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Plastic Processing:
Canada's Fastest Growing Industry — Page 12

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Editorially speaking. . .

Trade Winds — Canada's trade performance outside North America is of continuous concern. New markets and firmer ties with established markets are being studied closely. One result is the recent signing of a new agreement on trade and economic co-operation between Canada and New Zealand described in an article on Page 1. The agreement, replacing and improving upon an older agreement between the two countries, is expected to open up opportunities in what has been described as "an attractive environment for Canadian investment."

This is but one of the sails Canada has spread to catch some part of the gusty wind of trade. But what about the ropes needed to keep the sail in place. . . . the products of Canadian industry and the programs to help them in development, production and in finding new markets?

Microelectronics is one of the areas in which this country is gaining considerable experience. However, many companies, particularly in the small and medium-size range, until now have not been able to take full advantage of this experience to improve both product and manufacturing process. The newly established Centres of Advanced Technology in Industrial Application of Microelectronics (see Page 10) are designed to help fill this need — one of the "ropes".

J.C.H.

Canada and New Zealand, as members of the Commonwealth, have long had close relationships including the ties of trade. These ties have been further strengthened through the recent signing of a new Agreement on Trade and Economic Co-operation between the two countries. The following article, specially prepared for Canada Commerce by IT&C's Pacific Division of the Office of Relations with OECD Countries, summarizes the new agreement and points out the opportunities it presents to Canadian business and industry.

Canada-New Zealand Trade and Economic Co-operation

The "Beehive" Building, an extension to the Parliamentary Buildings, Wellington, New Zealand.

Trade between Canada and New Zealand is currently conducted under the rules of the General Agreement on Tariffs and Trade (GATT) and the Canada-New Zealand Trade Agreement of 1932. The latter provides for the exchange of tariff preferences on a wide range of products. An exchange of letters was signed in 1973 providing for the continuation of preferences which had been derived from each country's bilateral agreement with Britain prior to its entry into the EEC. Tariff preferences have enhanced the competitiveness of Canadian manufactured goods and, therefore, have played an important role in the development of Canadian exports to New Zealand.

Canadian exports to New Zealand reached $112 million in 1980, an increase of 23 per cent over 1979. These exports are made up primarily of a broad range of semi or fully-manufactured goods (see Table). New Zealand has also developed into an important market for Canadian pork and fish.

Imports from New Zealand were valued at $147 million in 1980, a 9 per cent increase over 1979, and were made up primarily of agricultural products such as beef, lamb, wool, sausage casings and apples. New Zealand manufactured exports to Canada have also increased in such products as wool carpets and apparel, machinery and equipment of various kinds, and wines.

Since 1977, growth in two-way trade between Canada and New Zealand has averaged more than 20 per cent per annum and projections for 1981 suggest that this trend is continuing.

Attractive Investment Environment

New Zealand presents an attractive environment for Canadian investment. Joint ventures involving the further processing and/or assembly of offshore components are of particular interest to the New Zealand government. A highlight of economic activity in New Zealand over the next 10 years will be the undertaking of a significant number of major projects concentrated in, but not limited to, the forestry, hydroelectric and petrochemical sectors.

The New Zealand government is encouraging a certain degree of diversification in order to lessen the heavy dependence on agriculture. There are significant hydro resources on the South Island, large gas reserves offshore and a thriving forest products industry based on radiata pine, which matures rapidly in the New Zealand climate. A total of $6 billion worth of major projects are planned over the next decade, concentrated in the hydro, petrochemical and forest product sectors. Significant expansion of the South Island aluminum industry is also planned.

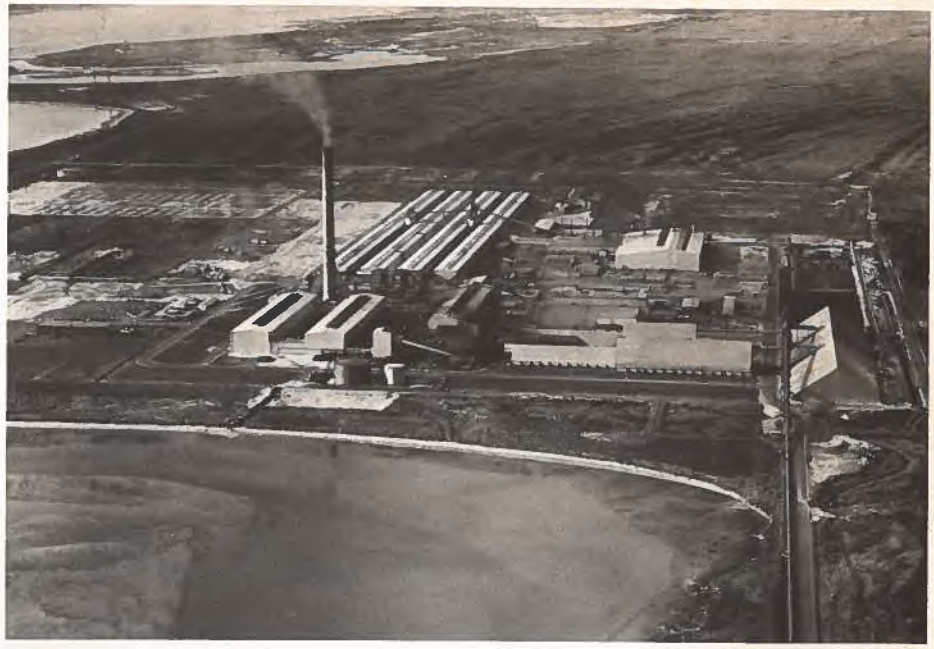
Projects include the Northland Pulp and Paper Mill ($150 million); New Zealand Steel Mill Expansion ($700 million); Kawerau Newsprint Expansion ($200 million); Synthetic Petrol ($750 million); Clutha Hydro Development ($1,200 million); South Pacific Aluminum ($650 million); and the Third Potline for the existing Aluminum Smelter ($200 million). Alberta Gas Chemical has formed a joint venture with Petrocorp, a New Zealand Crown Corporation, for the construction of a $150 million methanol plant in the North Island.

Development of the New Agreement

Over the years the tariff preferences with New Zealand have been reduced because of reductions in tariff rates during successive multilateral trade negotiations. In addition, as opportunities for increased commercial exchanges between Canada and New Zealand became more apparent, there was a general recognition that it would be useful to strengthen economic relations and co-operation in other areas.

The Hon. Edward C. Lumley, Canadian Minister of Trade, led a mission of Canadian businessmen to New Zealand in May 1980, and discussed with New Zealand ministers the possibility of renegotiating the 1932 trade agreement. Following these discussions, New Zealand delegations came to Ottawa in July 1980 and again in May 1981. At the latter meeting, Canadian and New Zealand officials reached a referendum agreement on the text of a new Agreement on Trade and Economic Co-operation between New Zealand and Canada. The agreement was subsequently confirmed by both governments and signed on September 25. It is expected to come into effect on January 1, 1982.

In the six-month period leading up to the May 1981 discussions, the federal government consulted closely with provinces and those industries which had indicated an interest in the New Zealand market. These consultations revealed considerable interest in maintaining tariff preferences and in ensuring that a new agreement provide increased opportunities for industrial co-operation in areas such as joint ventures and the exchange of technology. The new agreement is designed to achieve both objectives.



Tiwai Point Aluminum Smelter near Invercargill, New Zealand (South Island).

Provisions of the New Agreement

The major provisions of the agreement can be summarized as follows:

- Statutory tariff rates, including preferential rates, in both countries will be "frozen" at levels applicable to eachother's trade when the agreement enters into force.
- Either country may request the other to reduce tariff rates. If reductions in the preferential rates are made, these new rates will, themselves, become "frozen".
- Should either Canada or New Zealand find it necessary to raise a "frozen" tariff, the country taking such action must notify the affected country in advance and the affected country will have a right to consultations on the issues in instances where it has a significant trade interest.
- Introduction or intensification of non-tariff measures, including quantitative restrictions, will also be subject to notification and consultation procedures. Specific mention is made of certain agricultural products in which both countries have an interest.

Queenstown, New Zealand (South Island), with a view of "Remarkables Range".

The Canadian Minister of Trede, the Honoureble Edwerd C. Lumley end the New Zealand Minister of Oversees Trade, the Right Honourable Brian Talboys, signed an Agreement on Trade and Economic Co-operation between the governments of New Zealand and Canada in September. The new egreement is scheduled to come into effect on January 1, 1982, end will replace the 1932 bileterel trade egreement.

- There is provision for compensation or the withdrawal of equivalent concessions failing agreement on appropriate compensation, in instances where action of the type described above "substantially impairs the benefits of the agreement".
- There is an undertaking for both governments to encourage and facilitate the establishment of direct commercial contacts, the conclusion of commercial agreements, the establishment of joint ventures and the widening of technological co-operation.
- A new Consultative Committee is established to keep under review the possibility of broadening the agreement and to agree on measures which facilitate economic, industrial and technological co-operation, including joint ventures.

Any questions related to the implementation or operetion of the new egreement should be directed to:
Pacific Division
Office of Reletions with OECD Countries
Department of Industry, Trede end Commerce
Ottawa, Ontario K1A 0H5
Tel: (613) 996-5381

KEY CANADIAN IMPORTS FROM NEW ZEALAND

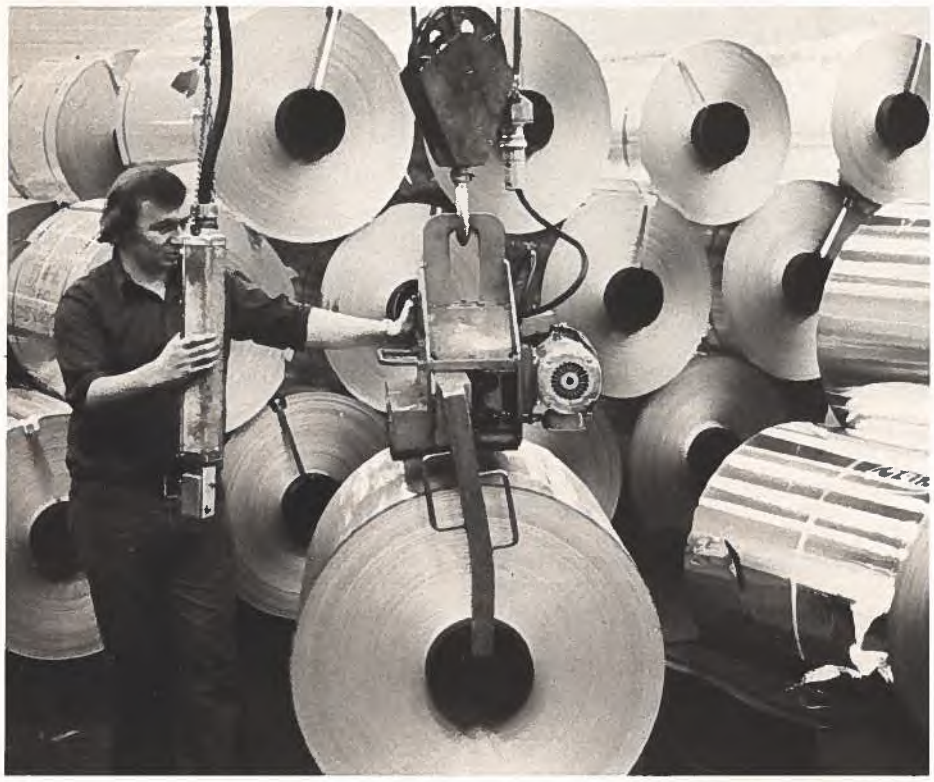
($,000)	1978	1979	1980
Meat, fresh chilled or frozen	72,749	101,489	104,358
Dairy produce	1,259	2,415	2,162
Other fresh fruits and frozen	2,402	2,422	3,166
Other foods and materials for foods	7,430	6,281	11,015
Wool	5,724	8,969	9,868
House furnishings	1,409	1,633	2,742
Total Annuel Imports:	**100,567**	**135,088**	**146,950**

