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Canada covers wide orbit in world of electronics



Antenna at Nova Scotia's Mill Village site for Canadian Overseas Telecommunications Corporation measures 97 feet (30 m) in diameter. This RCA earth station is used for satellite communications links and is one of several major earth station systems supplied to countries throughout the world by RCA Limited, Montreal.

Communications represents one of the foremost Canadian electronic capabilities. Skills in this field grew from the need to provide a network for broadcast, message and television transmission across the 3,381-mile (5,443.41-km) expanse of Canada from Newfoundland on the Atlantic to British Columbia on the Pacific, with spur links to serve the growing needs of Canada's northlands — a 17,000-mile (27,370-km) broadband system spanning six time zones.

Similar high-performance microwave relay systems of Canadian design and manufacture have been installed in at least 18 countries in North, South and Central America, Europe, the Middle East and Africa for a total of more than 40,000 route miles (64,400km). A Canadian tactical radio relay system has been adopted by NATO countries to serve military defence communications requirements.

Canadian-made marine, airborne and mobile communications equipment has become an integral part of commercial and military operations around the world. Marine radio equipment of Canadian design and manufacture is in wide use aboard ships sailing on practically every ocean and major waterway of the world. Canadian-built mobile radio has become a day-to-day necessity with police, fire departments, transportation and other essential services. Commercial and military aircraft, flying across Canada and many other countries, depend on Canadian airborne radio equipment for accurate communication and navigation.

Space satellites

Satellites are the communications systems of the future and

Canada has been in the forefront of research and development in this field for many years. It was in 1961 that Canadian industrial experience in satellite electronics began, with the design and manufacture of the transponder system for the NASA relay satellite which, with Telstar, pioneered global satellite communications.

Today Canada is one of the first nations in the world to start work on its own domestic satellite communications system, planned for operation in the early 1970s. The system will have at least 60 ground receiving and relaying stations and two synchronous satellites to provide improved message and television distribution for the country. The satellites will have a capacity of six television channels for broadcast coverage across Canada.

Canada is already a foremost supplier of earth stations for the global satellite system, with equipment installed in at least 12 large satellite terminals. The Canadian-designed and built satellite terminal facility at Mill Village, Nova Scotia, on Canada's east coast, has two stations to serve the heavy commercial traffic via Atlantic-placed satellites. The first station, completed in 1965, consists of an 85-foot (25.9m) radome-enclosed antenna. The second, completed in 1969, has a 97-foot (30-m) exposed and heated reflector. At Bouchette, Quebec, 70 miles (112.7km) north of Ottawa, a further earth station has been built to test such equipment under Arctic conditions for domestic communications.

Canada was the third country to have a satellite in orbit. That was Alouette I, launched successfully 625 statute miles (1,006.25km) above earth in 1962. Alouette I

Continued on page 4

Weaving a tale of success Canadian styles and textiles

by Paul A. Gardner

"Canadian fashion flair is second to none anywhere in the world," says Harold Corin, senior merchandise manager of soft lines at Lit Brothers, Philadelphia.

A decade ago, Canada's clothing industry depended largely on other lands for its design and styling. Then mass production in the U.S.A., its nearest neighbour, impelled many Canadian manufacturers to rely on their own designers, who soon began dreaming up original apparel of all kinds whose "workmanship, styling, stun U.S. buyers, used to seeing Canada as conservative" — to quote a recent style-newspaper headline.

Opinions and impressions aside, export statistics show a phenomenal rise in Canadian sales abroad — from less than \$7,000,000 in 1961 to more than \$27,000,000 in 1966; then a 172 per cent zoom in four years to \$73,500,000 in 1970. And — in the first quarter of 1971 they were 33 per cent higher than the past year, and 37 per cent higher in the U.S. market, which currently buys 70 per cent of Canada's clothing exports. The \$100,000,000 mark will be passed in 1972 if not by the end of 1971.

Technologically, the Canadian industry is not only as advanced as any country's around the globe, but has pioneered in several fields —

for example:

- First successful knitting of tricot fabrics for men's shirts was developed in Canada and exported to the U.S.A.;
- Canadian modifications of cotton machinery have been copied the world over;
- A Canadian wool-cloth producer operates a design-consultant service for European mills;
- A Canadian-developed process for fibreglass was the first of its kind in North America.

Borg Fabrics — an international company with Canadian headquarters in Elmira, Ontario — admits that most of its pile-fabric design innovations come from its Canadian branch and are exported to other branches all over the world. All-weather fabrics and sporting gear — rainwear, sailing jackets, warm-up pants and snowmobile suits — have also originated in Canada, then been copied elsewhere.

Following up European interest in Canadian styles, textile firms have entered exhibits at Interstoff Trade Fairs for Clothing Textiles in Frankfurt. Results have been remarkable: almost \$6,000,000 on-the-spot sales for Canadian exhibitors, plus projected sales of more than triple that figure, at two of the fairs. The May 1971 fair

Continued on page 2

Leisure's a pleasure . . .

No highway traffic to fight, no delays, no sweat — that's what it means to own a pool. And that's why Canadian pool manufacturers are doing a roaring business at home and abroad. More people with more leisure time are spending more money on *Fun and Games*. That's the name of the feature on page 5, which includes stories on sports equipment for all seasons and more about swimming pools. There's a success story too on body-building (or reducing) equipment. People have become more fitness-conscious in recent years; they're interested in trimming down, in getting and staying in shape — and they're willing to invest money to do so. The overwhelming popularity of snowmobiles has opened up new and prosperous markets to the manufacturers of winter sports equipment. So . . . summer, winter, indoors, outdoors, there's a market for leisure products — and Canadian manufacturers are hard at work producing them. Take a look at *Fun and Games* on page 8.



Packaged steel-walled, vinyl-lined swimming pools are sold in Canada and worldwide by Major Pool Equipment Corp. (Canada) Ltd., of Oshawa, Ontario. The advent of containerization has helped to reduce freight costs and increase the company's export scope. Major Pool offers several designs for both above-ground and in-ground pools, as well as a complete line of accessories. Code 1-1

And inside. . .	Page	Page	
Containerport opens	3	Speedy stamper	7
Fine office furniture	3	Versatile packaging machinery	7
Elegance in vestibule panels	3	Trade inquiry form	7
Top award to Canadian designers	3		
"Mod" cabinets	5		
Portable housing	5		
Diesel pile hammer	5		
Lepper heavy machinery	6		
Copper cable	7		



All the colours see page 5

canada courier

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Continued from page 1

drew nearly 19,000 buyers from 70 countries, of which Canada made sales to buyers from 29.

As a result, 11 Canadian companies combined to exhibit at the Interstoff Trade Fair in November, 1971. They are: Associated Textiles of Canada Limited, Montreal; Au Terroir Enrg. of Ste. Hyacinthe, Quebec; Les Tisserands de la Madawaska, St. Léonard, New Brunswick; Bruck Mills Limited,

Montreal; Chemcell Limited, Montreal; Cleyn & Tinker Ltd., Montreal; Dominion Textile Limited, Montreal; Fireside Fabrics (Canada) Ltd. (Export Division: Halifax Corduroys Ltd.), Montreal; Huntex Limited, Huntingdon, Quebec; National Vintex Corporation, Candiac, Quebec; Uniroyal Ltd., Lindsay, Ontario.

