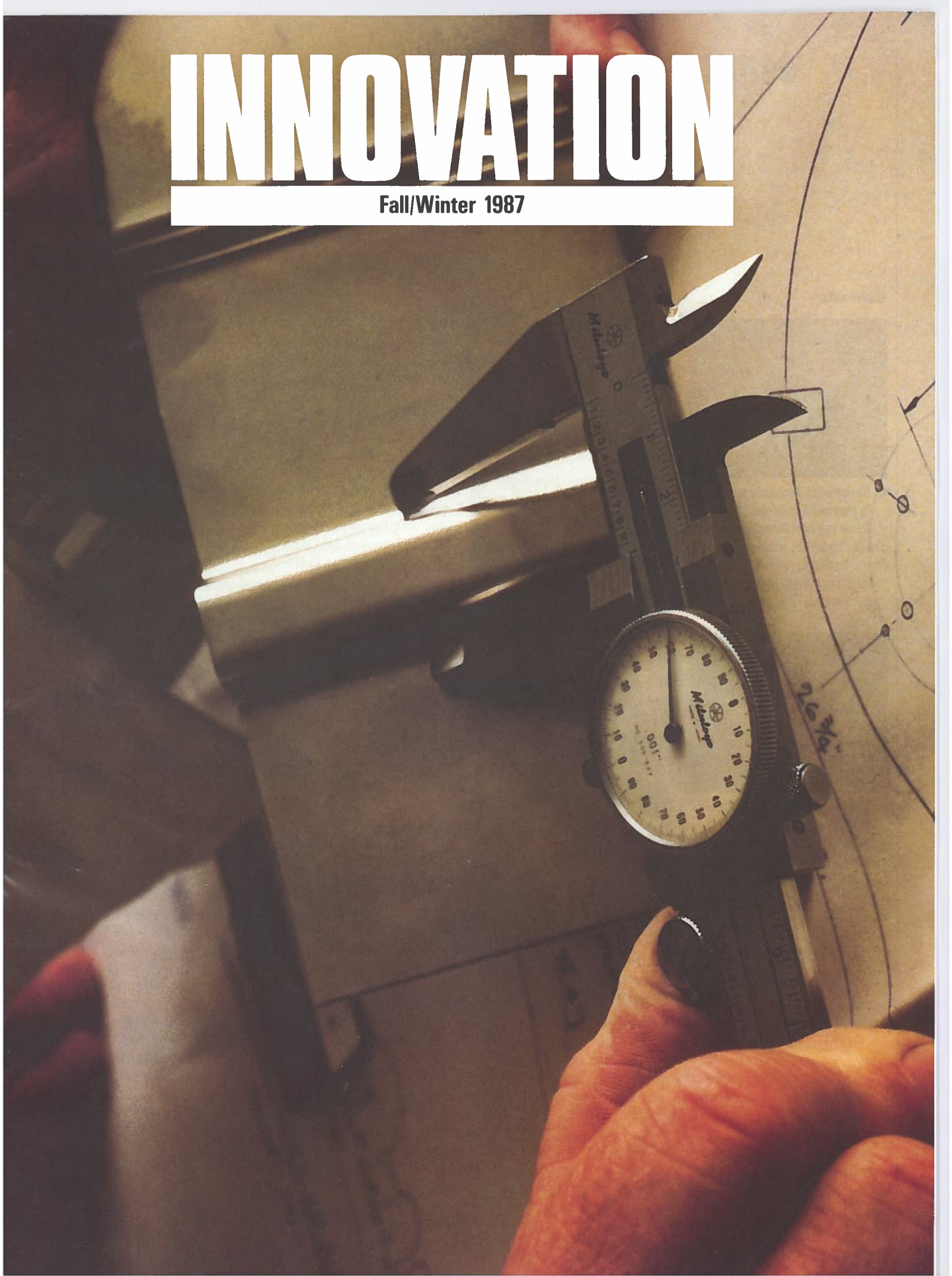


INNOVATION

Fall/Winter 1987



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INNOVATION

This is a reader's magazine, open to ideas and information from its readers. Offers and requests of technology transfers must come from our readers in Canada to match those supplied from abroad.

You can contact us at:

INNOVATION, Technology Transfer Service (J011), Technology Liaison Directorate, Department of Regional Industrial Expansion, 235 Queen Street, Ottawa, Ontario K1A 0H5
Tel: (613) 954-3458

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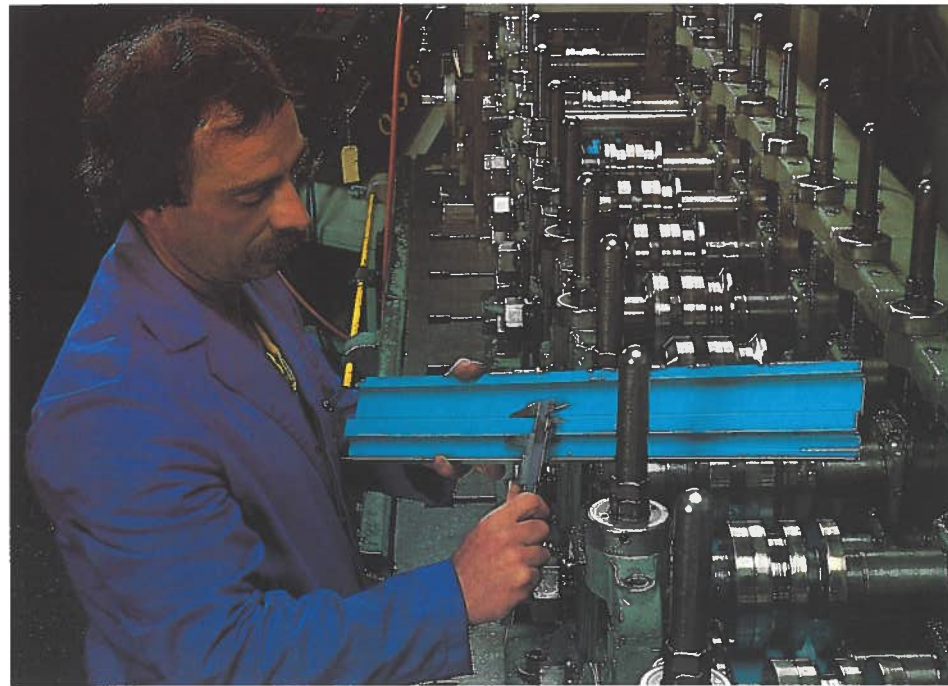
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Hon. Robert R. de Cotret
Minister of Regional Industrial Expansion
Minister of State for Science and Technology

Hon. Frank Oberle
Minister of State (Science and Technology)

Hon. Bernard Valcourt
Minister of State (Small Businesses and Tourism)

(Également publié en français)



New Department Announced

Since the last issue of *Innovation*, the federal government has announced its intention to establish a new Department of Industry, Science and Technology to ensure the effective integration of advanced technology and competitive industries.

The new super ministry will help focus Canada's industrial strategy in the period leading up to the start of the 21st century. It will devise and pursue national industrial policies and strategic technologies. The department will both promote traditional industries and help establish and maintain the competitiveness of the new knowledge-based industries.

Innovation's Role

Over the coming months, *Innovation* will continue to inform Canadian business of opportunities for technology transfer and of government and non-government assistance available to enhance technology, and to outline the development of the new Department of Industry, Science and Technology.

To help us do our job better, we need to know whether *Innovation* is getting through to its target audiences. With this issue, we have included a self-addressed subscription renewal card which, when filled in by you, will give us a much clearer picture of our readers. This information is extremely valuable to us as we plan future issues of the magazine.

Please help us serve you better. Fill in and return the reply card today. In addition, any suggestions or recommendations you may have to improve our publication will be welcomed.

In This Issue

In a recent issue of *Innovation*, we examined a unique method of technology transfer developed by Harwill Technologies International and supported by both the Department of Regional Industrial Expansion and the National Research Council. This month we report on a visit to one of Harwill's clients, Cresswell Roll Forming Inc. of Granby, Quebec. This type of firm, i.e., machining, metal fabricating, etc., needed new techniques as well as new technology to stay competitive in an increasingly difficult marketplace.

While covering the Cresswell story, we found once again how important synergism is to the success of any endeavour — in this case the close working relationship the city of Granby has established with its industrial citizens.

For the small enterprising firm, busy with its everyday operations, finding technical solutions is often difficult. In this issue we cover Servo Technology Inc., a company which provides a wide range of services in the field of technology.

And if the entrepreneurs are women, the problem is compounded by the fact that, as a group, they do not have the well-developed support network that their male counterparts enjoy. This is the view of the Women Inventors Project which has been attacking this problem as its major *raison d'être*. Based in Waterloo, Ontario, the Project aims to establish support groups across the country.

And to prove once again that Canada takes a backseat to no one in the field of communications, we have a story on Telecom Canada, a world leader in many fields of inter-connection, voice messaging, voice and data management and remote CAD/CAM, to mention but a few of the R&D areas being pursued by this co-operative of Canada's leading phone companies.

Early this fall, the accomplishments of Canadian businesses, their management and employees were recognized at the fourth annual **Canada Awards for Business Excellence** ceremony in Halifax.

Of particular interest was the *Innovation* category, one of eight categories covered by the awards.

