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INTERNATIONAL EDITION

VOLUME 13, NUMBER 7, OTTAWA 1975

With products, systems and facilities...

## Designing Canadians look to world markets

by Don Wight  
Assistant Editor, Canada Courier

"Design makes the difference."

Increasingly this concept is being transformed into reality by Canadian businesses and industries.

Whether they be designing and manufacturing consumer items, major industrial products or air and ground transportation systems and facilities, more and more Canadian exporters are recognizing the importance of good design — and incorporating it into the overall scheme of things.

In fact, many Canadian companies maintain that Canadian design ability — already proved in such areas as pollution control, hydro power and air transport — is a most important element of Canada's export trade. They state, furthermore, that good design is the key to the participation of Canadian engineering firms working on international projects.

And when it comes to being engaged in international projects, Canadian engineering companies have worked in such areas as Asia, Africa, Europe, Latin America, the Caribbean and the United States. They have done highway engineering in Thailand; road and metro tunnel harbour crossings in Hong Kong; feasibility studies on building a 100-MW thermal power plant in Algeria; design and development of a \$30,000,000 fishing complex in Peru; and a \$15,000,000, 100-ton-per-year (90.7-metric ton) asbestos-finishing plant in West Germany.

While not all Canadian companies and institutions are in agreement on the definition of design — it may

mean one thing to a design engineer or an industrial designer and have another meaning for an architect or consultant — the ultimate design of a Canadian product or system is invariably one that meets high international standards and best serves the needs of the people and country requiring it.

Among other things, the product is functional, doing what it is designed to do. It is also economical, efficient, easily maintained, aesthetically pleasing and, ultimately, designed to add to the end user's quality of life.

Just as Canadian companies differ in their definition of design, so, too, do they differ in their approach to its implementation.

Some see the design concept as the brainchild of a single individual who, alone, pursues it to its final conclusion. Others, while realizing that the original concept undoubtedly arose in the mind of one individual, approach its development through team effort — with the realization of the successful design being the result of the effective use of a wide variety of engineering skills that are executed in a planned and disciplined team effort.

This approach — and one that is employed by the majority of Canadian companies — has come to be known as Design Management and requires a design team leader who has the capacity to appraise the design problem, set the design goals and milestones, and monitor and control the required technical resources.

Taking the Design Management concept several steps further is the totally integrated, humanistic approach being strongly encouraged by

*Continued on Page 2*



### Clearly effective

When the effluent from a pollution control facility is this clear it's a sure sign that the system works — as is amply demonstrated in this photograph of the Hamilton Pollution Control Facility in Hamilton, Ontario. Designed by The Proctor & Redfern Group of Toronto, Ontario, the plant has been virtually trouble-free since its "shake-down" period and has consistently produced high quality effluent that meets the most stringent standards set by Environment Canada. The project, the largest single contract ever let in Canada for a pollution control facility, incorporates many notable features and is huge by any standards. Its 80-foot (24.4-m) diameter methane gas sphere is the largest in Canada, as are the four 83-inch (211-cm) diameter Archimedean pumps. The total quantity of concrete used in the project was 60,000 cubic yards (45,900m<sup>3</sup>), of which 1,600 cubic yards (1,224m<sup>3</sup>) were poured in a single day. The facility's secondary treatment extension provides activated sludge treatment, pressure flotation for excess activated sludge thickening, additional digester, filter and boiler capacity, sludge incineration, stand-by power facilities and landscaping. It has a capacity of 60,000,000 Imperial gallons per day (273,000,000 litres) with some components having a hydraulic capacity of 120,000,000 Imperial gallons per day (546,000,000 litres). The project also includes a 5,000 Imperial gallon per day (22,750 litres) pilot treatment plant that is used extensively for studying the effects of biological treatment of various industrial wastes discharged to the sewer system and for assessing the effectiveness of various nutrient removal processes. For its design — which provides effective pollution control and aesthetically enhances the area it serves — The Proctor & Redfern Group received the 1975 Award of Merit from the Governor General of Canada's Award for Engineering Design.

Code 1-186

## Built-in security with STYLE

Personal belongings are safe and secure when they are kept in the Decor lockers manufactured by the Building Products Division of GSW Limited, London, Ontario.

Adaptable to virtually every type of interior — school, gymnasium, swimming pool change area — the lockers have a clean, uncluttered, functional design that ensures long life and minimal maintenance.

Security is a built-in feature: rigid doors are available with four different locking systems. There is the key-controlled, spring-bolt action combination lock; the regular or key-controlled combination padlock; the spring-bolt action key cylinder lock; and the coin-operated lock which permits free checking: the coin makes the lock operative and is refunded after use.

With Decor single and double tier lockers there is no noisy metal-to-metal contact. Two sound absorbent rubber silencers are located near the top and bottom of the locker frame to assure quiet closing. As well, ventilation louvres at the top and bottom of each locker provide unobstructed air circulation for interior freshness.

Other Decor locker features, depending on style selected, include sturdy, plated steel coat hanger;

briefcase holder; sturdy four-inch (10.2-cm) base that prevents scuffing of locker face at floor level; three contemporary wall hooks; and sloping tops which prevent unsightly storage on the tops of the lockers.

All lockers and lockerettes are 72 inches (183cm) high and are available in a variety of widths and depths. Standard single tier units vary in width and depth from 10 and 12 inches (25.4cm and 30.5cm) to 18 and 21 inches (45.7cm and 53.3cm). All standard double tier units are 12 inches (30.5cm) wide and range in depth from 12 to 18 inches (30.5 to 45.7cm).

In addition to Decor lockers and lockerettes, GSW Limited also manufactures Decor gym boxes and cabinets — all of which are designed as matching pieces to provide a complete line of clothing storage facilities.

Durable, sanitary and well ventilated on sides and bottom, the gym boxes are 16 3/8 inches deep, 9 1/2 inches wide and 9 3/8 inches high (41.6cm, 24.1cm and 23.8cm). The steel storage cabinets, whose perforated shelves ensure ventilation of boxes, can accommodate 28 boxes.

GSW Limited exports to the United States and Britain and seeks additional markets in these countries.

Code 1-226



At home in any interior these single and double tier lockers are manufactured by GSW Limited, London, Ontario. The company also produces lockerettes, gym boxes and storage cabinets.

And inside . . .	Page
Orthophoto equipment and services .....	3
Buoyant hose delivers the goods .....	4
Plumbing fixtures find favour .....	5
Electrovert wavesoldering systems .....	5
Comfort with Coleman .....	5
Olympic Track and Field Sports .....	6
Coffee breaks turned to profit .....	6
Water pollution — simple sampling system .....	6
Fuel transfer system .....	6
Resources mapping and development .....	7
Trade inquiry form .....	7
New tartans from Highland Queen .....	8

**canada**  
courier

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*Continued from Page 1*

Canada's National Design Council. This approach has as its ultimate goal the design of products, systems and services that meet the needs and aspirations of society while at the same time safeguarding the environment in which these developments will be used.

The National Design Council, established by Act of Parliament in 1961, is a seven-member council representing Canadian industry, commerce, labor, distribution, architecture, engineering, design, the general public and the federal government.

Its objective is to promote design excellence as a worthwhile national objective and it sees good design as the collective responsibility of a broad range of interests involving the interdisciplinary efforts of the many recognized design professions.

These include design engineers; industrial, interior and graphic designers; structural and landscape artists and town planners. It also takes into consideration the involvement of physical, social and behavioral scientists; environmentalists; artists; economists; managers and those who can contribute their

special knowledge and skills to arrive at the most effective design solutions.

An important ingredient of the Council's design philosophy — and one that is being encouraged and incorporated by industries across Canada — is the involvement of the general public in the design process.

