Canada Commerce

July/August 1985

Research and Development — What Role for Governments?

B.C.'s Whistler Mountain, A Resort for All Seasons

Countertrade — An Idea as Old as Time

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The Honourable André Bissonnette
Minister of State for Small Businesses

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Cover Photo: Silicon wafers such as these being examined by technician will soon be replaced by gallium arsenide in many electronic applications.

Back cover: Summer sports have increased profits at resorts from Whistler to Mont Ste. Anne.

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Business Review

EXPO Update

• **Run on Roster**: The international guest list for the 1986 World Exposition, to be held May 2 to October 13 in Vancouver, British Columbia, is growing in leaps and bounds. The latest nations to announce their participation in EXPO 86 are Romania, the Philippines, Belgium and Cuba along with the European Community. The roster, now 40 nations strong, is expected to grow to close to 45 before the Exposition opens next year.

• **Coke is It**: In a ceremony on the EXPO 86 site, Coca-Cola Ltd. announced its plans to participate in Vancouver's 1986 World Exposition as the official supplier of soft drinks. Over the next year, the Expo logo will appear on 450 million Coke products in North America. In launching its year of partnership with Expo, Coco-Cola Ltd. leased the Expo Centre on its inaugural weekend in May and invited children in for a free visit.

• **Kodak Clicks In**: Since the 1893 Columbia Exposition in Chicago, Kodak has been present at many expositions, including those in Paris, St. Louis, New York, Montreal and Osaka. Vancouver, too, has welcomed aboard Kodak Canada Inc. as official photographic consultant to the 1986 World Exposition. It will sponsor the Kodak Show Bowl, a 3 000-seat amphitheatre, as well as the Kodak Cavalcade of Colour, a daily parade of participants.

New Method of Funding Yukon Approved

Final approval has been received for a three-year formula-based financing agreement for Yukon which will bring it closer to full responsible government. In the past, Yukon received most of its funding from the federal government by grants negotiated each year. Under the new system, the government will be able to plan, budget and spend according to its priorities.

The formula developed for Yukon funding involves the indexing of the Yukon government's base year expenditures (1982-83) by an escalator obtained from the growth rate of provincial and municipal expenditures and deducting Yukon revenues.

DIPIX Sells Systems to India

Dipix Systems Limited of Ottawa has received a contract for a turnkey ARIES-III Image Processing System from the Remote Sensing Group of the Keshava Deva Malaviya Institute of Petroleum Exploration of the state-owned Oil and Natural Gas Commission (ONGC) in Dehra Dun, India. The system will be used to assist scientists in the interpretation and analysis of air photos and satellite imagery for developing new techniques in petroleum exploration.

ONGC is responsible for all exploration research activities, and distribution and planning activities in India's oil and gas reserves. It plans to purchase additional ARIES-III components, including the Seismic Application Software, during the next two years.

For further information, contact Dipix Systems Limited, 120 Colonnade Road, Ottawa, Ontario K2E 7J5; Tel: (613) 224-5175.

Canada, Manitoba Sign Science and Technology Memorandum of Understanding

The province of Manitoba and the federal government have signed a Memorandum of Understanding outlining a joint science and technology strategy. The memorandum will complement activities undertaken as a result of the Canada-Manitoba Economic and Regional Development Agreement, signed January 4, 1985.

The two governments will establish a Manitoba/Canada Science and Technology Steering Committee to co-ordinate co-operative activities. The committee, to be co-chaired by an official from each government, will also serve as a vehicle for the exchange of information on technology-related developments in both governments, and will monitor overall progress in achieving the objectives of the Memorandum of Understanding.

Canada and Manitoba agree that advanced manufacturing technologies for small- and medium-sized businesses, food products and process technology, educational courseware, workplace innovation, forestry, transportation, energy/hydro, and agriculture will receive initial priority under the terms of the Memorandum.

Canadian Airport Selects Micronav Landing System

A microwave landing system (MLS) developed by Micronav Ltd. of Sydney, Nova Scotia, has been selected for installation at the Port Hawkesbury airport.

Port Hawkesbury is being developed as a major base for oil and gas exploration activities off Canada's east coast. Installation of the Micronav MLS at the adjacent airfield will enhance the movements of the growing number of fixed-wing aircraft and helicopters used by Canada's offshore industry.

Designed and built in Canada, the Micronav MLS is manufactured to meet U.S. Federal Aviation Administration Class 1 system characteristics, which includes plus/minus 40 degrees wide angle approach signal coverage. Wide angle coverage is essential to obtain maximum user benefits from MLS. Most earlier-designed systems now in service provide only plus/minus 10 degrees narrow angle approach coverage.

For further information, contact Tempus Communications, 3080 Yonge Street, Toronto, Ontario M4N 3N1; Tel: (416) 485-5885.

Tridon Receives Award for Quality Achievement

Tridon North America of Burlington, Ontario, has been named one of only six companies worldwide to receive 1984 Quality Achievement Awards from Nisson Motor Manufacturing Corporation, U.S.A.

Tridon supplies windshield wipers to Nissan's light pickup truck plant in Smyrna, Tennessee.

The Quality Achievement Awards, presented annually, are based on supplier quality system survey results, initial sample performance, quality level of shipment and responsiveness to concerns.

Tridon is the world's largest manufacturer of worm-drive hose clamps and, in addition to wipers, also produces electronic signal flashers.

For further information about the award-winning Tridon, contact Tridon North America, 201 North Service Road, Burlington, Ontario L7R 4A2; Tel: (416) 632-8900.

Jean-Paul Gordeau, president and chief executive officer of The SNC Group, with the Export Grand Prize; and André Vallerand, president, Montreal World Trade Centre.

Another Export Award for SNC Group

The SNC Group won the Export Grand Prize in the Export Gala 1985 held by the World Trade Centre, Montreal. The SNC Group was also a winner of the Canada Export Award in 1983.

One of The SNC Group's recent major overseas contracts is the $1.3 billion Chamera hydroelectric project in India, signed by a consortium of SNC/ACRES, Canadian General Electric and Marine Industries. It is expected to bring export orders for goods or services to some 200 companies, for a value of more than $600 million.

Jetro Opens New Centre

The Japan External Trade Organization (JETRO) has opened a Centre for Industrial and Technological Co-operation (CITEC) in Toronto.

CITEC's objectives are to channel funds into Canadian industry and technology, to encourage capital investment in the Japanese industry and technology by Canadian investors.

In promoting technological exchange, CITEC will serve as a consultant, facilitate introductions between Canadian and Japanese interests and provide information through seminars.

For further information, contact Japan Trade Centre, 151 Bloor Street West, Suite 700, Toronto, Ontario M5S 1T7.

Conference Roundup

U.S. Trade Shows

The United States Marketing Division of External Affairs is sponsoring Canadian participation in a number of trade fairs and solo shows in the U.S. during September and October. They include:

In September: Denver Petroleum Exhibition and Conference, Denver, Colorado, September 10-12; Husker Harvest Days, Grand Island, Nebraska, September 17-19; International Woodworking Machinery and Supply Fair, Los Angeles, California, September 19-22; and Iron and Steel Expo, Pittsburg, Penn., September 23-26; solo shows: Kitchen and Bath Cabinet Mini Display at Congen., Atlanta, Georgia; Solo Contract Furniture Show, Minneapolis, Minn.; and Detroit Food Fair, Detroit, Michigan.

In October: 58th Water Pollution Control Federation Exposition, Kansas City, October 6-9; SEMA and Auto International Show, Las Vegas, October 22-25; Info Booth — West Pack '85, Western Packaging Expo, Anaheim, Calif., October 29-31; and solo shows: Sporting Goods Solo Show, Cleveland; Sporting Goods Solo Show, Minneapolis; and Contract Furniture Show, Detroit, Mich.

For further information, call the External Affairs Trade Information Hotline at 1-800-267-8376.

Fourth Canadian Building Congress Planned for Ottawa

The Canadian Building Congress, sponsored by the National Research Council's Division of Building Research and the Canadian Committee on Building Research, will be held in Ottawa October 6 to 8.

The CCBR, established by the National Research Council to provide an interdisciplinary forum for building science and technology, has sponsored three other Congresses on Energy (1976), Rehabilitation (1979) and Achievements and Challenges (1982).

Licensing Executive USA/Canada Society

The Licensing Executives USA/Canada Society is holding its 1985 Annual Meeting October 20-23 at the Broadmoor Hotel in Colorado Springs, Colorado. The theme is "How to Make Licensing Work", and the meeting will feature more than 30 workshops.

The Society is a member of the Licensing Executives Society International. LES International is a worldwide federation of business-oriented professional societies involved in the transfer of technology and industrial or intellectual property rights.

For further information, contact Jack Stuart Ott, 1225 Elbur Avenue, Cleveland, Ohio 44107; Tel: (216) 226-1642.

Düsseldorf Hosts BIOTEC 85

The scope of the Düsseldorf, West Germany, trade shows has been expanded for 1985 and will include BIOTEC 85, 1st International conference with exposition for biotechnology and genetic engineering October 15-17. The event is sponsored by the University of Düsseldorf and scientists drawn from industry are also involved.

Biotechnology and genetic engineering have a great potential for innovations and are given a growing significance worldwide. The actual state of research will be demonstrated, practical solutions to problems will be shown and future developments will be forecast.

The congress is divided into three main subjects: biological clean-up of waste water, enzyme technology and microbiological genetics.

For further information, contact: P. R. Charette Inc., 5890 Monkland Avenue, Suite 206, Montreal, Quebec H4A 1G2; Tel: (514) 489-8671.

Electronicom '85

Electronicom '85, the International Electrical, Electronics Conference and Exhibition (IEEC&E) will be held October 7, 8 and 9, 1985, at the new Metro Toronto Convention Centre.

For information, contact: Berger & Associates Inc., 133 Richmond Street West, Suite 203, Toronto, Ontario M5H 2L5; Tel: (416) 862-0830.

Canadian Expertise in Thailand

Canadian consulting engineering expertise is recognized as comparable to any in the world and Canadians can be found working on a broad range of construction projects in many nations.

One of the latest is an island container port in Thailand, a joint venture of one Thai and two Canadian companies — CANAC Consultants Ltd./ Ltée of Montreal; Swan Wooster Engineering Co., Ltd. of Vancouver; and Thai Professional Engineering Consultants Co., Ltd. of Bangkok.

Known as CANAC/SWANCO/ TPEC, the three are project consultants for the study, design and implementation of the Inland Container Terminal Complex (BKKTERM).

Studies on port capacity, shipping and goods transportation for Thailand showed that the present river port of Klong Toey would reach its capacity during the mid-1980s. The best solution was seen as to build deep draft port capacity on the eastern seaboard and establish an inland freight station for containers in Bang Sue, a northern suburb of Bangkok.

Located on a 40-hectare (100-acre) site at Bang Sue, the BKKTERM will serve as the focal point for handling the country's unitized import/export as well as domestic goods traffic. Its function is to receive and dispatch full container loads as much as possible but to provide break bulk handling storage and customs facilities if required.

Thailand's new inland container terminal will serve as a focal point for the country's unitized import/export and domestic goods traffic.

However, the major design objective has been to move goods through from origin to destination with a minimum of transshipment and documentation to emphasize the full potential of containerization.

Study and design work completed by the CANAC/SWANCO/TPEC team included:

- the assessment of container traffic to be handled by the terminal;
- development and recommendation of an efficient layout for the BKKTERM;
- preparation of a transportation plan to ensure the orderly movement of containers between the complex and the Thai port of Sattahip;
- preparation of a communications plan to link the complex with the ports of Sattahip and Klong Toey;
- examination of the alternatives for, and recommendations of, an organization structure for the complex;
- recommendation of a tariff structure and preparation of proforma financial statements;
- detailed engineering and design facilities;
- preparation of design specifications and cost estimates;
- preparation of tender documents for the construction of the complex.

As an integral facility of Thailand's agressive development of its goods transportation system, BKKTERM is necessary to up-date the nation's ability to handle the world-wide trend to the use of containers.

For shippers and consignees not located at or near an ocean port, the inland container terminal has proved an efficient innovation by moving the port to the customer's door through use of sea-rail and highway transportation.

The site chosen is on property owned by the State Railway of Thailand and adjacent to its major freight terminal and is well situated to take advantage of all methods of transportation.

New and existing rail lines will provide a connecting link between the terminal and Thailand's deep-sea ports. A network of existing and planned expressways, main traffic arteries and ring roads will expand trucking facilities. The site also has good access to the airport and many large industrialized and warehouse areas.

E.H. Gilliatt, project manager for CANAC Consultants Ltd. (right) joins Thailand engineers in planning the site of the new inland container terminal.

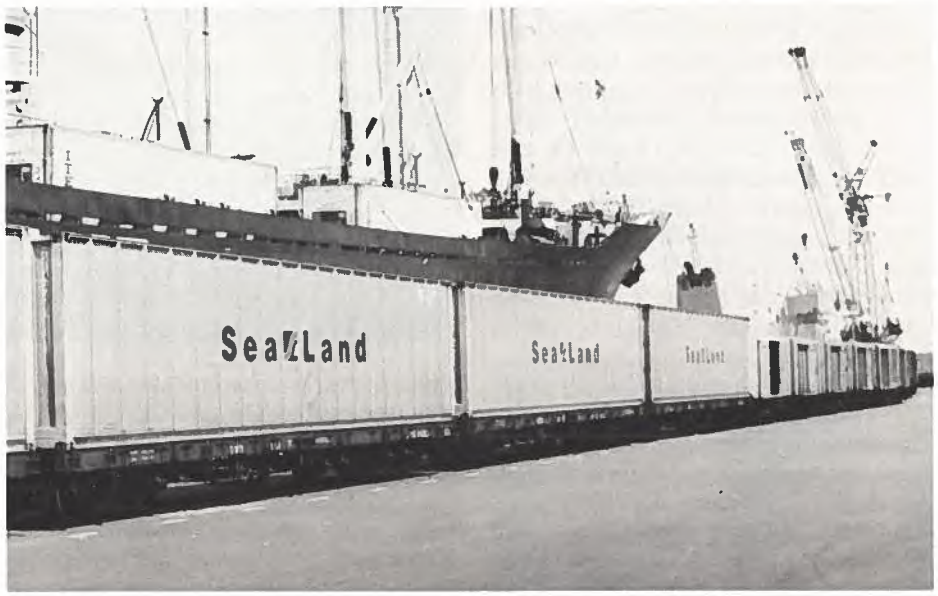
The BKKTERM will function the same as a container-handling sea port except the ships will dock at Sattahip or a new port at Laem Chabang some 100 kilometres away. Unit container trains carrying 100 TEUs (20-foot equivalent units) will connect the ship side with the container freight station, making the trip in four hours.

Some of the features of BKKTERM designed developed by CANAC/ SWANCO/TPEC include:

- The overall design is based on an efficient flow-through operation so that container movement is orderly and the distance of travel while in the terminal is minimized.
- The buildings have been located on the site so that there will be a separation of pick-up and delivery between BKKTERM and private operators.
- The import operation is separate from the export operation.
- The administration and liner agents' offices are located so that anyone can approach them to transact their business without entering the site.
- The gatehouse control is designed so that only workers and truck drivers with a clearance can enter the site.
- A computer system has been specified to control the movement of containers and for security and can be expanded as traffic increases.

Construction on Thailand's new inland container terminal started early this year and the project is expected to be completed and the terminal opened in the first quarter of 1987.

For further information, contact:
CANAC Consultants Ltd./Ltée
P.O. Box 8100
Montreal, Quebec
H3C 3N4
Tel: (514) 877-5741, -4010, -4820, -4966
Telex: 055-60753



Container train awaiting transshipment at the Thailand river port of Klong Toey.

Les Placages de l'Outaouais: A Gamble Pays Off

At 39, Claude Bérard already speaks with the assurance of a captain of industry, but his colourful vocabulary tells as much about him as his amazing achievements.

Neither a product of ivy-league business schools nor corporate backrooms, Bérard started his first business at 14 with his friend André Jémus, only 16 himself. A $175 loan enabled the two young founders of Bérard et Jémus Scrapyard to buy an old truck for collecting bottles, rags and old pieces of aluminum and scrap metal.

Bérard et Jémus is still in business today and embraces 10 companies with annual sales of $30 million, including $0.5 million from the sale of scrap metal.

For the third of nine children of a plumber from Rouyn-Noranda who quit school in the sixth grade, this success alone represents a challenge that's been brilliantly met. But Claude Bérard became a local celebrity in the Outaouais in September 1983 when he bought the Masonite plant that Canadian International Paper had just closed in Gatineau.

Where Canadian Pacific's subsidiary was forced to throw in the towel, Bérard's new company, Les Placages de l'Outaouais, scored an astonishing victory in the very first year of its operations, making a profit of $1.5 million, only slightly less than the plant's original cost. This year, a bearish American market for birch and oak panels will probably cut the firm's profits in half, but this is still satisfactory performance in the eyes of Bérard's associates — the workers at the plant.