The five award winners were:

- Clay-Mill Technical Systems Inc. (gold award), of Windsor, Ontario, for conceiving and creating a robotic automation system.
- Noranda Research Centre (silver award), of Pointe-Claire, Quebec, for the design and development of a gold leach refining process.
- Atomic Energy of Canada Limited's Radiochemical Company (bronze award), of Kanata, Ontario, for the development and commercialization of high purity Iodine-123 for medical diagnostic applications.
- Mobile Image Canada Limited (bronze award), of Toronto, Ontario, for the development of a process that adds colour to black and white movies for television programming.
- Nautical Electronic Laboratories Ltd. (bronze award), of Halifax, Nova Scotia, for the development and marketing of solid-state AM broadcast transmitters.

Three of the five awards in the *Small Business* category were also in the field of innovation.

- Medionics International Inc. (gold award), of Markham, Ontario, for the product innovation and marketing of peritoneal dialysis machines and related products.
- Rhodnius Incorporated (silver award), of Toronto, Ontario, for the development and marketing of relational data base software products.
- DSC Laboratories (bronze award), of Mississauga, Ontario, for product innovation in the audio-visual and television industries.

Cresswell Roll Forming Inc., meets Granby

Successful Technology Transfer Pilot Project Benefits Company and Community

For the city of Granby and its Industrial Commissioner, Michel Lemelin, the project could not have come at a better time. The painstaking work and high costs of industrial prospecting were not paying off as they had in previous years.

Too many cities were chasing too few firms from cities, provinces, states and countries around the world.

A project designed to develop the art of industrial expansion right in their own back yard was tailor-made for Lemelin and Granby's mayor, Mario Girard, and the chance to participate was one they could not refuse.

The aim of the project was simple. Instead of seeking expansion by enticing new industries, it identified a dozen or more Granby companies in different sectors of the economy, such as metal processing, electrical products and plastics, which were contemplating expansion or which required new technology to remain competitive.

"What is the use of beating the bushes around the world in search of new industrial opportunities," says Michel Lemelin, "if we are going to lose existing firms because of neglect?"

This, of course, was the objective of this unique pilot project sponsored by the National Research Council, the Industrial Research Council of Quebec (CRIQ) and the Centre for Industrial Development of Granby.

Participating in the project through its agreement with the National Research Council's Industry Development Office was Harwill Technologies International (see Harwill story in *Innovation*, Winter 1986 issue), which is also carrying out a survey of Granby companies.

Harwill is assessing the positions of the target firms regarding their markets, production methods and the technologies they are now using.

"It is a matter of identifying managers who are open minded and ready to go forward and whose companies are contemplating expansion," explains Michel Lemelin.

One such company is Cresswell Roll Forming Inc., a cold roll forming firm that has been in business in Granby since 1941.

According to General Manager Richard Piédalue, "Over the years, Cresswell built up a reputation for high-quality product, on-time delivery and a competent engineering department. However, to meet new market requirements, our firm was facing diminishing returns on our investment.

"The market was demanding that we not only produce formed shapes but that we carry the manufacture of components through to the finished state. That included forming metal components to the customer's plans and specifications, including cutting and drilling. In other words, producing a product ready to be incorporated as-is into the customer's products.

"The development of these end-use products created no production problems for Cresswell. We had developed over 3000 die sets to manufacture a wide range of products and it was a simple matter to provide for drilling, slotting and cutting of the parts' final configurations.

"What we found difficult, however, was to add all these steps to the process and maintain a production schedule on which we could make money. Our high-speed roll formers had to be slowed down to allow us to perform these extra processes and our costs, due to reduced production, were such that profit margins were unsatisfactory.

"This left us with only two alternatives," Piédalue said. "Either we did not bid on this new business or we improved our technology and techniques to cope with the new situation.

"To follow the first would mean that our markets would become progressively smaller as more and more firms demand finished components to incorporate into their products without further machining. Or we could try to develop the new

technologies and procedures required to follow the second course.

"It was while we were contemplating our next move that Michel (Lemelin) told me of the new development project," Piédalue continued. "I had taken an interest in the Centre for Industrial Development of Granby and was a member with Michel on the centre's education committee.

"The education committee was set up to bring representatives from the local school boards, Granby industries and city officials together to study labour requirements in the area. Our aim was to provide both student counselling and curriculum advice so that the educational system could train a labour force with the necessary skills to fill Granby's needs.

"The project (suggested by Michel Lemelin) was tailor-made to our requirements," explained Cresswell's general manager. "It meant that a competent outside consultant would examine our operation without overloading our own staff. And, in the bargain, the consultant would assist us in finding suitable technology to overcome our problems.

"The fact that Harwill Technologies President Harvey Goodwin was our chief consultant was fortunate. On his recent trip to the U.K. and Europe, he was able to find the expertise and technology that, I am sure, will solve many of our output problems."

According to Harvey Goodwin, all his enquiries about roll forming expertise led to Ayrshire Metal Products, one of Britain's largest roll forming companies with three plants manufacturing over CDN\$40 million worth of product annually.

"And to make matters more interesting, Ayrshire had just completed a modernization of its plants to address the very same problem faced by Cresswell," Goodwin continued.

"As luck would have it, Martin Ockwell, Ayrshire's chief engineer, who piloted the entire project in the three plants, was available to come to Canada and assess the situation at Cresswell. We have completed this assessment and made recommendations to Cresswell's principals which have been accepted."

For Martin Ockwell, the chance to study a roll forming plant in a non-competitive market and, at the same time, make use of his recent hard-earned experience was a challenge he could not resist.

"I realized just what Richard (Piédalue) was facing," he said. "We had faced the same problems over the past few years. At the time we decided to do something about it, there were no guidelines or off-the-shelf technology available to assist us. We had to do all our own development through trial and error.

"I am sure we can avoid most of the pitfalls we encountered at Ayrshire in our upgrading of Cresswell's Granby operations. We have many pluses working to our advantage.

"First of all," Ockwell continued, "there is Cresswell's dedicated staff, both on the engineering side and the plant side. Unlike many occupations, metal forming is as much an art as a science. A good operator has, over the years, developed a finely tuned sense of what can be accomplished with a strip of metal.

A Cresswell employee adjusts forming presses to conform to specifications.

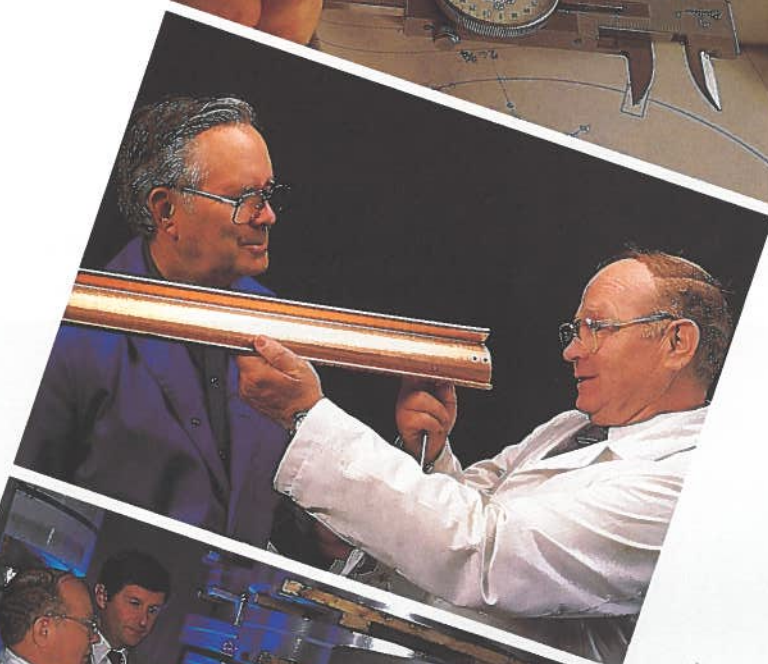
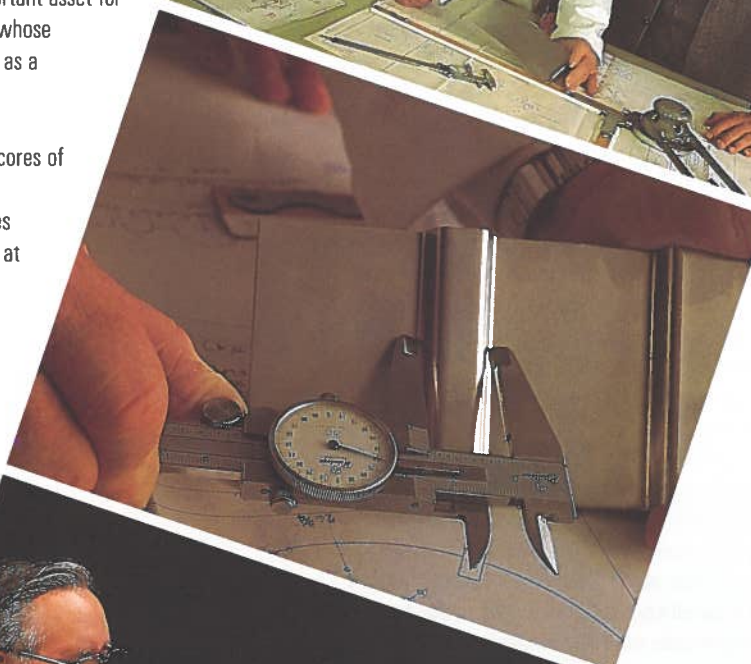


Customers' requirements are met through careful planning and CAD/CAM engineering.