This is not to say that every member of the public is involved in the design decisions a company makes. It means rather that, since it is the public who must live with the products, systems and even total environments that are developed, then industry must consider the human element — both on domestic and international projects — having the design meet the needs of the people and the country rather than having the end-users adapt to the design.

In effect, the National Design philosophy is this:

"Good design results in physical solutions which are effective in fulfilling the genuine needs of our society. They must be efficient and economical to produce and operate and make the best use of available resources. They should enhance our daily life in that they bring aesthetic and other sought-after forms of gratification."

That this philosophy will become even further ingrained in the Canadian conscience is a foregone conclusion: Canada has a vital and creative people, a strong and growing artistic, scientific, technical and design capacity. It also has an established and viable industrial base — as is evident by its role in international markets — which can draw on ample reserves of energy and raw materials.

In fact, Canadian achievements in the past reflect these strengths and talents. Many Canadian industries, artists, designers and scientists have gained world renown. Canadians have designed and built large-scale engineering projects throughout the world. They also developed the

electron microscope, produced the CANDU nuclear reactor and contributed to the first telecommunications satellite.

Canada also originated the snowmobile and accelerated the development of the short take off and landing (STOL) aircraft. As well, Canadian artistic, engineering, architectural and other design talents won international acclaim at Expo '67 and other world exhibitions.

Also behind the increasing drive for design excellence in Canada is the Office of Design of the Department of Industry, Trade and Commerce which, among other things, is responsible for developing and expanding the effective use of industrial design in Canada's processing, manufacturing and tourist industries. To date, the Office has provided financial assistance to more than 100 Canadian manufacturers who are determined to improve their design capabilities.

With the belief that good design means good business — both at home and in the international market — the Office of Design has, in recent years, made awards for good design in such areas as concrete, steel, unit masonry and Canadian books and craft industries.

The newest award, presented for the first time on October 3, 1975, is the Governor General's Award for Engineering Design. Supported and endorsed by the Canadian Council of Consulting Engineers, the Engineering Institute of Canada, the Association of Canadian Industrial Designers, the Royal Architectural Institute of Canada and the National Design Council, the awards honor and officially recognize outstanding Canadian engineering designs which reached the production or construction stage after 1972.

The winners and their designs — many of which are already receiving international attention — are described in this edition of Canada Courier. Code 2-186

## Automated barrel-handling facility for whisky industry



Hiram Walker & Sons Ltd. of Walkerville, Ontario, has come up with a first in Canadian design for use in company distilleries in Canada and Scotland. This is an automatically controlled barrel-handling system which includes facilities for draining and filling palletized whisky barrels and a carousel filling and bunging machine. It replaces the traditional methods of manual filling, handling, rackwarehousing, maturing and manual draining or "dumping" of matured whiskies from 500-pound (227-kg) oak barrels. The system is designed to meet production requirements for 20 years and all four lines now in production have operated at more than 95 per cent efficiency, based on the design output criteria of four barrels per minute. It has also greatly increased productivity and capacity, has improved product transportation and handling and has almost virtually eliminated the human hazards involved in the previous manual systems. Due to fire and explosion insurance required for whisky handling facilities, pneumatics were used extensively and all explosion-proof electric motor drives were controlled on a "slave" basis by digital, pneumatic logic control systems. All equipment functions are controlled automatically on a sequential logic, failsafe basis by 28 complex pneumatic logic systems on each of the four lines. A similar line and two carousel filling machines are currently under construction in Canada for inclusion in a large expansion at Hiram's distillery in Dumbarton, Scotland. The equipment will be manufactured, assembled and tested in Canada, then dismantled and shipped by container to Scotland where it will be re-assembled, installed and commissioned in Dumbarton — all under the direction of Hiram engineers A. E. Downing and G. Thornton. This winner of an Award of Merit in the Governor General of Canada's recent awards for engineering design will be the most advanced barrel handling system in the Scotch whisky industry. Code 2-210

## System for energized power lines senses vibration, transmits data



Determining the nature of vibrations on high voltage power lines — one of the major problems faced by power utilities — has been made significantly easier with the development of the High Line Data Acquisition (HILDA) System designed and manufactured by Sed Systems Ltd. of Saskatoon, Saskatchewan. The HILDA System, for the first time, makes it possible to get accurate, numerical data about the magnitude and frequency of vibration on any line at any time — a fact which means vast savings to power utilities since it greatly reduces the costly damage caused to power lines by wind induced vibration. The HILDA System consists of two main components: a line mounted assembly (shown here being installed on a "hot" line by a lineman using "hotsticks") and a ground based unit. The line mounted assembly, a lightweight sensor and transmitter unit which can readily be installed on a power line, senses the vibration and, by means of a low power transmitter, sends this data to the ground based unit where it is received and recorded on magnetic tape. At the present time, the HILDA System has no rival. And little wonder! It allows a sensor/transmitter to be installed directly on a "hot" line (no need to de-energize the line for initial installation) and can withstand the electrical abuse — without damage — of being installed on lines that carry up to 500,000 volts. It enables linemen to install the unit from a distance of 10 to 15 feet (3.0 to 4.6m) using "hotsticks" and it is sensitive enough to measure vibrations of less than one thousandth of an inch (0.00254cm) amplitude while still being rugged enough to withstand bouncing or being dropped from a tower. The HILDA System is so stable that it gives accurate readings over temperatures of extreme heat and cold; operates in any weather without degradation; is so light it will not change the nature of the vibration it is measuring; so efficient with power that a small battery will operate the sensor and transmitter for at least six months; and will withstand the vibration that causes a one-inch (2.54cm) power line conductor to fail. Sed Systems, Award of Merit winner of the 1975 Governor General of Canada's Award for Engineering Design, has sold HILDA in the United States, Netherlands and Australia. Code 2-357

"These days, it's hard to tell the difference . . ."

## Sex sorter to the rescue!

The only machine of its kind available to the fisheries industry is a herring sex sorter which automatically separates roe-bearing females from males and results in about 50 per cent more fish being used beneficially rather than being reduced to fertilizer or waste. An Award of Merit winner of the 1975 Governor General of Canada's Award for Engineering Design, the machine — with a production rate of two tons (1.8 metric tons) per hour and an efficiency of separation of 95 per cent — is designed by Hauptmann, Green and Associates Ltd. of North Vancouver, British Columbia.

Prior to the development of the automatic sex sorter, males and females were lumped together and "firmed" in brine, as roe has to be firmed before removal from the female. The firming process, however, renders the flesh inedible with the result that males, which could have been used for the fresh fillet market, were lost.

The machine receives herring

in bulk and delivers them head-first in spaced single file along each of eight channels to electronic sex sensors which distinguish roe-bearing females from males. Males are shunted to one channel, females to the other. Small fish, immature males or females may slip by but the error bias is in favour of retaining the doubtfuls with the roe-bearers, rather than risking loss of the valuable roe. The machine is completely monitored and an inoperative channel can be checked immediately for correction.

