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## No matter the period or style . . . The time is right for Canadian furniture

Whether the style of the day has called for a "parlor" suite or "modern" decor, Canadian furniture manufacturers have been selling what the buyer wants.

Here Canada Courier has a "color", or background, story on the industry's development; inside, on pages 4 and 5, are stories on particular companies.

Early Canadian furniture was simple and of the strictly useful type. For the most part, the settlers were at first satisfied with tables and chairs. Then, as living conditions became easier, beds, chests, cupboards and other pieces were made, usually by the local carpenter.

The first furniture factory was

established in Kitchener, Ontario, in 1930. During the second half of the 19th century; the industry gradually developed. The Canadian West was being settled and the demands of the new settlers provided wider markets for furniture. Businessmen and craftsmen started new factories, many as offshoots of sawmills. A large number of these plants were manned by artisans from Britain, France and other parts of Europe.

Until the early part of this century, many factories made only certain lines — one made tables; another, chairs; another, sideboards; and so on. Very few factories made the pieces for a complete suite. However, there was a great deal of trouble in matching the color when the furniture dealer got the separate pieces together for sale, and so factories began making complete lines.

About a hundred years ago, in 1871, the total Canadian furniture production of 4,366 employees was valued at \$3,500,000. In 1973, 48,000 employees of 1,225 Canadian furniture companies produced shipments worth \$1,020 million.

Lumber, veneers and plywood constitute about 40 per cent of the total materials used in making furniture. Upholstering materials account for about 25 per cent of the furniture, and glue, finishing materials, glass and mirrors make up the rest.

The lumber is mainly from Canadian hardwoods, — elm, birch, maple, basswood and so on — supplemented by imports of oak, mahogany and walnut.

A good deal of native wood is used in the form of veneers and plywood. Early furniture was made chiefly of solid wood, but figured veneers began to be used more widely because they greatly enhanced the appearance of the products. From the structural point of view, a well made panel of sound veneers has advantages over the solid panel.

The veneers used in early years were mahogany, walnut and oak, but in the past few decades the use of veneers has been widened by the importation of new varieties of woods from almost every part of

the world. These veneers are bought in sheets of various thickness.

Fifty years ago, veneers were built up by the application of animal glue with a hand brush; the plywood was set in a press tightened down by hand. Later came the vegetable glues with roller application and hydraulic presses. More recently, certain synthetic resin glues, heated by high frequency application, have speeded and improved production of panels. Laminated veneers are used frequently, as, for example, in molded drawer bottoms.

The tendency of lumber to absorb and retain moisture has always presented a problem to the woodworker. If the wood is not thoroughly dried before it is used, it will shrink. The curing of lumber in storage yards has been greatly improved. Better piling methods, more accurate control of kiln processes and testing by modern methods have helped in producing wood that will not change in dimensions. In the past, large quantities of lumber had to be bought well ahead of use to allow sufficient time for air drying. Now many technical difficulties have been overcome so it is possible to reach the most satisfactory percentage of moisture.

A great variety of upholstery is used. Some textiles are obtained in Canada and some are imported, mainly from the United States and Europe. Scientific progress has brought many changes: foam rubber seats, plastic fabrics and other new covering materials are influencing designs. Leather is used, but less than formerly. Tubular steel and aluminum are used extensively for chairs and tables, especially for kitchen and recreation room furniture.

The machining department of the furniture factory of early days was simple, with the layout controlled by the main shaft with belting. Better machines and tools have been steadily developed since about 1920. Electric power has of course, brought about great flexibility.

Cabinet-shop operations have been modified because of other changes in the industry — the cabinet department has become

more of an assembly place. Greater accuracy in machining has done away with the extensive use of planes and chisels. A good cabinet-maker is, however, still a very valuable craftsman.

The last touch in the finishing of furniture used to be the application of several coats of shellac and varnish with a hand brush — a long process. About 1912 the spray gun made its appearance and was followed by the introduction of lacquer. These two changes, with other minor ones, have greatly speeded up production.

The Canadian furniture industry is highly individual in ownership and operation. Most of the firms are of the usual limited type, with direct family control and local support. There is no large dominating unit.

Although nearly all the furniture made in Canada is sold in the domestic market, exports are growing. In 1960, export shipments amounted to a modest \$1.5 million. By 1972, these had grown to \$37.9 million. Anxious to go where the buyers are, Canadian companies have been participating in furniture shows in Hickory and High Point, North Carolina, New York and Jamestown, New York and Chicago, Illinois.

With the growing disappearance — all over the world — of the old-time craftsman, a number of Canadian schools have instituted courses in furniture design and technique. Two training schools, the Ontario College of Art and the Ryerson Institute of Technology, are located in Toronto, while Montreal has one school, L'École de Meuble, which offers a four-year course in furniture design and construction. Conestoga College of Applied Arts and Technology in Kitchener, Ontario, and Victoriaville Furniture School in Victoriaville, Quebec, are also highly respected in the field.

Like more experienced Canadian furniture manufacturers, the young designers have an imaginative flair for the use of materials and incorporate every kind of material in their furniture, from traditional wood to the most recent plastics.

Code 1-1



Canadian craftsmen who today recapture a bygone era are equally skilled in the production of contemporary furniture for the home, as stories elsewhere in this issue illustrate. Grandfather clocks are in demand — but so are streamlined furnishing units. These handsome clocks are crafted by Henschel's of Waterloo. See company story on page 4.

## Prototype Mudslinger excavates canals, swamps

Faced with a challenge, O. F. Cummins of Cummins Marine Industries meets it head on.

Recognizing the need for a machine that would excavate swamps, irrigation canals and rivers, Mr. Cummins designed and built the prototype Mudslinger — the only one of its kind to date — that effectively met the challenge.

The Mudslinger, currently on lease in the Holland Marsh, a rich black muck market gardening area north of Toronto, is a barge 36 feet (10.9m) long, 10 feet (3m) wide and 3 feet 8 inches (1.1m) deep.

Mounted on the barge are buckets on a continuous chain that dig and deposit material into a hopper which chews up long particles such as weeds and small pieces of wood

and blows the material a distance of 75 feet (23m) to the disposal area. If the disposal area is beyond the blowing distance, the material can be blown into a small dump scow for later disposal. In either case, the blowing system eliminates the need of such steps as bulldozing and grading.

The hydraulic system and blower of the prototype machine is powered by a Detroit V6 Diesel (any similar engine may be used) of 175 hp that consumes about seven gallons (26.4 litres) of fuel an hour. The propulsion, while digging, is by two spuds 28 feet (8.5m) long. They are mounted on tracks on each side of the barge and are winched back and forth. That is, the barge moves ahead while the

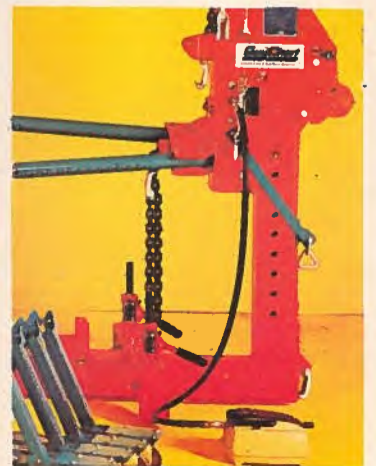
spuds stay still until the end of the track is reached. They are then raised by hydraulic cylinders and brought to the front of the barge to begin the next cycle.

The Mudslinger is designed to perform in areas where land-based machinery cannot operate: irrigation canals, mosquito control canals, removing algae and weeds from canals and rivers, and in putting new canals into swamp land to get stagnant water moving and to get oxygen into the water.

While the Islington, Ontario company does not have its own manufacturing facilities, orders can be filled by having the work subcontracted. Mr. Cummins is also considering granting manufacturing licences.

Code 1-2

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## canada courier

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### Concrete tested quickly, accurately

It takes only 60 seconds to accurately measure the slump of concrete with the K-Slump tester manufactured by Smith-Roles Ltd., Saskatoon, Saskatchewan.