For the key to success and the originality of Les Placages lies in the mutual trust that exists between Bérard and his employees.

When CIP announced its plans to close the Masonite plant, some employees approached Bérard to persuade him to buy it. His view of the situation was simple — it was necessary to cut costs, involve employees in company financing, improve performance and obtain the support of the federal and provincial governments.

Getting the employees to cooperate was the easiest part. Through specialists from Price Waterhouse and Rourke Bourbonnais, CIP offered them only seminars on managing severance pay and talks on the psychological effects of layoffs. Bérard was able to convince Masonite's former employees that they could keep their jobs by agreeing to forego some of their benefits and investing part of their salary to get the plant started again.

Neither idea appealed to the Canadian Paperworkers Union, with which

CIP workers were affiliated. Yet Bérard's plan was adopted almost unanimously at a general meeting of the employees, with only union officials voting against it.

It was harder negotiating with CIP, which hesitated for a long time before giving up the 10 100 square metres (125 000 square feet) of land on which its former plant was built.

Claude Bérard's initial contact with both orders of government, from which he hoped for financial support, also left a bitter taste in his mouth. After approaching Quebec City and Ottawa unsuccessfully for six months (Masonite closed its doors in April 1983), Bérard went so far as to threaten that he'd build only a giant warehouse for his other companies on the land he wanted to buy "and create only one job: stock keeper".

Eventually, however, the self-made man's impatience was gratified by a $300 000 grant from the Quebec government and a slightly lesser amount from the former federal Department of Regional Economic Expansion.

But the battle wasn't over yet when Bérard became owner of Les Placages de l'Outaouais in September 1983.

First, a formula for part-ownership by employees had to be developed. Their contribution was set at $20 per week per employee for the first year, which gave workers at Les Placages a 10 per cent share. Benefits, which accounted for 38 per cent of Masonite salaries, were reduced to 19 per cent, chiefly by giving up dental insurance, streamlining the pension plan and modifying salary insurance. The vacation plan was also affected.

Even so, it was necessary to eliminate about 40 of the original 140 positions.

These measures were to prove effective since, despite workforce reduction, after one year of operation (the plant resumed production in November 1983) productivity increased by 30 per cent compared to an equivalent period the preceding year.

To what does Bérard attribute this remarkable result? To radical cuts in spending, of course (he proudly points out that the former bosses' offices have been rented while he's moved into a foreman's cubbyhole), but mainly to his special relationship with his employees,

which is characterized by the most direct contact possible. He says that CIP communicated with its employees through several middle managers, creating needless frustrations, whereas he tries to settle every problem brought to his attention directly and as quickly as possible. For instance, he doesn't hesitate to halt production and call a meeting of all employees when a staff relations problem arises.

What about union representatives? Bérard's door is open for local union officers, but if a central union representative sets foot on the premises, the boss personally shows him out on the spot and immediately calls a meeting of his employees. The formula works; so far, Bérard claims he hasn't received any union grievances.

On the contrary, relations between this new style of manager and his employees are genuinely friendly. When he breezes through the plant, every worker he meets is entitled to crack a joke, and Bérard usually makes one in return. "They feel at home," he says of his employees, adding, "They've never had that feeling before."

Aside from their salary increases for 1984 and 1985 (six and seven per cent respectively) under the new collective agreement, the employees, who have formed an association, Les Placages de Chapleau, jointly made a $150 000 return on investment in 1984 and will probably make $75 000 this year, or 10 per cent of the firm's expected profits.

For the owner of Les Placages de l'Outaouais, the success of this venture, which only he and CIP's former employees believed in, is neither a stroke of luck nor a financial oddity. "This is the shape of things to come," Bérard claims after boasting about the success of this experiment in employee profit sharing. He bluntly states that traditional management procedures in the competitive wood product sector and "deluxe" collective agreements are incompatible with the new market realities.

The success of Les Placages de l'Outaouais is neither a stroke of luck nor a financial oddity but, in fact, "the shape of things to come."

Claude Bérard attributes his success with Les Placages de l'Outaouais largely to his special relationship with his employees.

As if to prove his point, another CIP division (also called Masonite) has just closed and another, Canexel, has been sold to Armstrong, an American corporation. Before employees at Canexel were saved by the latter transaction, the Paperworkers Union quickly announced it didn't want another Bérard plan.

While he doesn't care for large central unions, this entrepreneur from Gatineau also has no love for governments. According to Bérard, politicians and public servants should have confidence in the know-how and experience of businessmen and stick to helping new start-up firms, especially by relieving their tax burden.

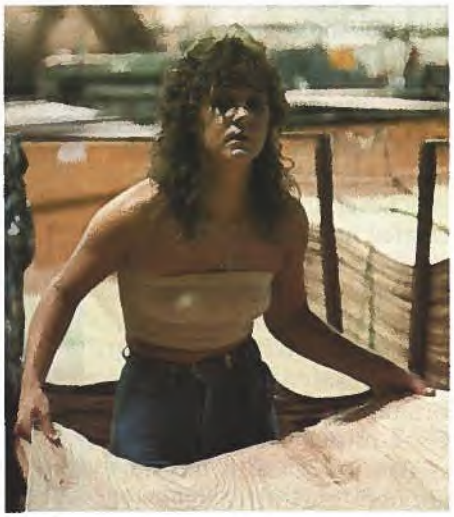
He cites his most recent difficulties in restarting another firm on the verge of bankruptcy, Scierie Mont-Laurier. This Upper Gatineau sawmill was to become part of the Les Placages production line, using oak and birch culls from the Gatineau plant. Bérard says he was denied any grants because the powers that be feel it's up to Les Placages, which has already received grants, to make the sawmill profitable.

Bérard feels the link between grants and job creation couldn't be clearer than at Scierie Mont-Laurier, where the 47 employees needed to run the mill are inevitably fated to collect welfare unless the government intervenes. He sees red when he thinks of the $150 million in assistance to Domtar to maintain existing jobs and the $76 million promise by Quebec to build an MDF panel plant in Mont-Laurier that would create 52 jobs, when Bérard only wants $300 000 to save Scierie Mont-Laurier.

More than just employees, these are partners who are proud of the success of their company.

With the same brutal frankness he displayed in negotiating to buy Masonite, Claude Bérard makes no secret of his plans for the sawmill if he doesn't get the requested grant. "The mill will close in September 1985, and the government will pay the workers $940 000 per year in welfare," he predicts, hastening to add that this doesn't include the 75 jobs in the forestry industry that will probably be lost as well.

The frustration that has built up after years of negotiating, the breakneck pace he's imposed on himself to restart Les Placages (six workdays per week and sometimes more) while managing his other companies, have finally tired out even an energetic man like Claude Bédard. The father of three girls confesses that sometimes he'd like to be able to play golf or tennis.



If a buyer came along in about two years who would continue the Les Placages experiment, he admits he'd be willing to sell.

How will he know, then, whether his daring gamble with the workers of Les Placages de Chapleau really paid off?

He got an indication recently that says more than any financial statement. Some employees came to see him to propose another $20 weekly deduction from their salaries "to start something new".

Claude Bédard was surprised but pleased by their proposal. Having taken his share of risks himself, he smiles, shakes his head and says, "They've got guts."

— by Paul Terrien
Specially written for
Canada Commerce

Research and Development — What Role for Governments?

With all the zeal of the newly-converted, politicians on both sides of the Canada-United States border are embracing the cause of technological innovation. Concerned about the unprecedented battle for technological supremacy among the world's industrial nations, policy makers in both countries are unanimous about the need for government to promote innovation.

Technological innovation has emerged as a political issue largely because Japan and Europe took advantage of America's declining investment in research and development (R&D) during the 1970s, challenging the U.S. lead in many key technologies.

Several countries have created national programs to stake out claims in technology markets. A co-operative government-industry program is designed to make Japan pre-eminent in computers; Britain has taken the lead in fibre-optics transmission systems; France is moving ahead in nuclear energy.

"International competition, especially in industries that depend on technology . . . is unsettling," says George Keyworth, director of the U.S. White House Office of Science and Technology Policy. "Long-term economic growth requires better use of R&D resources and closer interaction of the academic, government, and industrial research communities."

"Canada is in a global technology race and we're running behind the pack," warns Prime Minister Brian Mulroney. R&D will receive "a much higher priority than in the Trudeau years", adds Canada's Science and Technology Minister, Tom Siddon.

The recognition at the public policy level, in Canada and the U.S., that innovation must be fostered is welcome. Scientists, academics and businessmen only hope the concern will result in measures that truly promote innovation.

Fostering Innovation

The extent of a nation's commitment to innovation is commonly measured by the ratio between Gross Domestic Expenditures on R&D (GERD) and Gross Domestic Product (GDP). By this yardstick, Canada, at 1.28 per cent in 1983, lagged far behind the U.S. (2.65 per cent), West Germany (2.57 per cent), Japan and Britain (2.4 per cent), and France (2.12 per cent).

The U.S., which neglected its investment in technology development for many years, is now scrambling to make up lost ground. While its R&D expenditures were dropped from 2.64 to 2.22 per cent of GDP between 1970 and 1979, Japan, West Germany and the Soviet Union were increasing theirs.

The U.S. may be hard pressed to regain its position of technological leadership. While federal government expenditures on R&D are rising, increases in corporate R&D spending are slowing down. A McGraw-Hill survey found that U.S. businesses plan to increase R&D spending by 8.3 per cent in 1985, down from an increase of 11.1 per cent in 1984.

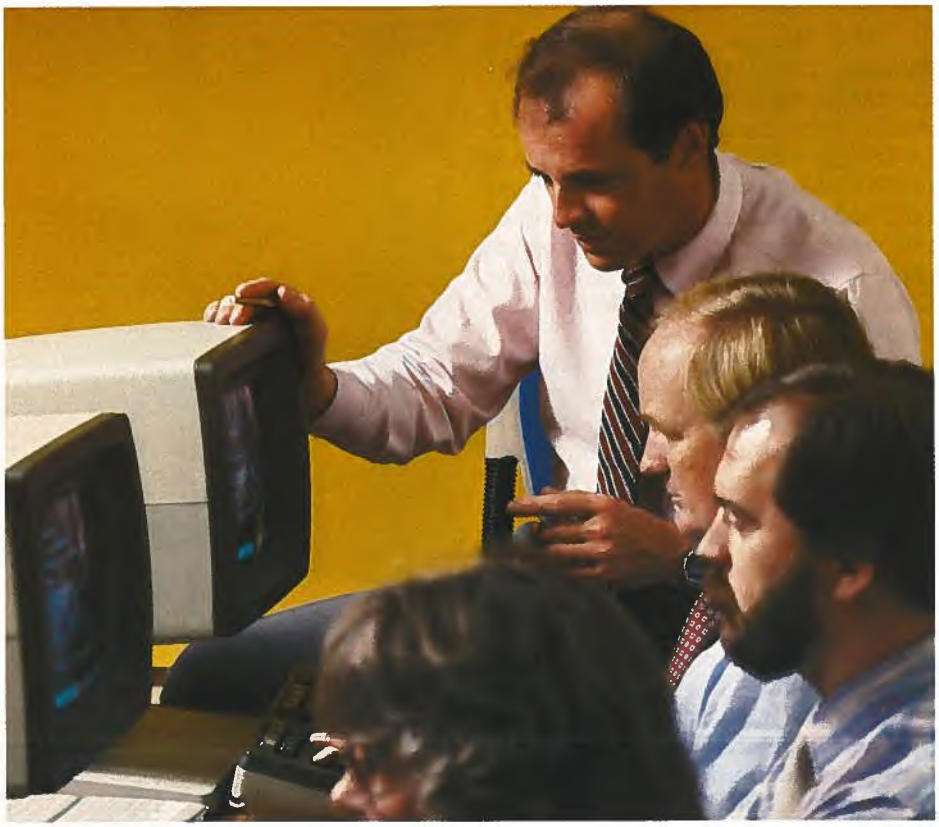
Canada spends fewer dollars on innovation than any western nation except Ireland and Iceland. Canada's 1984 investment in R&D was about $5.3 billion, an increase of only $375 000 over the previous year.

Some U.S. and Canadian politicians want government to promote innovation by focusing national efforts on industrial "winners". While this might provide some short-term gains, it is not the most effective way for North America to regain its competitive vitality, according to reports by Canada's Standing Senate Committee on National Finance and the Republican Task Force on High-Technology Initiatives in the U.S.

These reports say that rather than "targeting" specific technologies or industries, government should target the process of innovation by creating an environment in which new ideas and new companies are likely to flourish.

According to Dr. E.P. Neufeld, senior vice-president and chief economist, Royal Bank of Canada, "there must be an environment of price stability and therefore a decent level of interest rates . . . an environment in which business can dare to plan ahead".

Business must have confidence in the future economic scene because R&D projects typically require a long-term investment. If industry is to assume the risks associated with such an investment, it must feel reasonably secure about the market and other business conditions that will prevail over the long term.



The Need for Incentives

While a stable economic environment is essential, it is not sufficient. Canada's Business Council on National Issues says that government incentives are necessary if high-risk R&D investment is to compete with other opportunities for investment funds.

Incentives take two forms: investment credits for firms which have already conducted R&D; and non-tax measures, such as grants, government contracts and direct funding for university and defence-related research.

Both Canada and the U.S. provide direct grants to small and medium-sized firms that don't pay income taxes and therefore can't be reached through the tax system. Grants are beneficial because they enable smaller firms to grow. But larger companies, which create jobs and engineer economic growth, also need incentives to maintain their competitive strength.

One form of incentive is the joint government-industry research venture which develops new basic technology with industrial applications.

Japan's Ministry of Industry and Trade, for instance, sponsored a co-operative integrated circuits program which enabled that nation's semiconductor industry to develop successful 64K random access memory chips.

The Reagan Administration is encouraging government-industry co-operation, particularly in the areas of aeronautics and materials sciences. In fiscal 1984, the U.S. government spent more than $700 million on R&D projects which benefitted the American aeronautics industry; the figure is expected to exceed $1.1 billion by 1988.

Unlike the U.S., where government-funded space and defence R&D has spawned entirely new industries, the Canadian government doesn't invest heavily in developing technologies for space and defence purposes.

However, it does support a wide range of research programs that also create industrial benefits. An example is the joint venture between Bell-Northern Research (BNR), Northern Telecom's research and development subsidiary, and the National Research Council (NRC) to determine the feasibility of producing gallium arsenide integrated circuits. BNR and the NRC are sharing the $14.4 million cost of the program which is expected to result in improved technology to serve high-speed logic and memory applications.

"Gallium arsenide will be essential to future technological advances in many Northern Telecom products," explains John Elliott, vice-president, corporate development, BNR. "Moreover, the people being trained on the project will help us to meet our future needs for researchers in this field."

The gallium arsenide project illustrates the potential for successful government-industry co-operation at the research stage of the innovation process. Government involvement is less effective at the product development stage because government cannot react to changing market conditions with the speed and vigor of the private sector.

The Canadian Task Force on Federal Policies and Programs for Technology Development points out that in industrial R&D, every great idea does not make a great product. It also notes that "when government is a player (in R&D), political considerations make it very difficult to scrap an unpromising project".

The tax system is generally the best way for governments to stimulate market-oriented industrial R&D by larger firms because tax credits reward the successful innovator and allow the individual company to determine market strategy and priorities.

R&D in Transition

Canada's principal R&D tax incentive is a 20 per cent credit on qualifying capital and non-capital R&D expenditures. But tax credits and incentives are only valuable to the extent that they reduce a company's R&D costs. For every dollar Northern Telecom spends on R&D in Canada, it gets only 18 cents back from the government in the form of tax credits.

Editor's Note
New changes in the rates and way R&D tax credits are to be handled were introduced in the May 23 Budget. See Special Report in May/June Canada Commerce.

The Electrical and Electronics Manufacturers Association of Canada (EEMAC) says that the impact of government R&D incentives is often negated by restrictions on the type of activity which qualifies as R&D for tax purposes. An EEMAC submission to Canada's Finance Department says that Revenue Canada uses an outdated definition of research which disqualifies a great deal of industrial R&D simply because it takes place in plant settings rather than laboratories.

The development of Northern Telecom's 4Ghz microwave radio system is a case in point. By creating a computer-aided design environment **on the shop floor**, Northern Telecom and BNR were able to bring the system to market 15 months before the competition. But because it was developed **outside the traditional laboratory setting**, much of the R&D associated with the system didn't qualify for a government tax credit.

Westinghouse Canada Ltd., Motorola Canada and Canadian General Electric (CGE) have had similar problems, although in many cases they were resolved after prolonged debate. Doug Barber, vice-president and general manager of Linear Technology Inc., Toronto, says that several of his firm's claims for an R&D tax credit have been audited because R&D took place on the shop floor. It has been their experience that the audit drags on for about two years and is resolved satisfactorily. However, Barber points out that the audits are expensive to his company and are also costly to taxpayers.

