

Canada Commerce

October 1983



October Is Export Trade Month

**Market
Development**



Canada Commerce

The Honourable Edward C. Lumley
Minister of Industry, Trade and Commerce
and
Regional Economic Expansion

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



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Cover: Behind the scenes at any Canadian international trade fair exhibit is the work of an External Affairs project manager.



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Productivity: Study on industrial robotics shows new applications born almost daily and robots becoming smarter and smarter.



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Across Canada: CGE opens compressor airfoil factory at Bromont, Québec, that breaks new ground in plant operation.

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Canada Export Trade Month, October, celebrates exporting and exporters, the foundation and the life-blood of our economy.

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Business Review

CRTC Decisions Published

The Canadian Radio-Television and Telecommunications Commission (CRTC) broadcasting and telecommunications decisions issued during the second half of the fiscal year 1982-83 have been published in a 372-page book entitled *Canadian Radio-Television and Telecommunications Decisions and Policy Statements, Volume 8, Part 1, Decisions: October 1, 1982 to March 31, 1983*. English and French texts are printed side-by-side as they appeared in the Canadian Gazette.

The book costs \$17 per copy (\$20.40 outside Canada) and its catalogue number is BC 9-3/8-1-1983-1. Copies are available in bookstores selling Canadian government publications or may be ordered from: Supply and Services Canada, Canadian Government Publishing Centre, Ottawa, Ontario K1A 0S9.

Remote Energy Program Extended

The deadline for applications for Phase I (studies) of the Remote Community Demonstration Program has been extended six months to March 31, 1984, Energy, Mines and Resources Canada has announced. The new completion date of this phase is September 30, 1984.

This program contributes to the federal government's off-oil objectives. It should also help communities achieve lower long-term energy costs, greater energy self-reliance and, in some cases, increased levels of electrical service.

More than 40 communities across Canada, and agencies responsible for or directly interested in their energy supply, are eligible to apply under the program.

Shipbuilding and Ship Repair Association Conference

Plans are moving ahead quickly for the 36th Annual Technical Conference of the Canadian Shipbuilding and Ship Repairing Association (CSSRA) to be held at the Queen Elizabeth Hotel, Montréal, Québec, on February 14, 1984.

This conference, always held in Montréal, is by far the largest and best known CSSRA event and is widely attended by the marine fraternity.

Market Guide on Egypt Available

While Canada's traditional exports to Egypt are rolling stock, aircraft and wheat, there are a number of other promising markets, according to the Royal Bank of Canada's recently-published *Market Guide on Egypt*.

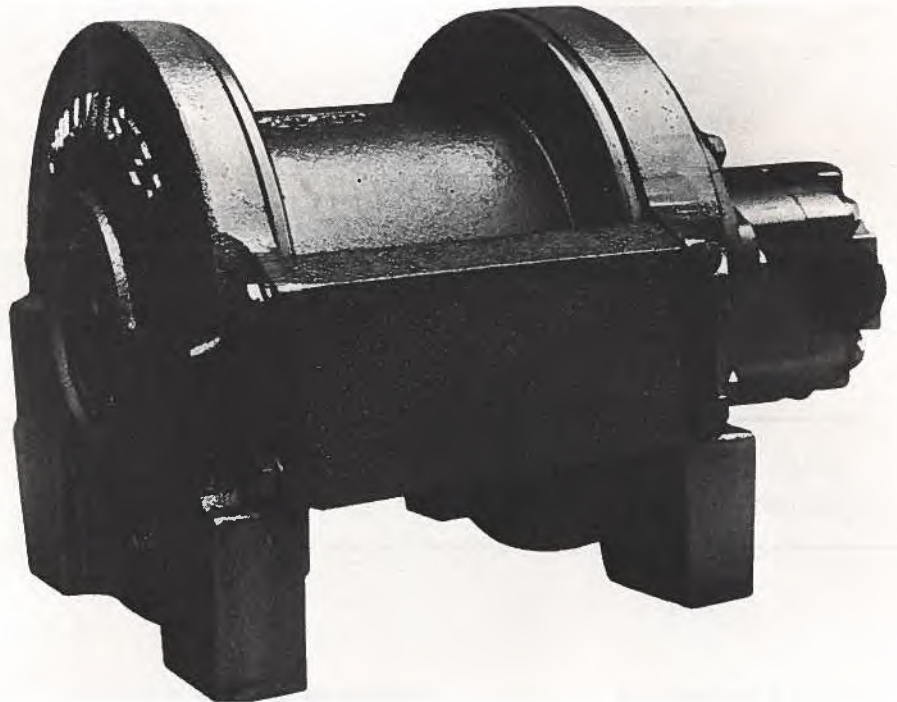
The guide is produced by the bank's World Trade Group and is available from its International Centres across Canada. It is the latest of the 13 market guides the bank had produced.

Rail Accidents Show Decrease

The Railway Transport Committee (RTC) of the Canadian Transport Commission reports that rail accidents in Canada were down 28 per cent in the first six months of 1983 as against the comparable period in 1982. Railway movement of freight tonnage was down

by some 10 per cent in 1983 as compared with 1982.

There was a dramatic reduction in crossing accidents during the period — 242 accidents involving 27 fatalities and 137 injuries in January/June 1983, compared with 372 accidents resulting in 40 deaths and 183 injuries in 1982.



Pullmaster Winch Introduces New Product

The Pullmaster Winch Corporation of Surrey, British Columbia, has introduced its new Pullmaster Model PL2 planetary, hydraulic winch with a line pull of one metric ton (2 204 lb.) at a line speed of 25 m/min. (81 fpm). This is based on a hydraulic oil volume of 29 litres/min. [7.7 (U.S.) gpm] at a hydraulic pressure of 155 kg/cm² (2 200 psi).

The Pullmaster Winch Corporation manufactures a range of planetary, hydraulic winches in capacities from 1 000 kg (2 204 lb.) to 11 340 kg (25 000 lb.) line pull.

New Hot Water Vents Found Off B.C.

Hot water springs have been discovered on the summit of a volcano 500 km off the British Columbia/Washington coast during a joint geological/biological cruise. This is the first hot vent discovery in a volcanic seamount located on an active spreading centre and the first examination of the Juan de Fuca Ridge by a manned submersible.

Part of the CASM (Canadian American Seamount) Expedition, the Department of Fisheries and Oceans submersible *Pisces IV* made eight dives averaging nine hours each.

IFC Records Highest Investment Total

The International Finance Corporation (IFC) fiscal year 1983 results show record amounts of financing for private business ventures in developing countries. IFC's board of directors approved \$(U.S.)845 million of equity and loans to 58 companies in 36 developing countries, the highest since IFC was founded 27 years ago. The total project costs of the ventures assisted amounted to \$(U.S.)2.9 billion.

IFC, an affiliate of the World Bank, is one of the largest multilateral organizations financing private sector business in the developing world.

Canadians Attend Forest Harvesting Demonstrations

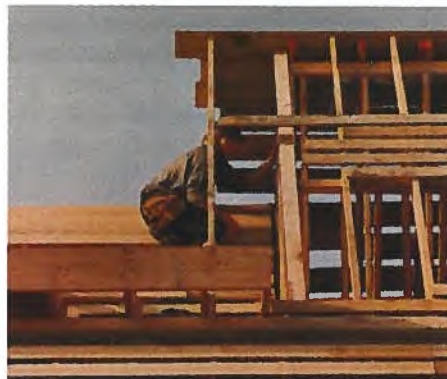
When it comes to forest harvesting machinery, equipment or accessories, Canadian manufacturers have traditionally been well accepted in markets both at home and abroad. The rugged dependability of Canadian forest harvesting machinery and equipment has long been an industry standard.

This quality will be on display in the 12 Canadian companies participating in the first ever Canadian Forest Harvesting Machinery and Equipment "Dealer Days" Demonstration in Durham, North Carolina, late this month. It will be studied by major southern U.S. machinery and equipment dealers/distributors; saw, pulp, paper mill woodyard superintendents; and timberland managers.

Heavy Equipment Arrives at C-I-L Expansion Site

Some likened them to moon missiles; many remarked on the space race moving to Courtright, Ontario. In fact, the subject of controversy was several heavy equipment pieces for C-I-L Inc.'s \$220 million expansion project to double ammonia capacity to 776 000 tonnes at its nearby agricultural chemicals complex.

The offloading of the three largest pieces of equipment involved one of the heaviest marine lifts ever undertaken in the Sarnia, Ontario, region. These were a CO₂ regenerator tower, 78 metres long, two metres in diameter at its narrowest point, weighing 300 tonnes; a CO₂ absorption tower, 74 metres long, two metres in diameter at its narrowest point, weighing 440 tonnes; and an ammonia converter, 20 metres long, six metres in diameter, weighing 600 tonnes. Other pieces in the same shipment range in weight from 13 to 94 tonnes and from 10 to 20 metres long.



August Housing Starts

Housing starts during August were at a seasonally adjusted annual rate of 135 000 for all areas, according to preliminary figures issued by Canada Mortgage and Housing Corporation. The final July rate was 146 000.

Actual starts in urban areas in August were 9 139, an increase of 37 per cent from the 6 672 recorded in August 1982.

Starts of single-detached dwellings during August totalled 5 347 compared with 3 013 in 1982, an increase of 77 per cent. Starts of multiple unit dwellings were up four per cent to 3 792 from 3 659.

Gulf Canada Boosts Resource Spending

Gulf Canada Limited has spent twice as much on resource exploration over the past three years than on refining and chemicals, according to John L. Stoik, Gulf Canada's president and chief executive officer.

This year approximately 80 per cent of Gulf Canada's spending will be on the resource segment. By contrast, Stoik says, Gulf's two largest competitors, during the past two years, have directed one-half to two-thirds of their spending to expand in refining and chemicals. "Exploration spending traditionally accounts for about one-third of our corporation's annual capital and exploration outlay," he says.

Cost-Effective Sidescan Mosaicing

Sidescan sonar mosaics of the seabed can provide significant enhancement of the interpretation and understanding of the surficial geology and sediment dynamics of an offshore site survey area. Cost-effective mosaics within regions of relatively flat seabed are currently being produced by Geomarine Associates Ltd. of Halifax using simple modifications to standard, off-the-shelf relay equipment.

The techniques involved eliminate the water column from the sidescan data and produce virtual one-to-one displays of the sidescan data without the slant range correction. Although a minimum of distortion is still present in the data, a good representation of the seabed is produced with small investment of time and reproduction costs.

Wage Settlements Fall Below 6 Per Cent

Wage increases provided by major collective agreements in the second quarter of 1983 show an average annual increase of 5.9 per cent — the lowest figure since the beginning of the published series by Labour Canada in 1967.

The 5.9 per cent increase without a cost of living allowance (COLA) clause is down from the 6.5 per cent in the first quarter of 1983 and represents a continuation of the downward trend started in the third quarter of 1982 when settlements averaged 10.2 per cent.

The Robot Factor: Key to International Competitiveness

A seminal report dealing with the industrial robotics scenario for Canada, entitled *The Robot Factor: Towards an Industrial Robotics Program for Canada* has recently been completed for the Department of Industry, Trade and Commerce and Regional Economic Expansion. Written by Zavis P. Zeman, Director of the Technology and Society Program of the Institute for Research on Public Policy in Toronto, the report surveys the field of industrial robotics and discusses the opportunities, challenges and policy alternatives for Canada emerging from the recent advances in this area.

In recent years developments in the field have been both exciting and fast-paced, promising to change the face of manufacturing on a global basis.

At present there are over 2 000 types of robots, which differ dramatically from other automatic machines in their flexibility, making them very useful for production in the short runs that are so typical of Canadian manufacturing. Unlike other automation tools which cannot be made to perform an-

other task without extensive retooling, a robot is both reprogrammable and multifunctional, and can switch from one task to another within minutes. This is achieved by a change of program in the control system. Rising labour costs and a reduction in the price of robots, coupled with an increase in their capability and growing concern regarding occupational health and safety, have also served to make robots increasingly attractive to industry users.

Robots have been proved useful in manipulation (60 per cent of applications worldwide); in welding (20 per cent of applications globally, 50 per cent in Canada); and in spray painting parts of machines of all kinds (20 per cent of applications globally), including cars, motorcycles, trucks, farm machinery, mining and construction machinery, electrical equipment, aerospace, armaments, textile machinery, and consumer appliances from calculators to TV sets. New applications are born every day — in medical equipment, furniture and computers, and in exotic environments such as underwater, nuclear or space.