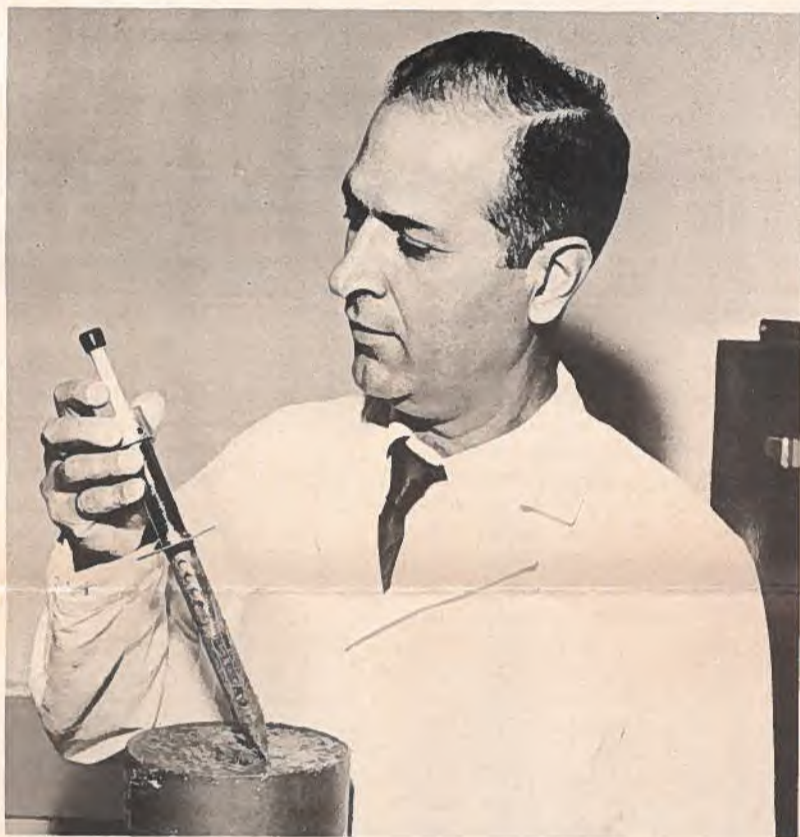
Invented by Professor K. W.

Nasser, Civil Engineering Department, University of Saskatchewan, the K-Slump tester is a considerable improvement over the traditional cone slump tester and allows engineers and contractors to measure the slump of concrete even after it is poured in place.

The tester is small enough to be carried around like a tape measure or slide rule and is simple and quick to use. It is basically a calibrated hollow tube about 12 inches (30.4cm) long and  $\frac{3}{4}$  inches (1.9cm) in diameter that can be inserted into fresh concrete by hand. It has a solid conical end for easy insertion, a round disc that controls the depth of penetration, and two groups of openings through which the wet concrete can enter the tube. The level of concrete in the probe, indicated on the plunger scale, denotes the slump quality of the concrete.

The K-Slump tester can be inserted in a compacted 6 by 12 inch (15.2 by 30.4cm) cylinder, in buckets, wheelbarrows, ready-mix truck chutes, slabs, columns, beams and any other location where the fresh concrete is placed.

Code 2-1



Professor K. W. Nasser, inventor of the K-Slump tester, takes a slump reading on a newly poured test cylinder of concrete. Manufactured by Smith-Roles Ltd., K-Slump is the first device to measure the slump of concrete after it is placed in the forms. It requires no calibration and an operator need not be highly trained to use it. To date more than 400 units have been used in testing laboratories and on construction sites in various countries.

### Auto industry supplier suits customer specifications

More than 600,000 motors for the automotive industry are produced each year by Electrohome Limited Motor Division, Cambridge, Ontario.

Engineered and built to customer specifications, the motors have a wide variety of applications: car heater and defroster, electric axle shift, fuel pump motors, rear window defroster, heater and water systems for recreational vehicles, truck heater, marine blowers and truck defroster fans.

The type 5-2 pole low voltage series and shunt motor has time-tested spring-loaded sintered iron or bronze bearings to provide long and trouble-free operation. Added to this is an oil reservoir that helps prolong motor life and reduce maintenance costs.

These motors can be thermally protected, ventilated, totally enclosed or force cooled — depending on customer specifications — and can be supplied with direct or alternating current in 6, 12, 24 or 32 volts.

A relatively new Electrohome product is the current low voltage defroster fan that features the latest in styling and engineering design.

The defroster fan, with swivel die-cast zinc base, features a new fan guard made of high impact polypropylene that reflects less light and minimizes possible injury in case of accident.

The fan guard is hand-adjustable for movement in a variety of horizontal and vertical angles and the attachment has no nuts or thumb screws that could become loose and change the air discharge direction. In addition, the ball and socket base is spring-loaded to give consistent resistance to movement during the life of the fan.

Standard fans are 12 and 24 volts with other voltages available on request. They are also available with a three-position switch built into the motor or with terminalized leads for connection into the switch plate.

Code 2-3

## New ceiling is a standout!

A new ceiling that is, quite literally, a standout, has been designed by a Montreal, Quebec company. Integrated Lighting Canada Limited (Intalite), well-known for its luminous ceiling systems, is now marketing its Magnagrid system.

Magnagrid, a multipurpose, three-dimensional aluminum ceiling surface, has a "thick look" multi-directional louvered pattern which gives great versatility in where and how it is used.

This ceiling offers architects, designers and engineers a surface through which lighting can be suspended, into which light can be incorporated and above which light can be randomly located. Acoustic

equipment, sprinklers and air diffusers can be located above the ceiling, out of sight.

It can be installed wall-to-wall or floated in large or small islands. It can be used anywhere: in major commercial applications such as shopping malls, department stores and plant areas; and in smaller spaces such as open-plan offices, libraries and lobbies. Because it has no principal direction, it can go around corners, fit into circular areas and fit intersecting corridors.

The panels are assembled so that the louver blades interlock to form a strong two-foot square (0.4-m<sup>2</sup>) panel. The panel is available in three cell sizes: 3, 4 $\frac{1}{2}$  and 5 $\frac{1}{2}$

inches (80, 115 and 140mm), all two inches (50.8mm) in height.

On site, panels are suspended from an integral hangar runner that blends in with the louvers to provide an unbroken multi-directional ceiling surface. Panels are shipped knocked down.

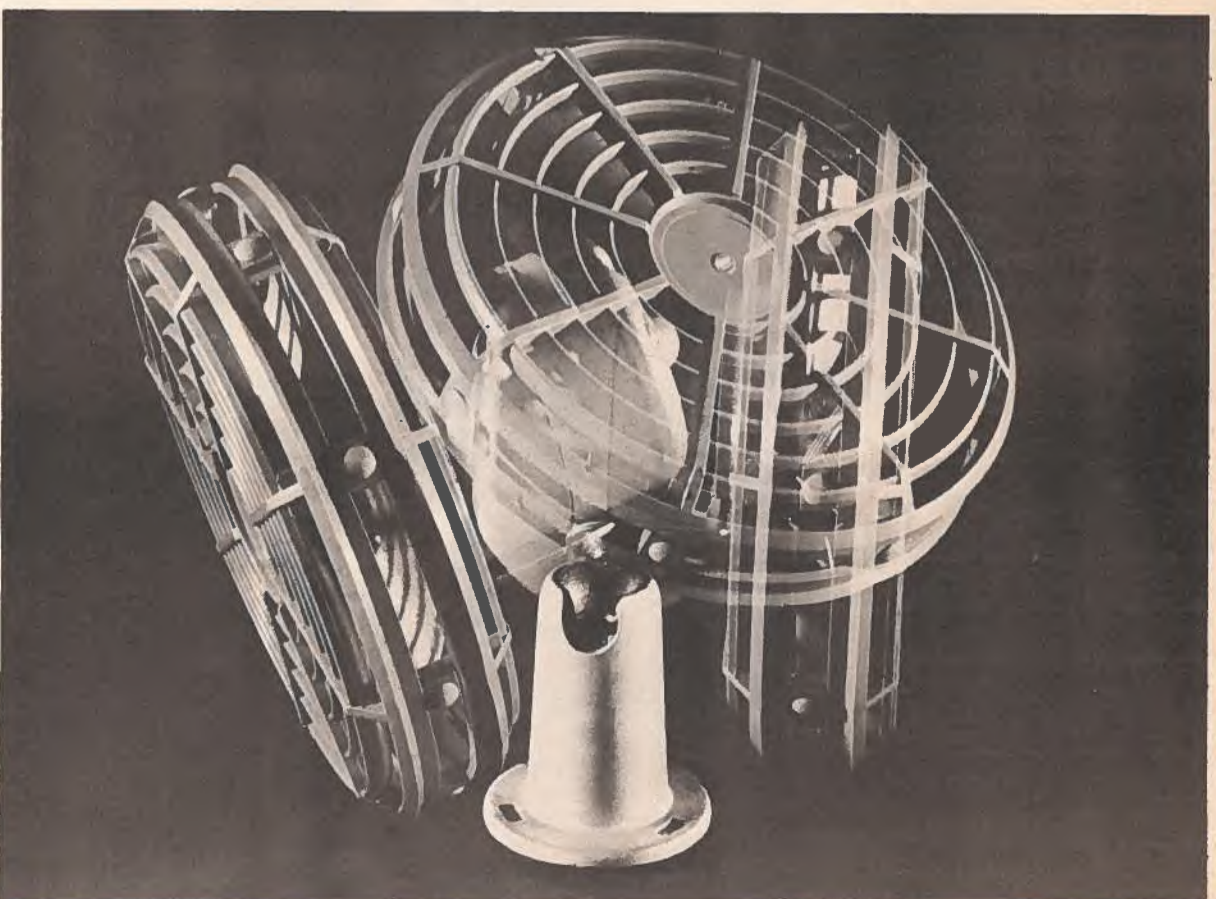
The ceiling surface is available in semi-gloss white, brushed aluminum or with simulated wood-grain. Other finishes can be supplied at the customer's request.