Jack Weston, manager, tax accounting, CGE, says the application of existing legislation should be studied to eliminate the possibility that a particular auditor will challenge the legitimacy of R&D that takes place in a plant setting, and thus cause hardship to corporate taxpayers. "Necessary changes could be effected by amending Revenue Canada interpretation bulletins," he suggests.

A report by EEMAC's research and development committee says that the definition of R&D used for tax purposes penalizes many Canadian firms which are too small to maintain separate R&D and manufacturing facilities.

Moreover, it discriminates against high-technology firms which increasingly conduct R&D in plants in order to streamline and simplify the technology transfer process and to bring products to market quickly.

Canada's International Trade Minister James Kelleher recently said that the tax definition of R&D should be broadened, and that tax laws must be changed to reflect the fact that R&D is an integral part of the production process, not a separate activity.

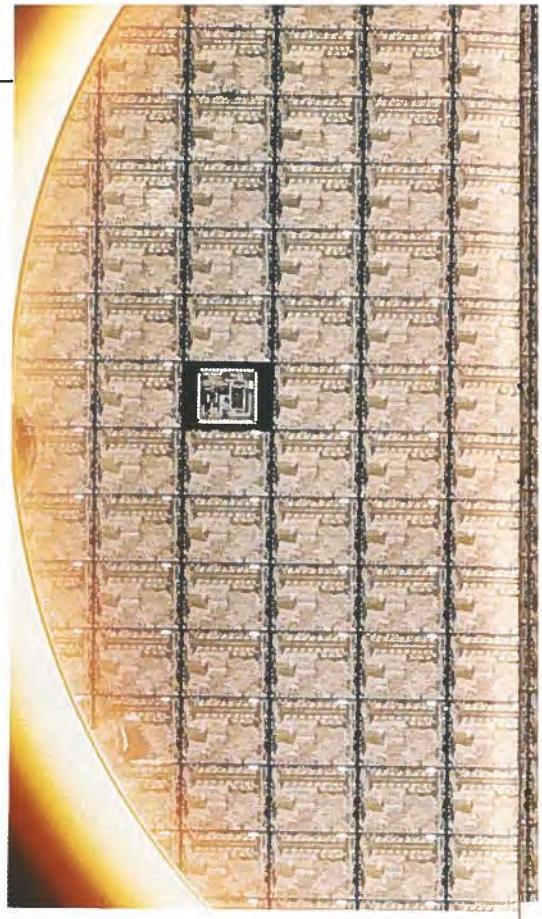
Another tax anomaly which limits the ability of business to maximize R&D investment is the provincial tax on federal tax credits to industry.

Tom Routley, assistant vice-president, taxation, Northern Telecom Limited, says the corporation's requests for a change in this policy have been rebuffed by the provincial governments.

"We've pointed out that the provinces are profiting from federal tax credits at the expense of companies which conduct R&D. Not surprisingly, they're reluctant to give up this source of revenue."

In the U.S., state governments do not tax federal tax credits to industry. However, the 25 per cent research and experimentation tax credit is limited to non-capital expenditures above a firm's average outlays for the preceding three years. The temporary credit, which has existed since 1981, is due to expire at the end of 1985, and the last Congress adjourned without passing a bill which would have made it permanent.

"A temporary R&D tax credit can't provide the kind of incentive needed for long-range projects," says Rep. Ed Zschau, chairman of the Republican



Task Force on High Technology Initiatives in the U.S. Congress. "Congress needs to pass legislation to make the tax credit permanent."

Mary Gordon, Northern Telecom's Washington-based manager, legislative affairs, says that although the business and education communities strongly support the tax credit being made permanent, prospects for action this year hinge on how much pressure is brought to bear to reduce the federal budget deficit.

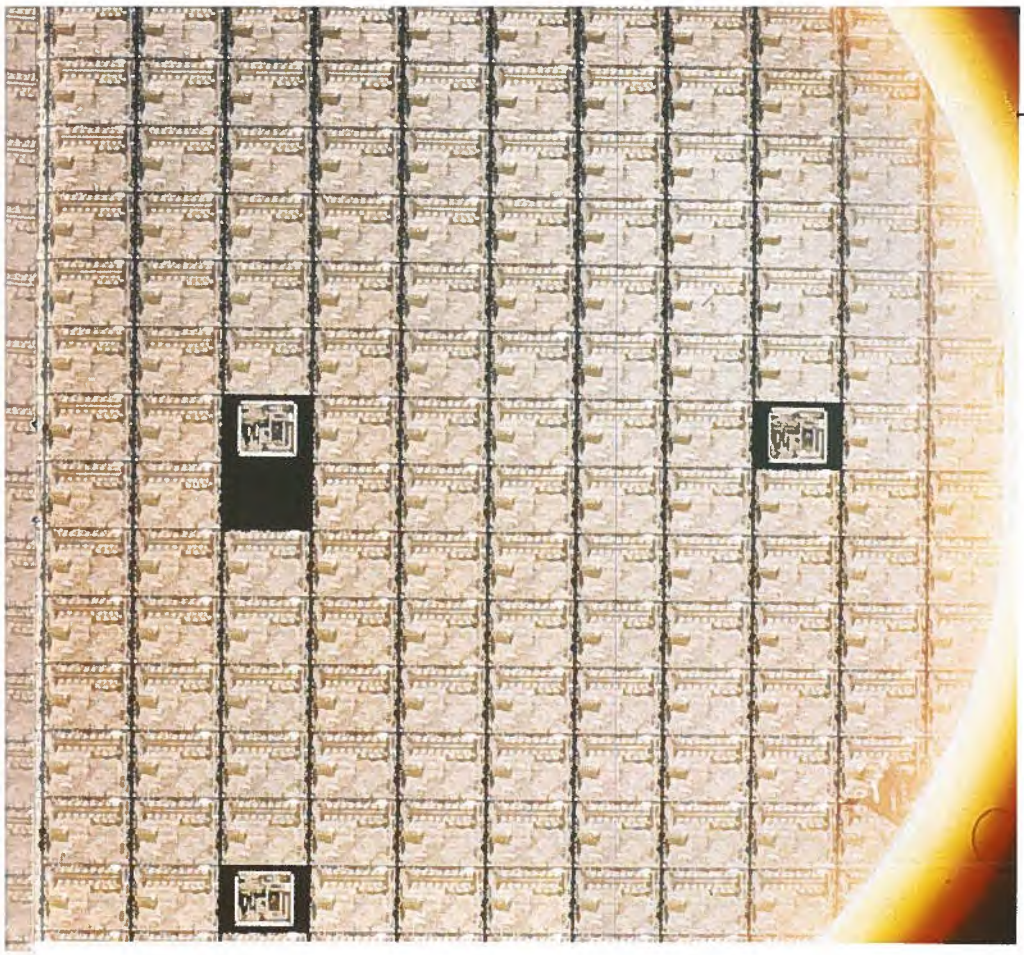
"The bill is enmeshed in other tax legislation and there's a lot of opposition to extending any major programs which would result in so-called lost tax revenue," she explains.

Controlling Technology Transfers

In addition to tax legislation, U.S. business is concerned about recent government actions which affect their access to technological information.

The 98th Congress ended before changes to the Export Administration Act were passed. The proposed changes were part of the Reagan Administration's efforts to control technology transfers to other nations.

These efforts spring from the U.S. government's desire to maintain its lead over the Soviet Union in militarily-critical technology.



Unfortunately, says Mitchel Wallerstein, special assistant, policy and planning, of the United States National Academy of Sciences, the result has been an alarming trend toward secrecy with respect to the dissemination of technological information in the United States.

Government tactics have included refusal to process export licences, stepped-up customs inspections, and close scrutiny of lists of sensitive items.

Perhaps most worrisome is an April 1984 Executive Order which lowered standards for the classification of scientific information; in some cases, it permits the re-classification of material previously released.

"Things are getting so larded up that you wonder if the definition of national security is getting lost," says Ralph Thomson, senior vice-president, American Electronics Association.

As a result of threatened or actual government intervention, some research papers have been withdrawn or withheld from scientific conferences in the U.S.

Most firms, even in the high-technology field, concentrate on product development, obtaining base technology from external sources. Northern Telecom, for instance, conducts almost 100 per cent of its applied research, using base technology derived from government, industrial and university labs around the world. Disruptions of the flow of scientific communications threaten to choke off these sources of information.

A committee of the National Academy of Sciences in Washington cautioned last year that excessive secrecy can hurt U.S. business because there is no practical way to restrict international scientific communications without disrupting it domestically.

These comments are echoed by Roland W. Schmitt, senior vice-president, corporate research and development, General Electric Co. Schmitt says that if businesses are to adapt to rapidly changing conditions, they must have access to scientific and technological information from all parts of the world.

The keenly competitive environment which puts such a high premium on innovation is also making it more difficult for companies to gain access to technological information. As competition intensifies, industrial organizations are less inclined to share the results of their research.

A 1983 report by the U.S. Department of Commerce noted that it's unlikely that Bell Laboratories, AT&T's research arm, will continue its tradition of publishing hundreds of scientific and technical papers without regard to their commercial value or patentability.

The result is that basic research is becoming a higher priority with many companies. Even the Japanese, long known for adapting the technological discoveries of others, "have begun spending on things that won't produce profits immediately", according to Japan's Industrial Technology Association.

Hitachi Ltd., which used to work two or three years ahead, now plans to work "10 to 20 years ahead", according to a company spokesman.

In order to remain competitive, North American firms must make a long-term commitment to innovation. This, in turn, requires a renewed government commitment to support the industrial R&D process.

By removing legal and regulatory barriers and offering incentives to innovators, entrepreneurs and investors, government can create an environment that fosters technological advance. The issue is a pressing one as international business competition intensifies.

An environment that supports and rewards innovation not only creates successful business entreprises. It ultimately creates the jobs and the tax revenues that any society must have to achieve and maintain a high standard of living for all its citizens.

Reprinted with permission from Northern Telecom's Newsletter for Managers, FORUM.

Helicopters airlift skiiers to pristine deep-powder runs

B.C.'s Whistler Mountain Now a Resort for All Seasons

A couple of years ago, the folks at the West Coast mountain resort of Whistler Village realized they were suffering from an image problem: everybody was ranking their place right up there with San Moritz and the French Riviera as a playground of the wealthy.

Backed by a slick ad campaign showing healthy young bodies hurtling down the ski slopes and banging 250-yarders down the fairway, Whistler was pictured as the epitome of those elitist, athletic oases of the jet-setters.

So, the ordinary folk were staying away in droves.

Although the superb skiing packed the slopes and watering holes on winter weekends, lift lineups shortened considerably during mid-week and hotel clerks had plenty of time for their crossword puzzles and knitting.

During summer, hotel occupancy rates hovered in the disastrous 20 to 30 per cent range and there were probably as many bears as hikers on the superb network of mountain trails developed by the resort.

The Whistler Resort Association (WRA) directors made two critical moves. They hired marketing pro Terry Redmond as general manager and they decided to proceed with construction of a major convention centre.

Redmond stepped into his WRA office in January 1984 and immediately pin-pointed the resort's biggest problem.

"Whistler's summer," he recalls, "was being marketed as an international jet-set glamour place. We changed the product in terms of what was important. We took it from an elitist image to a more laid-back, middle-of-the-road one."

Abandoning the generic, electronic media ads, Redmond concentrated on product-specific newspaper advertisements in the B.C. lower mainland area and the key states of Washington and Oregon.

The ads highlighted the attractive summer accommodation rates, the huge range of family activities and, in the U.S., the 1½-hour drive along magnificient Howe Sound from North Vancouver to Whistler.

(WRA surveys show Americans rate the drive along Highway 99 as one of the highlights of their visit. Locals call it a holy terror and have convinced the B.C. government to spend $150 million on a 10-year improvement program.)

Despite the objections of some members who didn't want to pay added assessments, Redmond persuaded WRA to kick an extra $200 000 into the marketing pot, taking the overall WRA budget past the million-dollar mark for the first time in Whistler's history.

The extra went exclusively into pushing the summer attractions and the payoffs were almost immediate. By August, room occupancy rates had exactly doubled to 62 per cent over 1983 and it was almost as important to secure a reservation for tea time as it was for tee time.

The summer turn-around was off to a healthy start and now it was time to take a hard look at the post-ski and pre-ski "shoulder" periods of May-June and September-October. The solution was to resurrect the recession-stalled

recreation centre and convert it to a convention centre capable of handling various-sized groups.

When construction began in 1980 it was to have housed a 2 200-seat theatre, a skating rink, swimming pool, racquet courts and a cluster of small meeting rooms.

When the bottom fell out of the real estate market in 1981, work on the centre stopped and Whistler had an empty, $6.5 million shell on its hands.

When work started up again a year ago, it took another $7.8 million to finish off the two-storey Resort and Conference Centre. Gone are the skating rink and swimming pool. Now, the 9 300 m^2 (100 000 sq. ft.) centre will accommodate up to 2 000 conventioneers in eight meeting rooms and a 300-seat theatre/lecture hall and will also house racquet courts, the golf course pro shop and WRA offices.

"It wasn't easy to take an arena and turn it into a conference centre," says Redmond, "but we think it really worked out well in the scaled-down version."

Obviously, others agree with him. Long before its official opening last June, the centre had bookings for 28 500 delegate-days this year and conservative predictions are 80 000 delegate days next year and 100 000 by 1987.

"By next year," says Redmond, "we'll have a fully-balanced 11-month year, with the only slow period coming from mid-October to mid-November."

Although Whistler sometimes appears to have blossomed overnight into international resort status, the story of its development is a long one, and one that would make "The Perils of Pauline" read like a textbook in industrial safety.

Even at the turn of the century, Whistler Valley, with its chain of five shimmering lakes, had a well-earned reputation for its beauty, but because its only link with Vancouver was along a dusty cattle-drive trail, it was hardly a tourist mecca.

Then, in 1914, the tracks of the Great Eastern Railway reached the valley and along with the trains came Myrtle and Alex Philips. The Philips fell in love with the place and built Rainbow Lodge on the shores of Alpha Lake, a fishermen's haven that was to remain in business until destroyed by fire in 1977.

And, for about half a century, that was it.

In the early 60s, when total population in the valley was only about 50 persons, a group of Vancouver businessmen led by Franz Wilhelmsen set up the Garibaldi Olympic Development Association in a bid to attract the 1968 Winter Olympics to nearby Mount Garibaldi.

They lost their bid but along the way accumulated a financial backer (Power Corporation), a new name (Garibaldi Lift Co.) and a new site (Whistler Mountain) with a recently-completed road link to Vancouver.

By 1965, the company had spent $800 000 building a gondola lift and a variety of other lifts and tows on the mountain and Vancouver's skiiers created weekend traffic jams along Highway 99. Hurrying in their wake were private developers eager to set up accommodations, eateries and aprés-ski attractions in the loosely-governed valley.

Upset by what it saw as uncontrolled, unplanned development, the provincial government in 1975 passed legislation to designate Whistler Village as Canada's only official Resort Municipality.

It gave the new municipality title to 9 525 hectares (23 539 acres) of valley land, latter adding another 3 105 hectares (7 670 acres). Most importantly, from today's point of view, it gave the village council the right to control planning and development within its boundaries.

Condos, condos everywhere

Arnie who?

Al fresco dining at Whistler Village

Raising funds through a land mortgage, the council set as its first priority the construction of a sewage system to end any chances of polluting the valley's wilderness beauty.

Consultants were hired to find a site and establish construction guidelines for a village centre. The perfect spot for the centre, it was decided, was a plot of land nestled alongside Highway 99 between Whistler and Blackcomb Mountains — the site of the village dump.

As planning for the centre proceeded, the council established the wholly-owned Whistler Valley Land Co. to handle its real estate operations — a critical step, as future revenues would be largely dependent on land sales.

By 1978, Whistler Village had a nice, new sewer system, a lovely set of plans for a cozy, people-oriented village centre and, gee, wouldn't it be nice to have a golf course across the road.

What it didn't have was money and the council was forced to go, cap in hand, to the two senior levels of government.

Their timing was superb. The federal and provincial governments had recently signed the Travel Industry Development Sub-Agreement and the good folks at TIDSA came through with $10 million for the vehicle-less village centre's underground parking, roads, sewage, water, electrical and gas systems and the recreational centre.

They even came up with the $300 000 needed to get Arnold Palmer to design the 18-hole, championship-calibre golf course.

By 1979, the land company had offered two parcels of lots out for tendering (including the village centre ones) and they'd sold like aprés-ski hot toddies. Construction had also started on a lift system for Blackcomb Mountain and in the winter of 1980 the village would have its first two-mountain ski season.

1980 was one of those years that resort developers dream about. The west coast real estate market had gone berserk. MURBs (Multiple Urban Residential Building programs) were the "in" tax shelter and condominiums and condo/hotels were popping up all over Whistler Valley.

Crews were busily sculpting out the new golf course. Investment was reaching the $150 million mark. It seemed the good times were here to stay.