Careful calibration assures top quality for the customer.

A good eye is an important asset for Cresswell employees whose work is an art as well as a science.

Hundreds of coils of scores of metal combinations, widths and thicknesses are the raw materials at Cresswell.



"Secondly, the plant has stayed on top of conventional developments in the metal forming trade. Its basic forming equipment is state of the art. And a third plus is, of course, its location.

"Granby is a lovely city in which to live," Ockwell noted, "close enough to Montréal to allow a person to follow a cosmopolitan lifestyle and rural enough to shelter one from the hectic pace of a larger centre. This, in turn, makes for a stable, satisfied workforce.

"While there's no off-the-shelf technology for the metal forming industry we found out at Ayrshire that our industry covered 25 technical areas from metallurgy to CAD/CAM (computer assisted design/computer assisted manufacturing).

"Although our market in the U.K. doesn't have the potential that exists here in Canada, what happened at Ayrshire gives a good indication of what to expect. When our modernization project started some years ago, it took 100 craftsmen to turn out 250 tons of product. Today, a staff of 45 at this same plant turns out 350 tons of product."

"From our point of view," added Cresswell's Piédalue, "we have to adopt new methods and technologies to survive. For example, our large formers can run at 200 feet a minute but we have had to slow them down to 35 feet a minute to produce a metal strut that requires accurate punching and cutting.

"Anything that lets us increase this speed substantially while maintaining quality will have a positive effect on our bottom line."

"This pilot project was designed to address bottom line results," Michel Lemelin commented.

"What is the value of chasing new industry, if we do not help our existing industries to cope with changing conditions?" he asked. "Stabilization of our industrial base is as important to us as uncontrolled growth. Over the years, we have become comfortable with our existing industries and they with us. We share a corporate philosophy that new industries might not understand or care to adopt."

For Granby's Industrial Commissioner, this project is just the latest in a long list of initiatives that Granby has used to overcome serious disruptions of its industrial base during the past several years.

Textiles, rubber and tobacco and Quebec's largest food and agricultural co-operative were long the mainstays of Granby's industrial base. But during the 1970s, the first three of these industries suffered a loss of more than a thousand jobs.

In a city of approximately 40 000, this was a major catastrophe. However, by rolling up their sleeves and going to work, the city and its dedicated staff have been able to find new jobs for many who had lost theirs in both existing and new industries.

That Mayor Mario Girard is proud of his city goes without saying. But it is a tradition in Granby.

The city of Peterborough is one of the first. At last account, Manager of Development Alex MacLeod and Director of Planning and Development Les Groombridge, a former president of Outboard Marine, Peterborough's largest industry, had visited Granby to study the project and try to adapt it to their circumstances.

According to Groombridge, "This is just the type of program we need that makes sense because it stresses liaison between the municipality and its industries.

"We see this approach as one which enhances

Huge forklifts transfer the metal coils from truck to storage and then to the individual presses.



A former mayor, Horace Boivin, who stepped down some years ago to become the city's first industrial commissioner, at 80 years of age still comes to the office every day. As head of public relations, he is Granby's greatest booster — a man who has roamed the world in search of the type of industry that would complement the city's lifestyle.

And what of the original project, designed to help retain Granby's industrial strengths? If imitation is the sincerest form of flattery, Granby will soon be joined by other Canadian cities anxious to adapt this type of project to their particular set of circumstances.

the ability of our industries to compete."

And it is this type of response that can be expected from scores of smaller cities from coast to coast in Canada.

For further information on the project, contact:

Harwill Technologies International
425 Gloucester Street
Ottawa, Ontario
K1R 5E9
Tel: (613) 594-3299

Telecom Targets Teleonomics Technology

Customers of Telecom's Megastream NMCS can display their existing network configurations and add, remove or change the speed of their circuits.



Service enhancements designed to strengthen companies' communications and information management systems place the member companies of Telecom Canada among the front-runners in teleonomics, the merger of telecommunications and computer technologies.

(Telecom Canada is an association of 10 major Canadian telecommunications firms: AGT, B.C. Tel, Bell Canada, Island Tel [P.E.I.], Manitoba Telephone System, Maritime Tel & Tel, NBTel, Newfoundland Telephone, SaskTel and Telesat Canada.)

Speaking at the annual conference of the Canadian Business Telecommunications Alliance (CBTA) in Montréal this fall, Robert White, Telecom Canada vice-president of business development, noted that teleonomics "has led to a vast range of new products, services and markets in this country."

Two of these, which he unveiled at the conference, are the Envoy Message Handling System (MHS) electronic messaging system, and Network Management and Control System (NMCS) which is offered as an enhancement to Megastream.

Integrated Messaging

Envoy MHS is the first commercial, public system in the world incorporating the X.400MHS standard developed and ratified by the International Telegraph and Telephone Consultative Committee (CCITT). It provides a standard, computer-based interface between different electronic messaging systems, regardless of equipment type.

An enhancement to the Envoy 100 system, Envoy MHS will allow subscribers to communicate with users of the AT&T Electronic Mail Service and to access the worldwide users of the All-in-One Office Information Systems Service.

White noted that private system vendors such as IBM, CGE, Wang and Northern Telecom have also committed themselves to providing X.400-compatible products in the near future.

"The migration strategy has begun," he said.

X.400, he predicted, "will continue to provide a cost-effective solution to electronic messaging. It offers ease of use with a minimum of training, as well as increased revenues through the use of cost-saving networking considerations."

Experts in the teleonomics field seem to agree that X.400 will eventually permit multi-media messaging between carriers, he noted.



"And," he said, "it will lead to the integration of previously divergent forms, such as voice, data and graphics in the same network.

"Someday you might walk up to your desk, access your Envoy MHS and read a message that's been tagged with a voice annotation. Or, perhaps there is a graphics addendum to the note, in which case you might head off to a high-speed, graphics facsimile machine, or equivalent, and receive a print-out of your visuals."

Managing the Network

The second new service enhancement announced by White at the CBTA conference, Megastream NMCS (Network Management and Control System), is an optional, PC-based system located on a customer's premises and dedicated to that customer's Megastream network.

(Megastream is a digital network service providing customers leased transmission capacity in increments of 64K bps to be used for transmitting voice, data and images over the same channels.)

"It allows customers to change network capacity by time of day," White noted. "For example, a customer could run voice trunks by day and wide-band data transfers between computers at night.

"The advantage here is that the demands of peak periods can be met without increasing one's overall capacity."

NMCS, he said, is aimed at customers with medium to heavy communications volumes, customers who have long expressed a desire for more direct control over their networks.

Network survivability, he noted, is critical to businesses that make thousands or even millions of transactions daily. "Incidents such as downtime, a return to manual services or even a fire can seriously threaten a company's operations."

To overcome these problems, Megastream NMCS customers will work with their member telephone company to develop a network "map" in advance so that, in the event of a breakdown in a Montréal data centre, for instance, all traffic normally terminating there could be temporarily rerouted to another location where spare Megastream terminating equipment is in place.

"The customer," said White, "then simply activates the recovery circuits through NMCS and resumes operations as usual."

Voice Messaging

Another new service available from Telecom Canada is the Exten voice messaging system, designed to allow users to exchange "voice mail" from any Touch-Tone telephone in Canada or the continental U.S.

"With this service," White said, "each subscriber will have a personal voice mailbox. These mailboxes will work much like an internal mail system, allowing subscribers to drop off and pick up messages."

Subscribers will be able to dial up the Exten network, enter their identification code and instruct the service to act by entering the appropriate numbers on the telephone keypad.

With the service, subscribers will not only be able to send and receive messages, but to edit, save and forward other recorded information such as meeting agendas, sales reports and customer orders.

The service also will offer features allowing subscribers to set up "guest mailboxes" for non-subscribers, as well as mailboxes that receive and route customer orders for processing.

Through Telecom's Envoy MHS, electronic messaging subscribers have greater reach to other public and private messaging systems around the world.





Telecom's electronic data interchange (EDI) exchanges orders, invoices and other trade documents efficiently for greater sales volume, time savings and faster deliveries.

Other Exten features include the ability to flag an urgent message, and to send a message to a series of recipients by entering a two-digit code on the telephone keypad.

White said he realized some people will question the need for another telephone service in an era of personal computers and high-speed communications.

"Perhaps it is because, in such an era, the value of spoken information hasn't always been fully recognized. While the computer revolution has brought many benefits, I think most business people would agree that they still rely on the telephone for many of their day-to-day contacts.

"Over the phone we can negotiate, demand or persuade. We can provide moral support, encourage team spirit or just 'test the waters'. In other words, the telephone gives us the flexibility to relay feelings as well as facts."

The Paperfree Marketplace

Another Telecom Canada service, TradeRoute, is also making its contribution towards the paperless marketplace thanks to Electronic Data Interchange (EDI), the electronic exchange of business documents between two or more companies in an industry-standard format.

EDI has three main components:

- a message standard that defines the sequence and format of data to be exchanged;
- translation software that converts a company's internal language to an industry standard; and
- a communications network for sending and receiving information between companies.

Using this process, information usually transferred by paper will be sent between companies in an automated format.