Some new trends in industrial robotics have emerged recently. A shift from pneumatic and hydraulic actuation to electrical drive can be detected. Robots are increasingly programmable as they are married to microprocessors and minicomputers, and are thus becoming smarter and smarter. They are also being downsized and increasingly modularized, and their positional accuracy and velocity have been increased. In addition, robots have more arms, and more feedback. In other words, control is becoming increasingly more adaptive. Their reliability has been increased to 400 hours of uninterrupted performance, and the goal of 1 500 to 2 000 hours is appearing on the horizon.

Robots are also being combined more and more with other robots in "families" and with computers and numerical-control machinery in cells, or flexible manufacturing systems. As the robot payback period continually decreases, and as the price of these machines drops while industrial wages climb, robots are increasingly being used where the payoff is largest — in production in small and medium batches. The use of robots is no longer limited to large companies. Small and medium enterprises are becoming much more interested.

Robots of the future will most likely have a rudimentary sense of vision to provide better recognition and orientation data; will be equipped with tactile sensing for recognition, orientation and physical interaction purposes; and will be routinely coupled with microprocessors. Many will be mobile. They will also have self-diagnostic capability. Speech synthesis and voice recognition in robots is another characteristic soon to be seen on experimental robots in leading research laboratories.

It is expected that by the end of the decade the industrial robot market could be a multibillion dollar one, transforming deeply the landscape of advanced economics and modifying the lives of tens, if not hundreds of thousands in plants around the world.





Worldwide, the United States robot market has grown from \$21 million in 1977 to \$60 million in 1979 and \$90 million in 1980. It is expected to reach \$700 million by 1985 and \$2.2 billion by 1990.

The automotive industry is the largest employer of robots, accounting for over 700 robots out of about 3 000 for all industries. The giant electric companies, Westinghouse and General Electric, are also leading users of robots. Additionally, a number of research laboratories have major projects going on in the field, and the government's involvement is represented by the multi-million dollar ICAM (integrated computer-aided manufacturing) project, jointly funded by the National Science Foundation and the National Bureau of Standards.

The European market for robots, too, is expected to register as strong a growth in the 1980s as the U.S. and Japanese markets. West Germany and Sweden are the largest users of robots, and Italy, Britain and France are also making serious efforts to enter the robot market and to encourage their introduction in industries.

Japan leads the rest of the world both in terms of robot manufacturers and installations in industries. In 1980 alone, 12 000 robots were produced in Japan — up nearly 50 per cent over

1979. The annual growth rate is expected to remain at that level throughout the '80s. A notable feature of Japanese efforts in the field is the high degree of co-operation between government and industry. As a result, there are numerous government-industry joint projects aimed at advancing Japanese technological supremacy in industrial robotics.

Canada, too, is particularly challenged. At present, however, there are only about 250 or so robots in the entire country, and half of these have been introduced since 1980. As in the U.S., the automakers are the leading employers. In terms of manufacture, Canadian General Electric has recently announced its plans to produce robots in Canada, and a number of smaller Canadian companies have shown interest. The National Research Council is encouraging a few with financial assistance. McMaster University leads the academic institutions in robotics research.


In Canadian terms, robots offer the possibility of contributing towards a workable national industrial strategy. They also promise substantial increases in productivity. It is worth repeating that they are best suited for the short production run requirements of the small and medium manufacturers typical of Canadian industry. Additionally,

they will relieve Canadian workers from the hardships of work in hazardous environments in the metalworking and other industries. However, their introduction could ultimately lead towards a number of job displacements. On a medium term horizon, the direct unemployment effects are likely to be minimal. In contrast, **the failure to robotize in the 1980s could render whole enterprises obsolete**, resulting in large scale job losses and reduced international competitiveness.

It is becoming urgent that we act now in developing policy initiatives in this crucial area, and maximize the benefits from industrial robotics, which form a key element in the overall technological automation scenario.

A major recommendation of the Zeman report calls for a national robotics program, with the following 10 building blocks:

- Raising of awareness of robotics
- Rapid introduction of applications of industrial robotics
- Support for small and medium companies through a Canadian robot leasing facility
- Robot software support
- End effectors and sensors development
- Robot hardware manufacture scheme
- Research and development support
- Technical manpower development
- Strengthening of existing government programs
- Introduction of workplace adjustment mechanisms

The proposed program is based on the assumption that what is important for Canada now is strengthening her technological capability to help her remain internationally competitive. Robots offer an important building block. 

Copies of the report or further information may be obtained from:

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Dept. of Industry, Trade and
Commerce and Regional
Economic Expansion,
 235 Queen Street
 Ottawa, Ontario
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Small Business Week Stresses Growing Optimism

“**M**anaging for Recovery” is the theme of Small Business Week in Canada, scheduled for Oct. 23 to 29. Organized jointly by the Federal Business Development Bank (FBDB) and the Canadian Chamber of Commerce, the week is devoted to promoting the development of small business in Canada and demonstrating how important small business is to the Canadian economy.

The Situation

Of the one million businesses in Canada, more than 95 per cent are small businesses with sales of less than \$3 million annually. They employ 40 per cent of the labour force and account for approximately 25 per cent of Canada's total Gross National Product.

The past year was difficult for almost all businesses, but small businesses were probably least prepared to cope with the turbulent effects of the recession.

Many of these small and medium-sized businesses found themselves in tight cash flow situations — major customers were cutting back orders; suppliers were demanding quicker payments

of new credit terms; lenders were demanding more information about the state of the business; and effective personnel management was becoming increasingly important.

Some small businesses prospered and others didn't make it. The majority of this crucial sector simply survived.

Confidence Stronger

Now, with the first half of 1983 well behind us, it is more certain that the economic recovery is here to stay.

Consumer confidence is stronger; interest rates are at a level far below those of a year ago; and inflation has slowed. Federal and provincial budgets have been introduced with specific programs oriented towards economic recovery.

These positive signs are here and Canadians must look ahead with cautious optimism — the underlying principle of this year's Small Business Week theme, “Managing for Recovery”.

Looking Ahead

This year, Small Business Week emphasizes the importance of looking ahead — preparing oneself and one's business for the future.

Most entrepreneurs are not going to wait for a general economic recovery to pull their businesses out of the doldrums. They will be planning now, remembering the lessons they learned during the recession.

“Managing for Recovery” means using all the services and forms of assistance at an entrepreneur's disposal. It means communicating with customers and suppliers. Above all, it means making practical and level-headed business decisions.

Small Business Week is a period in which small and medium-sized businesses are the centre of attention. Not only does it recognize the important contributions of each small business to its community and the general economy, it also familiarizes the small business community with the variety of financial or non-financial services and programs available.

“Management for Recovery” means using all the services and forms of assistance at the disposal of an entrepreneur.

1982 Success

Last year at least 71 000 people across the country attended the various events organized by the Federal Business Development Bank (FBDB) and the Canadian Chamber of Commerce.

These events included business fairs organized to allow government agencies, federal, provincial and municipal, as well as other non-commercial groups to explain their services to the public generally and to the small business community in particular.

They also included workshops attended by almost 7 000 business people on various management topics; free public information sessions outlining government assistance programs; and exhibits organized in high traffic areas such as shopping malls, to help business entrepreneurs become aware of the financial and management services at their disposal.

Business Management Awards in Every Province

One of the highlights of Small Business Week is the choice of a small business entrepreneur in each province as the recipient of a Business Management Award presented by the FBDB. This is granted to the 10 business people across Canada who have acted most effectively on the advice of the FBDB's management counsellors to improve their businesses.

Special Workshops on “Management for Recovery”

The FBDB will also create a special three-hour workshop on the theme





«MANAGING FOR RECOVERY»

“Management for Recovery”. The workshop is offered across Canada for owners or managers of small and medium-sized businesses. Using a case study approach, it emphasizes the need for planning in the fields of finance, marketing, human resources and production.

Small Business Week, through its many activities, not only provides information on the services available to business entrepreneurs in Canada but, through seminars and workshops, provides opportunities for business owners and managers from many different

fields to exchange information and points of view.

Week's Activities
Activities during the 1983 Small Business Week include:

- Information sessions to outline the variety of financial and non-financial government assistance programs;
- Workshops on specific areas of small business management including the special free workshop on the week's "Management for Recovery" theme;
- Talks relevant to the concerns of the small business community;

Minister of State (Small Businesses and Tourism)



THE HONOURABLE DAVID PAUL SMITH

Recently appointed Minister of State (Small Business and Tourism), one of the first tasks of David P. Smith has been to represent Canada at the 10th International Congress on Small Business, held this year in Singapore. (In 1981, Ottawa was host to the 8th International Congress.) In Small Business Week, he faces another agreeable event of vital concern to his ministry.

Born in Toronto on May 16, 1941, Mr. Smith was educated in Ontario and British Columbia. He has received diplomas from Carleton University as well as from Queen's University.

A lawyer, Mr. Smith sat as an alderman on the Toronto City Council from 1972 to 1978 and was President and Deputy Mayor from 1976 to 1978.

He has been a Member of Parliament for Don Valley East since 1980 and was Parliamentary Secretary to the President of the Privy Council since September 1981 until his appointment to his present post.

- Public information displays at public centres such as shopping malls and libraries to provide an overview of the nature of assistance available;
- Open-house activities at FBDB branches and participating chambers of commerce and boards of trade for informal discussions on their respective services;
- Business fairs to provide the opportunity for small business entrepreneurs to talk to representatives from various government agencies and departments, trade associations, small business groups and other organizations. ☐

Scaling the World's Fish

Simnar Inc., a small Ontario firm with 16 employees, has found international success through careful product development and reliable workmanship.

Albert Simard, who at the age of 80 finds himself the president of an internationally reputable small business he built from scratch, attributes his company's success to three things: hard work, honesty and common sense.

Simnar Inc., which manufactures equipment for the fish-processing industry, had its beginning in Simard's garage in Windsor, Ontario in the late 1950s. The tool and die maker had just lost his job because his employer was relocating to Toronto. But his reputation within the trade was excellent and when a local processor of fresh-water fish asked if he could design a machine to automatically scale Lake Erie perch, Simard took up the challenge.

In 1961, the "Simor Automatic High-speed Fish Scaling Machine" was finally patented and a small company, operating under the name of Simor Fish Scaling Machines, was ready to start business.

Having all confidence in his invention — which was to revolutionize the descaling process from a hand-scaling operation to a high-speed automated one requiring a single operator — Simard had to find a market for it. Carrying the scaler in a trailer, he drove through the Great Lakes area visiting fish processors and delivering his sales pitch: "Just let me show you how this thing works".

A Family Business Grows

The demonstrations spoke for themselves, orders followed, and the company grew, but only at a rate which ensured that the high quality of product and service that had become associated with the small business was not compromised.

As the company expanded — it moved its operations twice, doubling in size each time — Mr. Simard was joined by his son Roger, who now supervises all plant operations; Robert Molnar, a tool and die maker and inventor, who is now the head of sales and director of research and development; and daughter Dianne, who has become the company's controller, export manager, sales and marketing co-ordinator and advertising manager.

