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Competitive prices, superior designs

Canada's contract furniture finds international favour

by Maureen Leonard
Furniture Division
Textiles and Consumer Products

Canadian furniture manufacturing has come a long way since it first appeared on the industrial scene in the early 19th century. Today it represents a significant segment of the Canadian economy. Embodied in some 1,200 plants and employing 48,000 workers, the industry produced \$1.4 billions worth of merchandise in 1976, with approximately five per cent directed towards export markets.

One segment of the industry that has gained an international reputation for well-designed products and competitive prices in recent years is contract furniture manufacturing. This development is a natural result of the trend toward multi-use building complexes, hotel/office/shopping malls, coupled with convention centre and exhibition facilities, the growth of tourism and its attendant requirements for lodging and recreational facilities. This trend has generated an enormous demand for all types of business and institutional furniture and fixtures which the Canadian industry has been meeting successfully for many years.

Contract furniture is destined not for the individual home, but for hotels, motels, libraries, office and diverse educational, professional and social institutions. The Canadian business and institutional furni-



A study in chairs — words like ergonomics and anthropometry roll off the tongue with ease at the headquarters of Curtis Products Limited, where much research has gone into the manufacture of the ultimate in comfortable chairs such as those pictured above. One of Canada's leading contract furniture manufacturers, Curtis has available a selection of more than 120 seating units. Story — CURTIS — page 2.

ture industry today, therefore, is capable of designing an office for the chairman of the board and for the assistant to the assistant; an entire accounting department or a complete building. It is able to create a charming and relaxing dining area for a restaurant or an efficient working atmosphere for a classroom.

With such a wide variety of society's needs to meet, it is not really surprising that the business and institutional furniture industry in Canada is flourishing with sales in 1974 amounting to \$380,000,000 and in 1976 to more than \$400,000,000. The value of Canadian contract furniture exports was between \$35-\$40,000,000 in 1976, with the United States traditionally the leading and closest customer, although exports of school and laboratory furniture to Africa, the Caribbean and Central and South America are increasing annually.

Today's highly esteemed business and institutional furniture industry reached its full maturity and blossomed only after Expo '67. It is not surprising, therefore, that 1967 has a very special significance for Canadian industrial designers: Not only were the eyes of Canadians opened, but international connoisseurs woke up to the reality of the innovation and originality of Canadian design. Expo '67 served, therefore, as both catalyst and international showcase for Canadian architects and designers.

(Continued on page 2)

New rocker design displays grace of comfortable curve

The Lishman Rocker, designed by Canadian sculptor, William Lishman, is an evolutionary step in rocking chair design.

A modern sculpture, this chair enhances any setting, indoors or out — balcony, deck, poolside, patio or lawn.

The Lishman Rocker is comfortable too. It is balance engineered to give its distinctive dynamic curve. The arm rests have been designed for optimum comfort and the seat is sculptured to conform to natural contours.

Coated in polyvinylchloride, the rocker is impervious to weathering and is available in either stainless steel or chrome finishes. Assembly is simple — two stainless steel bolts hold the rocker together. And because it is put together at its destination, the rocker is easily stacked for transit or storage.

The Lishman Rocker is manufactured by Wm. Lishman & Associates of Blackstock, Ontario. With patents and sales in both Canada and the United States, the company is interested in developing additional markets.

Good design must pass the test of both fine art and sound engineering — something the Lishman Rocker from Wm. Lishman & Associates of Blackstock, Ontario, does beautifully. Created in 1974, the rocker follows the tradition of great rocking chair design set by the Bentwood Rocker of 1834 and the Bauhaus chair of 1925. Code 1-126



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canada courier

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Published by the Department of Industry, Trade and Commerce, Ottawa. Copies available without charge from Canadian Government Trade Representatives at 86 posts in 62 countries. Contents may be freely reproduced.

(Continued from page 1)

In the contract furniture sub-sector especially, Canadian design is achieving world-wide eminence and recognition and manufacturers are confident of their ability to compete internationally.

Canadian furniture manufacturers have traditionally made full use of the abundantly available natural forest resources in designing business and institutional furniture, but

they are constantly looking for new materials and production methods. Modern designs also reflect the Canadian environment, but the wood component is now adapted in modular units and systems which can be assembled and reassembled in other configurations at no extra cost. Designs today, therefore, are generally multifunctional to reflect the needs of contemporary society and the increasingly demanding tastes of the modern public.

In the early days of innovative design the Canadian federal government's assistance for design enhancement was both financial and advisory. In this way the industry was stimulated to produce furniture designed for government use and for the domestic and export markets. Today, however, with an international reputation in design innovation secure, the government has adopted an increasingly advisory role and acts as an information control and co-ordinator for the many large and small companies participating in the contract furniture industry.

National and international trade shows offer excellent exposure to business and institutional furniture

manufacturers to advertise their growing export capability and participation at such shows always produces considerable success in increasing export sales.

One such show held in Canada has gained international recognition. The National Interior Design Show first held in Toronto in 1969 is now an annual event attracting a world-wide audience. Featuring the work of more than 200 designers in displays ranging from full-scale interiors to imaginative and well-designed settings, the show emphasizes the outstanding quality and innovative design of Canadian business and institutional furniture.

As part of a youthful and progressive industry, the Canadian business and institutional furniture manufacturer has been able to move naturally into unexplored areas. For example, contract furniture companies were prompt to take up the challenges presented by the concept of the "open plan." Office landscaping, as it is more popularly called, is seen as a means of rationalizing the work area for maximum efficiency. At the same time the interior designer at every level is becoming more aware that, in constructing a man-made

environment, greater emphasis should be placed on satisfying the needs of the people who have to work there. This realization has taken a concrete form in functional designs combining the human element with the principles of rationality and efficiency. High fashion, bright, attractive colours and the adaptability and versatility of the furniture components ensure that the concept of office landscaping is pleasing to everyone. The manufacturer and designer together ensure that the appearance of office furniture reflects the company image, has a progressive, functional outlook with a background of strength and stability.

Generally large enough to employ the services of industrial designers, the business and institutional furniture industry works in close contact with architects and other interior designers to develop the "total" design where the integration of architecture and furnishings is now accepted as a natural and essential association in contemporary planning. The result of this productive partnership has been to convince potential export markets to "buy Canadian." As a creative individual the designer

stimulates the manufacturer into experimenting with new forms, new directions and new materials, as well as meeting market demands.

Good design and quality, competitive price, good representation and delivery performance — these are all providing excellent challenges for the Canadian furniture industry. In an effort to lower transportation costs, some manufacturers have concerned themselves with packaging technology in their knockdown system designs. Also eye catching for interested clients is the infusion of vibrant colours into the metals, fabrics and finishes used in the manufacture of today's furniture, and there is a growing trend towards a total integration of different materials such as wood and steel in the manufacture of chairs and other components.

The manufacture of high quality business and institutional furniture having an international application and appeal is flourishing in Canada and there is every indication that this favourable state of affairs will continue for many years to come.

Code 2-126

Sitting pretty is easy — contract Henderson!

Chairs, tables and seating arrangements which are enhancing offices and other buildings in many parts of Canada and the United States are designed and manufactured by Henderson Furniture, St. Lambert, Québec.

A Division of Les Meubles Radisson Limitée, Henderson Furniture has been in the business since 1914 when it began manufacturing kindergarten furniture. Today, with two plants totalling some 200,000 square feet (18,580 m²) and with a highly experienced production team, Henderson Furniture is one of Canada's largest manufacturers of contract seating.

The contract seating manufacturing is done for both the hospitality and office market and chairs are made for residential furniture manufacturers. The company recently expanded into hotel and motel furniture and also manufactures wood dinette sets for the residential market.

The company's selection of hotel-motel casegoods consists of a modern design available in either oak or walnut finishes. The group is designed to be shipped knocked down. This method makes for easy assembly on the job and assures more economical shipping. It also greatly reduces the risk of breakage.