KEY CANADIAN EXPORTS TO NEW ZEALAND

($,000)	1978	1979	1980
Meat, fresh chilled, frozen	—	3,534	1,537
Fish, canned	3,529	4,953	5,174
Scrap iron and steel	825	1,228	2,780
Asbestos, raw	4,466	3,873	2,613
Sulphur	8,888	10,385	17,713
Other broad woven fabrics	1,485	3,102	2,934
Other textile fabricated materials	1,411	2,470	2,932
Organic chemicals	1,194	2,212	2,485
Synthetic rubber and plastic	2,275	5,022	5,175
Plastic shapes	2,194	3,992	2,921
Zinc, including alloys	709	2,197	2,544
Other general purpose industrial machinery	9,058	6,758	3,147
Other end products	2,454	3,122	4,221
Woodworking and construction machinery	1,969	2,759	1,838
Total Annual Exports:	**72,012**	**90,764**	**112,281**

Export Trade Development Board

The recently established organization is expected to go a long way to improving Canada's export position. Its mandate and objectives are outlined in the following article.



The Export Trade Development Board constitutes an excellent vehicle for co-ordinating Canadian business, labour and government export interests and initiatives, Roger Hatch, chairman of the board, stated at the inaugural meeting of the board in Ottawa this fall.

The board, which was set up by the Canadian government on the recommendations of the Export Promotion Review Committee Report (Hatch), consists of 21 representatives from Canadian industry, labour and trade as well as eight senior government members (see listing).

Among the board's primary objectives are the stimulation of improved export performance, the reduction of hindrances to export, the review of target markets for special concentration and the improved co-ordination of efforts in export development.

While the board's main function will be to advise the Minister of State for Trade, the Honourable Edward C. Lumley, on a broad range of export development and promotion policies, equally important according to Mr. Hatch was a commitment to change attitudes in the private sector towards exports. He called on the private sector board members to work hard in consulting those in the private business and labour communities who will be affected by the decisions and advice of the board.

Included in the issues to be addressed in the coming months is a review of Canadian export strategy, export financing, aid-trade relationships and the taxation of foreign earnings. The board agreed to hold at least six meetings each year, alternating the locale between Ottawa and other regional centres to encourage broad private sector and provincial government input to its activities.

In addressing the board, Mr. Lumley said that while any subject that has a major impact on Canadian export development could be discussed, he expects the board to make direct recommendations to the government on:

- objectives and priorities for overall export policy;
- markets of concentration and marketing strategies;
- improvements or changes in the design and implementation of export trade development policies and programs;
- the particular needs of small and medium sized businesses with respect to export trade development support;
- improvements in the co-ordination and coherence of government-wide export development objectives and activities; and
- the allocation of export development resources.

EXPORT TRADE DEVELOPMENT BOARD

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R.E. Hatch
President
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Toronto, Ontario

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Vancouver, British Columbia

A.G. Warner
Vice-President and General
Manufacturing Manager
General Motors of Canada
Oshawa, Ontario

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Department of Industry, Trade and Commerce
Ottawa, Ontario

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Ministry of State for Economic Development
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Trade Commissioner Service and International Marketing
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Ottawa, Ontario

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Ottawa, Ontario

S. Cloutier
President
Export Development Corporation
Ottawa, Ontario

EDP Big Boost to Business

Canadian companies received $115,625,785 through IT&C's Enterprise Development Program from January to July 1981.

The central EDP board processed 75 applications for innovation totalling $43,735,569 and 54 adjustment projects amounting to $71,890,216.

Some 274 companies in Ontario, Quebec, Alberta, Manitoba, British Columbia, New Brunswick, Nova Scotia and Prince Edward Island applied to their regional EDP boards and received $32,353,753. Of this amount, $26,398,763 was slated for innovation and $5,954,990 for adjustment projects.

EDP is a wide-ranging program of assistance primarily to small and medium-size businesses. Applications for assistance of up to $200,000 from firms with sales of $5 million or less are handled by regional boards in each province. All other applications are handled by the central board.

Under the program, adjustment awards are in the form of loan insurance for reorganization, plant expansion, equipment modernization and for working capital, or contributions for engaging consultants to develop proposals for restructuring projects.

Innovation awards are contributions for product development, design, productivity improvement, identification of new products and for project proposals.

It is expected that the EDP assistance will eventually generate 8,600 new jobs.

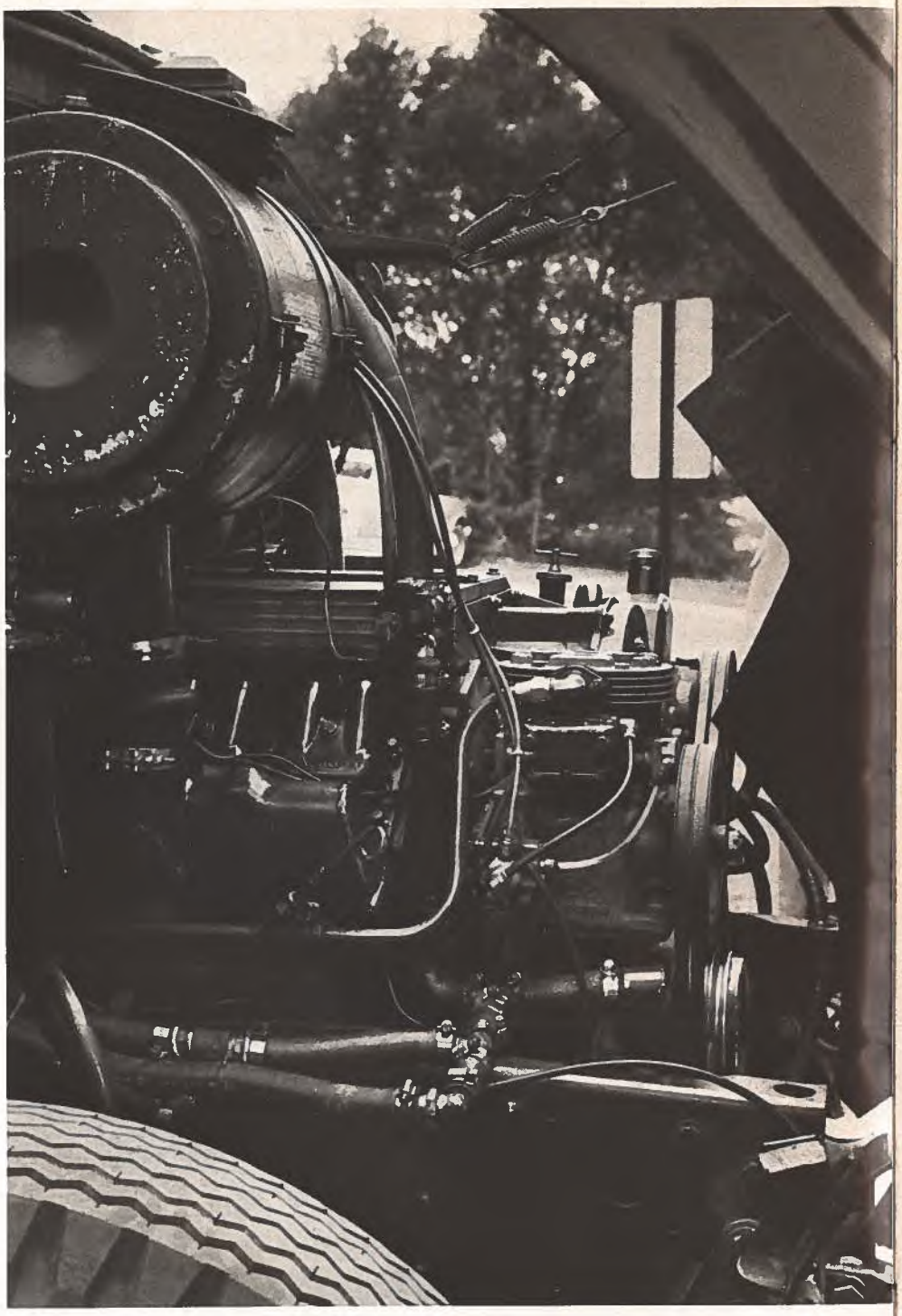
Research and Development Grant Pays Off

by Bob McDonell

An eight-year-old decision to invest almost $21 million of government funds in diesel engine research and development came a step closer to a promised multi-billion dollar pay-off for Canadian industry earlier this fall.

The decision by IT&C in 1973 to back research and development undertaken by KHD Canada Inc. on a new series of diesel engines for the North American light to medium truck and utility vehicle market culminated in the company's announcement that it was beginning production at Boucherville, Quebec. The Montreal area plant will be producing the engines for delivery by mid-1983. Initial production target is 15,000 engines a year.

Named the Deutz 610 AirDiesel and produced initially in a V-8 configuration, the new air-cooled, fuel-efficient diesel engine has already surpassed its design parameters with highly favourable results.



Freedom from radiator and auxiliary equipment of the 610 Deutz diesel engine allows for easier installation in replacement applications of regular gasoline engines so common in North American mid-range trucks.

The next stage in development will be the smaller V-6 and 4-cylinder versions to take advantage of the increasing trend towards the use of diesel power in small trucks. This stage is being supported by a $14 million contribution under IT&C's Enterprise Development Program.

Over the next three years, the company's existing research and development facility in Montreal will become the major engineering centre for all of KHD's diesel engine operations in North America. Permanent employment in this facility will be created for about 125 specialists.

KHD Canada Inc. is receiving support from the Department of Regional Economic Expansion (DREE) as well as from IT&C. DREE has allocated $16 million towards construction and tooling of the Boucherville plant. The

Freedom from any problems other than routine maintenance has been the record of this test Ford through 200,000 miles of city driving in Montreal.

project will involve capital expenditure of some $82 million and will provide employment for more than 300 skilled tradesmen. Under the anticipated second phase expansion of the plant, employment is expected to reach 1,000.

