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Norway's geography and resources define its economic life and the market it offers for imported goods. So does its relationship with EFTA.

The Norwegian Market Today

B. G. R. BARTON,
Commercial Assistant, Oslo.

FLY OVER NORWAY and it appears to be a rugged plateau rising gently to the west but with a mountain barrier running north and south; the Atlantic coast is dotted by small skerries and islands and indented by fjords. Driving across from Oslo to Bergen, you will find the road pressed into narrowing valleys but the climb is gradual until the final plunge to the sea. Turn north, and you have in front of you 1,200 miles of changing fjord country. In such territory roadbuilding can be a difficult problem and sea transport often a necessity.

Geography and topography have combined to make Norway a seafaring nation and today, with a population of 3.8 million, it has the world's third largest and most modern merchant fleet, which contributes more than $700 million every year in foreign earnings to the country's finances. Many Norwegian ships never see a home port, and some are frequent visitors to Canadian harbours, requiring both stores and other shipping services while in Canadian waters.

Lying in the path of the Atlantic storms, the Norwegian highlands have been the indirect cause of the later industrial development. They act as natural water reservoirs and the present Norwegian production of hydroelectric power totals some 48,950 billion kilowatt hours a year,

Thousands of Norwegians have for centuries looked to the sea for their livelihood. Independent fishermen, for example, using boats like this one, bring in cod and other varieties of fish and help to boost their country's vital export earnings.

making Norway the world's largest per capita consumer of electrical energy. This power is the foundation of the important electro-metallurgical and electro-chemical industries and of the pulp and paper industry; each of these accounts for about 10 per cent of the gross national industrial production.

The land is not particularly rich in high-grade mineral deposits and topography hinders the full utilization of forest reserves. These industries therefore depend largely on raw materials which are purchased abroad. Canada supplies a number of these, especially to the basic metals industries.

Norwegian Tariffs and EFTA

Norway is authorized to apply an alternative rate of tariff reductions within EFTA for the goods listed below (that is, 30 per cent of the general rate in 1967, 20 per cent in 1968, 10 per cent in 1969, and nil in 1970):

Yarn and woven fabrics of manmade fibres, discontinuous or waste

Knitted or crocheted textile goods, except woollen sports socks

Men's and boys' outer garments of manmade fibres and men's woollen outer garments of a weight of 500 grams or more

Women's, girls', and infants' outer garments, other than girls' cotton coats and capes

Undergarments

Corsetry wear and similar goods, whether or not elastic

Ladies' footwear with leather or composition leather uppers, other than oiled leather, 23 cm. or more in length

Domestic electric refrigerators and freezers incorporating a refrigerating unit, but excluding electrical freezers for domestic use

Electric washing machines for domestic and institutional use.

NOTE: At time of writing, motor vehicles, except tractors, are not granted EFTA preferential rates.

Agriculture Is Protected

Although only 3 per cent of the land is arable, Norway is virtually self-supporting in dairy produce. Tractors have replaced horses but despite rationalization, the climate sets limits on what crops may be profitably grown. Assistance is necessary to maintain agriculture at a comparative economic level and the Government imposes import controls on a wide range of agricultural products. Periodic agreements are also negotiated between the Government and the farmers to ensure the latter a fair system of prices. Canada finds opportunities in this sector also and is an annual supplier of apples, cereal grains, flaxseed, dried peas and other products.

Fishing Is Export Industry

Fishing is a major industry depending almost entirely on its export capabilities, because about 85 per cent of the catch is sold abroad in various forms. Modern developments are changing the former pattern of numerous small boats to one of larger, specially equipped vessels manned by full-time operators. Such a transformation, however, requires large capital investment and the small independent fisherman continues to play an important part. Fishing equipment and processing machinery are largely developed and built locally, but up-to-date methods have made plastic materials increasingly important for nets, floats and packaging, and domestic manufacturers buy much of their plastic raw materials from abroad. Canada may well be able to supply these plastics at competitive prices.

In the field of machinery and equipment, Canada has specialized items which are finding a limited but recurring market in Norway. Included in this category are certain industrial machines and parts, certain aircraft parts and engines, carbon electrodes, business machines and military requirements.

Norway and EFTA

In trade, Norway is closely linked to continental Europe and Britain and 75 per cent of its external trade is carried on within Europe. As a member of the European Free Trade Association, Norway abolished its import tariffs on all industrial raw materials and manufactured goods which originate in EFTA countries as from January 1, 1967. There are still a few exceptions, summarized in the accompanying table. Annually increasing rates of preference for these will make them duty-free by 1970. It seems reasonable to expect that Norwegian purchasers, because of the elimination of these duties within the EFTA structure, will look where possible for duty-free sources of supply. This is true especially of those items on which the differences in rates within and without EFTA are large. This will lead to a greater orientation towards Europe, especially in consumer goods, of which the EFTA countries are considerable producers.

This development should not affect to any extent Norwegian purchases of raw materials and less highly manufactured items. These already enter under general tariff rates either duty-free or at low rates. In addition, the opportunities for Norwegian manufacturers to claim drawback on re-export remain unaffected when EFTA goods or EFTA trading are not concerned. Agricultural products receive no preferential tariff treatment under the EFTA agreement and therefore retain the general tariff rates. It appears that Canada's over-all ability to supply Norwegian requirements will not be affected but that those sectors in which Canada is most competitive will be highlighted.●

Norway's Electro-Chemical Industry Adopts New Processes

For over half a century cheap hydro power was the basis of Norway's export-oriented chemical industry. New processes for making ammonia and more profitable uses for power have influenced the industry to turn more to petrochemicals.

D. B. BROWNE,
Assistant Commercial Secretary, Oslo.

ABUNDANT WATERPOWER is the basis of Norway's electro-metallurgical and electro-chemical industries. Of the 49 billion kwh. of electric power produced there in 1965, between 40 and 45 per cent was consumed by these two industries. They were also the country's most capital-intensive and attracted the most foreign investment. Both, moreover, depend almost entirely on export markets. This article describes the electro-chemical industry—the electro-metallurgical industry was described in *Foreign Trade* of July 23, 1966.

The first calcium carbide plant was built in Norway in 1899 and Norsk Hydro's factory at Notodden (using the Birkeland-Eyde process to fix atmospheric nitrogen) was opened in 1905. From these a large industry developed, producing a wide range of chemicals described briefly below.