Furniture by Henderson is con-

structed of such woods as birch, elm, oak and maple — all of which can be finished in a variety of wood finishes, including walnut. For upholstery, the choice consists of long-lasting, super contract extended vinyls and fine quality, flame retardant nylon fabrics.

Henderson's upholstery material is durable, easy to care for, resists fading and is specially colour keyed to match and enhance any contemporary interior. Other fabrics, vinyls and genuine leathers are available on request.

Much of Henderson's contract furniture has been supplied in Canada and the United States to motels, hotels, clubs, lounges, libraries, offices and schools. The company also makes chairs for several major United States furniture suppliers.

Henderson Furniture, Contract Division, is represented in the United States by Omni Division of Hoover Ball & Bearing of Vernon, Alabama, and a selection of chairs can be seen in their Chicago showroom.

Having supplied furniture for a major hotel project in Saudi Arabia, Henderson has just signed a contract for a project in the Ivory Coast. The company actively seeks additional international markets.

Produced with style in plenty



Award-winning manufacturer of lounge, conference room and reception area furniture, Du Barry Furniture Limited is renowned for its design excellence, quality construction and high volume production. The company's lounge line offers luxurious comfort without sacrificing design. Contemporary styling is a built-in feature of Du Barry's sofas, chairs, benches and occasional tables. Tubular metal furniture includes reception area arrangements; conference, high back, folding or stacking chairs; and a variety of other items. Most of the company's furniture is demountable and shipped knocked down in cartons to reduce costs, damage in transit and to facilitate handling and storage. In the furniture business for more than 40 years, Du Barry Furniture Limited has, over the past decade, concentrated on supplying contract furnishings to major universities, hospitals, commercial and government buildings. The company has established an excellent reputation for the quality of its products, prompt delivery and follow-up service. Du Barry Furniture Limited of Toronto, Ontario, is interested in increasing exports to the United States and in developing international markets, especially in the Middle East. Code 2-326

Research carries weight with Curtis

Chairs that help their users to maintain proper posture and to work more efficiently are manufactured by Curtis Products Limited, Cobourg, Ontario.

Fundamental to a Curtis-constructed chair are the principles of ergonomics and anthropometry.

Ergonomics is the study of the relation between man and his occupation, equipment and environment. Anthropometry is the measurement of the human body to determine its average dimensions at different ages.

Curtis believes that the efficiency of the office employee is directly proportionate to the chair's efficiency in reducing fatigue. The company's "ergonomics" design is the answer to fatigue factors resulting from muscular, circulatory and nerve compression.

The more than 60,000 chairs which Curtis produces annually are the result of much research.

For instance, studies show that the region about four inches (10 cm) in

length on the underside of the upper leg, immediately behind the knee, is a zone that is vulnerable to fatigue.

At this point, a person's main blood supply to the lower legs and feet is relatively close to the surface and potentially exposed to pressure from the back of the leg. Curtis chairs are designed to ensure that no pressure is brought to bear on this area.

The worst cause of discomfort and tiredness — the source of which the sufferer is often unaware — is nerve compression. This is normally caused by decurvature of the spine. Curtis chairs are designed to eliminate this problem through support of the fourth and fifth lumbar vertebrae.

In manufacturing chairs that contribute to one's physical comfort, Curtis has by no means neglected quality and good looks.

High quality, in fact, is the key to the entire Curtis operation — from the metal department where the raw steel is formed, welded and

polished; the superior nickel plating and chroming processes of the plating department; to the upholstery division where skilled craftsmen add their touch for comfort and beauty.

Curtis Products Limited has one of the most advanced testing facilities in Canada and confidently and unconditionally warrant products of their own manufacture against faulty engineering, materials and processes.

Curtis has 10 general chair lines, five styles in tables and 34 variations of steno chairs. There is also a selection of chair models in specific colours for rapid delivery. Altogether, Curtis Products Limited offers a selection of more than 120 different seating units, with matching table lines.

The company, winner of two awards for design, is interested in exporting its products to the United States and international markets. (See photo, page 1).

Code 2-426



Guaranteed to enhance the interior of any commercial or residential establishment, these chairs are made by Henderson Furniture of St. Lambert, Québec. Code 2-226

Complete office picture shows modular, flexible design

Complete office furniture systems that are functional, unique and flexible are designed and manufactured by EIF Sales Ltd. of Burnaby, British Columbia.

Regarded as British Columbia's largest manufacturer of office furniture, EIF Sales Ltd. spent more than two years researching and developing its total office concept. The finished product co-ordinates the latest design and production technology from Europe and North America as well as incorporating some interesting new elements.

The completely flexible knockdown system, for which EIF was recently awarded a contract in excess of \$1,000,000, consists of executive, clerical and stenographic desks, storage units and screens —

all of which are constructed to exacting performance standards.

Designed to accommodate metric measurements, the outstanding features of this organizational modular design are the desk surface "work organizer" and the organizational flexibility of the drawers and desk pedestals.

With the use of a number of components, any desk drawer can be custom designed to meet the requirements of just about anyone. Drawer dividers for stationery, stamps, files or pens and pencils can be installed in seconds; shelves and panels can be easily added to a desk top. Such flexibility is due to the "eccentric locking system" which is as easy to use as a bolt on a door.

The EIF system makes maximum

use of space so that for any given area the square-foot cost per person is greatly reduced. And the individual work stations have significant organizational capabilities: they can be assembled on site to meet the specific needs of the occupant's job function.

Before the introduction of its complete office furniture system, EIF Sales Ltd. manufactured furniture for use primarily in schools and institutions: Now its total office concept is finding enthusiastic acceptance in government, public and private sector office environments.

Just entering the export field, EIF Sales Ltd. actively seeks international markets. The company is especially interested in making sales to the United States. Code 3-126



Making the maximum use of space and thereby reducing costs is an important feature of this complete office furniture system designed and manufactured by EIF Sales Ltd. of Burnaby, British Columbia. The system consists of executive, clerical and stenographic desks, storage units and screens. The screens can accommodate a variety of panels including fabric, glass, wood, projection surfaces, magnetic surfaces and even louvres.

For your bookshelf...

Canadian Agricultural Equipment — a colourful, informative booklet produced by Canada's Department of Industry, Trade and Commerce is available, free of charge, in English and French.

In serving the agricultural community at home and abroad, Canadian farm equipment manufacturers provide a complete range of machinery for use in land clearing, drainage and irrigation; livestock and dairy; dry land grain farming; horticultural and specialty crops; and grain handling, storage and processing.

This booklet covers all these areas in describing the capabilities of some of Canada's most important agricultural machinery companies. To obtain a copy, fill in the trade inquiry form on page 7, quoting the following code number. Code 3-202

Detection device used in oilfield drilling



The Watchdog 202 Trip Guard which helps detect blow outs in oilfield operations is manufactured by Chimo Equipment Ltd. of Calgary, Alberta. The company manufactures, sells and services oilfield equipment.

Detecting blow outs in oilfield drilling operations is made easier with the Watchdog 202 Trip Guard manufactured by Chimo Equipment Ltd. of Calgary, Alberta.

A solid state electronic unit operated pneumatically by purge air, the Watchdog is designed to alert the driller when drilling mud drops below a pre-set point in the surface casing.

In this instance, a specially designed Pin-to-Box casing collar is run down the hole with the surface casing to a pre-calculated set point of 100 to 200 feet (30.5 to 70 m).

As most blow outs occur while tripping and by not keeping the hole filled, it is important that the mud be kept at a safe, pre-determined level in the casing. The operator is then assured, as far as the hydrostatic head is concerned, that the fluid is also at the same level.

