or control will also be shown, along with high resolution, easy-to-use computerized message display signs.

The Canadian companies that will be at the trade fair, ÉLECTRONIQUES 85, are:

- Croven Crystals Limited of Whitby, Ontario – custom designed quartz crystals;
- Electronic Hardware Specialties Limited of Toronto, Ontario – vitreous enameled wire-wound resistors;
- Fishercast Division of Fisher Gauge Limited of Peterborough, Ontario – zinc die castings design and production;
- Harris-Bass Electronics Limited of Toronto – metering products;
- Helix Circuits Inc. of Montreal, Quebec – design and manufacture of multilayer printed circuit boards;
- Mini-Peripherals Inc. of Ottawa, Ontario – high resolution computerized message display signs;
- Precision Electronic Components Limited of Toronto – custom or off-the-shelf potentiometers;
- Silonex Inc. of Montreal – photocells and photodiodes; and
- Tectrol Inc. of Downsview, Ontario – switch mode power supplies and DC/DC converters.

### Economy booster

The Canadian components industry, combined with the electronics industry it supplies, is an important contributor to the Canadian economy both in terms of employment and dollar value. Employment in electronics has increased steadily over the past number of years, and is currently over 75 000.

The total value of goods produced has also risen consistently and the increase in exports has been dramatic. Between 1980 and 1983, exports of electronic components increased by more than 50 per

cent. The total value of goods produced was over \$5.6 billion in 1983, with exports of \$3.5 billion.

Canada's largest market is the United States, followed by Britain and France. About 60 per cent of Canadian electronic products and 80 per cent of electronic components were exported to the US in 1983.

### Components of success

The Canadian electronic components industry has developed a major world presence in three sectors of the electronics industry: telecommunications, defence and aerospace.

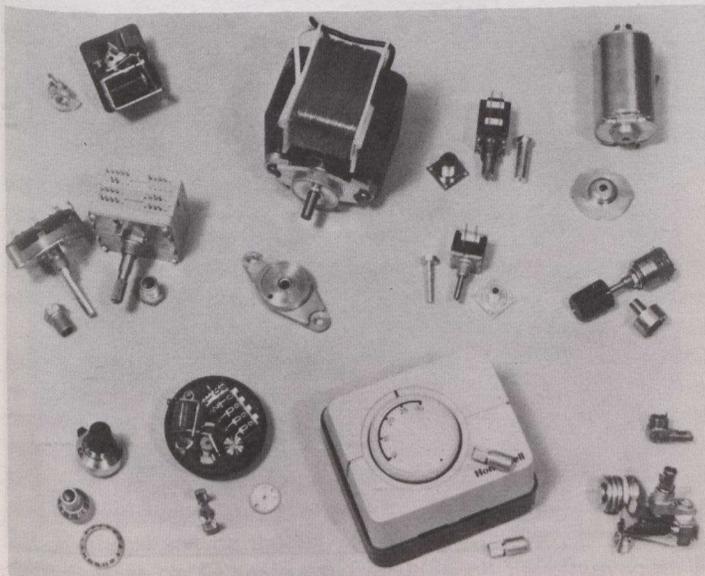
In the telecommunications sector, Canada provides most of its domestic requirements in a market that was worth more than \$2 billion in 1983. Telecommunications also shows a large trade surplus, with exports reaching \$1.25 billion that same year.

In both the defence and aerospace industries, Canada has designed and manufactured a variety of products, including high frequency crystals, circuit boards, electronic controls, and power regulation equipment.