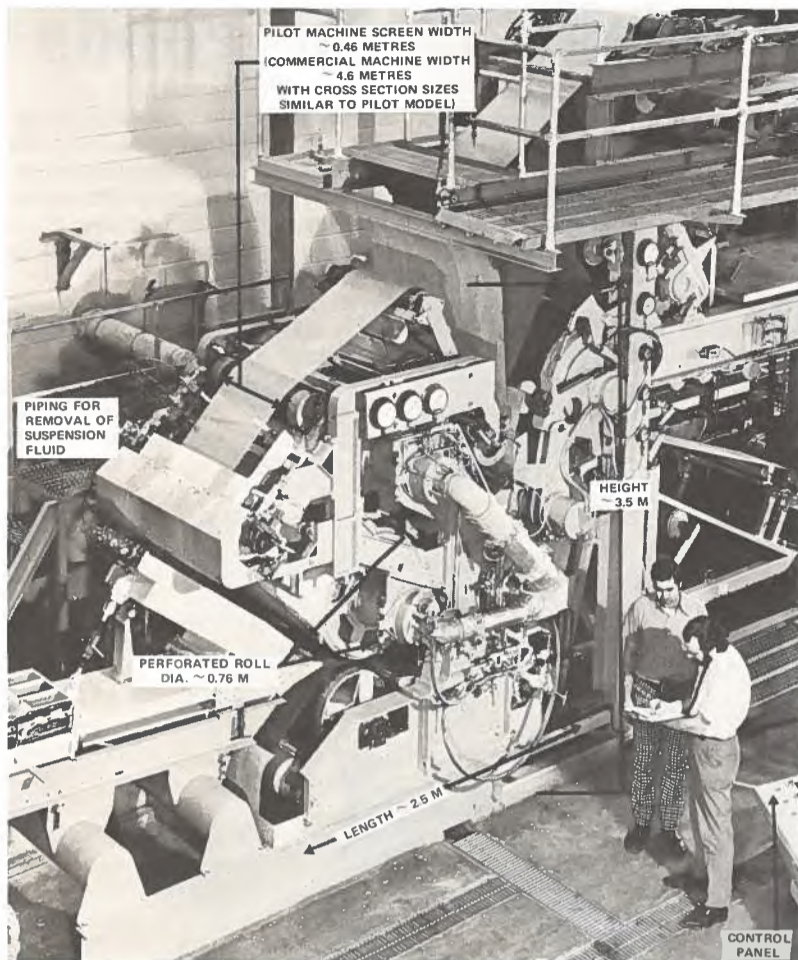
An added advantage: when the roe-bearing season is over, the sex sorter may be used as an automatic feeder for filleting, scaling or other processing machines as it can handle such small fish as smelt, anchovy, perch and capelin. To date, the automatic sex sorters have operated successfully in Canada and the United States and several countries have indicated an interest in purchasing them. Code 2-404

## For your bookshelf...

More than 900 companies are listed in the "New Brunswick Manufacturers and Products 1974" directory recently published by the New Brunswick Department of Economic Growth. In English only, the

176-page booklet includes an alphabetical list of manufacturers, a cross-referenced product index and a supplement listing the province's peat moss producers. Free copies are available. Code 2-521

## Producing better paper faster



Canadian in concept, design and execution, the world's first commercial Papriformer is the result of more than 12 years of research and development by the Pulp and Paper Research Institute of Canada and Dominion Engineering Works Limited of Lachine, Quebec. The paper making machine, designed to make high quality paper at much higher speeds than conventional machines and without the dependence on increasing amounts of expensive chemical furnish, operates at its designed top speed of 2,500 f.p.m. to produce more than 200 tons (181.4 metric tons) of newsprint in a day. The unique design concept of the Papriformer centers around its "fluid wedge." The fluid wedge is a self-compensating design unaffected by modest speed and furnish changes and makes operating the Papriformer a less complicated task than running a fourdrinier. The self-regulating fluid wedge — whose length and thickness adjusts automatically to stock and machine changes — is the key to the Papriformer's ability to "run by itself." Dominion Engineering says that, in comparison to the fourdrinier, the advantages of the Papriformer are many: with a 36-inch (91.4-cm) forming rook, formation web and consolidation are accomplished over a continuous distance of about 17 inches (43.2cm) — much less harsh than the start-and-stop dewatering on a fourdrinier table — resulting in a relatively gentle, two-sided drainage to produce a sheet that is uniform in the Z-direction. The wire life is longer because neither loop has any sharp bends, nor are there any stationary contacting elements like suction boxes, foils or deflector blades to wear down the wires. The non-contacting design also means a lower power requirement — only about 15 per cent of that needed to drive a fourdrinier at the same speed. A winner of the 1975 Award of Merit of the Governor General of Canada's Award for Engineering Design, the company has built three of these machines in Europe and eight in Canada. Two have been exported to the United States. Code 3-127

## Breathing easier

Home-care patients suffering from chronic respiratory diseases breathe easier when connected to the Reox System developed by Ritter Engineering Ltd. of Calgary, Alberta. The system, which provides an ideal source of oxygen for medical purposes, is compact, intrinsically safe, fully automatic, quiet in operation and requires as inputs only electrical power and air.

And it's easy to use: small hose openings are simply inserted into one's nostrils — patients say it's no more uncomfortable than wearing glasses! Being mobile and with capacities up to four litres per minute of oxygen, the units are easily used at home or in the office.

The machine, through a system of columns, a sophisticated electro-mechanical control system and an autoregenerative air drier, takes

in air and converts it to 90 per cent oxygen. The home generators, which have been in service in Alberta for almost three years, have shown that the first two patients to use them have required no further hospital admissions — in spite of recurring admissions for respiratory failure prior to their using the machine. Altogether, the 35 patients using the Reox unit have experienced improvements in the quality of their lives.

The Department of Health and Social Development of the Government of Alberta has acquired 90 of the units which are available in capacities of both two litres per minute and four litres per minute of oxygen. The Reox System was an Award of Merit winner of the 1975 Governor General of Canada's Award for Engineering Design. Code 3-482

### For your bookshelf...

Canada's Offshore Capability Directory is available free of charge to those involved in the broad area of offshore exploration and production. Published by the Ocean Industries Division of the Department of Industry, Trade and Commerce, the 142-page fully illustrated directory

contains information on the products and services provided by more than 90 companies.

Code 3-506

A limited number of a "mini" pocket-size version of this directory is also available to potential buyers of Canadian offshore materials and services. Code 3-606

## Tomolex table wins award of excellence

In the Governor General of Canada's recent award-giving for engineering design, winner of the highest award, that of excellence, for its Tomolex radiographic and tomographic table, was Picker X-Ray Mfg. Limited of Bramalea, Ontario.

Designed for versatility of function, the Tomolex table, with complete push-button control, can be changed in seconds from a tomographic to a radiographic configuration — without the time-consuming necessity of manually changing components.

The table consists of three modules — base, spacer/electronics and table top/Bucky — all of which are assembled to provide unmatched ease of patient transfer and to withstand the abuse of heavy cart

and wheelchair traffic.

Capable of performing horizontal, tomographic and erect radiography, the Tomolex table is also designed for patient comfort and security. The extra-wide table top — 96 inches long by 35.6 inches wide (244cm by 90.4cm) — makes the patient feel safe and also permits the operator to perform cross-table radiography and oblique sternum studies without using carts, tables or other effects discomforting to the patient.

The Tomolex tubestand, with an S.I.D. of 40 inches (102cm) for radiography and an S.I.D. of 42 inches (107cm) for tomography, can be pivoted around a vertical central axis for doing lateral radiography with a vertical cassette holder or

work on ancillary apparatus such as a Bucky or patient transporter.

Additional features include all-angle film exposure, close object film distance — 1.34 inches to 1.84 inches (3.4cm to 4.7cm); vertically and horizontally power driven tubestand for fast and effortless radiographic positioning and an integrated tomographic mechanism for fast set up and high quality tomography.

Also an international award winner, the Tomolex table allows the operator to achieve the position wanted for the study needed — regardless of patient size or condition. The table's development was financially assisted by the Federal Government's PAIT program. Code 3-282

## Orthophoto equipment and services

### Gestalt serves world markets

Engineering and mapping sectors throughout the world are increasingly using the photomapping equipment and services provided by Gestalt International Limited, Vancouver, British Columbia.

The company's Gestalt Photo Mapper (GPM-1) is a high-speed, computerized orthophoto compiler which automatically produces orthophotographs — photographs which in one single unit combine all the features inherent in both topographic maps and aerial photographs.