Products of some of these companies are pictured here. Code 2-1



Trimmed with Duravel fabric by Huntex, this coat won a Fashion Canada Award for 1971. Huntex fabrics are ideal for lining winter outerwear, while possessing the fine hand and draping qualities which high style demands. They are also durable, light, washable, wrinkle-free, resistant to shrinking and abrasion, non-allergenic, impervious to sun, rot and mildew, easy to handle, cut and stitch. Code 2-3



Bruck-created rainwear fabrics: crepe finish accented in a darker co-ordinated colour (left); coat with dress and coat lining in matching print. Bruck's diversified fabric line is widely used for men's, women's and children's styles — and for home furnishings — in more than 20 countries. Code 2-4



Eskilon deep-pile fabric by Uniroyal provides snug comfort despite winter winds, in a wide variety of outerwear. Uniroyal, which exports widely, also produces plaids and simulated animal-pelt fabrics, as well as vinyl- and urethane-coated fabrics and deep-pile fabrics in designs that gradually blend colours and patterns into each other. Code 2-2



Skein-dyed knitting yarn being back-wound on a skein-to-cone winder at Cleyn & Tinker, which spins and dyes every combination of fibre and colour. This yarn will go into knitted fabric, using very latest models of knitting machine and double-jersey circular knitter. It is shipped in cones. The Cleyn & Tinker group's finished fabrics are sold in 18 countries. Code 2-5



The outside of this hooded midi coat is of National Vintex Viasuede. Dry-cleanable, it's widely used in men's, women's and children's wear. It is water-repellent and can be used in both winter and summer. National Vintex products are used for footwear, luggage, handbags and automobiles as well as clothing. Code 2-6

Fireside corduroys vary from 2½ to 16 wales to the inch (25.4mm) and weigh from seven to 16 ounces (198.45 to 453.6 grams) per square yard (0.836m²). Fireside and Halifax Corduroys — now one company using both names — is the largest producer of corduroy exclusively in Canada. Its product is 100 per cent cotton. Code 2-8

These tartans and contemporary designs in bouclés and "go-go" weaves are hand-woven fabrics from Au Terroir and Madawaska Weavers. All-wool and wool-and-acetate blends assure long wear. Craftsmanship is the result of generations of highly skilled weavers who work for both companies. Code 2-7



Containerport officially opens

Watching a huge 40-foot (12.2m) container, carrying 24 tons of cargo, swing ashore at Halifax, an oldtimer shook his head in disbelief; "Why, a few of those was almost a ship's cargo when I was a boy!" They kept on swinging ashore — one every three minutes for more than 10 hours.

With 56 acres (22.7 hectares) paved and fenced, Halifax Container Terminal is the largest in Canada and, by year-end, was handling units at a rate of 100,000 annually. Although in operation for

several months, its official opening was September 13.

The advent of containerization brought more than a new method of handling cargo advantageously. It necessitated reassessing traditional routes and developing new ships, new handling equipment, new railroad equipment. Nowhere have these developments, linking rail and ship in an inter-modal system, advanced more rapidly than in Canada.

Halifax has no great industrial hinterland of its own; its success as

a containerized port hinges on excellent rail service right from the dock to inland Canada and the U.S.A. A second hinge to its full development lies in establishing in the future, a feeder service under which containers can be discharged at Halifax and carried in smaller vessels to other east-coast Atlantic ports and the Caribbean.

In competing with eastern U.S. ports for inland traffic, Halifax has the "plus" of being hundreds of miles closer to Europe on the Great Circle route. Ships stopping at Halifax require only a 20-mile (32.2km) diversion, which enables inland-bound containers to reach their destination faster and at competitive cost.

Four major container lines are already using the new terminal:

Atlantic Container Line, a combined container and roll-on/roll-off operation, provides two weekly services — one to Gothenburg and Greenock, the other to Britain and Western Europe. Dart Containerline runs a weekly service to Britain and the Continent. Caribbean Container Line sails weekly for Bermuda, the Bahamas, the Dominican Republic and Jamaica. In May, Columbus Container Services inaugurated a direct run to Australia and New Zealand. When new vessels are received from the yards, this will become a tri-weekly schedule.

Indicating the container concept's rapid development is this fact: of the 16 containerships calling regularly at Halifax, 12 are among the world's largest and all have been specifically built for the container trade within the past three years. Code 3-1



Loading cargo aboard the containership *Dart Europe* at Halifax Container Terminal.

Elegance keynotes vestibule panels

No screws, hinges or locks are visible to mar the anodized finish of the elegant vestibule panels produced by Canadian Sound and Signal Division ESB Canada Limited of Toronto. By standardizing a large variety of sizes, it can turn out a wide range of custom-styled panels at prices competitive to mass-produced quality products.

Numerous distinctive styles and colour combinations enable archi-

tect, designer and owner to create an effective front vestibule, with intercom panel matching the other metalwork and surrounding decor.

Other CSS features include: buttons arranged numerically by floor; alphabetical name directory; name tiles 4½ inches (11.43cm) long; names removed or inserted without disrupting directory; 30 per cent spare name tiles for extra tenant in one suite; names glass-protected

from tampering.

Suite stations are styled in antique white, as most suitable for personal-residence decor; they can be mounted at a height convenient for both children and adults because sensitivity does not require tenant to speak directly into station. Small-size multi-conductor cable reduces installation cost. Code 3-3



Attractive visitor, pleasing vestibule — with this easy-to-read, good-looking directory panel by Canadian Sound and Signal.

Top U.S. "excellence" award to Canadian designers

The U.S.A.'s highest professional award for engineering excellence has been bestowed on the Portland, Oregon, subsidiary of Sandwell & Company Limited, international engineering consultants of Vancouver, British Columbia. Sandwell

associates Beck Consultants and Swan Wooster Engineering were employed on the project and the design team was all-Canadian.

Grand Conceptor Award of Consulting Engineer's Council of the United States for 1970 went to

Sandwell International Incorporated for "concept, engineering design and construction coordination" of a new bleached-kraft mill for American Can Company at Halsey, Oregon.

The Council represents more than 50,000 U.S. engineering personnel in all fields. Council cited

Fine office furniture makes business a pleasure

Willis and Co. of Canada Ltd., Ste. Thérèse, Quebec, marks its 100th anniversary last year. Well known for its finely crafted pianos, the company has also made an enviable name for itself in the North American office furniture market. Rigorous quality control, prompt delivery and attractive prices ensure customer satisfaction and growing exports.

Willis' medium-priced W.D. walnut series features a choice of interchangeable walnut, black or chrome legs and matching hardware at no extra charge. Secretarial units equipped with tambour doors and stationary inserts are available with either left- or right-hand returns, while ball-bearing drawer slides are standard except for the small 45- by 30-inch single-pedestal desk. Self-edged 1¼-inch tops of stain- and burn-resistant laminated plastic lend additional durability to the W.D. grouping. Matching

files and bookcases are also available.

Executive Alpha line features a 72- by 36-inch desk and matching 72- by 20-inch credenza in dark English oak, with green or black vinyl upholstery fabric inlay or with a full black laminated top in velvex finish.

Alpha secretarial unit is in light Dover oak, with self-edged white "leather" velvex laminated top; the 60- by 30-inch double pedestal is in dark English oak with full self-edged black velvex plastic top. Reverse T-shaped supports finished in polished chrome are standard, as are the plexiglass writing tray and full extension slides on the file drawer. An economy line of office furniture, Encore, has recently been introduced.

Willis has warehouse representation in Miami, Atlanta, New York, Minneapolis, Los Angeles, Chicago and Philadelphia.



Executive Alpha grouping from Willis and Co.

Code 3-2



Sandwell developed the design, designed detail and supervised construction of this American Can Company 300-ton-a-day bleached-kraft, pulp, paper and tissue mill in Halsey, Oregon. Code 3-4

the Halsey mill for "the most sophisticated and advanced air and water pollution abatement facilities and technology in the country" and called it a project which "in the best engineering tradition represented a highly imaginative solution to specific social and physical problems." Oregon Governor Tom McCall termed it "a splendid example of what can happen when industry is determined to protect the environment."

Salient features of the Sandwell-designed mill include: the first "controlled odour" kraft-recovery furnace in North America — eliminating up to 98 per cent of odours emitted from a conventional

kraft or sulphate pulp mill; air-pollution control removing 99.5 per cent of all ash and other solids from stack gases; both primary and secondary treatment of liquid effluent — reducing biological oxygen demands by 90 per cent.

Success of the Halsey mill, which exceeded all performance aims in its first year, has sparked interest from pulp and paper companies throughout the world. The mill's environmental protection standards meet and exceed those established by Oregon Department of Environmental Quality for compliance by 1975 — standards considered the most stringent in the U.S.A.

Canada covers wide orbit

Continued from page 1

and its successor, Alouette II, launched in 1965, are topside-sounder satellites designed for ionospheric and other upper atmospheric investigations. They pioneered such developments as space-craft radio antennas 150 ft. (45.7m) and more in length. More than six years after its launching, Alouette I had set records for continuous performance and is sending back more information than any other comparable satellite.