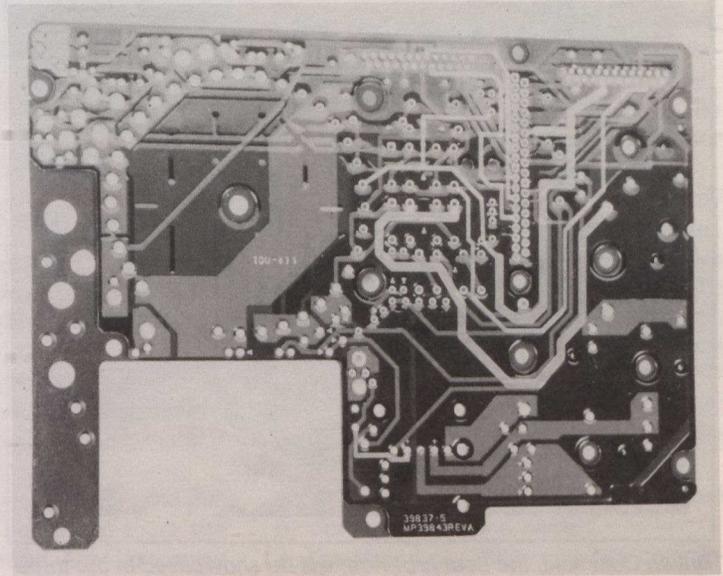
### International involvement

During October, Canada's export trade month, electronic components manufacturers have been participating in a number of international trade fairs. They include:

- October 4-10 – Electronics '85 in Copenhagen, Denmark
- October 17-22 – Japan Electronics Show in Osaka, Japan
- October 20 - November 2 – Electric Indonesia Show in Jakarta, Indonesia



Zinc castings from Fishercast are made using a unique single cavity casting technique that eliminates trimming.



Helix Circuits Inc. designs and manufactures multilayer printed circuit boards that can have as many as 36 layers.

## EXPO '86 preview points to exciting prospects



The Beefeater Band joined thousands of performers in the colourful opening ceremony of the Expo Centre, Vancouver, British Columbia, on May 2, 1985.

During its preview opening, May 2 to October 14, 1985, the Expo Centre complex has proved to be a major attraction in Vancouver, and one that has created an enthusiastic awareness of the 1986 World Exposition, EXPO '86, to be held in the city from May 2 to October 13, 1986. With far more than 500 000 visitors to the centre, the attendance was almost double the original estimate of 300 000.

The Expo Centre, a 17-storey geodesic

dome, houses the world's largest OMNIMAX Theatre, as well as Canada's first interactive film, exhibits, restaurants and daily live entertainment (see *Canada Weekly*, April 17, 1985). Visitors this summer took guided tours of the giant site model and could view a dazzling 18-projector show hourly. The Expo Centre will reopen in May as one of three theme pavilions.

Adjacent to the centre, in the Folklife complex, a two-week preview of the Folklife

Festival was held in August. From native dancing or Newfoundland fiddling to contemporary song writing, the festival will feature an all-Canadian line-up of talent which will be continuous during EXPO '86.

An estimated 15 million visits are expected to be made to the Expo site during EXPO '86. Sixty per cent are expected to be Canadians, 30 per cent from the US and the remainder from the major international markets of the Pacific Rim and Western Europe.

Season, and Royal Bank of Canada three-day passes, have been on sale in Canada since May 2, 1985 while single tickets went on sale on October 14. Three-day passes have also been available in Washington state from Seafirst Bank since September 3 and season passes are available from The Bon department stores in Washington, Oregon and Idaho.

Included in the admission price is entrance to the more than 80 pavilions, all displays, including the *Ramses II* and *His Times* exhibit, special demonstrations, most on-site entertainment and special events such as the Tall Ships, SteamExpo, the DC-3 Airmada and the Vintage Car International. Unlimited use of the monorail, cable skyways and intra-site ferries as well as transportation between the False Creek site and the Canadian pavilion on Burrard Inlet are also included.

### Growing participation

As the opening date for EXPO '86 draws closer, the list of participants continues to grow and exceed initial predictions. From Britain to Hungary, the first and most recent



British Columbia, the host province, will be showcased in the three-building complex that is dominated by a 30-metre galleria and cylindrical shaped theatre.

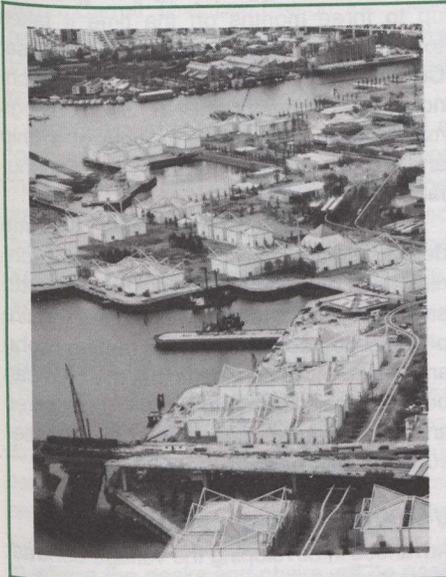


A major restaurant (foreground) will be one of 70 food facilities at the exposition site and the 4 500-seat Expo Theatre will feature pop, jazz, folk and rock stars.

committed nations, there are now more than 40 international participants, far exceeding the initial estimate of 20.

