

Worldwide reputation as source Snow trouble, no trouble with Canadian equipment



The airport team—plow with sweeper attached followed by a snow blower. Airport runways must be cleared to the blacktop and the sweeper removes the thin layer left by the plow. The steel bristled tubular sweeper has its own power unit with a fan and adjustable air ducts that can be used to blow away the light drifts of snow left by the sweepers action, and to clear the runway lights. Code I-1

by Doug Izzard*

Our lady of the snows, Rudyard Kipling called Canada, and helped to build up the world's image of the country as a perpetually snowy wilderness. Canadians are tired of this type casting (the country has four definite seasons), but definitely the winter brings snow. An aver-

age of 1½ billion tons a year falls on Canada's 350,000 miles (563,500 km) of surfaced roads and streets. It's got to be removed of course, and Canadians have been working on the problem for many years — meteorologists and government officials co-operating with the equipment manufacturers.

Canada's worldwide reputation as a source for snow removal equipment has a direct relationship to the geography and climate of the country. This factor may have been in the back of Premier Chou En-Lai's mind when he enquired about snow removal equipment at Canada's exhibition in Peking. Re-

grettably, this product was not being displayed.

Snow conditions in Canada can vary from light powdery snow (5 lb/cu. ft., 80 kg/m³) to very heavy slush (45 lb/cu. ft., 721 kg/m³). Temperature variations also have a direct bearing on snow conditions. Temperatures can drop to as low as -60°F (-51°C). These variations have necessitated the development of snow removal equipment capable of working efficiently in all types of snow conditions for long periods of time without interruption.

The early methods for removing snow were very simple. Gangs of men with shovels would load snow into carts for removal to a local dump. With the advent of rail transportation, crude snow plows were fabricated for use on trains. Snow plows were also built and attached to the early trucks and tractors. In 1927, a snow blower was designed and built in Canada for municipal operations.

Canadian towns, cities, rural communities and highway departments have long recognized the importance of maintaining highways and roads during winter. With careful monitoring of approaching weather systems, the municipal and provincial authorities can plan a concerted campaign against the heaviest snow falls. The economic necessity of maintaining safe and open roads more than justifies the cost for labour, material and capital equipment associated with snow clearing operations.

At one time, local authorities would not begin to plow until a fairly substantial depth of snow had fallen. But speed is essential now to keep the average city's dense traffic moving and snow must be cleared before it reaches any great depth. Shallower plow blades have been developed which are used more frequently and at high speeds. The increase in plowing speed is one of the major developments in recent years. It is common now to see trucks patrol plowing on highways and roads at 40 to 50 miles (64 to 80 km) an hour.

New developments in plow design include hydraulic controls which move the equipment to the

required plowing position. Hydraulic systems for snow plows can now be specified to operate at 4,000 p.s.i. and bulky levers can be replaced with solenoid controls that permit push button operation. The rollover plow blade that can be reversed on its own axis in 15 seconds for left or right plowing is particularly useful for expressways and airports because it adapts quickly to shifting wind conditions.

The growth of aviation in Canada in the late 1930's and 1940's, established the need for more efficient methods of cleaning runways at airports. Until that time, the typical methods used involved rolling and compacting of the snow. This method was not suitable for the higher speed heavy aircraft of the 1940's and eventually disappeared with the development of high speed snow blowers for runways.

By 1955, the joint efforts of Canadian industry and the Canadian Government lead to the development of an efficient runway sweeper. This product could be used both in winter for snow and in summer for the removal of debris from runways, and the ramp and apron areas of the airport. The sweeper has now become an essential item of capital equipment at airports handling jet aircraft. The dump truck, runway sweeper and snow blower are now used as a team for high speed removal of snow and to maintain "black-top" conditions on the runways.

Today, Canada has an established position in the world of snow removal equipment. Continued research and development is being undertaken both by industry and by the government. The products shown in this issue of the Canada Courier provide a capsule view of the equipment now in use. For further information on these products fill in the trade inquiry form on page 7, stating specific interests if possible.

*Doug Izzard is an officer of the Mechanical Transport Branch, Canadian Department of Industry, Trade and Commerce, who is particularly concerned with recreational and special vehicles.

Speaking of food . . .

An apple a day keeps the doctor away? At any rate there is no dispute about apples being nutritious and delicious. Importers of Canadian apples around the world are well aware of their consumer appeal — more than two-and-a-half million bushels from Canada find their way annually to some 30 world markets. Information about characteristics of the

Canadian varieties, inspection systems, packaging and processing is contained on Page 4.

And speaking of food, the seed potato represents yet another huge Canadian export industry. Bob McDougall, whose article appears on page 5, is treating this staple with more respect since he returned from a tour of the Maritime provinces and learned some of the intricacies of seed potato production.

If there are superstitions about the apple, there are even more about the potato. A peeled potato, if carried in the pocket on the same side as an aching tooth, will cure the toothache. So they say. A pregnant woman should avoid potatoes — especially at night — if she wants her child to have a small head. A dried potato carried in the pocket or suspended from the neck is a sure protection against rheumatism. There are people who swear by that one.

One superstition which continues is that potatoes are fattening. The truth is that one medium potato supplies only about 100 calories — not much more than an apple. The potato has high nutritive value and is

especially rich in Vitamin C and Vitamin A — well worth the calories. The butter, the gravy, sour cream and French frying are the real culprits!

However one likes to eat them, more than a billion pounds of potatoes are consumed by the world's population every day — and Canada is one of the largest suppliers.



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The toothbrush can go! See story on page 5. Impregnated with paste, these disposable toothbrushes may carry advertising messages for hotels, motels, airlines . . .

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Snow trouble, no trouble



At home on the runway — the versatile airport sweeper made by SMI Industries Ltd. of Montreal, Quebec, (300 series). SMI has acquired the maintenance equipment division of Sicard Inc. which includes airport runway sweepers and snow removal equipment. SMI will produce and market these under the Snowmaster trade name. The sweeper is powered by either gas or diesel fuel and can clear an area of 1,200,000 square feet (111,480m²) per hour. A 10,000-foot (3,048-m) runway can be cleaned in approximately 20 minutes, winter or summer. The sweeper works all year, clearing both snow and debris. The Snowmaster line of detachable models includes, in the 1000 series, a compact blower displacing approximately eight tons of snow per minute, in the 2000 series a powerful unit easily adaptable to front end loaders and displacing approximately ten tons of snow per minute. The 3000 series is a high-powered twin auger unit moving up to 20 tons of snow per minute, ideal for highways and heavy duty operations. In the self-propelled Snowmaster models, the 5000 series is a powerful snowblower with an all-wheel-drive truck chassis with cab over engine, gasoline or diesel powered. It casts snow of any density at maximum distance, or at accurately controlled distance when the telescopic loading chute is used, and has a capacity of up to 30 tons per minute, depending on conditions. The more powerful 7000 has basically the same characteristics but offers two blower fronts — the 7200 with single auger and the 7250 with twin augers. The capacity of both is up to 35 tons per minute. The extremely powerful 9000 is designed mainly for airport runways and has a capacity of up to 50 tons per minute.