Part of a continuing International Satellite for Ionospheric Studies (ISIS) program, ISIS-I (originally called ISIS-A) was sent into an elliptical orbit in 1969. Larger than its two predecessors, it was designed to carry out at least 10 separate ionospheric exploration tasks. It was followed by an even more sophisticated version — ISIS-II — in March of this year.

Navigation aids

Long a leader in the marine navigation-aids field, Canada has greatly increased its capabilities to cover ground and air navigation. To achieve this, facilities have been built to provide the critically controlled environment for the development and production of precise, highly sophisticated equipment.

Canadian-built airborne electronic and electromechanical equipment has been specified for commercial aircraft and airfields in Canada, the United States, in Europe and many other areas. This includes Doppler navigation systems, self-contained inertial guidance systems, position and homing indicators and beacons, altitude indicators, temperature-control systems, aircraft function-recording systems and UHF communications transceivers. In conjunction with the airborne equipment, a full range of automatic and semi-automatic mobile and fixed ground-test equipment is available for use by ground maintenance personnel.

A remote-controlled pilotless aircraft for photo reconnaissance is a major Canadian development and production program, geared primarily to the international market. Acceptance of this system points

the way for its wide use in other countries.

At sea, Canadian-designed radar equipment, automatic direction finders and other navigation aids have been installed for many years in Canadian and foreign vessels.

Flight simulators for aircraft pilot training have been associated with Canada since the early days of the Link Trainer during World War II. Today Canadian simulators have found worldwide acceptance and reproduce practically any flight conditions imaginable. A purely Canadian concept is the airborne simulator for vertical and short take-off and landing (V-STOL) aircraft.

Concern for safety afloat and in the air has brought about the Canadian production of such devices as crash-position indicators which automatically send out powerful radio signals triggered by the impact of a crashing aircraft. At sea a similar device is activated by contact with water and has been designed primarily for use with life rafts.

Safety devices

Proof of Canada's ability to design and produce navigation equipment is the wide range in use in many countries throughout the world. Canadian industry offers an exceptional level of capability for the supply of navigation, search and weather radar for land, sea and air applications. In addition, there is a wide range of antennas, antenna towers, radomes and accessories capable of operating in widely varying environments.

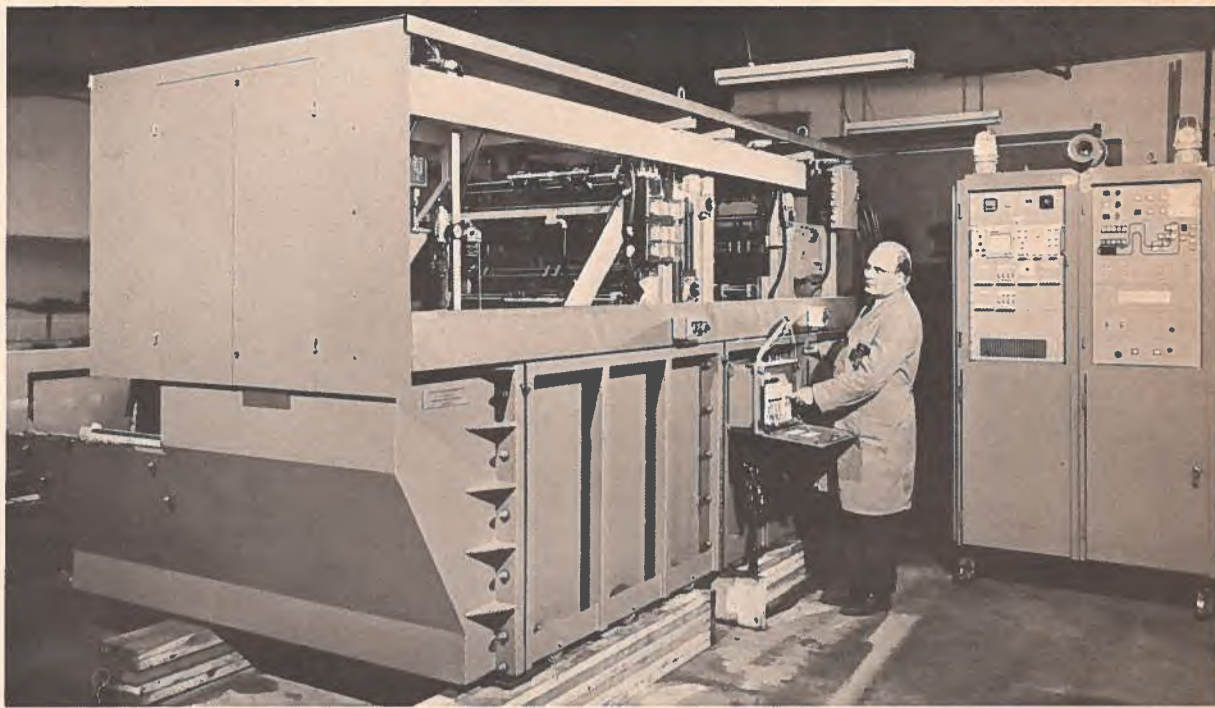
In nucleonics, Canada has been a pacesetter with its peacetime-use development work at the Atomic Energy of Canada establishment in Chalk River. Canada's first full-scale nuclear power station went into operation in 1966. The source of energy is the CANDU heavy-water reactor, developed in Canada, which does not require enriched uranium fuel. Nuclear instrumentation and apparatus such as reactor controls, gamma radiation meters and particle detectors for many applications are produced in Canada for domestic and export use. Code 4-1

Products of only a few of Canada's electronics companies are described here and on other pages of this issue. Succeeding editions of Canada Courier will carry more stories of this kind.



Dial Nassau from New York

Direct telephone dialling between most parts of North America and the Bahamas was made possible at year-end, under a \$3,900,000 contract between Northern Electric Company Limited of Montreal and Bahamas Telecommunications Corporation. Northern is engineering, supplying and installing a crossbar telephone switching system at Nassau that will tie BaTelCo's system into the North American network. Nassau exchange is also being equipped for 5,000 local subscriber lines capable of providing Northern Electric's DIGITONE (push-button) service to BaTelCo subscribers. Program also has Northern supplying 30 positions of NE-3CL switchboards to handle operator-assisted calls, 10 to CAMA boards, several of NE-23A information desks and NE-17B test boards — as well as formal training of BaTelCo technicians and management personnel in theory, operation and maintenance. Experienced installers such as this one do the training. Code 4-3



This new automatic inspection machine built by Electro Physical is a development of major importance in the production of safer autos.

Breakthrough in automotive safety control

A remarkable new production-line machine described as making it possible, for the first time, to do complete pre-testing of vital steering and axle parts without relying on quality-control spot checks, has been developed for the automotive industry by Electro Physical Instruments Limited of Montreal.

The computer-controlled machine uses ultrasonic "eyes," high-frequency sound waves, to detect flaws in metal parts produced by cold forging processes. Working automatically and at production-line speeds, it promises to open up a host of new applications for cold forging in the auto and other industries.

Electro Physical Instruments Ltd. designed and built the machine, the first of its kind, on order from Thompson Products Ltd., a major auto-parts manufacturer in St. Catharines, Ontario. Close to two years went into developing the new measuring principle and producing the apparatus. Several unique features are incorporated, including a high-speed immersion technique.

John Roch, president of Electro Physical, terming it a "breakthrough in safety inspection," said the concept is adaptable and "all cold forging operations can now be controlled by automatic machines doing 100 per cent testing." He predicted it will lead to much wider use of cold forging.

While regarded as an economical and efficient process, cold forging has a major disadvantage in that severe internal flaws may develop from the heavy pressures used. Invisible on the surface, these chevron-shaped flaws may cause the part to collapse in operation. When the part is a vital one — a steering connecting rod for example — it is essential that breakdowns be averted.

Methods exist at present of detecting the flaws, either ultrasonically or by X-rays. These, however, are procedures that take a relatively long time and are normally handled through quality-control checks. This means spot-checking one part in every 1000 or so.