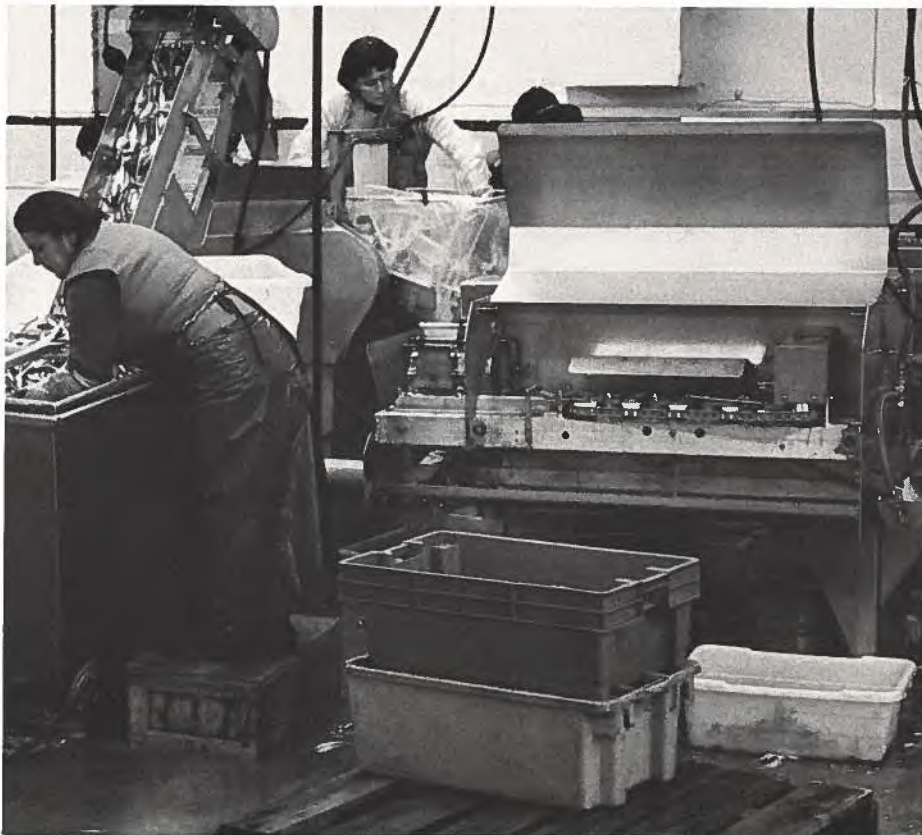
New Product Development Keeps the Business Healthy

"If you're going to stay in business," says the eldest Simard, "you've got to keep in tune with your customers' needs."

The original scaler has seen many modifications since 1961, and now the company manufactures 17 models to suit specific requirements. For example, one model will handle fish weighing from 4 oz. to 4 lbs. (113 g to 1.8 kg), another will scale fish ranging in weight from 1 lb. to 8 lbs. (454 g to 3.63 kg), while another is designed to process several species. "The capacity of our machines to handle such large size ranges is exceptional in the fish-processing industry."

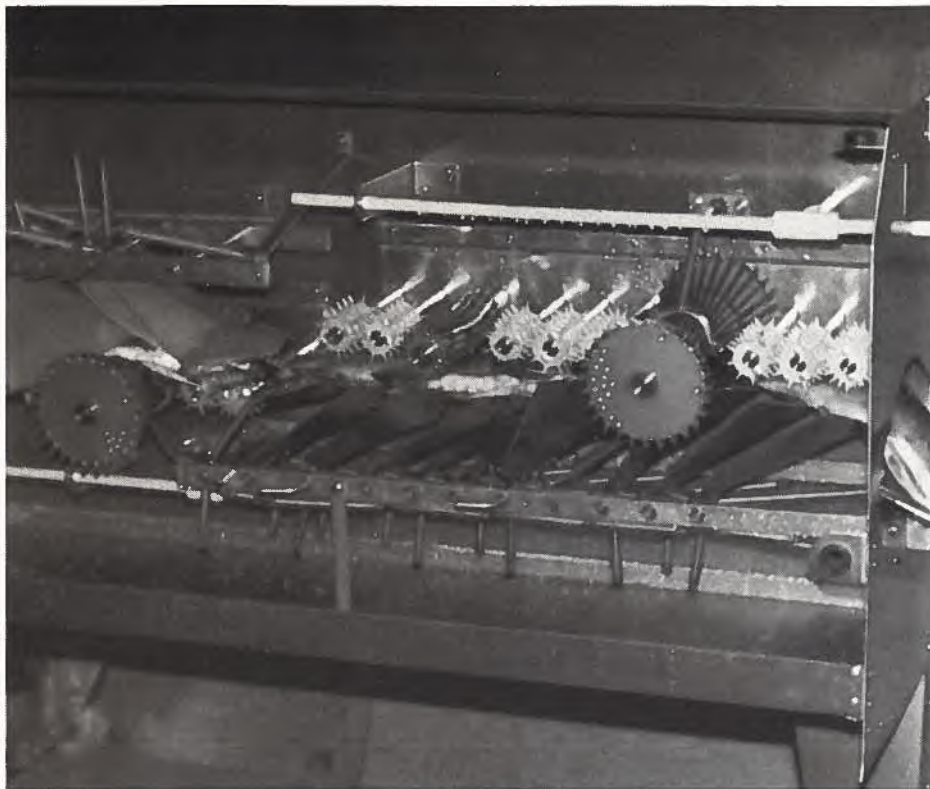
Last fall the company introduced three new machines designed and developed by Robert Molnar: an automatic heading and eviscerating machine for shoal fish, an automatic "orientator-feeder" system which correctly positions fish to enter two or four of the heading/eviscerating machines, and an automatic "orientator-feeder" system for supplying two or four scalers.

These developments received assistance under the Enterprise Development Program (EDP) of the Department of



The "orientator-feeder" system (centre) positions fish so that they are properly fed into the heading-eviscerating machines.

So many people look at new government programs and get scared off by the paperwork.



“Just let me show you how this thing works” was a good enough sales pitch.

The Simor Automatic High-speed Fish Scaling Machine.


has taken advantage of PEMD assistance to attend trade shows in several South American cities, New Zealand (with excellent results), Copenhagen, Seattle, and last February in Saudi Arabia. Simor scalers are now in operation in 18 countries, including West Germany, Poland, the USSR, Saudi Arabia and Israel; and the company feels there's a great potential for sales in South America, Japan and on the US west coast.

“You have to keep working on your export markets. We're off to Chile at the end of October,” says the export manager, adding the following unsolicited remarks in her conversation with *Canada Commerce*:

“We've had nothing but wonderful experiences with the people at ITC/REE. So many people in business look at new government programs and get scared off by the paperwork. But the department's people are really helpful and give excellent advice. I've spoken on the phone so many times to those people in the Toronto [regional] office, I feel I know them, even though we've never met.”

Further Expansion about to Start

Simnar Inc. has just received assistance under the ITC/REE Industry and Labour Adjustment Program (ILAP) to build a new facility in Windsor. With this move, scheduled for late '83, the company will again double its production capacity and will have what they're calling an “experimental room” for design and development. Two new machines are already in the design stage.

With an excellent reputation worldwide for quality, workmanship and service, the company states that its aim is to maintain the high standards set out 22 years ago by its founder and president, who, at the age of 80, still puts in a full week's work. 

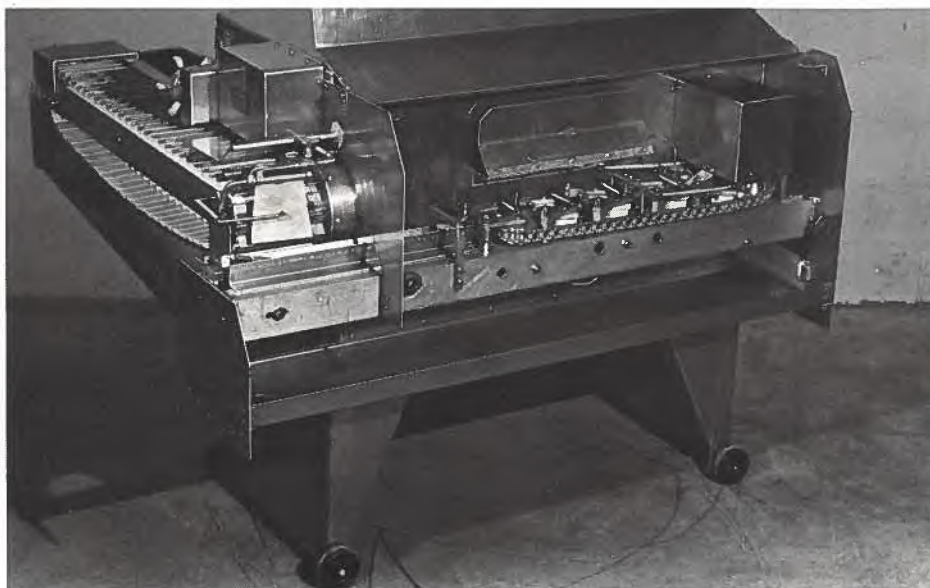
Industry, Trade and Commerce/Regional Economic Expansion (ITC/REE), a program which “has been a major force in assisting our growth and viability,” says Dianne Molnar.

The company manufactures other products as well, such as conveyor systems which link machines in a fish-processing plant, and cutting tables. Supplying a full range of equipment for the set-up of new plants is a new area of business the company hopes to pursue.

PEMD a Big Help in Building Exports

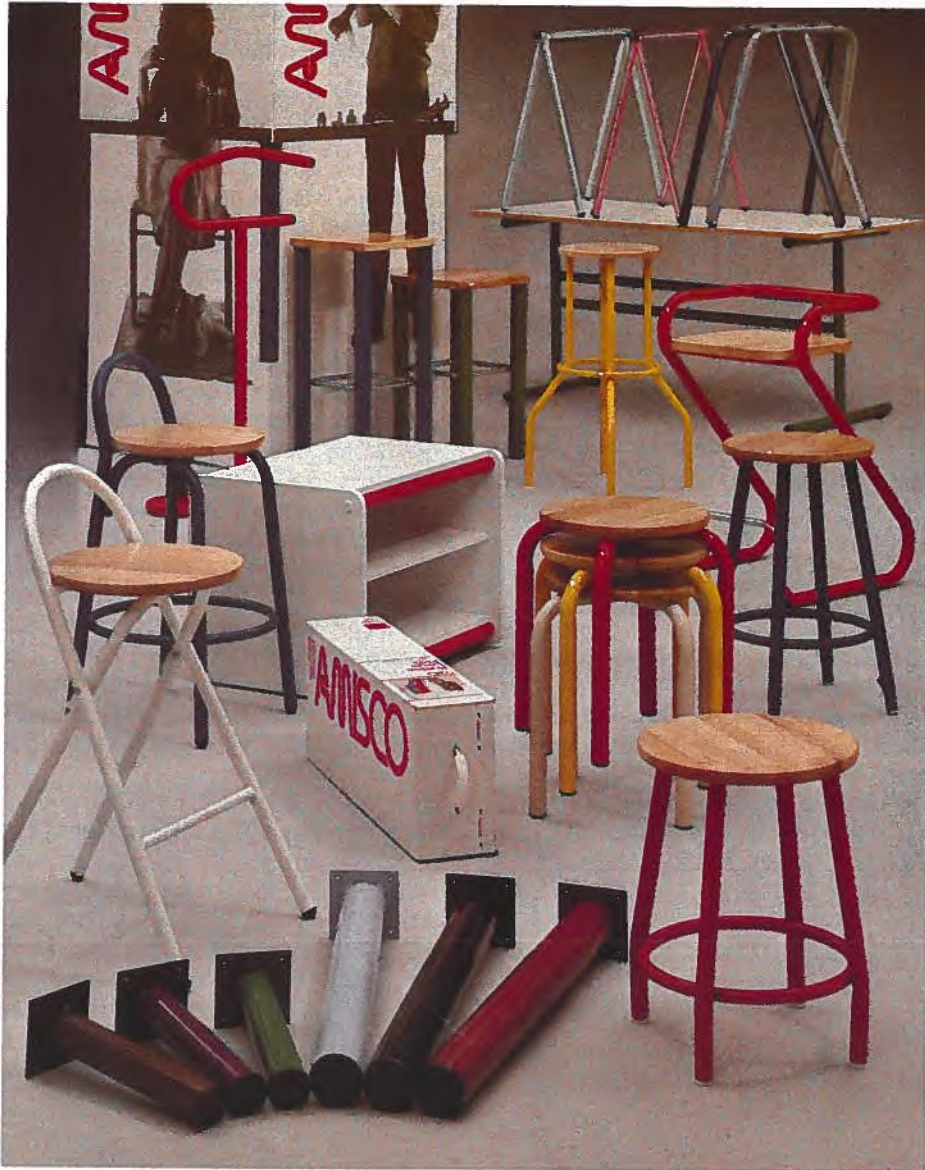
“Through the Program for Export Market Development [PEMD], we have been able to introduce our products abroad at trade fairs and to investigate new markets on market-identification trips,” explains Dianne Molnar, who has no end of praise for the program.

Simnar's markets on the Canadian and US east coast and in the central regions are long established. But since the company's incorporation in 1977, it



Simnar's recently developed machine for heading and eviscerating shoal fish.

At Amisco, Furniture is Booming!



Stools and a variety of accessories

Amisco has taken a market study to heart and moved successfully into production of collapsible, multi-purpose furniture.