Code 2-1

All controls are within easy reach of the operator in the cab of the Vohl snowblower; the complete dashboard is in sight and so is the outdoors — through panoramic windows on all sides. The DV-875-400T and -400TI was developed and is manufactured by Adrien Vohl and Sons Ltd. of St-Marc-des-Carrières, Portneuf County, Quebec, and is sold by Richard Piché, Inc. of Cap Santé, Portneuf County. The blower has four-wheel drive with differential lock, an easily accessible mechanical system, and two diesel motors each with its own tank. The two balanced augers, 26 inches (660mm) in diameter, are activated by a strong adjustable chain turning at 185 rpm in an oil bath. The holding frame is located under the vehicle and coupled to the lifting mechanism. The hydraulic pump is driven by the motor crankshaft of the carrier vehicle. The bucket's loading chute, rotary drum and lifting mechanism are hydraulically operated. All the instruments and controls are inside the cab. The rotary drum can throw snow on either side to a distance of 150 feet (46m). When the aperture is skyward, the snow is propelled through the telescopic loading chute which is capable of 360° rotation in either direction. The inclination of the chute is operated by metal shafts that won't fail in cold weather. Precise throw varies from 3 to 40 feet (0.9 to 12m). The bucket is 90 inches (2,286mm) wide by 60 inches (1,524mm) high; side cutters are 99 inches (2,514mm) high by 12 inches (305mm) wide. Loading capacity is 25 to 30 tons per minute according to the type of snow. Vohl also makes a model for country and mountain roads which has a bucket with a base that curves inward to facilitate entrance of snow.

Code 2-2



A welcome and a fascinating sight for city dwellers in winter is the zippy little bug that whips the snow off sidewalks, manoeuvring easily and safely around parking meters, trees, poles and parked cars. Most onlookers secretly envy the operator of the little tractor. Bombardier Ltd. (Industrial Division) of Valcourt, Quebec, produces the versatile SW-48 tractor, weighing 4,340 lb. (1,970kg.) without blade. Its 113hp motor permits it to move at normal traffic speed through the streets from one work area to another. Bombardier's unique flexible suspension allows the track, equipped with rubber treads if desired, to distribute the tractor's weight so well that sidewalk curbs and asphalt are never damaged. Strong and economical, the SW-48 can clear snow for one hour on only one gallon of gas. It makes the perfect partner for a snowblower, going ahead to stack the snow and following to tidy up. Three blade types are available: straight, oblique and V. Bombardier's tractor can be used throughout the year — for spring cleanups and light dozing. The company makes a stronger model, the SW-64, for heavier year-round work. In the photograph, the large and small models work in tandem to prepare the way for the big plow (not a Bombardier model).

Code 2-3

Frink of Canada, Preston, Ontario, recently introduced this new heavy duty high-speed snowplow, the 470 Hooker. Minimum operational speed is listed as 35 miles (56km.) per hour and can be higher. The plow can clear a 9-foot (3-m) path. The company claims that the Hooker displaces more snow than any comparable plow built to date. The moldboard is 14 feet (4m) long, and its height is 22 inches (559mm) at the intake end, 30 inches (762mm) at the lower edge of the discharge chute, and 72 inches (1,838.8mm) to the upper edge of the discharge chute. The cutting edge is 11 feet (3m) long. Overspray is virtually eliminated because the moldboard extends 12 inches (305mm) beyond a vertical line to the cutting edge. The safety trip drive frame is designed for heavy duty service, as is the entire snowplow. A substantial prime mover is needed. Other lines produced by Frink (in the snow removal business for more than 50 years) include a roll-over snow plow which reverses from left to right hand plowing position in 15 seconds, thanks to a hydraulically actuated planetary gear system operated from the truck cab. The company also makes a series of spreaders for salt and sand.

Code 2-4



Back-up or pull type, single auger, double auger or vee-blade, George White & Sons Co. Ltd. of London, Ontario, has the answer for the snow-bound farmer. This company has put its more than 100 years of experience to work to engineer tractor-mounted snow blowers that can handle hard-packed, slushy and dry snow with cutting depths that range from 26 inches (660mm) to 36 inches (914mm) and clear a path 6 to 7 feet (1.8 to 2.1m) wide. Shown is the popular 72-inch (1,829-mm) auger model. Features of the auger models are: cadmium plated roller drive chain, heavy duty gear box, fully adjustable three point linkage to fit most models of tractors (Cat. I and II hitch), fan housing of Cor-Ten steel, and a chute that adjusts easily through 270 degrees. The 72 and 80-inch (1,829 and 2,032-mm) auger models, which are also available in the pull type (patents pending), have extra long 40-inch (1,016-mm) chutes of 14 gauge steel which throw snow well clear of the path so that it cannot slide back again. The big one is the 86-inch (2,184-mm) double auger for deep snow country, made for reverse use only so that it can back into the worst drifts. The extra-heavy duty fan will blow a mountain of snow 50 to 100 feet away in minutes. The George White 72-inch (1,829-mm) vee-blade is a dependable low-cost model that fits most standard three point hitch tractors. Extras available are a swivel hood which controls direction of throw, and a deflector hood which permits snow to be blown directly into a wagon or truck. Code 3-1

Boilers are its business

Boilers have been its business since 1929 (in fact, the origins of the company go back to 1847), and Volcano Ltd. has continued to grow through its policy of diversification, innovation and modernization. The Montreal, Quebec, firm specializes in oil and gas-fired boilers and heating equipment for commercial, industrial and residential installations. The list of Volcano's installations includes countries in South America, the Caribbean, Europe, the Middle East, Africa, and the Far East.

Volcano's two plants are located in Saint-Hyacinthe, Quebec, (head office in Montreal). One contains a boiler fabricating works, a laboratory, offices, stores, design and warehouse spacing. The other has fabricating facilities, assembly and construction workshop, paint shop and shipping department. X-ray hydrostatic proving and laboratory trials ensure rigid quality control for the company's lines: fire-tube boilers, watertube boilers, high temperature water generators designed for large complexes such as airports and universities, thermal liquid heaters that use mineral oil instead of water as a heat conductor, domestic furnaces, deaerators, air receivers, equipment for con-

densation and for pumping and preheating oil, and many others.

Volcano's STARFIRE firetube boiler is rated to provide 10 to 600 BHP. A three pass concentric design, it requires no baffles or retarders, and provides maximum heat transfer with each square foot of heating space. The DUOFIN watertube boiler is capable of producing 10,000 to 75,000 pounds (4,540 to 7,050kg.) an hour. There are double fin tubes on the water walls and the monolithic casing means no inner casing is required. The boiler provides maximum heat absorption. The company's Exair deaerator has capacities up to 300,000 pounds (136,200kg) an hour. Both dome type and low head models, horizontal or vertical, are produced. The two stage design incorporates spray valves and steam scrubbers.