In 1981 the land company put another packet of land up for sale and all parcels were sold. But, the first glimmers of the recession were on the horizon and all but one of the lots was bare of construction.

One year later, interest rates were drifting around the 21 per cent mark and the government had yanked the rug out from under the MURBs.

Nine packets of land were offered for sale. There were no bidders. The land company was technically bankrupt.

The provincial government came riding to the rescue. It incorporated the W.L.C. Developments Ltd. (in which it holds all the shares) and bought the assets of the land company, including the convention centre shell and the still-to-be-completed golf course, for $1.

The new corporation, backed by government guarantees, established a $21 million line of credit and used this to finish off the golf course, convention centre and various infrastructure projects and begin nudging the resort project back to life.

The stripped-down company (one manager, one secretary) has only one objective: to work itself out of a job by selling the remaining land, probably a five to 10-year task. It will then self-destruct and responsibility for operating

Wind-surfing delights summer visitors

the golf course and centre will formally be handed over to the ubiquitous Whistler Resort Association.

Another creation of the provincial government, the Whistler Resort Association (WRA) was set up in 1979 to handle operations and marketing for the village centre. By law, membership was made compulsory and fees (read, taxes) are assessed on a sliding scale with the largest hunks coming from W.L.C. Developments and the two ski-lift companies.

"Actually," says WRA chairman Drew Meredith, "we're kind of a benevolent dictatorship."

What WRA rules over is a carefully-crafted, colourful community of about 2 000 permanent residents, almost all of whom are there to look after the needs of the quarter-million or more visitors expected to pass through the village this year.

Many of these will be day-trippers, not necessarily out of choice, but because in peak periods the resort's 1 000 hotel rooms are fully booked.

Redmond notes that during the two weeks preceeding the past Christmas-New Year holiday period, the WRA's centralized reservation service had to turn down more than a thousand requests for rooms.

"And, in February alone the occupancy rate was between 85 and 90 per cent," he says.

Meredith estimates the resort could support at least an additional 1 000 hotel rooms for skiers alone.

This shortage will be aggravated by the growing popularity of the golf course (an average 300 people played the course daily in 1984), the opening of the convention centre and such special events as the BMX bicycling world championships to be staged at Whistler in August.

The latter, alone, is expected to draw in excess of 5 000 competitors and enthusiasts from Canada, the U.S., Britain, Holland, France, Italy, Australia, Japan and Chile.

"It's an incredibly hot, growing sport," says Redmond. "We'll probably have to set up some sort of billeting system, because there's just no room at the inn."

"It's money, money, money, money."

Meredith foresees a trend away from condo/hotels such as the Delta Mountain Inn (where units are owned individually with the hotel providing management and maintenance services) to regular hotels, such as the one now being built by Whistler "original" Al Raine and his wife, Olympic skiing medallist Nancy Green.

"It will be our first true hotel," says Meredith, "and it will be the only one that is owner-operated."

The Nancy Green Olympic Lodge, to be opened in November, will have 60 standard hotel rooms, restaurants, bar and a level of retail shops. And, of course, guests will have the chance to hob-nob with Raine, former Canadian ski team coach and now head coach at Blackcomb, and his famous wife. ("Nancy's just an instructor there," Meredith grins, "But a *very* popular one.")

Meredith hopes the Raine-Green venture will help to lure other potential hotel investments.

"What we need to make this place better organized," he says, "is some major hotel construction. And soon. We could double the bed space tomorrow and I don't think it would significantly alter the occupancy rate."

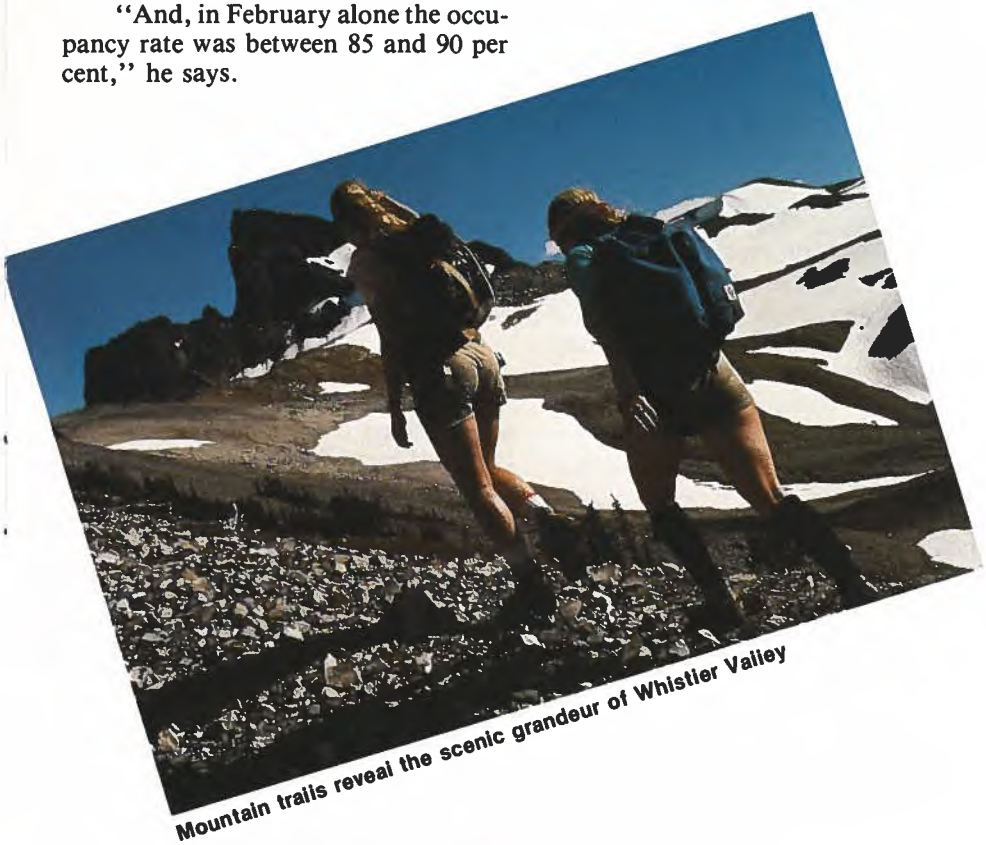
With room rates averaging $110 a night in the winter and about half that in the off-season, Meredith feels Whistler has an attractive potential to offer investors.

"We're at a crossroads where we're trying to make investment in a resort hotel look attractive on the basis of income alone," he says. "We've got the hard data to support that, but somehow the story of what a great opportunity we have at Whistler doesn't seem to be getting out."

The extra rooms, Redmond adds, would also help to attract business meetings and conferences away from the bright lights of Vancouver.

"It's a phenomenal opportunity for us," Meredith states. "People are always looking for new locations for meetings and look what we've got to offer compared to what they (Vancouver hotels) have.

"If you don't want to meet in the city, for whatever your reasons, your options are Whistler, Whistler and Whistler."



Mountain trails reveal the scenic grandeur of Whistler Valley

For further information, contact:

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P.O. Box 1400
Whistler, British Columbia
V0N 1B0
Tel: (604) 932-3928

— by Ron Johnson
Canada Commerce

World Packaging Congress — A First for Canada

In a significant break from tradition, Canada has been awarded the honour of acting as host to the World Packaging Congress in its first-ever non-European location.

In fact, during October 1985, Toronto will be the site of three major packaging industry events, all organized by the Packaging Association of Canada (PAC). In addition to the World Packaging Congress there will be the 1985 Canadian National Packaging Exposition, PAC-EX '85, and a dinner to honour Canadian and World Star packaging competition winners.

These events are expected to attract 300 exhibiting companies and at least 18 000 visitors.

The Industry

Packaging is a multi-faceted activity which touches on many contiguous industries. The creativity, vitality and dynamism of packaging derives in large part from its being driven by the needs and wants of consumers, be they retail or industrial.

Today's fragmented consumer market, which is convenience-oriented and value-driven, requires the ultimate in marketing skills and a wide variety of product lines. The packaging industry provides a large measure of those skills and products.

The Events

The Canadian National Packaging Exposition is the largest packaging industry show in North America during 1985. Held concurrently with the World Packaging Congress, it will run October 7 to 9 in the Industry Building, Exhibition Place, Toronto.

The World Packaging Congress, with the theme of *Cost Effective Packaging, An Evaluation of Key Packaging Systems and Developments Worldwide*, held in Toronto's Sheraton Centre, will feature a minimum of 15 technical seminars. Delegates from 31 countries attended the 1984 Congress in Paris.

World Packaging Congresses analyze packaging developments from the points of view of developing as well as industrialized nations.

According to the Packaging Association of Canada (PAC), PAC-EX provides a broad spectrum of advantages including the most cost-effective forum for comparing the products of all major Canadian materials suppliers; joint-ventures and licensing opportunities; and solutions to many problems.

Companies from nine countries exhibited at PAC-EX in 1983 and PAC is confident of surpassing that mark in 1985.

Of those attending the 1983 show, 27 per cent represented the food industry; 12 per cent the paper products industry; 10 per cent the chemical industry; 8 per cent distributors; 7 per cent the pharmaceuticals industry; 5 per cent the automotive industry; 5 per cent the cosmetics industry; 4 per cent the beverages industry; 3 per cent the electrical industry; and 19 per cent miscellaneous.

An extensive national and international advertising and public relations campaign is expected to increase attendance at PAC-EX '85 from across Canada and abroad.

This year's PAC-EX sold out the equivalent space of the 1983 show in one month. As a result, the show's organizers in PAC contracted for two adjacent halls to meet the demand.

The third major feature to be held concurrently in Toronto will be the unveiling of the World Stars' packaging competitions winners during PAC-EX.

An international awards dinner (another first for Canada) will be held for World Stars awards presentations — Supers, Golds and Silvers for excellence in packaging design and performance — as well as Canada's own awards.

The Association

The Packaging Association of Canada (PAC) is a successful non-profit corporation. Formed in 1949, it received its Letters Patent from Consumer and Corporate Affairs on November 25, 1952. Since then, it has grown to 1 550 members including most of the major manufacturing, petrochemical, forest products and producers/converters of packaging raw materials in Canada, as well as companies who use the products.

PAC is "a unique association" in that it is hard to define or describe, in dictionary terms, the packaging industry. The association views packaging as a complex, horizontally-linked system that moves through these stages:

- production of appropriate raw materials;
- their conversion into various package media (paper, boxboard, corrugated glass, metal, plastics, fabric, etc.);
- production of packages, including their printing or labelling;
- the packages' use for products in the retail, industrial and institutional sectors;
- handling, storing, transportation and distribution;
- the package's purchase and use by the buyer;
- recycling.

PAC attracts members from the production, marketing, purchasing, sales, research and development, quality control, material management, design and consulting fields.

Although some member companies are precluded from export marketing, either because their products are inappropriate or their parent company has not given them a worldwide mandate, PAC is strongly supportive of those who are export-oriented. For example, PAC's 1984 annual conference in Toronto had the theme *Exporting to Survive*.

The advice and support provided during the Toronto conference by the federal departments of External Affairs and Regional Industrial Expansion led to enquiries on linking PAC's biennial trade show, PAC-EX, with other active export programs.

For further information, contact:
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Resource Processing Industries Branch
Department of Regional Industrial Expansion
235 Queen Street
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K1A 0H5
Tel: (613) 995-7134

CANADIAN COMPANIES & PRODUCTS

Companies wishing to take advantage of this feature may do so without charge simply by sending sufficient material on product or service for no more than 100 words and a glossy black and white photograph to Canadian Companies & Products, ***Canada Commerce*** (BCOM), Department of Regional Industrial Expansion, Ottawa, Ontario K1A 0H5. As ***Canada Commerce*** is produced in both official languages, please send material in both languages if it is available.

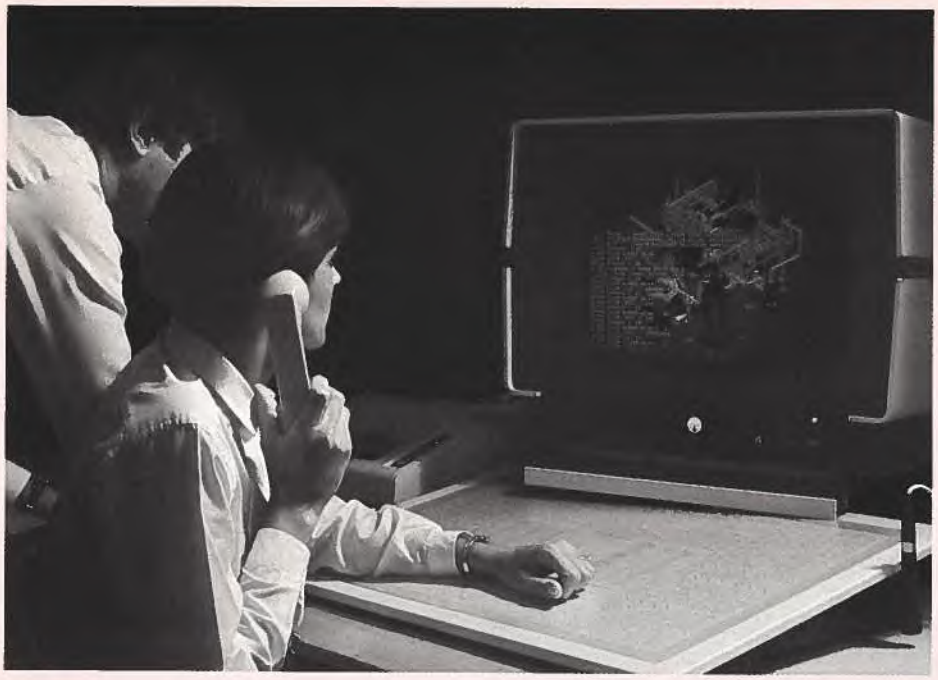
New Trailer Improves Production

Atlas 2000 Inc. of Montreal has introduced an advanced model RD-150 Articulated Rear Dump hauling unit. This new model can be attached to Caterpillar off-highway tractors or trucks which can be converted to tractors.

The advanced design includes improvements in hydraulic cylinder design and a hydraulic circuit which increases the dump cycle time. The RD-150's draft arm assembly is now designed as three components rather than a full weld design. The two arms are fitted to double pins for alignment, then bolted to the rugged centre beam. The RD-150B includes oil-cooled, multiple disc brakes identical to those installed on the tractor, and can be used to control vehicle speed.

Screw-Type Compressor Developed

Rotair Industries Ltd. of Burnaby, British Columbia, introduces a new line of rotary screw air compressors. These Airking Phase IV packaged units are available in sizes ranging from 10 through 30 h.p. with pressures to 210 PSI G. Enclosed in attractive accoustical cabinets, noise levels are as low as 72 DBA. Large access doors are provided for easy maintenance. An easy to read instrument panel, located at eye level, provides accurate control of functions and operations of the unit.



Firm Supplies Technical Information Service

Technical Authorship Services (TAS) of Goderich, Ontario, provides a total technical publications service. Small to medium-sized manufacturers will benefit from the high-quality technical writing, illustrating, graphic art and translation services offered by the company.

Simple instruction sheets, parts lists or complete manuals are produced to the clients requirements. Many years of professional expertise ensure that all documentation will enable users to operate, maintain and overhaul their equipment with safety and confidence. TAS resources are aimed primarily at companies that do not have the necessary in-house capabilities.

New Product Removes Rust

Petron International Trade Co. of Pierrefonds, Quebec, has developed a rust remover which can be used either as a brush-on or immersion treatment for metal. According to Petron, Rust-off is effective on all types of metal, regardless of their use, and is reusable by filtering.

Rust-Off can be used as a primer for large machinery or small mechanical parts and be painted over after it dries. It can be used to clean boilers by removing water and circulating Rust-off. The product is reusable by filtering. It is also effective on automobiles and as a penetrating agent. Non-toxic, Rust-off is also non-flammable and non-explosive.

Filters Protect Equipment

Targa Electronics Systems Inc. of Ottawa has developed a rugged memory system designed to operate in harsh industrial environments — situations where traditional memory systems cannot be relied on. The product line consists of a series of solid-state, non-volatile cartridge memory systems for land, field, factory, marine and airborne data storage and program load applications.

Targa's bubble memory systems operate without mechanical motion and demonstrate permanent data integrity even when disconnected from the power source. As a result, they have superior ruggedness and are more reliable than either tape recorders or disc drives. They have been built to withstand dust, vibration, humidity and high temperatures.

Tycor Controls Power Surges
Tycor Electronics Products Ltd. of Calgary has developed a line of AC power line filters designed to correct power line disturbances. These electrical transient on power lines can affect the operation and accuracy of computer systems, word processors, graphic systems, medical equipment, communications equipment, programmable controllers, electronic scales, cash registers and auto dialers.

The Tycor Power Line Filter is designed to be connected between the protected equipment and the supplied power. Tests conducted for IBM show that an average installation receives over 125 disturbances a month of sufficient magnitude to affect computer operations.