In aerial photographs, variances in terrain elevation produce geometric distortion or relief displacement. The GPM system corrects this displacement through a process that dissects the aerial photograph section by section, applying corrections within sections and reconstructing corrected sections into a true plan view image. Each dissected part of the image, within each section, is scaled and positioned — under computer control — to be reprinted in a precise orthographic projection of the terrain.

The result: an orthophoto in which there are no distortions or displacements and one in which the terrain and its natural and cultural features are shown in their true

relationships.

Gestalt orthophotos are used in a wide range of mapping and engineering applications, such as topographic base mapping at all scales, urban development and tax mapping, engineering plans and route location maps, and in forest management and inventory studies.

The GPM is a relatively small instrument and is divided into four separate modules: the scanning module which contains the diapositive transport system; the printing module which is located in a photographic darkroom; an operator's console containing a television monitor and command controls; and the correlator module which contains the control computer, magnetic tape reader and power supplies.

Accuracy, superior geometric quality, economy of production and speed are a few of the characteristics of Gestalt orthophotos. The geometric quality is so good, in fact, that enlargements up to seven diameters have met large-scale map accuracy standards.

Gestalt International Limited has recently completed development of a GPM-2 in which the information gained in measuring image displace-

ments is used to generate height information and contours. The contours will be printed simultaneously with the orthophoto but on a separate sheet of film so that they may later be superimposed.

In addition to offering an orthophoto production service to the international mapping community, Gestalt International — through its subsidiaries Northway Survey Corporation in Toronto, Ontario; Surveyair Limited and Cross Canada Flights Ltd. in Ottawa, Ontario; and Machair Surveys Ltd., Calgary, Alberta — provides a total mapping service.

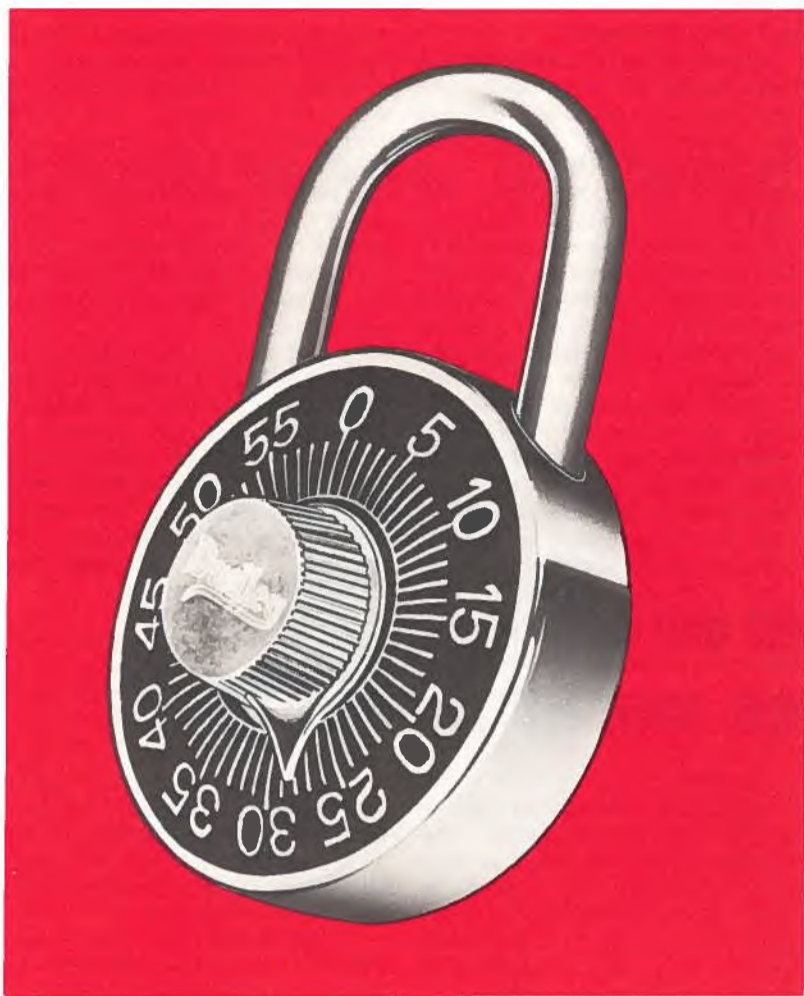
Services offered include: aerial photography, resource and geophysical surveys, ground control surveys, aerial triangulation, remote sensing and the use of the most modern techniques in automated cartography.

Gestalt International Limited, which exports to more than 20 countries throughout the world, recently signed the latest of a series of agreements with Mitsui & Co. Ltd. and Asia Air Survey Co. Ltd. of Tokyo to form a jointly-owned company to manufacture and market orthophotographs in Japan. Code 3-386



This Photo Mapper is the nerve centre of the sophisticated equipment developed by Gestalt International Limited (formerly Hobrough Limited) of Vancouver, British Columbia. Operator monitors printing process which compensates for displacements in aerial photos. The resulting product is a photo image with conventional map accuracy.

## Designed for safe keeping



Losing the key is no hazard when people use Dudley combination locks. These locks have been affording locker protection to Canadian schools, hospitals, clubs, industries and individuals since 1932. Easily operated — just twirl the dial through the right sequence of three numbers — the lock gives fool-proof, trouble-free service. It ends pilferage and avoids the problems of missing keys. The lock is 1 7/8 inches (4.7cm) in diameter and three inches (7.6cm) in height. It has a heavy brass, nickel-plated case, solid steel, cadmium-plated shackle and highly finished face with white figures on baked-on black enamel. Schools and other institutions can keep a simple chart for complete administrative control. The parts are made in Stoney Creek, Ontario, and the lock itself assembled and shipped from St. Remi de Napierville, Quebec. The Dudley lock has been recognized by the National Design Council of Canada as a design of merit. Code 4-162

## More power to the pedal!



Hills and long distances are no hindrance to riders of bicycles equipped with the electric drive assist units manufactured by Pedalpower (Canada) Inc. of Mississauga, Ontario. Designed to assist in the climbing of hills and to extend the range of the average rider, the electric drive unit — which easily attaches to any bicycle — consists of a 12-volt battery system and charger with a 2-amp automatic shut-off feature that prevents the battery from overcharging. Noiseless and pollution free, the system is also economical — it runs approximately 100 miles (161km) for only 10 cents worth of electricity. It goes 30 to 40 miles (48.3 to 64.4km) between charges and can be recharged overnight. The battery, mounted in an extremely durable case, incorporates a feature that was developed for snowmobiles: a special top section of virtually non-spillable design prevents or retards the seepage of electrolyte acid should the bicycle or battery accidentally be turned upside down. Pedalpower (Canada) Inc. is interested in international markets. Code 4-333

## Between oil pumping station and supertanker

# Buoyant hose delivers the goods

A new floating hose, designed to deliver oil between off-shore pumping stations and huge supertankers has been developed by B. F. Goodrich Canada Limited, Kitchener, Ontario.

The inside of the hose is lined with a low density synthetic cellular material which gives the hose tremendous buoyancy, so that in use, about one-third remains above the waterline. Covered in oil-resistant neoprene and reinforced with sever-

al layers of high tensile synthetic cord, the BFG hose, despite its large inside diameter of 12 or 16 inches (30.48 or 40.64cm), is prevented — by high tensile carbon steel spiral wire — from collapsing under pressure. The same spiral body wire also allows the hose to remain flexible while in service.

The need for a floating oil hose has become apparent since the introduction of the gigantic oil carrying supertankers that are too large

for many seaports and must, therefore, be loaded or offloaded while stationed some distance from shore. Employing the floating hoses, refineries can move the oil between the ship and shore using floating pumping stations.