Unlike many furniture manufacturers who are currently experiencing difficulties, the managers of Les Industries Amisco Ltée in L'Islet, Québec, have taken the changing needs of their customers into account. A rational study of the domestic and foreign markets has enabled the company to adapt its product to current tastes. The enthusiasm of the younger generation for collapsible, multipurpose furniture demanded that the Québec furniture industry respond in a rapid and innovative manner in the face of imports from the Scandinavian countries.

Reacting to the conclusive results of a market study, Amisco wasted no time in making the necessary shift in the manufacture of its furniture. The marked interest on the part of people between 25 and 40 years of age in modern furniture combined with the high probability that this preference will persist influenced Amisco's decision to change its product and go after a market which was previously the preserve of Swedish and Danish manufacturers.

Today, Amisco's ever-increasing turnover is no accident. The company first took its cue from what was being done elsewhere in furniture design and went on to manufacture its own original pieces. The future of its new coloured tubular steel furniture, which accounts for 71 per cent of the company's production volume, is assured.

Amisco had been manufacturing school furniture for 23 years when it entered the residential furniture market in 1978. Between 1978 and 1982, the company's staff grew from 40 to 125 employees and its turnover, which will reach \$88 million in 1983, more than tripled.



Flexible design children's bedroom

The company is even in a position to consider expanding. Having exported 34 per cent of its production to the United States last year — a performance which is almost unique among Canadian furniture manufacturers — Amisco is now looking at such overseas markets as Europe, South America and the Middle East. According to Martin Poitras, the company has set as its objective to increase its turnover to \$12 million by 1985.

The company's business success and the financial assistance it received from the federal government through ITC/REE enabled it to complete a recent project to expand its factory. In fact, Les Industries Amisco Ltée received from ITC/REE an interest-free loan of \$291 000 under the ILAP and a non-repayable grant of \$286 000 under the IRDP. Amisco purchased the former Industries L'Islet buildings in December 1982 and the company moved in in June 1983. The factory's floor space increased from 3 716 to 11 148 square metres, according to Mr. Poitras. Its expansion project also involves a program to modernize its equipment and machinery, which should help to increase the plant's productivity.

Functional and collapsible, the furniture manufactured by Amisco is readily adaptable to apartments and condo-



Functional and attractive sofa, fold-out bed-couch and arm chair set

miniums, which vary in size from one place to the next. As well, their modular design makes moving easier.

Amisco sells one third of its production in Québec, one third in the other Canadian provinces and the remainder in the United States, but its president, Mr. Poitras, believes that the proportion absorbed by the American market will soon increase to 50 per cent. ☐

— by Pierre Simard
Canada Commerce

The company's business success and financial help from ITC/REE have enabled it to expand its factory and production.



Baby's crib

Trade Fairs — Behind the Scenes

(First of Two Articles)

Trade fairs, missions, delegations and incoming buyers support are considered of ever increasing importance in maintaining and expanding Canada's exports. All of these come under the co-ordination of the project managers in the Trade Fairs and Missions Divisions of the Department of External Affairs. While not supermen, these men and women, often remaining in the background when praises are sung, have been known to show missionary zeal in aiding the marketing effort of Canadian companies and have, on occasion, even been known to perform minor miracles when helping to promote a company's product.

First, in considering trade fairs, it should be remembered that the concept is not new. In fact, in parts of the world trade fairs of some nature have been around for almost a thousand years graduating from quite primitive selling stalls at crossroads of international travel in the middle ages to the present day presentations. These are highly sophisticated and occupy much space in elegant facilities built permanently for the purpose.

The advantages of trade fairs as vehicles for direct marketing and selling have become so widely appreciated that almost every year we hear of the introduction of new trade fairs. This proliferation creates problems in that the new trade fairs tend to have a negative impact upon those long established and particularly affect the Trade Fairs and Missions Divisions in the Department of External Affairs in that they make it all the more difficult to select those at which we should have presentations.

Neither industry nor the department has the resources to attend all trade fairs for each industry sector and those selected are considered to have the best potential return for monies expended from industry and the government. The preferred list is built up from information gathered from industry, trade posts overseas, industry sector branches, the project managers themselves, regional offices, trade publications and a variety of other sources.

The Project Manager

Within the department a project manager is assigned to each promotional event and bears the responsibility for

carrying out the project to achieve the maximum marketing impact for Canadian industry within restricted financial and human resources.

The detailed work performed by a project manager is usually not apparent, especially when he only seems to be a somewhat shadowy figure in the background at a trade fair where all is light and bright and functioning smoothly.

Companies participating in trade fairs must meet qualifications as to Canadian registration, Canadian content of products, etc.

But what is seen on site at a trade fair is only the tip of the iceberg and the smooth functioning is the culmination of six, 12 and sometimes 24 months of concentrated advance preparation.

After a program of promotional projects has been established, the first activity in the case of a trade fair is to book space with the fair authorities. There is a measure of speculation involved as, two years ahead of date of the event, it is not at all certain how many companies will actually wish to take part and precisely what their needs for space and services will be. However, early

booking of space is quite essential so that the Canadian national stand will be located in the best possible position with regard to traffic, visibility and facilities that can be obtained at the fairground.

On being assigned a project, the manager will form a project team whose members include a representative from the industry sector branch at the Department of Industry, Trade and Commerce and Regional Economic Expansion, a publicity officer, a designer and exhibit manager from the Canadian Government Expositions Centre and a "desk officer" representing the Commercial Division at the overseas embassy in whose territory the fair will take place.

Recruiting

At a suitable period ahead of the event, typically eight or nine months, lists of potential participants will be prepared.

The qualifications for a company to take part in a departmentally-sponsored trade fair presentation are relatively simple. It shall be a registered Canadian company. The products shall meet a minimum requirement for Canadian content. The company shall have a proven capability to export including financial strength and manufacturing capacity to meet orders which might be obtained overseas. Previous experience in exporting is an advantage but on many occasions the department is able to introduce new companies with products with export potential to overseas markets by means of promotional projects.

Recruiting is frequently a two-tier process. At first, a large number of companies that might improve their exports

receive a relatively simple form letter so that each company can respond indicating whether it is interested or not in the subject promotion.

Those companies responding affirmatively are then sent a package of documents giving more detailed information on the trade fair itself and including a "Space Application and Participation Form" which will eventually become a contract between the company and the government.

The companies deciding to take part also receive detailed questionnaires requesting comprehensive information on the products they wish to display together with promotional material in the form of brochures, photographs and specifications. This is essential for building a stand design that will present the company's material in the most effective and attractive manner and to prepare a comprehensive publicity package to bring to the attention of the widest possible audience the nature of Canada's participation at the trade fair.

Liaison

The project manager will establish the closest possible contact with the company's marketing and sales staff to the extent that he almost becomes an ex-officio member of the company's marketing staff, almost like a family member, so that each company should feel it is getting individual attention even though the project manager may have to deal with 40 or more different companies for a given trade fair.

In particular, on account of his wide experience, the project manager can be especially helpful to small companies and new companies who have not previously exhibited at trade fairs.

Designing

The project manager forms a most important link between the company and the stand designer from the Canadian Government Expositions Centre (CGEC). Having obtained an adequate amount of information, the two will establish the location of companies on the site allocated by the fair authorities.

This is a much less simple job than might at first appear because at certain shows it could well be that one company may be deadly competitor of another so that these two companies must be located as distant from each other as possible for example, on opposite corners of the stand. Conversely, it is quite likely

that another two firms are affiliated companies who collaborate very closely and very much prefer to have adjacent stands.

Add this to the needs of an information desk which must occupy the minimum of valuable space fronting on aisles (so as to allow maximum exposure to the companies), the necessity of providing a small office, a store room and a discussion lounge plus, at some shows, the need of companies for services of electricity, compressed air, water, drains, special ventilation so that these companies have to be located close to these service outlets on the floor of the hall in which the fair is held.

Publicity

Concurrent with preparation of the stand design is the establishment of an extensive publicity program. Publicity is an essential feature of any marketing activity and for presentation overseas it must be such as to draw the maximum number of potential customers to the Canadian stand. The publicity officer works in the closest collaboration with the project manager to obtain desired material from the exhibiting companies.

This material may be used in a variety of ways, including the preparation of a brochure (certain to be in at least two and sometimes four languages) for distribution from the information counter on the exhibit. Advertisements are frequently placed in the leading technical publications of the host country of the fair and, additionally, any other countries whence it is expected buyers will attend the fair and we would want to draw them to the Canadian products. The media will be contacted to prepare for interviews on Canada's participation for newspapers, radio and television. The publicity officer may also arrange for extra posters or banners to be located at strategic points on or near the fairground. When the show is actually operating, quantities of the brochures will be placed in the pressroom which is a standard feature at all major trade fairs.

The Stand and Staff

In the meantime, the project manager, exhibit manager and designer are collaborating so as to finalize the drawings which will be sent to competent contractors for the building and also site installation of the stand. After the drawings are complete the project manager must

formally accept them as he has the responsibility for disbursement of the funds inherent in the design created.

Once more acting in the closest collaboration with the marketing representatives of the companies, the project manager will consider the extent to which additional staff will be required at the trade fair. Such staff could be interpreters, demonstrators, hostesses for food products, etc., handymen and security guards. In some countries the exhibiting company will have staff competent in the local language. However, when proceeding to Eastern European countries or the Arabic speaking nations in the Middle East, it is normal for there to be an interpreter either for every exhibitor or sometimes two exhibitors who agree to share.

Shipping

Obviously exhibit products, graphic panels and some miscellaneous items have to be got to the show location. The exhibit manager of the Canadian Government Expositions Centre (CGEC), working through CGEC's own shipping agent, makes arrangements for transport of the products from Canada to the fair site. All exhibitors are advised of the deadline by which material must be at a specified assembly point to ensure shipping to arrive at the fair site in proper time.

Travel Arrangements

The project manager must also persuade some industry representatives of the need to make their travel plans at a reasonably early date and to secure accommodation which, at the time of a major trade fair, is liable to be scarce in the neighbourhood of the trade fair. Representatives traveling abroad must carry their own medication, if needed (together with a pro forma prescription in case the overseas customs demand it), and to be sure that the necessary visas have been obtained in passports. Advice is given to representatives on currency regulations and exchange rates and in general on the availability of local facilities.

Naturally, many of the exhibitors are experienced in overseas travel and such reminders are unnecessary, but the project manager becomes very important to small and new companies who are, perhaps, doing business outside North America for the first time and are appreciative of any hints and advice.

On Site

And so the time of the trade fair arrives.

Some two or three days before fair opening date, the project manager will go to site to ensure that all the necessary preparations for a first-class marketing effort are being put into place. Not infrequently, on arrival on site, there are some unexpected and exciting challenges such as a one metre square pillar being found right in the middle of our stand, and yet which had never been shown on any of the drawings received in Canada. Such little discoveries mean a prompt change around of the construction on site and again the closest co-operation between the project manager and the exhibit manager.

Almost always the day before a fair opening the Canadian stand looks like a battleground or some disaster area with stray lengths of lumber, plastic, cable, half packing cases and a mound of assorted equipment being scattered on and all around the stand. All too often, even only 15 hours before show opening time, it is the scene of apparent devastation and yet by fair opening time all has been cleaned away and the stand is a shining example of pristine beauty.

However, sometimes it will be seen that the project manager at opening time has bags under his eyes that you could put handles on, and this demonstrates that this final very attractive version of the stand was not achieved until perhaps four o'clock in the morning. The project manager must formally accept the stand, as being satisfactory, from the CGEC exhibit manager.



Hours before opening.

During a trade fair, the project manager must be able to handle a variety of sometimes startling problems.

Briefing

It is usual on the day prior to fair opening that there is a briefing session, held among the chaos, for all exhibitors on the stand so that they may meet their fellow exhibitors and also the trade promotion staff from the local embassy. The Canadian Commissioner will formally



Fair Opening

Quite often one of the first duties on fair opening, for the project manager, is to officially receive the delegation of dignitaries who have attended the opening ceremonies and make a tour of the fair. This calls for quite a change on the part of the project manager.

The day or even a few hours prior to fair opening, he might have been berating a recalcitrant contractor using quite powerful language, yet upon receipt of royalty or a head of state a few hours later, the project manager has to be on his very best diplomatic behaviour.

Also, often these official exhibition tours are carried out at top speed and there is not time to introduce the distinguished visitors to each individual exhibitor. Under such circumstances the project manager has to have at least an overview of each company's products and capabilities so as to give a rapid running commentary as the entourage of dignitaries pass the Canadian stand.