Three major countries, the US, the USSR and China, will be participating together for the first time at a world exposition in North America.

A record number of corporate exhibitors will also be there, with 26 already committed. This exceeds the number of combined corporate exhibitors, sponsors and suppliers at the Los Angeles' Olympics last summer.



Clusters of international pavilions near completion on the False Creek site.

EXPO '86 is also attracting many conferences and conventions. Vancouver Island is organizing the conference of Islands of the World and the Sunshine Coast community of Sechelt is developing an International Mariculture Showcase to study state-of-the-art technology for cultivating and harvesting the ocean's wealth. And in Vancouver there are now more than 80 major events booked.

### Host province gears up

Communities across British Columbia have become very active in preparations for EXPO '86. Many have initiated sister city visits, family and school reunions, as well as cultural and business exchanges. Special tourism events include the possibility of naming a mountain or winning an island.

Premier Bill Bennett has launched one of the world's largest marketing and public relations program, "BC invites the world", in which each BC resident has been asked to add the names and addresses of out-of-province family members, friends, clubs and business associates to an Expo guest list. Every person on the list will receive a personalized invitation to visit EXPO '86 from the premier.

Under a new SuperHost program, British

## Committed participants

**International** — Britain, Organization of Eastern Caribbean States (Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts/Nevis, St. Lucia, St. Vincent and the Grenadines), Kenya, Canada, Senegal, Saudi Arabia, United States, Peru, Indonesia, Australia, France, Ivory Coast, Spain, Thailand, Mexico, People's Republic of China, Union of Soviet Socialist Republics, Colombia, Italy, Republic of Korea, Federal Republic of Germany, Pakistan, Czechoslovakia, Yugoslavia, Japan, Switzerland, Barbados, Norway, Romania, The Philippines, European Community, Belgium, Cuba, Singapore, Hong Kong, Brunei, Hungary and the United Nations.

**Provinces and Territories** — British Columbia, Quebec, Ontario, Alberta, Saskatchewan, Northwest Territories, Yukon Territory, Nova Scotia and Prince Edward Island.

**US States** — Washington, Oregon and California.

**Corporations** — Exhibitors: Canadian Pacific Ltd., Canadian National, Via Rail, Royal Bank of Canada, CP Air, Telecom Canada, Air Canada, Pacific Western Airlines, Dairyland, Rothmans, Wine Industry of B.C., Scott Paper Ltd., Imperial Oil Ltd./Esso, General Motors of Canada, Crossroads Christian Communications Inc., IBM Canada Ltd., Kodak Canada Inc., Coca Cola Ltd., Xerox Canada Inc., McDonald's Restaurants of Canada Ltd., Farwest Systems Corporation, Holland America Westours Inc., Crown Life Insurance Company, MBB Helicopter Canada Ltd., Lily Cups Inc. and Boston Pizza.

**Other Participants** — B.C. Ferry Corporation, B.C. Rail and B.C. Place Corporation.

Columbia's tourism and hospitality industry is redoubling its efforts to welcome vacationers. Hotels, restaurants, shops and other hospitality facilities in the program will ensure that visitors receive a warm welcome and fair prices during their stay in the province. Tourism BC hopes to have 50 000 "super-hosts" by May 1986.

Visitors in the outlying areas will find that they will be able to get to the Expo site rapidly and conveniently. The Vancouver Regional Rapid Transit system, scheduled to open in January 1986, will be able to trans-

port people at speeds of up to 75 kilometres an hour, directly to the Expo gates.

On the Expo site, the BC pavilion has almost been completed near the BC Place Stadium. In the dynamic complex, more than 10 000 visitors will be able to gather under its glass-canopied Plaza of Nations to enjoy national day ceremonies. Pop and rock stars will entertain in the covered 4 300-seat outdoor Expo Theatre nearby and, at night, the BC pavilion area will light up with Expo After Hours, a laser and fireworks extravaganza.