Volcano does not limit its production to standard models: it has the equipment and the technical personnel to fabricate components to meet individual requirements. Volcano recently shipped a 60hp high pressure boiler, equipped with a light oil burner, to Caracas, Venezuela — one of several recent shipments to Venezuela. Code 3-4



McKee's tractor-mounted snowblower (520 series) with its independent power unit, stands ready for the first snowfall. This two-stage rotary plow has many aptitudes, proved on the job clearing construction sites, sidewalks, parking lots, rural lanes and airport runways, and loading snow into trucks. McKee Bros. Limited of Elmira, Ontario, produces a broad range of models to suit varying snow conditions and types of tractors. The general purpose and the industrial 520 models have a 13-inch (330-mm) fluted spiral auger that chews up the hardest snow and feeds it into the 24-inch (609-mm) three-bladed rotor for discharge up to 60 feet (18m). The general purpose 520 is 72 inches (1,829mm) wide and 30 inches (762mm) high, and its casting chute rotates 200 degrees by means of an adjustable hand crank. The industrial model is 48, 60 or 72 inches (1,219, 1,524 or 1,829mm) wide and 30 inches (762mm) high. It can be equipped with an optional 13-inch (330-mm) fluted spiral top auger and either manual or hydraulic chute rotators. A reversible wear-resistant shear blade is standard equipment on this model, and rear mount power-take-off driven or front mount with subframe and transfer drive are available. And now the 520 can be equipped with independent power unit — the Wisconsin VG4D engine is rated at 37 hp. McKee also produces a 720 and 820 series which include heavier equipment, and optional types of casting and loading chutes. Code 3-2

New low, high density multiplex

A new, CCITT compatible, heavy route multiplex system with both low and high density assemblies has been designed and is being manufactured by GTE Lenkurt Electric (Canada) Ltd. of Burnaby, British Columbia. The availability of low and high density packages permits the most economical selection of 46A3-C multiplex for networks that include both high density offices and locations where there are a very small number of voice channels, and expansion when required is easy.

With this Canadian system it is

possible for telecommunication users to have one multiplex system with one or more channels at several locations integrated with major installations of more than 1,000 channels between major centres. While it is compatible with equipment now in service, the 46A3-C multiplex is much smaller than conventional systems. Initial cost is low and the system can be expanded in capacity without costly replacement equipment. Features of GTE's innovative design are —

—The use of a new modulation concept in which voice frequencies

are modulated directly to the basic supergroup frequencies and to supergroup 1, i.e., direct from VF to either the basic supergroup or to line. This results in the elimination of a major equipment block — the group modulation stage with its associated carrier supplies. Above supergroup 2, space reduced equipment which follows the CCITT supergroup plan is also available.

—The unique modulation plan makes every channel unit identical. This greatly increases the volume runs in manufacturing and is a boon to users who now need to stock only one channel unit, if they wish, as a spare for all channels.

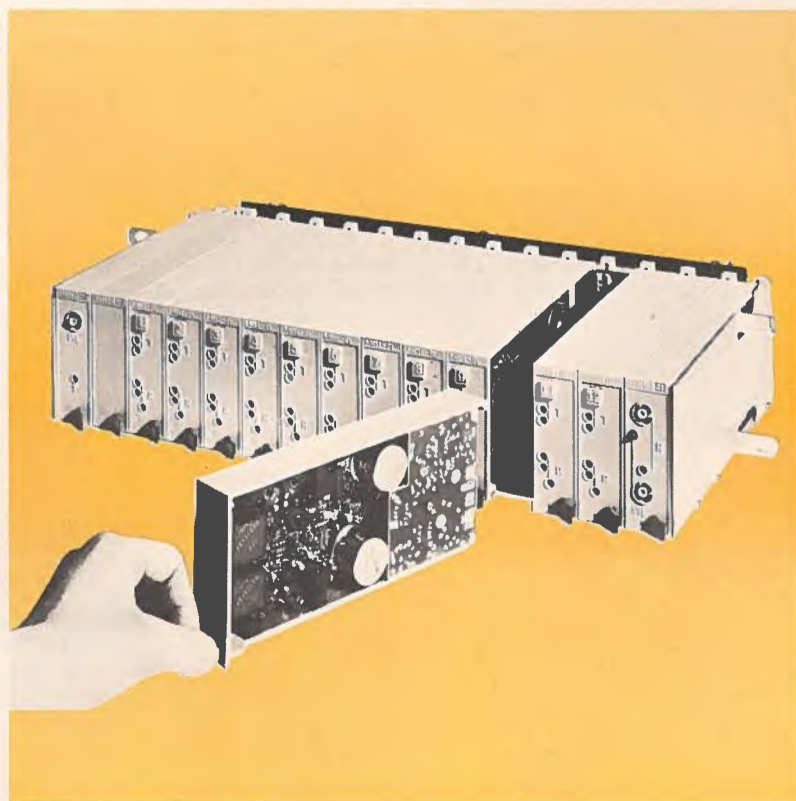
—The use of small polyolithic crystal filters operating at 8 MHz, instead of the bulky LC channel bandpass, carrier pickoff and signalling filters.

—A low cost fully solid state out-of-band signalling sub-assembly which plugs into the channel unit.

The packaging is new as well, not only of the units themselves but also of the racked up equipment assemblies. A high impact plastic molded case houses the units in cast aluminum shelves on special light weight aluminum extruded relay racks. A typical assembly has up to 240 channels, including 4 wire VF jackfields and carrier generation equipment. The shelf housing the 12 channels has a cast aluminum base and aluminum sides with a full printed circuit "mother board" across the back.

This Canadian firm has received orders for its 46A3-C multiplex from Sweden, Venezuela, Chile, Mexico, Taiwan, Thailand, Saudi Arabia, Lebanon, the Dominican Republic, the Central African Republic, Peru and the United States. It exhibited at the Canadian Trade Exposition in Peking last year.

Code 3-3



This channel bank forms part of the heavy route system multiplex assembly produced by GTE Lenkurt Electric (Canada) Ltd. The removed bank shows the two channel band pass crystal filters in their hermetically-sealed metal cans and the plug-in and out-of-band signalling sub-assembly to the right.

A Canadian industry in apple pie order



For a hundred years and more, people around the world have known the pleasure of biting into an apple from Canada. McIntosh, Delicious, Spartan, Cortland and several other export varieties are renowned for their distinct yet delicious flavour, crisp, juicy texture, appetizing aroma and beauty of form and colour.

Blessed with rich soil and a northerly climate that gives sunny days and cool nights, Canada is ideally suited to the production of high quality fruit. But the excellence of Canadian apples is no mere accident of geography. It is due also to the painstaking efforts of Canadian apple-growers and to the high degree of expertise they have developed over a period of two centuries.

Through constant study and scientific development, the Canadian apple industry has introduced new varieties of apple, perfected new growing, harvesting, storage and packing techniques, and extended the fresh apple season by many months. A government program of inspection and grading, unrivalled in its thoroughness, allows only the best of quality crops to be exported. Canada's modern transportation facilities ensure that all apples for export reach their destinations speedily and in the peak of condition.

The expertise of Canadian researchers, growers and shippers is now so highly regarded that other apple-producing countries frequently seek advice from Canada on various aspects of the industry.

Because they contain valuable minerals and vitamins but relatively few calories, apples make an important contribution to the diet. They also have a wider variety of uses than most other fruits. Canadian apples for export can be served with any course of any meal, raw or cooked, hot or cold, and are available in many forms — fresh, canned, frozen or dried.

Canada ships more than two-and-a-half million bushels (105 million pounds) of apples annually to some 30 world markets.

Canadian apples are graded in sizes to suit all these markets. The country's grading standards have been among the strictest in the world since more restrictive grade requirements were introduced in 1965 for maturity, apple-maggot stings, slight decay and storage scald.

There are three grades of Canadian fresh apples for export: Canada Extra Fancy, Canada Fancy and Canada Commercial. Appearance (colour, shape, size, freedom from surface blemishes) and quality (maturity, freedom from insect pests, injury and decay) are the determining factors. Partial automation, coupled with hand-sorting, is taking over this grading process in an increasing number of Canadian plants.