The new automatic machine can

be connected directly to a production line and is designed to test up to 60 parts a minute, according to Klemens Maurer, technical director at Electro Physical. Since it was built for steering and axle parts of various types, it can be adjusted to accept steel rods or bars different shapes, up to 36 inches (91.4cm) in length and up to two inches (5.1cm) in diameter.

Electro Physical, specializing in the design, fabrication and supply of non-destructive material-testing equipment, is a division of Superior Electronics Industries Ltd., of Montreal, a multi-faceted electronics company.

The parent company, which manufactures and distributes TV components and various consumer entertainment products, is a leader in electronic research — so much so that it has grants totalling close to \$2,000,000 from the Canadian Government for work on polyconductors, the latest advance in solid state science. Code 4-2

Vibration killed in vehicle shots

When an earthquake hit Los Angeles early last year, Station KTLA-TV there rushed its "Telecopter" (helicopter-borne Canadian-made equipment) to take narrow-angle high-resolution shots for telecast across the continent. Telecopter consists of a Wesscom HC32 stabilized mount — produced by Westinghouse Canada Limited of Hamilton, Ontario — in a helicopter. HC32 can also be used with military line-of-sight sensors and can be attached to any type of land, sea or air vehicle to produce

pictures as clear and vibration-free as though taken from a rigid ground-based tripod. It was recently demonstrated in 25 cities to more than 500 persons including commercial film and television producers, cinematographers and armed forces personnel, during a 10,000-mile (16,100-km) odyssey across Canada and the U.S.A.

Westinghouse also makes the 1600 computer terminal, a self-contained interactive CRT display unit, for use with either local or remote computers in data processing, time sharing and process control. It can directly replace a teletypewriter on a plug-for-plug basis or operate at data rates of up to 9,600 baud, in accordance with EIA specification RS232C — and

can function either synchronously or asynchronously, thus providing maximum flexibility.

1600's nine-by-seven-inch (22.9-by-17.8-cm) screen displays 80 characters per row for punched-card format compatibility; it accommodates up to 1,600 characters at a time in up to 20 rows. Keyboard layout is like an electric typewriter's — plus separate numeric pad for fast entry of numbers and function keys in contrasting colour.

Special functions include: page roll-up, format protection; adjustable tab with no loss of usable character locations; edit and cursor control; insertion or deletion of words/rows with opening or closing of text; transmit by character or block; flashing of characters.



This photo of Los Angeles' Telecopter — contents produced by Westinghouse Canada — appeared on cover of Rotor and Wing, a national magazine published in Peoria, Illinois. Ten of another model, HC101, have been sold to U. S. Navy. Code 4-4



Westinghouse Canada's new 1,600 computer terminal has built-in interfacing. Code 4-5

Tradition mellows "mod" cabinet plant

More than 300 years ago, Captain Jacques de Chambly built a fort east of Montreal on Quebec's Richelieu River. About 50 years later Captain James Gregg built a sawmill in neighboring New Hampshire.

Through the centuries, both the community surrounding Fort Chambly and the Gregg company — long since moved there — have developed with a strong sense of pride in their early origins, with the result that Gregg's heritage of wood use is now bolstered by the inherent skills of master craftsmen in the area of the old fort — today a National Park.

From its modern plant in Cham-

by's new industrial centre, Gregg Cabinets Ltd. continues to serve Canada's progressive economy by producing distinctive kitchen and vanity cabinets for blending with the decor of any contemporary home. Each cabinet is factory-engineered from the finest of carefully selected, uniform materials and constructed under controlled conditions.

Here skilled artisans have gentled the brawny temper of rugged oak and unmasked a new, surprisingly elegant and delicate beauty in their cavalier Oak Line. It has been done in classic, sculpture styling without losing the warmth and quiet strength native to oak. All

Gregg cabinets — finished in the mellow tones of nature's own textures — will last as long or longer than the house itself.

Gregg cabinets are modelled in a wide range of sizes and designs lending themselves to infinite arrangements for unique and functional layouts, with total flexibility to meet the requirements of any kitchen or bathroom. Bevelled corners and slim shadow-traces around drawers and doors mark the Chambly Line as an echo of a courtly French past, while demonstrating the manufacturer's ability to work in handsome birch.

Code 5-1



Gregg cabinets come in oak and birch.

Portable housing in Arctic hotel

A six-year-old Edmonton, Alberta, company whose portable housing has achieved a good reputation for strength and durability,



Interior of recreation unit in a standard oil-drilling camp. These Porta-Built units also come equipped with pool tables, games tables, stereos and commissary.

Code 5-4

recently supplied a two-storey, 52-room hotel to Inuvik, Northwest Territories — 800 miles (1,288 km) inside the Arctic Circle. Three months after the client signed the contract he was renting rooms. It was regular Porta-Built Industries housing, built on a modular concept and adapted to local building codes.

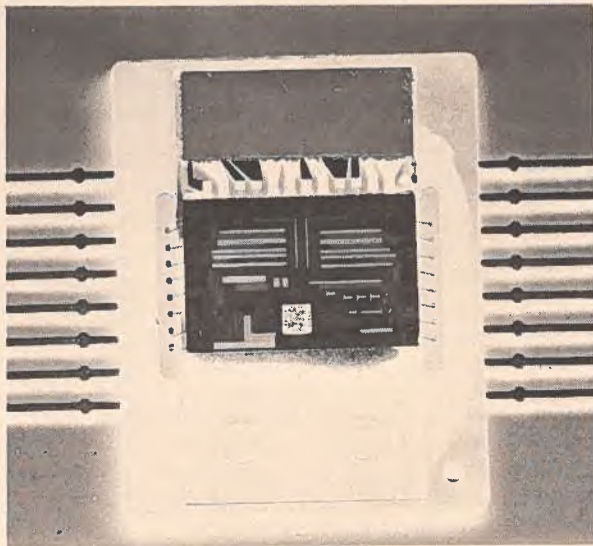
The company — now a member of GPI Modular Division of Great Pacific Industries Ltd. of Vancouver, British Columbia — not long ago acquired a manufacturing plant in New Westminster, 700 miles (1,127km) nearer the Pacific coast than Edmonton. The two plants are expected to exceed \$4,000,000 worth of business this year — portable accommodation for from one to 1,000 persons.

Porta-Built housing has gone into an oil-company base camp at Prudhoe Bay, Alaska. Some large jobs have been for Atlantic Richfield, Shell Oil and British Petroleum. The company custom-builds, for sale or lease, any type of industrial accommodation and is strongly interested in export.

Tone generator for push-button telephone systems

High-quality microelectronic components and sub-systems are developed and produced by Microsystems International Ltd. of Ottawa. The company employs a full range of state-of-the-art technologies in its discrete, bipolar, thin-and-thick-film and silicon-gate MOS/LSI product lines. They include a variety of silicon and germanium Hi-Rel diodes and transistors; a selected range of bipolar operational amplifiers, voltage regulators and transistor arrays; thick- and thin-film hybrid telecommunications-oriented sub-systems; MOS/LSI memories and shift registers — all available to standard and custom specifications. Notable among Microsystems' exports is this sophisticated, high-stability, dual-frequency microelectronic tone generator, ME-8903 — measuring only 1.1 by 1.4 by 0.25 inches (2.8 by 3.6 by 0.6 cm) and designed primarily for use in push-button telephone systems. The company's marketing offices in the U.S.A. and Europe are backed by a widespread distribution and servicing network.

Code 5-5



Rainbow in the living room

"A rainbow in the living room" is possible through this use of all five stripe designs in the new Sunvinyl collection of Sunworthy, a Division of Canadian Wallpaper Manufacturers Limited. The Toronto company exports to 35 countries. This is only one of many ways of using the stripes (and only one of numerous patterns in the collection). They can also be displayed individually, in couples, horizontally or diagonally; only the user's imagination limits the possibilities. Sunvinyl is printed on vinyl wallcloth (vinyl-coated non-woven fabric), making it stain-resistant and scrubbable. It also peels off dry and strips. Ready-pasted, it's easy to apply, keep looking pristine and, if desired, remove.