This desired level is achieved by purging air through the casing collar into the surface pipe and monitoring

Easy-to-use cleaning tool



Convenient, durable and easy to manipulate — that's the Mermaid H3, the new hand tool manufactured by Centaur Floor Machines Ltd. for use by professional upholstery cleaners. Adaptable to any hot water extraction (steam) system, the Mermaid H3 fits comfortably into a small or large hand and can be operated by either a right-handed or left-handed person. The operator simply squeezes the sleeve, activating a hidden valve which releases the liquid. There is no awkward reaching for a protrusive trigger. Since the sleeve accommodates the hose directly, the tool length is shortened to a minimum, thereby increasing efficiency and operator comfort. The tool's unique head has several important features. Its wedge shape enables the operator to reach under pillows and its three scrubbing slots lessen the drag while agitating the fabric. The rear chamber, with four small holes to prevent the accumulation of liquid, is also large enough to hold a wrench which can be used to change the spray tip, thereby converting the Mermaid H3 from an upholstery to a carpet cleaner. An additional feature is the heat resistant polyurethane sleeve which protects the operator's hand. Also offering specially formulated chemicals for upholstery cleaning, Centaur Floor Machines Ltd. of Don Mills, Ontario, wishes to market its Mermaid H3 in the United States and Europe. Code 3-333

Pure water on tap Sterilizer uses ultraviolet light

Homeowners and small commercial enterprises can now be assured that their drinking water is free from impurities. All they need do is install the ultraviolet water sterilizer manufactured by Trojan Environmental Products of London, Ontario.

Designed to destroy bacteria and virus, the water treatment unit uses ultraviolet light — nature's own way of destroying these impurities.

Trojan considers its sterilizer to be the final important step in any water treatment system: It should be installed in conjunction with, and immediately after, water softeners and water filters. (These filters and softeners improve the chemical quality of the water; they do not remove all of the impurities. The Trojan ultraviolet unit destroys the remaining bacteria and virus in the conditioned, softened or refined water.)

The compact units, which can be installed vertically or horizontally,

on wall or ceiling, use no chemicals and have no moving parts. Hence they provide years of trouble-free, reliable performance.

Simple and easy to connect in the water supply, the unit is designed in a range of models so that any common worldwide electrical supply can be used. Two of the models, each weighing six pounds (2.7 kg), measure 18 inches by 4 inches by 3 inches (45.7 cm by 10.2 cm by 7.6 cm). The larger 10-pound (4.5 kg) model measures 36 inches by 4 inches by 3 inches (91.4 cm by 10.2 cm by 7.6 cm). Generator cell life of all models is approximately 7,500 hours. Generator cells are inexpensive and easily replaced.

Already exporting its units to the United States, Switzerland and France, Trojan Environmental Products wishes to expand its international markets and is particularly interested in Southeast Asia.

Code 3-437

the hydrostatic pressure at the pre-set point in the surface casing.

The difference between the hydrostatic pressure of an air column and that of any amount of drilling mud is great enough to activate the Watchdog's electronic switch — which gives a normal indication (steady green light) when the fluid is above the collar and low indication (flashing red light) or optional audible alarm, when the fluid is below the collar. Both conditions are recorded on the 30-day strip chart recorder.

In addition to blow out detection, the Watchdog 202 Trip Guard allows the driller to pull dry pipe while still maintaining the proper hydrostatic pressure on the bottom hole formation; it gives quick indication of any formation breakdown while tripping into or out of the hole; and it gives immediate indication of loss of circulation.

As well, the Watchdog 202 cuts down cost of barite materials, saves rig time and labour on mixing slugs and cleaning up the rig floor after

long wet trips. It also saves using the mud box.

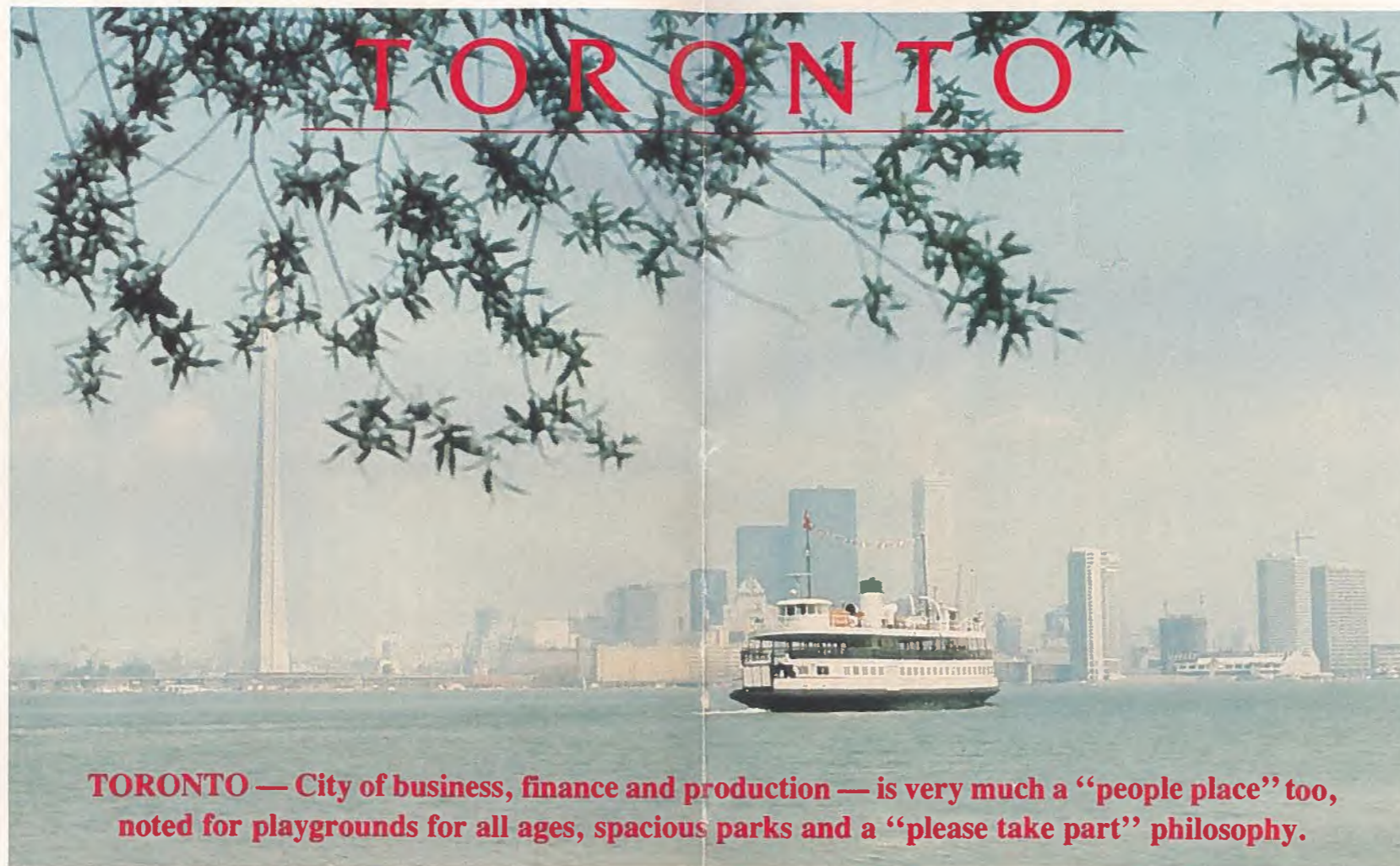
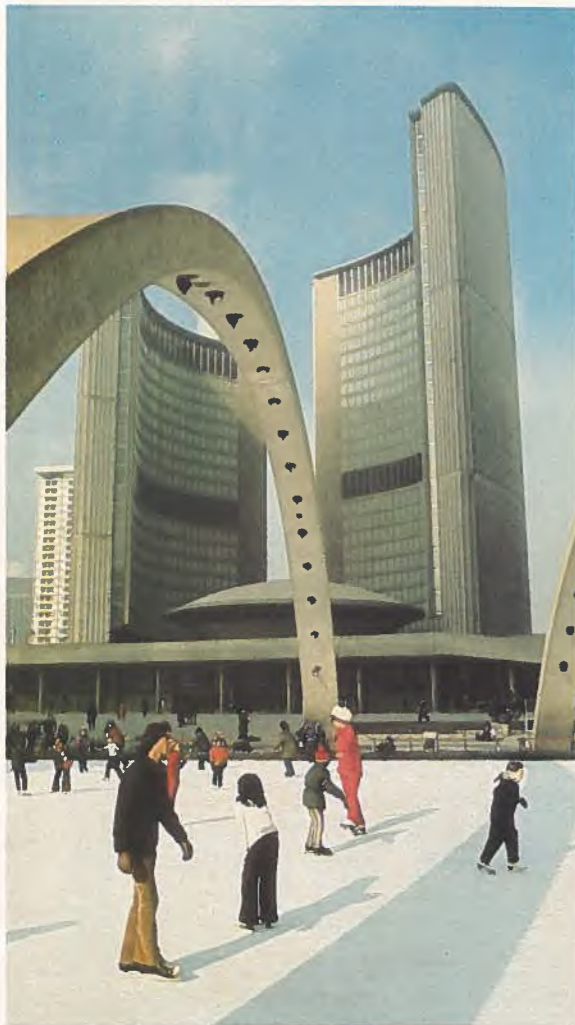
Another Chimo product is the Watchdog 101 Flow Sensor and Trip monitor, a solid state unit that provides quick, dependable indication of gas or water intrusion or loss of circulation while drilling in oil or gas fields.