In addition to the direct employment at the new plant, it is also expected that Canadian suppliers of components will benefit greatly through this new and expanding market for Canadian-developed technology.

KHD Canada Inc. is a wholly-owned subsidiary of Klockner-Humboldt-Deutz AG of the Federal Republic of Germany, the world's oldest and largest manufacturer of air-cooled diesel engines.

Deutz 610 AirDiesel — A Research and Development End-Product

The Deutz 610 AirDiesel is a powerplant designed specifically for automotive applications in trucks Class 2 to Class 7, military and utility vehicles. Unlike many of today's diesel engines, conversions from gasoline engines, this new engine is a diesel designed to be a diesel.

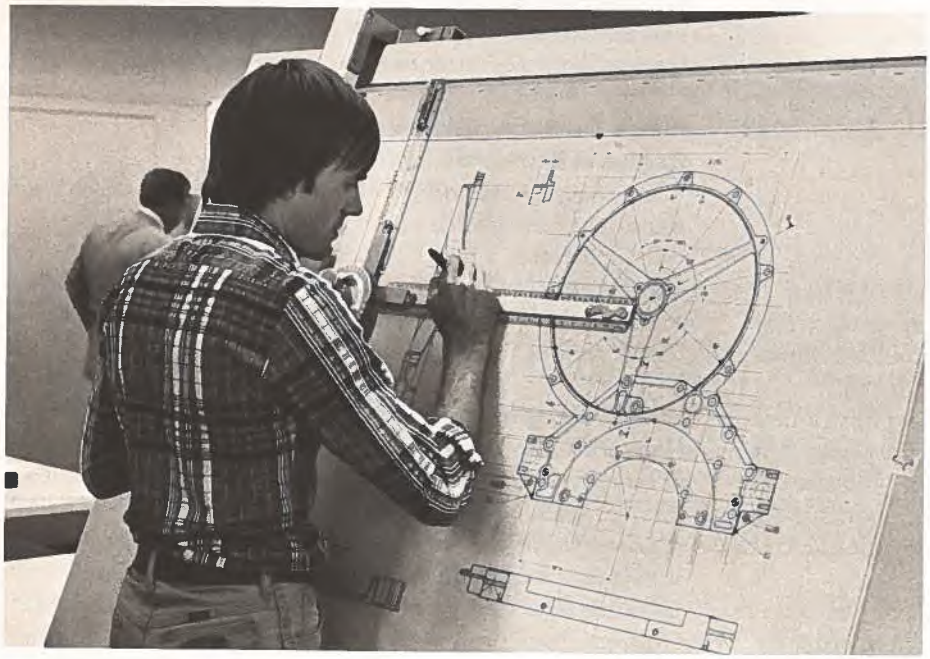
One of its principal design benefits is an operating speed of 3,200 rpm which makes it compatible with drive trains and transmissions designed for gasoline engines. Its efficient cooling system incorporates an electronically controlled blower that is engaged only when engine temperatures require forced air cooling.

A direct injection combustion system, using a specially-designed chamber, results in high efficiency during combustion, increasing fuel economy. Static and on-the-road tests indicate that the Deutz 610 Air-Diesel can save up to 50 per cent of current fuel costs in specific applications, and give up to 50 per cent better mileage than comparable diesels.

The absence of a liquid cooling system reduces maintenance substantially since there are no water pump, radiator, hoses or hose connections. A further plus is that liquid cooling systems are considered a major cause of engine failure.

The lack of fan, fan housing and radiator also allows automotive designers to lower the hood for better aerodynamics and improved road visibility. Automotive design is further enhanced as the Deutz 610 Air-Diesel puts more horsepower into a smaller package than traditional diesels allowing its use in smaller engine envelopes.

Specially designed combustion and exhaust systems have cut noise and exhaust emissions to the extent that the new diesel more than meets the 1984 EPA emission requirements. The engine has also passed the NATO performance tests which include engine starts within 15 seconds at -32° C (-26° F).



Design work on four and six cylinder models contines on 610 diesel under an R&D grant provided by IT&C's Economic Development Program.

Quote — Unquote . . .

In their introductory remarks at the unveiling of plans to start production of a new line of diesel engines in the Montreal area, officials of KHD Canada Ltd., its parent company, Klockner-Humboldt-Deutz AG of Germany, and government officials had this to say:

Bodo Liebe, Chairman of the Board
Klockner-Humboldt-Deutz AG, Cologne —
"It may seem strange to some that in the face of declining markets, our company would undertake such a large investment in new production facilities. However, as a major world supplier of air-cooled diesel engines, we felt that we could not afford to allow the present downturn in the North American truck and utility vehicle market to delay our plans. While indications are that production of light and medium trucks and utility vehicles, for which the Deutz 610 AirDiesel line is designed, will remain fairly steady in the foreseeable future, our market will be in the replacement of existing gasoline power units and not in the growth of the overall market.

"We feel that this new line of diesel engines is fully interchangable with the present gasoline engines as it has been designed to operate in the same speed range of 3,000 rpm. Add to this the inherent fuel economy of the diesel and its long life and dependability and we are sure it will become a popular replacement for today's power plant.

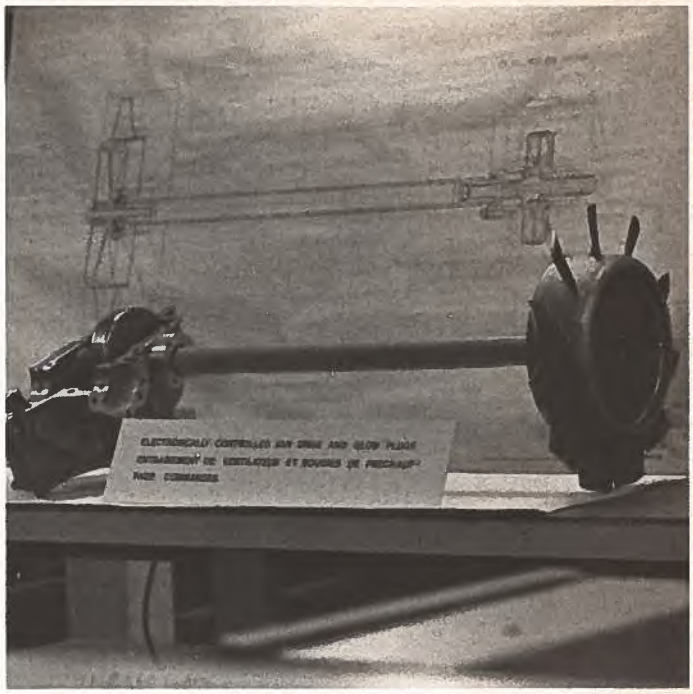
"Our decision to produce the 610 in Canada is based on several factors. We believe North America is the prime market for the 610 since there seems to be no question that the demand for diesel engines in medium duty trucks and utility vehicles will increase significantly. Also, based on Canada's abundant energy and raw materials, we are confident that our production needs can be met over the long term.

"We can also offer the engine to U.S. manufacturers under the terms of the Canada/U.S. Auto Pact which we are confident will remain intact since there are benefits to both countries."

The Hon. Herb Gray, Minister
Industry, Trade and Commerce —
"Today's announcement of the construction of a new plant for the manufacture of diesel engines provides an excellent example of what can be accomplished through co-operation between government and industry.

It also shows that Canadian research and development has a great deal to offer to world-scale enterprises. The proposed facility at Boucherville, together with the existing R&D facility in Montreal, presents a unique opportunity for KHD to establish an integrated automotive diesel engine operation in North America.

"An essential element in this development has been the PAIT and EDP assistance provided to KHD in order to develop a technological base, an essential element in developing its Canadian manufacturing activity."



Electronically controlled fan drive and glow plugs allow 15-second starts in -30°C. weather for the Deutz 610 diesel engine.

Thomas Erdhuetter, President
KHD Canada Inc. —
"While Deutz engines have been used in Canada since the 1930s, Deutz Diesel Canada (now KHD Canada) was established in 1959, having taken over the former Deutz distributorship. While the majority of our engines now in use are in the industrial sector, the new 610 will change this picture substantially. Benefits to Canada are — diesel engines will be an export product rather than an import; this large scale plant will provide substantial tax revenue, new jobs and other economic benefits; and a new element will be added to Canada's already active automotive industry that will provide additional business for companies serving as sub-contractors to our facility."

Pierre De Bane, Minister
Regional Economic Expansion —
"This new facility will provide the Montreal area with an important new source of employment — a key factor in the department's (DREE) decision to provide the company with regional incentives of $16 million. This in turn will provide the economy of the entire province with an economic shot in the arm."

Wilhelm Vossmeyer, Vice-president
Research and Development, KHD Canada —
"Throughout the development of the Deutz 610 AirDiesel engine, we have assured the development of a North American component supply for the engine by designing it to North American standards, production methods and material specifications which in many respects are different from those used in Europe. Based on this, the engine can be fully sourced in North America and, hopefully, much of it in Canada."

Canadian Researcher Wins Wallenberg Prize

Dr. Harry Hutchison Holton of C-I-L Inc. has been awarded the 1981 Marcus Wallenberg Prize for his pathbreaking research in the area of kraft and soda pulping. Awarded for the first time, the prestigious prize amounted to 500,000 SKR (about Cdn. $130,000) and was presented formally to Dr. Holton on May 8, 1981, in Falun, Sweden.

International recognition came to Dr. Holton for his research into the use of anthraquinone, an organic chemical derived from coal or petroleum.

The chemical has numerous significant beneficial effects when used in the kraft or soda pulping processes. These include a shorter duration for the pulping process resulting in a significant reduction in the consumption of chemicals and energy. There are also increased yield and improved pulp quality. As well, anthraquinone provides an environmental benefit by reducing sulphide emissions into the atmosphere.

Says W.J. Mandry, C-I-L's president and chief executive officer: "The fact that a Canadian scientist received this award automatically instills a sense of pride; that the recipient is a C-I-L researcher makes us doubly proud. In our nearly 60 years of applied research in this company and numerous significant discoveries, Dr. Holton's work with anthraquinone is undoubtedly the most notable."

The Marcus Wallenberg Foundation Prize was established by the board of directors of Stora Kopparbergs Berslags AB, one of Sweden's largest forestry and forestry industry companies. With records dating back to 1288, it is certainly the oldest operating company in the world, and one of the most respected. Sweden's Dr. Marcus Wallenberg is a renowned and internationally known banker and industrialist.

Dr. Hutch Holton accepts the 1981 Marcus Wallenberg Prize for his research in kraft and soda pulping. The prize was presented formally in Falun, Sweden, in early May.

Dr. Holton was born in Montreal in 1944 and obtained his Ph.D. from the University of Windsor in 1971. He joined C-I-L in 1973 and is currently Manager Pulp and Paper Research Group at C-I-L's new Sheridan Park Research Center in Mississauga, Ontario.