Besides a certificate of grade inspection, each shipment of Canadian apples carries a phytosanitary certificate if required by the importing country. This certificate in-

dicates that the product is substantially free from plant pests and disease.

Canada exports several varieties of apple. Importers can choose from a wide selection of different colours, textures and flavours to suit individual tastes and a range of uses and recipes.

McIntosh: Canada's national apple and one of the world's finest. Flesh is white, sometimes veined with red. Medium size. Medium acid becoming mild and nearly sweet when ripe. Known for its appealing aroma and delicious flavour. Excellent for every purpose. Particularly well suited to controlled atmosphere storage.

Red Delicious: A strain of the regular Delicious but with a higher red. Creamy-hued flesh, very crisp. Low acid. Excellent for eating fresh and also good for salads. Is not easily bruised and has long shelf life.

Northern Spy: Large and red-striped. Flesh is yellowish and rather firm. Very juicy. Medium acid. Excellent either for eating fresh or cooking. Particularly good for processing.

Cortland: Red-striped and white-fleshed. Similar to McIntosh and equally juicy, but flatter, larger, redder and firmer. Mildly acid. Mildly aromatic in flavour. Excellent for eating fresh, for salads and cooking. Flesh tends to hold its snowy-white colour when exposed.

Winesap: Slightly lighter red than the Red Delicious. Medium acid and slightly tart in flavour. Excellent for cooking and eating fresh. Late-maturing. Stores very well.

Crimson Gravenstein: Red-striped on yellow. Juicy, crisp and highly flavoured. Medium acid. Not a storage type. Excellent for eating fresh, for salads and cooking — notably for apple sauce.

Newtown: Green, often with a yellow tinge. Firm, crisp flesh and rich, tangy flavour. Highly aromatic. Medium acid. Excellent for both eating fresh and cooking. Good storage qualities.

Golden Delicious: Bright gold in colour. Flesh juicy and fairly firm and tends to hold its white colour when exposed. Moderately low acid. One of the finest fresh eating apples grown. Cooks firm and is also suitable for salads.

Spartan: Red, relatively new variety, produced by crossing McIntosh with Newtown. Sweet, distinctive flavour. Crisp flesh. Unusually small core. Excellent for all purposes. Cooks soft and smooth.

Thanks to new developments in storage techniques, Canadian apples are now available for export almost all year round.

Canadian apples for export are put into storage the day they are picked to preserve their quality and condition as long as possible. One of two methods of storage is used — conventional cold storage or Controlled Atmosphere (CA) storage.

Continual improvements in the packaging of apples for export assure Canada's customers that they will receive the fruit in perfect con-

dition.

The cell-pack carton, developed in Canada, or an improved type of tray-pack carton, is used by almost all Canadian shippers.

In the cell-pack carton each apple is put into its own cell, thus eliminating the possibility of pressure from any angle and hence the risk of damage to the fruit from rough handling. The amended regulations of the Canada Agricultural Products Standards Act contain a Standard Package schedule which prescribes the exact dimensions of the cells in cartons designed for 10 different sizes of apple.

The tray-pack carton has deep pocket trays and post supports to give greater protection to the fruit in transit.

The Canadian apple industry has also introduced other developments in packaging such as strong, corrugated, telescopic, master containers. These are really two separate cartons, one inverted over the other, providing a double wall all around. The contents can be examined without tearing open the cartons.

After they are packed, Canadian apples destined for overseas markets are moved by truck or rail to the nearest port. Excellent ocean service is available from Canada to all the world's major markets.

In each of the Canadian apple-handling ports — Vancouver, Toronto, Montreal, Saint John and Halifax — container terminals serve the many shipping lines operating fully containerized ships or conventional ships carrying containers.

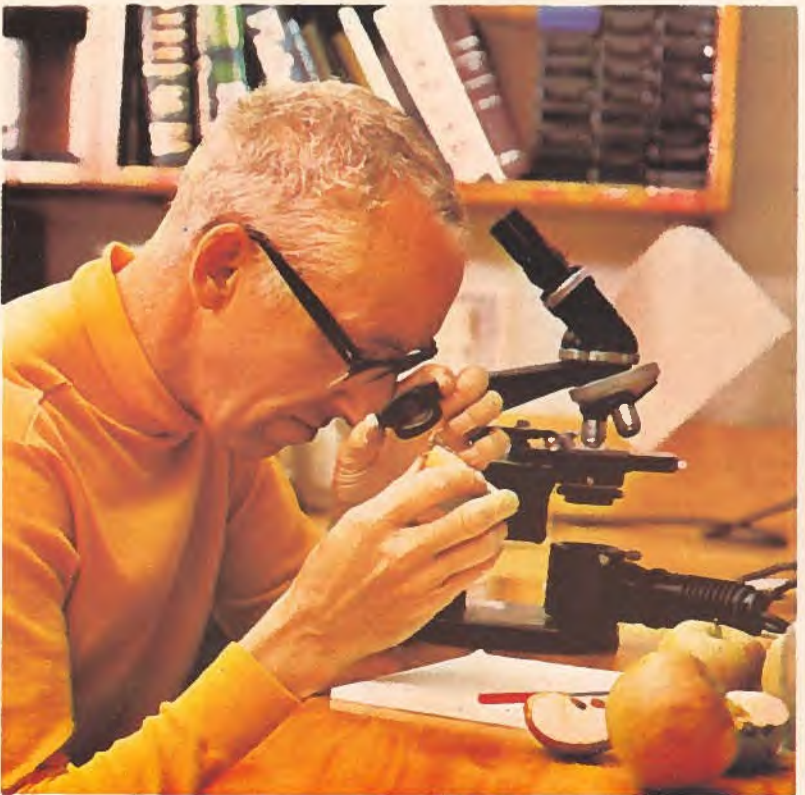
Because they reduce handling to a minimum and eliminate much of the movement in a ship's hold, shipping containers are an ideal method of transporting fresh fruit. Canadian apple exporters were among the first to use them.

About one third of all apples grown in Canada are turned into processed products. The increasing demand for these products in domestic and export markets is a tribute to their quality and a reflection of the high degree of technology developed in the industry.

The main processed products available for export include apple juice, apple sauce, apple pie fillers, solid pack apples and frozen apple slices. Continuing research by Canadian scientists is developing new products such as crystallized apple essence to flavour breakfast cereals and other foods.

Due partially to the climate, Canadian apples have a sharper flavour than those of most other countries. This flavour is particularly noticeable when the apples are processed and contributes to the success of Canadian processed products in international markets.

For further information about Canada's apple industry, including a free copy of the booklet, *Canada . . . Apple Country*, produced by the Canadian Department of Industry, Trade and Commerce, just fill in the trade inquiry form on page 7. The booklet is available in English and French. Code 4-1



World customers for Canada's potato crop

by Robert McDougall,
Canada Courier

Go to Greece, caper in the Caribbean, crisscross Latin America or venture to Europe and you'll likely find a touch of Canada in your evening meal.

Chipped, mashed, scalloped, baked or prepared in any one of a hundred ways, potatoes are one of the world's chief staples and Canada is one of the world's largest suppliers.