Built for the toughest oil/gas-field applications, the Watchdog 101 consists of read out unit, single channel recorder, two pump stroke counters and a sensor that mounts into the flow line. The unit operates trouble free in all climatic conditions and within temperature ranges from -40°C to +70°C (-40° to 158°F).

Low voltage operation enables the instrument to perform in hazardous locations while maintaining the safe limits of oilfield electrical codes.

Currently exporting to such places as Britain, Australia, the United States, Saudi Arabia and the United Arab Emirates, Chimo Equipment Ltd. seeks additional international markets.

Code 3-536



TORONTO — City of business, finance and production — is very much a “people place” too, noted for playgrounds for all ages, spacious parks and a “please take part” philosophy.



by **Maryanne Taylor,**
Staff Writer, **Canada Courier**

From a point in Toronto, half of the Canadian market is to the west and half to the east. This advantageous location is in the southern part of the Province of Ontario on the north shore of Lake Ontario. In this area lies the province's heaviest concentration of people and industry. In fact, most of Ontario's 8,000,000 residents live within 100 miles (161 km) of Toronto. The Greater Toronto area's population is now at the 3,500,000 mark and by the year 2,000, it is estimated that it will be 5,000,000.

Metropolitan Toronto extends 25 miles (40.3 km) along the Lake and 10 miles (16.1 km) inland to cover an area of 244 square miles (634.4 km²). It is made up of the City of Toronto itself plus the five municipalities that surround it: the Boroughs of East York, Etobicoke, North York, Scarborough and York. When referring to Toronto in terms of its economic boundaries, however, it also includes the surrounding regional municipalities of Durham, Peel and York for a total market area of 1,400 miles (2,254 km).

Local government in Toronto is a two-level municipal system made up of the Metro Council which represents the City and five boroughs and the constituent local councils

trated market which is economical to serve.

Broad categories of Toronto industries include: food and beverage; rubber and plastics; leather; textiles; clothing; wood; furniture and fixtures; paper and allied products; printing, publishing and allied products; primary metal; metal fabricating; machinery; transportation equipment; electrical products; non-metallic mineral products; and chemical products.

Toronto is also the centre for service industries in Ontario. Equipment repair is faster and more reliable because of this and downtime is decreased since warehouses and trained personnel are in the area.

Since 1945, the Toronto area has become extremely popular with firms engaged in secondary manufacturing. As of 1973, 44 of Canada's 100 largest manufacturing, resource and utility companies had their head offices in the Metro area and accounted for more than 56 per cent of that year's national total sales of \$52 billion.

Sales for the country's top 10 food and department store chains totalled close to \$11 billion that same year and eight of these have head offices in Toronto.

In the area of finance, 14 of the top 25 financial institutions are headquartered in Toronto and these local firms accounted for about half the total assets of the top 25.

The existence of such key indust-

The Toronto area also has a multitude of professional firms offering industry such services as accounting, legal assistance, and management and personnel consulting. New firms can thus obtain top-quality assistance close-at-hand at competitive rates.

Education facilities in Toronto are excellent: Canada's largest university, the University of Toronto, offers a wide variety of degree and non-degree courses to its 45,000 students. In addition to the U of T, other higher educational institutions include York University, four community colleges, Ryerson Polytechnical Institute and a College of Art.

Located just west of Toronto, Sheridan Park is Canada's first specialized community devoted to research. In area, the Park is 340 acres (137.6 hectares). It was established in 1963 to provide a research atmosphere for private companies wishing to engage in research and product development studies. Facilities are also provided for both industry and government use on a contract basis by the Ontario Research Foundation, an independent, non-profit organization located in the Park.

To further aid industry, many local firms have excess equipment and in many cases are eager to enter into a manufacturing arrangement with a new or expanding firm enabling the latter to delay the purchase of equipment until the volume of busi-

ness is sufficient. The Port of Toronto has the reputation of being a modern port where cargo is secure and labour most efficient. Each year ships representing close to 30 nations visit Toronto. Overseas cargo exceeds one million tons (907,180 metric tons) annually with Great Lakes' cargo volume running at three million tons (2.7 million metric tons) per year.

The Port of Toronto is equipped to accommodate the largest ships travelling in the St. Lawrence Seaway and shipments can be made from Toronto to overseas and other inland ports. Toronto was the first port on the Great Lakes to provide a facility for the handling of containerized cargo and a just-completed project, the building of a new main entrance, saves ships up to six miles (10 km) in distance and one hour in travelling time.

Air traffic is also heavy. Toronto is the major centre in Ontario for passenger, express and freight service with direct connections to most cities throughout the world.

In addition to the original Toronto International Airport terminal with gate facilities for 24 aircraft of mixed type, a second terminal was opened in 1973 which can handle 17 jumbo-sized aircraft simultaneously.

Surface transportation is excellent as well. A modern network of highways, toll-free expressways and rail lines ensure speedy transport of



The CN Tower tops Toronto's skyline.



Union Station — trains begin or end journeys here.



government offices and the Ontario Legislature at Queen's Park, Toronto being the provincial capital.

Ontario is at the centre of Canada's business activity. More than 50 per cent of the country's manufactured goods and 60 per cent of its manufactured exports come from the province — and Toronto's strategic location provides excellent marketing opportunities for manufactured goods both in Canada and the United States.

Of a total of 171 classifications of types of industries for all of Canada, 167 of these are located in the Toronto area. This unique diversification, which has a stabilizing influence on labour and the general economy, includes practically every form of secondary industry and provides extensive, competitive sources of materials and parts and a concen-

trated, commercial, financial, utility and resource companies in Metro has been one of the main reasons so many new firms have established operations in this area. Statistics for the period 1964-1974 show that more than 50 per cent of the non-Canadian firms coming to the province selected Toronto as the base for their national operations. Approximately 1,000 internationally-based companies are now located in the Toronto area. This is the largest concentration and widest diversification of branch plant operation of outside origin in any city in the world.

Noted for the quality and volume of its diversified labour supply, the Toronto area has close to 40 per cent of the manufacturing employees in Ontario. An estimated 60,000 new people join the local economy as producers and consumers each year.