Stated R.V. Ward, vice-president and general manager of C-I-L's Industrial Chemicals Division: "There is no doubt that Dr. Holton's work represents our greatest research achievement. We are very proud of Dr. Holton and the other members of our research team."

As the Canadian subsidiary of Imperial Chemical Industries Limited of the United Kingdom, one of the largest chemical companies in the world, C-I-L has a world mandate for several areas of research. Pulp and paper research is among these, as are explosives technology and acid plant design.

The Canadian subsidiary devotes 2.2 per cent of its annual sales of $1.004 billion to research and development. "Having Dr. Holton's work recognized by an impartial world panel only reinforces our dedication to the pursuit of novel, or enhanced processes, methods and products," says C-I-L president Mandry. "The world mandate we hold for the ICI group of companies proves that multinationals do indeed fund recognizable research efforts in Canada."

Promoting Canada

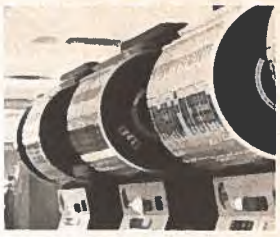
A new travel trade publication has been launched to promote Canada to 25,000 travel agents, tour operators, group tour organizers and incentive houses around the world. **Travel Destination Canada** is produced by the staff of the prestigious **Canadian Travel Press**, a Canadian travel trade publication.

Since the devaluation of the dollar, Canada has become an increasingly attractive destination for more and more foreign visitors who come to this country every year. Add to this a rapidly improving tourism machine, good hotels and other attractions that offer Canadian, American and foreign visitors good value.

Travel Destination Canada will supplement the efforts of Canadian Government Office of Tourism and the provincial promotion offices. It will present up-to-the-minute trade oriented information in editorial and advertising format to show what Canada has to offer.

As an advertising vehicle, the new publication will be invaluable to hotels, attractions, tour operators, regional travel councils and chambers of commerce. It will also help airlines, provincial governments and corporations that profit from increased tourism to this country.

Readership acceptance of **Travel Destination Canada** was tested at the International Tourism Exchange (ITB) in Berlin recently where travel agents from around the world were asked to look at a specially prepared sample issue. There was no question that a publication produced in Canada extolling the virtues of Canada was of interest to travel professionals around the world.



Microelectronics is going to play a growing and extremely important role in all types of industries in the future — and the very near future at that. If they hope to build or maintain a competitive position in world or even domestic markets, Canadian companies are going to have to adapt to the use of microelectronics, not only in administrative work but in manufacturing processes and in the final products.

But how can the individual Canadian company, particularly the small and medium-sized firms, find out about microelectronics, how it can benefit them, what applications it has in their industries? Read on. . . .

Microelectronics Centres of Technology fill an Information Need

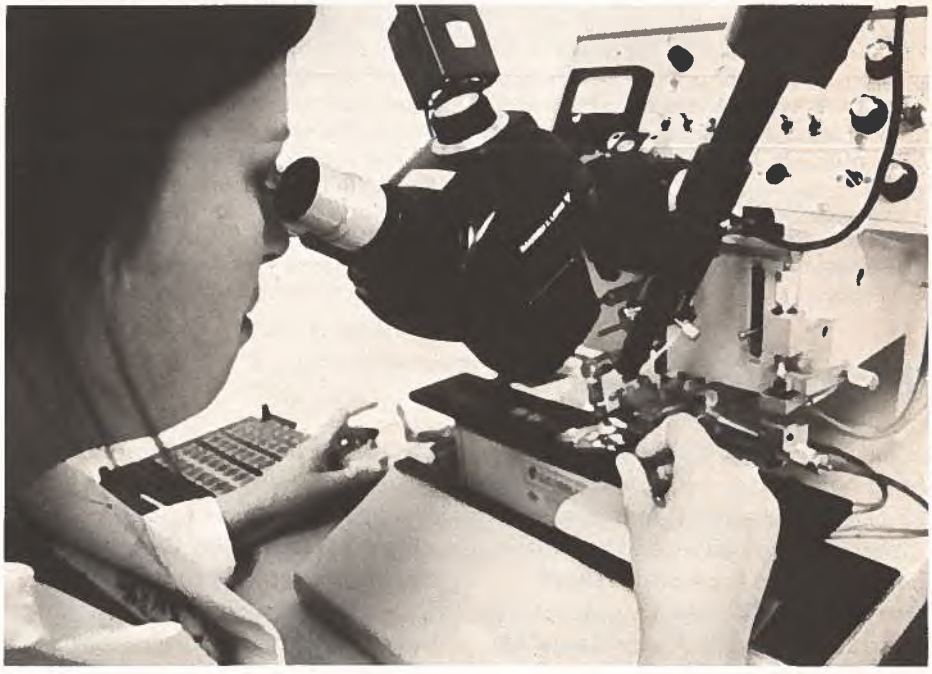
By John C. Hughson

In June 1981, the Honourable Herb Gray, Minister of Industry, Trade and Commerce, announced the establishment of six Centres of Advanced Technology in Industrial Application of Microelectronics, designed specifically to answer the questions posed by Canadian companies on the use of microelectronics and to provide other similar technical services.

Located in association with universities across the country, the centres constitute a key part of a larger Microelectronics Support Program (MSP) instituted by the Department of Industry, Trade and Commerce (IT&C). MSP will provide financial support to Canadian companies — for feasibility studies on the use of microelectronics; for the work of applying microelectronics to a company's processes or products; and for the cost of designing custom microelectronics devices.

An important function of the centres will be close liaison with IT&C in an awareness program in order to be able to advise individual companies on how to obtain these funds and how best to use them.

After initial funding by IT&C of $1 million over five years, the centres are expected to become financially self-supporting. They will operate on a fee-for-service basis consistent with consulting industry fee structures and will complement the private consulting industry.



University Locations

The centres are located at the University of Toronto, the University of Sherbrooke, the University of Manitoba, the University of Alberta and the University of British Columbia. The sixth centre will be at a university in the Atlantic region yet to be chosen.

In announcing the centres, Mr. Gray said, "The common perception of microelectronics being confined to the computer room is no longer true, now that the electronic chip can control processes and products ranging from resource industries to consumer goods.

"In the new area of Computer Aided

Design and Computer Aided Manufacturing, or CAD/CAM, the electronic chip helps design products and then runs the machinery to manufacture them," he added.

And the chip itself, that tiny wafer of silicon that has revolutionized the electronics industry, is now capable of containing literally thousands of transistors performing thousands of functions.

Microelectronics Benefits

But what benefits are there to a company from the use of microelectronics? In the manufacturing process some major benefits are:

- improved product quality resulting from closer production control;
- increased productivity and better utilization of production equipment and manpower;
- saving in energy and raw materials;
- reduced expenditures in repairs and maintenance due to the systematic and closer supervision of the production equipment and processes;
- economic feasibility of smaller production runs.

As far as the product itself is concerned, microelectronics can be and is incorporated directly into the product for more efficiency, better quality and new functions, among other benefits.

Functions of the Centres

It is information of this nature and how it can apply to any company that will be available from the new microelectronics technology centres plus considerably more related information, advice, consultation — a complete service.

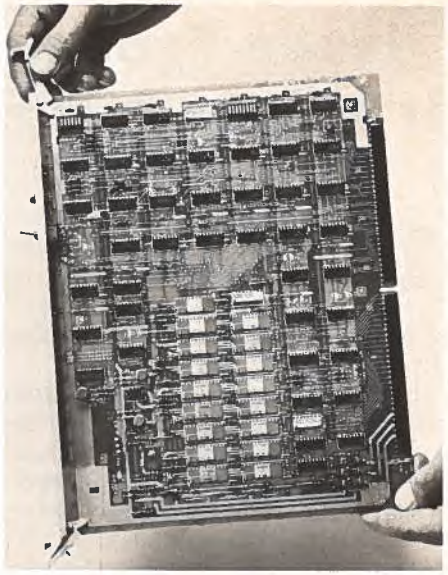
Functions of the centres include:

- To provide consulting service to industry in identifying applications of microelectronics;
- To serve as a regional focal point for dissemination to industry of information on microelectronics and its applications;
- To provide technical assistance to industry in development projects concerning applications of microelectronics to products and processes;
- To provide training programs/courses to industry in application of microelectronics to products and processes;
- To provide facilities at which regional industry can develop or participate in development projects involving application of microelectronics to products or processes;
- To provide microelectronics technology transfer to industry;
- To conduct ongoing research and development to maintain and enhance the centre's ability to provide the above services to industry on a current basis.

Regional Emphasis

Emphasis is on the regional aspect of the centres. They are there primarily to help industries in their own regions but are not restricted to those regions.

Research carried out by the centres will be to keep them abreast of current and near-future activity in microelectronics so as to be better able to advise and inform interested companies in their regions with regard to today's problems. IT&C officials state that the centres are not intended to become closed "ivory tower" long-term research and development operations. It is rather the intention that they become recognized experts in the current application of microelectronics to industry.



IT&C's Continuing Connection

The Department of Industry, Trade and Commerce will have an ongoing connection with the centres once the initial funding arrangement has ended and the centres become financially self-supporting. The department's guidance and advice will be available to the centres and there will be a permanent seat on the board of directors of each centre for an IT&C representative.

It has been recommended that the board for each centre have senior representation from such sources as the university involved, the centre itself, the regional offices of relevant federal departments or agencies, relevant provincial departments or agencies, the regional electronics industry, other industry of regional importance, and a well-known senior regional business/industry entrepreneur.

The Centres of Advanced Technology in Industrial Application of Microelectronics have been set up for the benefit of manufacturing and processing companies across the country. It is hoped that they will take advantage of them.

For further information about the Centres of Advanced Technology in Industrial Application of Microelectronics, please contact:

Microelectronics and Instrumentation Division
Electrical and Electronics Branch (45)
Department of Industry, Trade and Commerce
235 Queen Street
Ottawa, Ontario
K1A 0H5
Tel: (613) 593-4481

the nearest centre or the nearest Regional Office of the Department of Industry, Trade and Commerce.

Plastic Processing — It's Canada's Fastest Growing Industry

The influence and effects of plastics products — in the home, in industry and in recreation — have completely transformed modern lifestyles. Innovation and new techniques promise even greater progress in the decades ahead.

Nowhere is this truer than in Canada. Increasing consumer, commercial and industrial demand for the use of plastics has resulted in an industrial growth unequalled in any other sector of the nation's economy.

There are about 1,500 firms engaged in the processing of plastic products — making the plastics industry the third largest employer in Canada. There are more than 50,000 men and women on the job in the manufacture of plastics products, machinery and services.

They are a vital link in the industrial chain that begins with oil and gas, goes through petrochemical processing and ends with a myriad of products that have become an essential part of today's world.