## A line-up to dazzle

The World Festival, which will run concurrently with EXPO '86, in Vancouver's three major civic theatres, will present more than 30 world-class attractions.

Sponsored by EXPO '86 and the Royal Bank of Canada, the \$9-million arts festival will be the largest international celebration of the performing arts presented in Canada since EXPO '67.

Some of the companies and performers that are scheduled to appear include:

- Leningrad's Kirov Ballet will make its first North American appearance in 22 years with performances of *Swan Lake* and a contemporary ballet, *The Knight in the Tiger's Skin*.
- The Royal Ballet from London, England will perform Kenneth MacMillan's *Romeo and Juliet* and a mixed program.
- A gala ballet performance will feature world premières from the National Ballet of Canada, Les Grands Ballets Canadiens and the Royal Winnipeg Ballet as well as commissions of new works from five Canadian modern dance choreographers, Lee Eisler, Paula Ross, Jennifer Mascal, Ginette Laurin and Christopher House.
- Dance in Canada will include Jumpstart, Paula Ross Dance Company, EDAM, O Vertigo danse and Toronto Dance Company.
- Traditional Indonesian dances from the village of Teges on Bali will be performed for the first time outside Indonesia.
- The Philadelphia Orchestra conducted by Riccardo Muti will give two performances.
- The Vancouver Symphony will present five events and feature soprano Dame Kiri Te Kanawa, mezzo soprano Dame Janet Baker, trumpet virtuoso Maurice Andre, and French piano duo, Katia and Merielle Labeque.
- The Vancouver Opera Association will present Bizet's *Carmen*, with Canadian mezzo soprano Jean Stilwell.
- The World Drum Festival will be directed by percussionist John Wyre.
- The Vancouver Playhouse has commissioned a musical by Canadian playwright Sharon Pollock with music by Bruce Ruddell.

## Historic oil shipment from the Canadian Arctic

The first commercial shipment of crude oil from the Canadian Arctic arrived at Petro-Canada's Montreal refinery on September 10. The shipment was made by Panarctic Oils Limited, a Calgary-based consortium of more than 30 Canadian oil exploration companies.

Energy, Mines and Resources Minister Pat Carney and Indian and Northern Affairs Minister David Crombie called the shipment a "milestone in Canadian history". Mr. Crombie

added that "Panarctic's hard work and determination have proved that a Canadian company can exploit this country's rich resources in the far north for the benefit of present and future generations of Canadians".

The 16 000 cubic metres of crude oil were shipped some 5 400 kilometres from Panarctic's Bent Horn oil field on Cameron Island in three weeks aboard the MV *Imperial Bedford*.

### Commercially profitable

Panarctic hopes to ship enough of the light oil, used for such products as gasoline and heating oil, from the North in ten years to supply all the light oil Canada now im-



Route of the historic oil shipment from Arctic.

ports, which is about one-third of total domestic oil consumption.

The consortium is expected to earn \$1.5 million in profit on the first shipment and plans to move 16 000 cubic metres of crude next year and again in 1987. During the second phase of the project, due to begin in 1988, shipments are expected to increase to about 8 000 cubic metres a day.

Panarctic has operated 121 wells in the Arctic since 1968, out of a total drilling effort of 172 wells in the entire region. The Bent Horn field is estimated to contain between 56 million and 80 million cubic metres.



The MV *Imperial Bedford*, which transported the first commercial shipment of crude oil from the Canadian Arctic to Montreal — some 5 400 kilometres — in three weeks.

## Chip flaw detector

An engineering team led by Frank Shepherd, manager of the advanced technology laboratory at Bell Northern Research (BNR) Limited in Ottawa, has combined a scanning electron microscope (SEM) with a measuring technique called voltage contrast to detect flaws in new chip designs.

Using SEM technology to detect design flaws in integrated circuits could cut up to three months off the time it takes to get a new chip to market, said Cesar Cesaratto, vice-president of hardware technology development at BNR. Such savings may also lengthen the life cycle of a chip and result in greater revenue for a manufacturer, he added.