In addition to its excellent location and labour supply, Toronto also has abundant natural resources which help make it an ideal location to set up operations. Four of the Great Lakes provide fresh water and electrical energy is supplied by Ontario Hydro Corporation. Oil enters the province by pipeline from fields in Western Canada as well as by tankers through the St. Lawrence Seaway from other parts of the world. Natural gas is available through pipelines from Western Canada.

Shipping facilities from Toronto are varied and easily accessible: As a trans-shipment centre, transport rates are influenced by the pattern of distribution lines rather than being based on an amount per hundred-weight per miles.

Toronto has one of the best equip-

ments with connections to both eastern and western Canada.

Every day, more than 275 freight and passenger trains and 7,000 public carrier trucks arrive and depart from Toronto. Piggyback service is available to all major centres and pool-cars originate at Toronto for both western and eastern Canada.

Ten railway lines radiate from downtown Toronto's Union Station with an average daily schedule of 300 freight and passenger trains.

All major Ontario trucking firms have offices and facilities in Toronto for provincial and national service along with a number of other firms licenced for area cartage. In all, more than 200 transport and cartage firms serve the area with about 9,000 carrier trucks arriving and departing daily from Toronto.

Getting people around Metro Toronto is also done quickly and efficiently. The Toronto Transit Commission (TTC), sponsored by Metropolitan Toronto, operates what many believe is the swiftest, cleanest and safest bus-subway-streetcar system anywhere.

About 70 per cent of the municipality's commuters prefer the TTC to private transport. During 1974, the system carried about 330,000,000 passengers. Of its 2,000 passenger vehicles, the TTC operates more than 400 subway cars on a 32-mile (52 km) run. Just opened in 1978 is the Spadina route which adds six miles (10 km) to the system's total and eight new stations.

For daily commuters into the city, more than 100 buses owned by the Ontario Government are used in the GO Transit System. These buses operate in conjunction with the GO Commuter Rail System to give residents in outlying areas along Lake Ontario total commuter access to Metro Toronto.

But industrial Toronto is for people too. It brings together in a unique social atmosphere the people of many ethnic groups. Since the post World War II influx of immigrants, Toronto has become a truly cosmopolitan city. For instance, while the concentration of publishing and printing firms there includes major daily newspapers in English, all in all some 60 newspapers published in 30 languages reflect the views of Toronto's multi-cultural community.

The CN Tower, completed in 1976, is a symbol of the community's leadership in communications. A lofty addition to Toronto's impressive skyline at 1,815 feet (553 m), the CN Tower is the tallest free-standing structure in the world. Not only a remarkable feat of architecture and engineering, it provides much needed improvements in broadcasting and communication facilities for television and FM radio stations.

Although built as a communica-



The Toronto Stock Exchange — Canada's largest.



A business meeting at a downtown hotel.

tions aid, the CN Tower is definitely a people place. In a parkland setting, there is plenty of room to stroll in order to fully appreciate the mammoth structure. Glass-faced elevators carry passengers up to the Sky Pod, the Tower's seven-storey structure located between the 1,100-foot (335.3 m) and 1,200-foot (365.7 m) levels. At the Sky Pod visitors can take in a potential 75-mile (120.8 m) view from two public observation levels and then, perhaps, dine in the world's highest revolving restaurant.

Toronto's changing downtown skyline is also dominated by four towering office/commercial complexes in the Bay Street area. Despite their size, the 72-storey First Canadian Place, Commerce Court, Toronto-Dominion Centre and Royal Bank Plaza are people places with indoor and outdoor shopping malls, observation galleries, trees, fountains and grass where workers, shoppers and visitors can rest. Underground, these buildings are a city of their own with concourses that make shopping a delight in any weather.

All of downtown Toronto is in fact, a people's place. And there's always something going on at Nathan Philips Square, the focal point of the downtown area immediately in front of the new City Hall.

The main downtown shopping area is the Yonge, Bay and Church Street areas from King Street on the south to just north of Bloor. Some of Canada's leading department and jewellery stores are located in this area including Simpsons, Birks and Eatons.

The new Eaton Centre, opened in 1977, gives an ultra modern character to a three-block strip of Yonge Street. The complex features 250 shops and brings the total number of stores, including those in the suburban shopping plazas, to more than 15,000.

Dining spots in Metro to suit every taste and pocketbook are also numerous: Toronto now has more than 3,500 restaurants which, in

ambience and cuisine, represent countries around the world.

The hotel industry is one reason why Metro Toronto is a leading convention centre in Canada. In 1975, Metro hosted 555 conventions and trade shows including the 65,000-delegate Shriners Convention, the largest ever held in North America.

In addition to shopping and dining, there is much to do in the way of cultural, recreational and sports activities in the Toronto area.

Live theatre and concerts flourish in 30 establishments ranging from the plush Royal Alexandra and O'Keefe Centres to the more modest theatres and halls.

The Art Gallery of Ontario has a collection of world renowned works — those of Canadian artists and boasts the largest Henry Moore Gallery in the western hemisphere. The Royal Ontario Museum (ROM) has among its exhibits one of the most outstanding collections of Chinese art in the western world.

The Ontario Science Centre provides a unique experience for young and old since people are encouraged to learn through touch, sight and display using working models to learn about the wonders of science. The Metropolitan Zoo, opened in 1974, is a dynamic project which includes indigenous and exotic animals, plants and artifacts from around the world set in 170 acres (68.8 hectares) of beautiful forest, river valley and rolling plain. Actually five zoos in one, the more than 5,000 mammals, birds, reptiles, amphibians and fresh water fish live in an environment recreating their natural habitats.

Casa Loma, Toronto's own medieval castle, with its 98 rooms complete with secret staircases and hidden panels is another must to visit, as is historic Old Fort York, a restoration of a military barracks first established in 1783. And Black Creek Pioneer Village recreates the way in which Canada's settlers lived and worked prior to Confederation.

For the sports-minded, there is a varied choice of activities with nearly 100 golf courses, two race

tracks of renown, hiking trails, tennis courts, and swimming and boating facilities. Professional teams draw the crowds to watch hockey, football and baseball.

Toronto also has some special warm weather out-door places and activities. Exhibition Place is the site each year of the Canadian National Exhibition. The world's largest annual fair, the CNE draws more than 3,000,000 visitors in its three-week run beginning in mid-August. (Exhibition Park is also host each November to the Royal Agricultural Winter Fair, the largest indoor agricultural fair in the world. A highlight of the Fair is the Royal Horse Show, one of the year's gala sporting and social events. The same site is home to the Sportsmen's Show in March, the Automotive Show and many other trade and consumer shows throughout the year.)

Located beside Exhibition Park is Ontario Place, the province's exciting showcase, which stands high over Lake Ontario on three man-made islands and provides 96 acres (38.8 hectares) for family entertainment from late spring to mid-fall. Ontario Place has an outdoor amphitheatre, a domed cinesphere, a unique children's playground and a wide array of restaurants and boutiques.

A short ferry trip from the foot of Yonge Street across to Toronto Island is the beginning of an enjoyable day. The Island contains 612 acres (247.7 hectares) of restaurants, picnic spots, boating, bathing, parking and Island Airport facilities. There is also a barnyard zoo, the delightful Centreville, and a 200-acre (80.9 hectares) Aquatic Park. Each spring, Toronto Island is host to Caravan, a 10-day Metro-wide ethnic festival, the three-day Mariposa Folk Festival, the International Picnic and West Indian Caribana Festival.

TORONTO — a city with something for everyone.

For more detailed information about Toronto, fill in the trade inquiry form on page 7, indicating specific interests. Code 5-100



Ontario Place, the Ontario Government's leisure-time Showcase, combines fantasy and fun.



Casa Loma is open to tourists.



At the Ontario Science Centre visitors learn using working models.

Canadian Wheelchair products stress quality, flexibility

Since 1969, Canadian Wheelchair Mfg. Ltd. of Downsview, Ontario, has been making a complete line of high quality wheelchairs and rehabilitation aids.