Code 5-2

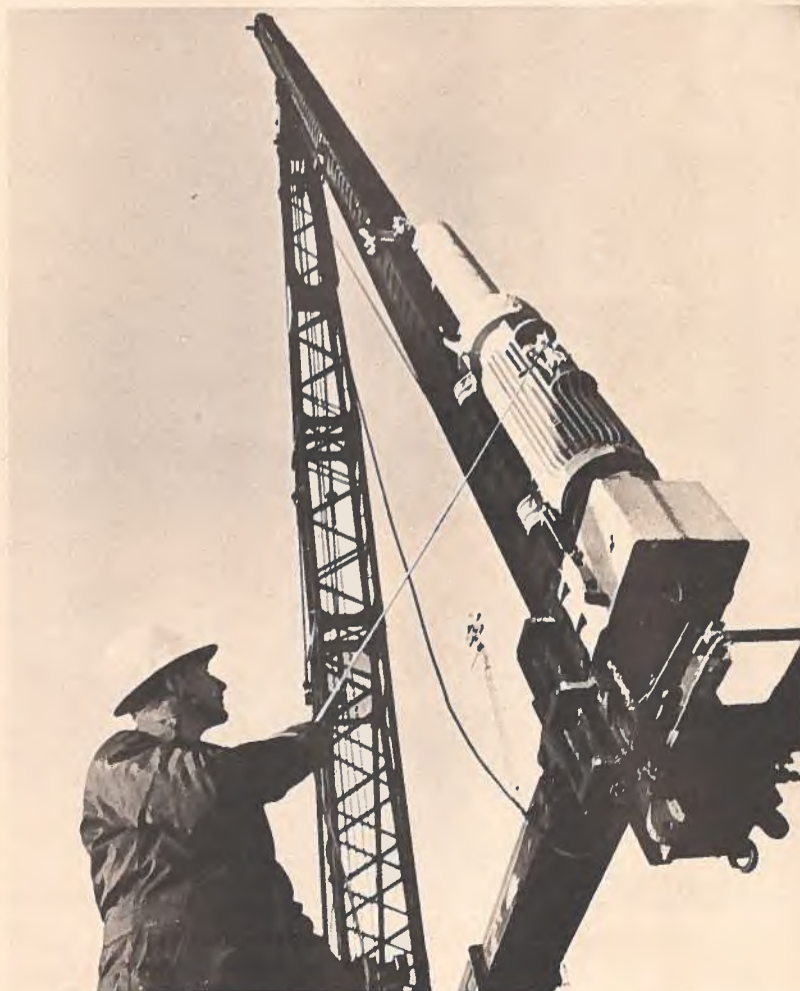
Diesel pile hammer "like a naval gun"

When Bill Bermingham of Hamilton, Ontario, couldn't get anyone to build the diesel pile hammer needed by Bermingham Construction Ltd., he decided to make one himself — with the aid of some workmen. Setting up Bermingham Corporation Ltd. 15 years ago, he produced a heavier-duty machine with higher energy output, greater reliability under maximum work load — and one that can respond to same-day on-the-job servicing.

Aside from the high energy output, Mr. Bermingham believes a diesel pile hammer's requirements to be those which Bermingham strives to meet: rugged, heavy-duty construction, yet relatively lightweight for easy, safe travelling; trouble-free; needs minimum maintenance; starts easily in all weathers; is economical to operate.

"A diesel hammer is not unlike a naval gun," he says, "because in both cases an explosion takes place at one end and a projectile moves along gun barrel or cylinder." Bermingham's cylinder walls are thickest where the explosion takes place — and taper gradually to upper end of hammer, just as the naval gun barrel tapers from breach end to muzzle end. This unique feature puts the strength where it is needed but minimizes the weight.

Bermingham comes complete with safety harness, so the pile hammer can never drop out. Combined with that is a device that permits raising, lowering or tripping the hammer with only one hoist line. Parts such as fuel pump can be easily removed; all parts are easily accessible; all bolts have standard threads.



Bermingham B225 diesel pile hammer, rated at 25,000 foot-pounds (3,450 kgm).

Code 5-3

New concept in radio DF

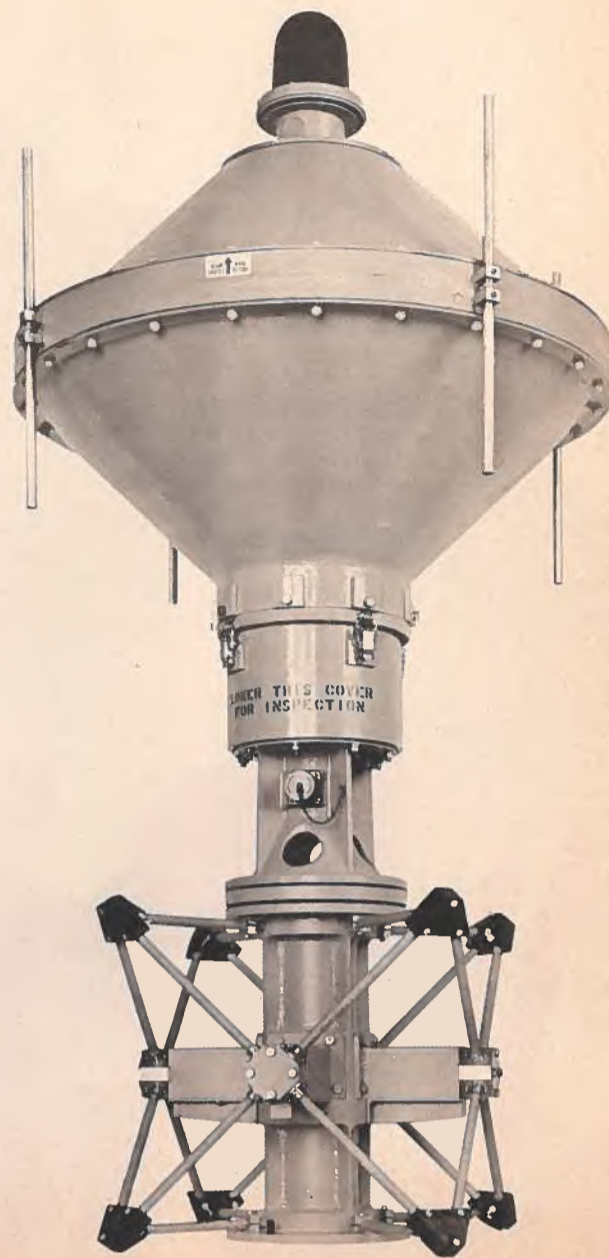
General Precision Industries Ltd. of Montreal, an important Canadian exporter of electronic equipment, has been engaged in communications research and development since 1957. The company specializes in designing and producing advanced solid-state radio direction finders and special-purpose radio receivers for electronic surveillance. New products include a shipborne direction finder, a spectrum and frequency monitoring receiver and a mobile direction finder for use on land. Latest design features include:

- Simultaneous spectrum surveillance and signal monitoring or DF;
- Intelligence monitor tuned to selected frequency while sweeping;
- Positive identification of signal or DF bearing trace corresponding to monitored frequency;
- Computer-coordinated controls;
- Automatic local or remote tuning;
- Modular construction.

GPI presents a new approach to spectrum surveillance in spectrum and frequency monitoring receivers Models 102 and 102-A. With this sophisticated equipment, an operator can tune in and monitor any radio signal while keeping the whole bank under observation. Model 102 was designed for spectrum surveillance in VLF through VHF bands. With the functions of spectrum analysis, interception and monitoring of signals and accurate measuring of frequency combined in one set, one operator can handle a much larger sector of radio traffic. Receiver can be used as a fixed, mobile or shipborne station in conjunction with a variety of uni-omni-directional antennas.

For crowded bands, there is the special option of receiver Model 102-A which is fitted with a bearing position indicator driven by a synchro system to show the position of a rotatable antenna. Switch for antenna motor drive is located on the same panel. Special directional antennas can be supplied with a sharp null pattern to cut out interference from the unwanted direction.