Daily Routine

During the trade fair the project manager is invariably the first on site in the morning and the last out at night. His first duty on arrival at the stand is to make sure that it is still in good shape and that during the night a wall has not fallen down (this has happened) or that the swimming pool on a neighbouring display did not burst and result in a catastrophic flood which carried away part of the Canadian stand (yes, we have had swimming pools burst!).

Fair facilities, services and many other features are assessed to determine the value of future participation.

Throughout the trade fair, the project manager can be expected to respond to a multitude of enquiries, not only related to trade promotion but questions about immigration to Canada, tourism in Canada, about Canada's geography, politically-oriented questions and a multitude of others. Sometimes an exhibitor suddenly finds it desirable to arrange a film showing or a seminar of his product and calls upon the project manager to make the special arrangements.

Before leaving in the evening the project manager has to ensure that all power is switched off (except equipment needing 24-hour power supply), that all garbage is put out for removal, valuable items are securely locked up, and nothing is left on the stand that could grow legs and walk, or be damaged, overnight. Sometimes he also has to winkle out the last exhibitor and potential customer from the lounge, well after the fair closing time.

greet the exhibitors to the territory and note the facilities which the Commercial Division of the embassy can offer exhibitors: providing worldwide communications to other trade posts; obtaining the equivalent of a Dunn and Bradstreet for companies that might want to become agents or representatives of the exhibitors; and providing detailed information on the market available in the area of the exhibition. An embassy's facilities help draw potential customers.

In addition, the project manager will draw to the exhibitors' attention features of the stand, the availability of discussion and refreshment facilities, advise the exhibitors of services available locally, receive any last minute requests and advise exhibitors on the manner in which they can best carry out their marketing and sales functions from the stand.



Opening day.



The all-important business lounge, part of a Canadian exhibit.

The project manager has to be on the stand to carry out the above functions. However, it is also his duty to pay courtesy calls on the directors of other national stands and to make a tour of the exhibition so as to bring to the attention of our own exhibitors any significant competitive or even complementary products seen on other stands. At the same time he will note on other stands any particularly advantageous method of display or feature which might be incorporated in a future Canadian stand.

An important feature of the discussions with the directors of other countries is a review of the effectiveness of the given exhibition, special services rendered or available and any other features which could reflect upon Canadian export trade and also the potential for future participation at this or other trade fairs.

Closure

As the trade fair approaches closure, the project manager will meet each exhibitor to obtain advice on the manner of disposal of the exhibit products. If items have been sold so that they will remain in the exhibiting country then the project manager will request a customs officer from the country, together with the local shipping forwarder to have discussions with the exhibitor so that the necessary formalities can be accomplished. Generally speaking, trade fairs are custom-free areas but, of course, any

items sold into the country will be levied customs and other duties.

For products not sold or otherwise disposed of arrangements will be made for their shipment out of the fair site, usually back to Canada. Once again, the local shipping agent will be involved together with a customs officer who will check the outgoing shipment against the documents for the incoming shipment and certify that the outgoing shipment can be dispatched without hindrance.

A most important activity is to ask exhibitors to complete a form recording the results they have obtained during the fair and anticipated future results expected from being at the fair, together with any comments on how the presentation assisted the company's marketing effort, whether the stand was effective from the company's point of view, whether services were felt adequate, etc.

The fair closes and there is a general sigh of relief all around at the conclusion of what usually has been five or more days of most intensive activity. All too often the project manager is left with the task of supervising the repacking of exhibitors' products. Although he cannot be responsible for such repacking, he is usually able to guide the shipper's personnel so as to lessen the probability of breakages on the return shipment.

On the day following show closure stand dismantling takes place, inevitably at a much faster rate than it goes up, so that by the end of the day the scene of

Follow up in contacting the participating companies some 12 months later is a highly important task of the project manager.

devastation first noticed two or three days before the show opened, has been recreated.

Having seen that the repacking and stand dismantling are well in hand, the project manager will return to Canada and, over the next two or three months, carry out the wrapping up function of paying outstanding bills for various services, most particularly for reshipping of material back to Canada. He will be expected to prepare a comprehensive report on all aspects of the fair including, of course, the results achieved, not only direct financial returns but also such intangibles as contacts made, future prospects, agents or representatives established and the feeling of exhibitors whether or not their presence at the fair was worthwhile for their future marketing plans.

Follow Up

A most important but sometimes unappreciated activity is to contact the exhibitors some 12 months after the fair to get a factual assessment whether the business anticipated to have been generated was, in fact, achieved. This information can be decisive in determining whether to participate again at the particular trade fair. Again it must be emphasized that resources both financial and human are never sufficient to carry out a promotional program of such broad scope as would cover all potentialities and the performance at the trade fair is vital in determining whether to continue participation at it. ☐

(The second of these two articles will deal with the project manager's involvement with both incoming and outgoing trade missions.)

— by J.A. Quarrington
Department of External Affairs

CEA Report Studies Co-operative Trade Effort

For Canadians anxious to break into the markets of the third world and the developing countries of the Pacific Rim, third country co-operation might well be the answer.

At least, this is the conclusion of the Canadian Export Association which recently completed a report on Canada-Japan efforts in this direction over the past two-and-a-half years.

In a well-documented study, CEA's David Goldfield traces the development of Canada-Japan co-operation back to then Trade Minister Ed Lumley's mission to Japan in March 1981. At that time the Japanese Machinery Exporters Association (JMEA) suggested that Canadian and Japanese firms should get together to discuss opportunities for joint ventures in third countries.

For the Japanese, this type of co-operation has become an extremely important facet of their overall export strategy to maintain their huge plant exports (\$13 billion in 1981). In addition to Canada, JMEA has held similar meetings with several European countries — Belgium, Holland, Britain, Italy, France, Germany, Spain — as well as Korea and Brazil.

The two meetings between Japanese and Canadian executives, the first in April 1982 in Toronto and the second this past spring in Tokyo, investigated areas in which each country could make full use of their individual strengths to co-operatively bid major projects.

For Canadian firms taking advantage of these co-operative projects the advantages include:

- The Japanese firm's extensive marketing network and strengths particularly in Asia where Canada has not traditionally had an advantage. These markets are some of the few worldwide which are still experiencing substantial growth. The Japanese are also strong in the Middle East and Russia;
- The Japanese reputation as efficient project managers with expertise in a broad cross-section of industrial and infrastructure projects;
- Japanese financing advantage in major projects;

- Exposure to and working with Japanese firms can provide a good insight into the Japanese way of doing business. This could be beneficial for future access to their own domestic projects;
- The ability to share the greater risk of larger turn-key projects now preferred by many developing countries.

For the Japanese, the advantages, in addition to many recognized for Canadian firms, are:

- As a counter balance to growing world resistance to Japanese competition, particularly in those projects sponsored by international development organizations;
- Major Japanese trading companies are considered in a good position to function as consortium organizers to offer the best possible package to plant buyers by optimizing the apportionment of the supply side of the contract to a number of companies in the various countries;
- Countertrade demanded by an increasing number of Communist block and other countries in the developing world can be shared among partners;
- It can help to overcome Japanese weaknesses in civil engineering and, to a lesser extent, in systems engineering;
- Because of stiff competition in the sales of individual pieces of equipment the Japanese are more vigorously pursuing full turn-key projects as an outlet for Japanese manufacturers;
- With the increasing size of projects it is becoming more difficult to organize both the financial and technical risks on a single country basis;
- In recent years the Japanese are encountering some resistance in their traditional plant market sphere of influence in Asia, mainly due to their over-exposure in these markets. The inclusion of bidding partners from other countries will tend to lessen this resistance.

For Canadian companies, particularly in the engineering and project management fields, this type of co-operation can help not only the prime contractors but also the suppliers of equipment since Canadians are more likely to specify equipment with which they are familiar.

Sectoral Opportunities

The sectors where Canadian and Japanese firms have compatible expertise include power generation, transportation, oil and gas, mining, telecommunications, agricultural and forestry.

The Japanese recognize the worldwide reputation of Canadian engineering and manufacture of capital equipment in power especially hydro generation and transmission. In fact two Canadian firms, CE Superheater and Babcock and Wilcox Canada, are currently supplying coal boilers on projects in Thailand and Indonesia with Marubeni Corporation.

In transportation, Canadian firms are also world leaders in the manufacture of locomotives (see « Subcontracting — An Economic Way of Life », *Canada Commerce* — May 1983), urban transit, aviation and port facilities.

In oil and gas, a consortium of Nova Corp of Calgary and Mitsui Engineering and Shipbuilding is now building a natural gas pipeline in Malaysia.

Based on Canada's home development of one of the world's most advanced telephone and data transmission systems, Canadian firms have captured dozens of foreign contracts throughout the world.

In agriculture, Canadians are world leaders in grain handling, processing and storage — all of immense interest to developing countries. To develop its forestry resource Canada has been in the forefront of technical and machinery development and in recent years has displayed this in Iran, Poland, Argentina, Czechoslovakia and the U.S.

Two Canadian consulting engineering firms are providing consulting to Japanese firms with co-operative agreements in the U.S.S.R. and Malaysia.

To continue this Canada-Japan co-operation dialogue, CEA is planning a further meeting next spring and is hoping to attract a much larger representation of Canadian firms. ☐

For further information on this planned meeting and the full story on the opportunities these interchanges foster contact:

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Trading Houses — The Professionals in Exporting

Trading houses have played a major role in international trade since the time of the Phoenicians and Romans. Yet in Canada the trading house concept is little known, even by those for whom it could be most useful: the small and medium-sized manufacturer or producer who wants to enter the complicated business of exporting.

It is widely recognized that if we in Canada are to expand our productivity, increase labour-force participation and encourage regional industrial expansion, we have to increase the volume and value of our exports. On a number of occasions ITC/REE Minister Ed Lumley has expressed the need to explore all avenues for improving our export performance, and in particular has emphasized support for the viability and potential of the trading house concept in achieving this.

At the same time, the international recession has created a very competitive marketplace. Many countries have less favourable credit standings than before,

many buyers have gone out of business, potential markets have shrunk because more countries are considering exporting as a strategy for relieving their sagging economies, and a number of markets which were expanding a short time ago have completely disappeared.

In describing the international trading environment, Jim Kelly of ITC/REE's Service Industries Branch (the branch which deals with the trading house sector) talks about the worldwide diversification in manufacturing and the complexity of the larger number of products now available for sale. "It has become harder to match products to markets, and in the face of an extremely

competitive marketplace, diversification of marketing skills has become necessary."

Diversified marketing skills are what trading houses have to offer.

What does an export* trading house do?

"If you want to export, get an exporter," says Andy Gallagher, president of Forbex International Inc., a Toronto trading house that deals in sanitary fixtures and fittings and other hardware.

*Although many trading houses are involved in importing as well as exporting, it is only the latter function which is of interest in this article.

Trading Houses throughout History

Traders — those involved in the commercial enterprise of taking goods produced in one country and marketing them elsewhere — have throughout the course of recorded history contributed to the prosperity of great nations and civilizations. Phoenician, Greek and Roman traders, long before the Christian era, exchanged goods and ideas throughout the Mediterranean and Near East and as far away as India.

It was in pre-Renaissance Venice, however, that the trading house, as an organizational unit, really came into its own. After Marco Polo returned to his native city at the end of the 13th century with stories and samples of the fabulous and exotic riches of the Far East, the Venetians set up the most extensive, and probably profitable trading system the world had ever seen. Through their trading houses, they acquired the rare spices and goods of the East and marketed them to a commodity-hungry Europe.

It was the search by traders for a new route to the East that spelled the ultimate decline of Venice. With their discovery of the Americas came a demand in Europe for the furs, precious metals and other natural resources of the New World, and an expansion of the economies of the seafaring nations which traded in them — Spain, Portugal, France, Holland and England.



A monument to greatness through trade: the Maritime Customs House in Venice, completed in 1677.

But it is a matter of getting the right trading house for a particular job. Specialization of services offered is so great that one authority has been able to define 27 different types of export trading houses in Canada.

They usually specialize by product line (e.g. most manufactured products, primary materials, forest products, agricultural products and livestock); by geographic region of markets (e.g. Latin America, the Caribbean, the European Economic Community, Eastern Europe or the Far East); and by the kinds of contractual arrangements they make with their clients.