Calcium carbide and calcium cyanamide—Carbide was the first chemical based on cheap hydroelectric power to be produced in Norway. In the early days practically all of it was exported to make acetylene for lighting and welding. Today it is used to make calcium cyanamide (a nitrogenous fertilizer) and polyvinyl chloride. Norway is Europe's largest exporter of calcium carbide—the 1955 production of 41,000 tons increased by 1965 to 152,000 tons, of which 72,000 tons were exported.

Calcium carbide is produced by Odda Smelteverk (wholly owned by British Oxygen Company), Norsk Hydro, A/S Meraker Smelteverk (wholly owned by Union Carbide Ltd.), and A/S Hafslund. Odda Smelteverk has the largest output, much of which is used internally in the production of calcium cyanamide. Cyanamide is exported to manufacturers of thiourea and nitroguanidine or sold as a combined nitrogenous fertilizer and weedkiller. Most of it is used, however, captively in the production of dicyandiamide to be exported as a raw material for the manufacture of melamine.

Nitrogen—Norsk Hydro's production in the twelve months ended June 1966 was 415,000 tons of nitrogen, an increase of 118 per cent in ten years. The products were:

	('000 tons)
Calcium nitrate (nitrate of lime)	1,271
Complete fertilizer	486
Urea	157
Calcium ammonium nitrate (26 per cent N)	71
Ammonium nitrate	22
Nitric acid	20
Liquid ammonia, technical	32
Liquid ammonia, fertilizer	27

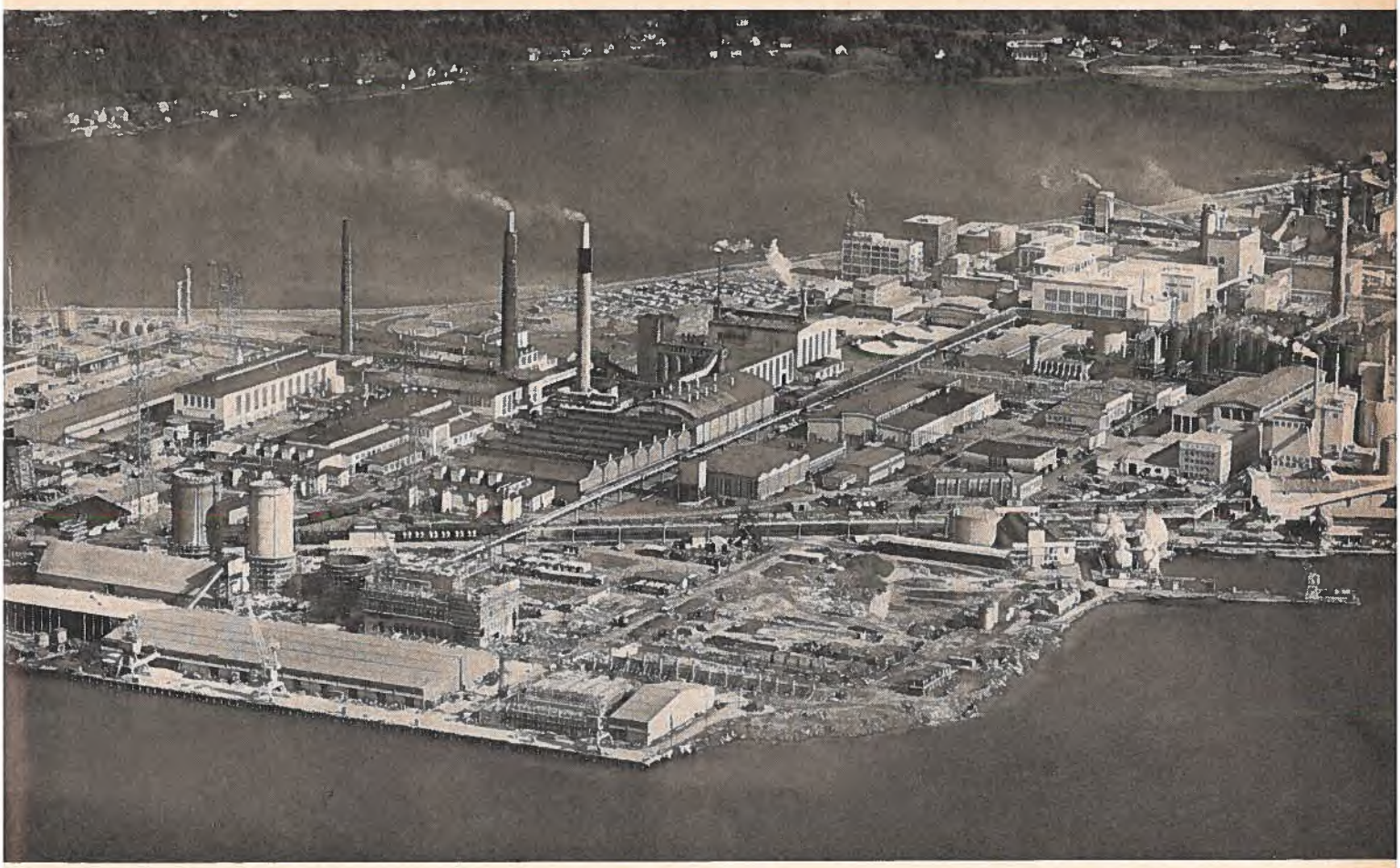
In ten years, sales of nitrate of lime increased only 17 per cent but urea sales rose from 30,000 to 166,000 tons and sales of complete fertilizer from 114,000 to 570,000 tons. Fertilizer exports in 1965 earned Norway Kr. 389 million (Can.$58 million) and about 60 per cent of shipments went to Denmark and Sweden.

Chlorine and caustic soda—Chlorine and caustic soda are produced by electrolysis of brine by HEFA, A/S Borregaard, and Norsk Hydro. Norwegian pulp mills have for many years used chlorine for bleaching cellulose fibres and the demand is growing. Caustic soda for rayon manufacture and chlorine for PVC provide a substantial market for the Norwegian chlorine and caustic soda industry.

Silicon carbide—Norway has a capacity of 43,000 tons and is now one of the principal producers of silicon carbide in Europe. (The total annual consumption in Western Europe is 85,000 metric tons.) Norwegian silicon carbide is sold all over the world. A/S Arendal Smelteverk (95 per cent owned by the Carborundum Company) is the oldest Norwegian producer. Orkla Exolon A/S (partly owned by the Exolon Company) and Norton Norge A/S (wholly owned subsidiary of Norton Company) have recently begun production.

Chlorates—A/S Vadheim Electrochemisk Fabriker produces potassium chlorate and 3,000 tons of sodium chlorate a year, mainly for the home market. Sodium chlorate is used as a weedkiller and as a bleaching agent for pulp. Potassium chlorate is used chiefly in the manufacture of matches.