Although EDI is still a relatively new phenomenon, it is predicted that, by 1990, 95 percent of Canadian companies will be saving a total of \$500 million a year by handling orders electronically. These savings will come through improved speed of delivery of business documents and improved accuracy due to the elimination of some steps in data entry.

"EDI is alive and moving through Canadian industry like greased lightning," said Marshall Spence, president of the Electronic Interchange Council of Canada.

Digital Technology

Taking a cue from the recording industry, Telecom Canada has brought digital technology to the world of teleconferencing with its TeleForum service.

TeleForum, like other teleconferencing services, allows three or more persons in different locations to meet electronically via the telephone network. However, the addition of digital technology means audio quality is improved, the mechanics of connecting callers is more flexible and the service can accommodate two people talking at the same time. (In the past, if one person interrupted another, as happens in normal conversation, the overlapping voice would be momentarily cut off.)

As well, TeleForum permits users to telephone out during a teleconference to speak with someone they may want to involve in only a portion of the meeting.

Security features allow the chairperson to lock the audio bridge, preventing any unwanted interruption in the call and protecting the confidentiality of a meeting.

For further information, please contact:
 Telecom Canada
 410 Laurier Avenue West, Room 1160
 Ottawa, Ontario
 K1P 6H5
 Tel: (613) 560-3030

Maintenance of Pin-Point Control Problem Solved by Servo Technology

A technician calibrates a servovalve right in the plant using bench-type equipment developed by Servo Technology.



Windsor firm brings calibration of servo-hydraulics equipment into the plant

Increasingly, manufacturers have been adapting servo-hydraulics to their manufacturing processes as a method of accurately controlling applied pressure for a wide variety of tasks. Servo Technology Inc. of Windsor, Ontario, has developed an in-plant method of maintaining that accuracy efficiently at the point of control — the servovalve.

A blending of electronic control and fluid power strength, servo-hydraulics is an important factor in robotics, boring mills, tube benders, flight simulators, electrical discharge machining (EDM) equipment and wood veneer processes.

The basic components of a servo-hydraulic system are a controller/amplifier, an error feedback system and the key element, the servovalve.

While servovalves are extremely accurate components, they are also highly susceptible to contamination, shock and excesses of heat, pressure and vibration. To maintain the required accuracy of servo-hydraulic systems, the valves must be serviced and recalibrated periodically at specialized repair houses and service centres.

Servo Technology Inc. was created to provide this service for Canadian servovalve users.

Out-of-plant recalibration, however, is a far from ideal answer to servovalve problems. Conditions vary from user to user and rapid custom calibration on-site is often required to minimize machinery down time.

Faced with this problem, Servo Technology developed a device that allows servo-hydraulic system users to calibrate, adjust and service most makes right at the machine. Known as a portable servo analyzer, it is available in several configurations and capacities to suit user needs.

Weighing only 16 kilograms, the analyzer can be moved easily by plant maintenance personnel from system to system, machine to machine. Large, workstation models are also available for systems users who wish to incorporate a full repair facility in their maintenance operations.

Test results and capabilities claimed for the portable servo analyzer include:

- Flow rate and performance are now measured accurately under operating conditions.
- Quiescent flow, internal and spool leakage when current or voltage is zero, is monitored to reveal wear levels.
- Threshold, or the point at which the valve responds to signals to initiate flow, can be monitored.
- Hysteresis, the comparison of plus and minus input signal flow rates, now determines equalized performance.
- Null bias determines the amount of signal input required to achieve equilibrium.
- The valve's porting pressure is monitored to measure pressure gain.
- Null adjust, the external adjustment on every servovalve, is simplified with matched needle indicators.
- Connectors to an X-Y plotter have been built in to plot flow characteristics for a record of servovalve performance.
- As an option, an internal oscillator is available to run the servovalve automatically in a range from zero to 100 percent of the flow range to check stability.
- Full closed loop simulation systems are available in larger models to duplicate the actual systems in a plant.

All units operate at 120 volts and are easily attached to existing hydraulic systems with adaptor manifolds and flexible hoses. Hydraulic power units are also available.

For more information, contact:
Servo Technology Inc., 2775 Kew Drive, Unit 5,
Windsor, Ontario N8T 3B7; Tel: (519) 944-1332,
Telex: 064-77918

PROFILE Women Inventors — An Underused Resource

“**T**o encourage women to use their creativity in the development of patentable ideas and to assist them in development of marketable products based on these ideas” — these are among the goals of a successful, innovative and non-profit educational program for women inventors and potential inventors, the Women Inventors Project.

The project, backed by the Innovation Program of Employment and Immigration Canada, among other supporters, has been extended for at least five months from its original year-long life span. It is designed to encourage women to enter the male-dominated world of inventions and patents.

The extension will provide time to establish a women's network to carry on the project's goals.

Co-directors of the Women Inventors Project are Shelly Beauchamp, left, and Lisa Avedon.



A major milestone in this process is the publication of *The Book for Women Who Invent or Want To*, a 100-plus-page manual written in an up-beat, conversational style. Unique features are the emphasis on group learning and the advice on organizing self-help support networks.

Founded and directed by two women, Shelly Beauchamp, PhD, a biologist and technology analyst, and Lisa Avedon, MA, an adult educator with a special interest in women's learning, the project was promoted to backers on the premise that Canada was failing to use the inventive talents of half its population.

A study by Ms. Beauchamp, a technology assessment analyst with the Canadian Industrial Innovation Centre in Waterloo, Ontario, showed that only about one percent of Canadian patents were issued to Canadian women, according to Canadian Patent Office figures. In the United States, she found, the comparable figure is eight percent.

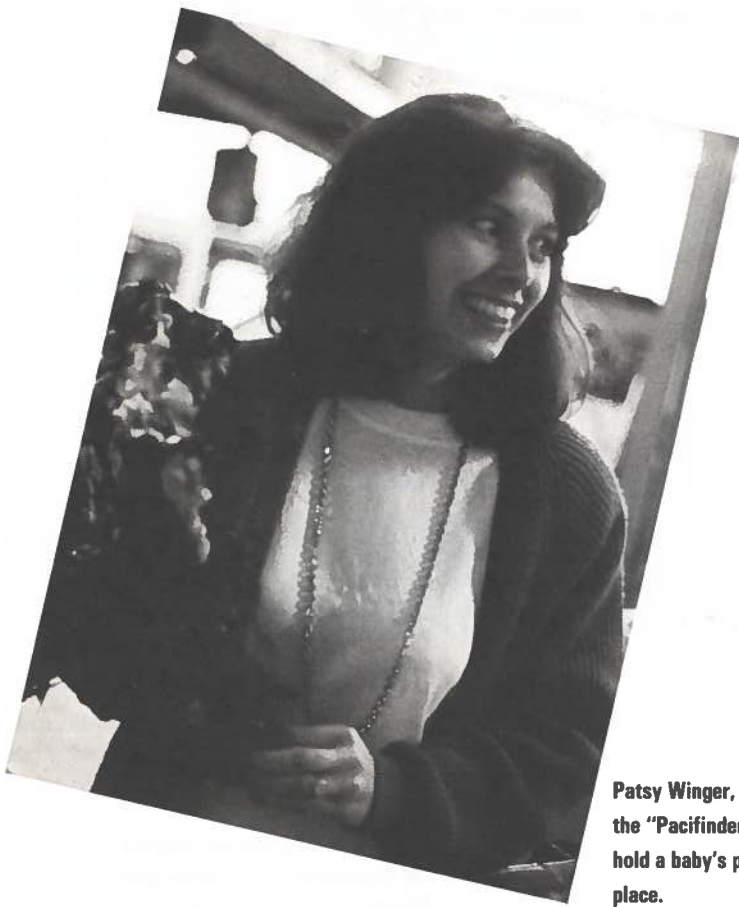
She also found that existing programs aimed at encouraging innovation have not been reaching women. For example, at the start of the women's program, they made up only five percent of the clientele in the Innovation Centre's Inventors' Assistance Program.

According to Ms. Beauchamp, "Initial results are encouraging. Since limited publicity on women inventors began one year ago, the proportion of women among Innovation Centre clients has doubled. This augurs well for the future because increased innovation is key to new business formation and to new jobs for Canadians.

"Women have been held back by a lack of money, information, recognition and support networks", she said, "and many have been put off by a lack of role models.

"However, through this project, we have identified a large group of talented and creative Canadian women. We have conducted two successful pilot workshops, at which women inventors from all over Canada shared their experiences and learned more about patenting, the building of prototypes, marketing and other aspects of new product development.

"This fall we have brought together 26 young women from local Waterloo high schools to test the school curriculum program we are developing," Ms. Beauchamp continued.



Patsy Winger, inventor of the "Pacifinder", a device to hold a baby's pacifier in place.

"And, of course, we have our resource manual and a video based on the experiences of the 51 women inventors and potential inventors attending our pilot workshops.

"While the project's staff and resources are too limited to help women inventors individually, we can help groups of women inventors to put on workshops in their own areas, based on our resource manual."