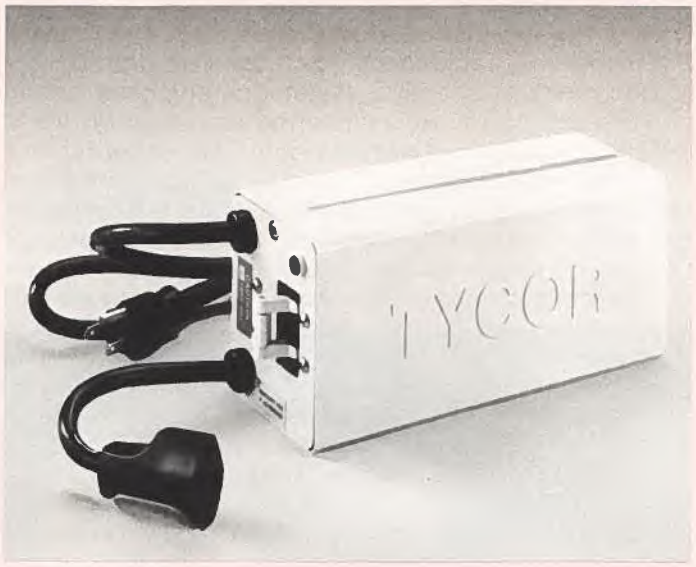


Table Converts to Desk-Work Surface
Clinton Furniture Manufacturing Ltd. of Surrey, British Columbia, has developed a unique solution to the servicing and work needs of Canadian workers who must combine the decor of their living rooms with the practicality of an office. Called a Convert-Table, Clinton's patented coffee table appears to be a solid piece of furniture, but a quick lift of the top turns it into a perfect work or eating area at your sofa.

Work finished, a flip of the top activates a pneumatic-spring mechanism which slowly returns the top to its original position. In addition to its use as an entertainment, recreation and work table, it has been custom designed to fit in with other furniture in the Clinton line.

Promac Transmitter Programmable
Promac Controls Ind. of Scarborough has developed a micro-processor signal transmitter with math and process computing elements. The XZ-7 can handle 41 different input types and provide five different outputs. The multi-input XZ-8 provides light math and 11 process functions such as add, multiply, square root, peak picker and 20 segment signal lineariser.

Surface and rack-mounted versions are available. The rack-mounted version has a communication module to provide remote data to printers, terminals or computers. Any span in any input/output range may be selected. Units may be user reprogrammed at least 1 000 times using a small hand-held programmer.

Approved Containers for Transporting Corrosive Liquids

Canbar Products Limited of Waterloo, Ontario, has developed a series of semi-bulk containers — the Chemtainer — for transporting corrosive liquids. Containers consist of a moulded polyethylene bottle with a wide range of chemical resistance enclosed in a heavy gauge plated steel wire cage. Spring loaded corners and sturdy legs allow the containers to be stacked four high for in plant use. A hinged cover which can be locked assures complete security.

The unit measures 101 cm × 122 cm × 152 cm (40" × 48" × 60") high and reduces space requirements for the equivalent of six 200-litre (45-gallon) barrels. The Chemtainer is available to comply with Canadian Transport Commission Regulations and U.S.A. DOT Exemptions for the Transportation of Corrosive Liquids by Rail and Motor Vehicle.

All components are rust-proof which allows the Chemtainer to be stored outside without the threat of rust.

For further information about the companies, products and services listed, please contact:

Atlas 2000 Inc.
7500 Côte de Liesse Road
Montreal, Quebec
H4T 1E8
Tel: (514) 341-6140
Telex: 05-824621

Rotair Industries Ltd.
7445 Rowland Drive
Burnaby, British Columbia
V5J 5C4
Tel: (604) 437-8326
Telex: 043-54688

Technical Authorship Services
21-15 Picton Street East
Goderich, Ontario
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Tel: (519) 524-2355

Petron International Trade Co. Ltd.
P.O. Box 57
Pierrefonds, Montreal, Quebec
H9H 4K8
Tel: (514) 620-1461
Telex: 05-823556

Targa Electronics Systems Inc.
P.O. Box 8485
3101B Hawthorne Road
Ottawa, Ontario
H1G 3H9
Tel: (613) 713-9941
Telex: 0533351

Tycor Electronic Products (1983) Ltd.
6115 - 3rd Street S.E.
Calgary, Alberta
T2H 2L2
Tel: (403) 259-3200
Telex: 03-825842

Clinton Furniture Manufacturing Ltd.
8065A - 130th Street
Surrey, British Columbia
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Promac Controls Inc.
1375 Morningside Avenue
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Countertrade — An Idea as Old as Time

"There's nothing new under the sun" is an adage that sums up the subject of the latest Seneca College Symposium on International Trade — Countertrade.

This annual event, mounted by the post-diploma students of Seneca College's International Business School, is designed to expose the students to new ideas and business leaders in a wide range of businesses.

While in its simplest terms, "Countertrade" is a synonym for "Barter", the oldest form of commercial endeavour, in modern usage, countertrade is much more than "trade without money".

In addition to barter, countertrade may also involve subcontract production, co-production, licensed production, technology transfer and joint venture.

While the principles of countertrade are at odds with those of the General Agreement on Tariffs and Trade (GATT), the fact is that an increasing number of export markets are closed unless Canada and other countries engage in these barter type deals. In other words, if the Canadian companies want to make these export sales they must enter into countertrade agreements.

In the real world of the 1980s and 1990s countertrade is likely to become the norm instead of the exception with many developing and underdeveloped nations, according to speakers from some of Canada's most successful foreign traders.

While the necessity of entering the countertrade sweepstakes takes on a more meaningful presence for large multi-national firms anxious to promote their products in rapidly growing but cash-starved areas of the world, there is mounting evidence that smaller companies and suppliers will also be required to join the majors, if only to keep their multi-national customers.

De Havilland Experience

In the words of R.J. Hebert, director of Corporate Development at the de Havilland Aircraft of Canada Ltd., "One recognizes the continued pressing demands by the purchasing countries (the countertrade or no trade option).

"In that these demands are expected to increase over time, business both large and small must involve itself on a permanent basis with a countertrade strategy. Small business will not remain exempt as the pressures on large corporations will require backing from their support networks.

"Such a strategy must encompass the various categories such as subcontract production, technology transfer or barter," he noted.

Multi-nationals and small companies alike must become more involved in countertrade agreements if they wish to penetrate new markets.

The initial groupings to be considered in the category of "offset" transactions are:

- Goods involved with countertrade barter;
- Goods and services connected with all the other categories.

The strategy Mr. Hebert recommends for the first should assure the seller assumes no risk for all commodities that cannot be easily absorbed.

For manufacturers this could include bulk metals, coffee, ham or bongo drums. To handle these products with the least possible risk, they should be transferred to a third party so the risk can be passed on.

"The rub, of course, is that applicable fees must be absorbed by the supplier in the sales price," he continued.

The tactic for this strategy is to minimize costs. Where costs can be readily absorbed, a straight-forward approach is to use a reputable trading company to take the bartered goods.

However, where costs cannot readily be absorbed through pricing pressure, the tactic could change to an alignment with other corporations that can absorb the commodity. Such alliances can cause problems unless early teaming is arranged prior to negotiations.

The second category of "offset" transactions is becoming more common and is the most difficult to handle for the manufacturer.

While in the past developing countries were interested in the short-term movement of goods and resources to aid their immediate foreign exchange problems, their aim today is to enhance the socio-economic benefits of the country through advancing technology, increased domestic employment and the upgrading of plant, process and equipment.

The tendency was to dump products on the market and became, in the long run, counter-productive. But the new "offset" often involves subcontracting, co-manufacturing, technology transfer and joint venture.

These responsibilities can no longer be passed to commodity traders, but must rely on the creativity of manufacturers.

Strategies

In the development of strategies for such "offsets" there are certain strategic fundamentals which should be considered.

These are:

- The obligations need not be highly structured;
- Programs start slowly and develop;
- Benefits should be longer than obligation span;
- There should be emphasis on "good business sense";
- Manufacturers should work closely with both governments and the industry;

- Manufacturers should be involved early in the development of a countertrade;
- Manufacturers should assess country's level of aspirations;
- Marshall your allies;
- Consider only achievable goals;
- Build staff to meet the obligation;
- Maintain credibility; and
- Devote bulk of resources towards one "big payoff project'.

"Or, in short, plan your strategy and do your homework," adds Mr. Hebert.

Just such a strategy has helped Spar Aerospace of Mississauga gain a foothold in Brazil for its satellite communications system, according to Karsten J. Westphal, the company's trade director.

To win the $160 million contract to provide two satellites and the related ground control systems for Embratel, the Brazilian government-owned telecommunications company, Spar entered into an offset agreement with the Government of Brazil.

Under the terms of this agreement, Spar will develop $60 million worth of Brazil exports and identify and pursue an additional $105 million worth of sales on a "best effort basis".

"We looked at our business with Brazil," said Spar's Westphal, "a satellite communications system. This meant a long-term involvement, hopefully leading to further satellite sales with Brazil and other Latin American countries. This, in turn, means transfer of technology and we became partners with Brazil, working with its engineers and technicians in the construction of satellites.

"We expect our ties with Brazil and its people will develop further in the future. Therefore we designed an offset program which will enhance and strengthen this relationship."

As a result Spar set up a trading office in the summer of 1984. Working closely with Brazilian manufacturers, export firms and trading companies, Spar sought opportunities which would lead to long-term export potential.

Spar first looks for global market opportunities and for Brazilian firms to act as partners in supplying those markets. Then it often identifies Brazilian firms and products that have excellent potential in foreign markets.

Spar Trading has screened hundreds of export opportunities to select viable deals that can result in offset credits. This has involved the complete spectrum of products such as commodities, manufactured goods, consumer products, transportation equipment, food, textiles, auto parts and emeralds, as well as construction.

For example, Spar has provided Brazilian firms with the opportunity to bid on large scale projects in the Middle East.

According to Mr. Westphal, Spar Trading acts as a broker. It does not take title to a transaction, but gets heavily involved in the negotiation process. Until the transaction is completed, Spar handles all communication including samples, pricing, specifications and transportation requirements.

Spar takes particular care to enhance the understanding between the seller and the buyer since the different business attitude alone of two countries has often led to the failure of many deals.

Noranda's Countertrade

Another major Canadian player in countertrade is Noranda, one of Canada's largest metal conglomerates. As senior manager, countertrade, for Noranda Sales Corporation, Richard

Indonesia's Countertrade Policy

In January 1982, the Indonesian government introduced a series of new export policies designed to increase non-oil exports. The background of this policy is obviously the difficulties caused by world economic recession in the form of declining exports of both non-oil and oil products while there was a growing need for foreign exchange to pay for imports.

Development projects were demanding extensive foreign capital outlays for imported equipment, supplies and expertise as well as to service the debt obligation.

The government was faced with two choices — either drastically reduce imports or adopt a policy of tying import contracts to exports. The latter option was chosen because it could increase rather than restrict export and import volumes.

The January 1982 policy was promulgated in the form of "Guidelines for linking government procurements from imports with Indonesian export products".

Briefly the guidelines are:

Scope of Linkage

Procurement in excess of $500 000 U.S. which receives financing from the state budget, must be tied to exports. It applies to procurements by departments, non-departmental government institutions, and state enterprises.

Excluded from countertrade linkage are:

- Procurement financed by concessional loans and credits from the World Bank, Asian Development Bank and Islamic Development Bank.
- Domestic components which constitute part of the contracts signed by foreign contractors which, among others, include service components, goods and taxes and levies.
- Professional services with specialized knowledge required by governmental agencies such as foreign accountants, legal specialists, surveyors, consulting services, purchases of technology (patent) and other similar services.
- Import procurement involving joint ventures between state enterprises and foreign investors.

Stipulations on Linkage

- Export products subject to the linking procedures are agricultural products, manufactured goods and other products outside petroleum and gas. The Department of Trade periodically issues a list of export products that are eligible for linkage to imports from specific countries or groups of countries along with a list of exporters and commodity associations.
- Foreign suppliers should undertake or arrange purchases of Indonesian products by one or several enterprises affiliated or otherwise related to them. A third-party enter-

Lote is recognized as one of Canada's leading experts on countertrade.

According to Mr. Lote, 11.9 per cent of Canada's export or $13.3 billion goes into countries that are active countertrade participants.

Breaking these figures down to various markets, he estimated that $2.6 billion was with Eastern Europe, $3.1 billion for Latin America, $3.08 billion with the Middle East, $1.2 billion with China, $1.1 billion with Africa and $2.3 billion with others.

However, as he explained, much of Canadian exports are in raw materials and bulk agriproducts which generally are sold for cash. An estimated 25 per cent of the trade with these participants or $3 to $4 billion is accounted for in countertrade.

He went on to say that an increasing proportion of future growth in Canadian exports must come from countries that now favor countertrade, such as Indonesia, Brazil, China, Nigeria and India, among many others.

"For Canadians to succeed in increasing their exports," Mr. Lote concluded, "they will have to be experts in all marketing techniques, especially the various modes of countertrade."

Indonesia's Countertrade Views

K. Sutedja, Consul and Head of Mission for the Republic of Indonesia Consulate in Toronto, presented his government's views on countertrade. Few countries have as clear-cut guidelines (see separate story) linking government or government-supported procurements from imports to the export of its products.

Until the end of 1984 there were 19 countries, including Canada, which have entered into counter-purchase contracts with Indonesia and the value of these contracts was recorded at $1.11 billion while the realization reached the value of $590.56 million.

Indonesia, the largest country in Southeast Asia with a total population of 158 million, is an active trader and maintains trade relations with most major trade partners in Europe, North America and Japan.

The new countertrade linkage policy initially received an overwhelmingly negative reaction from both the governments and firms in those countries. Criticism focussed mostly on the policy's 100 per cent linkage, but also on its prohibition of re-export, letter of undertaking, and 50 per cent penalty clause.

As well, the financial community was also skeptical about the policy's chances of increasing Indonesia's exports enough to make a significant impact on that country's current account deficits.

Some of the reactions were merely skeptical, but some raised a more fundamental argument regarding the risk that it might put an obstacle to the present multilateral system.

Conditions to be Faced

While very strict, Indonesia's guidelines do provide Canadian companies with an indication of the type and extent of countertrade conditions they will face in the export trade if they wish to expand in newly developing nations.

There is no doubt that market share in much of the world will depend on a company's ability to negotiate countertrade agreements.

Once again, Seneca College has come up with an important subject for its Annual Business Symposium, one that will help its graduates as they enter the business world.

— by Robert J. McDonell
Canada Commerce

prise other than from the supplier's country which is known and acceptable to Indonesia may become the party implementing the actual export.

- Foreign suppliers intending to import Indonesian goods in connection with government procurements shall choose one or several products as listed by the Department of Trade.
- The export value linked to the government purchase shall be of equal value to the government import which is calculated on the f.o.b. basis.
- The contract must specify that the total value of exports is equal in value indicated in the government procurement contract; the export prices stated in the contract must be the prices of export products in effect at the time of the signing of the contract (100 per cent linkage).
- Both foreign importers and Indonesian exporters must undertake their negotiations directly and sign the contract according to prevailing commercial practices but with one additional clause attached, namely the clause stating linkage with government procurement.
- Purchases by foreign importers within the linkage scheme must be additional to the value of trade transactions with the respective country concerned.
- Government procurements through imports should be concluded according to international prices and the implementation of Indonesian exports linked to government procurements should also be based on the prevailing international prices at the time of delivery of the respective goods.
- Exports of Indonesian goods linked to government procurements are directly channeled to the country of origin of the procurements. In case government procurements from overseas are supplied from more than one country, the linkage regulation shall be applied to the country of origin of the principal winner of the contract.
- Export to a third country will be permitted only if that country constitutes a new market for Indonesian products.
- Transactions will be conducted in U.S. dollars as the reference currency or in other convertible currencies as long as those currencies are used by the suppliers of goods purchased by the Indonesian government.
- Contracts between Indonesian exporters and foreign importers within this scheme must not constitute future buying in the sense of hedging with the purpose of protecting the position of importers or exporters against fluctuation of prices in the future.
- All contract bidders must sign a letter of intent to participate in countertrade. Winners must submit a letter of undertaking, which legally binds them to make the required exports.
- Export contracts must be completed three months prior to completion of government imports. Final payment to the foreign supplier will be made after the export obligation is realized.
- Foreign suppliers are held responsible for compliance. A penalty equal to 50 per cent of the value of the portion of exports which have not been purchased, will be assessed for non-compliance.

Canadians Probe Japanese Food Market at Foodex Japan 85

Six Canadian food associations, representing 29 companies, participated in the recent *Foodex Japan 85* in Tokyo as part of a Canadian national stand organized by the Department of External Affairs.

This marked the fourth year in which a Canadian stand has been part of this food trade fair, deemed the best such "window on the market".

