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Canada Gaining Recognition for Biotechnology Development

Biotechnology has been around since the processes of baking bread and brewing beverages were discovered but it is only relatively recently that its vast potential has been visualized and addressed.

Biotechnical research and development is being concentrated worldwide on a number of major sectors such as agriculture, forestry, food and beverage, health care and mining. By using living organisms to produce a new product, researchers are finding answers to health care needs, food and beverage preservation and problems associated with agriculture, forestry and mining. Scientists have found that genes can be split and cells can be manipulated to produce products that cause tree growth to accelerate, microbes to consume rocks and drugs to kill cancer.

Canada is one of the latecomers into the field of biotechnology but since the inception of the National Biotechnology Strategy and the formation of the National Biotechnology Advisory Committee (NBAC) in 1983, notable progress has been made in building the nation's efforts in that area through the fostering of industrial awareness, research and development.

Cooperation Vital

Perhaps the most important ingredient in the expansion of Canadian industry and markets through biotechnology is cooperation among financial institutions, universities, governments and industry. While Canada has the required elements for success in the development of biotechnology, a number of deficiencies were identified in the NBAC's first annual report, such as: the lack of a broad, strong, interdisciplinary science base; low industry awareness; lack of R & D commitment from the pharmaceutical, chemical and resource industries; reluctance to commit development capital; and a lack of communication and planning to ensure that R & D being carried out by industry, universities and government is complementary rather than overlapping.

The NBAC, which provides strategic advice to the Minister of State for Science and Technology and monitors the Strategy, is made up of 25 members drawn from industry, universities and the federal

government. This broad representation has produced briefs and recommendations that influence the provision of incentives designed to foster expansion of biotechnology on a national scale.

A boost for biotechnology development in B.C. came with the joint signing in July, 1985 of the federal/provincial \$20 million Subsidiary Agreement on Science and Technology. One of the targets of the Agreement is the stimulation of the development and application of biotechnology in the province.

B.C. Products Recognized

In the past two years, several fledgling B.C. companies have received international recognition for products based on biotechnological principles. Quadra Logic Technologies Inc., of Vancouver, is currently carrying out clinical trials on both ovulation test kits and monoclonal antibody diagnostic kits for the early detection of lung cancer and leukemia. The company has also developed an inexpensive diagnostic pregnancy kit that has created offshore interest, especially in China. A

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**DRIE IN
BRITISH COLUMBIA**



**Government
of Canada**

**Gouvernement
du Canada**

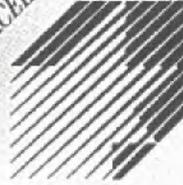
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SPRING 1987

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Canada

Canada Gaining

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new test trial of major therapeutic importance involves the use of a specific monoclonal antibody to squamous cell tumors in the lung. By attaching both a radioactive isotope and a light-activated toxin to the same antibody, it may be possible soon to detect and destroy tumors responsible for lung cancer.

Brookside Laboratories Inc., a subsidiary of Brookside Farms Ltd. located in Abbotsford, has established itself as a supplier of lysozyme which is produced by chemical extraction of protein from egg albumin and is used as an anti-viral agent. Lysozyme can be extracted from eggs without damaging the food value of the marketable dried product. Both Quadra Logic and Brookside Laboratories were aided in their development of biotechnology by DRIE contributions.

Helix Biotech Ltd., in Richmond, in collaboration with the University of British Columbia and Jolden Diagnostics, of Toronto, has developed a simple, reliable and inexpensive cow-heat pregnancy test which can prove to be a boon to dairy farmers. Safer-Agro Chemicals Ltd., in Victoria, has developed a safe, biodegradable, fungal pest control agent based on fatty acids and elemental sulphur. In recognition of its work in natural product pesticides, this company received a substantial investment from Plant Resource Venture Fund of Cambridge, Massachusetts.

Using a technique called micropropagation, AgriForest Technologies, of Kelowna, is cloning trees that are identical to the parent. By using the top 10 percent of superior trees, perfect offspring are produced which means that superior, faster growing trees could be created for reforestation.

Clay's Nurseries and Laboratories of Langley have been involved with tissue culture of woody ornamental plants and trees for eight years. In that time, the company has gone beyond the laboratory to make a name for itself in worldwide export markets. Last year, sales to Europe, South America, Australia, New Zealand, Japan and Korea far outstripped domestic sales. Clay's has also applied tissue culture to the propagation of trees with reforestation potential such as yellow cedar, white spruce and Douglas fir and expects to be able to produce these species on a commercial basis within the next few years.

Commercial applications of biotechnology are also promising in other sectors such as the agri-food industry, metal extraction and recovery, specialty chemicals and energy production, fish processing, aquaculture, milk product processing and cattle feed production.

One of the most exciting developments in biomedical research in B.C. is the research centre taking shape on the UBC

Biotech 86 Conference

Three B.C. companies interested in biotechnology transfer travelled to San Francisco last November to attend the Biotech 86 Conference: Syndel Laboratories Ltd., Quadra Logic Technologies Ltd., and B.C. Packers Ltd.

Arrangements for the companies to attend this high-profile conference were coordinated by DRIE's Vancouver office. Each company was eligible to apply for and receive part of the expenses incurred, through the Department of Regional Industrial Expansion's Technology Inflow Program.