Hydrogen—One small plant produces hydrogen and oxygen for welding, but the rest of the hydrogen produced in



This is the largest chemical production complex in Norway, located at Heroya and owned by Norsk Hydro. This plant is based on oil. It turns out synthetic ammonia, half of which is converted to nitric acid for the production of other chemicals, and it also makes urea.

Norway is used as a raw material in the chemical industry, principally for the hydrogenation of fats and ammonia synthesis.

Norsk Hydro

Norsk Hydro, Scandinavia's largest chemical company, employs 10,000 people and produced some thirty main products with a sales value of Kr.916 million (Can.$137 million) in 1965-66. The company has traditionally relied on nitrogenous fertilizers made with the maximum use of hydroelectric power. Now it has turned to petroleum products as a cheaper route to synthetic ammonia and its largest plant at Heroya is based on oil. Half the ammonia made at Heroya is converted to nitric acid for the production of calcium nitrate, ammonium nitrate limestone, ammonium nitrate and complex fertilizers. Urea is also made there.

Norsk Hydro's nitrogenous products were listed above. Among other products turned out in 1965-66 were calcined soda (22,000 tons), calcium chloride (30,000 tons), crystal soda (600 tons), formic acid (6,000 tons), heavy water (25 tons), solid carbon dioxide (8,000 tons), and substantial quantities of gases, including deuterium, argon and rare inert gases. PVC capacity is being increased from 30,000 to 55,000 metric tons a year and Norsk Hydro has joined with other Norwegian companies in the search for oil and natural gas on the Norwegian Continental Shelf.

The wheel of technology has almost turned full circle in Norway's electrochemical industry. Next year will see the end of ammonia production at the factory established by Sam Eyde in 1905 and within a decade Norway's electro-chemical industry will have largely become a petrochemical industry, with electric power finding more profitable use in the manufacture of aluminum, magnesium and ferro-alloys. ●

There's a Market in Manchester

This is Piccadilly Plaza, in the midst of downtown Manchester, the leading commercial centre for the North and the Midlands and heart of a complicated and sophisticated distribution system. The complex shown above includes a hotel, an office building, and modern shopping facilities. Canadian exporters who want to extend their markets in England should put Manchester on their itineraries. It feeds goods both north to Glasgow and south to Birmingham.

K. ROBERT HIGHAM, *Assistant Trade Commissioner, Liverpool.*

MANCHESTER, situated in the heart of the industrial north of England, is Britain's second largest financial and commercial centre. Within a 25-mile radius there are as many people as in the 1,040,046 square miles which comprise Canada's four Western Provinces. The resulting large demand, combined with a complex and sophisticated distribution system, means that Manchester has the largest annual wholesale trade outside London.

The most important single industrial sector in the city is the manufacture of heavy engineering and electrical equipment. Some of the world's best known engineering and equipment firms have their works in the large industrial estates which surround Manchester. And, although the city is no longer the world leader in the cotton textile trade, the manufacture of clothing and footwear still commands second place. Printing, publishing, chemicals, food processing and tobacco are all significant. But it is as a commercial centre for the North and the Midlands that Manchester probably has most appeal for Canadian exporters.

It offers a large potential market for Canadian goods ranging from basic raw materials to sophisticated industrial equipment, from textile piecegoods to high-style women's clothing, and from canned potatoes to fresh lobster. Are your company's products on the shelves of Manchester's large department stores and supermarkets? Are they passing through the massive dock, warehousing and distribution system which feeds goods as far north as Glasgow and south to Birmingham?

Incidentally Manchester is serviced directly from Canadian ports via the famous Manchester Ship Canal.

If the product you want to sell is for household use—such as carpeting, heating equipment, furniture, kitchen equipment, electrical appliances, etc., you might test consumer response by exhibiting at the Brighter Homes Exhibition. Each year in early March, almost 250,000 people visit this exhibition at the City Hall, Deansgate, Manchester. This year more than 70 exhibitors displayed merchandise, including two complete timber-frame Canadian-style homes. This show is directed to the public and many manufacturer's agents, distributors and re-

tailers find it a good method of bringing their products to the attention of the public.

If you are interested in participating in this fair, further information about space, cost, etc., can be obtained from M. F. Winter, General Manager, Provincial Exhibitions Limited, City Hall, Deansgate, Manchester 3.

The Canadian Trade Commissioner in Liverpool, whose territory includes Manchester, has an extensive list of reliable agents, distributors and importers in Manchester and if your firm is looking for representation in this market, you should write him for advice. The best plan, of course, is to visit the city and make a choice from the several firms that may be interested in handling your company's products. We will be happy to make contacts for you before you leave Canada in order to make your trip as effective and profitable as possible.

You can fly direct to Manchester from Montreal or Toronto or if you are coming from any other British city, you will find excellent inter-city air services are offered by a number of lines. There are also excellent rail connections to Manchester. As an example, a new electric train service covers the 200 miles to London in under three hours.

When your business is finished, you will find that Manchester is full of interesting places to visit, excellent restaurants and jovial northern pubs. You might like to try Sam's Chop House on Back Pool Fold or Sinclair's Oyster Rooms at Victoria Street, a 15th century timber-framed pub in the centre of town, where you can order a glass of bitter or a full course meal. (Be careful not to bang your head on the low beams!) On weekdays pubs are open from 11 a.m. to 3 p.m. and 5.30 p.m. to 10.30 p.m. and on Sundays from 12.00 to 2 p.m. and 7 p.m. to 10.30 p.m.

If you schedule your visit to leave time for a bit of sightseeing or if you have a weekend to spend in or near the city, you might like to attend a football (soccer) match and you cannot do better than to see Manchester's United team at Old Trafford Park. If you are fortunate enough to catch the Halle Orchestra between its trips abroad, don't miss the chance to hear one of Europe's finest orchestras play at the Free Trade Hall. The Free Trade Hall itself has some historical interest, as do the Town Hall and Manchester Cathedral which dates from the 15th century. Outside the city lies some of England's most picturesque countryside. You are only a few hours drive from the Lake district to the north and the Peak district to the east. The lovely old Roman city of Chester and North Wales are both southwest.

Manchester is a large, rich market hungry for unique high-quality products at competitive prices. It is a market with all the advantages of a large port and yet surrounded on four sides by one of the world's most intensely industrialized and populated regions. Once you get used to the North Lancashire accent, there is no language problem and you have all the advantages of Commonwealth preference plus a friendly attitude towards Canadian businessmen. If you approach this market with a quality, well-priced product, if you offer your representative fair commission and fast delivery, there is no reason why you cannot do business here.