The trade fair was the major event in a nine-day program organized for Canadian participants which included tours of Japanese department and grocery stores, visits to specialty food shops and tours of three food processing plants, Kikkomon (soya sauce), Ajinomoto and Snow Brand.

The Canadian companies were advised of 16 Canadian food fairs held in collaboration with Japanese hotels, department and grocery stores and of the potential these events offer to make buyers aware of Canadian products.

Each Canadian association or company representative was given a virtual encyclopedia of information about the Japanese food market, ranging from pertinent laws and regulations through statistics and details of the distribution system to category-by-category briefings of food products.

Of the wealth of information the Canadians received following their participation in Foodex, a principal message was that it was not enough to ship products to Japan — personal contact had to be developed and maintained with Japanese agents and distributors.

Another message was that Japanese tastes were changing and that it was necessary to be in touch with them.

Japanese workers' households spend 82 per cent of their disposable income on goods and services. The largest single category is food and today a substantial share of that expenditure goes toward vegetables, meat and western-style foods.

Consumers' demands have caused manufacturers to upgrade their products. Because the Japanese place great value on the appearance of products, packaging must also be of high quality. Foreign manufacturers have discovered to their cost that the Japanese, unlike other nationalities, will not buy something if it has even a small scratch or blemish on the package.

One American food company was forced to develop new packaging for the Japanese market in order to guarantee product freshness. It promoted such an improvement in sales that the company subsequently introduced it in other markets.

Over the last few years, as growth of disposable income has slowed, Japanese consumers have tended to spend money at either end of the spectrum — on inexpensive goods or on high-priced merchandise that offers superior quality — but the middle market has weakened.

This is as true for food products as it is for anything else. Basically, consumers want more for their money.

For some time now, department stores and other retailers have registered increased sales in high-priced foods — both domestic and imported.

In the past decade, the Japanese diet has absorbed the influences of other national cuisines and become more diversified and westernized. However, it is still characterized by high consumption of cereals, particularly rice, and of fish, and by low consumption of dairy products.

The proportion of frozen foods has risen with the increase of home freezers. At the same time, microwave ovens have become more common, resulting in greater use of oven-cooked foods.

Growing concern with health has also created an increased demand for low-calorie and health foods.

Expenditures for food are higher in the cities because of much greater consumption of high-quality and processed foods as well as more dining out.

Successful marketing in Japan depends not only on a careful assessment of local market conditions and consumer preferences, but also on an awareness of changing demographic trends. The populations of the largest cities (Tokyo, Nagoya, Osaka) have stabilized while those of the smaller regional cities are still growing. Demand for high-quality products in these smaller cities should rise in the 1980s as they grow and become able to offer job opportunities similar to those available in the big cities.

Japanese show interest in Canadian foods at Foodex Japan 85

Vincent Taddeo (left), export sales manager, Connors Bros. Limited, Black's Harbour, New Brunswick, shows Canadian ambassador to Japan, Barry C. Steers (right), frozen fish shipped directly from Canada's east coast for Foodex Japan 85.

The Canadian Stand at Foodex Japan 85

Foods and beverages imported into Japan are expected to conform to Japanese regulations governing ingredient usage, packaging and health considerations. The Food Sanitation Law provides for the inspection of imported foods and, in some cases, establishes processing standards.

The use of food additives is also strictly controlled. In this area, Japan maintains a positive list of permitted additives. Listed ingredients are acceptable (in some cases within specified limits) but, if a product contains an unlisted ingredient, it will *not* be allowed into the country. This is the opposite of the Canadian practice of allowing free entry of products and ingredients unless specifically restricted.

In addition to regulations concerning standards, the volume of imports, for some products, is strictly controlled by import quotas.

The aim of the Canadian participation in Foodex Japan 85 was to expose Canadian exporters to the Japanese market. Responses from the delegates seemed to indicate that a need for improved communication had been recognized.

Lad Javorek, director and general manager, export, of Cobi Foods International Inc., Berwick, Nova Scotia, said that in his years of dealing with the Japanese, the personal touch was necessary. Exporters and would-be exporters should visit Japan at least once a year, he suggested.

Donald J. Daintrey, executive director, Canada West Trading Company, Edmonton, Alberta, noted that a Japanese trade fair was not quite the same as a European or North American "selling" trade fair. Visits to Japan were mandatory if sales potential in Japan was to be realized.

Saul Stolovitch, director, export services, the Canadian Food Processors Association, Ottawa, said that the Canadian identity in food products was registering with the Japanese.

That registration is certainly clear in cheese products, noted Dale A. Tulloch, vice-president of the National Dairy Council of Canada. He reported that two Canadian cheese companies had received orders from Japanese companies at Foodex and that a third sale was near completion. He attributed the sales to a four-year effort.

Ken Crawford, general manager, Canadian Turkey Marketing Agency, Brampton, Ontario, said that the giving of turkey meat samples at the fair met with a positive response and prospects looked good for turkey sales in Japan. Turkey has not been a traditional meat in Japan.

At a reception hosted by Canada's ambassador to Japan, Barry C. Steers, the Canadians were able to meet many key decision makers and executives in the Japanese food industry.

Canada's deputy minister of Fisheries and Oceans, Arthur May, visited Foodex accompanied by Ambassador Steers. The deputy minister was leading a fisheries mission from Canada with the expressed intention of increasing sales of Canadian fish products to the Japanese market.

Immediately after Foodex, it was indicated to the exhibitors' group that next year's participation would involve a Canadian government information booth and PEMD (Program for Export Market Development) assistance to exhibitors.

Association representatives indicated a preference for a national stand "presence" by Canadian exhibitors, a matter being considered by the Department of External Affairs.

Pitchrider, here linked to a synthesizer, shows Philip Scott's perfect pitch

IVL Technologies Ltd. — Orchestrating a Success

For most of us musical oafs, a new gizmo called the "Pitchrider" will simply confirm the concentration of tin in our ears. But, for aspiring or practising musicians, the little grey box and its blinking lights could be the greatest thing since the discovery of the tuning fork.

Basically, it is a tiny microprocessor with perfect pitch that instantly analyzes every note being played or sung, shows on a coloured light bar if — and by how much — the musician is sharp or flat, and plays the correct tone through a pair of lightweight earphones.

Produced by IVL Technologies Ltd. of Victoria, British Columbia, the Pitchrider also gives a visual print-out of the note being played ("A", "E", "F", etc.) over a six-octave range and has an adjustable margin of error to match the musician's proficiency.

The Pitchrider is the brainchild of IVL president Philip Scott and a close friend, George Spark, the founder of Saskatoon's Develcon Electronics Ltd.

The two spent about a year working on the concept. Then, convinced it would fly, they brought in electronic engineer Brian Gibson as a third partner (he is now vice-president of research and development) and incorporated IVL in early 1983.

Helped by a grant from the National Research Council, Spark built the first, crude model and the partners set out to test its viability in the real world of the marketplace.

"We got a very enthusiastic response," says the quiet-spoken Scott.

Now, it was time to get serious and, after raising start-up funding (including a repayable $39 400 DRIE contribution), the partners began hiring staff and gearing up for their first production run.

Estimating that first-year sales would total about 550 units (115 of them in Canada), Scott set off to demonstrate the Pitchrider at trade shows in Los Angeles and Frankfurt.

Pitchrider took off like a Top Ten hit.

"After the Los Angeles show," says Scott, "our U.S. distributor indicated he was going to take about what we had projected for our entire first-year production total."

The Frankfurt show was equally productive. There, Scott picked up orders for from one to 10 units each from seven potential distributors who want to take them back to their laboratories in England, Germany, France, Italy, the Benelux nations and Japan for evaluation and market testing.

"We think Europe's going to be just as big as the U.S.," Scott says. "And of course, there's Japan and Australia and. . ."

Smiling quietly, he adds: "Our biggest problem may be how to produce enough to meet the demand."

Nor has the smaller Canadian market been forgotten in light of their international success.

"We've hired a sales person in Toronto," says Scott, "and he says he can sell 200 to 300 units in the first month or two."

Scott estimates that initial sales now may average about 150 a month and is planning to more than triple the six-person staff.

Eventual staff size, he says, will be determined by how much of the work can be farmed out to sub-contractors in Canada and abroad.

Pitchrider has two big things going for it — its uniqueness and its price.

Scott says the Pitchrider really has only two competitors — one Australian and one Israeli.

"We're really not too concerned about the Australian one," Scott says, "as it sells in the U.S. for $2 500. The Pitchrider is $595 (U.S.)."

The Israeli version, he says, is for singers only and has a three-octave range — half that of the Pitchrider which also works with keyboard, stringed and wind instruments.

And, the Pitchrider has another extra — a MIDI (Musical Instrument Digital Interface) output that can link the musician to a synthesizer or a computer, leading to a whole new range of accessories that IVL is investigating.

"We think the potential for follow-on parts is even better than it is for the Pitchrider," Scott says, adding that the firm already has four new pitch-recognition-related products in the development stage. The first two of these will be introduced at the National Association of Music Merchants' convention in New Orleans.

Scott recognizes that, in the ultra-competitive high-tech world, resting on one's laurels is simply inviting competitors to overtake you.

"We're trying to broaden our base as quickly as possible," he adds.

"We've just hired two more engineers and bought another $100 000 worth of R&D equipment."

The addition of the MIDI to the Pitchrider, he says, gives IVL access to three basic markets.

Apart from professional musicians, the first of these is the education market: high schools, conservatories, universities and music teachers, all of whom are trying "to teach people to play on pitch".

Another is the small rock, jazz and other musical groups who can use the Pitchrider to expand their sound via a synthesizer. The third is in the field of computer-aided musical instruction, "potentially the largest of all", according to Scott.

Most music instruction, he says, is repetitive and boring, particularly for young beginners, and IVL is linking up with a software firm in order to develop a home computer musical instruction game.

"It's no fun at all," says Scott, himself an accomplished flautist, "and a good majority of the kids just give it up. What we see is that you can make practising fun with an instructional game. It would be like Star Wars.

"Exercises would be presented on the screen and you would have to play them properly. If you did, you'd accumulate scores and proceed up the ladder a bit further, or something. If you didn't you'd get zapped.

"Kids love this sort of thing."

A musician's best friend — IVL's Pitchrider 2000

PITCHRIDER SPECS

Dimensions: 64 × 205 × 146 cm (2½ × 8 × 5¾ in.)
Weight: 500 grams (17.6 oz.)
Power: 110 volt, 60Hz
Power Consumption: 15 watts
Note Detection Time: 10ms + 1½ cycles of notes being detected (e.g. A440 = 12.25ms)
MIDI Interface: 5 Pin Din Connector; 31.25K baud data rate
MIDI data provided: Note on/Note off; frequency; volume.

The MIDI-equipped Pitchrider could also be a boon to music composers, Scott says. Rather than laboriously scoring each note as it is played, the composer would sing or play the new work into the Pitchrider and the computer would print out a finished score.

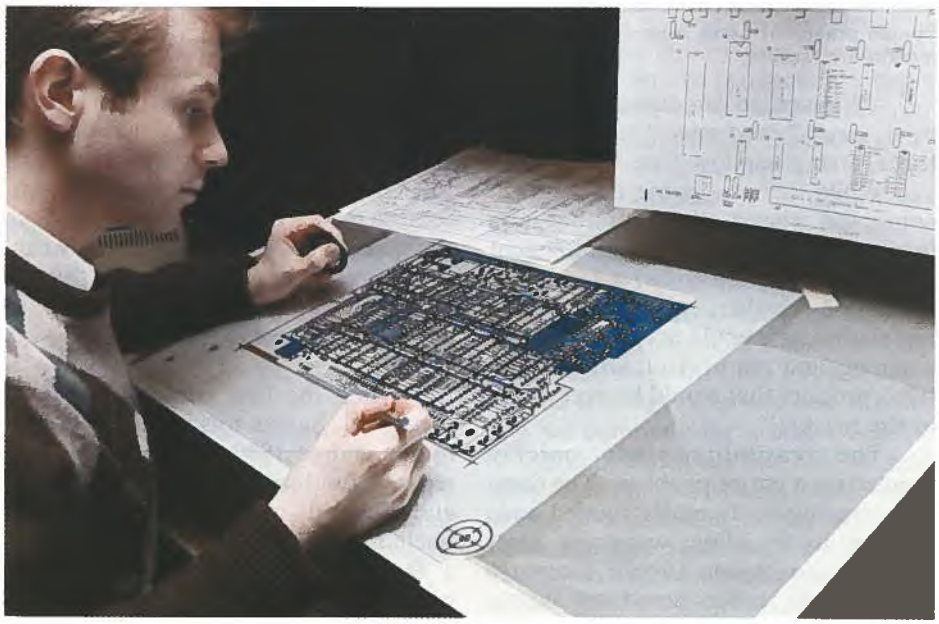
The Pitchrider-synthesizer link-up also looms large in IVL's planning.

Previously, Scott says, synthesizers could be accessed only from a keyboard. Now, using a Pitchrider, "you can essentially play the synthesizer from any acoustic instrument.

"In the last couple of years, these synthesizers have gone through a tremendous period of growth and development. You can get a good one now for around $1 000 and sales of these devices are exploding at the moment in the States, Europe and Japan," the IVL president says.

"They've really changed the music industry a lot, and what we've produced is a link in the process that allows traditional musicians to use these very powerful tools.

"It's a prospect that's causing us a lot of excitement."



Complex circuitry is key to deceptively simple instrument

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— by Ron Johnson
Canada Commerce

B.C. Native Band Builds Success on Clay

Since the early years of this century, the economic well-being of the tiny Upper Sumas Indian Band near Abbotsford, British Columbia, had been inextricably tied to the mining output from Sumas Mountain in its backyard.

It was the clay from the mines that fed the mixers and kilns of the clay products firm on the band's reserve and provided jobs in the plants for the band's work force.

So, when Clayburn Industries Ltd. decided in 1974 to begin phasing itself out of the clay business and direct its attention towards producing plastic pipe at a new location, Larry Ned, chief of the 125-member band, recognized the handwriting on the wall.

Although band members do farm 162 hectares (400 acres) of prime agricultural land on the reserve, says Ned, "a lot of the bread-winners from our community were employees of Clayburn — all of their experience was related to clay manufacturing."

By the end of 1978, the production lines had shut down, the fires in the kilns had been doused and the buildings were empty and deserted. But, for Ned and his band the struggle for economic survival was just beginning.

The plant's previous occupants wanted to use the buildings for storage, but band members thought otherwise. They met and instructed Ned to see what could be done about starting up a clay manufacturing company of their own.

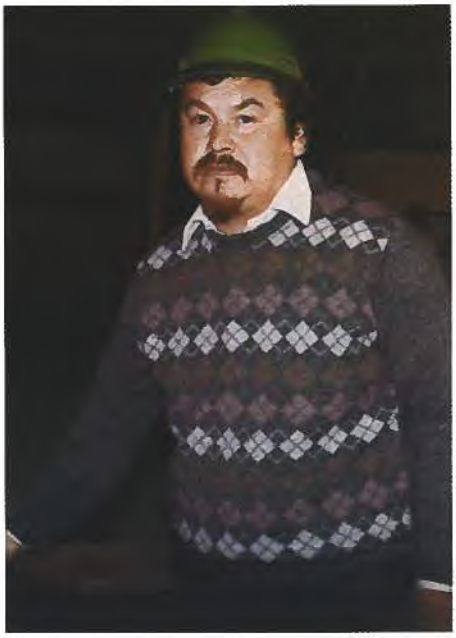
Ned promptly held a meeting with the band's lawyer to review the complex "head lease" on the property ("It's as thick as a Bible," says Ned) to see if there was some way for the band to obtain legal ownership of the buildings.

Buried in the small print, the lawyer found a clause that stated the building's original owners could not sub-let the property without the permission of the band, a clause the firm hadn't noticed when it sublet the buildings to Clayburn.

"So," says Ned, "that's how we got the legal rights to the property. Then we had to negotiate a price for it."

By November 1979, the band had purchased the buildings and incorporated a new firm. Larry Ned found himself elected president of Sumas Clay Products, Ltd.

Using as start-up capital about $100 000 of band revenues that were being held in trust by the federal government, the company hired its first six employees, paying them $5 an hour ("We were working from a very limited pot of money," says Ned) to repair the run-down buildings.



Sumas president Larry Ned: Not ready for mushroom farming

"We started in cleaning up the work areas," Ned says, "repairing the roofs, fixing windows, etc., etc."

While this was going on the firm contacted the Consultant Services branch of the Canada Employment Centre and commissioned a feasibility study "on whether, in fact, the native population here could actually take this company and run it. And, also to identify a product that would be acceptable in the market".

The feasibility study quickly pointed up a major problem. The company was woefully under-funded and, because its buildings were on nice, secure, untouchable Crown property, conventional lenders could not supply mortgage money.

With the recession settling in and interest rates going sky-high, things did not look right for Sumas.