The conference included a commercial exhibit that covered a spectrum of products and services from sophisticated laboratory equipment to bioreactors and pilot plant equipment. At the close of the conference, each participant

received bound copies of conference documentation.

Feedback received by DRIE from the B.C. participants was favourable and included such comments as:

- "The conference as a whole seemed to be very worthwhile with regard to the potential technology transfer which may benefit various areas of our business."
- "The conference was very informative and we gathered a lot of technical information and developed significant contacts."
- "We identified products and services that may benefit our research and development."

For information about the Technology Inflow Program, contact any of the Department of Regional Industrial Expansion offices.

campus, which will develop anti-viral and anti-cancer drugs including interferon to be used for cancer research both in Canada and abroad. The centre, which will receive both federal and provincial funding, will consist of a pilot fermentation facility and a laboratory research facility.

Marketing Expensive

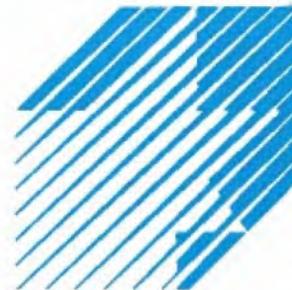
Developing biotechnology is one thing, marketing resulting products is another. Many of the biotechnology companies are small, staffed mainly by PhDs, and do not have the expertise or resources to penetrate the marketplace. Organizations funded through sales of Scientific Research Tax Credits are helping to bridge this gap between laboratories and the marketplace.

There are few quick financial returns from biotechnological research. Developing a product can take years but even the cost of that is dwarfed by the amount of money needed to produce and market it. Nevertheless, around 100 companies in Canada — about a dozen of them in B.C. — are either primarily or exclusively involved in biotechnology. Approximately 25 Canadian universities support research programs in biotechnology and over half of these have gained international recognition for their findings.

In addition, a number of government departments and agencies such as The National Research Council of Canada are undertaking research and development directly related to biotechnology and both federal and provincial governments are

addressing the need to increase funding in that area.

The opportunities for biotechnology to contribute to human well-being on a global basis are limitless. It is reassuring to know that Canada is already being recognized as a major contributor and that DRIE is sharing in these exciting developments.



Kelowna Company Reduces Need for Imports

Established in 1974, Decor Doors Manufacturing Ltd., of Kelowna, has recorded steady annual increase in product popularity. Last year's sales of \$7 million are projected to grow by 10 to 12 percent in 1987.

Tom Lesosky, president, puts much of the company's success down to the reputation it has built up for quality finished products and customer service.

Product diversification at the right time has been a major factor, too. When the trend to large cupboard space in homes and offices became fashionable, Decor Doors expanded its initial line of steel, insulated entrance doors to include space-saving bifold doors which not only provide easy access to cupboard space but also complement any interior style.

In order to accommodate the increased activity of producing bifolds, Decor Doors found plant expansion necessary. At this point, the company turned to the Department of Regional Industrial Expansion from which it received a contribution to assist in the design, development and purchase of equipment for a new manufacturing process for steel bifold doors.

Replacing Imports

Before Decor Doors' production of steel bifold doors, Canadian builders had to import this commodity. The company is still the only one in Canada to manufacture these items. The market for Decor Doors' line has been mainly in western Canada and, more recently, Alaska.

"We are looking at building up markets in eastern Canada, particularly for bifolds," says Lesosky. "We've had some business from Seattle and we have our toe

in the Australian door. We look forward to increasing our share in both the U.S. and the Australian markets."

The company's entrance doors are manufactured from a special type of galvanized steel which is embossed on both sides. The steelskins are separated by kiln-dried Ponderosa pine rails which provide a positive thermal break. A polyurethane core creates excellent insulation. The door skins are finished with two and a half mils of baked-on powder paint.

"We are probably the only door manufacturer in the world using this powder paint process," says Lesosky. "It creates a very durable finish that is almost like enamel."

Decor Doors' bifolds which, through a licensing agreement with Slimfold Manufacturing of Dotham, Alabama, incorporate Slimfold's pin and track system for smooth, silent operation. The bifolds come in several styles including mirrored, louvered and embossed panels — all with accompanying hardware ready for installation. The company also manufactures adjustable sills designed by Tom Lesosky who holds a North American patent for them.

In-House Training

Decor Doors likes to do its own staff training which is carried out in the plant with hands-on experience. "We start new employees at one station and then let

them try all the stations until we find the job at which they function best," says Lesosky.

The whole operation is carried out on an assembly-line basis ending at an inspection point where all doors are scrutinized before being shrinkwrapped.

The company's original 669 sq. metres of plant and office space has grown to 6,968 sq. metres while staff complement has risen to 50. This kind of growth is a tribute to the on-going enterprise of Tom Lesosky, Garnet Nixdorf and Ed Anderson, Decor Doors' three principals.

Sore Spot

There is one major source of frustration in the company's operation and that is in obtaining its supply of steel.

"We would like to buy all our steel from Canadian mills," explains Lesosky. "However, we can't because of the allocation system which is set on a three-year basis. Because demand for our product has grown beyond our allocation, we used up our quota early. Last year we had no choice but to buy from Japan. I feel Canadian manufacturers of steel should supply Canadian manufacturers before they export because we are the ones creating employment for Canadians."