Montrealers have long been familiar with Manchesters Liners Limited, with ships plying between St. Lawrence ports and Liverpool and continuing on to Manchester via the Manchester Ship Canal, which links that city with Merseyside. The canal passes through a number of important industrial towns.

The International Finance Corporation Defines Its Policies

"Foreign Trade" has in previous issues carried the text of World Bank pamphlets explaining its procurement policies and its use of consultants. Below we reprint a similar pamphlet that sets out general IFC guidelines for private enterprises seeking financing for projects in the less developed countries.

Purposes—The purpose of the Corporation is to further economic development by encouraging the growth of productive private enterprise in member countries, particularly in the less developed areas, thus supplementing the activities of the International Bank for Reconstruction and Development (hereinafter called the Bank). In carrying out this purpose, the Corporation shall:

i. In association with private investors, assist in financing the establishment, improvement and expansion of productive private enterprises which would contribute to the development of its member countries by making investments, without guarantee of repayment by the member government concerned, in cases where sufficient private capital is not available on reasonable terms.

ii. seek to bring together investment opportunities, domestic and foreign private capital, and experienced management and

iii. seek to stimulate, and to help create conditions conducive to, the flow of private capital, domestic and foreign, into productive investment in member countries.

The Corporation shall be guided in all its decisions by the provisions of this Article.

Article One, Articles of Agreement, International Finance Corporation.

Objectives and Operations—The International Finance Corporation (IFC)[1] was established by member governments in 1956 as an affiliate of the International Bank for Reconstruction and Development (World Bank), to assist less developed member countries by helping to promote the growth of the private sector of their economies.

IFC's principal objectives are to provide risk capital for productive private enterprises, in association with private investors and management; to encourage the development of local capital markets; and to stimulate the international flow of private capital.

IFC makes investments in the form of share subscriptions and long-term loans, carries out standby and underwriting arrangements, and provides financial and technical assistance to privately controlled development finance companies. It neither seeks nor accepts government guarantees in its operations.

IFC invites proposals from investors in all of its member countries for investments in developing member countries. In particular, it supports joint ventures which provide opportunities to combine domestic sponsorship and knowledge of market and other conditions with the technical and managerial experience available in the industrialized nations.

IFC's activities are similar in many respects to those of an investment banker. It is prepared to develop and promote investment proposals, to recruit private capital to supplement the investment of its own funds, and to act as financial adviser to enterprises it has helped to finance.

IFC negotiates its investments on terms designed to attract participation by private investors, so that it may in turn sell parts of its investments whenever it can do so on a satisfactory basis. Such sales enable IFC to revolve its funds and undertake new commitments.

IFC is responsible for the technical and financial appraisal and supervision of all projects relating to manufacturing industry, mining and development finance companies submitted to the World Bank Group—the Bank, the International Development Association and IFC itself —irrespective of which member of the Group is to provide the financing.

Legal Status and Management—IFC is a legal entity established by international agreement among its member countries. It has the status of a Specialized Agency of the United Nations and enjoys certain privileges and immunities corresponding to those of the World Bank. Membership (listed on page 7) is open to all governments which are members of the Bank.

Governors and Executive Directors of the World Bank representing member countries of IFC serve the Corporation in a similar capacity. The President of the Bank is, ex officio, Chairman of the Board of Directors of IFC and has been appointed by the Directors to be President of IFC. Subject to his over-all supervision, day-to-day operations of IFC are conducted by its own staff under the direction of the Executive Vice President. Certain officers of the Bank hold identical positions in IFC, and the Cor-

[1] 1818 H. Street, N.W., Washington D.C. 20433, U.S.A.

poration shares the services of a number of departments of the Bank.

Capital resources—IFC's subscribed share capital is approximately $100 million. In addition, the Corporation's reserve against losses amounted to approximately $32 million at December 31, 1966.

IFC is permitted to borrow the equivalent of up to approximately $400 million from the Bank for use in its lending operations without government guarantee.

Chief Investment Criteria—IFC makes investments only in the less developed of its member countries, in cases where sufficient private capital is not available on reasonable terms.

IFC is prepared to help finance an enterprise if it is of economic priority to the country concerned, if the prospect of profitability appears sufficiently attractive and if the presence of IFC is likely to make a constructive contribution to the project.

As an investment institution, IFC needs to be satisfied that the concept and sponsorship of a proposed venture are sound, that a market exists for the company's products or services, that management is capable and experienced and that the plan for financing the project is realistic.

In considering an investment proposal, IFC attaches importance to the extent of the sponsors' participation in the share capital of the enterprise.

IFC generally will only finance ventures in which there is provision for domestic participation. In order to stimulate broader ownership of the companies it is assisting, IFC will, in appropriate cases, join in arrangements for making shares available to local investors.

Range of Investments—IFC provides risk capital for a wide variety of private enterprises. It assists companies requiring new capital in order to expand, modernize or diversify their existing operations; it also helps to finance the establishment of new ventures.

IFC has to date invested primarily in manufacturing industry and in development finance companies. It is prepared to consider investments in other types of enterprise, for example, projects relating to agriculture, service industries, public utilities and tourism, provided the proposals meet the Corporation's regular investment criteria.

IFC does not engage in operations intended primarily for refunding, for direct financing of exports or imports, or for land development.

IFC funds are available for foreign exchange and for local currency expenditures. Funds provided may be used to acquire fixed assets or to meet permanent working capital requirements; their use is not tied to the purchase of specific equipment or to a specific country.

Preliminary Information—There is no standard form of application for IFC financing. Before making a detailed appraisal of an investment proposal, IFC expects certain preliminary information, similar to that normally required by a private investment institution. Such information should include a description of the enterprise; its legal status; financial history; present and proposed operations; the purpose for which financing is required and the amount sought; financial forecasts of operating results and, in the case of a manufacturing enterprise, the costs and availability of raw materials and other inputs, together with a review of technical assistance or other agreements, where relevant.

Terms of Financing—IFC normally provides financing by subscribing to shares, usually in conjunction with a long-term loan. Only in exceptional circumstances will IFC provide loan capital without equity or an equity feature.

The proportion of equity to loan capital in an IFC investment, as well as the interest rate on loan funds, is determined in each case in relation to a number of factors: in particular, the risk involved and the prospective over-all return on the entire IFC investment.