The company's line of wheelchairs includes adult chairs in four different series: the Horizon, which offers practicability and portability in the low price range; the Grenadier with its five-position telescopic foot rests and/or elevating leg rests for easy approach and access to beds, car seats and bathtubs; the Talisman, which features a wide range of fixed arm adult and narrow adult chairs designed for rugged and varied use; and the Voyageur, built for the active person.

Children's wheelchairs come in two series — the Cadet and Tom Thumb. Cadet chairs are for children between the ages of 6 and 12. Some models in this series are designated KG to identify those that can be expanded from a 14-inch (35.6 cm) seat width to a 16-inch (40.6 cm) seat width, allowing for the child's growth. The Tom Thumb series provides maximum comfort and safety for youngsters under the age of six.

The firm's specialty sports chair — the Rogue — is a very personal chair. Strong but flexible, it is custom-built to the user's specifications.

Canadian Wheelchair also distri-

butes a solid state direct drive electric conversion unit that easily adapts to most conventional wheelchairs from the 12-inch (30.5 cm) junior to the full size adult models. The unit attaches to the back of the chair and can be removed for folded storage or transportation.

Each series of chairs is available in a number of different models to suit the user's specific needs. For example, amputee models are designed to provide maximum stability through correct distribution of weight. This balance is achieved by offsetting the rear wheels and positioning them further back than on other models.

This same principal applies to all semi-reclining and full-reclining back-style wheelchairs in any series having offset rear wheels.

One arm drive (OAD) is also available as a modification on all series except Horizon. The one arm drive unit involves two handrims on one wheel to provide directional control. OAD models are available for either right or left-hand drive.

All standard weight chairs are built with 1/2-inch (1.3 cm) diameter high tensile axles. The wheels are 24 inches (61 cm) with 36 spokes mounted on offset axles for extra stability.

Foot rest assemblies are made of tubular steel and then chrome plated

to the buyer's specification. Tubular steel is used instead of a round construction to eliminate the misalignment that can occur in day-to-day usage.

The front casters have 16 spokes instead of the usual 12 and, to prevent wobbles, the fork is brazed to the stem rather than crimp-jointed.

Upholstery is a strong, fire-retardant leatherette with a reinforced canvas seat and back in a choice — except for economy models — of 60 colours.

Canadian Wheelchair also makes rehabilitation aids. The company's commodes are available in fixed or detachable arm models with an optional detachable bed pan bracket. Glideabouts provide an easy way to get around in the home, at work, or when visiting friends.

The Mooney Rehabilitation Base, which a mobile form on which a platform or seat is built, was developed by the Ontario Society for Crippled Children and Canadian Wheelchair to handle the needs of severe rehabilitation patients.

Walking aids for children and adults include the Child's Parallel Walker and Child's Forward Pusher. For adults, the company makes a walker that is adjustable to a maximum height of 12 inches (30.5 cm).

Canadian Wheelchair currently

exports to the United States and is interested in developing additional

markets for its line of wheelchairs and rehabilitation aids.



One of the Voyageur Series made by Canadian Wheelchair Mfg. Ltd. of Downsview, Ontario, this chair is built to adapt to the changing needs of the active person. It is equally suited to indoor or outdoor use and for travelling. The Series features detachable arms in many styles for increased portability and ease of access. Accessories include fully or semi-pneumatic tires, treaded or slick, in black or non-marking gray. The Voyageur Series is available in three back styles and in junior, lightweight, hemi, amputee and one arm drive models. Code 6-162

Fighting fire with foam

A full range of tested and approved fire fighting foam liquids that are used in many parts of the world are manufactured by LORCON INC. (formerly Laurentian Concentrates Limited) of Ottawa, Ontario.

Marketed under the registered trade name LORCON, the company's fire fighting foam liquids are for use on flammable liquid fires — hydrocarbon and alcohol fuels — mainly by airports for crash rescue, petrochemical refineries and tank farms for spill or tank fires, and by fire departments.

Unlike many European fire fighting foam liquids, LORCON products are tested and qualified to performance standards issued by such recognized authorities as Underwriters' Laboratories, Inc. (UL); Canadian Government Specifications Board (CGSB); and United States Federal and Military Specifications.

All LORCON foam liquids are non-toxic and readily biodegradable

and fall into a broad category.

LORCON REGULAR has a three-fold extinguishing action: the foam forms a stable blanket over the flammable liquid to eliminate oxygen; it acts as a vapor barrier to prevent reignition; and it has a cooling effect as it releases water from the blanket. The foam blanket is free flowing, cohesive and has excellent burn-back resistance. It is also effective for use with either sea water or fresh water of any hardness.

LORCON LT is similar to the regular protein foam and is specially formulated for use at temperatures to -20°F (-29°C).

The company's LORCON FULL-EX high expansion foam is a synthetic foam liquid concentrate and is effective with all types of high expansion foam generators, medium expansion generators, and low expansion handline nozzles.

At high expansion, LORCON FULL-EX is ideal for total flooding of indoor class A and B fires, caus-

ing a minimum of water damage. The high expansion foam is easily removed by blowing or sweeping.

This liquid fire fighting foam also incorporates three extinguishing actions: The large volume of foam discharged fills and seals the area to exclude oxygen; the radiant heat of the fire vaporizes the water in the foam. This conversion into steam absorbs a large quantity of heat energy and the resulting steam/air mixture has an oxygen content below the required level to support combustion.

Thirdly, as the foam bubbles break, a liquid with surface tension lower than water cools and quenches the fire, penetrating far more deeply than is possible with plain water.

LORCON FULL-EX performs well as a premixed, fresh-water solution and may also be used with sea water. When used at a 10 to 1 expansion, it is very effective on spill fires. At one per cent solution, it may be used as a wetting agent for better penetration of difficult class A fires.

A relatively recent development of mechanical foaming agents is aqueous film-forming foam, LORCON AFFF.

The result of several years of research and development, the AFFF is especially suited to rapid extinguishment in high risk areas. The formulation is totally synthetic and relies on fluorosurfactant chemicals for fast action.

On application, an aqueous solution drains from the foam and creates a thin, aqueous film which floats over the surface of the fuel to provide a vapor seal. This film and the fluidity of the foam combine to give a faster knockdown of a spill fire at any given application rate than other types of foam liquids. The film is self-sealing, preventing reflash of the fuel.

Another recent formulation — recommended for subsurface (base) injection or topside application in tank fires — is LORCON Fluoroprotein foam, a modified protein-base foam containing fluorosurfactant chemicals. It is the result of fire tests

in tanks whose diameters ranged from 8 feet (2.4 m) to 40 feet (12.2 m).

Because of its oleophobic properties, fluoroprotein foam tends to shed hydro-carbons, which cause other types of foam to either become combustible or break down. FP is also resistant to the action of many impurities which cause breakdown of regular foams.

With subsurface injection, the foam is injected through a forcing foam-maker (high back-pressure foam generator), where it rises inside the tank to the fuel surface. A tough foam blanket with outstanding heat resistance is quickly formed and smothers the fire.

The foam blanket is able to extinguish rim fires by effectively sealing against hot tank walls and other metal surfaces, and to prevent candlering and flashbacks — reasons why fluoroprotein foams are the agents of choice for storage tank protection! Compatible with all types of dry chemicals, LORCON FP is effective for use with sea water or fresh water of any hardness.

The most recent development in fire fighting chemicals from LORCON's laboratories is LORCON UV alcohol resistant foam.

LORCON UV is specially formulated for use on polar solvent or water miscible flammable liquids such as alcohols, ketones and amides. This foam is unique because it effectively combines high fluidity with good stability, a property unknown to any other foam.

High fluidity allows the foam to flow readily over the fire to achieve rapid extinguishment, while good blanket stability assures resistance to readmission over flashback for extended periods.