B. F. Goodrich is the first company in Canada to develop a floating oil hose and according to Brian Mitchell, one of the firm's product managers, there is a huge worldwide market for integral floating hoses of this type. Code 4-216



These company representatives conduct a buoyancy check on a section of B. F. Goodrich's new floating oil hose. The hose is designed to deliver oil between off-shore pumping stations and supertankers.

## Portable darkrooms lighten operator's work



Impervious to light and conveniently used in dental offices, clinics and universities, this "In-Op" portable darkroom for dental x-rays is being marketed internationally by Weil Dental Supplies Limited of Toronto, Ontario. Measuring only 17.3 inches by 8.7 inches by 9.4 inches (44cm by 22cm by 24cm), the table-top plastic darkroom will accept any commercially available fast developing and fixing solution. It produces a viewable x-ray within 15 seconds. Supplied with the unit are four beakers, one each for the developing, washing, fixing solutions and final rinse. The beakers are placed inside the darkroom — whose special feature is a light-filtering top that allows the operator to visually process the film. The developer also employs stretchy nylon fabric that prevents light entering through the armholes during any part of the procedure. Interchangeable armholes are available should the fabric wear out. Weil Dental Supplies Limited exports its "In-Op" portable darkrooms to the United States, Britain, Mexico, Germany and countries in Central and South America. Code 4-482

## Plumbing fixtures find favour

A complete plumbing package from a reliable manufacturer is offered by Waltec Enterprises.

An old established manufacturing company, Waltec finds that its products — a complete line of residential and institutional plumbing fittings and laboratory service fittings — have the quality and competitiveness attractive to international markets.

In residential products, the company offers two main lines, Flo-Trol and Starburst, as well as numerous special application items. Both lines feature simple mechanical operation — such as the automatic return diverter on the tub and shower fittings which ensures that the water always comes out of the spout first when turned on.

The inexpensive Flo-Trol line is one of the most popular with simple styling that enhances any bathroom or kitchen. The deck faucet for the kitchen provides functional convenience with a high rise swing spout, splashless flow aerator and easy-grip handles. The deck plates are non-corrosive, easy-to-clean, stainless steel.

For more style-conscious markets, the Starburst line is being well received for its unique appearance and styling.

In the laboratory area for case-work services such as water, steam, air, vacuum and various gases, Waltec stocks a complete line of finished brass service fittings and controls including a variety of faucet assemblies, accessories and electrical receptacles. Fittings are available in chrome plated or special corrosion resistant finishes.

For hospitals, schools and other institutions, the Teck line, through a simple building block catalogue system, provides over 10,000 possible product variations. A special heavy duty line of products, Teck includes flushometers, hospital service sink fittings and special fittings for food preparation.

All Waltec products meet the approval of the Canadian Standards Association and, by means of a simple system of connectors, are compatible with piping systems throughout the world in either metric or inch sizes. The products are well made, long lasting and of excellent functional value.

Replacement parts for all products are available either directly from the company or from the



As this nurse demonstrates, washing up is easy with hospital fittings from Waltec Enterprises. Known for their dependability, all Waltec products combine functional convenience with easy maintenance — a feature that is especially important in a hospital or institutional setting.

importer who normally stocks spare parts kits.

A multi-product enterprise, Waltec is also a leading supplier of stainless steel sinks marketed under the trade name Steel Queen. The sink and drainboard models are popular in many areas. They feature a very highly finished top surface and a brushed finish in the bowl. The installation and hold down arrangement is simple as is the mounting of the basket strainers and drainers.

The associated companies in the Waltec group also turn out a wide range of non ferrous industrial components and Waltec's Aquarobic

division is now in production of a complete individual home sewage treatment plant that allows a great deal more flexibility in the development of new residential areas.

Waltec's combination of good functional design, mass production and ready supply of materials has helped buyers, particularly in the developing parts of the world, meet the demand for reasonable cost housing.

The Wallaceburg, Ontario, firm exports to such countries as Venezuela, Peru, Denmark, Britain, Lebanon, the Caribbean and United States.

Code 5-162

A world-wide leader in its field, Electrovert Manufacturing Co. Limited is a specialist in automatic tinning and wavesoldering.

One of the largest manufacturers of wavesoldering equipment, the Montreal, Quebec, company is also a prime industry supplier of printed circuit board assembly, cleaning, component tinning, reflow soldering, solderability testing and custom designed equipment.

Electrovert's In-Line Production Assembly Conveyor (IPAC) is a complete, self-contained system for the manual assembly of printed circuit boards, either with or without pallets. It is available in two standard models, either as an independent free-standing system or equipped with an inclinable unload end to interface with any wave-solder system.

IPAC's design is a combination of carefully considered parameters for efficient operation and operator comfort. Versatile in layout, it occupies a minimum of space and assures maximum productivity. Every consideration has been given to operator reach, motion and materials handling patterns to reduce fatigue and stress.

The IPAC conveyor, adjustable in width to 15 inches (38.1cm), is a pusher type in which the boards or pallets ride friction-free parallel tracks at a controlled speed. The pushers, unless otherwise specified, are factory spaced 18 inches (45.7cm) apart and can be reset in the field if required. The conveyor is



## Free-standing, interchangeable panels ideal for the open office concept

Open office landscape and work station panels that are economical, functional and easy to maintain are designed and manufactured by Beautiline Systems Limited, Downsview, Ontario. Delivered pre-assembled for easy on-site installation without the need of skilled labour, the Customodule free-standing screens use the patented Tubex framing system for durability and flexibility. The all-frame members, with the interlocking Tubex joint, have a tension strength of 600 pounds (272.4kg) pull and a shear strength of 2,000 pounds (908kg). Since the structures are not anchored to floors or ceilings, their installation does not interfere with existing air conditioning and heating systems. They are also easily relocated or added to without disrupting regular office work. The panels, all interchangeable, are available in such finishes as acoustical, glass, woodgrain, carpet and vinyl. The frames can be finished in black matte, chrome or antique brass. In addition to the panels, Beautiline also offers a wide variety of accessories, including desks, shelves, consoles, reference table tops, file and centre drawers and storage closets.

Code 5-226

## Comfort with Coleman

Making indoor living more comfortable is one of the things The Canadian Coleman Company Limited does well.

The 55-year-old Toronto, Ontario, firm manufactures such consumer products as space heaters, humidifiers and small gas-powered furnaces.

The company's Trim-Line gas-powered furnace, which can be used in small homes where temperatures are not extreme, is designed primarily for use in tent and truck campers, travel trailers and conversion vans.

Measuring 18 3/4 inches (47.6cm) high and 14 1/2 inches (36.8cm) wide, the unit has an input of 10,000BTUs per hour and an output of 7,000BTUs per hour. It has passed the Canadian Gas Association high velocity wind test without flameout.

Available with manual, bulb or thermostat controls and with an optional circulating blower for quieter performance, the Trim-Line furnace completely separates combustion and heating air to make the air inside fresh and pure.

One of Canadian Coleman's most popular and fastest selling products is the Model 871 oil heater. And little wonder! This heater fits in and does a superb heating job in dozens of places: stores, offices, workshops, service stations and hunting and

fishing cabins.

Occupying only three square feet (0.3m<sup>2</sup>) of floor space — yet with an output of 35,000BTUs per hour, this heater features a large, round heat exchanger of quick heating, heavy gauge steel. The hinged top permits easy access for cleaning and lighting, while the flat lid serves as a hot-plate for cooking.

The heater is 34 inches (86.4cm) high and 17 1/4 inches (43.8cm) wide. Depth, with fuel tank is 31 inches (78.7cm). The fuel tank has a capacity of 2.5 Imperial gallons (11.4 litres).

Humidifiers manufactured by Canadian Coleman are both practical and good-looking with a warm wood grain finish. No vents or grills are open to view and the recessed controls allow the unit to be used as an end table.