Despite this bone of contention, Decor Doors is setting its 1987 sights on some healthy production figures — 90,000-100,000 entrance doors plus 40,000-50,000 bifolds, most of which will eliminate the need for corresponding numbers of imports.

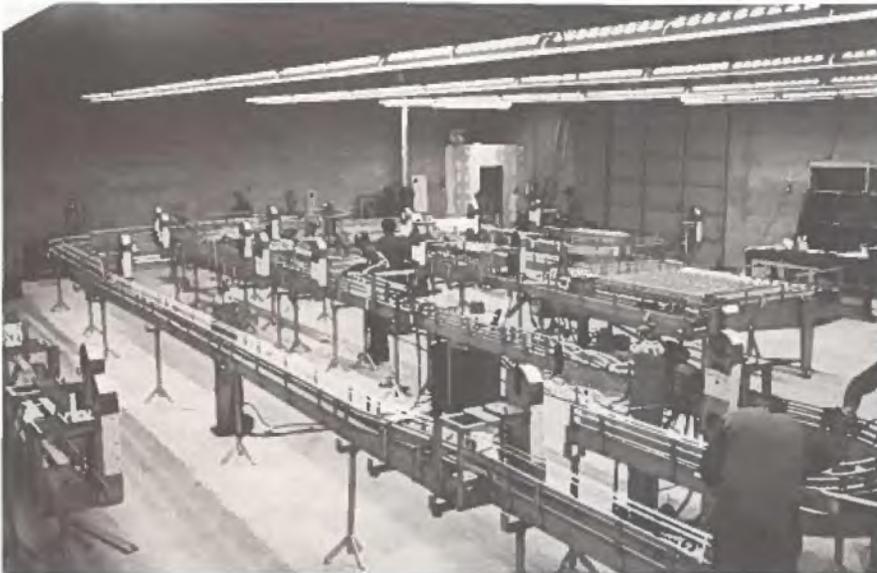
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Ltd.
2677 Kyle Road
Kelowna, B.C. V1Z 2M9.



In order to accommodate increasing business, Decor Doors has expanded into its new, spacious manufacturing/office complex.

"Business is always interfering with pleasure — but it makes other pleasures possible."

— William Feather



Bevco has the expertise and facilities to take its conveyor systems from custom design through manufacture to start up.

Bevco's Systems Speed Production

Thanks to companies like Bevco Conveying Systems Inc., laborious manual movement and packing of bottles, cans and cartons is a thing of the past. Designed to cope with the needs of bottling, canning and food processing industries — both large and small — Bevco's systems provide a time-saving, cost effective and reliable way to get products contained and ready for shipment.

Bevco, the only full-line, table-top conveying system designer and manufacturer in western Canada, was formed in 1981 and is wholly owned by Gus Fortier whose experience with conveyor systems is extensive. Actually, the company started out as Bevco Packaging Ltd. but a name change and a move into its own premises in Surrey took place in 1984. Six months after the move, expanding sales made it necessary to enlarge floor space from 1100 sq. metres to 1700 sq. metres. Further expansion can easily be accommodated on the company's site.

Turnkey Installation

Bevco, which offers turnkey installations with follow-up service, has added high-speed automatic bottle rinsers as a complement to its conveyor systems. The company has the expertise and facilities to take a project from design through manufacture to set up and start up. And, as in the case of an order from a Calgary beverage company, Bevco also provides — when requested — an on-site project manager to oversee design development, installation and subsequent start-up of a system.

A local testimony to Bevco's product is the handling system the company designed, built and installed for the B.C. Ministry of Forests' seed centre in Surrey.

Durable Construction

Because wear and tear on conveying and rinsing systems is extreme, Bevco uses stainless steel and durable polyethylene plastics in construction. The company's equipment incorporates such refinements as oscillating rails to ensure jamming does not occur, a design that allows down bottles or broken glass to be ejected and an electrical package with variable speed control which automatically compensates for varying demands in machine speed.

"We have spent considerable time and effort in developing our control systems," says Gordon Money, general manager. "In our programmable logic control system, we make use of sonar in controlling the supply of containers to specific areas in order to limit back pressure."

A major feature of Bevco's systems is the off-line, bidirectional table designed to accumulate containers at times when some problem occurs to prevent their orderly flow along the conveyor. Should

the table get fully loaded before the problem is corrected, an electrically controlled bar activates a limit switch to stop the conveyor. On resumption of operations, the containers that have accumulated on the table automatically join the containers moving along the table top conveyor.

The company's latest innovation is an elevator/lowerator which allows glass, plastic and metal containers to be conveyed continuously from one level to another.

Market Expansion

"We see that we have to get into more machinery design and production rather than offering only conveyors," says Money. "This will open other doors for us. So far, our business has been with the major breweries from Newfoundland to Vancouver. In western Canada, we work for the soft drink bottlers, wineries, custom canners and bottlers in the food and chemical industries. Bevco has made good inroads into the processing and wine industries on the U.S. west coast. Now we want to broaden our scope beyond the breweries, in eastern Canada, and further develop our U.S. markets."