Canada ships its seed potatoes to more than 20 countries and last year exports totalled 197 million pounds, valued at \$5,536,000. The United States, Venezuela, Puerto Rico, Cuba, Jamaica, Greece and Italy were among major customers, buying such varieties as Sebago, Kennebec, Red Pontiac, Chieftain, Katahdin and White Rose.

Canada produces high-quality seed under a rigid system of field inspections and an "Elite" seed program that is unsurpassed anywhere in the world. It develops new potato varieties through a progressive research program to meet changing customer requirements and to control disease and insect problems.

An on-the-spot look at how these programs operate was given recently to trade missions from Canada's three largest markets in Latin America — Venezuela, Argentina and Uruguay. The visitors spent a week in Canada touring the Maritime provinces of New Brunswick and Prince Edward Island. Members had an opportunity to see the harvesting of the potato crop and to meet seed potato growers and shippers.

The jumping-off point for the swing through New Brunswick, Canada's "Picture Province," was Fredericton, the provincial capital. Members visited the Canada Department of Agriculture Research Station. There the groups toured the many laboratories, greenhouses and other facilities used in developing and testing new potato varieties.

The Station's programs were explained in detail and technical questions on many aspects of seed potato production were answered by the staff.

Leaving Fredericton, the mission travelled north along the scenic Saint John River to Grand Falls where members were introduced to Frederick Pirie, president of F. W.



Aboard a harvester, members of the Argentine and Uruguayan missions examine potatoes being picked automatically from McCain fields near Florenceville, N.B.

Pirie Company Ltd., and one of the largest seed potato growers in Canada. The visitors were impressed by Mr. Pirie's potato fields and were especially pleased with a field of Chieftains.

Mr. Pirie told the members that the Chieftain yields well, has a shallow eye, good color, sets well and doesn't bruise easily.

In Florenceville, brothers Andrew and Robert McCain guided the missions on a tour of the McCain Produce Co. Ltd. potato acreage near the village. Of particular interest on this visit was the Foreston Seed Company's Elite seed farm, the only private farm of its kind in Canada, operated as a subsidiary of McCain's.

The Argentina delegation was much impressed with the harvesting equipment manufactured by Thomas Equipment Ltd., another subsidiary of McCain's. The Uruguayan members were particularly interested in Thomas Equipment's mini loader which had been exhibited at the Canadian fair in Peking.

Following the field visit, a buyer for the Andes region in Venezuela and the McCains discussed details for a shipment of 15,000 to 20,000

crates of Sebago.

A highlight of the Prince Edward Island Tour was a visit to Donald McKenzie's farm in Prince County where the mission had a look at fields of Foundation stock of three varieties: Red Pontiac, Kennebec and Chieftain. The McKenzie farm devotes some 600 acres to seed potato production.

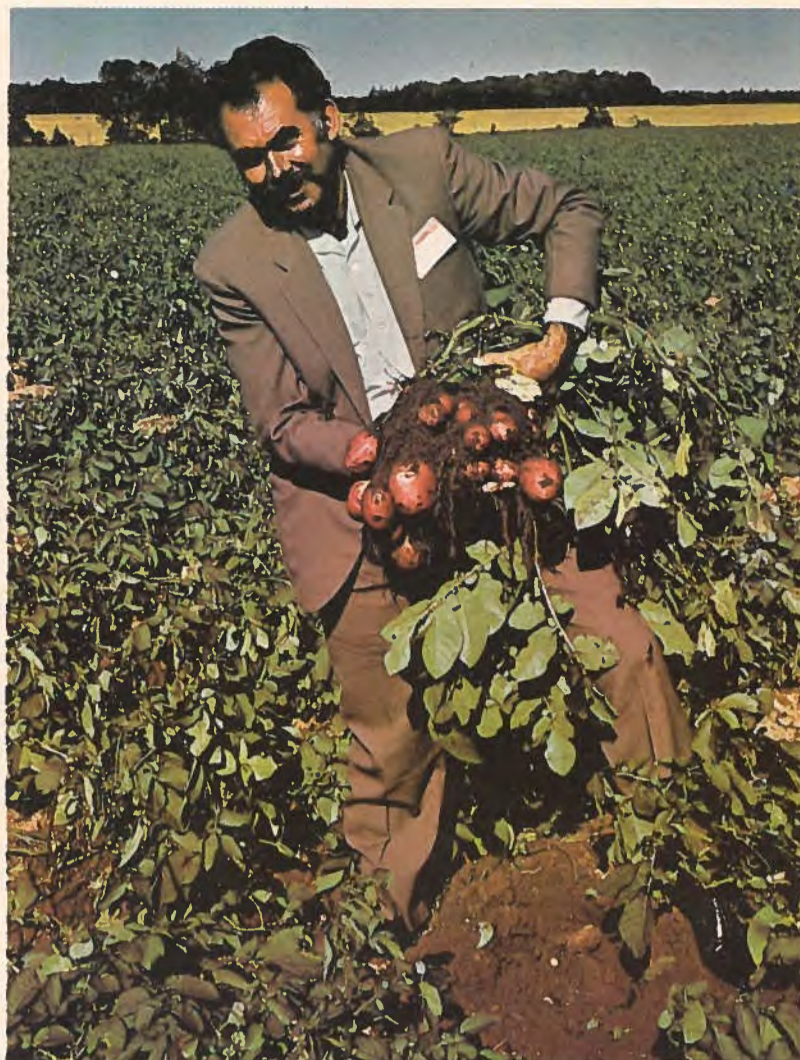
While in the Maritimes, the Missions inspected the government-operated Elite seed farms. The concern here is for isolation and precaution against disease. Before touring the farms, mission members were required to dip their shoes in a chemical solution in a decontamination procedure to prevent introduction of bacterial disease.

In Prince Edward Island, the Elite farm is located on a small island at the north end of the province five miles from any other potato farm. The Bon Accord farm near Grand Falls, New Brunswick, was even more isolated and precautionary measures required the mission to remain aboard a truck as they toured the 387-acre farm.

Of special interest during these tours was the operation of Canada's seed potato certification program. The program has six stages and involves the development of selected varieties of seed from the initial selection of disease-free tubers through Elite I, Elite II and Elite III, Foundation and Certified. The system is perpetuated each year by the selection of tubers from Elite I. Criteria for selection are: (a) top growth characteristics, color, leaf size, height, stem size. (b) tuber characteristics: field, type.

The Government farms are concerned with the development of seed through Elite II. At this stage, the Elite II seed is sold to selected commercial growers to produce Elite III. Some of the Elite III is exported while most of it is sold to other growers to produce Foundation class seed. All stages of the certification program require the plant to be tested extensively for bacterial ring rot and virus infection.

For further information about Canada's seed potato industry fill in the trade inquiry form on page 7, stating specific interests if possible. Code 5-1



Bumper-yield of Red Pontiacs is displayed by Sr. José Luis Dominguez, vice-president of the Venezuelan lowland potato growers association.

The toothbrush can go!



Take the brush out of the sterile vinyl package, moisten it and begin to brush. The toothpaste foams up from the bristles. When you're finished, throw it away — a disposable, impregnated toothbrush from Lumare Manufacturing Ltd. of Montreal.