"Basically," says Ned, "the study said we couldn't make this thing go. They suggested we bulldoze 75 per cent of our kilns and get into the pottery business making planters and stuff for nurseries.

"They also suggested we use the inside of the big buildings for growing mushrooms."

But, the people of Sumas weren't yet ready to trade in their dream for potters' wheels and mushroom hoes. Instead, they hired their old employers, Clayburn Industries, to do a second feasibility study.

Clayburn's management, drawing on more than 20 years experience in the clay products industry, encouraged Sumas to go ahead with their plans to rejuvenate the old plant.

Clayburn provided the fledgling company with advice on raw materials and assisted in the selection of equipment and supplies. The study identified markets for clinker bricks, flue and drainage tiles and suggested Sumas also get into the business of making paving tiles for sidewalks and patios.

Because Clayburn already had a distribution network in place, the firm offered, for a 40 per cent markup fee, to undertake the initial marketing of Sumas output.

"But it was done strictly on a business basis," says Ned. "When I shook hands across the table with (Clayburn's) Jim Williams, he said: 'I'm only in this because there's a profit to be made. You can make money and my company can make money. It's not a paternal thing.'

"Without these guys, it wouldn't have been possible to bring this all together."

When the first trial runs proved successful, Sumas was in business and, by the end of 1980, the company had secured funding from both provincial and federal government programs (including DRIE's Special ARDA), had a total of 11 employees and, most importantly, had sales of $195 000 on its books.

Chimney flue liners are big sellers

During its six years of operations, the company's growth has been encouragingly steady. Sales reached nearly $500 000 in 1981, $750 000 in 1982, and $1.4 million in each of 1983 and 1984.

"We're aiming at about $1.7 million this year," Ned says, "and we see it growing by about $300 000 a year in each of the next five years."

The firm now has 53 employees and, with the addition of Andy Gulyas as sales and marketing manager, handles all its own marketing and distribution to customers, the list of which even includes Clayburn.

Clayburn still supplies the firm's stocks of raw materials ($174 000 worth of clay last year alone) but Ned and Gulyas see the possibility of Sumas setting up a wholly-owned subsidiary mining company within the next few years.

"It's likely about three years down the road," says Ned. "And then we'll have an 80-year supply of clay from our own mine on Sumas Mountain."

And," jokes Gulyas, "a whole new set of problems."

Although Ned foresees steady growth for the firm (it sold 4 100 000 individual items last year), he doesn't believe this will lead to a corresponding increase in staff.

"As our workers gain experience," he says, "they're becoming more productive." When the work force reaches the anticipated level of productivity, Ned and Gulyas see the possibility of offering workers more hours of employment, or even adding a second shift.

"Even now," says Ned, "we're finding we only need five people on a kiln where we used to have six."

Quality control and cost control are the two bywords of the firm.

All products are tested in Clayburn's quality-control laboratory and tests have shown that Sumas' bricks, pavers, flue liners, drainage tiles and chimney caps meet or exceed industry standards.

"We're gaining the confidence of architects and contractors," says Ned, noting that Sumas products are being used in several of the new Vancouver Automated Rapid Light Transit (ALRT) stations and at Expo 86.

A major expense is the natural gas needed to provide heat for the firm's eight "beehive" kilns — a cost over which the firm has no control.

"B.C. Hydro is the only game in town," Ned says, "and when they keep raising the price for their gas you can't use the leverage of saying you'll go to another company for a better deal."

To cut down on this cost, Sumas has started relining its kilns (with Sumas bricks, of course) and has devised a neat method to pipe waste heat from the kilns into huge rooms where the products can be partially dried in advance, cutting down the time spent in the kilns.

Ned estimates the savings in gas bills will pay off the $25 000-per-kiln relining cost in less than 1½ years.

The company has even found it has a surprise best-seller in surface-flawed bricks that formerly would have been smashed up and returned to the mixing vats as raw clay.

Now, such bricks are simply put through a tumbler to add to the surface scars and then sold as the popular "new-used" antique bricks at a premium price.

"The popularity of the brick," says Gulyas, "comes from the fact we can simulate true earth colours. So, now we're just barely behind the No. 1 suppliers of antique bricks on the west coast."

Since Guylas' arrival as marketing manager, Sumas has penetrated the export market and now sells about 10 per cent of its products in the nearby states of Washington and Oregon.

"We're now getting our first taste of the California market," says Gulyas who predicts the company will soon be exporting up to 40 per cent of its production to the U.S.

Having achieved very respectable levels of productivity, quality and cost control, Sumas is looking at modernization of its plant as the next logical step.

To carry this out, the firm has prepared a carefully-staged five-year, $1.3 million plan and has filed an application with the federal Native Economic Development Program (NEDP) for the necessary funding.

To the NEDP Vancouver field worker, Sumas' track record looked so good that he half-jokingly suggested they wouldn't need any funding.

"God," laments Ned, "at one period we're on our knees, barely staggering along from month to month and then four years down the road they're telling us: 'Gee, you guys are looking so viable, maybe you don't need our help.'"

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— by Ron Johnson
Canada Commerce

From the Great Discoveries To the Dawn of Mercantalism

The first article in this series roamed from antiquity to the Middle Ages and dealt with people's attitudes towards land-ownership, the propriety of lending capital against interest and the "Protestant Ethic". The view now expands to the great entrepreneurs on trade expeditions and the government-business relations between royal dynasties and bankers and merchants.

New movements in history are often preceded by a few solitary scouts who venture into the unknown with an inquisitive and perceptive spirit to perform the essential task of reconnaissance.

The daring navigators of the 15th Century, setting out on the high seas for *terra incognita* at the risk of mutiny or shipwreck, also had an early forerunner who sparked their imagination.

As a 17-year-old lad, Marco Polo (1254-1324 A.D.) accompanied his father and uncle, both Venetian merchants, on a long journey through Central Asia and the Gobi desert to Peking. It was then the capital of a vast Mongolian empire stretching all the way west to Moscow. The trip would take more than three years. The route they followed was a well-protected caravan trail much used by merchants — the famous "Silk Road".

Once at their destination, the Polos stayed for 17 years. Marco Polo learned Mongolian and entered into the service of the Great Khan, who sent him on many missions.

Marco was an intelligent and discreet observer who kept careful notes on his itineraries. He described the activity of the cities, local customs, the crops grown and products used or manufactured, data which later would assist the Great Discoveries. He noted the use of gun powder and block printing used for sacred texts but also, to Marco's astonishment, to manufacture "printed paper" used as money.

When a report on Marco's travels was later published in Europe, this was one of several accounts that met with doubts. Money made of paper (instead of precious metals) was incredible. Who would accept it? Marco explained that the Khan had ordered all payments in his realm, including those to the army, to be made with this currency "and no one dares refuse it on pain of losing his life".

This, fortunately for the development of commerce, was not the only inducement. According to Marco Polo, the system worked well because people all over the realm could readily exchange this paper money for goods, pearls, precious stones or silver. This implies that the issue of paper money at that time was sufficiently restrained to ensure confidence in its value in exchange. When these notes got torn or frayed, they could be exchanged at the mint for new ones "at a discount of three per cent".

Paper Money Excesses

Paper money was not always so reliable, however. Issues of paper money in both earlier and later periods of Asian history led to excesses and runaway inflation. This became known in Europe and discouraged such innovations for centuries.

Early in 1292, the Polos decided to return to Europe by sea. The route led via Sumatra and the West Coast of India to the Persian Gulf. A good part of the seaway between Asia and Europe — all but rounding Africa, in fact — must have become known in Europe towards 1300 A.D. Yet it took nearly 200 years before the missing link was fully explored. Why?

One possible reason is that Marco's voyage had not been encouraging. There were exasperating delays on the coast of Sumatra and South India and many on board died.

Why did the Arabs, more skillful sailors than the Europeans at the time, not venture forth around Africa towards Lisbon?

The Arabs were already well-established in North Africa and trading extensively with the European world. There was no incentive to explore the Dark Continent. Besides, the shape of Southern Africa was unknown; some ancient maps presumed it was linked to Asia, making the Indian Ocean a landlocked sea.

The Europeans did have an incentive for exploration. In the 14th Century, the Mongolian empire disintegrated and with it the *Pax Mongolica* which had ensured safe overland passage from the West to the East.

This provided a commercial motive to seek an alternative route. But the Europeans were not ready yet. It would take another century and another pioneer to make them so.

Paradoxically, Prince Henry of Portugal, now remembered the world over as Henry the Navigator (1394-1460), never went to sea; the title was bestowed on him by a 19th Century English biographer. Yet he became the foremost instigator and organizer of the early great explorations. He established a famous centre for navigation near Cape St. Vincent on the southwesterly tip of Portugal, jutting out in the windswept Atlantic.

With remarkable tolerance, the Prince invited to his centre Jewish, Muslim and Christian astronomers, mathematicians, geographers, instrument makers, shipwrights and navigators, who laid the groundwork for oceanic exploration. Cape St. Vincent was the first sustained, systematic, interdisciplinary, royally supported effort towards the Great Discoveries — a medieval prototype of Cape Canaveral.

Where did the capital for all these undertakings come from? Fortunately, Prince Henry started with inherited wealth, which he administered with organizational skill. Substantial farm income was derived from his vast estates; he obtained fishing rights on the Atlantic; established shipyards; and had a go at manufacturing (soap and dyes).

Besides, as a lifelong bachelor, he maintained an austere, almost monkish lifestyle, dedicated to one consuming passion: to push back the frontiers of the unknown, to conquer the heart of *terra incognita*.

His explorations were expensive, however, and for decades unremunerative. Of course, once his ships came back with marketable merchandise, merchants and bankers became interested.

Applying high tech to high seas, Henry's mariners progressed along Africa's West Coast and reached Sierra Leone by 1460, the year of his death. By that time, the early seemingly futile voyages had become profitable, returning with gold, ivory and the first human cargoes: African slaves.

A milestone was reached when Bartholomew Dias passed the Cape of Good Hope and doubled the southern tip of Africa in 1488.

It thus took nearly three-quarters of a century to explore just the west side of a continent which was a stone's throw away from Europe. Why?

Sailors were afraid that they would encounter boiling seas and ultimately pass a point from which no return would ever be possible. Some of the hazards to be faced would be real — becoming trapped for weeks in the windless doldrums near the equator, or getting caught in terrifying hurricanes near the Cape.

Now compare the speed of progress in the decade after Bartholomew Dias. His countryman Vasco da Gama reached the Cape of Good Hope within five months of lifting anchor at Lisbon and made the whole trip to India in less than a year (1498). It was a striking example of a rising learning curve.

When da Gama was unsuccessful in establishing trade relations with India because of resistance from long-established Muslim and other allied merchants, he returned in 1502 with a large fleet and in fierce battles established Portuguese supremacy over the Indian Ocean.

What explains this seemingly sudden mastery over distant oceans by a relatively small European nation?

A gradual turn of the tides had occurred in knowledge and technology. Around 1400, Europeans lagged far behind Asians, particularly the Arabs and the Chinese, in the ability to sail for long distances over open water. But, by 1500, the Portuguese in particular had developed, over several generations, considerable skills in navigation and naval construction.

The Arabs and their allies, for all their valour, could not match this. Their regions had few of the essential naval supplies for their vessels. They were overpowered by new ways of naval warfare.

The establishment of the Portuguese ocean route to the Far East caused profound changes in Europe as well. Merchandise from Asia used to be shipped from India's west coast (Malabar) across the aptly named Arabian Sea to the Persian Gulf or the Red Sea, from there laboriously by camel caravans to the Levant and then by ship across the Mediterranean, usually to Venice.

Once the plodding camels, called "ships of the desert", had been replaced by Portuguese merchant vessels carrying their precious cargo overseas straight from the Indies to Lisbon, the economic effects were enormous. No longer many middlemen and markups, no more tiresome trans-shipments, no more losses in transit.

In less than a decade, spices from distant India (a crucial commodity in those days, like oil today) could be bought in Lisbon for only one fifth of their cost in Venice, the terminal of the old route — an interesting case of a powerful new monopoly *reducing* prices.

This was possible because the new suppliers in fact replaced an age-old chain of local monopolies. The Venetians lost much of their trade to the new sea route; their commerce from then on relied more on the Mediterranean and the Near East.

Enter Spain

Cheaper prices in Lisbon greatly increased European demand for spices and other goods from the East. The Portuguese knew instinctively what today's students of micro-economics learn from simple graphs: a monopolist can fix either the price or the quantity of what he wants to sell, but not both. With elastic demand, a lower price may be most profitable.

The new ocean route shifted the centre of international trade and commercial activity from the Mediterranean — long the cradle of Western civilization — to the Atlantic and the Iberian countries.

This happened as suddenly as the geographic shifts in wealth through the oil crises of the 1970s. At a later stage, there would be a move towards Northern Europe and its overseas settlements. But first, Spain had to get into the act.

Christopher Columbus (1451-1506) never set out to discover America or even believed he got there. Like other explorers of the time, he did not want to discover new worlds, but only better ways to old ones. Until the end of his days, he believed that the Caribbean islands he visited and the Central American coastline he sighted were part of "the Indies".

Here are some particularities of the early Spanish trans-Atlantic ventures.

First, the difference with the systematic, stage-by-stage, long-term Portuguese explorations. In Portugal, kings were the originators of discovery, looking for able navigators to execute their projects according to their instructions. In the

case of Spain, we see the opposite: an entrepreneurial navigator (Columbus) searching for a king willing to support his project, on terms set by the petitioner.

Let us look at the career of this remarkable entrepreneur.

Columbus, a Genoese sailor, arrived in Portugal by accident, after a shipwreck. In Lisbon he learned map making, navigational skills, made several voyages, studied geography and became possessed with the idea of reaching the Indies across the Atlantic, the "Ocean Sea".

In 1484 he presented his "Enterprise of the Indies" to King John II of Portugal, who had reservations about the man ("vainglorious") and his project ("full of imaginations"). His advisors agreed with this view. Besides, Portugal had other irons in the fire: the voyages around Africa.

Angrily, Columbus tried his luck in Spain. In 1486 he was finally received by the joint Spanish sovereigns, King Ferdinand of Aragon and Queen Isabella of Castile, whose marital union had fortified Spain. His project was turned over to a Royal Commission of scientists and navigators which, after due deliberation, rejected the project in 1490.

(It is interesting to note that Royal Commissions, even at the time of powerful kings, were already used to gain time and achieve a consensus on controversial objectives.)

A Little Luck

A second attempt to obtain approval initially failed because of Columbus' extravagant demands on the Spanish Royals. He wanted fame and fortune, titles and money: hereditary "Grand Admiral of the Ocean Sea"; "Perpetual Vice-Roy" (also hereditary) of all the islands and *terra firma* to be discovered; 10 per cent of all the income accruing to the monarchy from gold, silver, pearls, precious stones, spices and all kinds of goods bought, found or conquered overseas.

The Spanish monarchs and their councillors were antagonized by his demands and he was turned down again!

Fortunately, King Ferdinand's Keeper of the Privy Purse (or Treasurer) successfully intervened on the navigator's behalf with Queen Isabella. He pointed out that the cost of the venture was small compared to the immense wealth that might accrue to the monarchy in case of success.

The Treasurer, Luis Santangel, who belonged to a wealthy family of merchants with excellent connections to sources of finance, assured the Queen that he could arrange the funding. Columbus was recalled and the agreement was settled on his terms. It shows what an indomitable entrepreneurial spirit could achieve, even in the 15th Century.

Columbus set sail in August 1492 from a port in southern Spain with three ships, a local crew and headstrong captains.

He carried a Latin passport and letters of introduction to foreign potentates from his sovereigns. One was addressed to the Great Khan of Mongolia (shades of Marco Polo!). As no one suspected a Western Hemisphere, all maps available then put Asia much closer to Europe than it was, and Columbus put it even closer, within sailing distance of ordinary vessels of the period.

Compared to the systematic approach of the Portuguese, Columbus's endeavour looked, in the words of Harvard historian J.H. Parry, like "an amateurish affair". But Christopher had one great advantage. He was a born navigator, rarely "at sea" about his position. He left from the Canary Islands and in barely five weeks sighted the Bahamas in October 1492.

The next 10 years, after his triumphant start, were a disappointment. Columbus was not a good administrator. The commercial results of subsequent voyages by Columbus and others were not impressive.

He, the sponsors and the eager crews were after gold, precious stones and spices, especially gold. But there was little gold to be had on the Caribbean islands and the initial enthusiasm in Spain about Columbus' discoveries waned. He died in 1506, a disillusioned man.

Towards the Age of Mercantilism

However, Columbus's idea that gold is treasure providing for all needs in this world, when applied to a nation, contains a basic idea of "Mercantilism", a doctrine which would have a powerful influence on commercial policies during the 16th and 17th Centuries and beyond.

The rise of nation-states like Portugal and Spain provided a fertile environment for the early, rudimentary pursuit of a gold hunt on such principles.