Among the more successful women inventors who participated in the Women Inventors Workshops were:

- Carolyn Gelhorn of Winnipeg, Manitoba, developed a sophisticated micro-electronic device for recording mileage and collecting trip data. She has set up her own company to market this device.
- Mary Harrison of Vancouver, British Columbia, developed, patented and licensed the "Phantom Cube". This is a teaching aid for radiographers which helps teach how to interpret two-dimensional images of three-dimensional objects. Ms. Harrison now receives royalties from the manufacturer on every cube sold.
- Chips Klein, president of Chipco Inc. in Guelph, Ontario. Ms. Klein invented, patented and is now marketing her "Eyemaker Mirror" in North America, Europe and Israel. The mirror features a unique design which helps with applying cosmetics or contact lenses by giving users top and bottom, as well as a straight on, views of the eye.

- Patsy Winger of Kitchener, Ontario, had two small children who were always losing their pacifiers. So she came up with the "Pacifinder", a bib-like device which holds the pacifier in place. Ms. Winger has filed for a patent on her product which is manufactured under contract and marketed by her own firm.

The Book for Women Who Invent or Want To covers all aspects of new product development with information on:

- evaluating your idea — can it fly?
- how to talk to professionals
- market research
- building a working model
- protecting your idea
- raising money
- the art of marketing
- packaging
- getting your ideas on the market
- planning.

The book is available at cost — \$10.00 — from:
Women Inventors Project
22 King Street South
Waterloo, Ontario
N2J 1N8
Tel: (519) 746-3443
(Bulk rates available on request.)

Technology Transfers

Offered

Canada

- Removal of Sulphur Dioxide from a Gaseous Stream
- Fabrication of Cellulose Acetate Membranes for Separating Hydrogen-Methane Gas Mixtures
- New Benzimidazole Fungicides
- Atomizing Nozzle Assembly
- Method and Apparatus for Inspecting Surfaces
- Method and Apparatus for Evaluating the Degree of Cure in Polymeric Composites
- Tent Liners/Walls for Cold Weather Use
- Wheels for Small and Medium Aircraft
- Coffee Creamer
- Plastic Coating
- Dynamic Air Deflector
- Exercise Bench
- Key Card

Austria

- Central Garbage Disposal System

Belgium

- Level Indicator and Transmitter
- Specialty Chemicals
- Nuclear, Bacteriological and Chemical Protective Suits and Equipment

Federal Republic of Germany

- Mechanical Seal for Pumps
- Garage Door Opener
- Textile Bag-making Machinery

France

- New Building Material
- Diagnostic Device for Foot-related Problems

Great Britain

- Electric Motor/Generator
- All-terrain Tracked Vehicle

Ireland

- Heavy-duty, Off-highway Transport and Handling Vehicles

Italy

- Curing Systems for Ink and Varnishes for the Printing Industry

Spain

- Mushrooms

Sweden

- Roof Drainage System
- Metal Roofing System

Switzerland

- Pump for Greasing Machinery, and Grease Cartridges
- Medical Apparatus for OPT Pictures

U.S.A.

- "Security Eyes"
- Air Purifier for Motor Vehicles
- Digital Electronics Process Control Instrumentation
- Spacemaking Oak Bed

U.S.S.R.

- High-strength, Acid-resistant Concrete

Requested

Canada

- Security Products and Systems
- Material-handling Equipment
- Industrial Cranes and Hoists

Austria

- Recycling of Garbage

Belgium

- Industrial Electronics
- Food Preservation Technologies and Machinery

European Community

- Clothing
- Automotive and Agricultural Parts
- Paints and Varnishes

Great Britain

- Filtration and Waste Disposal Technology

Offered

Canada

Removal of Sulphur Dioxide from a Gaseous Stream 8115

A process for the capture-fixation of SO₂ from flue gas, which utilizes an MgO aqueous slurry, is described. The magnesium salts from the first step are treated with KCl and CaO.MgO to produce potassium sulphate and calcium chloride which may be sold. The magnesium is recycled to reduce operating costs.

Fabrication of Cellulose Acetate Membranes for Separating Hydrogen-Methane Gas Mixtures 8122

The process for manufacturing a cellulose acetate membrane with the required pore size is described. This membrane is capable of separating hydrogen gas from a mixture of hydrocarbon gases and hydrogen at a high permeation rate and a separation factor of 99.

New Benzimidazole Fungicides 8141

A family of benzimidazole compounds which are particularly effective as fungicides against benomyl-resistant fungi, such as Botrytis Cinerea, as well as against benomyl-sensitive fungi.

Atomizing Nozzle Assembly 8268

A special nozzle for burning a wide range of coal slurry fuels, featuring on-line orifice adjustment and thermal expansion protection is offered. The unique design of mixing chamber and nozzle rim provides excellent atomization at all orifice settings. A nozzle heat exchanger may be used to cool the nozzle or warm the fuel as required.

Method and Apparatus for Inspecting Surfaces 8601

This instrument can be used to examine the shape of a three-dimensional reflective surface. It was specifically designed to improve automatic inspection of solder joints on printed circuit boards. It requires a relatively small amount of processing capacity and is faster and more reliable than existing automatic systems used for circuit board inspection.



Method and Apparatus for Evaluating the Degree of Cure in Polymeric Composites 8610

A non-destructive method and apparatus for inspecting and monitoring the degree of cure in carbon-fibre-reinforced plastics and other thermoset polymers prior to, during and after processing. The technique can be used with a broad range of polymers, does not require sample penetration and provides a response within a short period of time.

Tent Liners/Walls for Cold Weather Use 8797

This novel four-layer composite material is designed for tents used in cold weather. The new material offers increased comfort and reduced fuel consumption due to its increased thermal capacity. Condensation and frost accumulation is small.

For any of the offers listed above, write to: Canadian Patents and Development Limited, 275 Slater Street, Ottawa, Ontario K1A 0R3; Tel: (613) 990-6100. *Please quote the appropriate case number.*

Wheels for Small and Medium Aircraft

A Canadian inventor wishes to enter into a licensing or joint-venture agreement with a Canadian company to fabricate his aircraft landing wheels. The inventor claims that this new wheel design reduces stress on landing gear, lessens wear on tires and improves landing comfort.

Write to: Ewen M. Maclean, 240 Lake Promenade, Apt. 217, Toronto, Ontario M8W 1B2.

Coffee Creamer

A Canadian firm is offering to Canadian companies, through a licensing agreement, the rights to manufacture its oil-free, low-calorie, non-dairy coffee creamer for retail and food service applications. The product is reconstituted with water, blended, pasteurized and packaged. The licensee should have access to packaging equipment for the dairy industry.

Write to: Aubrey L. Abrams, Gibbons Foods, Division of Eden Manufacturing Co. Ltd., 95 Advance Road, Toronto, Ontario M8Z 2T2; Tel: (416) 231-4005, Telex: 06-967603.

Dynamic Air Deflector

A Canadian firm is offering to Canadian manufacturers, through a licensing agreement, the rights to manufacture and sell its "Dynamic Air Deflector", a device which releases a fragrance if activated by forced air from heating or cooling systems. It comes in three fragrances: pine, powder and rose.

Write to: John R. Berardini, Edaya Enterprises Inc., 147 Medhurst Drive, Nepean, Ontario K2G 4J9; Tel: (613) 723-0963.

Plastic Coating

A Canadian company engaged in plastic coating and resurfacing is interested in selling its process, equipment, coating materials and chemicals. In addition, the purchaser will have the right to use current and future technology relating to the process. This technology can be applied to a wide range of products.

Write to: Robert I. Campbell, Stuart Plastics Ltd., 7435 Lowland Drive, Burnaby, British Columbia V5J 5A8; Tel: (604) 437-5029.

Exercise Bench

A Canadian inventor of a patented home exercise bench is offering to manufacturers the right to fabricate it under a licensing agreement. The inventor claims that the system offers 20 standard exercise stations, all in one. Compactness, universality and aesthetics are qualities attributed to the system.

Write to: George Kecal, 3508 West 17th Avenue, Vancouver, British Columbia V6S 1A1; Tel: (604) 738-1044.

Key Card

A Canadian inventor wishes to enter into a licensing agreement, a joint venture or outright sale of patent with a Canadian manufacturer to fabricate his "Key Card", a plastic card, similar to a credit card, which can store two keys.

Write to: Universal Advertising Inc., 22 Livingston Place, Winnipeg, Manitoba R3T 3T5; Tel: (204) 261-4945.

Austria

Central Garbage Disposal System

An Austrian company wishes to enter into a joint venture with a Canadian company for the production of its central garbage disposal system designed for large buildings such as hospitals, offices, commercial complexes and hotels.

Write to: Dr. Monica Maicen, The Austrian Trade Commission, 2 Bloor Street East, Suite 3330, Toronto, Ontario M4W 1A8; Tel: (416) 967-3348, Telex: 06-23196 AUSTRAD TOR.

Belgium

Level Indicator and Transmitter

License available for various markets for a new instrument for the measurement of level, densities, interfaces and viscosity of liquids based on the patented stress transducer principle which is claimed to be revolutionary. The instrument can be used for all measurement instrumentation applications on liquid reservoirs.

Write to: L. Van De Pas, Director R&D, EGEMIN N.V., Bredabaan 1201, B-2120 SCHOTEN, Belgium; Tel: (32) 3-645.27.90, Telex: 32525.

Specialty Chemicals

A Belgian firm is offering, through joint-venture or licensing arrangements, its technology related to all types of sealants, polyurethane foam, adhesives and roofing products for the building industry in general.

Write to: D. Coorevits, SOUDAL CHEMICALS N.V., Everdongenlaan 18-20, B-2300 TURNHOUT, Belgium; Tel: (32) 14-42.42.35, Telex: 31626.