As new chip designs have become denser, smaller and faster, the SEM technique has become essential, Mr. Cesaratto said. Mechanical testing techniques require physical contact between the testing probe and the chip, which means that the chip can be more easily damaged and the techniques are less effective because of the smaller surfaces that need to be measured.

### Voltage system developments

Advances in developing the voltage contrast system have been important in the development of SEM technology. While both the mechanical and SEM techniques measure voltage waveforms — the signals that go through a circuit — on conductors to determine if a chip is working correctly, the old system uses needle-like probes and the new system uses an electron beam within the SEM that can be positioned on smaller areas.

The best mechanical probe can only provide contact on conductors down to three micrometres (millionths of a metre) in diameter, and optical microscope images. A SEM can provide an image of points as small as five nanometres (billionths of a metre).

Using the SEM, designers get a highly magnified view of the part of the chip they want to investigate. The image appears on a monitor screen.

The voltage contrast equipment detects the voltage in the circuit and acts like a stroboscope, taking fast snapshots of the circuit. The designer traces the path of the current in high-speed intervals to determine if a signal is where it should be at all times. In this way, faults can be quickly detected.

BNR engineers are currently developing a more sophisticated testing station that could test many chips on silicon wafers. Such a station would allow further testing during the manufacturing process to determine which chips on a wafer are flawed.

The Globe and Mail

Canapress

## Programmed interiors

The trend to CADD, a software program for architectural and interior design using computer-generated graphics, is rapidly increasing in Canada. Some 15 per cent of the design firms in the country currently use the technology and it is expected that within ten years, most interior designers in the country will adopt the system.

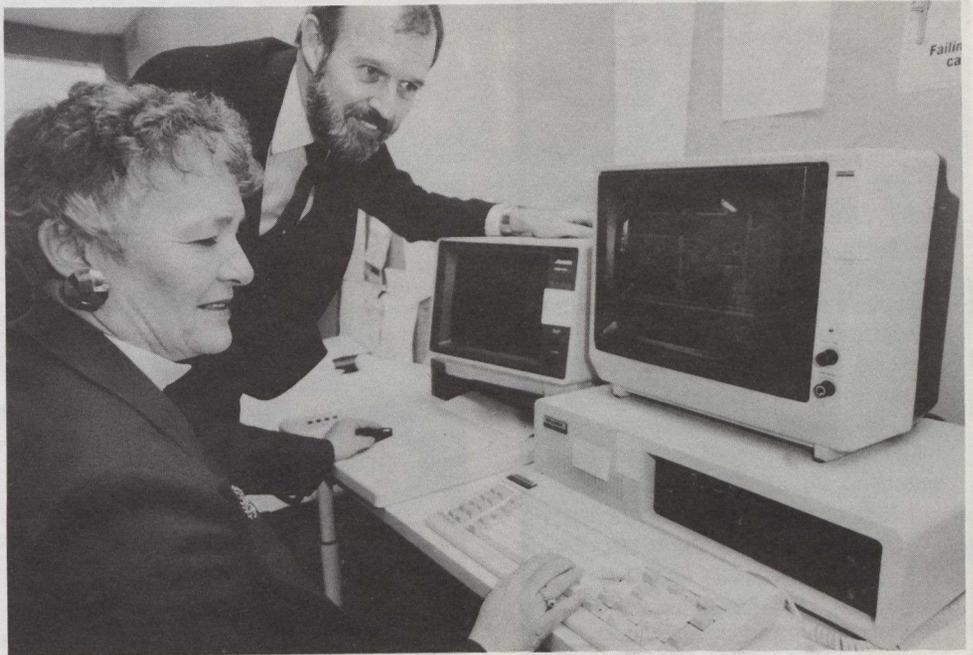
Carroll Thatcher, president of Ottawa-based Carroll Thatcher Design Inc., said that the \$25 000 system "takes away the drudgery involved in designing and leaves more time to do conceptual design".

Guy Thatcher, Carroll's husband and a computer consultant, said "it's the first major change in tools in 400 years for people who draw construction drawings". He suggested that the automobile industry and the space program, which require absolute accuracy, provided the technology for the system.