Travel a lot, living out of suitcases, and you realize the importance of the small everyday things you take for granted at home. That realization started a train of thought several years ago for one much-travelled member of Lumare Manufacturing Ltd. of Montreal, Quebec. What he thought about was a toothbrush with built-in toothpaste — a generous amount of a high quality dentifrice in a good quality toothbrush, to be used once and thrown away.

The idea didn't go away, and soon a company was formed with two other inventors. The first step was to find a formula for a dentifrice impregnated that would retain its quality after being dried on the toothbrush bristles. The problem was entrusted to a leading Canadian laboratory which solved it and is now producing the compound for Lumare.

The next step was to find a machine that could impregnate a toothbrush with the dentifrice and

dry it, but because the product is unique there was nothing available that could do the job. There was, however, a Montreal company that could invent a machine and build it for Lumare. Production began as soon as the company found a good quality toothbrush at a very low price.

Lumare's disposable brush is packaged in vinyl, sterilized and hermetically sealed. The vinyl package can be printed to suit the customer with any message in any language.

The uses for this disposable toothbrush grow as you think about it; among the obvious ones are hotels, motels, ships, aircraft, hospitals. Obvious too is its value as an advertising and publicity medium. Lumare Manufacturing Ltd. is now actively investigating markets all over the world and will consider manufacture under licence and other merchandising methods.

Code 5-2



Greenhouse specimens of seed potatoes are examined by Venezuelan mission during a tour of the Canada Department of Agriculture Research Station at Fredericton, N.B.

Canadian woodenware and the beautiful life



Look closely at this delectable scene — Canada is there, represented by more than 12 of the wide range of salad bowls produced by Baribeau & Son Inc. of Levis, Quebec. Les Sherpas hotel in Courcheval, France, chose distinctive Baribocraft woodenware for meal service on its solarium terrace.

Salad bowls, all sizes, are one of the principal lines produced by this 50-year-old family firm which has

been exporting since the 1940's. The bowls are available in several designs and in sizes that range from single servings to 60 servings; for the larger bowls, Baribeau makes a wood tripod stand. Sets of bowls are protected by an exclusive and lasting finish that makes them impervious to water, food acids, vinegar, soaps and detergents. Salad servers, salts and peppers — including grinders for both salt and

pepper — complement the salad bowls.

A family of candle holders is Baribeau's newest line — some 14 designs from 2½ to 14 inches (63.5mm to 355.6mm) tall and suited to several sizes of candles.

Cheese boards are another Baribocraft specialty, some plain, others with a cleft slate cutting area and depressions to hold crackers. All come equipped with cheese knives. The company also makes carving boards and steak platters, and accessories such as ice buckets with removable vinyl lining, two and three tier tidbit trays, cake or candy plates with brass plated handles, bread servers, and ball bearing lazy susans with ceramic sectioned serving dishes.

Moving from the dining room to the kitchen, Baribeau's second line, Baribo-Maid, includes a variety of chopping, cutting and pastry boards, meat tenderizers, rolling pins and mixing spoons, toothpicks and clothespins. A new line of cutting boards, ideal for restaurants, hotels and institutions, has waterproof glued joints to prevent splitting and cork feet to prevent slipping.

Baribeau also makes wood coat hangers in a full range of sizes and shapes.

The Canadian hardwoods Baribeau uses include yellow and white birch, ash, maple and basswood. A number of different finishes are available: natural; Canadiana, a dark colour between walnut and mahogany; Colonial, for which great care is taken to preserve the natural markings in the wood. The colour of this finish is slightly darker than natural. Code 6-1

Crane carriers, custom-designed



Three of Consolidated Dynamics transit crane chassis. Left to right, model 12615 (total weight lifting capacity 150 tons), 12625 (250 tons), and 10665 (65 tons).

The problem with cranes is getting them there. It's a problem because their weight and size must meet road regulations, and those regulations vary from country to country. And when they arrive at the construction site, the docks, the gravel pit or wherever, they need a secure and flexible anchorage for safety and mobility.

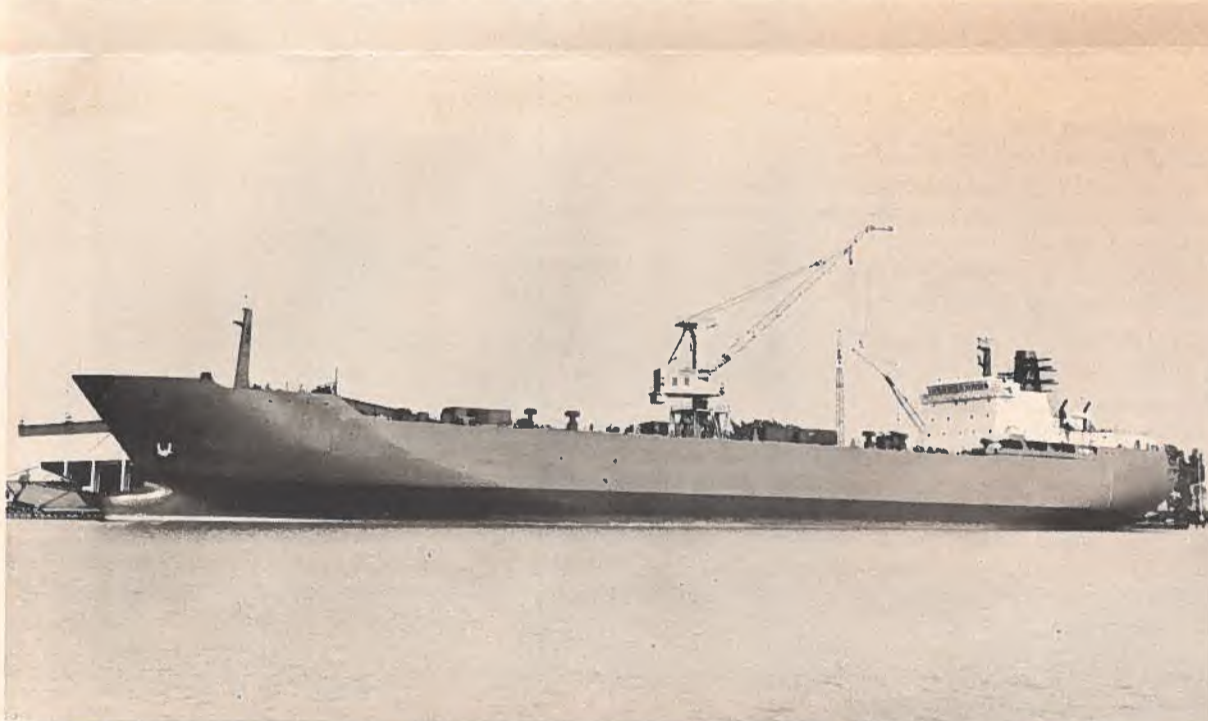
The solution to these problems is available from Consolidated Dynamics Limited of Buttonville, Ontario. This company designs, develops and manufactures transit crane chassis and exports 90 per cent of its production. Consolidated attributes its success to the fact that its multi-axle chassis with a maximum over-all width of three metres meets the strict road regulations in most countries.

The company's carrier designs range from 18 to 300 metric ton lifting capacity with 8 x 4, 10 x 6 or 12 x 6 drive axle configuration which is easier on roads and on

tires. Consolidated works closely with the crane manufacturers and the company's transit chassis are designed to meet the special needs of each type of crane. Its 12615 model, for instance, has 18 tires, 12 of which are driving and six non-driving but steering, and a capacity of 120 metric tons at 75 per cent stability.