Nuclear, Bacteriological and Chemical Protective Suits and Equipment

A Belgian firm is offering, through a licensing arrangement, its technology for the manufacture of air-permeable protective suits and all other equipment used in chemical warfare such as NBC casualty bags. It also offers its technology for theatre tarpaulins, water decontamination units and other technology.

Write to: Jean-Pierre Seynaeve, SEYNTEX N.V., Seyntexlaan 1, B-8880 TIELT, Belgium; Tel: (32) 51-40.24.24, Telex: 81947.

Federal Republic of Germany

Mechanical Seal for Pumps

A West German, who owns the Canadian patent rights to a mechanical seal for pumps and agitators, wishes to contact interested Canadians. It is claimed that the seal has applications in the chemical and pharmaceutical industries and can be used with nearly all products at high temperatures (up to 200°C) allowing a high degree of standardization of pump equipment.

Write to: Dipl.-Ing. Rainer Ch. Schlegel, Albanstrasse 18, D6234 Hattersheim 1, Federal Republic of Germany; Tel: 06190/2892.



Garage Door Opener

A West German inventor is offering to Canadian manufacturers, through a licensing agreement, the rights to fabricate his garage door opener. The inventor claims his opener is 70 percent cheaper to produce, weighs about 6 kg and is easy to install.

Write to: Wilhelm Altroggo, Postfach 1101, 4937 Lage, Federal Republic of Germany.

Textile Bag-making Machinery

A West German engineering firm wishes to enter into a licensing or joint-venture agreement with a Canadian company to manufacture its textile bag-making machine. Based on electric-pneumatic self-controls, it can process all types of plastics, textiles and polymerides — both lightweight and heavy — into bags for various applications, at a production rate of from 14.4 to 79.8 per minute. The production unit includes automatic measuring, cutting, folding, sewing and stapling.

Write to: Thomas Spicker, Canadian Consulate General, Immermannstrasse 3, D-4000 Dusseldorf, Federal Republic of Germany;

Tel: (011-49-211) 35.34.71, Telex: 41-8587144 (DM CN D).

France

New Building Material

A French inventor is offering to Canadian companies, through a licensing or joint-venture arrangement, a new honeycomb building material shaped like a bird's nest. This material, known as "NIDA", comes in an unusual shape that is a viable alternative to traditional materials. Its surfaces are perpendicular to the plate. It is ideal for use in the automotive, electronics and construction industries and in sports equipment, according to the inventor.

Write to: Isabelle Chassin, Centre français de promotion des cooperations technologiques et industrielles, 20 Elgin, C.P.218, Place Bonaventure, Montréal, Quebec H5A 1A9; Tel: (514) 861-8471.

Diagnostic Device for Foot-related Problems

A French firm is offering to Canadian manufacturers, through licensing or joint-venture arrangements, its electronic podometer which has a highly sensitive artificial skin to provide faster, more detailed and accurate diagnosis of foot-related problems. The device can be used in orthopedics, podiatry, podiatrics, neurology and biokinetics.

Write to: M. Petjean, Podiatric Diffusion, Rue Benoit Fourneyron, B.P.14, 42161 Andrezieux-Boutheon, France; Tel: (33) 77.55.41.94, Telex: 307 022F; *or to:* Mrs. Manon Larose-Bennett, Information Bureau on Technologies from France, 210 Dundas Street West, Suite 800, Toronto, Ontario M5G 2E8; Tel: (416) 977-2587.

Great Britain

Electric Motor/Generator

British inventors and designers of variable speed/torque electric drives offer to Canadian firms the rights to manufacture their line of switched reluctance motors and generators ranging in size from a few watts to several megawatts.

Write to: S.R. Drives Ltd., Design and Consultancy Services, Springfield House, Hyde Terrace, Leeds LS2 9LN, United Kingdom; Tel: 0532-443844.

All-terrain Tracked Vehicle

A British company is offering Canadian firms, through a licensing agreement, the rights to fabricate in Canada its "Hytracker", an all-terrain, tracked vehicle. The vehicle is claimed to have both civilian and military applications under a wide range of conditions and formats, including two- or three-person cab, 14-person cab and tipper body, etc., and to have a pay load of 2123.5 kg.

Write to: Dudley Smith, Whitley, Smith Limited, Suite 304, 224 Merton Street, Toronto, Ontario M4S 1A1; Tel: (416) 480-1766, Telex: 06-218255.

Ireland

Heavy-duty, Off-highway Transport and Handling Vehicles

An Irish manufacturer of shunting road/rail locomotives, with expertise in design and manufacture of heavy-duty, off-highway transport and handling



equipment, is offering access to its technology through licensing, joint-venture or other arrangements.

Write to: Unilokomotive Ltd., Mervue Industrial Estate, Galway, Ireland; Tel: 353-91-57034/5, Telex: 50113 (ULOK EI).

Italy

Curing Systems for Ink and Varnishes for the Printing Industry

An Italian firm is offering, through a licensing agreement, its technology related to ultra-violet curing systems for inks and varnishes in the printing industry. Applications for the system are in the fields of serigraphy, offset, labelling, printing and graphics as well as printed circuits.

Write to: L. R. Poisson, Canadian Consulate General, Via Vittor Pisani 19, 20124 Milan, Italy; Tel: (02) 6570451, Telex: 310368 CANCON.

Spain

Mushrooms

A Spanish processor of canned mushrooms is offering to Canadian firms its technology for growing and canning mushrooms. The method also includes the production of mushroom spores.

Write to: M. F. Crawcour, Canadian Embassy, Apartado 117, 35, Nunez de Balboa, 28001 Madrid, Spain; Tel: (91) 431-4300.

Sweden

Roof Drainage System

A Canadian subsidiary of a Swedish company is offering, through a licensing agreement, its technology for a roof drainage system which is claimed to be suitable for all types of roofs.

Write to: Michael Danakody, Kody Enterprises Ltd., Box 187, Maple Ridge, British Columbia V2X 7G1; Tel: (604) 467-6125, or Fax 467-1032.

Metal Roofing System

A Swedish company is offering to Canadian firms, through a sale of patent rights, its technology for a sheet-metal roofing system which is adaptable to retrofitting as well as for new construction with a slope as low as 1:75. The system consists of sheet-metal panels which are rolled to full length in two

standard widths: 600 mm and 880 mm. No end splices are necessary. The firm claims that the system can cope with difficulties associated with leakage, condensation and ice-damming.

Write to: Mats Jalar, SPEKON AB, Innergatan 17, 942 00 Älvsbyn, Sweden; Tel: 46-929-12544 or 46-929-70089.

Switzerland

Pump for Greasing Machinery, and Grease Cartridges

A Swiss firm is offering to Canadian manufacturers, through a licensing agreement, the rights to manufacture in Canada its hand pump for greasing machinery, and its grease cartridge. The firm claims that this is a new concept, that grease in bulk, ordinary grease cartridges or flexible bags can be used, and that each of its components is interchangeable.

Write to: D. Chablaix, Avenue du Grey 76, CH-1018 Lausanne, Switzerland; Tel: 021 36 35 40.

Medical Apparatus for OPT Pictures

A Swiss firm is offering Canadian manufacturers a license to fabricate in Canada medical apparatus which complements tomography or orthopantomography by taking congruent OPT pictures.

Write to: Dr. Vera Delnon, Winzerhalde 16, CH-8049 Zurich, Switzerland; Tel: 01/56.70.20.

U.S.A.

"Security Eyes"

An American inventor is offering to Canadian firms the manufacturing and marketing rights to his "Security Eyes", a device that is installed at the front of a car and connected to the front wheel or the steering mechanism. The device emits beams or rays, adjustable to weather conditions, which warn the driver of approaching objects. It gives four warnings — turning on a warning light, turning off the flow of fuel, lightly activating the brakes and finally stopping the vehicle completely.

Air Purifier for Motor Vehicles

An American inventor is offering to Canadian firms the manufacturing and marketing rights for a combination air purifier and filter. This device consists of a pollution cleansing system installed in the motor

vehicle vent system. It is also equipped with a sensor that warns the driver that the filter needs to be replaced.

For both of the above, write to: T. Kowalczyk, 8163 Lochdale, Dearborn, Michigan, MI 48127, U.S.A.; Tel: (313) 274-4933 (after 7 p.m.).

Digital Electronics Process Control Instrumentation

An American company, owner of the property rights for over 50 product lines in the digital process control instrumentation field, wishes to license out to Canadian manufacturers the exclusive rights to these products.

Write To: Alex Dely, International Microtronics Corp., 4016 East Tennessee Street, Tuscon, Arizona, AZ 85714, U.S.A.; Tel: (602) 748-7900.

Spacemaking Oak Bed

An American designer of an oak bed wishes to grant a license to a Canadian firm for the production of its "Nadsack", a modular sleeping/storage concept. It is claimed to have many advantages over similar combinations and to be easy to assemble.

Write to: GN Alternatives, P.O. Box 99, Route 107, Bethel, Vermont, VT 05032, U.S.A.; Tel: (802) 234-5676.

U.S.S.R.

High-strength, Acid-resistant Concrete

A Russian company is offering Canadian firms, through a licensing agreement, its technology covering a high-strength, acid-resistant concrete which can be used in columns, cross-bars, beams, slabs and foundations, as well as acid-proof tanks, pickling and electrolysis baths, wells and reservoirs.