While Bevco is currently planning to open an office in Toronto, the company has found that the best way to sell in the U.S. is to offer its products through agents who represent major lines of machinery.

Money explains, "Conveyors are commodity items and the best way for us to enter the marketplace is to work with agents who put together plant packages for customers. We did try running an office in Seattle for a year but it cost us money and produced little result."

As a means of researching markets, Bevco has taken advantage of the federal Program for Export Market Development (PEMD) to display equipment at trade shows in the U.S.

Says Money, "At each show we learned something new, got experience in marketing and made contacts."

Bevco believes in patronizing local suppliers when possible, with the result that about 85 percent of material is purchased locally. The company also provides year-round employment for 35 people — a number that is projected to increase as further inroads are made into potential markets.

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NATAL Facilitates Computer-Based Education

Computer-based education and training programs are becoming increasingly recognized teaching tools for academic institutions, government departments and industry. Moving with this trend, Softwords Ltd., of Victoria, is creating for itself a challenging and potentially lucrative future.

Softwords was formed in 1983 as a natural offshoot of its parent company, Press Porcepic, which has been in the book publishing business since 1971. The nudge into producing computer-based learning programs coincided with the development of the National Authoring Language (NATAL) by Canada's National Research Council (NRC).

NATAL, a computer language, was developed by NRC, in consultation with educators and industry, to fill the need of teachers and trainers to find innovative ways to cope with the transfer of information to students and trainees.

In 1983, DRIE provided an incentive of \$117,417 to Softwords for the development of the multi-user computer-based training system utilizing NATAL. This project was the first one to be approved in British Columbia under the Industrial and Regional Development Program (IRDP) which was introduced by the federal government in 1983.

In 1984, the Program for Industry/Laboratory Projects (PILP), the transfer agent for NATAL, provided support for Softwords to develop seven prototype computer-based training courses. These prototypes proved the viability of the language but also revealed that enhancements were necessary if the courseware was to make a significant impression on target markets.

The following year, Softwords licensed NATAL from the Canada Patent and Development Limited (CPDL), developed some courseware and started to market both NATAL and the courseware.

The success of the marriage between Softwords and the NRC technology was recognized by the federal government when the two groups earned a combined finalist position in the technology transfer category of the 1985 Canada Awards for Business Excellence.

Market Ready

The market was ready for Softwords' products and the company has been kept busy filling contracts with large users such as Ontario's Ministry of Education, Burroughs Canada, the Department of National Defence and Environment Canada.

"We have quite a range of customers and, because this is an absolutely new field and nobody has all the answers, there is a large research and development

component in filling their requirements," says Ellen Godfrey, Softwords' President. "Our function is to provide a relationship between human and computer intelligence. That is not always easy because people often expect computers to be able to do exactly what they want as soon as they decide they want it. DRIE's support of our development work with NATAL has been critical. We probably wouldn't be where we are today without that support."

Besides specializing in computer-based training and computer-aided learning systems and applications software, Softwords also provides graphic tools, related software, templates and methodologies to government, industrial and educational institutions, as well as Original Equipment Manufacturers (OEM) and courseware developers.

"We also write courseware on a contract basis and design graphics which are important components in current training software," says Ellen Godfrey. "Currently, we are carrying out research and development in expert systems and artificial intelligence, both independently and in joint projects with several Canadian universities. The results of this work will be integrated into future enhancements of NATAL and related course authoring tools."

Godfrey points out that the computer market is very stressful. "We often have to change our priorities because the market changes. We have to employ very

bright people who are ready to cope with a quick change in direction. Gaining credibility in the marketplace is important in our business in order to keep customer's confidence. We have to do what we say we can do."

Looking Ahead

With two profitable years behind it, Softwords is swinging its priority to marketing strategies. The company has been talking with a large multi-national company with a European base and is researching the U.S. market. It has also had unexpected overtures from China which have resulted in a Chinese representative working with Softwords on an exchange basis. Two of Softwords' staff will spend time in China within the next two years.

Godfrey stresses, however, that the company is not rushing into market expansion without laying solid groundwork. "The risk is too great and we are not in a mass market business. We are interested in selling site licences."

Softwords' parent company, Press Porcepic, has published over 80 books, including major literary works as well as technical books on industrial strategy and telematics. A science-fiction line is in the launching stage.

Currently employing 24 people, Press Porcepic and Softwords Ltd. have a head office in Victoria and a branch office and demonstration centre in Toronto.

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Ellen Godfrey (left) and Brenda Sully take a breather from the busy schedule being generated by the demand for Softwords' courseware based on NATAL.

DRIE Eases U.S. Market Entry

B.C. companies contemplating expanding their business to include export markets frequently consider the United States as their first foreign market. The U.S. market is attractive to the neophyte exporter because of its proximity, affluence and size. These factors coupled with similarities in language and culture make it a logical point of entry into international trade.

Despite these advantages, some potential exporters are intimidated by the process of getting into exporting. Over the past few months, the DRIE office in Vancouver has received enquiries from small manufacturing firms attracted to the U.S. market but unsure of how to approach it. Callers were aware of the trading advantage offered by the devalued Canadian dollar and believed that their products could compete in the U.S. market, but they did not know where to start or what sort of government assistance was available to them.