Portugal started in the 15th Century with shipments from West Africa's Gold Coast. However, a truly massive inflow of precious metals into Europe did not occur until the mid-16th Century, after the Spanish *conquistadores* conquered the Aztec and Inca empires of Mexico and Peru. This was achieved at a surprisingly low outlay in men and materials. How was this possible?

The Aztecs and Incas had been successful, well-organized empire builders. However, the Spaniards were able to find allies among subjugated peoples.

Moreover, they had firearms and horses, neither of which were known in the Western Hemisphere. Their appearance had a powerful psychological effect, apart from the obvious material advantages. The Aztec and Inca civilizations had no knowledge of iron, of wheeled transportation or of written languages.

They were, however, far enough advanced in locating, mining, processing and working of gold and silver to enable the Spaniards to exploit these resources from an established base.

The treasure acquired by Spain through these overseas possessions was unparalleled. Shipments from America between 1500 and 1650 increased the total European stock of silver by nearly 50 per cent and of gold, more modestly, by nearly five per cent — not counting other acquisitions through piracy, smuggling or direct trade.

Widespread Inflation

The silver imports were likely the prime factor in raising monetary circulation, thus contributing to serious inflation in Spain and (through Spanish payments for imports) in other parts of Europe.

This did not escape contemporary observers; there were early stirrings of a quantity theory of money in the 16th Century. A prominent example is a 1569 tract by the Frenchman Jean Bodin in which he asserted that the principal cause of widespread inflation was the abundance of gold and silver.

He listed, however, four other contributory factors: monopolistic practices; scarcity of goods, caused in part by exports; government spending; and the debasement of the coin. The current view that a variety of factors may contribute to inflation, along with an unusual growth in money supply, is thus not without antecedents.

Spain was the primary recipient of a substantial inflow of silver and gold from America. Accordingly, Spain should have amassed ever-increasing national wealth by mercantilist standards. Yet this did not happen in the 16th Century, which augured so well for Spain.

What were the causes of Spain's ultimate decline? Essentially, most historians seem to agree that Spain was weakened by excessive foreign entanglements by two rulers of the Habsburg Dynasty, Charles V (1500-1558) and his son Philip II (1527-1598). The foreign campaigns of the Spanish kings were thus of the greatest interest to bankers, as money is the sinew of war.

Charles V was financed by the famous Fugger family of South Germany; Philip II became beholden to the bankers of Genoa. The Spanish Crown went bankrupt no less than three times during Spain's siglo de oro (Golden Age) — in 1557, 1575 and 1597.

What follows is a brief overview of Europe's bewildering 16th Century history, to explain the rise and fall of a mighty, wealthy Iberian empire under two able but over-ambitious and single-minded rulers.

To keep on track, one general observation should be kept in mind. In those days, it was not considered necessary or important that the various peoples of a widespread empire should have certain things in common *apart* from their sovereign, like the same language, a shared history, a contiguous geographic space, interrelated economic activities or a common national purpose.

Empires were founded by supra-national royal dynasties who protected or enhanced their realms through carefully arranged marriages of princes with suitable and available princesses of other realms (sometimes betrothed while in their early teens).

Difficult to Govern

Naturally, such a diversity of peoples, often living in widespread and geographically unconnected territories, was not easy to govern. The European monarchs therefore attached great importance to at least one other unifying factor: a united Christianity.

A common religion was about the only bond next to the dynasty between a motley collection of widely dispersed territories and nationalities.

These monarchs did not want more diversity than they had already, and this feeling was shared by the popes who also had to cope with the faithful of many nations who loved God but not necessarily each other. The Holy See was not an easy seat of power.

Charles V, a maternal grandson of Ferdinand and Isabella, in 1516 became King of Spain and its overseas possessions in America and Southern Italy.

As the paternal grandson of Maximilian I of the ancient Austrian Habsburg dynasty, he was elected Holy Roman Emperor, meaning the titular head of a loose coalition of widespread, mostly Germanic principalities.

This explains why Charles V spent 23 of his 40 years as Spanish monarch outside the country, staying in his various realms or fighting several wars against the Turks in North Africa, against the King of France (about disputed domains in Italy), and against the Protestant princes of the Germanic countries. These foreign entanglements were exhausting and costly and made him an absentee monarch to Spain.

Charles V is a somewhat shadowy figure for Canadians or North Americans generally but he was the dominant political figure of his time and ruled an empire that would have no parallel until Napoleon. It is worth remembering how many imperial wars it took before the West European nations at least, exhausted after centuries of conflict, would arrive at some form of voluntary association in our days.

Homebody King

Charles' son Philip II took over in 1556. He was eager to follow in the footsteps of his father but differed in several ways. Solitary by nature, he soon avoided foreign and restricted domestic travel, constructing the famous Escorial palace as his headquarters near Madrid.

"Roi bureaucrate", Philip relied on extensive reports from his officials, which he meticulously studied, but without first-hand experience of developments in his own country. In this regard, he was the very opposite of his contemporary, Queen Elizabeth of England, who was highly visible to her people.

The two Habsburg kings, for different reasons, thus became remote from the concerns of the Spanish people at large. Moreover, after the French and Turkish campaigns, in 1568 Philip II had to cope with serious disturbances in the Low Countries (regions with an old tradition of local autonomy and religious tolerance) which grew into a national revolt.

It turned into a costly proposition; the Spanish army of mercenaries in the Low Countries had to be paid every month in gold coins.

In 1588, Philip tried to conquer Elizabethan England through the Invincible Armada (130 ships, 30 000 men). It unexpectedly ended in disaster and became the prologue to the ascendancy of the northern European countries.

Under Habsburg rule, Spain became over-extended and suffered through neglect of its agriculture, commerce and manufacturing industries.

Around 1600, it increasingly became the turn of the northern nations to get into the act of overseas exploration, but with a difference. Whereas the Iberian navigators had been in the service of their sovereigns, the English and Dutch sailed the oceans of the world as agents for commercial concerns, the East India companies. For these companies, given monopolistic trading and delegated sovereign rights by their governments, the profit motive predominated.

They were not after territorial aggrandisement or inspired by missionary motives. After their efforts failed to find their own alternative routes to Asia — north of Canada, north of Russia — they started southward to invade the Portuguese positions in Asia for spices and westward to harass the homebound Spanish galleons carrying gold and silver from mines in the New World.

Here is where true Mercantilism comes in, the pursuit of precious metals by nations who have no supplies of their own, either in Europe or their overseas possessions.

But that is another saga. ◘

Adapted by permission from the magazine Canadian Banker.

— by Herbert C. Byleveld
Economic Analysis and Strategic Planning
DRIE

New Directions at Customs and Excise

Sooner or later every Canadian is affected by the way Customs and Excise personnel do their jobs; whether it is at the hundreds of border points or at international airports; or in the price they pay for imported goods.

Over the past few months, Revenue Canada, Customs and Excise, has initiated a number of policy directions to encourage compliance with the laws it administers, improve its productivity, increase its effectiveness and respond to the needs of the publics it serves.

The achievements within this thrust in the last year included legislation like a **New Valuation System** developed in line with international standards. The department is ready to administer this new system when the proper legislative authority is obtained. A **Revised Customs Act** has been reintroduced into Parliament. It contains new legislation to streamline and modernize operations.

The Special Import Measures Act was passed by Parliament and implemented December 1. A guide to the new Act has been published and is available at regional offices.

The implementation of the **Customs and Excise jurisdiction to a 200-mile limit** in Canadian waters will be completed this fiscal year. The program is expected to be in full operation by 1985-86.

In the area of enforcement, a continuing concern is the **detection and interception of narcotics, pornography and other contraband**.

A major accomplishment has been the establishment of the Special Narcotics Interdiction Teams to enhance capability in this area. Since their inception, the number of drug seizures has increased. Another enforcement initiative is the research and development of contraband detection techniques. Customs Programs and Laboratory and Scientific Services are at work in the identification and evaluation of potential devices and systems. Initial research shows promise.

Because of complaints received from the Canadian clothing industry regarding compliance to legislation in this area, the department has developed measures to deal with the problem. Two such measures are, **a clientele profile system** and **specialized training for inspectors**. Because the program has been a success it will be continued with greater emphasis on the client profile system.

Both efficiency and effectiveness have been raised by the implementation of automated systems. **ALERT (automated lookout, enquiry and report system)** is the long-term undertaking to develop an internal communications system to support **Customs Commercial Systems**. It will do this by identifying high-risk entries for review, capturing amendment data to provide current and historical entry information and providing prompt retrieval of customs documents from microfilm.

ALERT has been pilot tested and evaluation is underway. The project is currently scheduled for regional implementation by April 1, 1987.

Harmonized Systems, a project designed to allow for the establishment of a Canadian tariff and statistical nomenclature based on the internationally recognized Harmonized Commodity Description and Coding System, is targeted for implementation in 1987. Considerable progress has been made during 1984-85 with respect to the conversion of existing departmental automated systems necessary to accommodate the Harmonized System.

The Excise Branch is currently involved in a major system development initiative known as the **Clientele Profile System**, involving the development and implementation of a client data base. When completed it will allow for better audit selection procedures and reduce the burden on compliant taxpayers. As well, it is expected to enhance the information and revenue collection programs of the branch.

Major achievements to simplify administrative procedures have included **End-Use**, a project to develop a cost-effective tariff application, policy and enforcement system to ensure equitability of application of the law. A detailed solution report has been published and implementation of this project is now underway. This includes the appointment of an End-Use specialist at headquarters.

The **Conditional Release System** is a project whose goal is to develop, test and implement new policies, systems and procedures in the Commercial Customs Stream in order to streamline the operations. So far, this initiative has revealed that significant benefits would accrue to the private sector from the expedited release of goods. As well, the administrative burden will be significantly reduced.

A pilot test will be made during the coming year with evaluation currently scheduled for April 1986.

To respond to the needs of the travelling public, the **Enhanced P.I.L.** system facilitating the international movement of travellers has been devised. This system is well underway and meeting with general acceptance by departmental employees, the airline industry and the travelling public. It has been implemented at 19 airports across Canada.

A project has been recently initiated to **improve the delivery system of dutiable mail** to the importing public. Under consideration are a C.O.D. system for casual mail and a conditional release system for commercial mail. A reduction in the number of primary screening centres is also being considered.

In an effort to give expert assistance to client branches in providing more and better information to the department's publics, Public Relations Branch has initiated two projects. One is to assess regional needs and provide **Regional Liaison** services. Information officers have been assigned to regions, visits have been made and communications planning is underway. In addition, information officers will be assigned as **Consultants to Line Branches** to coordinate and implement their communication needs.

The **Excise Information Program** contains a wide range of components extending from existing publications to

the inclusion of a new series of pamphlets on policies and services and a new concept of Policy Bulletins to assist the public in understanding departmental policy and interpretations of the Excise Act.

The Ruling Information System, Excise (RISE) was developed to collect, store and cross-reference tax ruling information. The implementation of the Ruling Information data base has been completed in all regions. The data base for RISE will be expanded and the system extended to district offices during the year.

Another achievement is **Client Agreement with Other Departments**. The department has initiated negotiations with those government departments whose legislation and administration have an impact on the international movement of goods or people. The negotiations are intended to establish appropriate levels of service and enforcement in cases where the legislation and administration of other government departments have such an impact.

An evaluation of pilot operations has proved the viability of **Duty-Free Shops** at the land border. A two-phase national implementation will result in approximately 40 duty-free shops. Phase one, involving the establishment of six shops, is underway and a call for operators for phase two has been made.

Human Resources

The objective of this is to ensure that a work force and management cadre is in place in sufficient numbers and with the necessary skills to achieve the objectives of the department and of the government.

Training in the audit area of Excise includes extensive exposure to EDP technology and the use of microcomputers. It will accompany the provision of micros to field auditors.

This year a first-level supervisory course has been introduced to ensure that all first-level supervisors have the knowledge and skills to perform professionally. Full implementation of this program for more than 400 employees will commence this year as a compulsory course for newly appointed supervisors.

Management Practices

The objective of this thrust is to provide planning, financial and administrative policies, practices and support systems to departmental managers. This is designed to assist them in directing their efforts and resources better in support of departmental goals and, at the same time, support government initiatives of management accountability for performance and better service to the public.

Planning and Related Systems

The major initiative of the Management Practices program has been the **Creation of the Corporate Planning Directorate** to be the focal point of all planning activities for which the department as a whole is responsible.

The directorate has responsibility for the integration of financial, strategic and operational planning and their related control systems. In addition, the directorate develops support systems for a number of department-wide requirements, such as performance reporting, corporate analysis, priority setting, information management and decision-making. The directorate also acts as the principal point of contact with central agencies on departmental management issues.

A second initiative has been **Performance Measurement Systems** which can be further subdivided into a number of projects.

- **Effectiveness Measurement** entails conducting projects to identify indicators, assess feasibility, design, test and implement performance measurement systems that will provide the department with reliable and useful information on the effectiveness of its programs. Projects are being carried out to measure operational effectiveness (passenger and commercial); program effectiveness (commercial); air passenger effectiveness; and commercial core effectiveness.
- **Responsiveness Measurement** is a project which identifies indicators, assesses feasibility, designs, tests and implements systems to measure responsiveness that is the actual service and response time associated with transactions between the department and the public it serves. Projects are underway to measure responsiveness for highway and air passengers as well as for commercial responsiveness.

Financial Systems

The Finance Directorate of Corporate Management has undertaken the project **Financial Expenditure Control System (FECS)** which will provide valuable information for the budgeting, allotment, commitment and cash control, analysis and reporting of expenditures. A pilot project in Field Operations at headquarters and in a regional office is expected to result in national implementation of the system by early 1985-86.

The Departmental Revenue Accounting System (DRAS) was presented to senior management and has resulted in approval to proceed with **Customs Accounts Receivable System (CARS)** which will develop and implement an automated accounts receivable system for Customs.

Administrative Systems

As part of a controlled experimentation program, 10 **microcomputing** projects

were initiated throughout the department within the last year. The objective is to develop a microcomputing policy for the department and to determine the degree to which benefits could be projected, achieved and measured.

Eight pilot studies have been implemented and a second round of pilots will be initiated this year. Microcomputing has made significant contributions to departmental goals by improving productivity and increasing levels of efficiency and effectiveness.

summarizes the beliefs, values and attitudes which will guide management and employees in conducting business operations. It represents the first attempt by management to state a corporate philosophy on "how we do things here".

The *Statement of Operating Principles* is an important lead component of the formal planning process within the department. The goals, strategies and plans adopted in future years must reinforce the departmental philosophy contained in the statement.

Looking to the Future

On January 22, 1985, in Ottawa, the Minister of Revenue, Customs and Excise, approved a document destined to have an impact on Customs and Excise.

The document is titled *Statement of Operating Principles* — barely 700 words which map out clearly and concisely **how** the department will conduct departmental business over the next decade.

The *Statement of Operating Principles* is meant to be the philosophy which summarizes, in general terms, the attitude of the department towards the public it serves.

As well, this statement will be the lead component in the planning process of developing goals, strategies and policies until 1995.

The *Statement of Operating Principles* constitutes the department's approach to its business as distinguished from its legal mandate. The statement

General Principles

Customs and Excise operates on the principle that the vast majority of its public is willing to comply with the law, when informed, and when the law is applied in an equitable, uniform and responsive manner.

It is the policy of the department, therefore, to conduct its business in a manner that encourages and facilitates voluntary compliance and keeps the administrative requirements of the law to a minimum. To this end, the department is committed to simplifying its service delivery mechanisms so that administrative impediments to voluntary actions are eliminated and cost and effort to the department and its clients are reduced.

Notwithstanding the underlying assumption respecting the public's willingness to comply, inevitably there are some individuals who wilfully attempt to evade their obligations under the law for personal gain.

In the performance of its duties, therefore, the department must also pursue enforcement activities being mindful that a balance be maintained between facilitation and enforcement. This balance is accomplished when the enforcement emphasis is placed on the detection of the few who do not comply. Accordingly, it is the policy of Customs and Excise to conduct enforcement activities on a selective basis so that neither facilitation nor compliance is compromised.

In implementing its mandate, the department will strive to improve service to its public. Service to the public relates both to the programs and services provided by the department and to how it conducts itself in the delivery of these programs and services. It must therefore be aware and understanding of the changing public attitudes, taxpayers' concerns, new technology and commercial practices, and social changes in general.

Customs and Excise management is committed to fostering an organization where innovation is encouraged and reflected through improvements in its management practices.

Effective communication with the public is an important aspect in the delivery of services. The greater the citizen's understanding and appreciation of the law, the greater the likelihood for compliance.

It is the policy of the department that communication be directed at promoting an understanding of the rights and obligations of its publics in a complete and understandable form, including information about services, programs and facilities.

As a consequence, the department will regularly solicit the views of its client groups and actively promote consultation with them in the development of policies and initiatives or legislative issues to ensure their objectives are taken into account.

The department will also pursue a policy of efficient decentralization of authority and responsibility so that its publics can more readily receive the information necessary to the conduct of their business. ◘

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