Not only do the new mobile DF station, Model 109, and shipborne DF, Model 100, have high instrumental accuracy but they also per-

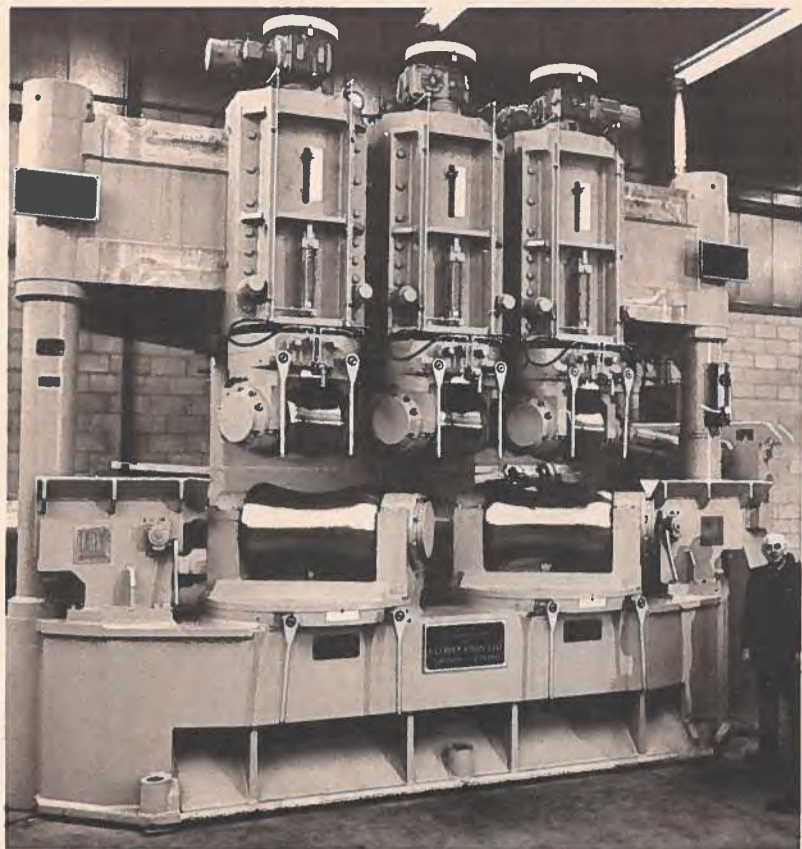


VLF-VHF shipborne direction finder, Model 100 antenna unit, by General Precision Industries.

mit simultaneous surveillance, intercept and DF in seconds by one operator. These VLF-VHF direction finders are intended to replace the older HF/DF sets and extend their operational range and usefulness. Model 100 can perform the functions of communication and

navigation; it opens up the possibility of equipping smaller vessels with DF, while Model 109 can be used for close-range policing of radio traffic (illicit transmissions), rescue work and detecting radio-frequency interference.

Code 6-2



This massive 270,000-pound machine, now installed in one of Canada's largest tube mills, was built under license by F. Lepper and Son Ltd., of Scarborough, Ontario. It is a five-roll synchro-drive straightener (straightens two-inch to nine-and-five-eighth-inch steel tubing with wall thickness up to 0.84 inches). The Canadian company, which makes heavy, complex machinery under license for companies abroad, picked up important leads in this field by taking part in a sales mission to the United States and a technology mission to Italy organized by the Ontario Department of Trade and Development. Lepper and Son is currently involved in sub-contract work for the United States Navy. Established in Toronto in 1891, the company serves steel mills, the mining and marine industries and crusher plants. Industrial equipment is also rebuilt and overhauled.

Code 6-1

"Birds of Delight," featured on the cover of the Cape Dorset Eskimo Print Calendar, is by Mary Pitseolak, one of the Eskimo artists of Cape Dorset, West Baffin Island, in the Canadian Arctic. The 1972 calendar, including 13 full-colour reproductions of prints, features other Cape Dorset artists: Angotigulu, Kenojuak, Napachee, Koyinatilliak, Kiakshuk, Iyola, Lucy, Tikitok, Eliyah and the famous Pitseolak, whose autobiography has been published last year by Oxford University Press, Toronto. The Calendar, published by West Baffin Eskimo Cooperative Ltd., is distributed by Canadian Arctic Producers Ltd., Ottawa.



Code 6-6

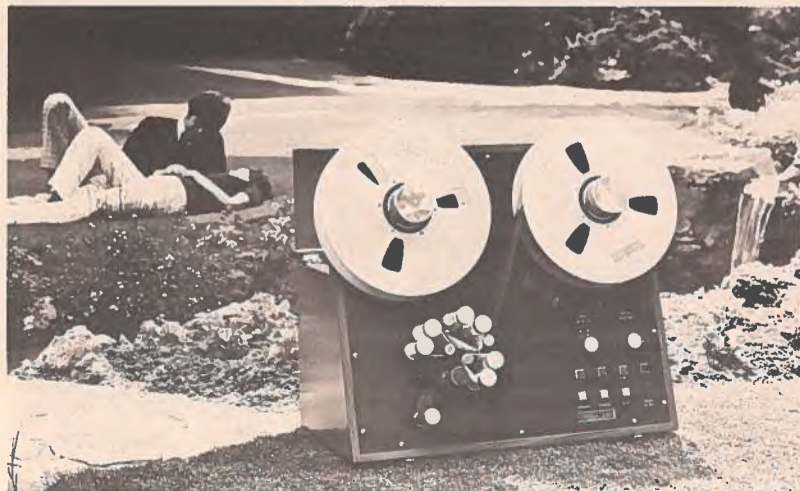
Tape cleaner gives polished performance

Advanced Transducer Systems Ltd., Magnetek Division, of Rexdale, Ontario, produces the programmed Magnetek I computer and videotape cleaner models. They remove dirt and oxide particles from tape surface and are adaptable to flatbed and upright requirements. Suited to operation on bench or desk, the equipment calls for minimal skill. Magnetek also makes computer and videotape inspectors

and evaluators.

A subsidiary, Devtek Ltd., produces non-contact rollers and bearings for handling full-web widths of materials to permit drying operations without physical contact. Devtek's microwave group is active in the drying of glues, adhesives and other water-based mixtures; it is currently introducing an edge-drier for data-processing business-form collators.

Code 6-5



Magnetek videotape cleaner hones and polishes one- and two-inch magnetic tapes. This significantly reduces the number of dropouts per minute. V.T.R. head wear is increased and tape life extended. Sold internationally, Magnetek tape-rehabilitation equipment includes models for all video and computer requirements.

"Com" equipment blankets North America

Virtually every large communications entity in Canada and the U.S.A. — including the Armed Forces of both and various commercial telephone/communications facilities — use, to some extent, equipment produced by TMC (Canada) Limited of Ottawa.

The company has designed and developed, makes and markets almost 300 items of low/medium/high-frequency communications equipment; several are used in more than 50 countries. It also specializes in systems, CRT data terminals and time-division multiplexers and in installation, including antenna design and erection. It "extra-specializes" in SSB techniques and many broadcasting companies — both national and private — are among its customers, as well as "ham" radio operators.

The company's aim — practically always achieved — is to be competitive in price anywhere, but at no time will it compromise quality. Its manufacturing operations are comprehensive — through the various stages of construction, metal work, transformer winding, etching, painting, baking, assembling and quality-control testing of the finished product.

Code 6-3



An installation involving design, engineering and manufacturing by TMC (Canada) is seen at Canadian Time Service Station in Ottawa, which gives the time almost around the world.

For your bookshelf ...

Canada in the World of Electronics — a 44-page directory of Canadian electronics equipment, components, consumer products and consultant services which also takes a broad look at the industry as a whole. This booklet, published

by the Canadian Department of Industry, Trade and Commerce, includes a handy cross-index by products and is available in English and Spanish.

Readers interested in obtaining "bookshelf" publications should complete the trade inquiry form on page 7, stating the language required where appropriate.