NEBS Program

The New Exporters to Border States (NEBS) program was developed by DRIE to provide the kind of information needed to initiate export trade with the U.S. NEBS is designed as a "hands on" experience intended to take the mystery out of the process of setting up a flow of products to the United States. The program offers a one-day trip via chartered bus to the Canadian Consulate General in Seattle, with a stopover at the border. During the stopover, U.S. Customs officials and a licensed U.S. Customs broker brief the group about Customs procedures, functions and services. In Seattle, Trade promotion specialists of the Canadian Consulate General provide information on the role of Canadian trade offices abroad. They will also arrange presentations which address sales and distribution of goods and the legal and banking considerations of exporting to the United States.

To date, the DRIE Vancouver office has arranged six successful NEBS trips. Three or four NEBS trips per year are planned for groups, each consisting of one specific sector, for example, the food industry.

Recent Mission

Nineteen representatives from the building materials/building products sector participated in a recent successful new exporters' mission to Seattle. They came from companies located throughout B.C. to explore the possibility of finding an export market for their products and to get firsthand knowl-



Fred Babis, Commercial Officer, Canadian Consulate General in Seattle, explains a point to Marilee McLean, Marketing Manager of M & M Arch Factory, Quesnel, who was one of the 19 company representatives taking part in the recent NEBS mission.

edge about the procedures necessary for shipping into the U.S.

While experienced exporters can participate in a NEBS program mission relevant to their business, the concept behind the trips is that they are most beneficial for newcomers to the process of exporting across the border, who can experience a firsthand look at the market.

"Our objective is to take people who are not yet into exporting," says Rod Johnson, Manager, Trade Development in DRIE's Vancouver office. "This experience exposes them to the basics of exporting to the U.S. market and helps them reach the initial decision as to whether they are ready to export. After the mission is over, we continue to follow-up with more information and we stay in touch to see how they progress and how we can assist them. If and when they are ready to market to the U.S., we continue to help them, through the Trade Section of the Canadian Consulate General in Seattle, to find distributors, agents or buyers according to their particular needs."

While most NEBS missions take only one day, this recent trip was scheduled for two days in order that participants could attend the Seattle Home Show to get a reflection of product lines being marketed below the border.

The Canadian Consulate General in Seattle arranged for free passes to the Home Show, presented briefings on local market conditions and arranged for speakers to present relevant topics. The success the missions have experienced so far is directly related to the meshing of services offered by DRIE and the Canadian Consulate General in Seattle.

Considering the time, effort and

expertise that goes into organizing, implementing and following up these NEBS missions, the modest amount charged (plus hotel accommodation for two-day trips) constitutes a bargain that is hard to match. Besides reaping a cost benefit, participants also gain knowledge from peer contact and the opportunity to network with knowledgeable people.

According to Rod Johnson, feedback from all NEBS missions so far has been satisfyingly positive. The appreciation of a recent participant is reflected in his summary comment: "I've been to other government functions and by far this mission has been the most beneficial. All the speakers were excellent, well organized — a good cross section to take the mystery out of doing business across the border."

For further information about the NEBS program, contact Peter Zalite, DRIE's Vancouver office, 661-2262.



Fab-Rite Gives Heavy Equipment Users a Big Lift

Located in Cranbrook, Fab-Rite Services Ltd. has been making a name for itself as an innovator, designer and manufacturer of mining and other industrial fabricated steel products.



Fab-Rite's planetary suspension is designed to provide an easier, less costly method of servicing large off-highway vehicles and equipment employed by mining and forestry companies.

Only five years old, the company has already shown that it can not only supply equipment superior to that which was formerly imported into Canada but also address specific needs of the mining, forest and oil industries.

Last year, Fab-Rite unveiled its mobile planetary suspension (P/S) removal truck which was designed and fabricated in the company's facilities. The purpose of this highly manoeuvrable, multi-purpose hoist unit is to provide an easier, less costly method of servicing large off-highway vehicles and equipment employed by mining and forestry companies.

"Instead of having to use two cranes and a forklift to remove a ten to twelve ton motor from a large vehicle, we can use our hoist to lift out the motor in one unit and put it back again once servicing is complete. That saves both time and effort," says Gordon Vogell, Fab-Rite's president. "In designing our hoist, we took the best features from current equipment, improved on them and fabricated our prototype from scratch, even down to the cylinders."

A DRIE contribution of \$28,000 assisted Fab-Rite to develop its P/S removal truck which is unique in Canada. The cost of one of these units, which includes crane and lift attachments and a man-basket, is about \$85,000.

Fab-Rite's first customers for the P/S

removal truck were Westar Mining Ltd. and Syncrude, both of whom depend on keeping their heavy equipment operational in remote areas. In the near future, Fab-Rite hopes to be able to invite mining industry representatives to a mining site in order to demonstrate the P/S removal truck's efficiency.

Product Diversity

The company's sales projection for the power hoist is 12 units a year but as Vogell points out, "Many companies have shown interest but they are dependent on their budgets when it comes to acquiring new equipment."

While waiting for budgets to loosen up, Fab-Rite keeps busy doing other things such as supplying mining companies with guards, plates, boxes, boarding ladders and drill masts. Forestry and industrial needs are met with log grapples, brush rakes, skidder blades, buckets for loaders and backhoes and structural beams and columns. The company's cable reel system can retrieve a damaged cable and lay out a replacement cable in one simple operation.