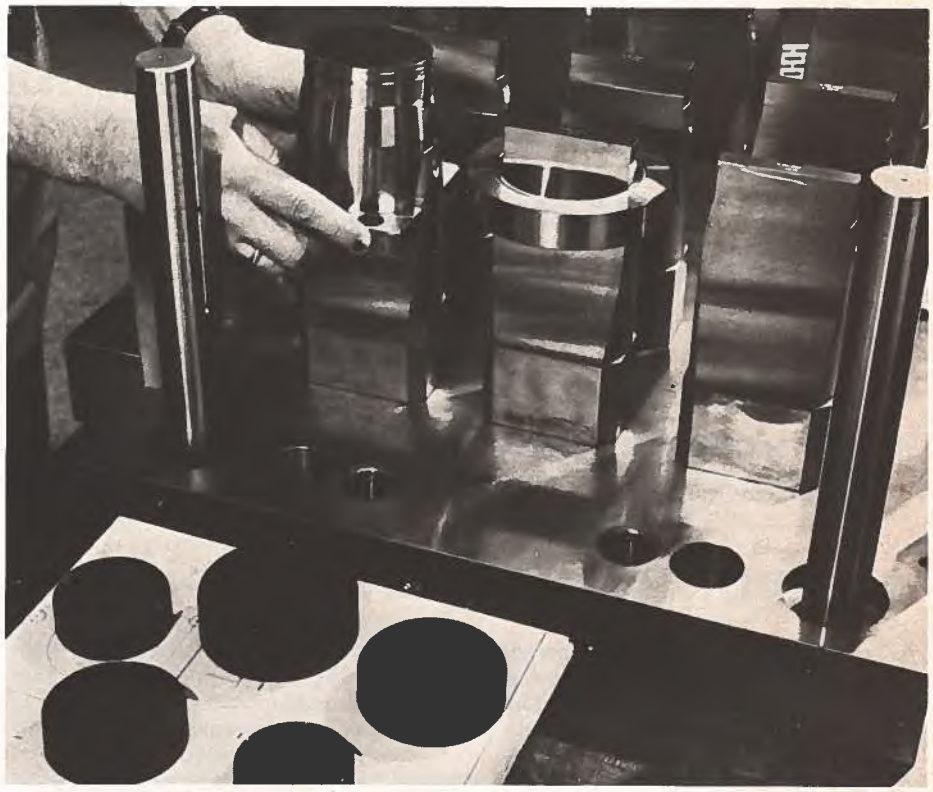
Plastics products pervade almost every segment of personal and industrial activity with a number of highly sophisticated Canadian products achieving ever-increasing popularity in export fields.

The total sales recorded by Canadian plastics producers exceeded $4.3 billion in 1980. Adding the sale of plastic resins, total shipments from Canadian plants exceeded the $6 billion mark for the year.

The industry in Canada is made up of both large and smaller firms which are approximately 80 per cent Canadian-owned. About 60 per cent of the companies average sales of about $1 million annually, while about 20 per cent produce nearly three-quarters of the total value of shipments.

Generally, the industry relates to firms involved in transforming plastic materials into finished products or parts using typical processing methods such as extrusion, injection moulding, thermoforming and blow moulding.

The plastics companies operate within such diverse fields as film and sheet extrusion, wire and cable manufacture and automobile and boat manufacturing. Their only common denominator is the use of synthetic resins and plastic processing technology.



Recognized by industrial leaders as among the best in mould design, Unique Mould Makers Limited of Scarborough, Ontario, specializes in injection, compression and transfer processes. The company produces all types of plastic moulds from the very small to moulds weighing up to 2,700 kg (6,000 lb.).

The finished products are as varied as milk pouches, beverages containers, insulation, cushioning, automobile interiors, piping and ductwork, wire and cable coating, boat hulls, telephones, machine housings, drainage tile and piping, garbage receptacles, luggage, signs — to name but a few of the thousands of items produced from plastics.

A review of the past two decades emphasizes the advancement of the industry in Canada. During the 1960s and 1970s the nation's plastics processing industry advanced at two-and-a-half times the rate of the overall economic growth. It is expected the trend will continue at an annual growth of 8.5 per cent during the upcoming years.

The optimistic outlook is prompted by the gains in exports which have been increasing at a much faster rate than imports of plastic products into Canada since 1975.

The increase in export sales has resulted from several favourable factors. The decline in the Canadian dollar foreign exchange rate which took place between 1976 and 1979, with the rate now stabilizing between 83 cents and 86 cents (compared to the U.S. dollar), is providing Canadian exporters with a competitive edge.

The current rate of exchange has offset many of the cost disadvantages formerly faced by Canadian plastics processors. The growing popularity and recognition of made-in-Canada plastics products in export markets have been major factors in providing incentive to foreign buyers.

Experts in the plastics field predict that the next five years will be characterized by the following:

(a) There will be an increased need and competition for plastic exports. Canada will remain a significant exporter for the foreseeable future;

(b) There will be an increase in research and development. A number of Canadian companies are developing their own processes;

(c) New resin plants are being built based on Canada's own feedstock. Most of these plants will use raw materials derived from readily available natural gas;

(d) Although there will be strong competition between plastics and other natural products — particularly paper — new uses will continue to be developed that will require greater utilization of plastics products.

In addition to the economic factors that favour the growth of the Canadian plastics industry, the nation is among the most fortunate of the industrialized countries of the world because of an abundant feedstock supply of natural gas and oil — the basic needs in the production of plastics.

For example within the past few years there have been minor oil finds in the Province of Ontario, vast discoveries on the east coast, and the 12,000 barrel-a-day field in the Beaufort Sea in the Arctic.

These are in addition to the oil wealth of Alberta and Saskatchewan, and the burgeoning natural gas feedstocks of these provinces.

However, it is innovation, expertise and experience that have placed Canadian firms in the forefront of major plastics producers.

The industry's activities are more heavily concentrated in central Canada, particularly in areas of the provinces of Ontario and Quebec, than is the case for the manufacturing industry of the country as a whole. This is probably because of the large concentration of skilled workers and the proximity to the United States and other markets.

An editorial in the magazine "Canadian Plastics", a widely read publication devoted to the industry, forecasts a bright future for the Canadian firms. The editorial reads:

"Amidst the turbulence of economic times and the hurly-burly of dire predictions and negative indicators, Canada's plastics industry stands out as an area of secure growth, commendable profitability and a superior source of economic security for the country's industrial activities.

"In fact, with reconfirmed feedstock activity, the plastics industry in Canada may be existing in one of the best of all possible worlds."

For further information on Canada's plastics industry, contact:
Chemicals Branch (44)
5th Floor East
Industry, Trade and Commerce
235 Queen Street
Ottawa, Ontario
Canada K1A 0H5

Canada at Interplas

In order to remain competitive in markets characterized by a wide range of demands and a large number of suppliers, most Canadian companies have specialized their production. Many are concentrating on custom-engineered machinery and equipment. As a result, these companies have developed unique capabilities which they have marketed successfully in Canada and abroad.

A sampling of the Canadian production capabilities was featured recently in the display of 11 exhibitors at Interplas '81, National Exhibition Centre, Birmingham, England, September 15 to 22. The exhibit was under the sponsorship of Canada's Department of Industry, Trade and Commerce.

Canadian manufacturers specialize in the production of precision machinery and equipment, including moulding machinery, industrial process chillers, extruders, filters, magnetic sensors, rubber products, engineering and consulting services.

Brussels Woodworking Show Attracts Many Companies

Canadians will be among the more than 150 companies from many nations expected to participate in the 10th International Woodworking Show in Brussels, Belgium, December 12 to 20, 1981.

Well known for the variety and quality of products exhibited, the show features such equipment as saws, clamping screws, cut-off sawing machines, presses, boring machines, scouring machines, lathes, moulding machines, wood milling machines, glues, paints, ironware, raw materials, handling and storage material, and much more.

Trade Fair Round-up

Canada's Repeat Performance a Sell-Out

Canada's fast growing food and supermarket product industry returned to the giant Food Marketing Institute's Supermarket Show (FMI 81) in Dallas, Texas, on May 3-6, 1981.

About 23 medium- and small-sized manufacturers from eight provinces offered a wide range of products designed to capture a share of the massive $220 billion American retail food outlet market. A record 16,000 trade visitors attended the show, most of them middle and senior retailer/wholesaler executives looking for new product lines, services and in-store equipment and machinery.

The Canadian share of the more than 4.8 km (three miles) of colourful exhibits featured various seafood products, including fresh farm-raised salmon, cookies, frozen vegetables, pizza crust, specialty breads, frozen Chinese foods and snacks. There were also such traditional Canadian items as pure maple syrup and wild rice. Non-food products included fireplace logs and trading stamps.

Projected sales over the next 12 months are conservatively estimated to be in excess of $2.5 million.

Coming to Dallas to carve out a niche in Canada's nearest and most accessible export market also enabled several exhibitors to appoint regional and local sales representatives and distributors. At show's end about 75 confirmed or pending sales representation arrangements for various parts of the U.S. had been made — all as a result of Canadian participation in FMI 81.

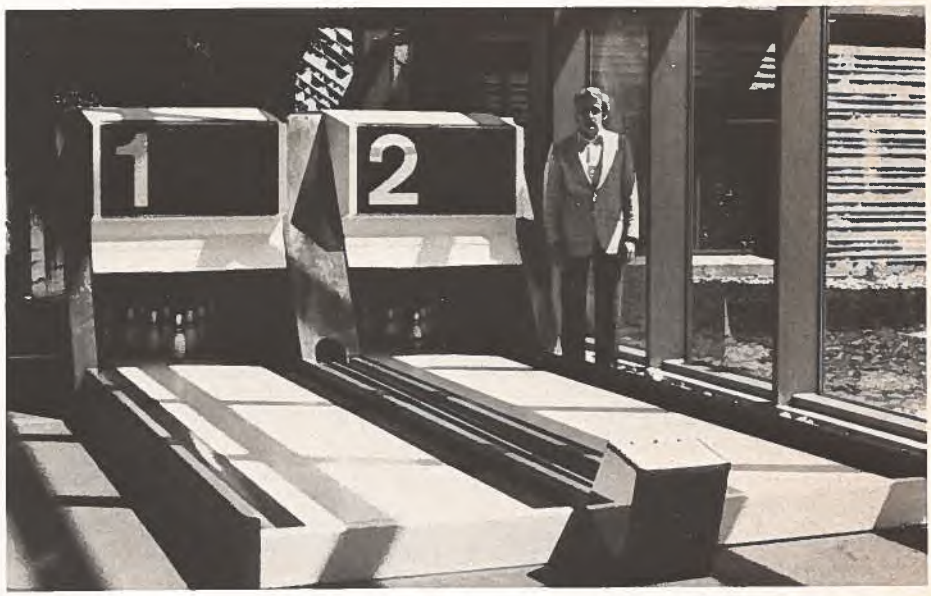
MenDes leads the way in Canadian Bowling Equipment

Throughout Canada, bowling equipment and MenDes Inc. (Quebec, Quebec) are synonymous. This is natural because MenDes is the most important Canadian manufacturer in that field.

Not satisfied with its success in bowling alley equipment, MenDes has just introduced a new, revolutionary game, the Bolingo.