Literature is available from the company in English, Danish, French, German, Italian, Japanese, Norwegian and Portuguese.

Code 2-2



Intalite's attractive Magnagrid ceiling adds warmth to a Montreal "open" office.



Electrohome Limited's new defroster fan features a plastic fan guard that is hand-adjustable for movement in a variety of horizontal and vertical angles. The guard is specifically designed not to soften in the heat of summer or become brittle in the cold of winter.

## Simple solution to pollution!

Pollution reduction at cottages and summer homes is guaranteed with this Royal Flush-O-Matic flush toilet manufactured by Sanitation Equipment Ltd., Downsview, Ontario. Reducing sewage effluent by as much as 95 per cent, the Flush-O-Matic flushes on less than one quart (1.137 litres) of water and, since it can operate without water pressure (by hand ladling water into the bowl), it is ideal for winter use or where hydro is not available. Sanitary and simple to install, the Flush-O-Matic has all plastic and metal parts that are corrosion resistant. Recommended by plumbing and health inspectors for use on all septic tank and holding tank systems, the toilet is recognized as a water saving, pollution reducing unit and is approved by the Canadian Standards Association. Sanitation Equipment Ltd., which exports to New Zealand, Australia, Britain and the United States, is also noted for its Potpourri, a recirculating portable toilet system. Code 3-1



## Automation in ventilation for cleaner, safer kitchens

Safer, cooler, cleaner commercial kitchens are assured with the Quest CleanAir ventilators manufactured by Quest Metal Works Limited, Vancouver, British Columbia.

Quest ventilators automatically ventilate the kitchen, extract grease from the cooking unit, wash themselves out and, in the event of fire, give almost 100 per cent fire protection.

The built-in fire protection system consists of fire sensitive thermostats wired into an electrical circuit so as to automatically turn on the water wash, shut off the exhaust fan and close the duct dampers, preventing the spread of fire into the ducts and upper sections of the building.

The fire control system can be manually operated by a conveniently located lever handle (to periodically test the system) or it can be activated by remote control buttons that can be located in one or more places throughout the kitchen. For more complete fire con-

trol a CO<sub>2</sub> or dry chemical extinguishing system is an available option.

The wash-down system is completely automatic, controlled by a time clock which can be set to turn the water wash off or on at any hour of the day or night — or several times every 24 hours if required. The water is pressure sprayed through closely spaced nozzles set in a stainless steel manifold to give complete wash coverage.

Included with the wash water is an automatic solvent injector: when the system is shut down, the interior of the ventilator is automatically scoured with pressurized solvent-laden hot water and the grease is washed down the drain.

The ventilators, of all-welded stainless steel construction, have a stainless steel grease trough, 1½-inch (3-cm) drain connections up to 12 feet (3.6m) in length and are available in a variety of models to suit any application.

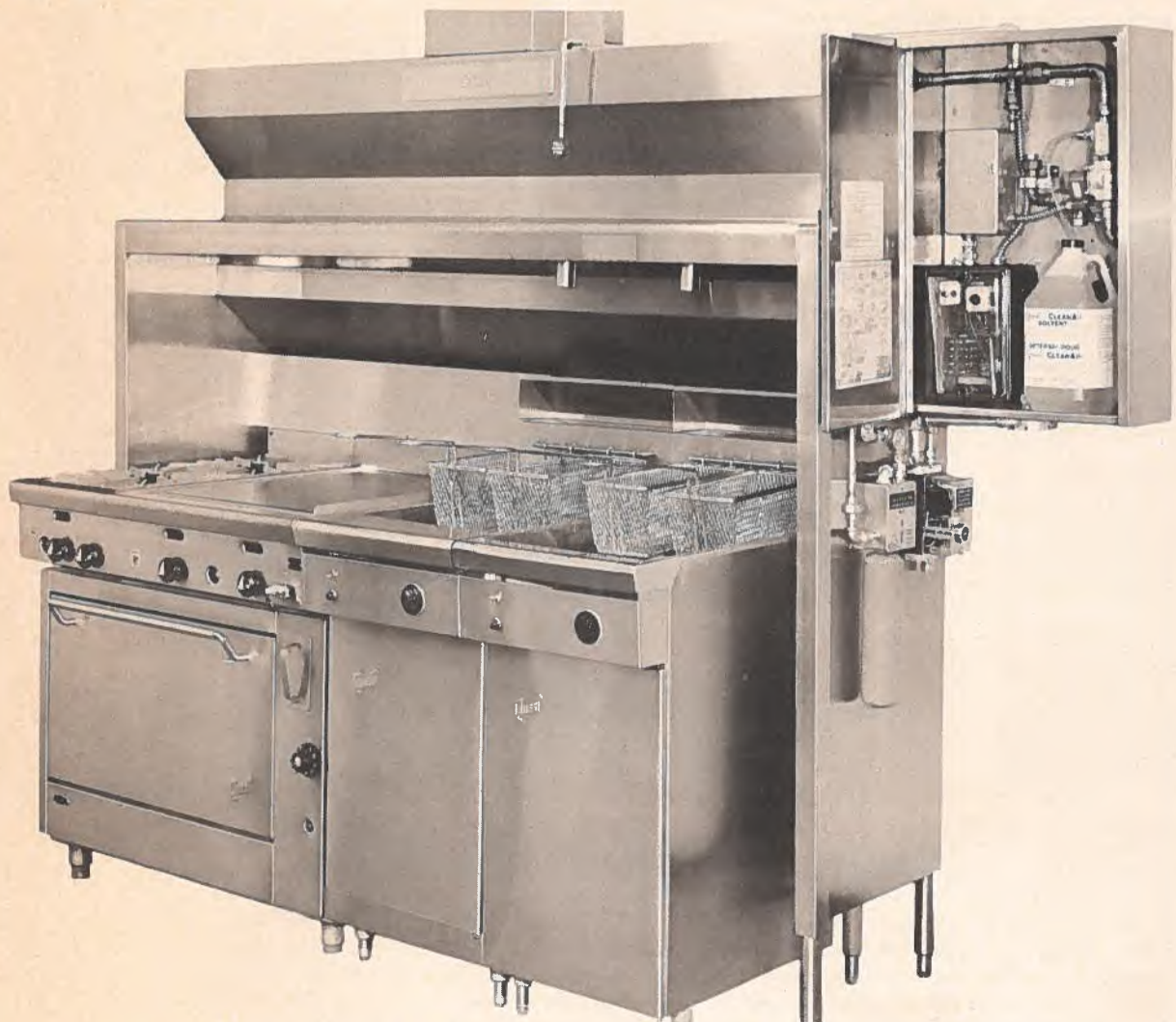
The Model "S" is the standard

unit used over ranges, fryers, griddles and broilers. It can be used over modular and counter top cooking equipment and is normally designed as a wall-hung unit with steel hanger. It can also be provided as a free-standing or island unit.

The most popular overhead unit is the Model "LPO", a low profile unit that has been used successfully throughout hotel, hospital and institutional kitchens. A special option with the "LPO" is a fluorescent light fixture carefully concealed behind the front apron.

The Model "D" is designed for drive-in operations with kitchens open to public view. It can also be successfully used in kitchens where it is possible to run the ducts in or under the floor. The downdraft venting eliminates unsightly ducts and greatly improves the appearance and efficiency of any kitchen.

Quest Metal Works Limited exports to the United States and seeks international markets and/or licensed fabricators. Code 3-2



Quest's Model "S" ventilator is normally designed as a wall-hung unit — one of several ventilators manufactured by the Vancouver company for safer, cleaner commercial and institutional kitchens.

## Hard hat tops in protection

Maximum safety and comfort in all types of industrial and construction environments are assured with the rugged hard hat manufactured by Safe-Tex Manufacturing Company, Weston, Ontario.