The cranes are welded to the carrier on a swing circle or ring gear. The low profile design of the two-man cabin makes it easier to enter and provides good visibility. It is fitted with a safety glass windshield and sliding side windows. Built-in shock absorbers are another feature. Front and rear fenders are designed to form continuous non-skid walkways. Some of Consolidated's models are offered with one-man cabins, all can be converted to right hand drive. For full specification details of all models, check and mail in the trade inquiry box on page 7. Code 6-3

Roll-on, roll-off concept for new Canadian cargo ship



The revolutionary Roll-on/Roll-off ship "Laurentian Forest" was launched last summer at Port Weller Drydocks and underwent intensive trials on Lake Ontario.

The first of two new Ice Class I Roll-on/Roll-off cargo ships, the 20,000-ton "Laurentian Forest," was christened last August at Port Weller Drydocks Limited in St. Catharines, Ontario, where she was built. Her sister ship, "Avon Forest," is now being built for delivery in mid-1973.

"Laurentian Forest" is the first ship specially built to carry newsprint, forest products and other unitized general cargo from St. Lawrence River ports of Eastern Canada to the Port of Bristol, England, returning with British and European automobiles to Montreal. Built for The Burnett Steamship Company Limited of Newcastle-upon-Tyne, England (a subsidiary of Federal Commerce and Navigation Company Limited, Montreal), she was designed by Knud E. Hansen I.S. of Copenhagen and completed in record time by Port Weller Drydocks. With the excep-

tion of the main engines, reduction gears, raming system and certain auxiliaries, most materials for the ships' construction, including steel, electrical equipment, auxiliary machinery and fittings were provided by Canadian manufacturers.

These Ro/Ro ships use their own straddle carriers (large tractors which pick up 12 tons of cargo at a time) to carry newsprint from the shore warehouses through the large hydraulically-operated doors in the side of the ship, over a system of ramps, and into the holds where the newsprint or other cargo is stowed with the use of elevators and camp-trucks. Automatic sensors built into the ramps cause them to adjust automatically to the rise and fall of the tide. This method gives much faster loading rates than that of conventional ships.

For the return trip carrying cars, four cardecks are lowered from

the deck heads making the ship a huge floating garage for more than 2,000 automobiles which are driven right into their parking places on board. Apart from speeding up the loading and discharging, this system prevents most of the scrapes and dents which cars usually suffer during shipping. All cargo is carried below deck.

The sister ships have a length overall of 683 feet (208.2m), breadth of 75 feet (22.9m), depth 58 feet (17.7m), and a cubic capacity of 1.25 million cubic feet (35,396,250dm³). Their 18,000 BHP engines give them a service speed of 19-20 knots, which enables them to make the Atlantic crossing in seven days. The ships are specially strengthened and will be able to trade to St. Lawrence ports all year round through the thickest winter ice. Code 6-2



Flexible lab furniture meets many needs

Like most good ideas Interflex is a simple one, and as far as anyone knows, unique in North America. This flexible laboratory furniture system is based on interchangeable components that can be built up, stretched out and put together to suit individual laboratory needs. And when the needs change it can be re-arranged at no cost, without skilled labor or tools or the loss of user time. Components can be added easily to enlarge the system. Interflex Laboratory Furniture of Toronto, Ontario, won a Canadian National Design Award for this laboratory system, which has been installed at Canada's National Research Council in Ottawa. The company credits the co-operation of architects, engineers, installers and users for much of the success of the product. The system provides creative scope for the designer, short installation time for the contractor, a clean functional-working environment for the user and economy for the owner. The company describes its reception in the United States as overwhelming — Cornell University has placed its third order, an installation has been made at Lady of Lourdes hospital in Binghamton, N.Y., and one is being prepared for a hospital in Schenectady. Code 6-4



Canadian Farmers' Co-op seeks world markets

A farmers' co-operative, Canadian Co-operative Implements Limited of Winnipeg, Manitoba, has been manufacturing and selling farm machinery in western Canada since it was established in 1946. The company recently began to sell some of its lines in the mid-western United States through a U.S. distributor.

Now, Co-op Implements is cultivating overseas markets. It has sent its 29-foot (8.8m) cultivator, Model 200, to Cuba and to the U.S.S.R. where it is being tested and evaluated under field conditions by agricultural experts. The Cuban Agricultural Industry Department will use the 200 for weed cultivation and seed bed preparation before planting crops such as

potatoes, corn and sugar cane. In the U.S.S.R. the 200 cultivator was exhibited at Selhoztehnika '72, a farm machinery show held last September.

In line with its export push, Co-op Implements is building a new \$7.2 million manufacturing plant, now almost completed. The company's other lines include Steiger all-wheel drive tractors; Deutz air-cooled tractors; Volvo liquid-cooled tractors; pull type and self-propelled combines and windrowers; standard and duplex diskers; light standard and heavy cultivators; press drills; medium and heavy duty disc harrows; and harrows, drawbars, harrow sections and loaders. Code 7-1



Co-op Implements Model 200 cultivator is being tested by Cuban agriculturists in a field from which potatoes have been harvested.

New concept in papermaking

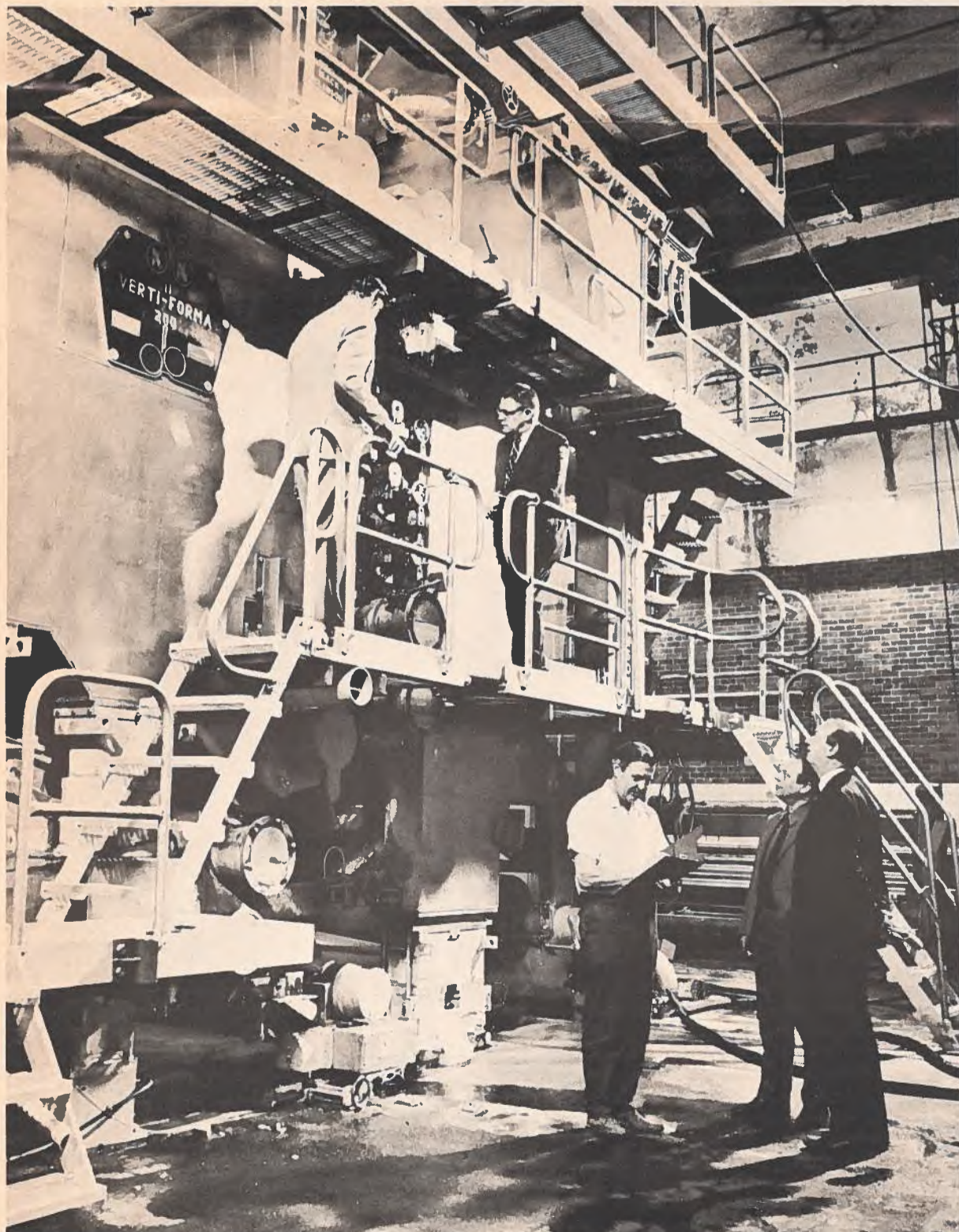
Vertical paper forming was recently introduced to Continental Europe when Holmens Bruk AB of Hallsta, Sweden, started up its Verti-Forma paper machine. The 206-inch-wide (62.3-cm) unit, supplied by Black Clawson-Kennedy Ltd., of Owen Sound, Ontario, produces a range of lightweight and offset papers. It is a new concept in papermaking in which the paper sheet is formed vertically and dewatered between two wire screens instead of by the traditional horizontal method in which the wet pulp mat is drained over a single