IFC's investments in shares are usually denominated in the currency of the country in which the enterprise is lo-

IFC Member Countries

Afghanistan
Argentina
Australia
Austria
Belgium
Bolivia
Brazil
Burma
Canada
Ceylon
Chile
Colombia
Costa Rica
Cyprus
Denmark
Dominican Republic
Ecuador
El Salvador
Ethiopia
Finland
France
Germany, Federal Republic of
Ghana
Greece
Guatemala
Guyana
Haiti
Honduras
Iceland
India
Iran
Iraq
Ireland
Israel
Italy
Ivory Coast
Jamaica
Japan
Jordan
Kenya
Korea
Kuwait
Lebanon
Liberia
Libya
Luxembourg
Malagasy Republic
Malawi
Malaysia
Mexico
Morocco
Nepal
Netherlands
New Zealand
Nicaragua
Nigeria
Norway
Pakistan
Panama
Paraguay
Peru
Philippines
Portugal
Saudi Arabia
Senegal
Sierra Leone
Somalia
South Africa
Spain
Sudan
Sweden
Syrian Arab Republic
Tanzania
Thailand
Togo
Tunisia
Turkey
Uganda
United Arab Republic
United Kingdom
United States
Venezuela
Zambia

cated. Loans are generally expressed in terms of U.S. dollars. Exchange risks on loans are assumed by the borrower.

The normal range of final maturities of IFC loans is from seven to 12 years, although in exceptional cases IFC is prepared to extend loans with longer final maturities. Amortization is usually on the basis of semi-annual maturities and IFC customarily allows a grace period before amortization payments begin. A commitment fee of one per cent per year is charged on the undisbursed portion of a loan.

IFC's investment agreements conform to the normal practices of long-term investors and contain standard protective covenants.

Underwritings—IFC also provides financing through standby or underwriting arrangements in support of public offerings or private placements of shares, debentures or other corporate securities. It is prepared to act as sole underwriter or as a member of an underwriting group. IFC does not itself engage in the direct selling of securities to the general public.

The same criteria for the selection of investment proposals apply for IFC standby and underwriting commitments as for direct investments.

Development Finance Companies—IFC is prepared to help establish, expand or reorganize privately controlled development finance companies. It will assist in creating new companies in cases where the existence of gaps in the local capital market indicates a substantial need for a shareholder-owned development finance company, where the volume of business available offers the prospect of profitable operations and where the government is prepared to support the formation of a new institution.

Principal activities of development finance companies supported by the World Bank Group include the provision of medium and long-term risk capital to local private enterprises and the mobilization of domestic private savings for investment purposes. Such institutions also act as a channel for foreign capital, identify and promote new investment opportunities, carry out underwritings and sell more seasoned securities from their portfolios to local investors.

IFC provides financing for development finance companies through subscriptions to shares, either directly or through standby or underwriting arrangements for share offerings.

IFC is prepared to join with development finance companies in cases where the entire amount of the financing required by an enterprise cannot be provided by the domestic institution or within the capital market of the country concerned. Joint transactions may involve direct investments, standby or underwriting arrangements or a combination of these.

IFC makes it a practice to refer investment proposals to development finance companies when the amount of financing sought is relatively small and the costs to IFC of servicing such investments would be uneconomical.

Degree of IFC Participation—IFC seeks to supplement and not to compete with private capital. It looks to other investors to provide a substantial part of the capital required for a project. When a new enterprise is being established, IFC will expect its financial participation to be substantially less than 50 per cent of the total cost of the project. When an existing enterprise is being expanded, the proportion of the cost which IFC will finance will depend on amounts which may have been recently invested from other sources.

Only in exceptional cases, where no development finance company or other suitable domestic source of long-term capital exists, would IFC be prepared to undertake financing involving less than $500,000.

The maximum commitment IFC would normally consider for its own account is $20 million.

Relations with Management—IFC generally limits its participation in an enterprise to under 25 per cent of the equity and is unwilling to be the largest single shareholder.

The Corporation expects its investment partners to provide management and does not assume management responsibilities. It does not seek representation on the board of directors of a company in which it invests, except in the case of certain development finance companies. Only in exceptional circumstances would IFC consider exercising the voting rights of shares it holds.

IFC expects to consult periodically with management, to visit the enterprise and to receive regular progress reports, together with information on factors materially affecting or likely to affect the company's business. It also requires annual financial statements, audited by independent public accountants. IFC investment agreements contain provisions with regard to accounting and financial reporting.

Relations with Government—IFC does not require or accept government guarantees of repayment on its investments.

Under its Articles of Agreement, IFC may only finance productive enterprises which are predominantly private in nature. Accordingly, it may not invest in enterprises which are government-owned or operated, although the existence of a government or other public interest does not preclude the possibility of IFC financing.

In accordance with its Articles, IFC informs each member government of any proposed investment within its territory, in order to ascertain whether the government would have any objection.

In making its investments, IFC operates in much the same way as a private foreign investor. It does not seek special privileges regarding foreign exchange or other regulations although, like any other investor, it expects to establish appropriate arrangements regarding the repatriation of its funds.

Sales of Investments—IFC is not a holding company: one of its principal objectives is to sell its investments and thereby replenish its funds. In a privately negotiated sale, it would not dispose of shares to investors to whom its investment partners objected for valid business reasons.

Investors are invited to participate in IFC investments, either at the time of the original commitment on the same terms as IFC, or by acquiring securities from IFC's portfolio at a later date on terms to be determined on the basis of developments with respect to the investment subsequent to the original commitment date.●

Indian Textiles Reach World Markets

The largest industry in India turns out everything from carpets and sacking to cashmere fabrics, silks, and a wide variety of cottons. Canada supplies it with rayon-grade pulp and buys a good range of textiles manufactured in India in return.

R. R. PARLOUR, *Commercial Counsellor, New Delhi.*

INDIA, the proverbial land of silks and spices, is still one of the world's major textile producers. Traditional methods of hand-spinning and weaving continue but, with the growth of factory production, the manufacture of textiles has become the leading industry and Indian textile products find markets in scores of countries around the world. Canada imports a wide range of Indian textiles, including bedspreads, cotton sheets, pillowcases, towels and napkins; mats and matting of coir, hemp, jute and sisal; woollen rugs, oriental hand-woven rugs; clothing; fabrics of wool, jute, cotton, rayon and nylon, and various textile products in the form of raw material, yarn and waste. Taken together, Canada's imports of all Indian textile products in 1965 reached a value of more than $26 million, out of total imports from India of $42.42 million.