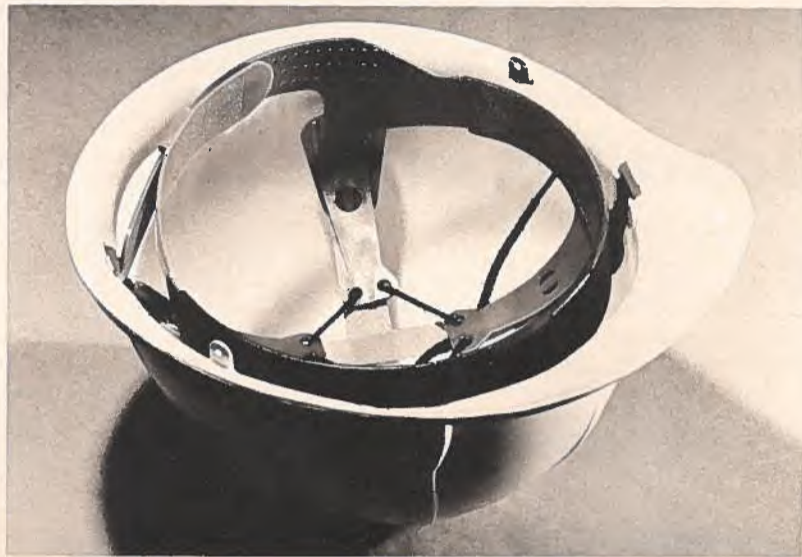
A product of 4½ years of development, the Safe-Tex 700 Safety Cap is constructed of a one-piece shell molded from high-density polyethylene. The shell has a unique eight-directional rib contour construction that is designed to distribute shock and stress in all directions. Shock is further absorbed and cushioned by a suspension system of nylon webbing and strapping molded from low-density polyethylene.

The Safe-Tex 700, which has been successfully tested to a variety

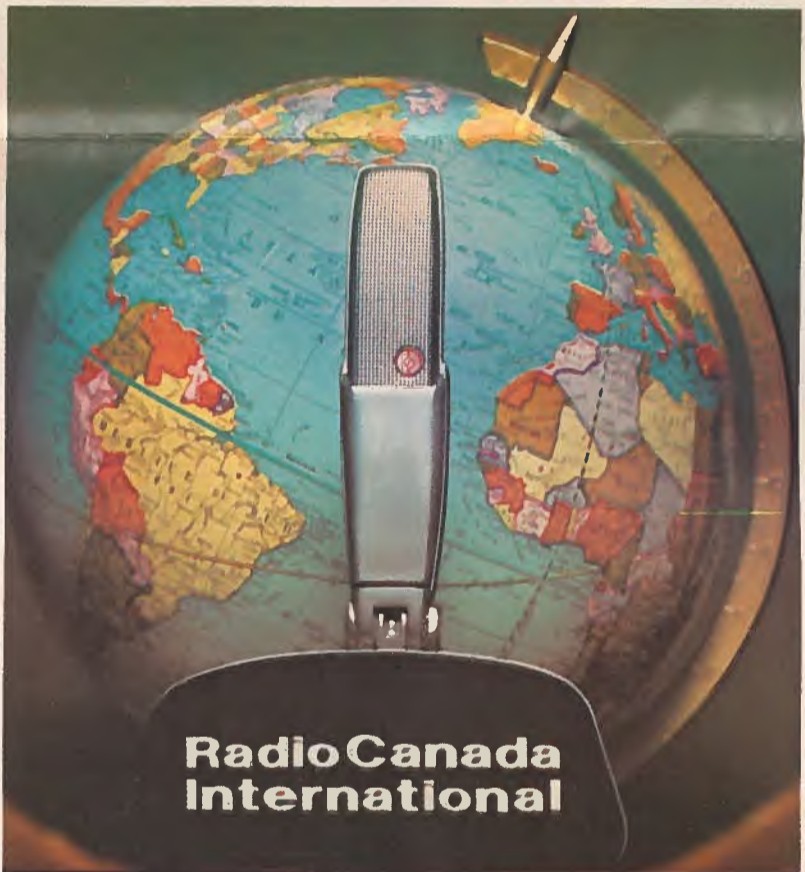
of standards, is highly resistant to puncture and will not distort when exposed to ultraviolet light or to extremes of temperature likely to be encountered during use. It is also unaffected by acids, alkalis, oils, greases, solvents, insect-repellent sprays, detergents and paints.

Other features of the hat include: a large brim for facial protection and positive deflection, a deep and extended rain trough channel, a molded-in chin strap attachment and a well-balanced construction that gives the wearer maximum comfort.

Easily adjusted to fit head sizes, the hats are available in 11 standard molded-in colors, with special colors an option. Code 3-3



The Safe-Tex 700 Safety Cap, manufactured by Safe-Tex Manufacturing Company, provides maximum safety and comfort in all industrial and construction environments. Able to withstand 30,000 volts of electricity, the hat also protects against electric shock or burn.



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### Tailored for quality

One of Canada's largest furniture manufacturers attributes its success to the superior quality and tailoring of its products. Sklar Furniture Ltd. of Whitby, Ontario, was established more than 60 years ago and has been exporting for about five years. Its major emphasis in the export market has been placed on unique velvet fabrics shown on upholstered sets with extensive exposed wood treatments. This combination has proved to be most acceptable in the medium price range, providing exclusivity, excellent margins and good turnover for the retailer. The company's dining room and bedroom furniture include contemporary, colonial, Spanish and traditional lines. Outside Canada, the company has showrooms in Hickory, North Carolina and San Francisco, California. Pictured above is Sklar's chesterfield and armchair style 417. Code 4-1



### Upholstered elegance

Producing quality upholstered furniture that, in years to come, will be as comfortable and pleasing to the eye as it is today, is the philosophy successfully practised for more than 50 years by Small and Boyes Limited, Vancouver, British Columbia. Top quality construction, durability and special attention to detail are evident in the firm's modern, traditional and transitional designs of furniture — all handcrafted by skilled and imaginative craftsmen. A recent introduction is the company's "As you like it" group and "By the inch" series which permit the customer to have a chair, loveseat, sofa, half sofa or armless sofa made to any length or style his room or comfort demands. Code 4-2

### Old-fashioned clocks attract modern buyers

Quality clocks that are chiming melodiously in homes throughout Canada, the United States and Europe are made by Hentschel's of Waterloo, Ontario, a division of HFL Ltd.

One of only two companies in the world still producing grandfather clock cabinets by hand, the 84-year-old Hentschel's is renowned for its Grandfather, Grandmother and Granddaughter clocks.