Code 6-4

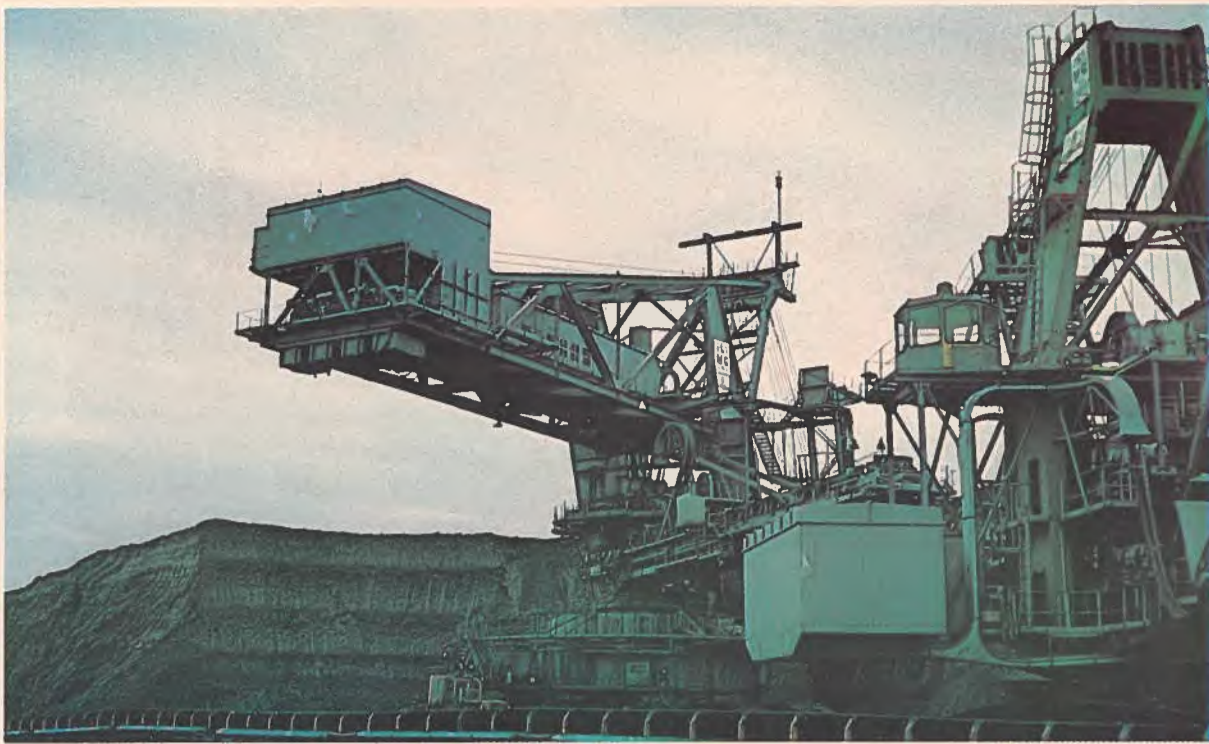
Copper cable helps ensure oil supply

The two giant bucketwheel excavators that tower above Great Canadian Oil Sands Ltd.'s Athabasca project dig 105,000 tons of tar-laden sands a day — enough to yield 45,000 barrels of high-grade crude. Their power is fed by four-inch-diameter 8kv Neoprene-jacketed copper trailing cables, produced by Canada Wire & Cable Company Limited of Toronto.

These cables are extra big, extra-tough and extra-flexible — built to rigid specifications and believed unique in combination for size, durability and low-temperature flexibility. Special Type SHD-GC construction includes six conductors — three phase, two ground and one ground-check conductor; all are of stranded copper for maximum flexibility and each phase conductor is covered with thick

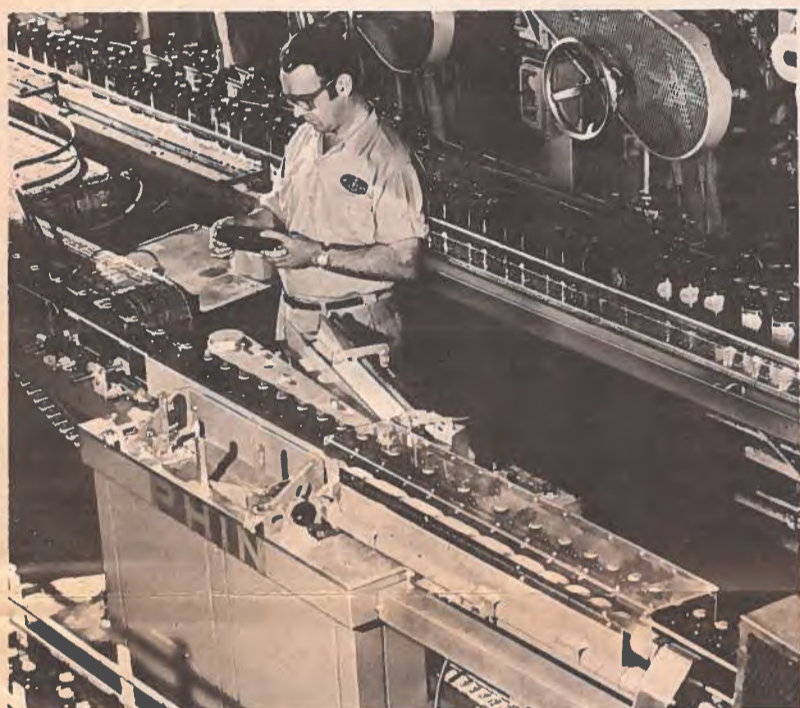
rubber insulation. Over-all sheath of oil-resistant Neoprene — by Dupont of Canada Ltd., Montreal — is reinforced with nylon fibre and protects the core.

Athabasca, where these unique cables power the huge excavators, is in northern Alberta. It contains a 30,000-square-mile (78,000-km²) deposit of quartz, sand and clay, integrated with heavy oil or bitumen. Most is covered by overburden but, near Fort McMurray, the tar sands are exposed and the "oil mine" is located there. Great Canadian Oil Sands has been producing for more than two years. Syncrude Canada Ltd. of Edmonton plans to have an 80,000-barrel-a-day refinery in operation by 1976 — helping assure a continuing source of vital oil for North America. Code 7-1



Canada Wire & Cable's Neoprene-jacketed cable powers this giant gulper of oil-bearing Athabasca tar sand.

Speedy stamper also lively labeller



Phin 1600 high-speed labeller seen in operation at Molson's Brewery, Toronto.

Phin Strip Stamp labeller, made by Phin Universal of Toronto, has set world standards for fast application — in applying excise

stamps to liquor bottles. Combined with the Six-Twelve labeller, it can provide a single unit for placing both labels and strip stamps.

Phin, which has offices in Bloomfield, New Jersey, Cincinnati, Ohio, and in London, produces labellers for the beverage, food and pharmaceutical industries and sells them around the world. The company pioneered in developing a unique line of bottle labellers, using rotary principles to give continuous high-speed straight-through motion. Fewer moving parts mean less maintenance; fewer change parts mean lower capital investment and faster bottle changeover time.

Speeds up to 300 bottles a minute are possible with the Six-Twelve in liquor, food and pharmaceuticals, while applying a variety of label combinations including front, back, shoulder and neck. Unitized glue assemblies are easily removed for overnight soaking — to reduce clean-up time.