"We supply everything from parts to hoists," says Vogell. "And we fabricate from scratch. If a company contacts us about a problem, we go to it, see how we can re-design to solve the problem and go

from there. Sometimes we have to take into consideration the use of special welding in order to combat extremely cold weather.

"As well as fabricating, we do a lot of field repair and maintenance work. For instance, we do repairs for a Calgary oil company which keeps us working for it on a steady basis. Our machine shop is busy all the time."

Vogell speaks with pride about a large mining-related job that involved the re-welding and hard servicing of idler wheels and drive sprockets on large shovels. "Our engineer set up machinery which did the job automatically, turned out perfect results and cut a two-man, week-long, 24-hour-a-day job to half the time with only one person to supervise."

Except for periods when forestry and mining-related strikes cause down time, Fab-Rite provides steady employment for 14 people. Most of the company's growth has been generated by word-of-mouth rather than through a concerted marketing drive. Some thought has been given to seeking U.S. business but so far B.C. and Alberta have supplied enough work to support comfortable growth.

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*"To every problem
there is already a
solution, whether you
know it or not."*

— Grenville Kleiser

Aiding High-Tech Industry



Michel Côté, federal Minister of Regional Industrial Expansion (left), discusses the development of submarine technology with James MacFarlane, President of International Submarine Engineering (ISE) at the company's plant in Port Coquitlam.

Mr. Côté announced a federal contribution of \$2.4 million to ISE for the development of four prototype remotely-operated vehicles for exploring and surveying the sub-sea.

During a recent visit to Vancouver, Mr. Côté also announced a \$5.79 million interest-free repayable contribution to Microtel Ltd. to develop three new satellite communications products to complement the company's unique Spacetel system.

Epic Data Inc. of Richmond will receive a \$227,944 interest-free contribution to design and develop two new electronic procedures which will have a significant impact on the data collection industry.

Mr. Côté noted that these projects reflect the federal government's desire to help B.C. firms whose products can help the province diversify its economic base.

Supplying or Acquiring Technology

Canada's economic good health depends on the ability of Canadian business and industry to improve productivity and competitiveness through the development, acquisition and successful exploitation of technology and innovation. Technology transfer is often the means by which these stages can be accelerated.

Some aspect of technology is present in almost every business transaction whether it involves a high technology company or a traditional industry. Not every company has the resources to develop every aspect of technology needed to produce goods and services that satisfy market demands on a timely basis. On the other hand, some companies are searching for someone to share technology that they have developed. The answer to both needs is technology transfer.

In many cases, technology transfer is a complex process that requires recognition of such things as the legal aspects of patents, trademarks and copyright, the drawing up of clearly defined agreements and, if an international transfer is involved, the correct interpretation of local laws and requirements.

In order to explain and facilitate the process of technology transfer for Canadian firms, the Office of Industrial Innovation of the Department of Regional Industrial Expansion has published a 75-page booklet titled *Supplying or Acquiring Technology: A Canadian Business Guide to Structuring and Negotiating Technology Transfer Agreements*. (Report 2/86). This booklet can be obtained from DRIE's Vancouver office or by phoning the Business Information Centre at 666-2255.

CROSS CANADA REVIEW

DRIE and the Memorial University of Newfoundland have entered into a three-year Memorandum of Understanding designed to utilize commercial opportunities created by the university's biotechnology research. DRIE is expected to make a contribution in excess of \$250,000 to help bridge the gap between the laboratory and the factory as a means of enhancing economic development in Newfoundland and Labrador.

★ ★ ★ ★

A federal government contribution of \$87,500 towards estimated project costs of \$555,000 will assist Arrow Metal Products Ltd. of Moncton, New Brunswick to enlarge work space and create six new jobs. The company has recently entered the export market with its line of vinyl and aluminum windows and doors.

★ ★ ★ ★

A \$4,220,000 contribution under the Native Economic Development Program will enable the Settlement Corporation of Edmonton to establish itself as a self-sustaining investment organization providing financial services to the residents of the eight Metis settlements in northern Alberta. It is expected that over the next 10 years the Corporation will generate at least \$16 million in new investment in the Metis economy and create up to 500 new jobs.

★ ★ ★ ★

The Pehtabun Chief's Tribal Council, which represents the people of seven Indian communities in northwestern Ontario, has received a contribution of \$1 million, under the federal Native Economic Development Program, towards the purchase of an air charter business on which the communities depend heavily. Long-term strategy of the Council emphasizes recruitment and training of Native people as air charter employees.

DRIE Helps Business Find the Competitive Edge

Offices of the Department of Regional Industrial Expansion (DRIE), both in Ottawa and in the Regions, provide a wide range of services to business. At DRIE in Ottawa, the Market Development Branch is the focal point of a number of specific services designed to help businesses increase productivity and sales, locate new markets and assess new production opportunities.

Domestic Marketing

The Think Canadian program encourages both businesses and consumers to buy domestically produced goods and services where they are competitive in price, quality and availability. Program personnel work with all business sectors, consumers and government agencies to stimulate awareness of the benefits of buying Canadian, and to encourage businesses to clearly identify Canadian-made goods and services.