Bolingo is a miniature copy of the traditional bowling game, measuring 3.6 m (20'8") in length by 1.7 m (5'6") in width. The totally automated game features an electronically controlled remote pinsetter adapted from one of MenDes' exclusive systems.

The company spent more than two years in the conception and development of this game, assisted by the CRIQ (Centre de recherche industrielle du Québec) engineering department and with financial assistance from IT&C's Enterprise Development Program.



Shown here is the newest thing in bowling, the revolutionary "Bolingo", a miniature bowling game developed by MenDes for world markets.

Background

MenDes was formed in 1962 to build and service wooden lanes for bowling alleys.

In 1965, taking advantage of the renewed interest in billards, the young company diversified into production of pool tables for commercial and residential use. The high quality of its product resulted in greatly increased activity and sales volume and MenDes' reputation steadily spread across Canada.

Meantime, bowling was not forgotten — the company explored production of an automated, compressed air pinsetter's potential by Canadian inventor Jacob J. Leidl. In 1973, Leidl and MenDes reached an agreement, giving MenDes exclusive manufacturing and distribution rights for these pinsetters — first in the eastern provinces, then throughout Canada.

In 1974, MenDes purchased the Leidl Company "25 7369 Bowling Industries" in Toronto, thus acquiring global manufacturing, design and distribution rights for the automatic compressed air pinsetters.

The MenDes 301 automatic pinsetter for small pins as well as the small plastic "Duckpin" was approved by the National Duckpin Bowling Congress (U.S.A.).

MenDes has become established as the most important Canadian manufacturer of automatic pinsetters, bowling alleys and of plastic pins. MenDes is also the only Canadian company which offers a full line of bowling alley equipment and which also installs and services them.

The Market

In 1979-80 figures, 60 per cent of MenDes' market was in Quebec, 15 per cent in Ontario, where sales are concentrated in bowling equipment, and 20 per cent in the Atlantic provinces where MenDes' main activity is the installation of bowling alleys. The United States market represents 5 per cent, mainly through the sales of pinsetters.

Bowling alleys, automatic pinsetters and accessories account for 48 per cent of MenDes sales volume; pool tables and accessories for 23.7 per cent; and gymnasium floors and tennis courts surfacing for 28.3 per cent. While MenDes' production is diversified, its key product is still bowling equipment.

While its sales are concentrated in North America, MenDes also exports to Europe, Latin America and Saudi Arabia.

More Strikes to Come

The company is currently experiencing a high growth period due to the renewed popularity of indoor sports.

From 1975 to 1979, MenDes Inc.'s total sales rose from $1,573,212 to $2,582,428, an increase of 64.2 per cent. This reflects a general increase in sales of most products sold by MenDes.

The vast potential market for the miniature bowling game, including private clubs, shopping centres, hospitals, recreational centres, centres for the handicapped, retirement homes, airports, taverns, hotels and private residences, indicates even greater growth for MenDes.

Louise Roberge, president of MenDes, and vice-president Lucien Rochefort, are very proud of their newborn and rightly so, optimism reigns supreme with these corporate generals who led their company to the front of the fast "lane".

New CCC Office in Edmonton

Louise Bevington, Business Development Officer for CCC's new Edmonton office.

The Canadian Commercial Corporation (CCC) established a western representational office in Edmonton September 1, 1981.

The new office is headed by Louise Bevington on secondment from the Alberta Research Council (ARC). Her duties include providing information to potential exporters in the four western provinces and reflecting their needs and interests to CCC's Ottawa headquarters.

Although the CCC office is located in IT&C's Edmonton region, Miss Bevington will travel extensively to British Columbia, Saskatchewan, Manitoba and throughout Alberta to meet with the business community.

Before her present assignment, Miss Bevington was a technical advisor in the Alberta Research Council's industrial and engineering services department. She has held various technical positions with the Alberta offices of the federal departments of Environment and Energy and Mines and Resources. Since 1978, her duties at ARC have included assisting Alberta manufacturers with product development, financing applications, co-ordination of trade fairs and business presentations.

Western Canada's new CCC office is in response to requests from the western Canadian business community as well as from several of the western provinces, particularly the Alberta Department of Economic Development.

A federal crown corporation, the CCC facilitates transactions between Canada and other governments on behalf of Canadian suppliers of goods and services. In 1980 its contract volume exceeded $400 million arranged on behalf of more than 600 business firms.

Opportunity for Farm Equipment Manufacturers

Canadian farm equipment manufacturers will have a chance to attend the popular 3i Show in Great Bend, Kansas, in April 1982.

The Department of Industry, Trade and Commerce initiated Canadian participation in the show nine years ago and assisted manufacturers for the first seven years. The show has since proved so advantageous to the participants that for the last two years, most of them have been showing on their own.

The number of exhibitors rose to 14 for the 1981 show with projected sales of $3,690,000 for the 12-month period. **"One exhibitor,"** relates Consul and Trade Commissioner Neil Currie, **"sold out his year's production in the first day-and-a-half and had to fold his tent and steal away into the night."**

Exports of farm equipment to the Dallas Consulate territory increased 36 per cent from 1979 to 1980 to $116,999,000. Included in this was an increase in shipments of farm equipment from the Prairies to the territory of 45 per cent to $40,318,000.

Recruiting for the new show is in the hands of the three Prairie provincial governments and three IT&C Prairie Regional Offices. The Canadian Consulate in Dallas is in charge of co-ordinating.

Interested manufacturers should contact the Consulate at (214) 742-8031, their provincial government or any of the IT&C Regional Offices in Winnipeg, Regina or Edmonton.

The 1983 show will take place in Garden City, Kansas.

Valves to Sweden Victory for Velan

A Montreal company, Velan Inc., has received more than $3 million in orders from Sweden for nuclear valves. The orders are with ASEA-ATOM for the Forsmark 3 and Oskarshamm 3 nuclear power stations.

The company started delivery in early September and the orders should be completed in mid-1982.

Buenos Aires Hosts Milk Congress

The Panamerican Congress of the Milk will take place in Buenos Aires, Argentina, April 17 to 25, 1982, under the auspices of major private and government agencies and the Holando Argentino Breeders' Association.

The agenda of the Congress will focus on four areas: **dairy production; dairy industrialization; human nutrition**; and **international milk** and **by-products trade**.

An industrial fair and exhibition of dairy cattle will take place at the same time in the Palermo Fair Grounds.

Conclusions and papers presented at the Congress will be forwarded to participating foreign governments.

Going into business for yourself has its risks as well as its rewards. In this, the last in a three-part series on the subject (Buying an Existing Business and Buying a Franchise appeared in the September and October 1981 issues of Canada Commerce), the Federal Business Development Bank perceptively considers the advantages and disadvantages of. . . .

Starting from Scratch

Starting a business from scratch has one exceptional advantage — what you accomplish will be entirely the result of your own efforts.

When you go into business for yourself by buying an existing business, you are buying the results of someone else's effort, the failures as well as the successes. When you buy a franchise, you are buying a piece of a larger business which you then must manage according to someone else's rules.

But when you start from scratch, it's your choice what product or service you produce or sell. It's your choice where and how you do it. And it's largely your choice when you do it. You have a freedom of action that you do not usually have when you buy an existing business or buy a franchise.

Like these other ways of going into business for yourself, starting from scratch has its disadvantages. The two important ones are that it takes longer and the risks are greater. Moreover, not every would-be small business entrepreneur has the clarity of vision, the patience and determination necessary to success.

That's why it is not enough to want to go into business for yourself. You have to be absolutely certain of the reasons why you do. Knowing the reasons will help you decide which is the best route to take. If you are convinced that you want to start from scratch, instead of taking the frequently easier routes of buying an existing business or a franchise, you must also be prepared for the long hours, for the worries and uncertainties, and for learning new lessons which are all part of the process.

No matter how carefully you have assembled your finances, chosen and equipped your location, cast your operating budgets and hired your personnel, there is almost always something you have overlooked or dismissed as unimportant and which turns out to be very important indeed. If you can't learn quickly how to correct that omission, you'll be a failure before you have the chance to become a success.

But that's also one of the advantages of starting from scratch. Because you are able to decide when you start, you are able to take as much time as necessary to evaluate your product thoroughly, to test your market projections, to recast your budgets to meet changing conditions and to benefit from the experiences of others. But once you have a clear

idea of what you intend to accomplish, you may be surprised at the number of unexpected opportunities that may be revealed.

An extended start-up time can mean a drain on your financial resources. Many starting from scratch try to avoid this by advancing their start-up times, frequently at the expense of adequate planning and research. It is far better to seek additional financing instead.

This is also true of the early stages of a business started from scratch. Its growth should proceed at its own pace instead of being forced, as it might be in an existing business or a franchise operation.

It is usually more difficult to obtain financing for a new business than it is for an established one or a franchise. A new business doesn't have a record of performance. It doesn't usually have much in the way of security for loans. All it usually has is the money its owner has invested, the quality of his planning and research, and the clear evidence of his determination to succeed.

Sometimes that is all that is needed. More often, though, the difficulties of obtaining adequate financing work against starting a business from scratch.

Even with adequate financing and sound planning, the risks are greater than they would be in other ways of going into business for oneself. Every new business, one way or another, is breaking new ground. It is being started because its owner sees opportunities where others have not, or opportunities which others have dismissed. When he seeks to realize those opportunities, he is moving into an area so far untested, for which there is no exact precedent.

Many starting from scratch tend to be too optimistic about their prospects and this influences their market forecasts and operating budgets. Many make the mistake of discerning opportunities for themselves in what they assume to be the inadequacies of those already in the field. The assumed inadequacies often turn out to be simple recognition of business realities, and the opportunities an illusion.

Starting from scratch is most often successful when the business is developed slowly, when it serves an emerging new market, and when its owner retains a hearty respect for the abilities of his competitors. Businesses founded on nothing more than the owner's belief that he can do it better are often among the first to fail. Those founded on new ideas for products and services, backed with sound planning and adequate financing, are usually most likely to succeed.

But, as always, the first requirement for going into business for yourself is to know what you want and what conditions must be met to obtain it. Only then should you decide how you'll do it — by buying an existing business, by buying a franchise or by starting from scratch.

Should you be interested in finding out more about going into business for yourself, the Federal Business Development Bank offers a self-instructional program, "Evaluating a Business", which may be of interest. Known as a Management Clinic, it consists of a 20-minute audio-visual presentation and accompanying workbook. This Management Clinic is available, at a nominal charge, at any FBDB branch office across Canada.

Economists' Corner

Trade in Manufactured Products

Manufactured products, more than any other group, are frequently singled out as indicative of our competitive ability, technological advancement and economic wellbeing. The continuing interest in the evolving position of Canada's trade in manufactured products is based on the very large share this trade represents both in terms of Canadian exports and imports — 70 and 79 per cent in 1980 respectively. The diversity of manufactured goods produced in Canada, both for consumers and for producers, requires the incorporation of a wide variety of manufacturing processes, technologies and designs which, together with other production factors and competitive elements, play an important role in their demand in both foreign and domestic markets.