Write to: Igor L. Vornov, Technology Licensing, Amtorg Trading Company, 750 Third Avenue, New York, NY 10017, U.S.A.; Tel: (212) 972-1220.

Requested

Canada

Security Products and Systems

A Canadian company wishes to acquire, under a licensing agreement, security products and systems to be used in metal doors in residential and commercial buildings.

Write to: John Patterson, KMD Kelowna Metal Door, 1659 Cary Road, Kelowna, British Columbia V1X 2C1; Tel: (604) 860-2206.

Material-handling Equipment

A Canadian manufacturer of material-handling equipment (forestry, marine and construction), with engineering, drafting and design capabilities, is seeking products to manufacture in its plant. A licensing or joint-venture arrangement is being sought.

Write to: Gregory Ramsay, Ramsay Machine Works, Ltd., 1630 Store Street, Victoria, British Columbia V8W 1V3; Tel: (604) 384-5314 or 385-1113.

Industrial Cranes and Hoists

A Canadian company involved in the manufacture of industrial cranes and hoists, with a wide foreign market network, wishes to enter into a licensing or joint-venture arrangement with other Canadian or foreign manufacturers to produce new products complementary to its present product line.

Write to: Stewart Corbert, Bonneau & Assoc. Inc., 2011 Halpern, Ville-St-Laurent, Quebec H4S 1T3; Tel: (514) 331-7040 or 331-9303, Telex: 05-824-806.

Austria

Recycling of Garbage

An Austrian firm wishes to acquire, under a licensing agreement, new technology related to the recycling of garbage.

Write to: Dr. Monica Maicen, The Austrian Trade Commission, 2 Bloor Street East, Suite 3330, Toronto, Ontario M4W 1A8; Tel: (416) 967-3348, Telex: 06-23196 AUSTRAD TOR.

Belgium

Industrial Electronics

A Belgian firm wishes to acquire new technologies related to electronics for industrial applications with special interest in the fields of electrical vehicles, hoisting and farm machinery.

Write to: D. De Winter, Vluchtenburgstraat 3, B-2630 Aartselaar, Belgium; Tel: (32) 3-887.30.41, Telex: 72574.

Food Preservation Technologies and Machinery

A Belgian firm wishes to acquire technology in the field of food preservation through sterilization and other methods. Any type of business arrangement will be considered.

Please quote reference number 087-245 in correspondence with: Piet Desiere, c/o GOMOV, Floralia-paleis bus 6, B-9000 Gent, Belgium; Tel: (32) 91.21.55.11.

European Community

Clothing BRE/9299/44

A Spanish manufacturer of clothing for children and young adults wishes to share technology and product with a Canadian company.

Automotive and Agricultural Parts BRE/9369/31

A Portuguese firm, fabricating automotive and agricultural parts and products, wishes to enter into a joint-venture agreement with a Canadian manufacturer to make semi-elliptic springs.

Paints and Varnishes BRE/9602/49

A Spanish firm, manufacturing paints and varnishes, wishes to acquire new technologies and markets either through licensing, joint-venture or other type of arrangement.

For the requests above, please quote the reference number when writing to: Commission of the European Communities Task Force, Small and Medium-Sized Enterprises, 80, rue d'Arlon, Bte 1 (6th Floor), B-1040 Brussels, Belgium; Tel: (2) 230.39.49/230.40.91, Telex: 61655 BURAP.

Great Britain

Filtration and Waste Disposal Technology

A British process engineering and equipment firm wishes to acquire, through a licensing agreement, new technologies and products in the following areas: new filtration and membrane systems applicable to either upstream or downstream separations; waste processing equipment; municipal and hazardous waste separation; disposal processes and systems including incineration.

Write to: Dr. Roger Penney, Strategic Innovations International Limited, 3 Union Street, Bedford MK40 2SF, England; Tel: (0234) 40622, Telex: 825633 S11.

Special Events

Summary

U.S.A.

- 43rd Annual Composite Institute Conference
Cincinnati, Ohio — February 1988

SINGAPORE

- 7th Offshore South East Asia Conference and
Exhibition
Singapore — February 1988

U.S.S.R.

- Reclama '88
Moscow — February 1988

INDIA

- Wisitex '88
Bombay — February 1988

U.S.A.

- Licensing Executives Society U.S.A./Canada,
Western Regional Meeting
Phoenix, Arizona — February 1988

DENMARK

- Copenhagen International Boat Show
Copenhagen — February 1988
- Mikrodata '88
Copenhagen — February 1988
- Building '88
Fredericia — February 1988

CANADA

- 3rd Canadian Shipbuilding and Offshore
Exhibition
Montréal — February 1988

FEDERAL REPUBLIC OF GERMANY

- Imprinta '88
Dusseldorf — February 1988

FRANCE

- Mecanelem
Paris — February-March 1988
- Expobois '88
Paris — March 1988
- Simodec '88
La Roche-sur-Foron — March 1988

U.S.A.

- International Automotive Aftermarket Show
Las Vegas, Nevada — March 1988
- Interface '88
Chicago, Illinois — March 1988

U.S.S.R.

- Physiologiya '88
Tbilisi — March 1988

DENMARK

- Rejs '88
Copenhagen — March 1988
- Metal '88
Fredericia — March 1988

UNITED ARAB EMIRATES

- 3rd Arabgas and Oil Technology Exhibition
Dubai — March 1988

MALAYSIA

- Defence Services Asia Exhibition and Conference
Kuala Lumpur — March 1988

ITALY

- Fiero Milano
Milan — April 1988

CANADA

- Licensing Executives Society U.S.A./Canada,
Canada Regional Meeting
Ottawa — April 1988

U.S.A.

- 90th Annual American Ceramic Society
Exposition
Cincinnati, Ohio — May 1988
- AEC Systems '88
Chicago, Illinois — May 1988

FRANCE

- Intermedica '88
Paris — May 1988

ITALY

- Miad '88
Milan — May 1988

U.S.A.

- International Pulp Bleaching Conference
Orlando, Florida — June 1988
- International Machine Tool Show
Chicago, Illinois — September 1988

PEOPLE'S REPUBLIC OF CHINA

- C.I.P. '88
Beijing — September 1988

U.S.A.

- Instrument Society of America
Houston, Texas — October 1988
- Licensing Executives Society U.S.A./Canada,
Annual Meeting
Marco Island, Florida — October 1988

INDONESIA

- Forestry and Woodworking Indonesia '88
Jakarta — October 1988

CANADA

- 1988 Environment Conference
Vancouver — October 1988

U.S.A.

- Wescon
Anaheim, California — November 1988

43rd Annual Composite Institute Conference

Cincinnati Convention Centre
Cincinnati, Ohio, U.S.A.
February 1-5, 1988
Write to: Gary F. Grates
Gibbs & Soell, Inc.
126 East 38th Street, New York, NY 10016, U.S.A.
Tel: (212) 481-4488

7th Offshore South East Asia Conference and Exhibition

World Trade Centre
Singapore
February 2-5, 1988
Write to: Unilink
5 Donald Crescent, Agincourt, Ontario M1S 1N5
Tel: (416) 291-6359

Reclama '88**Specialized International Exhibition of Equipment for the Manufacture of Advertising Aids**

Moscow, U.S.S.R.
February 3-10, 1988
Write to: P. R. Charette Inc. (Nowea)
5890 Monkland Avenue, Suite 206
Montréal, Quebec H4A 1G2
Tel: (514) 489-8671

Wisitex '88**5th World Instrumentation and Industrial Electronics Symposium and Exhibition**

Nehru Centre
Bombay, India
February 4-10, 1988
Write to: P. R. Charette Inc. (Nowea)
5890 Monkland Avenue, Suite 206
Montréal, Quebec H4A 1G2
Tel: (514) 489-8671

Licensing Executives Society U.S.A./Canada, Western Regional Meeting

Arizona Biltmore
Phoenix, Arizona, U.S.A.
February 12-13, 1988
Write to: Joan Trysgstad
Rexnord Specialty Fastener Division
3000 W. Lomita Boulevard
Torrance, California, CA 90505, U.S.A.
Tel: (213) 530-2220

Copenhagen International Boat Show

Bella Center
Copenhagen, Denmark
February 1988
Write to: Bella Center A/S, Center Boulevard
DK-2300 Copenhagen S, Denmark
Tel: (01) 51 88 11

Mikrodata '88

Bella Center
Copenhagen, Denmark
February 20-24, 1988
Write to: Bella Center A/S, Center Boulevard
DK-2300 Copenhagen S., Denmark
Tel: (01) 51 88 11

Building '88

Dr. Margrethe Hallen
Fredericia, Denmark
February 24-27, 1988
Write to: Dr. Margrethe Hallen
DK-7000 Fredericia, Denmark
Tel: (05) 92 25 66

3rd Canadian Shipbuilding and Offshore Exhibition

Queen Elizabeth Hotel
Montréal, Quebec
February 15-16, 1988
Write to: Mrs. Joyce MacPherson
Canadian Shipbuilding and Ship Repairing
Association
P.O. Box 1429, Station B
Ottawa, Ontario K1P 5R4
Tel: (613) 232-7127

Imprinta '88

5th International Congress and Exhibition for
Communications Techniques
Dusseldorf, Federal Republic of Germany
February 18-24, 1988
Write to: P. R. Charette Inc. (Nowea)
5890 Monkland Avenue, Suite 206
Montréal, Quebec H4A 1G2
Tel: (514) 489-8671

Mecanelem**International Exhibition of Mechanical Components and Systems for Machine Construction**

PARIS-NORD Villepinte, France
February 29 - March 5, 1988
Write to: Promosalons, Progexco C.P.
911 Place Bonaventure, Dollard I
Montréal, Quebec H5A 1E7
Tel: (514) 861-7841
or to: Promosalons, French Trade Exhibitions
210 Dundas Street West, Suite 800
Toronto, Ontario M5G 2E8
Tel: (416) 977-7320

Expobois '88**International Woodworking Machinery and Wood Industry Exhibition**

Le Bourget, France
March 17-22, 1988
Write to: Promosalons, Progexco C.P.
911 Place Bonaventure, Dollard I
Montréal, Quebec H5A 1E7
Tel: (514) 861-7841
or to: Promosalons, French Trade Exhibitions
210 Dundas Street West, Suite 800
Toronto, Ontario M5G 2E8
Tel: (416) 977-7320

Simodec '88**International Cutting Machinery (Machine Tool) Industry**

La Roche-sur-Foron, France
March 14-19, 1988

Write to: Promosalons, Progexco C.P.