For beer and soft-drink labelling, Phin 1600 is extremely simple and fast — applying body labels at more than 800 per minute. A lower-speed labeller puts single labels on jars and special-shaped containers for the food and pharmaceutical industries. Code 7-2

Versatile packaging machinery meets all demands

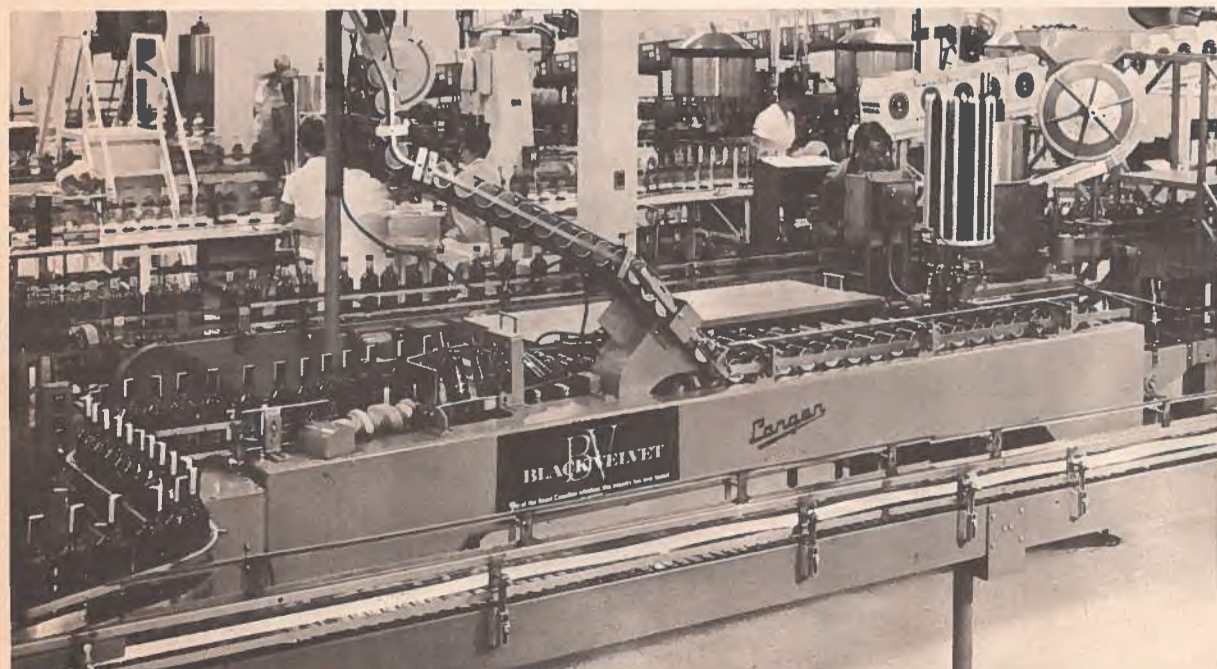
A small, diversified company may need a low-cost cartoner to handle a full product range — necessitating change-over several times a week. Another may require a fully automatic cartoner to supplement a high-speed production line — yet still demand high flexibility because of its range of sizes. A third may need a sophisticated, high-speed machine, designed exclusively for a single product-package requirement.

H. J. Langen & Sons Ltd. can

supply them all; in fact, it produces packaging machinery of every type. The Toronto company has shown great ingenuity in solving the numerous problems of product and container in endless variety — through the various phases of machine function, including product infeed, carton feed, loading, closing, auxiliary equipment and finally case packing.

One of the most remarkable designs is Langen CP-1 complete

end-of-line automation with one packing unit. In a single sequence it stacks the product, end-loads the case and seals loaded cases on one high-speed machine. Similar in achievement is the Langen BP-1 automatic 12-pack end-loading for the brewing and soft-drink industries, which does the complete packaging at drastically reduced cost on a single high-speed machine. There is a score of others for different purposes.



Langen AL 4-5 high-speed end-loader in action.

Code 7-3

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FUN AND GAMES...



Pictured here in Algonquin Park, Ontario, is a 20-foot canvas-covered canoe of Eastern Light Cedar, by the Chestnut Canoe Co. Ltd. of Fredericton, New Brunswick. Chestnut also makes canoe-carrying yokes, paddles, oars, sailing equipment, motor brackets, and non-sag snowshoes. Code 8-1

Ski-zoom!

More than half the snowmobiles made by Autotecnic Inc., of Drummondville, Quebec, are exported. The company's product, known as SKI-ZOOM, is a high performance vehicle — sturdy and easy to maintain. A light aviation-type aluminum chassis makes SKI-ZOOM easy to handle, even in the deepest snow, and its owner won't have to worry about rust. SKI-ZOOM is safe and fast-starting with easy-reach controls, and adequate power. All components are extremely durable. The attractively-styled models pictured here are the Comet SS, powered by a 28-hp two-cylinder engine, and the Fury 1, powered by a 35-hp two cylinder engine. Code No. 8-2



Cool Pool

Typical of Canadian companies successful in the manufacture and marketing of swimming pools is Acorn Pools of Hamilton, Ontario. Company president Ernie Brunton believes that there is a very large splash still to be made — "The market has hardly been touched," he

says. Acorn finds that do-it-yourself kits for the home-owner sell extremely well. The company supplies complete instructions that allow easy installation in nine simple steps. Acorn pools have 42-inch-high walls, 14-gauge steel wall panels and 12-gauge steel round corners and braces for extra strength. They have full 30-mill

sanitized vinyl liners with lap seams. The liner does not depend on the coping as a fastening device. Although a specially-designed eight-inch-wide vinyl coping is available, it is not necessary if the pool edge is to be finished with decking or patio stone. Every Acorn pool also has an eight-inch safety ledge at the bottom of the steel around the deep end.



Acorn supplies a wide range of high-quality accessories, too, including diving boards, heaters, filters, lights, floats, ladders and cleaning equipment. Code No. 8-3

A piece of the (hockey) action

Expertise, foresight and alertness to trends — not to mention an enviable reputation going back more than 65 years — that's why Cooper Canada Ltd., Toronto, is today in the forefront of the Canadian sports equipment and leather goods industries.

Cooper makes a wide range of sporting and athletic goods, from hockey gloves and football pads to darts and golf bags. The company makes business and travel leather goods and is a major supplier of finished leath-

er to the shoe, purse and related industries. It has developed unique finishes and effects for leather.

Today Cooper products are sold in 28 countries, including the U.S.A., Japan, Australia, countries of Europe and the Caribbean area.

Sales have more than doubled since 1965 and, in addition to plants in Toronto, Cooper operates a plant in Barbados and a warehouse in New York to serve the growing U.S. market.



Cooper hockey gloves and pads are favoured by North America's professional teams because they are built to take rugged play yet are surprisingly lightweight. Each glove weighs only 19 ounces and is made of the finest topgrain cowhide with supple, stick-gripping horsehide palms. Other features include ventilated, pre-curved fingers, Cooperlite foam padding — hinged to flex with ease — and a new three-piece thumb of molded polyethelene, encased in foam padding. Code No. 8-4

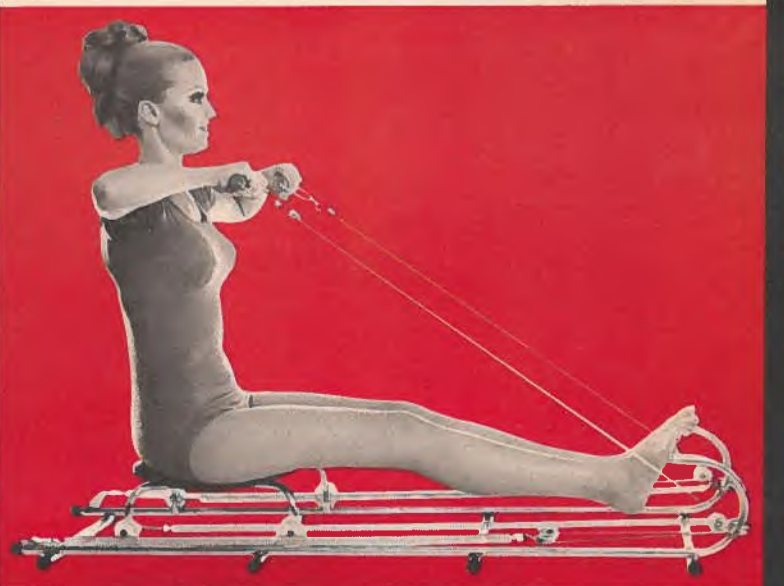
Fit for export . . .

Canadian home exercise equipment

Canadian producers of home exercise equipment cater not only to the young man who is interested in developing his muscles, but to the housewife who likes to keep in trim — and just about everyone else who wants to stay in shape.

Ben Weider, president of Weider Sports Equipment Company of Montreal, knows this business well. From modest beginnings in 1937 the Weider company has become the Weider Group, which includes the Weider Institute of Physical

Culture and Weider Health Foods. The company makes more than 60 different products for men, women and children and sells them in 44 countries. Among the exports are chest expanders and food supplements. The best seller is still the barbell; at least 5,000 sets are exported each year. These are highly accurate and are used in major international competitions — the German Olympic Committee has recently ordered 50 sets.



This young woman keeps fit — and trim — with Weider's all-purpose family exerciser. Code 8-5