Measuring 25 inches (63.5cm) high and with a 17-inch (43.2-cm) diameter, the Martinique and Hawaiian (humidifier and heater) have a capacity of seven Imperial gallons (32 litres). The Hawaiian has an automatically actuated electric heater for those in-between seasons.

Continually developing new products and improving existing lines, The Canadian Coleman Company exports worldwide.

Code 5-362

— the most advanced, automated and instrumented high production wavesolder system.

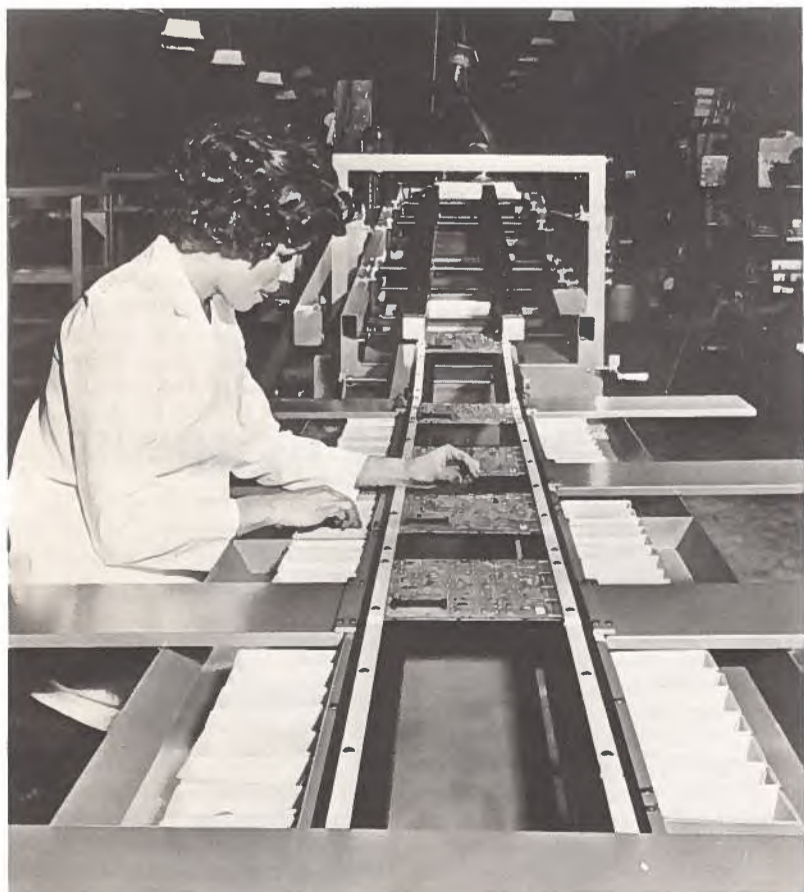
This model, with a free-standing central control cabinet designed to JIC (Joint Industrial Commission) standards and with a UL/OSHA (Underwriters Laboratory Operational Safety Health Hazard Act) type vent system, incorporates many equipment, safety and operational features not found on other systems. It is available in 12, 15, 18 and 24-inch (30.5, 38.1, 45.7 and 60.9-cm) widths with either pallet or palletless type inclinable conveyor.

Quality control is guaranteed at Electrovert: before being shipped, every piece of equipment must operate flawlessly during a continuous 48 hour run with all controls, meters and gauges fully tested for precision accuracy.

Equipment produced by Electrovert Manufacturing Co. Limited can be found operating in some 35 countries throughout the world.

Code 5-468

## Electrovert wavesoldering systems design for efficiency, operator comfort



The In-Line Production Assembly Conveyor system for the manual assembly of printed circuit boards is designed by Electrovert Manufacturing, a leading specialist in wavesoldering equipment.

The first three series of Canadian Olympic coins struck to commemorate the 1976 summer Olympics in Montreal have been an immense success — grossing more than \$130,000,000 in sales around the world. The fourth series, launched in September, 1975, is expected to be equally auspicious. Altogether seven separate series of British sterling silver coins will have been minted by the summer of '76.

## "Olympic Track and Field Sports"

That's the motif of the Olympic coins series IV which is now available. Legal tender of Canada, the series consists of four coins, two of \$10 value and two of \$5 value, and each with a different design illustrating various track and field events.

The series IV designs — all in Algonquin belt quill-work — are the creations of Leo Yerxa, an Ojibway Indian artist from the Couchiching Reserve in Ontario.

The first of the two \$10 coins depicts men's hurdles. An Indian head appears above an Algonquin belt quill-work design which depicts wild deer jumping over fallen trees in a forest. It is symbolic of the fluid motion of an athlete running the hurdles.

The second \$10 coin depicts ladies' shot put. Above an athlete's head appear the flames of the sun. The arc of its passage through the sky depicts the flight and the distance of the shot. This design vividly captures the power and strength required by the athlete in the shot put.

First of the \$5 coins is the marathon. This gruelling long distance event is represented by a running figure flanked by stylized quill-work birds. Birds in migratory flight require the energy and stamina of a participant in the marathon.

The second \$5 coin depicts ladies' javelin. Dominating this design is the effort and grace required by the athlete in demanding Olympic competition. The javelin thrower is in the midst of Indian spear heads which are done in a quill-work idiom and trace the direction and flight of the javelin.

The coins, struck with meticulous care at the Royal Canadian Mint in

Ottawa, are ultrasonically sealed in clear styrene capsules to keep them in their "brilliant uncirculated" condition. They are sold all over the world by banks, other financial institutions and official distributors assigned by the Olympic Coin Program. Proof-like coins in sets of four for each series can be purchased from banks or from the Royal Canadian Mint, through its mail order service.

The fifth series — for which there was a national design competition in Canada — scheduled for December 1975, will illustrate Olympic water sports.

In early 1976, the sixth series — which was an international design competition — will feature Olympic team and body contact sports.

The seventh and final series will be a souvenir issue and is scheduled for distribution in June or July 1976. Olympic sites in Montreal and Kingston, possibly including an aerial view of the Olympic Stadium, will be shown.

All \$10 coins are 45mm in diameter, weigh 750 grains and have a fine silver content of 1.44 Troy ounces. The \$5 coins are 38mm in diameter, weigh 375 grains and have a fine silver content of 0.723 Troy ounces. All coins are sterling (92.5 per cent pure silver, 7.5 per cent copper alloy) and minted in brilliant, encapsulated uncirculated or proof quality. They are available individually or in various custom-crafted presentation cases.

Actual mintage figures are based on firm orders received. Quotas are established for each major market to ensure equitable distribution to numismatists and collectors throughout the world. Canada's Post Office is in charge of the program.

Code 6-162

## Coffee breaks turned to profit

Coffee breaks can be costly. They can also be profitable, with drink and cigarette dispensers from Systematic Vending Machines Co. Limited of Rexdale, Ontario.

With Systematic's medium location (ML) machines, maintenance is kept to a minimum. Their simplicity in design and their reliability allow an operator to adjust, clean and service the units easily and quickly.

Small plants are finding the ML709 cigarette machine a profitable convenience. It is also ideal for social clubs, legions and service

stations. The reliable, eight-column 200 pack unit has no electrical parts and the coin mechanism is easily adjusted to keep pace with changing prices.

A variety of drinks is offered by model ML2000, which supplies coffee, hot chocolate and soup. Options of black, cream only, sugar only or any combination of both gives the selection a personal touch. All ingredients are in powder form with measured quantities per cup. Sugar and cream are limited to two shots each by a specially developed lock-

out device recently engineered by Systematic.

The water, heated by a 1000-watt immersion heater, is stored in a five-gallon (22.8-litre) tank that can either be filled by hand or hooked directly to the local water pressure lines for automatic filling.