911 Place Bonaventure, Dollard I
Montréal, Quebec H5A 1E7

Tel: (514) 861-7841

or to: Promosalons, French Trade Exhibitions

210 Dundas Street West, Suite 800
Toronto, Ontario M5G 2E8

Tel: (416) 977-7320

International Automotive Aftermarket Show

Las Vegas, Nevada, U.S.A.
March 2-4, 1988

Write to: Gary Huffaker

Pacific Automotive Show
P.O. Box 9288

Van Nuys, California, CA 91411, U.S.A.

Tel: (818) 376-0014

Interface '88

McCormick Place
Chicago, Illinois, U.S.A.
March 28-31, 1988

Write to: The Interface Group

300 First Avenue
Needham, Massachusetts, MA 02194, U.S.A.

Tel: (617) 449-6600

Physiologiya '88**Specialized International Exhibition of Scientific Apparatus for Biomedical Research**

Tbilissi, U.S.S.R.
March 11-18, 1988

Write to: P. R. Charette Inc. (Nowea)

5890 Monkland Avenue, Suite 206
Montréal, Quebec H4A 1G2

Tel: (514) 489-8671

Rejs '88**Scandinavian Travel and Tourism Exhibition**

Bella Center
Copenhagen, Denmark
March 1988

Write to: Bella Center A/S, Center Boulevard
DK-2300 Copenhagen S, Denmark

Tel: (01) 51 88 11

Metal '88**International Machine Tool Exhibition**

Dr. Margrethe Hallen
Fredericia, Denmark

March 22-26, 1988

Write to: Danske Fagmesser ApS

Tordenskjoldsgade 27
DK-1055 Copenhagen, Denmark

Tel: (01) 14 00 10

3rd Arabgas and Oil Technology Exhibition

Dubai International Trade Centre
Dubai, United Arab Emirates

March 20-24, 1988

Write to: International Conferences &
Exhibitions Ltd.

29, Dering Street, London W1R 9AA,
United Kingdom

Tel: 01-499 7774

Defence Services Asia, Exhibition and Conference

Putra World Trade Centre
Kuala Lumpur, Malaysia
March 23-26, 1988

Write to: Unilink

5 Donalda Crescent
Agincourt, Ontario M1S 1N5

Tel: (416) 291-6359

Fiera Milano

Milan, Italy
April 16-24, 1988

Write to: Delia Associates

P.O. Box 338, Route 22 West
Whitehouse, New Jersey, NJ 08888, U.S.A.

Tel (toll free): (800) 524-2193

Licensing Executives Society U.S.A./Canada, Canada Regional Meeting

Delta Ottawa
Ottawa, Ontario

April 28-29, 1988

Write to: Guy Houle

Swabey, Mitchell, Houle, Marcoux & Sher
1001 de Maisonneuve Boulevard West, Suite 800
Montréal, Quebec H3A 3C8

Tel: (514) 845-7126

90th Annual American Ceramic Society Exposition

Cincinnati, Ohio, U.S.A.
May 1-4, 1988

Write to: Dr. P. S. Nicholson

McMaster University
Hamilton, Ontario L8S 4L7

Tel: (416) 525-9140

AEC Systems '88

Chicago, Illinois, U.S.A.
May 2-5, 1988

Write to: AEC Systems

190 Eagle Drive
Newington, Connecticut, CT 06111, U.S.A.

Tel: (203) 666-1326

Intermedica '88**2nd International Exhibition of Biomedical and Hospital Equipment**

Paris, France
May 26-30, 1988

Write to: Promosalons, Progexco C.P.

911 Place Bonaventure, Dollard I
Montréal, Quebec H5A 1E7

Tel: (514) 861-7841

or to: Promosalons, French Trade Exhibitions

210 Dundas Street West, Suite 800
Toronto, Ontario M5G 2E8

Tel: (416) 977-7320

Miad '88**International Exhibition for Confectionery and Bakery Products**

Milan, Italy
May 7-11, 1988

Write to: Delia Associates

P.O. Box 338, Route 22 West
Whitehouse, New Jersey, NJ 08888, U.S.A.

Tel (toll free): (800) 524-2193

International Pulp Bleaching Conference

Orlando, Florida
June 5-9, 1988

Write to: David Paterson

Technical Section, CPPA
Sun Life Building, 23rd Floor
1155 Metcalfe Street

Montréal, Quebec H3B 2X9

Tel: (514) 866-6621

International Machine Tool Show

Chicago, Illinois, U.S.A.

September 7-16, 1988

Write to: National Machine Tool Builders Association

7901 Westpark Drive

McLean, Virginia, VA 22102-4269, U.S.A.

Tel: (703) 893-2900

C.I.P. '88**International Packaging Equipment and Technology Exhibition**

Beijing, People's Republic of China

September 9-15, 1988

Write to: P. R. Charette Inc. (Nowea)

5890 Monkland Avenue, Suite 206

Montréal, Quebec H4A 1G2

Tel: (514) 489-8671

Instrument Society of America

Houston, Texas, U.S.A.

October 16-20, 1988

Write to: Instrument Society of America

67 Alexander Drive, P.O. Box 12277

Research Triangle Park

North Carolina, NC 27709, U.S.A.

Tel: (919) 549-8411

Licensing Executives Society U.S.A./Canada, Annual Meeting

Marco Island, Florida, U.S.A.

October 27-29, 1988

Write to: Michael Carpenter

POMS, SMITH, LANDE & ROSE

1888 Century Park East, Suite 1000

Los Angeles, California, CA 90067, U.S.A.

Tel: (213) 277-8141

Forestry and Woodworking Indonesia '88

Jakarta, Indonesia

October 18-22, 1988

Write to: Unilink

5 Donalda Crescent

Agincourt, Ontario M1S 1N5

Tel: (416) 291-6359

1988 Environment Conference

Hyatt Regency Vancouver

Vancouver, British Columbia

October 25-27, 1988

Write to: David Paterson

Technical Section, CPPA

Sun Life Building, 23rd Floor

1155 Metcalfe Street

Montréal, Quebec H3B 2X9

Tel: (514) 866-6621

Wescon

Anaheim, California, U.S.A.

November 15-18, 1988

Write to: Electronic Conventions Management

8110 Airport Boulevard

Los Angeles, California, CA 90045, U.S.A.

Tel: (213) 772-2965

Regional Offices

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Tel: (709) 896-2741

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Confederation Court Mall
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134 Kent Street
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Charlottetown
Prince Edward Island
C1A 7M8
Tel: (902) 566-7400

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1496 Lower Water Street
P.O. Box 940, Station M
Halifax, Nova Scotia
B3J 2V9
Tel: (902) 426-2018
Enterprise Cape Breton
Sydney
Tel: (902) 564-3614

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Val-d'Or
Tel: (819) 825-5260

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Sudbury
Tel: (705) 675-0711
Thunder Bay
Tel: (807) 623-4436

MANITOBA

330 Portage Avenue
Room 608
P.O. Box 981
Winnipeg, Manitoba
R3C 2V2
Tel: (204) 983-4090
Local Office
Thompson
Tel: (204) 778-4486

SASKATCHEWAN

105 - 21st Street East
6th Floor
Saskatoon, Saskatchewan
S7K 0B3
Tel: (306) 975-4400
Local Offices
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Tel: (306) 780-6108
Prince Albert
Tel: (306) 764-6800

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Cornerpoint Building
Suite 505
10179 - 105th Street
Edmonton, Alberta
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Tel: (403) 420-2944
Local Office
Calgary
Tel: (403) 292-4575

BRITISH COLUMBIA

Bentall Tower IV
Suite 1101
1055 Dunsmuir Street
P.O. Box 49178
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Tel: (604) 666-0434
Local Offices
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Tel: (604) 388-3181
Prince George
Tel: (604) 561-5158


YUKON

108 Lambert Street
Suite 301
Whitehorse, Yukon
Y1A 1Z2
Tel: (403) 668-4655

NORTHWEST TERRITORIES

Precambrian Building
P.O. Bag 6100
Yellowknife
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