Imports into Canada

The Market Development Branch provides statistics and analysis regarding imports into Canada, for use by businesses wanting to manufacture in Canada products currently being imported. Three publications offer information at increasing levels of detail.

1. **MARKET OPPORTUNITIES CATALOGUE**, provides basic statistics on more than 4000 products recently imported into Canada;

2. **IMPORT PROFILE**, a series, each of which provides import trends, analysis and market information on a single product; and

3. **IMPORT ANALYSIS**, a series, each of which provides the most detailed level of analysis on a single imported product (e.g. price ranges, sizes, types).

Interfirm Comparisons

The Interfirm Comparison Program helps individual companies improve their productivity and profitability by identifying, on a confidential basis, their relative strengths and weaknesses compared with other similar firms within their industries. To date, interfirm comparisons have been completed on approximately 2100 companies in 65 sectors.

BOSS

The Business Opportunities Sourcing System (BOSS) is a computerized data bank containing information on 20,000 Canadian suppliers of over 70,000 goods and services. Increasing numbers of companies and government offices in Canada and abroad are using BOSS as their purchasing guide.

BOSS can help you source Canadian goods and services, develop marketing strategies, locate markets and competition as well as retrieve information by product, service, location, size of company and many other criteria.

By using BOSS on-line from your own computer you can provide yourself with immediate access to the most up-to-date version of the databank. You also have the benefit of making customized searches so that you can plan your market strategies effectively.

The on-line access to BOSS is available to any company with a "smart" terminal or a personal microcomputer with communication capability. The information is also available in semi-annual printed directories, on computer tape, and in specific sectoral indexes such as Canadian health care products and Canadian trading houses.

Canadian and foreign purchasers, Canadian trade posts abroad and organizers of special events such as trade fairs are making extensive use of BOSS. The market can become more aware of your goods and services if you are registered.

Information Available

Brochures and information about the foregoing services can be obtained by writing to the Department of Regional Industrial Expansion, P.O. Box 49178, Bentall Four, 1101 - 1055 Dunsmuir St., Vancouver, B.C. V7X 1K8. Telephone: (604) 666-2255.

MDI Scores a First with Embassy's Help

Mobile Data International, located in Richmond, has become the first Canadian company to earn a European contract to install an integrated taxi dispatching system. The contract, signed with Denmark's largest taxi company, Taxa Ringbilen Inc. of Copenhagen, is valued at approximately \$4 million (Canadian).

The installation, which is scheduled to be operational by November, 1987, will be used by MDI as a showcase for other prospective European customers. The MDI system, which will replace current taxi radio voice communications, will increase efficiency, customer service and driver security in approximately 750 vehicles of Taxa Ringbilen's fleet.

Playing a big part in MDI's success in landing the contract was the Trade Section of the Canadian Embassy in Copenhagen. Trade staff worked closely with the company for 14 months providing initial project identification, customer introduction, follow-up, arranging and hosting equipment demonstrations, document translations, advice in regards to local legal support and press exposure after the signing of the contract. In view of the fact that the Danish taxi company had little international business experience, the Embassy's involvement was particularly significant for both parties.

David Horup, Commercial Officer in the Canadian Embassy, has praise for the manner in which MDI personnel handled their part of the negotiations. "Not only has MDI displayed the necessary amount of dedication, commitment and patience — involving approximately 10 visits to Denmark over the last 14 months — but MDI personnel have been prepared to adjust to the Scandinavian way of doing business rather than adopting a standard North American approach. The translation of all essential documentation and brochures into Danish at an early stage of negotiations is just one example of flexibility displayed by MDI."

Horup noted that the Taxa Ringbilen contract will be a flagship contract in terms of taxi dispatching, and that other smaller Danish taxi companies are likely to opt for an MDI system.

"We have also identified other promising non-taxi related opportunities which MDI is now pursuing, involving organizations such as the Danish Civil Defense, Denmark's largest courier service and Copenhagen's electric utility," he said.

MDI's immediate plans include the establishment of a wholly-owned sales office and service centre in Copenhagen. The service centre will primarily provide technical support to Taxa Ringbilen while the sales office will be responsible for the marketing of MDI systems in Scandinavia and possibly in the northern section of West Germany.

Keating Comments

The 1987 B.C. Investment Outlook

The Private and Public Investment Intentions Survey of Statistics Canada, giving a nominal increase in capital and repair expenditures of 4.8% in 1987, and DRIE's Capital Investment Intentions Survey of large corporations, indicating a year-to-year increase of about 3.3%, point to 1987 as the best year since the recession for growth of investment spending in the province. Building permits, a leading indicator of capital spending, were also up 7.4% in 1986 over 1985.

If costs for capital equipment and construction do in fact increase by 4.1%, as predicted by the DRIE survey, real capital spending may increase by about 1% in 1987.

This first real increase in investment spending intentions since the recession is due to the buoyant outlook for resource based industries. Primary forestry, the wood products industry, and the paper and allied products industry show the most significant increases.

These industries were adversely affected by the prolonged IWA strike last year and U.S. protectionist sentiment. Indeed, capacity utilization for the wood products industry, which approached its limit in the second quarter of last year, actually fell by more than 11% by year-end. Industry sales, profits after tax, and return on assets also suffered setbacks in the third quarter of 1986, although the debt to equity ratio continued with its spectacular improvement.