These units, available only from Systematic, can be leased, purchased or added to a franchise operation. Systematic Vending Machines Co. Limited is an associated company of the Systematic Tool and Die Company, Rexdale, Ontario. Code 6-210



Easy maintenance cigarette and drink machines from Systematic Vending Machines Co. Limited are ideal for small plants, clubs or service stations.

## Water pollution -- simple sampling system

Taking samples of polluted water is easy as one, two, three with the Duckbill® water pollution sampling system designed and manufactured by Markland Specialty Engineering Ltd., Etobicoke, Ontario.

Replacing troublesome pump and scoop type samplers around the world, the Duckbill® remote sampler, with its solid state controller and virtually no moving parts, will even sample raw sewage without frequent clogging.

Now being manufactured under license in the Pacific/Far East and in the European Common Market, the units are extensively used in sampling for high solid contents in wastes from breweries and food processing plants, sewage treatment plants of all types, pulp and paper mills, distilleries and beverage plants, oil refineries, metal processors, chemical plants, steel mills and meat packing plants.

Markland's remote sampler is designed to be installed submerged below liquid level at remote locations in open channels, sewers, tanks, clarifiers, sumps, reservoirs, lakes and rivers. Samples can be

"called in" from any location to a central control point or taken simultaneously from two or more locations.

Easy to assemble and disassemble, the remote sampler has no mechanical or electrical parts, making it a reliable, trouble-free sampling device.

Heart of the Markland system is the patented non-clogging rubber Duckbill® which acts like a "living" check valve that closes around fibres or particulate matter without jamming. Large particles which could clog tubes cannot get through Duckbill® lips which open only a limited distance in the form of a thin screen-like slit.

Inside of Duckbill® is self-cleaning. When air pressure is applied — through a wide range of Markland automatic controllers — Duckbill® lips immediately close, squeeze downwards and expel any solids that may, because of gravity, have fallen back into the stream.

With a body diameter of only 3 inches (7.6cm) and an overall height of five inches (12.7cm), the Duckbill® remote sampler can take a per

shot sample size of 2 1/2 ounces (75 ml) of up to 50 samples or one U.S. gallon (3.8 litres).

Markland's portable, automatic Duckbill® sampler is a self-contained sampling system with its own batteries and compressed air supply. Compact, it fits easily into the trunk of any car.

Designed to operate down a manhole or wherever power is not available, the portable, automatic sampler has a front-mounted control box containing Markland's engineered solid state clock which times and switches without moving parts. Dial time between samples can be set anywhere from 15 to 60 minutes.

Encased in lightweight reinforced fibreglass, the automatic sampler is shipped complete with a remote sampler, 25 feet (7.6m) of clear flexible tubing, 20 feet (6.1m) of chain, sample collecting bottle and compressed air cylinder.

Exporting to such countries as France, Australia, Britain and the United States, Markland Specialty Engineering Limited is interested in international markets and/or sales representatives. Code 6-331

## Fuel transfer system lightweight, speedy

From the Wix Corporation of Toronto, Ontario, comes a new lightweight, manual fuel transfer system for refuelling helicopters and light aircraft.

Weighing only 18 pounds (8.1 kg), the Wix FW5 5-1M can transfer aviation type fuel from barrels at flow rates up to five gallons (22.8 litres) per minute. And with the innovative and time-saving feature of quick coupling and sealing caps for the inlet/outlet connections, there is no delay in completely draining the system before stowing it away in the aircraft after refuelling.

To satisfy existing commercial and military standards of fuel quality, the transfer system incorporates three stages of filtration: the first is a configuration coalescer element designed to remove all types of solid contaminants down to sub-micronic level; the second is a permanent separator canister of teflon-coated mesh used as a hydrophobic barrier to prevent carry over of any water droplets coalesced by the first stage that have not dropped out by gravity into the sump; and the third stage is a Go, No-Go, gauge that will absorb water and stop solids that may get by the first two stages. The gauge's fuse will automatically shut

off the flow of fuel if water and solids exceed tolerable limits.

The transfer system includes a double-acting hand pump, filter water/separator, final fuel monitor, telescopic suction pipe, with bung adapter, quick-acting couplings and seal caps, and 25 feet (7.6m) of fuel hose with open nozzle.

Wix Corporation Limited also makes filters for the automotive industry and for industrial use. Already exporting its aviation and industrial filters to Denmark, Trinidad and the United States, Wix is interested in developing other world markets. Code 6-432



The fourth series of Canadian coins designed to help finance the 1976 summer Olympic Games in Montreal has Olympic track and field sports as its theme. Obverse side of all coins, designed by Arnold Machin, bears the profile of Queen Elizabeth.

# Resources mapping and development

## Wide capabilities take Kenting crews globe-trotting

From the Canadian Arctic to the Ivory Coast — Kenting Earth Sciences Limited is on the job around the world.

Kenting, one of Canada's largest resources mapping and development companies, is internationally active in aviation, oilwell drilling, oilfield servicing and geophysics.

At home and throughout the world, Kenting Earth Sciences is engaged in: geophysical exploration, engineering surveys, aerial photography and remote sensing, photogrammetry and cartography, resources mapping and studies.

Kenting also carries out integrated resources study projects, principally in agriculture, river basin development and transportation. These studies involve resources mapping, project identification, interdisciplinary studies and preparation of feasibility studies to the standards of international lending agencies.

The company is capable of producing aerial photography at scales

ranging from 1/1000 to 1/100,000 with the imagery being derived either by conventional methods — using precision mapping cameras — or by newer techniques such as multiband photography, infrared scanning and SLAR (Side-Looking Airborne Radar). The imagery is processed with modern equipment to ensure positional accuracy.

Topographic maps are produced by Kenting's skilled photogrammetrists at scales ranging from 1/250 to 1/250,000. This department also produces strip mapping, plan and profiles, orthophoto maps and controlled and semi-controlled mosaics. With additional input from legal searches, cadastral and tax maps are compiled.

Kenting's experience in airborne and ground geophysical exploration includes high and low sensitivity magnetometer, gradiometer, spectrometer and electro-magnetic studies. Compilation is accomplished by automatic equipment, with interpre-

tation being partly computerized.

Airborne magnetometer surveys have played a major role in assessing mineral resources in underdeveloped areas. Here Kenting personnel have done more than 9,937,826 miles (16,000,000 km) of airborne magnetometer work in some 60 nations since 1947.

The company has also flown over 683,230 miles (1,000,000 km) of electromagnetic and radiometric surveys.

Kenting geophysical crews have also been active on the ground, with all types of surveys ranging from induced polarization through seismic and gravity work being performed for mining companies and government agencies throughout the world.

The geodetic and engineering surveys division performs a wide range of services for engineering requirements. The combination of precision airborne and ground photographic and measuring equipment finds applications in geodetic surveys and

in establishing concession boundaries, as well as in photogeological mapping, site surveys, construction materials searches and harbour and airport studies.

Frequent applications are found in route location and preliminary design for highways, railroads, pipelines, transmission lines and microwave site location. Photogrammetric techniques are also used in volume measurements for calculation of reservoir capacity or estimation of construction material quantities.

Kenting Earth Sciences is deeply involved in aiding the developing nations, particularly in the areas of water resources and agricultural development, forestry, mineral exploration, transportation and economic planning.