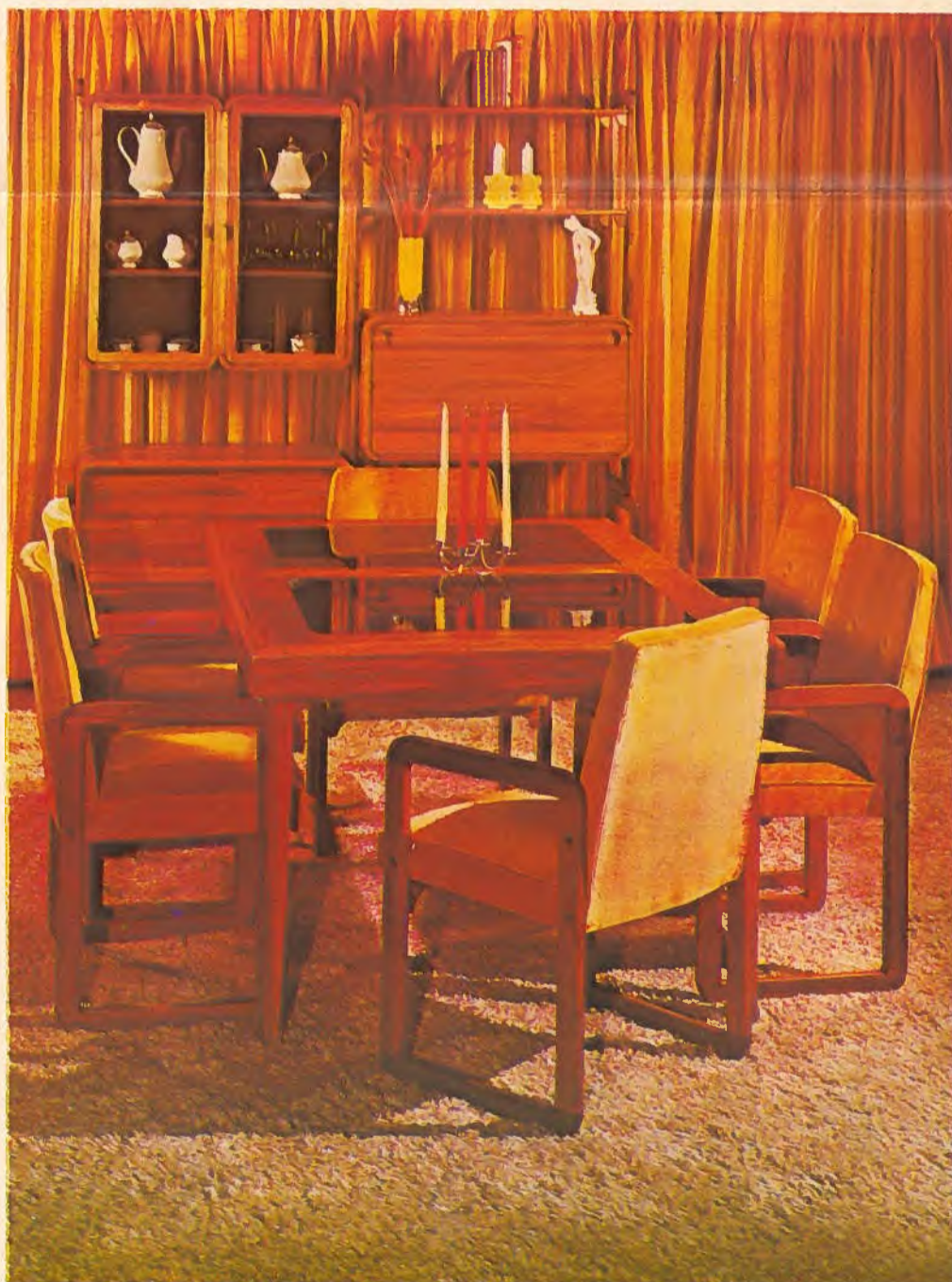
These are produced by master craftsmen who have the time and the patience (sometimes 70 to 80 man-hours go into the making of one clock) to create, by hand, what no machine could duplicate. Clock cabinets are made of such selected wood as walnut, mahogany, cherry and pine.

The production process involves cutting the wood into the various shaped pieces and giving it a rough finish. Skilled carvers then do the hand carving and the frames, small

carvings, base, feet and doors are all pieced together — first with glue and then with screws. A final varnish is added to the cabinet and the clock movements installed.

The movements, for which Hentschel's has exclusive distribution rights, are precision made in Germany by a third generation clock manufacturer. The movements and the Westminster, St. Michael's and tubular chimes — which herald the passing of time each hour or each half hour — are tested for at least 24 hours to ensure the clocks are in top working order before leaving the plant.

Hentschel's of Waterloo, also makers of custom made household and office furniture, produced 1,200 grandfather clocks in 1973 and expects to make 2,000 in 1974 — when it also plans to introduce its Colonial line of clocks. Code 4-4



### Versatile systems from Woodcraft

Versatile furniture systems produced by a Montreal, Quebec, company are ideal for both home and office. J.A. Woodcraft Ltd.'s patented wall systems, room dividers and supports, dining room tables, chairs, coffee tables, end tables, night tables and headboards are sold in Canada, the United States and Japan and the company seeks further export markets. The furniture is made of solid genuine Canadian and American oak, American walnut, Burmese teak and Brazilian rosewood, all with a unique design of rounded corners. Wall systems are available in both free-standing and wall-hanging models. Cabinets have a natural oil finish and are resistant to alcohol. Code 4-3



### Promoting good business

"Anything that will help you to an easier, faster sale" is the motto of a Toronto, Ontario, furniture company. Luby Products Ltd., which has been exporting for four of its eight years, offers a program of dealer aids that includes special promotions complete with customer premiums and display guidance, newspaper ad mats, photographs and display ads. The company makes living room suites, chesterfields and convert-a-beds, recreation room furniture, occasional tables and mattresses. Shown above are Luby's model 114 chesterfield and chair. A matching loveseat, which is not pictured, is also available. Code 4-5



## Contemporary lines, sculptured detail

Distinction through elegance is reflected in this "Cambay" 750 dining room grouping by Kaufman Furniture Limited, Collingwood, Ontario. The "Cambay" 750 series is particularly appealing to those who find themselves equally attracted to the strong lines of contemporary design and the sculptured detail of traditional furniture. Of nutmeg finish, hand rubbed to a velvet lustre, the furniture is highlighted even more by the semi-recessed burnished brass pulls. Subdued cane panels in the dining room chairs form an eye-accommodating background for the brass and wood. The two-piece China unit is 72 inches (182cm) wide, 18 inches (45cm) deep and 78 inches (198cm) high. The dining room table has two 18-inch (45-cm) leaves with apron and the high cane back side and arm chairs feature 1½-inch (3.8-cm) foam welted seats.

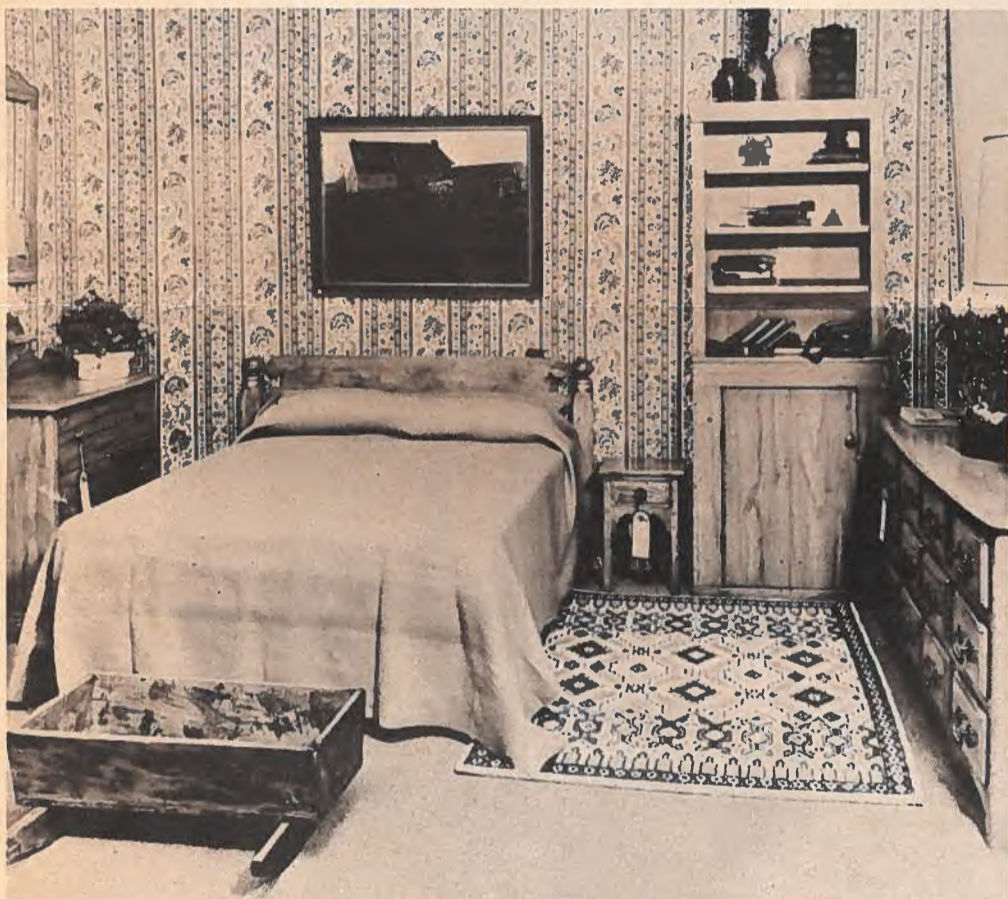
Code 5-1



## Warm and welcoming look from Vilas Industries

Fine craftsmanship, simplicity of design and informal styling give a warm and welcome feeling to the line of Colonial/Traditional furniture manufactured by the 104-year-old Vilas Industries Limited, Cowansville, Quebec. All products are manufactured from solid hard rock maple. The company's standard finish is "Candlelight Maple." A new finish, introduced in 1971 and called "Vintage Maple," is a slightly darker, warmer, browner finish with hook, splatter and physical distressing applied to give it an aged look. Vilas furniture is also available in seven decorator colors that may be either hand-glazed or hand-decorated and these colors may be combined with the Candlelight and Vintage Maple finishes to blend with the Vilas mood concept. Vilas is also well known for its upholstered furniture and the company recently introduced a wide range of table and floor lamps in the Colonial/Traditional styling. Vilas Industries Limited exports to Japan and the United States and seeks international markets.