On the other hand, the Indian textile industry provides a market for Canadian dissolving wood pulp for rayon manufacture; in recent years these shipments have ranged between $1 million and $3 million per year, some of this under Canadian aid financing. These sales may decline in future if present plans for setting up a rayon-grade wood pulp factory in Madras mature. This would be built by a private firm with Italian collaboration and go into production in 1968. A second rayon-grade pulp project is also being planned by the Government of Jammu and Kashmir.

With annual production totalling nearly 1½ million tons, India is the world's leading producer of jute goods and jute exports are the largest single earner of foreign exchange for India. The industry comprises 88 mills with 720,000 spindles and nearly 75,000 looms, in addition to six units making twines.

The traditional jute items produced for export have been sacking and tarpaulin. Jute sacking is used throughout the world as the most economical packing material for many commodities. The Indian jute industry has been making concerted efforts to diversify its production and new uses for jute are being evolved through research. New items being introduced in overseas markets include carpet backing cloth; union fabric (made in combinations of jute and cotton, jute and rayon, jute and wool, etc.); jute fabric for upholstery, wall coverings, window decoration and for decorative printing purposes; jute felt, and laminated jute bags (using jute cloth and polythene laminated together with a bonding material). Compulsory quality control and preshipment inspection of most jute goods has been in effect since January 1965, and the remaining categories of jute goods for export are expected to be brought under quality control soon.

Jute is the largest item of Indian exports to Canada. In 1965, shipments to Canada were valued at more than $18 million and consisted chiefly of broad-woven fabrics and yarn.

Cotton Textile Industry Vital

Although jute is India's major export earner, the production of cotton textiles is the largest organized industry in the country, supplying the huge domestic market of 500 million people as well as widespread export markets. The handwoven cotton fabrics of India have enjoyed fame since the beginning of history but most production now comes from the cotton mill industry formed a century

This is one of South India's big textile mills—the South India Co-operative Spinning Mills Ltd. at Tinnevelly, in the state of Madras. It was taken in the roving department of the mill and shows spindles being taken out after slubbing. Production of cotton textiles continues to be India's largest organized industry; as an exporter of cotton cloth, the country ranks second only to Japan.

ago. India ranks second only to the U.S. in volume of cotton cloth production outside Communist China and second only to Japan in quantity of cotton exported.

It is said that the cotton industry is to India what the automobile industry is to the United States or the watchmaking industry to Switzerland. It is pivotal to the economy of the country. The industry provides direct employment for some 900,000 workers out of a total industrial working population of four and a half million. In addition, the small workshops scattered around the country using handlooms or power looms are estimated to employ an additional three to six million persons. There are 580 cotton textile mills in the country with nearly 16 million spindles and 206,000 looms. The mills produced about 5 billion yards of cloth in 1965 and smaller handlooms and power looms another 3⅓ billion yards. This gives a total production of cotton cloth in 1965 of the order of 8⅓ billion yards.

Serious Problems Persist

Industry leaders in India recognize that serious problems face the cotton textile industry. Low productivity of labour is one. Wages are high by Indian standards and although Indian textile workers earn less than those in North America or Western Europe, the labour cost per unit of production in India is often higher because of low productivity. Yarn production per worker in India, for example, is only one-eighth that in the United States. Management feels that this low productivity is the combined result of the lack of modern machinery and the attitude of the workers.

The industry recognizes the need for new and modern machinery, but mills are hard put to find the necessary finance and foreign exchange for buying the machines. As a result, the Indian industry is falling farther and farther behind that in other countries. For example, the United States industry, which is 1¼ to 1½ times the size of the Indian industry, is spending over ten times as much per year on capital equipment. The Canadian industry, which is just about 1/20th the size, is spending nearly three times as much per year on new equipment. The Japanese industry, comparable in size to that of India, is spending over four times as much per year. This indicates that the gap in efficiency between the Indian industry and that in advanced countries is widening rather quickly.

Raw Cotton Yield

A further problem is the supply of raw cotton. India has the dubious distinction of having the world's largest acreage under cotton—20 million acres—with probably the lowest yield per acre, 110 to 120 pounds. This compares with a world average yield of 300 pounds per acre. It is estimated that Indian industry consumes about seven million bales of cotton per year and domestic cotton production currently ranges between 5.5 and 6 million bales. Imports have been insufficient to fill the gap and the mills are restricted to a five-day week. Most of the cotton raised in India is medium- and short-staple varieties, but limited quantities of long-staple are grown. Generally cotton of longer staple suitable for spinning yarn of higher counts has to be imported from African countries and the United States. India exports some indigenous short-staple cotton, used mostly for non-spinning purposes.

Reasons for the low yield of cotton are the small size of holdings and the

irregularity of rainfall. However, technicians feel that even under these conditions it should be possible to improve the yield by scientific methods of cultivation and proper use of fertilizers and pesticides. The Indian Cotton Mills Federation, in carrying out a pilot scheme for cotton development, estimates that yield can be doubled through more scientific farming techniques. For the individual small farmer it is estimated that the input of one additional rupee in the growing of cotton will produce 2.7 rupees worth of extra cotton and cottonseed. Thus, dramatic results are possible with heavy investment in the growing program, adequate supplies of chemicals and fertilizers, and an army of trained people to educate the cultivators in scientific methods.

India's export trade in cotton textiles dates from the Second World War; previously it was a net importer. Peak exports were reached in 1951 when over a billion yards of cloth and 83 million pounds of yarn were exported. Since then, however, because of an increase in Indian costs on the one hand and growing competition for a fast shrinking international trade in cotton textiles on the other, Indian exports have declined. In 1965 exports reached 558 million yards of cloth and 26 million yards of yarn. Exports of all cotton textiles, including cotton, yarn, garments and handloom products, earned the equivalent of Can.$150 million. This was merely sufficient to meet the cost of imported raw cotton and textile machinery so that on balance the industry is not a foreign exchange earner.

What Industry Exports

The principal varieties of mill-made piecegoods exported from India are sheetings, drills and jeans, voiles and long cloth, mulls, twills, shirtings, poplins, coatings, cambrics and prints. Indian handloom fabrics include exquisite muslin saris, stoles, and dress material, and the variety of Madras handloom cloth woven with coloured yarn known as "bleeding Madras". Non-wearable textiles like mosquito nettings, cotton waste blankets, cotton carpets and bed linen, table linen, bedspreads and similar articles are also exported. The principal markets in order of importance are Britain, Nepal, United States, Sudan, Saudi Arabia, the U.S.S.R., Tanganyika, Canada, Afghanistan, Australia, Ceylon, Aden, Malaysia, Kenya and New Zealand.