"Building the bridge between supply and demand," is the straightforward description of trading house activities given by Jane Rigby, vice-president of Rigby Marketing Services Limited of Hamilton, whose company deals in the exporting of industrial machinery.

Basic to the function is a vast body of knowledge which, any exporter is quick to point out, is not acquired overnight. A trading house has a specialized knowledge of the business laws, regulations and practices affecting the Canadian producer it represents, as well as those which affect the foreign buyer in

that country. The house also knows the laws and regulations which govern exporting from this country and those which affect importing in the buyer's country (e.g. import quotas and tariffs).

From the international communications network they have set up, professional exporters keep a constant watch on foreign commercial and marketing developments so that opportunities for sales can be quickly investigated. At the same time, they possess the language and social skills necessary to properly understand the precise needs of foreign buyers.

On top of this, trading houses offer, or have access to the large range of services required in the mechanics of exporting goods: packing of goods, documentation, freight-forwarding and inland transfer services, acquisition of insurance and necessary licences, and translation services. They arrange payment terms and take care of foreign currency exchanges. Some houses offer short-term financing and some will take care of the distribution of promotional material. Trading houses can also appoint agents abroad to represent the producer, arrange to enter and display goods in foreign trade fairs, and arrange for after-marketing servicing.

All these services are not offered by all trading houses, but individual exporters can be expected to offer, or know how to acquire the services necessary to their own specializations.

Who uses export trading houses?

Anyone going into exporting for the first time will find that the costs are high and that the endeavour requires a pretty serious commitment. A carefully chosen trading house, which in effect is a functioning and well experienced "export department", can do the job while reducing cost and risk.

The most frequent users in Canada of trading houses are in these categories: producers (including manufacturers) experienced in exporting; producers who don't wish to set up their own export departments because they either don't have the resources, are not sure that a profitable export market exists, or don't have enough production available for export to justify the effort; organizations already exporting to major markets but who cannot justify the costs of establishing additional branch or subsidiary offices to service smaller markets; and organizations already exporting but who want to make use of a trading company's contacts in a particular market.

Trading houses became an integral part of the economic activities of Holland, which through her traders extended her influence into the Dutch East Indies of the Far East; and of England, which was building the largest political — and economic — empire the world has yet seen. And it was the English who, through the establishment by royal charter in 1670 of "The Governor and Company of Adventurers of England trading into Hudson's Bay" (the forerunner of the Hudson's Bay Company), brought the trading house concept to Canada.

But Canada was developing what became known as a "colonial" economy, in which we exported our raw materials mostly to a manufacturing-consuming Great Britain from whom we later imported a proportion of the same materials after processing. In the 20th century, this activity evolved into our "branch plant" economic relationship with the U.S., in which a similar thing happened, but this time mostly under the control of the U.S. head office. In neither case did trading houses play much of a role and, with the exception of a few large operations such as the Hudson's Bay Company, they had all but left the Canadian economic scene by the beginning of this century.

However, the post-war period has been one of great changes in the Canadian economy, and of the place of trading houses within it. The technology which emerged from

wartime research and development, the immigration of people with different skills and entrepreneurial ideas, and the economic boom of the 1960s have led to a great expansion and diversification of the Canadian manufacturing sector.

Along with this development has come the re-emergence of the trading house. While a 1975 directory of private export trading houses (produced by the Canadian Export Association and Industry, Trade and Commerce) listed 173 firms, a second publication — the *Directory of Canadian Trading Houses* — published last year by ITC/REE listed 640 such firms. The list is not comprehensive though, and it is estimated that the number of active trading houses in Canada today is as high as 1 000. Another estimation, although the figure is hard to substantiate, is worth reporting: in 1981 Canadian trading houses exported \$11 billion worth of goods.

In spite of these impressive statistics, trading houses are not well known in this country. Part of the problem has been the middleman stigma attached to them, but also is the fact that the great mushrooming in their numbers has taken place only in the last five years. In any case, they do have an important role to play in a country that seeks to improve its economic strength through the expansion of its export markets.



And, of course, Canadian houses are used by overseas buyers who want to source Canadian goods.

Contractual arrangements

The different kinds of contracts made between trading houses and producers depend on whether the trading house acts for the producer who is the principal, for itself as principal, or for the buyer as principal.

When the producer is principal, the trading house is usually retained on a commission basis and, according to the contract, is responsible for all, part or none of the *del credere* (final buyer) risks. When the trading house is itself the principal, the goods are bought outright from the producer. The producer enters nothing more complicated than a domestic transaction, while the exporter (called an export merchant under these circumstances) accepts all financial risks involved in the foreign sale. Examples of the buyer as principal are private foreign enterprises or foreign governments who know they want to buy Canadian goods and who will engage a Canadian trading house to help them do it.

This is by no means an exhaustive list of the kinds of arrangements that trading houses make. Canadian technical expertise and services are also mar-

ketable. Sometimes trading houses will put together *ad hoc* consortia to bid on specific overseas capital projects which will involve the buying of equipment as well as know-how. Yet another activity is the "piggyback" operation in which the facilities of an established producer's export department are used to export the complementary or non-competitive lines of other producers. This is commonly used when a producer is shipping less than a full container load of goods and wants to take advantage of full-load rates.

Choosing a trading house

This is not a matter of picking the first one in the book, warns Hélène Woods of ITC/REE. The most important thing for the producer is to find a trading house which knows the product well enough to market it with conviction. Trading houses, on the other hand, want the producer's long-term commitment to the endeavour: they take their business role in international relations quite seriously and, once having secured an overseas market, wish to maintain Canada's image, and their own, as a reliable supplier. The producer is, in essence, looking for a partner, so the choice should be a careful one.

There are a number of good sources of advice and information avail-

able to the producer looking for a trading house. ITC/REE's *Directory of Canadian Trading Houses* (a new edition of which is planned for distribution early in 1984) lists 640 trading company profiles, as well as company listings by markets served, by product and by province. The Canadian Export Association (250 - 99 Bank St., Ottawa, K1P 6B9), whose membership includes 130 trading house members, is another excellent source. Useful contacts can also be made through trade associations, local Chambers of Commerce and satisfied customers. And there are well informed officers in ITC/REE's Service Industries Branch and the Trade Commissioner Service of the Department of External Affairs who are willing to help. ☐

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— by Tim Hopkins
Canada Commerce

With Canadian Help Guineans Take Over Railway Operation

For 10 years, Canadian consultants of CANAC, a subsidiary of Canadian National Railways (CN), have been involved with the training and guidance of personnel to run the Boké railway (CFB — Chemin de fer de Boké) in the African nation of Guinea.

Today Guinean nationals are gradually assuming a more important role in the running of CFB and traffic has risen steadily to 9 million tonnes of bauxite annually.

Since its incorporation in 1971, CANAC has successfully carried out a number of projects around the world. In February 1973 CANAC was awarded a contract by the three organizations involved in the construction of the Boké railway. The three were: Office d'aménagement de Boké (OFAB), a government agency; Halco Mining Incorporated, a consortium of Canadian, American and European aluminium companies; and Compagnie des bauxites de Guinée (CBG), owned jointly by OFAB and Halco.

The terms of the agreement called for CANAC to train Guinea nationals in all aspects of running a railway and to manage CFB's operations and maintenance activities. Since the signing of that first contract, CANAC has gradually assumed a lower profile as Guinea nationals have taken on greater responsibility.

As a result of a recent agreement to extend its contract to 1985, CANAC will continue to assist CFB. The new contract calls for CANAC to train Guinean railway personnel for top managerial positions in operations and maintenance, and to continue providing technical assistance in the actual operation of the railway.

Mineral Lines

Boké Railway is one of three railways in Guinea dedicated to hauling the country's rich bauxite deposits to Conakry and Port Kamsar for export around the world. CFB's 136 km line runs from the bauxite mines at Sangaredi to Port Kamsar where the bauxite is processed and shipped.

The railway was completed in 1973 as a standard-gauge track with 1 700 sleepers/km and continuous-welded 60 kg/m rail, giving it a maximum capacity of 10 million tonnes of ore a year.

When CFB started operations motive power consisted of 13 General Motors locomotives — six rated at 3 000 hp, three at 1 500 hp, and four shunters. Three were 230 hopper wagons, each with a 75-tonne capacity and a gross weight of 100 tonnes.

Today CFB operates six trains per day each way comprising 85 wagons, and hauls some 9 million tonnes of bauxite annually. In addition it runs a passenger service five days per week between Sangaredi and Port Kamsar.

Training Manuals

As soon as the CFB contract was signed, CANAC immediately tackled the task of preparing operating and recruiting procedures, training programs, and assembling a team of consultants. **Some of the documents required by CANAC included:**

- manual of railway personnel selection methods;
- career structure for Guineans;
- code of operating rules;
- code of discipline;
- list of statistics required for operation and management;
- standards of maintenance;
- railway accounting methods.

In addition, training programs were drawn up for the following categories of staff:

- motive power and wagon maintenance;
- track maintenance;
- footplate;
- traffic control;
- communications and signalling equipment maintenance.

A 13-man team was recruited from CN to fill the following positions: technical director; operations superintendent; communications and signalling supervisor; accountant; assistant

accountant; administrative assistant for personnel training; locomotive, wagon and permanent way maintenance supervisors; footplate supervisor; two drivers; and a rules supervisor. In addition, there were three bilingual secretaries. A varying number of specialists were also assigned for short periods.

The first CANAC contingent arrived at the site in April 1973 to begin the selection process for some 100 nationals needed to initiate a train service between the mine and port — until CANAC arrived CFB had no staff. The training material was completed in Canada and delivered to Guinea as other team members took up their assignments during April and May 1973. Documents were prepared in French, and the fact that French is an official Canadian language has greatly assisted communication.

The selection process, carried out jointly by Guineans and CANAC, took place in three stages. The first stage involved pre-selection based on data noted on the application form including education, experience, language, physical condition and age. Those pre-selected were then interviewed by the personnel officer in the presence of two Guinean representatives of OFAB to determine the department to which they would be suited.

A selection process for training Guinea technical rail personnel was carried out in three stages.



Thermite welding on Chemin de fer de Boké.

The CANAC team members responsible for the various functions then interviewed the candidates recommended to them by the personnel officer and made a final choice of those to undergo the training courses. For example, the maintenance of way supervisor interviewed candidates for work on track maintenance.

This provided a second screening prior to accepting candidates for their respective training programs. A total of some 250 applications were processed to fill the initial 58 positions.

Candidates who successfully completed the interview were then required to take a combined theory and practice course in their area of specialization, varying from one to three months. Those who received a passing grade of 80 per cent or more were then hired by the railway.

This method of instruction proved to be very successful. For example, after three months some locomotive drivers were qualified and allowed to run trains on their own. This is in sharp contrast to some railways in developing countries where after several years of operation expatriate drivers are still employed extensively. Similarly in other functions, such as wagon inspection and train dispatching, tasks were carried out by Guineans with a minimum of CANAC supervision.

Selection and hiring was in fact a continual process to match the increase in traffic following the running-in period.

The first train of ore was operated on April 27, 1973. In September three ore trains were running daily in each direction, and by December the frequency had been stepped up to four trains per day.

Before the end of the first year of the contract CFB was capable of handling six ore trains per day in each direction. However, the maximum number operated at this time was only five per day, either because of loading limitations at Sangaredi or due to unloading difficulties at Port Kamsar.

These early trains consisted of 50 wagons hauled by 3 000 hp locomotives. There was no caboose and train orders were dispatched direct to the drivers by radio. The first revenue passenger train ran on May 25, 1975.

On-the-Job Training

Training courses were underway by June and, while on-the-job training was the preferred method of teaching most new employees, a combination of hands-on experience and audio-visual instruction was used for preparing prospective loco drivers to handle a train.

Training of supervisors started in 1975 with the selection of 20 potential

supervisors from some 150 employees who had undergone extensive classroom and on-the-job technical training. The 20 candidates were enrolled in a course entitled *Effective Supervision*, in addition to receiving further on-the-job training. Further courses have been run since 1975 as more supervisors have been required.

During 1976 and 1977 a total of 11 Guineans were assigned to training visits in Canada for periods varying from two to six months. Training programs were drawn up for each individual, most of the time being spent in work situations with Canadian National Railways, while a few outside visits to manufacturers' plants were also included. This training gave the recipients a useful exposure to railway operation in a different environment from their own country.

CANAC staff in Guinea has been reduced to between 10 and 13 and, within the next five years, it hopes to cut it further.