Code 5-2



## Charm of a bygone era

Reflections of a bygone era are recaptured in this ensemble depicting authentic reproductions of wood furniture used in French and Upper Canada in the 18th and 19th centuries. This Early Canadiana collection was introduced in early 1974 by Simmons Limited, Montreal, Quebec, a firm long known for its fine quality home furniture. All pieces of Early Canadiana are crafted from seasoned Canadian pine with selected hardwoods being used in chair legs and other components for added strength and durability. The honey-toned pine has a hand-rubbed appearance, giving it an earthy look and creating a back-to-nature atmosphere. Simmons Limited is also known for its Selig by Simmons line of contemporary upholstered furniture and its Century 2/Vivigrain Collection, a contemporary wood case goods line in nine brilliant high-gloss colors.

Code 5-4

## ICD designs new modular system

Inter-Continental Design Ltd. of Toronto, Ontario (ICD) sells its high quality home furnishings across Canada and the United States and is looking for sales elsewhere. The company's newest furniture system is the Quintette 28, a modular, handcrafted furniture component system. The system has three sizes of cabinets, based on a 28-inch (71-cm) module: 28 by 28 inches, 28 by 14 inches and 7 by 14 inches (71x71cm, 71x35 and 17x35cm). The system also includes a unique bed unit with storage areas in both headboard and bedbase. As well as providing access to the bedbase storage, the footend of the mattress can be positioned in various resting angles. From these components, a variety of furniture set-ups can be created for living rooms, bedrooms, family rooms, dining rooms, halls and offices. Quintette 28 is a knock-down system with all components interchangeable. Cabinets are available in Burmese teak, Brazilian rosewood and in combinations with white laminate fronts.

Code 5-5



## Hardwood matched to pine veneers for early Canadiana style

The process of selecting hardwood solids carefully matched to pine veneers not only overcomes the problem of cracking and splitting often associated with solid pine construction, but succeeds in capturing the true spirit and look of early Canadian pine. This is evident in the Conestoga collection (above) by Deilcraft Home Furnishings Division of Electrohome Limited, Kitchener, Ontario. In addition to occasional tables and bedroom furniture, Deilcraft recently introduced its "oriental" collection of dining and bedroom designs in which pure lines and to-the-floor styling, together with a "pecan east" finish, reflect the influence of the early Chinese classics.

Code 5-3



## Little red schoolhouse goes modern as teaching aid

A versatile, easy-to-use kit that can be used with many approaches to teaching reading is being manufactured by Science Research Associates (Canada) Limited of Don Mills, Ontario.

Called Schoolhouse, the kit consists of a colorful box of cards which encourage each child to independently learn and practise work skills. Also in the kit are 10 re-usable plastic overlays, 10 non-toxic markers for pupil responses, a pad of individual progress report sheets and a 16-page teacher's guide.

The 340 cards — 260 in full color — are carefully sequenced to provide a learn and practice cycle.

Each card has clear, concise instructions and original art. The cards, organized in color-coded units, will help children with: auditory discrimination, initial consonants, final, medial and variant consonants, consonant combinations, vowels, compounds, contractions, variant endings and affixes. Only a minimal reading vocabulary is necessary for the program.

Because the answer key is on the back of each card, the program is self-checking. The child responds on a plastic overlay, then flips the card over to check the work. Authors of the kit feel this makes Schoolhouse almost a game, which

a child can play against him or herself.

With Schoolhouse cards, children progress at their own speed. Simple records keep track of each child's progress and let the teacher prescribe individual learning exercises when necessary.

The kit is equally useful in a learning center, a traditional classroom or an open-area. While it is designed to form the basis of a program for children aged 6 to 9, the kit will also be useful in remedial classes for older children.

The kit gets its name from its packaging: a little red schoolhouse made of non-toxic, almost indestructible plastic. Code 6-1



Children practice reading with help of Schoolhouse kit made by Science Research Associates (Canada) Limited. The kit can also be used for teaching a second language.

## Canadian companies to participate in Interforst '74 forestry show

Ten Canadian companies will participate in Interforst 74, the second International Exposition of the Technology of Forestry and Forest Industries, to be held in Munich, June 20-26, 1974.

Exhibits will cover the following subjects: silviculture, data-collecting and -processing related to forestry, road construction and maintenance, forest protection, industrial safety, work hygiene, first aid, timber harvesting, logging and log transport, equipment and chemicals

for wood preservation, sawmills, machinery and equipment for wood gluing.

The Canadian companies participating in the show are: Brunette Machine Works Ltd. of New Westminster, British Columbia — sawmill equipment; Clark Equipment of Canada, St. Thomas, Ontario — skidders and harvesting equipment; Eaton Yale Ltd., Woodstock, Ontario — skidders and harvesting equipment; Grayco Harvester, Heidelberg, Ontario — tree seed-

ling harvesters; Hawker Siddeley Canada Ltd., Can-Car (Pacific) Division — sawmill equipment; Hawker Siddeley Canada Ltd., Can-Car Thunder Bay Division — skidders and harvesting equipment; Nicholson Murdie Machines Ltd., Victoria, British Columbia — sawmill equipment; Outboard Marine Corp. of Canada Ltd., Peterborough, Ontario — chain saws; Quadra Manufacturing Ltd., Trail, British Columbia — chain saws; Titan Proform Company Limited, Toronto, Ontario — wheels and rims for forestry equipment; and United Tire & Rubber Co. Ltd., Rexdale, Ontario — forestry tires. Code 6-3



Clark Equipment's Ranger skidder, model 666, aligns logs.



Young Harry Moskoff holds one of Prescott's newest "lamb savage" rugs: a lambskin rug printed in a tiger pattern. Harry is sitting on another Prescott product, a "quartette" area rug. This rug, approximately 4 by 6 feet (1.2 by 1.8m), consists of four matched lambskins, sewn together. Harry knows a good deal about Prescott Hide and Skin Company Limited — his grandfather, Harry Moskoff, is president of the company.

## A lamb in tiger's clothing?

What looks like the skin of an endangered species, but doesn't threaten any wild animal?

The answer is a "lamb savage" rug by Prescott Hide and Skin Company Limited. This Toronto, Ontario, company sold its first lambskin rug in 1946 and has now become one of the world's biggest manufacturers of these rugs.

Its newest rug, the lamb savage, is a genuine lambskin available in four wild animal designs: leopard, ocelot, tiger and zebra. The wild animal looks are created through silk screen printing.

These rugs are available with and without linings. The lined rugs have fine quality black felt undersides, with a one-inch (2.5-cm) border showing. The unlined rugs have a buffed leather underside.

The company's other lambskin rugs, sold under the tradename Moutonia, are admired for their

long, soft hair, their luster and their immaculate finish. These rugs are usually kept in the original shape to retain the natural look. However, the company also sells area rugs, made of several skins sewn together, to cover larger areas.

The Moutonia rugs are available in white, natural, white with brown tip, white with black tip, red fox and 14 other colors.

Prescott also makes bedspreads, wallhangings, seat covers and garment trim. Its bedspreads, for instance, are lambskin area rugs in stripes of alternating wool lengths. They're available in six colors.

Each product is packed individually and comes with cleaning instructions.

Prescott is exporting to, among other countries, Austria, Britain, Germany, Holland, Japan and the United States. Code 6-2

## Ingenious products live up to company name

Valve guide and seat insert machines have been engineered to re-machine automotive cylinder heads with integral valve guides and valve seats and to rework both gas and diesel truck and tractor engines. These are manufactured by Ingenious Devices Limited, Orillia, Ontario.

Universal and readily adaptable to all heads using only one set of levelling supports, the machines are easy to operate: set-up time for any automotive or medium-truck cylinder head is only one minute.

Ingenious Devices also produces a comprehensive line of degreasing tanks designed to fill an ever-increasing demand for fast cleaning of cylinder heads, blocks and component parts.

The tanks support loads up to 600 pounds (272.4kg) and are insulated and heated.

An oil grooving tool — a breakthrough in preventing extreme valve guide wear — is also produced by Ingenious Devices. It bores a simple clean-cut spiral oil groove without distortion or surface cracking. No oil is lost through the valve guide since the groove stops at the correct height before the valve port.

Supplying North American markets since the early 1960s, Ingenious Devices Limited is able to service Japanese and European late-model integral valve guides in inch and millimeter sizes. Code 6-4

# Custom-made "big wheels" from Titan

In just eight years, Titan Proform Company Limited of Toronto, Ontario, has become a "big wheel" in the large diameter wheel business. In fact, steel wheels as big as 38 inches (97cm) in diameter roll off the Titan production line.