LORCON UV is also effective on hydrocarbon spill fires and is compatible with dry chemicals. As well, it is effective for use in subsurface or topside (NFPA type II) application on tank fires.

In addition to being widely used throughout the United States by the U.S. Navy and the U.S. Air Force, LORCON fire fighting foams are used to protect Canada's 72 Ministry of Transport airports, all Canadian Forces Bases, the majority of oil refineries, tank farms and fire departments.

LORCON INC. also exports its products to countries in Europe, Asia and South America and actively seeks additional export markets. Code 6-237



One of the world's largest manufacturers of fire fighting foam liquids, LORCON INC. of Ottawa, Ontario, tests its LORCON AFFF aqueous film forming foam on a gasoline spill fire. The company's fully tested and approved fire fighting foam liquids are used at airports, petrochemical refineries, tank farms and fire departments.

Latest device shows further development Relaxation through Biofeedback

Putting people at ease is what Thought Technology Ltd. does best!

The Montreal, Quebec, company is a specialist in the design, production and marketing of high-quality biofeedback equipment that helps people control tension, calm down and relax deeply.

The company's first biofeedback device, the GSR 1, was introduced in 1975 and is now used in more than 300 hospitals and almost as many universities in more than 40 countries throughout the world.

Now on the market is Thought Technology's latest development, the GSR 2 biofeedback relaxation system which, while similar to the GSR 1, incorporates many additions and refinements.

The GSR 2 monitor is battery-powered with solid-state circuitry. It measures 3 inches by 4 1/2 inches by 1 1/2 inches (7.6 cm by 11.4 cm by 3.8 cm) and is made of heavy duty plastic with stainless steel sensing plates. Compact and completely portable, the system is simple and easy to use. There are no external electrodes, all electronics being integrated inside the system.

Designed by clinical psychologists and electronics engineers, the GSR 2 measures the galvanic resistance of a person's skin. (Skin resistance changes with every variation in pore size and sweat gland activity, the change reflecting just how tense or relaxed a person becomes in both body and mind. Skin resistance increases when one is calm

and relaxed and decreases when one is excited, tense or disturbed.)

The GSR 2 works by making audible the increases and decreases in skin resistance. The unit is automatically turned on by placing one's fingers on the sensing plates. (It can accommodate either left or right hand use and has a retention strap if extra finger stability is needed.) A dial on the side allows selection of feedback tone range which, when adjusted, enables the user to learn to control tension and stress.

Also in the package is an earphone which permits totally private use of the unit; an instructional 20-minute cassette and Eva-Tone record, both containing a complete relaxation exercise; a read-out meter; remote control electrodes; and a fully detailed instruction manual.

Perhaps the most innovative device in the GSR 2 package is the temperature sensor or thermistor, which converts the GSR 2 into a temperature biofeedback monitor.

Temperature biofeedback, as an indicator of stress levels, is one of the newest areas of biofeedback study. In addition to its use in helping to control stress, it is also being used experimentally in the treatment of migraine headaches and Raynaud's Disease.

The thermistor, which can be monitored from finger or toe, helps the user learn to control hand and foot temperatures. Decreasing temperatures of these extremities often indicate increasing levels of tension and stress. Temperature changes as small as 0.05°C (0.1°F) are made audible by the unit.

Thought Technology Ltd. wishes to export its GSR 2 system internationally, especially to medical suppliers, scientific equipment dealers, and to mass merchandisers for the consumer market.



Tension, stress and even headaches can be controlled with the GSR 2 biofeedback relaxation system designed and manufactured by Thought Technology Ltd. of Montreal, Quebec. Simple and easy to use, the GSR 2 recently won a medal for excellence of medical invention at the 6th International Exhibition of Inventions and New Techniques in Geneva, Switzerland. Code 7-162

Good things come in small packages!

The same can be said of INMAR-INT International Marketing and Investment Ltd., Ottawa, Ontario.

A small package in terms of size — yet one with proven international savoir-faire — INMARINT is a consulting firm specializing in international industrial marketing, development and investment.

Adept in assisting companies in defining, evaluating, establishing and penetrating selected markets, INMARINT has conducted business in the United States, Switzerland, Germany, Britain, France, Brazil and Mexico.

In general terms, INMARINT offers marketing consulting for Canadian companies, marketing consulting for overseas companies, investment and business consulting for domestic and international firms, and assists foreign companies in establishing relations with Canadian public authorities.

Having been involved in a number of projects in different parts of the

world, INMARINT personnel are extremely knowledgeable in a variety of fields. These areas include: the automotive, commercial vehicle, electronic, scientific instruments, machinery, aluminum manufacturing and converting, plastics, chemicals, adhesives and related industries.

Examples of INMARINT expertise are many.

The firm was retained by a major North American corporation to develop a strategic marketing/investment plan of penetrating a market segment for selected components in the European automotive industry. Within weeks of the report's submission INMARINT's recommendations and proposed action plans were put into effect.

The company is also skilled when it comes to doing marketing research in high technology fields. Collaborating with another firm, INMARINT developed market estimates, sales projections, market share and

penetration strategies for a Canada Department of Communications project. This involved evaluating the technology and commercial business feasibility of a new Relational Associative Processor, a back-end computer concept and architecture developed by the University of Toronto.

INMARINT also provided similar information for a Canadian National Research Council project, evaluating the Canadian and international business potential of close-range photogrammetric applications in the bio-medical and related areas.

Taking into consideration all aspects of marketing — production, procurement, finance, organization, licensing arrangements, joint ventures and the establishment of new affiliates or subsidiaries — INMARINT's top quality services are available internationally for complete assignments, joint projects with clients or, on a continuing support basis.

Code 7-285



Part of an intra-European commercial vehicle industry in which INMARINT assisted a client in penetrating selected European market segments is illustrated. The Ottawa, Ontario, company specializes in international industrial marketing, development and investment.

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Customers make the choice Champion supplies the graders

Champion Road Machinery Limited (formerly Dominion Road Machinery Co. Ltd.) of Goderich, Ontario, is well experienced and highly specialized in designing and manufacturing motor graders.

The first Champion road grader was built in 1866. Today, the name Champion is well known throughout the world for quality, performance and durability in graders. The company has sold graders in more than 65 countries from tropic deserts to the frigid Arctic. With an independent dealership network, sales, service and parts for Champion motor graders are available worldwide.

With the recent introduction of the new 700 Series motor graders a wide range of models and options is available to perform all types of road maintenance and construction work.

Champion offers articulated or rigid frames and a choice of engines from 125 to 240 horsepower. In addition, the firm designs and manufactures its own manual power shift transmissions and final drives. Designed especially for graders, these important parts have gained an enviable reputation for reliability and outstanding performance under the most severe operating conditions. Engine, transmission and final drive are independent units connected by short shafts. Each unit can be separately removed in the field for fast servicing. This design provides excellent weight distribution and ensures perfect drive-train alignment. Engine and transmission are cushion mounted for quiet operation.

Champion's exclusive hydrostatic drive mechanism turns the circle 360

degrees and locks securely in the selected blade position. Two drive pinions divide torque and provide double lock. This system allows the Champion circle to be rotated under full load. The Champion dual flow hydraulic system enables both ends of the blade to be raised or lowered evenly, at equal speed. It operates at moderate 1750 psi (122.5 kg/cm²) maximum pressure for long life reliability. The large blade has triple radius curvature for best rolling action and power saving operation.

Patented, easy to operate power hydraulic control levers adjust instantly for stand-up or seated operation. The power steering wheel adjusts easily at the touch of a button. Suspended pedals provide more foot and leg room and the operator has an unobstructed 360-degree view through tinted safety glass. The cab is rubber mounted for maximum sound suppression and is fully insulated against heat and cold.

Series type valves permit operation of several controls at the same time. Cab and controls are designed for maximum comfort, safety and operator satisfaction. Heaters and air conditioners are among the wide range of available options.