A more advanced course in effective supervision was held for some 40 Guineans including eight from OFAB and CBG. Concurrently, job evaluation and performance appraisal procedures were introduced and the progress of the supervisory trainees has been monitored with good results.

The basic team of 13 specialists was maintained throughout the first three years. Together with the three secretaries and a varying number of short-term assignments, total CANAC personnel on site varied from a maximum of 25 to a minimum of 18.

Since then the number of CANAC staff has been gradually reduced and in recent months has varied between 10 and 13. At the same time several of the CANAC team assignments have changed from managing roles as Guinea supervisors have been qualified and appointed. Over the next five years it is expected that CANAC will have less than 10 staff in Guinea.

Boké Railway can now meet its designed capacity of handling 10 million tonnes of bauxite ore per year.

Transfer of Technology

In the course of its association with CFB, CANAC has had to solve a number of technical problems and this has often been achieved by drawing on the resources and technology available through its parent, Canadian National Railways.

In the signalling and telecommunications field two improvements were recommended by CANAC. A modification was introduced to facilitate train movement, and an electronic weigh-in-motion scale, originally designed at CN's research centre in Montreal, was installed at Sangaredi.

In July 1973 an ore train was derailed as a result of a broken weld. Routine track inspections, which had only been introduced on a thrice-weekly basis the previous month, revealed that the quality of aluminothermic welds was questionable.

CANAC arranged the assignment of a welding specialist and ultrasonic testing experts. In a short period of time a useable ultrasonic multi-probe christened RUMP, or Railweld Ultrasonic Multi-Probe, was designed and put to effective use.


A CANAC specialist remained to supervise and complete the testing of all welds in the tracks and to train Guineans to use RUMP. As a result of the ultrasonic testing, a re-welding program was initiated and all new welds have been similarly tested. RUMP has since been patented by CANAC and has been used extensively in Canada.

Another problem which came to light in the early stages was an excessive degree of locomotive and wagon wheel wear as well as rail wear. CN expertise, provided through CANAC, was helpful in overcoming the problem through suggested changes in wheel profiles, and by

lubrication of rails at designated points, initially by hand and later through the installation of rail lubricators.

For several years, samples of locomotives crankcase oil from the Boké Railway were analysed by an atomic absorption spectrometer at the CN Research Centre in Montreal. The necessary equipment has now been installed at Port Kamsar and Guineans have been trained to use it.

As the performance of the railway has improved, so has that at the bauxite mine and the port. Yet CFB has always been capable of handling any traffic growth that resulted from increased production at the mine and port.

By February 1974 CFB was moving bauxite at an annual rate in excess of 3 million tonnes. The volume has increased from year to year, and since 1977 the railway has been capable of handling the designed capacity of 10 million tonnes. The maximum quarterly tonnage handled to date was in the third quarter of 1978 when over 2.7 million tonnes of bauxite was moved from Sangaredi to Port Kamsar. Since 1976 a five-day-per-week passenger service has been maintained. 

Rail-Bus: A Viable Alternative?



While Canadian rail expertise is an important export for Canadian companies as the preceding story indicates, Canadians are examining many alternatives for our rapidly diminishing passenger services here at home.

One such alternative was examined in the latest issue of *Transpo/83* under the heading 'Whistle Stop'. Transport Canada staffer Stuart Munro examined the history of rail-bus as a viable alternative to unprofitable, infrequent passenger service on underutilized branch rail lines.

According to Stuart, the idea is of particular interest to remote communities whose only surface link to the outside world is the railway, many of them located where they are because of the railway.

While not a new idea — the rail-bus has been in use with Winnipeg Hydro since 1941 — its use as a rail link for Northern Manitoba communities is now under serious consideration for the first time.

Early this spring, the Canadian Transport Commission at its meeting in Thompson, Manitoba, set up three investigating committees to examine a proposal to serve northern communities around Churchill, towns such as Thicket Portage and Pickwitonei, with rail-bus. These committees are to report back to the October meeting of the Canadian Transport Commission and the chances are good that a pilot project will be established for three years.

Similar services are available in Britain and the New England states but, in both cases, they do not have to contend with the extreme conditions of snow and sub-zero weather encountered in the North.

The Seawind — Amphibious Grace on Wing

With assistance from the Enterprise Development Program, a Haliburton, Ontario, company has developed a unique aircraft — the Seawind — which it plans to sell, in kit form, to the world market.



The graceful contours of the Seawind highlighted against the sky.

The Seawind is not a futuristic participant in Star Wars. It is a very practical amphibious aircraft which can be built in about 1 000 hours for under \$30 000.

The idea originated 10 years ago with two brothers, Len and Roger Creelman, who could not find a four-place amphibious aircraft suitable for their needs at a price they could afford. So they decided to build one. The original intent was to be flying in 18 months, but practical problems overcame initial enthusiasm and the Seawind did not achieve successful flight until August 1982.

The Creelmans wanted a low-cost aircraft easy to build and easy to fly with a fast cruising speed and comfortable seating. It had to "look right" and the brothers objected to the engine installation of the conventional small amphibian, mounted on top of the fuselage, in

the words of Len Creelman, "like a wart on a peanut". The specification indicated a fibreglass structure with the engine mounted on the vertical stabilizer and the design was submitted to the Department of Transport (DOT) in 1974 for approval.

Catastrophe! DOT would not allow primary aircraft structure to be manufactured from fibreglass because of the unproven characteristics of the composite material. This major setback forced the Creelmans to redesign the Seawind with conventional aluminum and wood materials, using fibreglass only in non-structural areas. The prototype looked great but the hull was incorrectly configured and the aircraft was not able to get onto the step — the stage when the hull planes on the surface of the water and a necessary prelude to flight. The prototype went into storage under a black cloud of disappointment.

By 1978, DOT was satisfied that enough was known about composite materials to allow their structural use in experimental aircraft. The hull configuration problems were solved on the original prototype and the Creelmans reverted to their plan to build an all-fibreglass aircraft. Rather than construct the prototype by hand-layup methods, the brothers demonstrated their confidence in the design by investing in molds which gave a superior surface finish to the second prototype Seawind.

The new design satisfied structural testing to meet the requirements of the DOT and the U.S. Federal Air Regulations. Great excitement attended the first test flight in November 1980 and, after some minor modifications the second test flight took place a few days later.

Catastrophe Number Two! The Seawind crashed, fortunately without injury to the pilot. An aeronautical engineering consultant, Northeast Engineering and Development of Stroud, Ontario, was called in to analyze the design and concluded that, while the overall design is quite adequate, "— engine location, mounting structure, and propellor slipstream all contribute to an interference effect on the vertical stabilizer and rudder — therefore, in certain flight regimes the plane will not have sufficient directional controllability." In short, the rudder was too small.

Back to the drawing board. Time was also taken to plan ahead. The Creelmans sought technical advice from The Technical Committee of the Experimental Aircraft Association of Canada and the National Aeronautical Establishment.

Financial support was requested from the Enterprise Development Program (EDP) of the then Department of Industry, Trade and Commerce. The

EDP had already provided a small amount of assistance but required a credible business plan showing a reasonable chance of commercial viability before it would consider the larger sum now required.

Rodlen Aircraft Inc. was incorporated in January 1980 with the Creelman family as major shareholders and now operates under the trade name of Seawind International. Northeast Engineering and Development was employed to monitor all subsequent developments. The National Aeronautical Establishment examined the design and offered a number of recommendations. Research engineers at Fibreglass Canada Product Development Centre in Guelph and Dow Chemical were consulted and a qualified test pilot was recruited. The shareholders endorsed their confidence with additional equity and the bank established a line of credit.

On this evidence, the EDP agreed to support the project and work on the third prototype started early in 1981.

Rather than repair the damaged aircraft, Seawind capitalized on the investment in molds and built a completely new aircraft, lengthened by 45 cm (18 inches) to give increased flotation volume and tail area. At this time a switch was made from polyester to vinyl ester resin with some carbon-fibre tape reinforcement, resulting in a net weight reduction despite the extra structure.

The new prototype is now flying, attracting great interest because of its unusual sleek design and its superb finish. As practical as it is attractive, Seawind has a cruising speed of 270 km/hour (168 mph) on 75 per cent power with a 200 h.p. engine, according to Creelman who notes the inherent fuel economy of the smooth structure. The Seawind is 8.5 metres (28 feet) long, 2.9 metres (9 feet, 7 inches) high and has a wingspan of 10 metres. It can climb at 290 metres (950 feet) per minute and carry a useful load of 408 kg (900 lb.) for 1 046 km (650 miles).

It is clear that the Creelman family is solidly behind Len in his efforts to put the Seawind into production. The three family-owned gift shops in the Haliburton area have been sold over the past three years and the proceeds contributed to the \$300 000 invested in the aircraft project. The six full-time employees are expected to increase to 20 when the current testing program is complete and the

company settles into production — an important factor in the Haliburton area where the economy is largely dependent on the seasonal and unpredictable tourism business.

The construction of all home-built aircraft is monitored by DOT which, if satisfied with the materials and workmanship, issues a flight permit — but only for operations within 40 km (25 miles) of home base for the first 50 flying hours, after which the restriction is removed if the aircraft performs satisfactorily.

Under these rules, the Seawind was shipped by road to Ottawa for land-based testing. The resulting test pilot's report is an endorsement of the Seawind's performance. The report concludes — "It has proven to be a safe aircraft to fly at all times, with no vices and is, in my opinion, suitable for pilots of all categories. Its performance would do credit to the majority of pure land-based aircraft of its class while, for an amphibian, it is nothing short of remarkable."

The next major hurdle faced by Seawind is production start-up. Water tests should be complete this fall and a decision will have to be made on expansion of the current 185 m² (2 000 sq. ft.) rented facility or a move to larger quarters. In the process, planned production refinements will be incorporated and the vital decision made on production rates.

Seawind took advantage of the Program for Export Market Development (PEMD) to assist in the display and demonstration of the Seawind at the Experimental Aircraft Association show at Oshkosh, Wisconsin, mecca of aircraft builders, in August. The prototype had accumulated only 25 hours flying by this time and was still under the 40 km from base restriction so was not able to fly at Oshkosh. Nevertheless, the static display was seen by thousands of aviation enthusiasts and hundreds of information packs were sold to the more serious potential builders.

Creelman considered the show an excellent source of information and contacts; he has several new ideas on composite construction which he expects will improve still further the performance of the Seawind.

The market prospects are encouraging for the new aircraft. The North American market has been growing at a steady 8 per cent per year and, by 1981, approximately 9 500 home-built



Len Creelman
President of Rodlen Aircraft

aircraft were registered. The Seawind has overcome the amphibian's traditional penalties of high cost, utilitarian appearance and poor performance compared with wheels-only aircraft. Creelman expects the versatility, aesthetics and economics of the Seawind to appeal to a large segment of new builders and will offer a kit which makes the work straightforward and the results safe. All major structural subassemblies are built in the factory: the wing, for example, comes in one piece.

Fibreglass manufacturers in the U.S. and Australia have made enquiries regarding the Seawind subassemblies under licence. The simple, labour-intensive construction of the aircraft is particularly attractive to countries with low-cost labour and overtures have already been made by businessmen from Morocco and Indonesia regarding the manufacture of complete aircraft.

Solid evidence of market interest is shown by the 1 200 information packs sold and 100 orders placed without any paid advertising. Seawind had been planning production based on 50 kits per year but may have to revise plans in the light of the evident demand for this attractive new product — built on the hard work and dedication of the Creelmen and their supporters with tangible assistance from federal government officials, the Enterprise Development Program and the Program for Export Market Development. □

— by S.B. Shaw
Electronics and Aerospace Branch
ITC/REE

A New Factory, New Environment

Suddenly, after being addressed by a man speaking very normally in a loud and clear voice, the robot begins to move. Flailing the air with its mechanical arm as if to take a swing at the chairman of the board with the scissors it is holding in its hand, it thrusts its arm toward the group of guests and finally, on its second attempt, amazes the crowd by successfully completing its task: to cut the ribbon. Unbelievable, and yet this feat, which sounds like something straight out of a Jules Verne novel, has nothing to do with science fiction. In fact, it was witnessed by a few hundred people on August 31 at this — to say the least — unusual opening of the Canadian General Electric Company's new factory at Bromont, Québec.