screen. Vertical forming produces a sheet with the same quality printing surface on either side.

The executive vice-president of Holmens, Einar Klinga, says the Verti-Forma unit installed at the Hallsta mill is part of his company's continuing program to meet the stringent quality demands made by the printers of Western Europe.

The Verti-Forma paper machine (the original development of the vertical forming concept) has been the subject of extensive technical development and sheet property research by both Holmens and

Black Clawson - Kennedy. Mr. Klinga predicts that use of twin wire forming in the paper industry will continue and quicken its pace of outmoding the classical four-drinier due to the inherent limitations of horizontal forming. Paper from the new Verti-Forma installations is now rolling to European printers, according to the Holmens vice-president. Code 7-2



The Swedish installation of Verti-Forma paper machine from Black Clawson-Kennedy, Owen Sound, is checked over at the Hallsta plant by staff of Holmens Bruk AB.

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Safe, not sorry, in this car seat

A great deal of thought has been given to the problem of reducing collision injuries to automobile drivers and passengers and research has produced such aids as seat belts, padded interiors, head restraints, telescoping bumpers. But none of these, or other developments, is enough to protect the small child; even a quick stop can cause injury. Many types of special seats that are fastened to the car seat to hold the child securely have been produced, but more and more stringent tests have found inadequacies, even inadvertent dangers, in many of them and some have been withdrawn from the market.

The Guardwell child's car safety seat was a full year in design and development before Donlee Plastics of Weston, Ontario, put it into production. The Canadian company wanted to be sure that its design met all safety requirements, including those demanded by government regulations for front, side and rear impact. The Guardwell seat was thoroughly tested by the Highway Safety Research Institute of the University of Michigan and the results were excellent.

Donlee has constructed its one-piece safety seat from high density polyethylene which has two important advantages. The first is its ability to absorb energy: this material will actually act as a brake to help slow down impact. Second, the polyethylene material will not absorb moisture. The impact pad on the front of the seat also has the characteristics of energy absorption and resistance to moisture. Another feature is stability — the Guardwell has a flat bottom which means that it stays level, in place, and will not rock from side to side.

The Guardwell is designed to fit the car's environment. When in place in either front or back seat, it permits the child to face forward in the natural position. It uses the seat back of the car to support the child's back so no head restraint is needed. The lap seat belt holds the child's seat securely in position but never comes in contact with the child because it passes through openings in the side of the safety seat, which takes all the pull and strain. This means that the seat belt can be firmly tightened. The Guardwell can be used on front

car seats that have a split back if safety latches are provided on the seat backs.

The company hasn't forgotten the child's viewpoint. The little one's have shared in the testing and the results show that the Guardwell keeps them happy and comfortable. The seat will accommodate children to a maximum height of 45 inches and weight of 50 lbs. and a minimum of 30 inches and 21 lbs. Allowance has been made in the design for a child wearing winter or summer clothing.

Although Donlee designed the Guardwell seat to provide safety in a car, it can be used as a general utility seat for the child, on the floor, on the grass, as a booster seat at the table. In fact, the company recommends that it be used outside the car to help make it familiar and fully acceptable to the child. For these uses the child's position can be reversed so that its back rests against the impact pad; the pad, which snaps on, can be removed for larger children.

Code 8-1



"Pyescan" gets you through

Party line problems on car telephones can be overcome with a new automatic scanning system designed and developed in Canada by a Canadian company, Pye Electronics Ltd. of Montreal, Quebec. A survey has shown that a majority of calls on mobile telephones originate from the car because the user can switch manually to a selection of channels. But calls to the car, when conventional radiotelephone systems are used, don't get through if someone on the same channel is using the phone. This new Canadian electronic scanner, "Pyescan," constantly monitors up to 10 channels at a rate of 30 milliseconds each, looking for incoming calls and promptly locking on an open channel. The scanner is contained in the under-dashboard unit in the car. It is available now for use with the regular telephone network and will soon be ready for use in private radio telephone systems.

Code 8-2



Guardwell by Donlee Plastics keeps small passengers safe, comfortable and happy.

Archery company takes export aim, releases colourful package

Archery Craft of Toronto has been producing a full range of bows and arrows, from the most junior size to Olympic calibre (archery was an Olympic event for the first time in 1972), for 33 years. The company began to export actively in 1963 and now sells abroad 30 to 35 per cent of its production. All of its fibreglass bows have wood handle sections, even the cheapest line; all bows are designed by the company. The archery package includes arrows and other necessary equipment,

and instructions in English, French and German. The arrows are made from Port Orford cedar with turkey feather flights.

A unique heavy vinyl package that provides both permanent storage and a carrying case has been developed by Archery Craft and was introduced to the trade at the SPOGA trade show in Cologne last autumn, to loud applause.

The package benefits both the archery enthusiast, the wholesaler and the retailer. The sportsman gets a long-lasting carrying case;

one end opens to permit removal of the bow and arrows. Because of the strength of the vinyl case no additional packaging is needed and this cuts freight costs in half, drastically reduces the storage space required in warehouses and stores, and eliminates the problem for stores of disposing of outer packaging materials. The colourful packages create an attractive and efficient in-store display and won't be damaged by handling.

Code 8-3