## Build-up of transparencies

The CADD program consists of a series of transparencies representing a two-dimensional top view of a building with four bare walls. The interior is built in layers, one layer at a time. Everything from the windows, ducts, electrical system, right up to where the desks and chairs will be positioned is drawn on separate transparencies using different colours.

For the complete picture, all the transparencies can be placed on top of each other and up to 250 levels of detail can be



*Carroll and Guy Thatcher design offices using the CADD computer program.*

brought together at one time. For a partial picture, any combination of layers can be called up on the computer screen.

A blueprint or series of blueprints can be printed out with all the details or any combination of details on any size paper. The blueprints are completely accurate and no drafting is required.

Eliminating the drafting provides several benefits, the major one being the saving of time. When drafting is used, any changes result in laborious redrafting of every detail of a building. If, for example, a client wants

a doorway moved, the blueprints for the interior walls, electrical system, and the heating and cooling ducts all have to be redrafted. On the computer, if one change is made, changes to successive layers of detail are automatically performed without any drafting or redrafting.

The capability to redraw a design without redrafting can also save money. During construction time, for example, as changes to plans can be made quickly, less time is required for construction crews and machinery leading to lower construction costs.

## Sasktel expands international markets

The Saskatchewan telephone crown corporation, Sasktel, is expanding rapidly into the international marketplace, where it is selling its expertise in the commercial use of communication fibre-optics technology.

In the past year, 45 international delegations have come to see Sasktel, which has one of the most advanced operational networks available. The delegations included businessmen and scientists from China, the Middle East, Australia and Europe. The greatest interest has come from the United States, Peru, Colombia and Venezuela. In addition telephone companies in Bermuda and Barbados have enlisted the advice of Sasktel to establish fibre-optic networks.

Jim Osborne, assistant vice-president of public affairs for Sasktel, said that in order to accommodate the large number of interested visitors, a special office was set up and it has become the corporation's international marketing wing.

Sasktel's experience comes from developing a 3 260-kilometre fibre-optic network linking 12 cities and 40 towns in the province.

In the 1970s, Sasktel began burying rural telephone wires. By 1980, the corporation had developed quick-burying techniques for fibre cables and in that year, the first 60 kilometres of cable were laid between Regina and the town of Yorkton. The success of that first venture prompted the subsequent laying of cable on the heavily used portions of the provincial grid.

## Multi-use system

Mr. Osborne said the fibre system was designed to be a high capacity transmission medium for cable television to remote areas, and also to increase the capacity of the province's telephone and data network.

The single-mode fibre optic cable used in the network is manufactured by Northern Telecom Limited of Mississauga, Ontario.

It carries 135 megabits (million bits of information) a second. This compares with 45 megabits of the previous multimode technology, and the super-high-speed 565 megabit rate of a technology under development by Sasktel in Regina.

Fibre optics offer better value than microwave or satellite communications, as the latter two can develop problems such as interference during bad weather. Also, it is virtually impossible to tap into a fibre-optic system, while gaining illegal access to microwave frequencies or ordinary telephone lines is relatively easy.

Fibre-optic cable is made from glass, plastic and steel which are almost impervious to outside elements. Ordinary telephone wiring has an estimated life of only 30 years.

The cables, as thick as a man's thumb, are expected to be able to handle the province's voice, image and data needs for the next decade. One pair of 135-megabit lines can carry about 2 000 simultaneous telephone conversations.