Cotton textiles rank third among Indian exports to Canada, surpassed only by jute and tea. The list of cotton products which India sells to Canada is varied and includes towels, pillowcases, broad-woven fabrics, cotton duck, cotton prints and sheeting, flannel and denim. Although Canada is only one of many markets for Indian cottons, the Indian authorities are anxious to build up this trade in order to earn precious foreign exchange. Generally, Indian exporters consider that their textiles are in the lower ranges of price and quality.

Coir Products

A variety of coir products—chiefly yarn, rope, and floor coverings—are made in India from coconut fibre. Nearly 100,000 tons of coir yarn are produced each year. The industry is concentrated in the southern states of Kerala and Madras, and factories and cottage units together have a production capacity of 57,000 tons per year of mats, matting, rugs, carpets, mourzouks and other floor coverings. About 5,000 tons of coir ropes are produced annually in the southern states, in addition to a sizable quantity by the mechanized roperies in West Bengal. Nearly 72,000 tons of coir manufactures were exported in 1964/65 for a value of nearly $24 million. Exports of coir products to Canada in 1965 amounted to $397,648 and consisted chiefly of mats, matting and yarn.

Some Woollens Produced

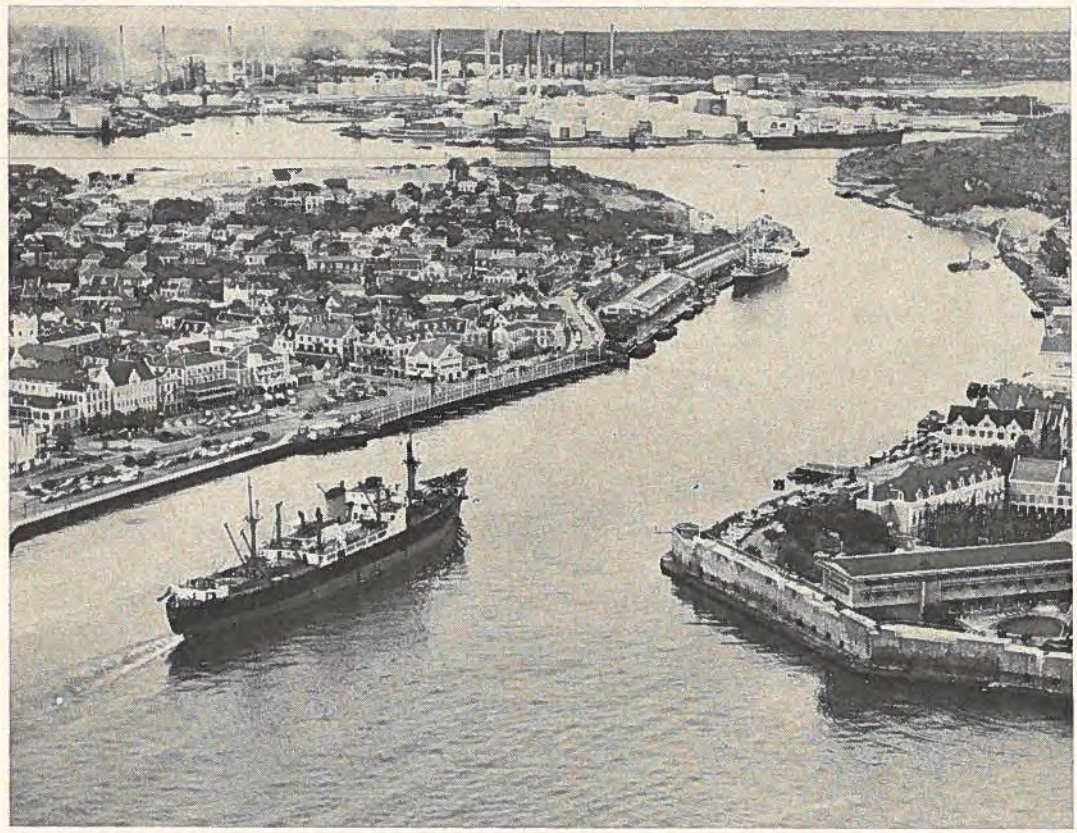
Although India does not possess the best breeds of merino sheep, there is a long tradition of sheep-raising and woollen textile production, particularly in the northern part of the country. India has long enjoyed the reputation of producing fine, soft woollen fabric for shawls, with this industry centred in the Kashmir valley. The fame of this product has spread around the world so that "cashmere" has become synonymous with fine woollen fabric. India is also one of the principal producers of carpet-type wool. The better grades of carpet wool are suitable for making tweeds, medium serge, overcoat cloth, hosiery, rugs and blankets. There are major exports of carpet wool and in addition Indian woollen carpets, either hand-woven or machine-made, are famous around the world. Exports of hand-woven carpets to Canada in 1965 were valued at $1.74 million and this trade is expected to increase, following action by Canada last year in reducing the Canadian duty on hand-woven woollen carpets to 15 per cent.

Silk and Synthetics

The rearing of mulberry silkworms from which real silk is obtained has been practised in India in the Assam and Bengal regions, in the Kashmir valley, and in the Mysore plateau since days of antiquity. Indian silk fabrics of exquisite craftsmanship, such as silk cloth woven with tie-dyed threads, was brought to the outside world by Arab traders as early as the tenth century A.D. Later, embroidered silk cloth and brocades and figured and flowered silk cloth also found their way to distant lands. The country also has abundant resources of non-mulberry silk. India produces annually nearly four million pounds of raw silk and occupies fourth place among world silk producers. About 24 million yards of silk fabric are machine-produced annually, in addition to production by cottage units. The popular items of manufacture and export are artistic fabrics like saris, shawls, scarves, tussar silk fabrics, brocades, sateens and taffetas. The principal purchasers of natural silk fabrics from India are the United States, Canada, Western Europe, the Middle East, Australia and Singapore.

The artificial silk industry in India began in the early 30's with the weaving of fabrics from imported viscose rayon, acetate rayon and staple fibre. Manufacture of cellulosic and other non-cellulosic fibres such as nylon was taken up later. India has a developing artificial and synthetic fibre industry and is able to produce sizable quantities of these fabrics for internal consumption and export. During 1965/66, exports of rayon and synthetic textiles totalled about 50 million yards valued at $12 million. Canada was the largest customer, with imports of about $1.2 million. Most other markets were in neighbouring countries of Africa and Asia. ●

Curacao and Aruba



--for pleasure and profit

These two islands, some thirty miles off the coast of Venezuela, are pleasant to visit and could provide good customers. Try selling luxury products for tourists, appliances, furnishings, or housewares.