Champion Road Machinery designs and manufactures a variety of versatile attachments to perfectly match the grader: bulldozer blades, rippers, scarifiers, snowplows, wings and automatic electronic blade controls.

Presently exporting to the United States, Central and South America, Europe, Africa, Asia and Australia, Champion Road Machinery is interested in further developing these markets.

Code 8-150



As part of the 700 Series of motor graders manufactured by Champion Road Machinery, Goderich, Ontario, the Model D-720 has all the features of the line with a variety of options available that let the customer build his own grader to do the type of work required.

On the right track with Demac

Any vehicle can become an All Terrain Vehicle (ATV) if it is equipped with a tracked undercarriage from Demac Engineering Ltd. of Vancouver, British Columbia.

ATVs are multipurpose vehicles that are used to get men and materials to job sites beyond the end of established roads. They are used in exploration work such as the search for minerals or oil deposits in remote areas. All Terrain Vehicles will also get personnel to microwave tower sites, up mountain peaks whose access roads have been obstructed by snow, and to patrol and repair out-of-the-way transmission lines and pipe lines.

Demac has developed its own unique undercarriage which can be powered by almost any highway vehicle — whether it is one already owned by the customer or one supplied by Demac and equipped with the company's undercarriage!

This versatility is important since modern highway vehicles are produced in a multitude of body and deck configurations and with a wide range of gasoline and diesel power options.

The vehicles — with engines, power train, cab components and under-carriage supplied by Demac — have proved themselves over the years to be rugged and dependable. And, because of mass production, undercarriages, cabs and van bodies can all be supplied at a reasonable cost.

Demac's undercarriage components have been standardized to meet all industry requirements. Both the four-track and half-track models come in a wide range of load capacities and track widths to tie in with track to ground pressure and pay load requirements. The four-

track units are powered through a two-speed transfer case to front and rear differentials.

Polyurethane covered drive sprockets transmit power to each of the four tracks. The load wheels are mounted on torsion spring crank arms and the tires are heavy duty with a sliik tread face, either pneumatic or urethane foam filled.

The half-track models are equipped with individual track brakes to assist front wheel steering on difficult surfaces. Demac also produces its own line of two-track hydrostatic drive line ATVs. Their simplicity and handling are well known and are ideal in all situations where a basic low cost ATV is required.



Any ordinary highway vehicle can be quickly converted into an All Terrain Vehicle with Demac Engineering's tracked undercarriage which will get men and materials to remote job sites. Once the job has been completed and the undercarriage is no longer required, it can be easily removed and the vehicle used with tires for more conventional terrain.

Various models of Demac ATVs are operating in such diverse places as the Canadian Arctic and the Middle East. In both cases, the vehicles have been specially equipped to give trouble-free operation in climatic extremes. A wide range of optional equipment is available as well as a custom engineering service to outfit the units with any required specialized equipment so they will be ready to go to work when they arrive at the job site.

Currently exporting to the United States and Iran, Demac is interested in developing additional markets in South East Asia, the Middle East, Africa, South America, China and Russia.

Code 8-350

Concerning air-cushion technology... Calgary company can do!

Hovercraft technology has come a long way since the 1950s when it was developed in Europe, where the air-cushion vehicle was the brainchild of Britain's Sir Christopher Cockerell. And Canada has not lagged behind with its application, thanks to companies like Hoverlift Systems Ltd. of Calgary, Alberta.

This is a company whose sole business is the design, development and marketing of equipment and services involving air-cushion and flexible sealing devices. It has complete capability in the area of air-cushion transporters; has set up its own facility for air-cushion skirt manufacture; and is much involved in studies for the application of the technology in such diversified fields as offshore oilwell drilling, oilspill collection, operation of heavily loaded semi-trailers over weak roads, lightening for deliveries to Arctic communities, and special hospital beds for patients needing

low-pressure support.

One recent example of Hoverlift's complete capability when dealing with transporters is the 120-ton (108.9 metric ton) gross weight vehicle ferry for the Peace River crossing at La Crete, Alberta. This is in service during all seasons and will carry 40 tons (36.3 metric tons). Another is an air-cushion ice-breaking bow attachment for a St. Lawrence Seaway Authority tug.

In these instances, Hoverlift has provided the answer to transportation difficulties, in Canadian conditions: the company is equally capable of coming to the aid of other countries which may be developing transportation systems in problem areas. In fact, once the commercial, operational and ecological implications have been identified, the company is able to provide technical and operational personnel to develop, commission and operate a suitable Hoverlift system. Code 8-250



Pioneer I, in service as a hoverferry in Alberta, is 66 feet (20 m) long and 36 feet (11 m) wide. It carries two identical power packs, each of which has a Caterpillar diesel to drive air fans and hydraulic pumps.

Geared to special needs

King brand trailers, utility truck bodies and hydraulic aerial devices that have earned an international reputation for their innovative engineering are manufactured by Truck Engineering Limited of Woodstock, Ontario.

The company's latest development — a unique 100-ton (90.7 metric ton) capacity self-propelled transporter — is the result of a Truck Engineering design concept which was selected from international entries for eventual use by Ontario Hydro.

It was in the actual construction of such a gigantic machine that the company's manufacturing expertise was really put to the test.

The full length of the rig is 44 feet, 10 inches (13.6 m). It is 12 feet (3.6 m) wide and 12 feet, 10 inches (3.9 m) high. With a wheel base of 25 feet, 8 inches (7.8 m), the unit has a gross weight of 290,000 pounds (131,660 kg).

The self-propelled transporter is powered by a propane-fuelled V-8 industrial engine capable of driving the fully loaded unit up a seven-degree gradient at a maximum speed of half a mile an hour (0.8 km/hr). The engine provides full hydraulic

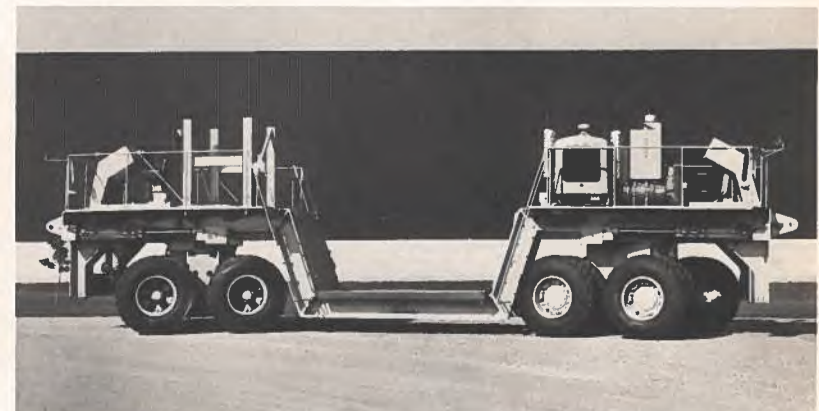
power to the drive system as well as the huge hydraulic steering cylinders which actuate twin axled bogies at either end.

As there is limited manoeuvring space at Ontario Hydro's Pickering Generating Station — where the transporter will be used only in a confined "in plant" area — the control stations have been positioned at each end and both sets of bogies can be operated simultaneously from either station.

The transporter is remarkable, too, in its wide use of standard components. These include two K-B axles, two Clark planetary drive axles, Hendrickson solid mount walking beam type suspension, an industrial V-8 engine, an on-board battery charger, and the drive train composed of a variable displacement axial piston hydraulic pump driving the radial piston hydraulic motor. There are also the lights, mirrors and automotive type steering wheels at control stations.

In the transportation business for more than 40 years, Truck Engineering Limited actively seeks to increase the export of its products and expertise.

Code 8-450



This massive self-propelled transporter is designed and manufactured by Truck Engineering Limited of Woodstock, Ontario. The unit is an excellent example of Truck Engineering's capability to translate a customer's needs into an efficient piece of equipment.