Located approximately 70 kilometres southwest of Montréal, the little community of Bromont may very well soon pride itself on being the high technology centre of Québec. In this respect,

the new Canadian General Electric factory is certainly the most beautiful feather in its cap. The construction of this facility, at a cost of \$100 million, was the result of the Canadian government's decision to buy the F-18 fighter from the McDonnell Douglas Company and is in line with the anticipated economic spin-offs of the agreement concluded with this company. The F-18 is equipped with two General Electric F-404 jet engines.

A Brand New Factory

It is at this new plant that Canadian General Electric manufactures the compressor airfoils for its new CFM56 series of jet engines. Arranged in rows inside the engine, the compressor airfoils turn at dizzying speeds, in opposite directions, only a hair's breadth apart. These pieces of titanium, which change the direction of the current of air passing over them and cause rapid air compression, provide the engine with its power and its thrust.

Far less polluting and less noisy, more reliable and easier to maintain than their predecessors, the CFM56 engines are made by CFM International through a joint venture with the SNECMA company of France and Canadian General Electric. By comparison with previous engines, the CFM56 series will mean fuel savings for airline companies in the order of 20 per cent. These engines were chosen by McDonnell Douglas to replace the engines in its DC-8 aircraft and by Boeing for its B737s. The A320 aircraft of Airbus Industrie will also be equipped with engines in this series.

Of note also is the fact that the Bromont facility's total annual production of 550 sets of compressor airfoils, which will represent some \$40 million when the factory is operating at full capacity, is exported to the United States to supply General Electric's plant in Cincinnati, Ohio.

A Prototype of Its Kind

The Bromont facility is a new factory, but it is much more than just a building that still smells of fresh paint. Indeed, as Alton S. Cartwright, chairman and chief executive officer of Canadian General Electric, pointed out on August 31: "This is not your ordinary factory. Our new plant here is one of the world's most modern (on the same occasion, Jean-Jacques Blais, Minister of National Defence, did not hesitate to call it the most modern factory in the world). It's a 'Factory With A Future'. . . . This plant will be a technological showcase — one of the most cost-effective and highly automated facilities in existence."

In actual fact, the Bromont plant is one of the first among some 400 facilities operated by General Electric throughout the world to integrate state-of-the-art automated manufacturing technology, specifically, robotics, voice control (using robots capable of decoding human language, of recognizing the worker's voice and performing the tasks assigned to them) computerized control, multi-operation technology as well as computer aided design and manufactur-



Canadian General Electric's new plant at Bromont.



The F-18 Hornet from McDonnell Douglas, chosen by the Canadian Armed Forces.

ing (CAD/CAM). The robots (11 are already operating in the plant) work on equipment maintenance, the forming of metals, milling, grinding, pattern recognition, the testing of alloys, laser marking, heat treating and Sigma inspection. The facilities also have programmable automatic units, real-time control of operations, computer aided digital control machines and 14 multi-work stations controlling 51 production machines. Why such sophisticated equipment? Each airfoil is approved or rejected on the basis of a tolerance of one ten-thousandth of an inch!

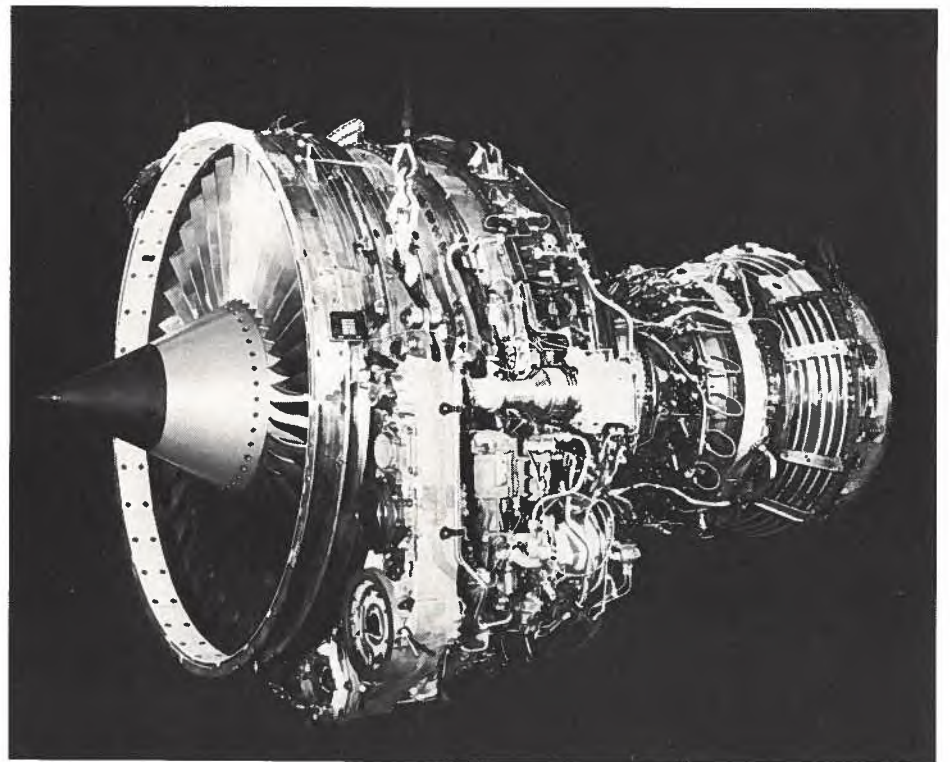
The Structure of the Factory

At the heart of the factory are the manufacturing teams. First, there is the team responsible for forging and grinding the airfoils. Rather than being machined, the airfoils are forged with great precision to guarantee that each piece will be an exact duplicate of the preceding one. The extrusion, rolling, preforming and stamping-fettling operations are performed by another team. Finally, the machining team is responsible for shaping the dovetail by which the airfoil is fastened to the engine.

The production teams are backed up by four groups. The maintenance group is responsible for the upkeep of the factory while, working often entirely by hand, the equipment group makes such items as the dies used in the rolling process and the various instruments required for monitoring, both by computer and visually, the quality of the parts produced. The engineering, manu-

facturing and quality control group plans the stages at which in-depth checks will be carried out in order to ensure the strictest possible adherence to the design standards. This group is also responsible for all aspects related to robotization (the factory is expected to have more than 45 robots by 1978) and prepares the jig and fixture design through CAD/CAM. Finally, the administration group provides general services such as purchasing, secretariat, training, etc.

At the heart of the Bromont plant are manufacturing teams controlling production.

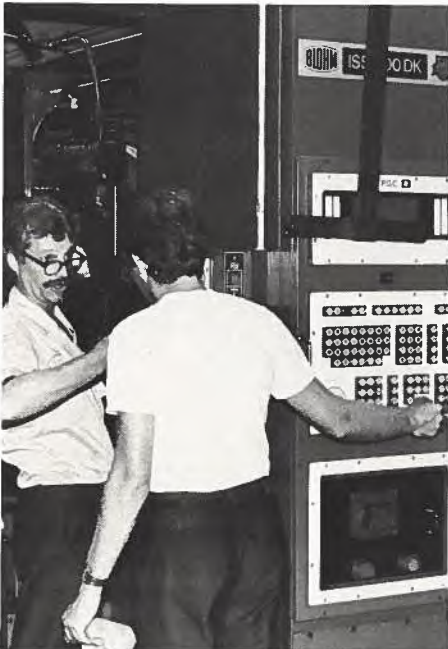


A CFM56-3 jet engine the vanes of which were made at Bromont.

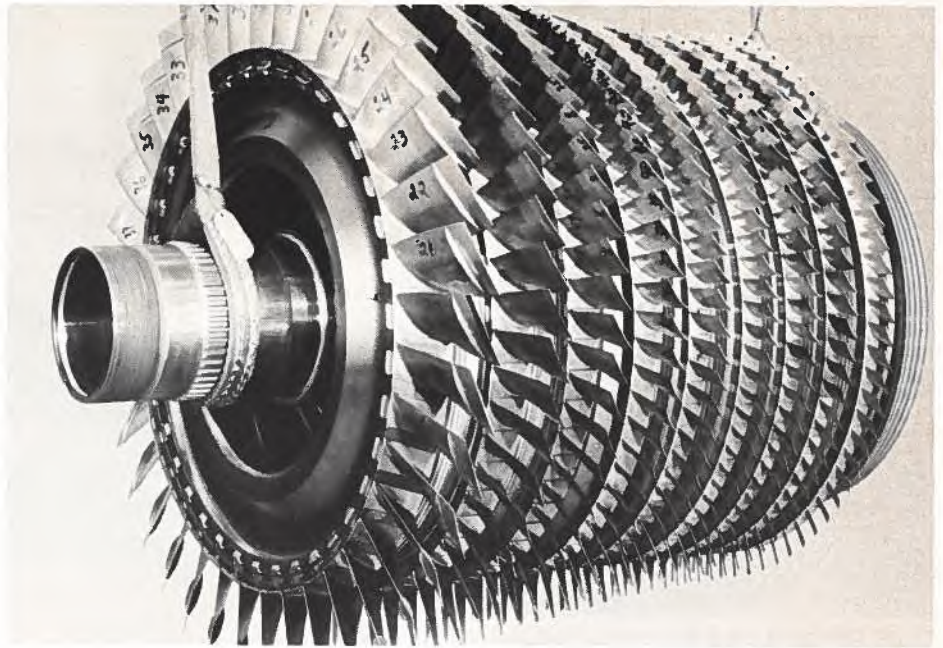
However, the Bromont plant is not remarkable for its state-of-the-art equipment and production methods alone. Canadian General Electric has also broken new ground in the factory by developing a management system based on a team-work concept which allows each employee to make a maximum contribution to the functioning of the unit as a whole.

As Mr. Cartwright recalled in the speech he gave at the Bromont opening: "We concluded that the traditional theories and structures of organization, management and compensation were incompatible with our 'socio-tech' objectives. A more flexible system, designed for change and adaptability, was required. We turned to 'quality of work life' theory for answers."

Indeed, as Mr. Cartwright pointed out, the entire operation is organized into small, self-managed, multi-skilled teams whose combined efforts bring about the achievement of the company's overall objectives. Each group is responsible for planning, controlling and evaluating its own work. The hiring of an employee, his training, evaluation and, if need be, his dismissal, are functions performed by the members of his team. In other words, because the performance of the factory is to a large degree dependent on that of the employees and teams, more importance is attached to the contribution of the employees at Bromont than at most other plants. The



A fabrication team discusses the operation of a crushing mill.



A compressor airfoil ready for installation in an engine.

advantages of this involvement are obvious to all concerned: the workers are more interested in their work and take much greater care in performing it.

Moreover, like the production employees, the office staff must know how to handle problems at every stage of the manufacturing process. Therefore, every office employee spends one day a month in the factory. He is given different tasks each time and thus becomes increasingly familiar with all sectors. Similarly, at three or four-month intervals, every member of a manufacturing team finds himself spending one day behind a desk. One of the many advantages of this method lies in the ease of communication which develops between all the various sectors of the factory. The workers know each other well and readily discuss their work and, more importantly, how to improve it.

This factory, where enthusiasm and a true spirit of co-operation prevail and where each person has an opportunity to learn several skills, could well signal the end of the type of operation characterized by worker isolation and monotony.


The Outlook for the Future

At the present time, the Bromont facilities provide work for 140 persons, 81 per cent of whom come from Québec. By the end of 1983, this figure is expected to have risen to 175. Close to 300 persons will be employed there in 1986, when the plant is in full production. But, as Mr. Cartwright noted,

"Bromont is well on its way to contributing much more than just the exports and jobs originally projected — it's providing major economic innovation also.

"This manufacturing facility, unlike any other in Canada, introduces a new and advanced technological capacity in precision forging which will help bring Canada and CGE to the leading edge of compressor airfoil technology. It will produce airfoils at efficiencies exceeding all competition — placing Canada in the front rank as an international supplier of compressor airfoils. Over the next three years, it will help bring Canada and Canadian General Electric to the forefront of computer aided manufacturing technology."

And as Edward E. Hood, vice-president and executive director of General Electric, pointed out in his speech, the time has passed when a big company could rely solely on the image of its trade mark and its reputation and had only to put its initials on a product to automatically make it a successful export. Now, any company wishing to outrival its competitors must gain an advantage in terms of technology or price, or both.

Thus, with the unique technology implemented at Bromont, Canada is in a good position to move well into the lead and break into international markets with the airfoils manufactured by General Electric. 

— by Yves de Martigny
Canada Commerce

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