The firming of commodity prices, an improved competitive position outside North America, and lower interest rates, appear, however, to have more than offset these negative influences on capital spending. The stock market appraisal of the forest products sector is also encouraging with many forest product company share prices having quadrupled in the last 16 months. Unlike former cyclical upturns in capital spending, however, for these resource sectors, the 1987 revival is not expected to be accompanied by significant increases in employment and wage increases.

In contrast, residential construction which underpinned B.C. capital spending last year appears headed for a weaker performance in 1987. Housing starts increased from about 18,000 units in 1985 to 20,700 units in 1986 and are likely to settle back to about 20,000 starts in 1987. The lowering of residential mortgage rates since these projections were made, however, could, if they persist, lead to a firmer performance by this sector later this year.

Capital spending on construction and machinery and equipment, excluding repair and maintenance spending, in British Columbia, fell by a nominal 8.2% last year to \$9.4 billion. Thus, even with a nominal 4.6% increase in 1987, the Province will capture only part of the ground lost in

1986. A weaker capital spending outlook for the utilities sector and the trade, finance and commercial sector in 1987 appears to have dampened the overall picture for B.C. Some weakness was ex-

pected, particularly for these sectors which were buoyed by Expo 86.

— by Bernard Keating,
Senior Development Analyst,
DRIE Vancouver.

MacDonald Dettwiler Opens New Facility



MacDonald Dettwiler and Associates Ltd. officially opened the new complex that houses its highly successful Electro-Optical Products Division. The company received a \$1.2 million interest-free repayable contribution under the Canada-British Columbia Industrial Development Subsidiary Agreement toward the cost of the facility. Funding provided under this Agreement is cost shared equally by the federal and provincial governments.

Located in Richmond, this 3,716 sq. metre complex is one of the most advanced of its kind. MacDonald Dettwiler developed the technology on which its Electro-Optical Division is based in order to fill the need for a high-resolution digital film recorder which could handle the huge amount of data in signals sent to the earth from satellites. The company is a world leader in the design and construction of satellite ground stations.

At the opening, an announcement was made on behalf of Michel Côté, Minister of Regional Industrial Expansion, by Tom Siddon (standing on the extreme right of the photo), Minister of Fisheries and Oceans and MP for Richmond-South Delta, that the federal government will contribute \$8.8 million to MacDonald Dettwiler toward two R & D projects, under the Defence Industry Productivity Program (DIPP). These funds will be used to assist the company to develop a new generation synthetic aperture airborne surveillance radar and to support its work on a computer-aided printed wire board imaging (CAI) product line.

Sales generated by the CAI product line could be more than \$100 million by 1992 and job creation impact is expected to be significant once commercial production begins on the two projects.

The objective of the DIPP is to develop and maintain strong defence-related industries across Canada.



TOEP Aids Canadian Access to European Technology

Last September, Michel Côté, federal Minister of Regional Industrial Expansion, announced the advent of a new federal program designed to help Canadian firms participate in advanced industrial technology research and development in Europe.

The Technology Opportunities in Europe Program (TOEP) assists Canadian companies to become involved in joint R & D projects which could entail millions of dollars in public and private sector expenditures over the next five years.

This participation is tied to the initiative known as Eureka which was collectively launched in 1985 by 19 European countries to advance the development of new technology by European industries.

Projects relate to the development of new products, systems and services designed for civilian use and which have international market potential.

While Canada is not a formal member of Eureka, the federal government has laid the groundwork for Canadian firms to become involved in Eureka enterprises. Canadian activities in the project are coordinated by an interdepartmental working group chaired by the Department of Regional Industrial Expansion (DRIE). Under the auspices of this group, Canadian firms with a potential interest in and capability for Eureka participation are being identified and contacted.

The response by Canadian firms has been enthusiastic and a number of companies are actively investigating participation in Eureka projects with European partners. For example, 10 companies visited France last November to seek out potential projects; two of these companies were from B.C., namely, MacDonald Dettwiler and Associates and Microtel Pacific Research Ltd.

TOEP's Functions

The objective of TOEP is to contribute to the growth of a strong high technology industry in Canada through the promotion of industrial cooperation between Canadian and European firms. The federal government has offered to make \$20 million available over two years to assist such collaboration.

These funds are dedicated to two areas: the investigation of opportunities and research and development. In the first instance, contributions can be sought for the eligible costs of exploring the potential for Canadian participation in both proposed and approved Eureka projects and for the eligible costs associated with developing financial and technical plans for the Canadian portion of the project and negotiating an agreement with the European partner(s).

TOEP contributions are also directed towards the eligible costs incurred by a

Canadian-based company for research and development in the context of a Eureka project under an agreement with the European partner(s).

A Canadian firm applying for assistance under TOEP must sign an agreement with its European partner(s), which provides for access by the Canadian firm to the newly developed technology and for the legal right to both exploit this technology and participate in its subsequent commercial development.

For further information regarding the Technology Opportunities in Europe Program, contact: Barry Oakley, Manager, Capital and Industrial Goods, in DRIE's Vancouver office at 661-2210.

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