Kenting's capabilities in resources development include: economics, socio-economics, ecology, agriculture, soils mapping, land use and land capability mapping, geological and geomorphological studies, for-

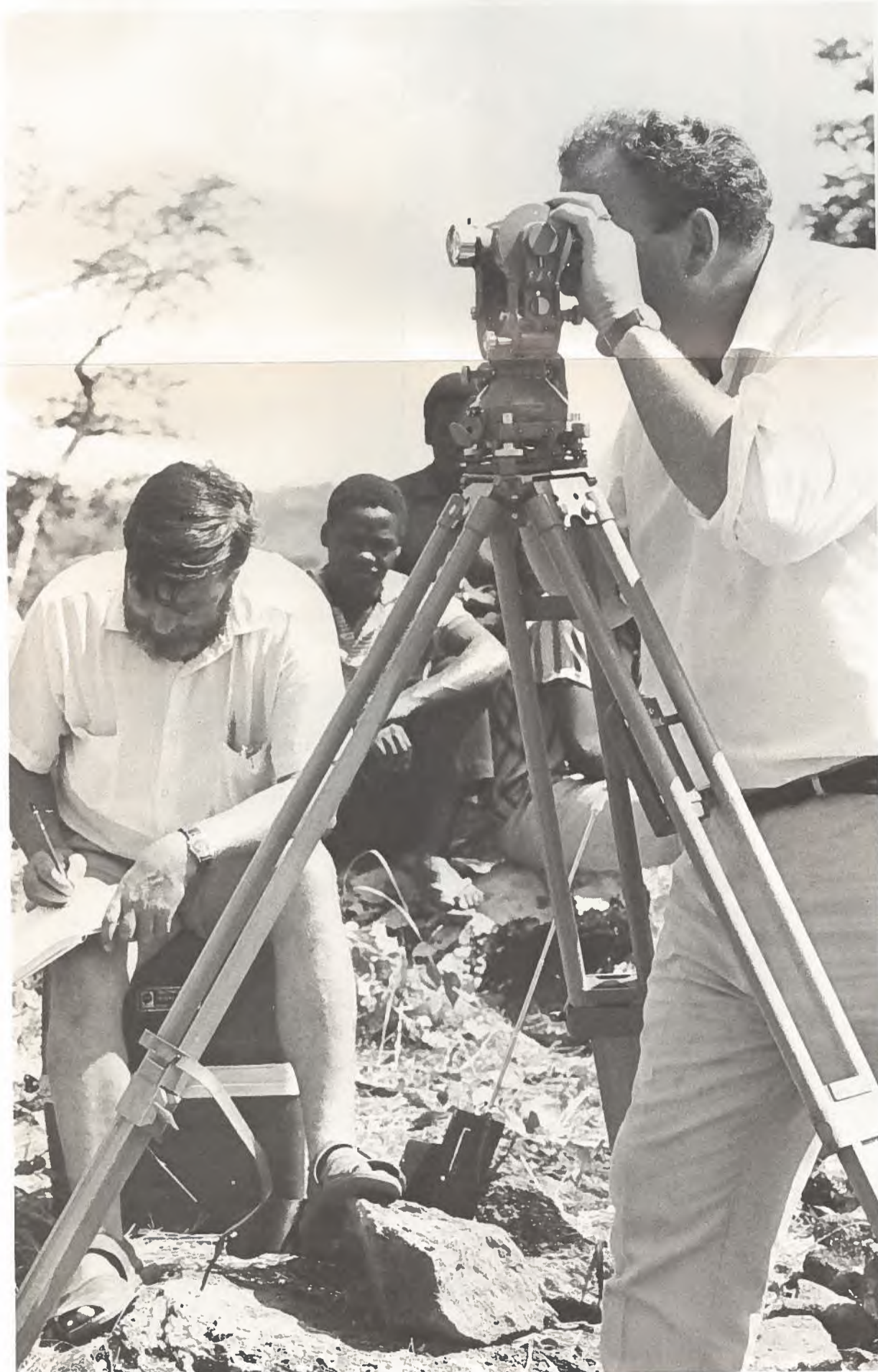
estry, property mapping, hydrology and groundwater studies, regional planning, integrated river basin studies, project management and liaison with international agencies.

Resources development projects have been carried out in the Mediterranean Basin, Southeast Asia, Latin America, Africa and India.

Kenting Earth Sciences currently is fulfilling in a dozen countries some 100 contracts with a gross value of \$8,000,000. In Sudan the company is completing a geophysical survey for an oil company; in Nigeria a wide variety of jobs include the mapping of the city of Lagos and a state department of agriculture study of the power and farming potential of a river basin.

Kenting's biggest single job follows from the recent drought in much of Africa. The United Nations engaged Kenting to survey and map a swathe of country that cuts across Togo, Dahomey, Upper Volta and Ivory Coast. This preliminary work will lead to a program to resettle population of land now stricken by drought. The previously fertile area had earlier been plagued with black flies which in turn caused river blindness.

Code 7-186



Using Theodolite to determine horizontal and vertical angular measurements, surveyors from Kenting Earth Sciences are performing part of a contract that calls for topographic mapping, control surveys and aerial surveys of 56,000 square miles (145,600 km<sup>2</sup>) of central and western Tanzania.

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# New tartans from Highland Queen mark Summer Olympics and U.S. Bicentennial



Capturing the spirit of '76 in both Canada and the United States, Highland Queen Sportswear Limited, of Toronto, Ontario, commemorates both the Montreal Summer Olympic Games and the American Bicentennial with two new tartan designs.

Olympicana, the official tartan of the 1976 Summer Olympics, was created by superimposing the official symbol of the Montreal Games — five Olympic rings topped by a stylized M — on the well-known Plaid du Quebec. The basic colours of the tartan — navy, green, red, gold and white — are taken from the Quebec Coat of Arms.

Introducing the tartan as part of its fall line of sportswear separates, Highland Queen, through its subsidiary Rotex Ltd., had started making products in the tartan for sale this autumn.

Noted primarily as a manufac-

turer of fall and winter clothing of 100 per cent pure wool, Highland Queen's casual wear and separates are available in a wide selection of styles including slacks, skirts, jackets and vests in women's sizes 8 to 20.

In addition to wool, the new tartans will be offered in a variety of blends including cotton, linens, synthetics, woven-knitted and printed fabrics.

While working on Olympicana, the company decided to create a plaid as a salute to the United States' Bicentennial: Heraldic Plaid of America, registered in the United States as a work of art, is the result.

Showing the head of a bald eagle superimposed on an elegant red, white and blue plaid background, the Heraldic Plaid, like Olympicana, is suitable not only for fashion co-ordinated wearing apparel for men,

women and children of all ages, but for various other products including carpeting, draperies, upholstery and luggage.

Highland Queen has long been famous for its ability to capture in a tartan the essence of a special event or place.

Under the direction of company president, David Weiser, the Maple Leaf Tartan was designed by the firm in honour of Canada's 1967 Centennial. A success all over the world, the tartan recreated in a blend of green, gold, red and brown, the natural phenomena of the maple leaf turning from summer to autumn. It was, and still is, so popular, that a number of agencies including the Canadian Armed Forces pipe bands have adopted it as their official tartan.

David Weiser, the creator of these tartans, is one of Canada's most

highly respected fabric designers. As such, he is the holder of several Canadian awards for his original and unusual designs and in 1968 he was named Canadian Manufacturer of the Year by a national garment association.

In addition to those designs already mentioned, Mr. Weiser has also designed tartans for the provinces of Ontario and Quebec, the cities of Niagara Falls (both Canadian and American) and a number of leading Canadian department stores.

Manufacturers in Canada, Britain and the United States are currently licenced to produce Highland Queen's plaids and the company is interested in obtaining sales representatives in other countries and in developing overseas markets to produce under licence, its distinctive copyrighted tartan designs.

Code 8-118



As classic in design as the vending wagon in the background, these two ensembles can be sold to be worn anywhere and everywhere — to the amusement park, the office, or out-on-the-town.



These two girls are smartly dressed in casual outfits from Highland Queen. Warm and comfortable, the co-ordinated slacks and jackets are just right for crisp fall and winter days.



Co-ordinated pants outfits from Highland Queen. Mix-and-match plaids and solids can be combined to make several different outfits.



These long skirts and jackets in vivid red plaids are elegant in any setting and as up-to-date as they are fashionable.