The highlights of trade in manufactured products presented here are based on a re-allocation of commodity trade to industrial groupings (Standard Industrial Classification — SIC). These trade data are related to Canadian production (shipments) as well as to the Canadian market for the period 1966 to 1980. Overall developments are discussed first followed by sectoral highlights.

Canadian production of manufactured products rose from current $37.3 billion in 1966 to $166 billion in 1980 (see table 1), increasing at an average annual compound growth rate of close to 12 per cent. The Canadian market for manufactured products, grew slightly larger than total Canadian production, also grew at 12 per cent annual average.

The year-to-year growth of shipments in this period was uneven, ranging from a low of 1 per cent in 1970 to a high of more than 23 per cent in 1974. This variance reflects both the cyclical influence of demand at home and abroad as well as price movements during this period. The range of fluctuations in the Canadian market was even more pronounced than for production.

The relationship of shipments to the Canadian market as expressed by the implicit self-sufficiency of the Canadian market indicates that there was a persistent import gap in this market averaging about 2.7 per cent for the period. Only in 1970 did manufactured products experience a small surplus and that was due to a set of unusual circumstances consisting of flat demand at home and buoyant demand abroad. Note also that in the 1974-75 period of slump in world trade, the import gap increased due to a relatively sustained demand in the Canadian market but relatively weak exports. In general terms, however, the Canadian implicit self-sufficiency in manufactured products has not shown any dramatic changes that cannot be explained by cyclical demand fluctuations. In 1980 the indicated import gap was only 1.1 per cent, a considerable improvement from the previous year or the 1975 high of 6.4 per cent.

The measures concerned directly with trade indicate that exports and imports grew at the not too dissimilar growth rates of 14.9 per cent and 15.2 per cent per year respectively over the period. Both rates are perceptibly above those of production or consumption (Canadian market), thus indicating an increasing trade involvement for manufactured products. This is readily confirmed by the close to parallel increases in export orientation of production and import penetration of the Canadian market over the period. Export orientation rose from 18.8 per cent in 1966 to 30.9 per cent in 1980 while import penetration rose from 21.0 per cent to 31.6 per cent. These measures also reflect a cyclical sensitivity to respective demand forces abroad and at home (note, for example, the rates in 1974-75 and in 1979-80).

TABLE 1

	Domestic Exports[1] $
1966	7,011
1967	8,225
1968	9,842
1969	11,168
1970	12,162
1971	12,724
1972	14,502
1973	17,749
1974	20,588
1975	21,149
1976	25,756
1977	31,057
1978	39,244
1979	46,105
1980	51,269
1966-1980 Average Annual Rate of Growth	14.9

In most years Canada's balance of trade for manufactured products has been traditionally negative except for 1970. Again it can be seen that alternate improvements and deteriorations in this balance during the 1966-80 period coincided with cyclical demand conditions. While the deficits in the 1970s were substantially larger in both absolute and relative terms (especially in 1974 and 1975), in the more recent period there has been a gradual improvement (except for 1979). Relative to overall trade turnover the deficit position in 1980 was about equal to that experienced in 1968 or 1971 and about the mildest in the period.

In most cases specific manufacturing sectors reflect these overall developments in manufacturing. However, a sectoral decomposition (confined here to the 20 SIC major groups) allows a more detailed view of characteristics and changes in specific sectoral structures, performances and contributions. This article highlights three measures by sector: implicit self-sufficiency, export orientation and import penetration for the years 1966 and 1980 (see table 2).

The **implicit self-sufficiency** of Canadian manufacturing sectors varies widely. The array shows industries producing export surpluses (food and beverages through to paper and allied), industries that show a sizeable and persistent import gap (machinery through to rubber and plastics) and those industries that trade or do not trade but are close to self-sufficiency. It may be said that between 1966 and 1980 the change in self-sufficiency at the overall level of manufacturing was small. Those industries that produced an exportable surplus, however, strengthened their positions (except food and beverages), but the self-sufficiency in several industries declined thus partially offsetting this gain. Many sectors experienced only small changes in self-sufficiency in the intervening period.

The **export orientation** of overall manufacturing production rose considerably from 18.8 per cent in 1966 to 30.9 per cent in 1980. All sectors except knitting participated in this development, although the tendency to higher export involvement was markedly visible in several key manufacturing sectors already high on the list in export orientation. Transportation equipment industries were aided in their export orientation with the Canada-U.S. Automotive Trade Agreement but other industries (e.g. machinery and chemicals) achieved their increase by concentrating on the world market.

The **import penetration** of the Canadian market, however, did not stand still. It increased from 21.0 per cent in 1966 to 31.6 per cent in 1980. Sectorally, as with export orientation, large advances occurred in sectors where penetration by imported goods was already high. Only one sector, petroleum and coal products, experienced a decline in import penetration between the years of 1966 and 1980.

In summary, Canadian manufacturing industries advanced on the road to a greater trade involvement and interdependence during the 1966-80 period. This they achieved without a permanent decline in the implicit self-sufficiency in manufactured products. This increased trade involvement, both in terms of exports and imports, is a significant indication of the increase in specialization and production that has occurred as an ongoing process in the Canadian industrial economy over this period.

R.J. Konecny
Economic Intelligence Branch
Economic Policy and Analysis
Industry, Trade and Commerce
Tel: (613) 996-5871

CANADIAN MANUFACTURED PRODUCTS

(millions of dollars, per cent)

Retained Imports[1] $	Trade Balance $	Shipments $	Canadian Market[2] $	Implicit Self-Sufficiency[3] %	Export Orientation[4] %	Import Penetration[5] %
8,074	-1,063	37,303	38,366	97.2	18.8	21.0
8,886	-661	38,955	39,617	98.3	21.1	22.4
10,202	-359	42,062	42,421	99.2	23.4	24.0
11,976	-809	45,930	46,739	98.3	24.3	25.6
11,709	453	46,381	45,928	101.0	26.2	25.5
13,188	-464	50,276	50,739	99.1	25.3	26.0
15,881	-1,378	56,191	57,569	97.6	25.8	27.6
19,664	-1,914	66,674	68,589	97.2	26.6	28.7
25,387	-4,799	82,455	87,254	94.5	25.0	29.1
27,230	-6,081	88,427	94,508	93.6	23.9	28.8
29,897	-4,141	98,281	102,422	96.0	26.2	29.2
34,345	-3,287	108,852	112,140	97.1	28.5	30.6
41,397	-2,153	129,019	131,173	98.4	30.4	31.6
51,300	-5,195	151,729	156,924	96.7	30.4	32.7
52,050	-1,781	165,985	167,766	98.9	30.9	31.6
15.2		11.9	12.0			

[1]Total exports or total imports less re-exports, customs value basis
[2]Shipments less exports plus imports (apparent consumption)
[3]Shipments/Canadian market
[4]Export/Shipments
[5]Imports/Canadian market

TABLE 2
CANADIAN MANUFACTURED PRODUCT SECTORS
(Ranked values in 1980, per cent)

Implicit Self-Sufficiency

	1966	1980
MANUFACTURING	97.2	98.9
Paper and Allied	188.7	222.2
Wood products	150.6	193.9
Primary Metals	132.5	146.9
Petroleum and Coal Products	90.0	106.9
Food and Beverages	103.4	102.6
Tobacco Products	99.4	98.9
Furniture and Fixtures	96.9	97.9
Chemicals	90.0	95.3
Clothing Industries	97.0	93.8
Metal Fabricating	90.8	92.0
Non-Metallic Mineral Products	89.9	90.3
Transportation Equipment	88.6	88.8
Printing and Publishing	88.9	88.3
Rubber and Plastics	89.1	87.7
Textile Industries	78.6	80.5
Electrical Products	86.0	77.3
Leather Products	89.6	74.2
Knitting Mills	90.3	72.9
Miscellaneous Manufacturing	69.4	61.4
Machinery Industries	53.5	50.8

Export Orientation

	1966	1980
MANUFACTURING	18.8	30.9
Transportation Equipment	31.2	68.4
Primary Metals	42.2	61.0
Paper and Allied	49.9	59.2
Wood Products	38.9	54.5
Machinery	33.0	53.1
Chemicals	14.4	29.7
Miscellaneous Manufacturing	22.4	23.0
Electrical Products	9.2	22.2
Food and Beverages	9.6	11.7
Rubber and Plastics	4.1	11.4
Petroleum and Coal Products	1.0	10.9
Non-Metallic Mineral Products	5.8	10.8
Furniture and Fixtures	2.1	10.3
Textile Industries	4.8	8.2
Leather Products	4.4	7.9
Metal Fabricating	2.7	7.0
Clothing Industries	2.2	6.1
Printing and Publishing	1.3	3.7
Knitting Mills	1.8	1.4
Tobacco Products	0.5	0.7

Import Penetration

	1966	1980
MANUFACTURING	21.0	31.6
Machinery	64.2	76.2
Transportation Equipment	39.1	71.9
Miscellaneous Manufacturing	46.2	52.7
Primary Metals	23.5	42.7
Electrical Products	21.9	39.8
Chemicals	23.0	33.0
Leather Products	14.4	31.6
Knitting Mills	11.3	28.1
Textile Industries	25.2	26.1
Rubber and Plastics	14.5	22.4
Non-Metallic Mineral Products	15.3	19.5
Printing and Publishing	12.3	14.9
Metal Fabricating	11.6	14.5
Furniture and Fixtures	5.1	12.1
Clothing Industries	5.1	12.0
Wood Products	8.0	11.9
Food and Beverages	6.6	9.4
Paper and Allied	5.5	9.4
Petroleum and Coal Products	10.8	4.8
Tobacco Products	1.0	1.8

Travelling through the province of Québec, Canada Commerce contributing editor André Fortier has come across some remarkable success stories concerning companies that have succeeded in both domestic and export markets. Here he looks at Rousseau Metal, a sheet metal specialist, and finds it. . . .

A Model Drawer of International Markets

Although the lower St. Lawrence settlement of St-Jean Port Joli is justifiably known as a wood-carving capital, it is also a town in which Rousseau Metal Inc., a firm that has nothing to do with handicrafts, has been perfectly at home since 1950.

With a business volume of $5 million, Rousseau Metal provides jobs for more than 100 people, a fact that has a great influence on such a highly agricultural region as that of St-Jean.

Still headed by its founder, Mr. André Rousseau, the firm specializes in sheet metal production. It is particularly oriented toward the "light" transformation sector and produces such items as modular drawers, letter boxes, mail transfer and multi-compartment boxes, sorting boxes, post office boxes, filing shelves, metal storage shelves, work tables and so on.

Rousseau Metal manufactures this broad range of products in a modern, spacious and well-equipped plant, to which an extra 929 square metres (10,000 square feet) of floor space will soon be added.

What best characterizes Rousseau Metal from the production point of view is the fact that this business is the only Quebec or Canadian company to compete with foreign manufacturers in the modular drawer market.