The company supplies a complete line of custom-made wheel assemblies to North American manufacturers for agricultural, mining, logging, road-building and all-terrain applications. Customers include Canadian Car, J.I. Case, Caterpillar Tractor, Clark Equipment, John Deere, Ingersoll Rand, International Harvester, Timberjack and Versatile. The company is now also shipping to European manufacturers of heavy equipment.

This Toronto company was formed for the express purpose of producing wheels for timber skidders. Previously, somewhat crude adaptations of agricultural wheels had been in use: when Titan began manufacturing, a product became available to meet the specific needs of the industry. The aim was — and still is — to maintain flexibility in design and yet deliver the product in a reasonable period of time (currently six to eight weeks from receipt of order).

Titan claims that no order is

too small or too large for the modern equipment and techniques at the company's disposal.

To begin the manufacturing process, mild steel is delivered in sheet form to Titan's specifications. It is coiled to butt and is submerged arc welded into a cylinder. After the weld is trimmed, the cylinder is "flared" on a programmed radial expander and is passed on to one of the huge rotary roll formers. Here, the part is rolled between rotating dies at pressures up to 100,000 pounds (45,400kg). The resultant rim profile complete with knurled bead seats is accomplished in a cycle of approximately 60 seconds.

Now, the rim passes to a final radial expander. In this operation the part is brought into "round" and to the exact tolerances required by either the customer or by subsequent "in-plant" operations.

Although the roll formers are not limited to rims of 38-inch (97-cm) diameter, this size appears to be the current maximum diameter which is required by the industry. The diameters reduce in standard sizes to a minimum of 24 inches (61cm). Rim widths range from 14 to 36 inches

(35.5 to 91.4cm), but Titan believes that its 32-inch (81-cm) rim is the widest, single-piece rotary roll-formed rim in the world.

In recent years the trend in the equipment industry has been towards more power coupled with a higher degree of specialization. The torques which are delivered to the wheels have increased considerably as have the lateral shock and force requirements. The Titan rim profile enables it to mount its heavy web plate on the strongest part of the rim, through a wide range of track widths. Flanges are "stiffened" by round edge bar stock which has been coiled to the precise diameter of the flange. Like the web plate, they are initially tack-welded into position. This assembly is then rotated in an automated fixture where as many as eight circumferential welds are performed at the same time under controlled conditions. This enables Titan to achieve distortion-free, precise circumferences in the final product.

Rigid inspection follows each step of the process and the final inspection ensures that all of the customers' specifications have been met. The product is supplied in a raw steel, primed, or finish painted condition. Code 7-1



Titan Proform was established in 1966 to produce wheels for timber skidders; before that time, the industry had to use the somewhat crude adaptations of agricultural tractor wheels. Today, the company is making wheels for many original equipment manufacturers.

Only in Canada . . .

# Bus manufacturer uses quieter, cleaner engine

Co-operation among one Canadian and two United States companies has resulted in the production of a safer, quieter, less vibrating and less polluting highway bus.

The Canadian company is Motor Coach Industries Limited (MCI) of Winnipeg, Manitoba, which manufactures the new MC-8 turbine coach. The United States companies are Detroit Diesel Allison Division of General Motors, which made the bus's gas turbine engines, and Greyhound Lines, which conducted extensive roads tests on the bus. MCI is the only bus manufacturer using the new engine.

The MC-8's turbine engine has been combined with a new four-speed automatic transmission to give a very smooth ride. More important from the safety viewpoint, the automatic transmission lets the driver keep his hands on the wheel at all times.

The irritating and sometimes hazardous problem of noise has been overcome in the MC-8. People talking in a normal tone of voice can hear each other without any trouble, even when they're standing outside the bus right next to the engine while it is idling on high. When moving, the bus is very

quiet, with passengers being able to converse in normal voices without any problems.

The engine is virtually odor-free and emits fewer pollutants than previous engines.

The gas turbine engine has other advantages: it is expected to go up to one million miles before needing a major overhaul; it can use a wide range of fuels; its cooling system does not require elaborate plumbing and piping; and it has no cold weather starting problems.

Motor Coach Industries is the largest North American manufacturer of highway buses. Code 7-2



Motor Coach Industries' new MC-8 turbine coach. The Canadian company is the only bus manufacturer using the new engine.

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## These discs don't slip

Customers in more than 50 countries testify to the quality and performance of disc brake equipment manufactured by Royal Industries Certified Division, Rexdale, Ontario.

After pioneering for more than 25 years in the manufacture of such equipment, Royal Industries entered the export market with marked success in 1967.

Principal products exported by Royal are disc brake assemblies

and brake linings in segment or rolled form. In fact, Royal developed the rolled brake linings expressly for the export market.

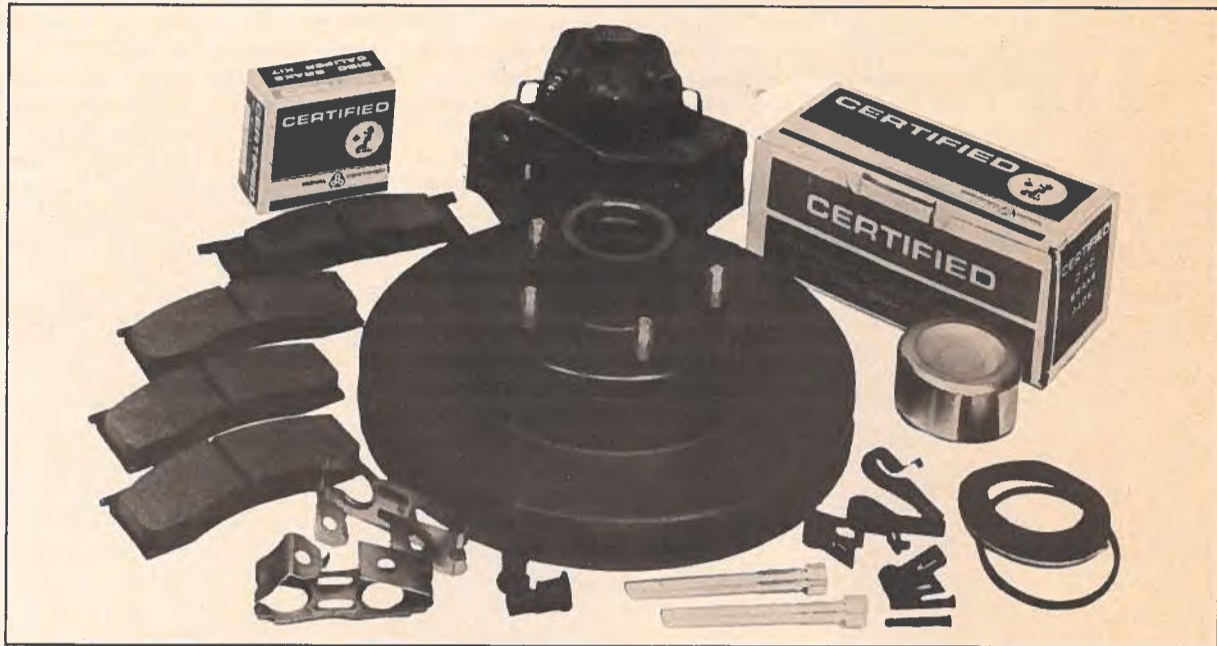
These brake linings have undergone every laboratory test possible and have proved their durability not only at Daytona International Speedway but on instrumented test vehicles that have travelled all types of terrain under all types of climate.

Royal Industries has also devel-

oped a semi-rigid molded strip formula exclusively for the brake shoe rebuilding industry. Supplied with or without impregnated wire backing, this material guarantees safe, quiet braking and greater mileage life.

Unlike some companies that make automotive replacement equipment only for specific lines of automobiles, Royal manufactures brake equipment for all types of cars and trucks and will fill orders for whatever is required.

Code 8-3



A sample of the wide variety of automotive replacement equipment that is used in more than 50 countries and manufactured by Royal Industries Certified Division.

## Brake parts are big business

More than 450 types of unlined brake shoes, disc brakes and brake drums are manufactured by Aimco Industries Limited, Mississauga, Ontario.

A multi-division company, Aimco's line of vehicle brake shoes is one of the most extensive in the world. These parts alone consume more than 37,000 tons (27,215 metric tons) of steel each year and are marketed internationally.

Other products include instrument panels and bumpers for the original equipment manufacturer (OEM), disc brake rotors and backing plates, and electric brakes for trailer homes.

The Aimco brand of automotive parts has earned a reputable position throughout the world in the replacement and OEM equipment field.