## Trade update

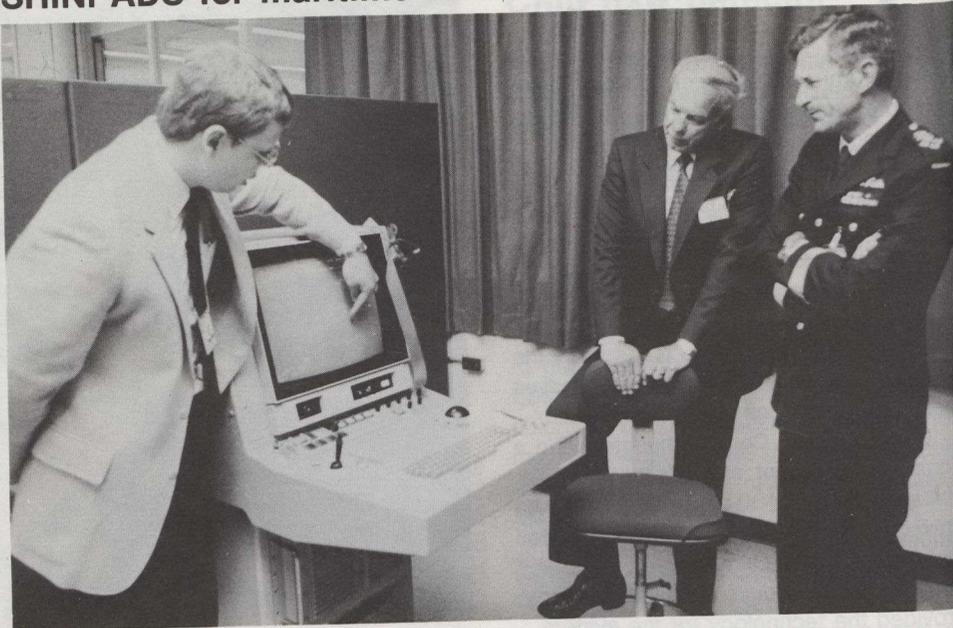
The Department of External Affairs is planning a new approach at the October 28 - November 1 computer information processing show, SYSTEMS 85, in Munich, West Germany. In addition to standard company booth configurations, the Canadian display will incorporate a theme area with five to eight workstations focusing on Canadian suppliers and the industry's capabilities. Each workstation, involving furniture and accessories, hardware, operating and applications software, will feature networking, accounting, integrated software, fourth generation databases, word processing, CAD/CAM, management graphics communications and industry specific vertical market software.

**CANAC Consultants Limited**, a subsidiary of Canadian National Railways, has sold its basic TRACS software to the Indian state railway network under an initial \$25-million contract. A team of CANAC specialists, working in Canada and India, will update and adapt the computerized traffic reporting and control system to the needs of the Indian railway and will train employees in India to use the system.

More than 50 Canadian companies will be participating at the International Agribusiness Exhibition and Conference, AG CHINA '85, in Beijing, November 4-10. A wide range of Canadian products and services, from agricultural equipment to breeding stock will be on display. Canadian companies will also be participating in the Asia-Pacific International Trade Fair, ASPAT '85, in Beijing, November 15-30. A number of sectors will be represented including telecommunications, oil and gas, transportation, mining, aerospace, power generation and transmission.

**The Export Development Corporation** has announced the signing of a \$6-million (US) financing agreement to support a sale by Bell Canada International Inc. of Ottawa to Malaysia. The sale involves the design, development and implementation of a computer-based customer automated services system for Jabatan Telekom Malaysia in Kuala Lumpur.

## SHINPADS for maritime forces



Programmer Don Rooke (left) demonstrates the first production model of new shipboard displays for Canada's maritime forces to General G. Theriault, chief of the defence staff, and Jack Fawcett, the president of Computing Devices Co. of Nepean, Ontario, which is producing 120 displays for the Canadian Patrol Frigate program. The displays are part of the forces' Shipboard Integrated Processing and Display System, also known as SHINPADS.

## News briefs

**Lincoln Alexander** of Hamilton, Ontario, was sworn in as Ontario's twenty-fourth lieutenant governor on September 20. Mr. Alexander, 63, who succeeds John Black Aird, is the first black to hold a vice-regal office in Canada.

**Employment and Immigration Canada** is continuing its support of co-operative education in Canada by providing school boards, colleges and universities with financial assistance to create new co-operative programs or expand existing work/study projects. Co-operative education integrates academic learning with related work experience and has proved to be effective in preparing students for entry into the labour force.

**Executive Travel Apartments** of Toronto, Ontario has published what it claims is the world's first directory of furnished apartments available for rental by the day, week or month for businessmen. City properties across Canada, the US and Europe are included in the 12-page colour brochure.

**Pianist Marc-André Hamelin** of Montreal won the 1985 Carnegie Hall International American Music Competition in New York on September 29. He was chosen from among 177 contestants from 13 countries who vied for the title and \$75 000 in prizes. The contest is the only major music competition exclusively for twentieth-century American music.

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