With the assistance of the EDP program of the federal Department of Industry, Trade and Commerce, and the Centre de Recherche Industrielle du Québec (CRIQ), Rousseau is currently making a major effort to develop a new generation of modular drawers. It was modular drawer production that enabled Rousseau Metal to become an exporting company. In the future, company management intends to take all possible steps to make this product one of its major items. To date 15 per cent of drawer production has been sold to the United States.

Manufacturing a broad range of products in its modern, spacious and well-equipped plant in St-Jean Port Joli, Quebec (pictured here), Rousseau Metal has made a real impact on the economy of the largely agricultural region. The company employs more than 100, has a business volume of $5 million and, with both federal and provincial assistance, is developing new products and seeking new markets to add to its success.

Market and Sales

In addition to its exports to the United States, Rousseau sells its products in all 10 Canadian provinces, with Quebec representing about 55 per cent of the company's total business volume, Ontario 25 per cent and the other provinces the remaining 20 per cent.

Rousseau's sales policy is relatively simple, and sales are conducted primarily through a network of almost 200 distributors. Another 25 to 30 distributors sell the modular drawers. Finally, Rousseau has a marketing team which represents the company in relations with customers, particularly governments, which form a major portion of the company's market.

Social Policy

Any description of Rousseau Metal Inc. would be incomplete without a brief account of the firm's social policy.

Rousseau makes a point of sharing profits with its employees; net profits in excess of 4 per cent or 5 per cent after taxes are distributed equally to all employees.

As stated, Rousseau is firmly established in St-Jean Port Joli, where it has a major impact on this largely non-industrialized area. This fact is due both to the social policies just mentioned and to the dynamic nature and expansion of this business, which has had its place as a leader in its field for more than 30 years.

I.T.&C. Promotional Projects Program

The following is a current list of trade fairs and missions that will be sponsored during the period December 1981, January, February and March 1982. The list is published to alert Canadian businessmen and women to opportunities for reviewing the current state of their industries as reflected in the exhibits. At some fairs, Canadian manufacturers are invited to participate. At others, a Canadian information booth is available for contacts with foreign buyers and as an information clearing house.

Canadian companies interested in participating in Department sponsored exhibits are encouraged to contact their nearest IT&C regional office so they may be added to the Department's list of exporters. While attendance at major fairs listed is encouraged, companies should bear in mind that participation is fixed 4-6 months before an event.

Trade Fairs

Europe (Phone (613) 995-7334)

Project No.	Event	Date	Project Manager
January 1982			
81/47011	Hotelympia '82 — International Hotel and Catering Exhibition Olympia, London, England	Jan. 20-27, 1982	M. Pearce
February 1982			
81/47111	CONSTRUCTA '82 - Building Exhibition Hanover, West Germany	Feb. 3-10, 1982	M.P. Pearce
81/47023	ISPO '82 (Spring) — 16th International Sports Equipment Exhibition Munich, West Germany	Feb. 25-28, 1982	H. Schroeter
81/47010	DOMOTECHNICA '81 - International Fair for Household Appliances, Fittings and Components Cologne, West Germany	Feb. 10-13, 1982	L.V. Ford
81/47032	International Spring Fair '82 Birmingham, England	February 1982	J. Harman
March 1982			
81/47095	International Agricultural Show - SIA Paris, France (Institutional Exhibit)	March 1982	L. Sarda
81/47123	Leipzig International Spring Fair Leipzig, East Germany (Information Booth)	March 1982	H. Schroeter
81/47094	SIMA '82 - 53rd International Exhibition of Farm Machinery Paris, France	March 1982	L. Sarda

U.S.A. (613) 995-8303

Project No.	Event	Date	Project Manager
February 1982			
81/47067	Solo Business Furniture Show Seattle, Washington, U.S.A.	February 1982	T.E. Matthews
March 1982			
81/47036	Snow Show Las Vegas, Nevada, U.S.A.	March 1982	J.P. Lambermont
81/47041	American International Fur Fair New York, New York, U.S.A.	March 1982	A. Kuhlmann

U.S.A. (613) 995-8303

Project No.	Event	Date	Project Manager
March 1982			
81/47102	American International Fur Fair New York, New York, U.S.A. (Contribution for raw furs presentation)	March 1982	A. Kuhlmann
81/47072	PAS/ASIA - Pacific Automotive Auto Service Industry Associations Show Las Vegas, Nevada, U.S.A.	March 1982	T.E. Matthews
81/47068	Solo Business Furniture Show Boston, Mass., U.S.A.	March 1982	T.E. Matthews

Pacific Asian, Africa & Middle East (613) 995-8303

Project No.	Event	Date	Project Manager
January 1982			
81/47151	Sporting Goods Show at CTC, Tokyo, Japan	Jan. 19-21, 1982	K.J. Tyrrell
March 1982			
81/47027	International Toy and Sporting Goods Trade Fair Sydney, Australia	March 17-20, 1982	K.J. Tyrrell

1981/82 Promotional Projects Trade Missions

Europe (613) 995-7334

Project No.	Event	Date	Project Manager
February 1982			
81/48038	Timber Frame Housing - Mortgage and Insurance Mission from Belgium	Feb. 14-21, 1982	L. Sarda

Pacific, Asian, Africa & Middle East (613) 995-8303

Project No.	Event	Date	Project Manager
January 1982			
81/48093	Canola (Rapeseed) Oil Mission and Seminars in India, Pakistan and Bangladesh	January 1982	G. Debbané
February 1982			
81/48006	Specialty Cheese Mission from Japan	February 1982	K.J. Tyrrell
81/48048	Swine and Semen Mission and Seminars in South East Asia (Taiwan, Thailand, Malaysia, Singapore, Philippines)	February 1982	G. Debbané
81/48069	Airport Vehicles Missions to Malaysia, Indonesia, Philippines, Thailand and South Korea	February 1982	G. Debbané
March 1982			
81-48049	Fisheries Products Mission to Japan	March 1982	K.J. Tyrrell
81/48066	Marine Port Development and Materials Handling Machinery Mission to Hong Kong, Singapore and Malaysia	March 1982	K.J. Tyrrell

U.S.A. (613) 995-8303

Project No.	Event	Date	Project Manager
January 1982			
81/48009	U.S. Buyers Mission to the Toronto Int'l Boat Show	January 1982	J.P. Lambermont
February 1982			
81/48025	Apparels Buyers Mission to the Canadian Outerwear Fashion Fair, Winnipeg	February 1982	
March 1982			
81/48026	Merchandising Aids Buyers Mission from the U.S. to the ACDI Show in Toronto	March 1982	J.P. Lambermont

Latin America & Caribbean (613) 995-8303

Project No.	Event	Date	Project Manager
February 1982			
81/48051	Milk Powder and Dairy Products Mission to the Caribbean and South America	February 1982	P. Schutte
81/48092	Canola (Rapeseed) Oil and Meal Mission and Seminars in Chile and Venezuela	February 1982	P. Schutte
81/48063	Railway Equipment Mission to Colombia and Ecuador	Feb. 16-26, 1982	P. Schutte
March 1982			
81/48076	Nuclear Power Mission from Mexico	March 7-17, 1982	P. Schutte

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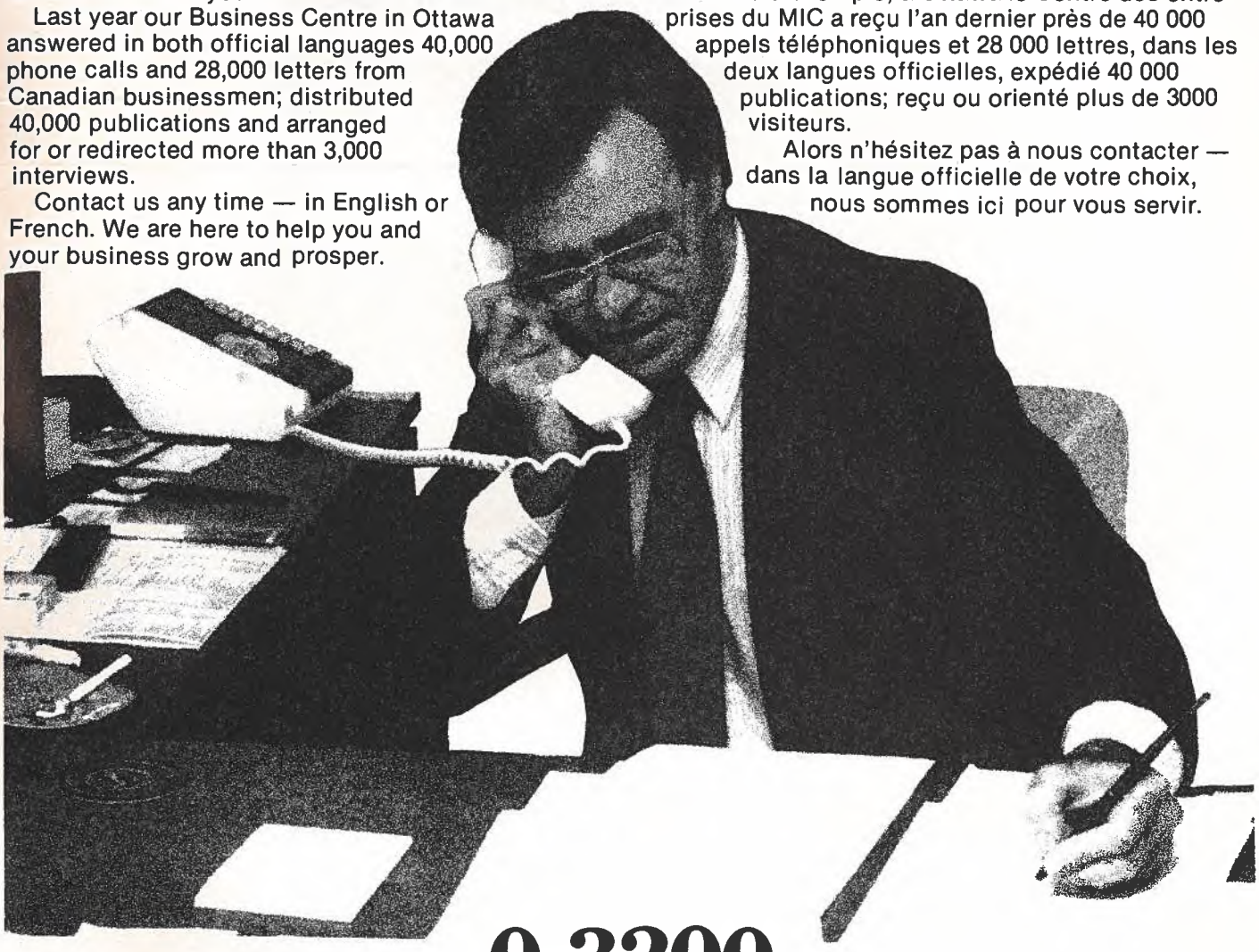

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