Code 8-1

## Fast and efficient towing and hoisting

Automobile towing and hoisting can be fast and efficient with machinery and tools from Vulcan Equipment Company Limited.

Established in 1940, this Toronto, Ontario, company makes the cradle snatcher, the P4 hydraulic hoist, the ramp hoist 70, the Lift-n-Tow, the Model FL32 frame lift and the air-operated Jiffy Jack.

The Jiffy Jack, which lifts most cars by the front, side or rear, has fingertip manoeuvrability, a wide frame for stability and operates at an air pressure of 150 pounds per square inch (10.5kg/cm<sup>2</sup>). It has a four-second lift and requires minimal maintenance.

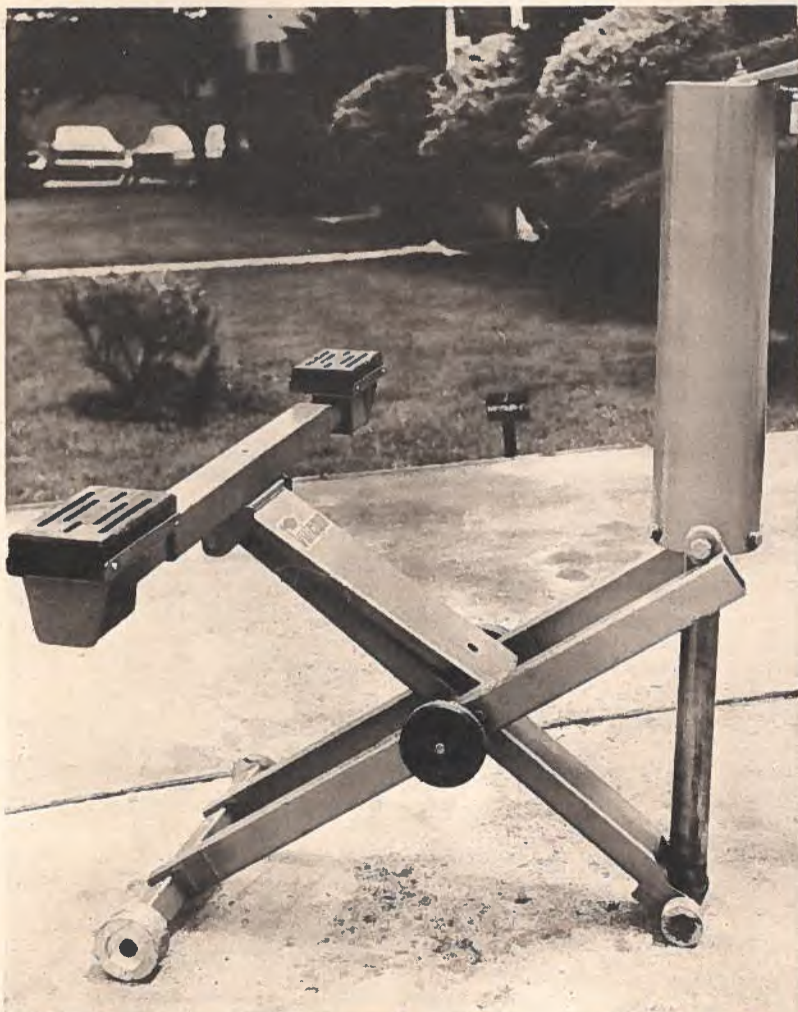
Vulcan's Model FL32 frame lift is a jack with lots of reach and one that does not damage the automobile's bumpers or grill work. Its honed air cylinder gives a fast, smooth lift up to two tons (1.8

metric tons) in 10 seconds to a maximum height of 28 inches (71.7cm). As it lifts, the FL32 rolls to the car, automatically adjusting itself to the most stable and safe position.

Another Vulcan product, the cradle snatcher, is designed for damage-free towing. The unique cradle design permits fast handling of all cars by picking them up by the wheels. Its telescopic boom hydraulically lifts the car and pulls it in over the wheels of the wrecker for optimum towing stability.

In addition to automotive service equipment, Vulcan also manufactures "pre-cured" retreading equipment that is sold internationally under the brand name Vulcap. The firm's products are exported to more than 40 countries.

Code 8-2



The Model FL32 Frame Lift with fingertip manoeuvrability lifts all American and most other cars by the frame, from the front, side or rear in only 10 seconds.

## Auto body repairs

### All the tools to do the job

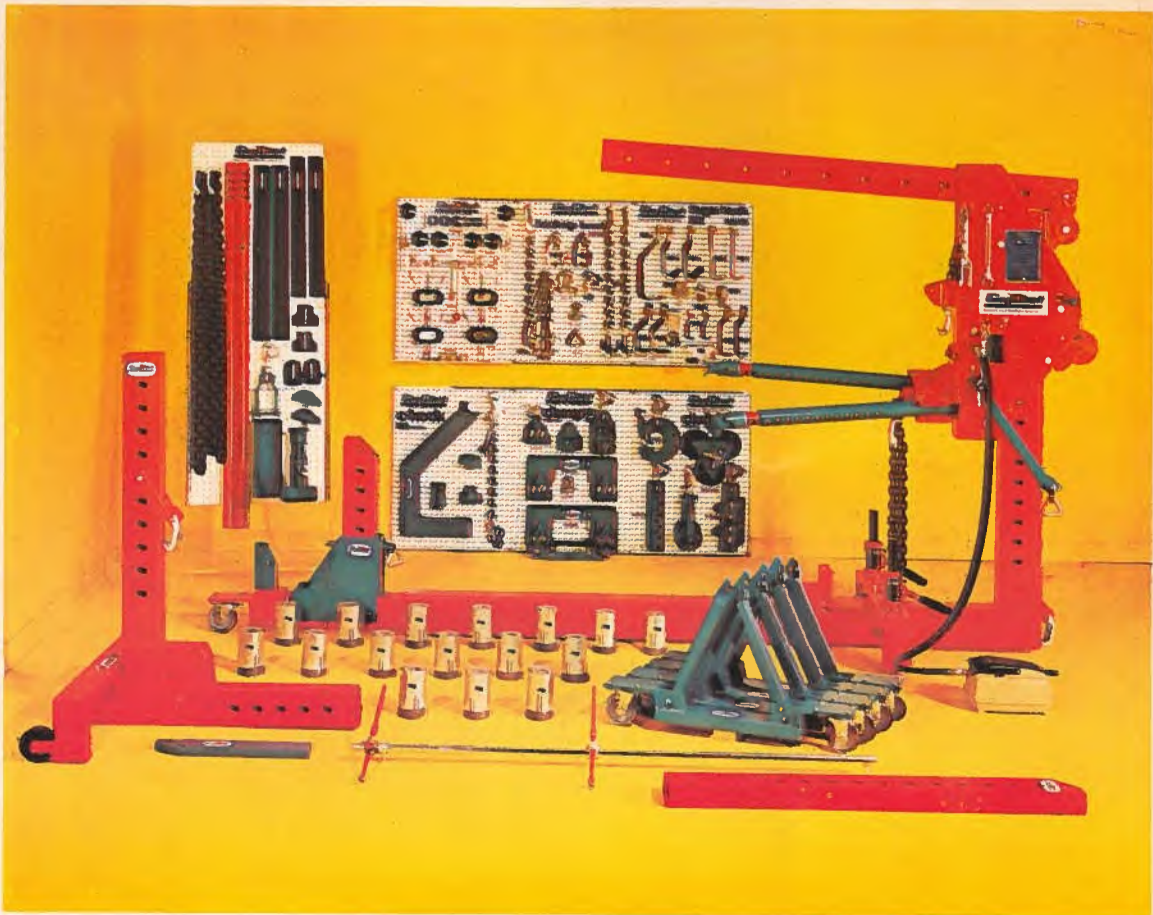
The world's most complete range of autobody and frame straightening tools are manufactured by Guy-Chart Tools Ltd., Pickering, Ontario.

Since 1957 when the company's founder, Mr. Guy Chartier, invented a simple tool for minor fender repairs, the company has grown and prospered. Today its products are used in more than 20 countries.

Guy-Chart's latest product — and one that has attracted much interest from such countries as Japan and Australia — is a pit model frame rack. For use in high production repair shops, the unit straightens cars of both monocoque and rail construction.

Guy-Chart also offers a number of complete systems for autobody repair shops and manufactures air operated pumps and 25, 50 and 100-ton (23, 46 and 91-metric-ton) air-operated jacks.

Code 8-4



The custom 40,000 system indicates the wide range of custom frame and body repair equipment made by Guy-Chart. The firm exports to such countries as Japan, Australia, Britain, Denmark and New Zealand.