J. E. KEPPER, *Assistant Commercial Secretary, Caracas.*

CANADIANS who want to mix selling with sunshine and hospitality will find the Netherlands Antilles to their liking. The two main islands, Curacao and Aruba, are situated in the south Caribbean about 30 miles from the coast of Venezuela. From any major Caribbean stopping point, it takes only a little over an hour by air to reach them. These delightful islands, with their white beaches, pleasant climate and new resort hotels, have become more and more popular in recent years. International airlines provide regular service from Caracas, San Juan, Santo Domingo, or points in the United States.

The Netherlands Antilles offer a large and undeveloped market for a wide range of Canadian goods. Imports in 1965, less the value of oil arriving from Venezuela, totalled about $130 million. Of this, Canada supplied only $3 million. Proximity to the South American mainland and its fast-growing tourist industry ensure the future potential of this market. Two of the world's largest oil refineries are located on Curacao and Aruba, but there are relatively few industries producing consumer goods. As a result, consumer products for a combined population of about 200,000 must be imported. Both islands produce and export petroleum products but import for consumption almost everything else.

Canada's main exports to Curacao and Aruba in 1965 included sugar $810,000, flour $620,000, and canned salmon $100,000. The following were

all shipped there in amounts very close to $65,000 each: sardines, whisky, newsprint, passenger car tires, washing machines, punch card equipment, toilet paper and pharmaceuticals. These eleven items amount to exactly two thirds of Canada's exports to the Netherlands Antilles; the other one third is divided among 270 different classifications. Currently, the major suppliers of the consumer market in the Netherlands Antilles are the United States 45 per cent, European Common Market 16 (of which Holland supplies the majority), Britain 8.5, Trinidad 6.5, Colombia 4.5, Japan 3.5, Venezuela 2.5, Italy 1.4 and Canada 1.4.

Port of Call for Cruises

The business visitor to Curacao will probably arrive by air, but every year over 140,000 tourists enjoy Willemstad, the capital, a preferred stop for about 100 cruise vessels. The passengers' first glimpse of the city of Willemstad is of a major hotel and casino at the entrance to the harbour inlet. It is located within the ten-foot-thick walls of an 18th century fort and is the only hotel in the world to carry marine insurance. A cruise ship actually arrives in Willemstad by moving slowly down its main street. The city is bisected by an inlet providing access to a deep-water harbour which accommodates all but the largest cruise ships and oil tankers.

Willemstad itself is a compact, sparkling clean city of gabled early Dutch architecture. A house with a bright red roof combined with yellow walls (or any other colour combination) should not surprise a visitor. Years ago, the story is, a Curacao governor suffered headaches from the reflection of the Caribbean sun from the white-walled houses and since then, white has not been used.

One of the main attractions for the visitor in Curacao is the free port shopping bargains. High quality merchandise from all over the world is sold in a spacious shopping mall. Luxury stores, combined with fish and fruit stands and the fourth busiest harbour in the world, give Willemstad a colourful cosmopolitan atmosphere.

In addition to cruise passengers, the islands are now encouraging the stay-and-play tourist, not only the shop-and-sail-away type. Over 500 new hotel rooms will be under construction or completed in Curacao this year and over 400 completed in Aruba.

The business visitor should have no trouble with language among a population of such varied nationalities; Dutch, English, Spanish and French are all widely spoken. The native population has developed "Papiamento", a recognized language that has evolved in the Netherlands Antilles over the years. To it, North America has contributed "okay", "payday" and "watchout". Although the official currency of the Netherlands Antilles is the Antillian florin or guilder (about 57 Canadian cents), the U.S. dollar is much in evidence.

Market Is Competitive

The Netherlands Antilles is now an autonomous member of the Kingdom of the Netherlands, a status it achieved in 1954. It is also an associate member of the European Common Market. At the present time, Netherlands Antilles exports enter the European

(Above left)—This freighter is passing through the narrow entrance into the Willemstad deepwater port, with the Shell Oil's huge Curacao refinery in the background. Curacao's architecture is distinctly Dutch. (Below, right) The famous floating market at Curacao, where fruits and vegetables are sold.

Common Market free of duty, but all goods from the European Common Market must pay a tariff that averages 4½ per cent on most items. Foreign products further manufactured or assembled in the Netherlands Antilles must achieve a 60 per cent added value before they qualify for free entry into the European Common Market.

There is a steady and consistent market for appliances and household goods and furnishings, and a growing market for high quality luxury goods attractive to tourists.

Because of the small captive market —about 200,000 people in Curacao and Aruba—and the fact that almost all goods are imported, competition is extremely keen. There are over 200 import firms in Curacao alone and almost as many in Aruba.

Catering to Local Needs

Items imported for the local market should be relatively inexpensive. Until lately, brand loyalty was a large factor in sales but the recent advent of television advertising could change this. Most importers feel that they must deal in a wide range of products to compete because they serve a small market and cannot order in large and relatively more economic quantities. Because of this situation, the exporter who can supply a wide range of goods from one source makes it possible for the Antillian importer to import less frequently and in more economical shipments. Canadian export agents should be able to do this.

In general, Canadian goods enjoy a good reputation and are competitive in price in most areas, but they are not as well known because of less exposure. One of the major obstacles for Canadian suppliers to Curacao and Aruba is the lack of shipping services and the somewhat higher cost of shipping small amounts to a relatively small market. There is a great need for salesmen who travel in the Caribbean area to call on these islands. They should be well equipped with samples, illustrative materials, and c.i.f. price quotations.

A Look at Aruba

Aruba, the "little Dutch isle Caribbean style", is considered one of the newest resort islands of the Caribbean, and with good reason. During the last few years the facilities there have been improved considerably. New roads, hotels, restaurants, stores and other facilities to make a tourist's stay as pleasant as possible have been built or improved.

The climate of Aruba is considered one of the finest in the Caribbean because, though rainfall is scant, the days are always pleasantly cooled by the constant northeast trade wind. The trade wind also sweeps insects out to sea so that window screens are rarely necessary. Largely because of this, and because the island is immaculate, tropical diseases are practically unknown. The average yearly temperature is 82 degrees, with the coolest months January and February and the warmest August and September. The air is invigorating because the humidity averages only 76 per cent.

All industry in Aruba is overshadowed by oil-refining, as it is in Curacao. Important chemical industries producing ammonia, urea and nitric acid have been added to the refining complex. To attract new industry, tax advantages are offered and industrial free zones have been instituted. The tourist industry should develop quickly in Aruba. The recent lengthening of the airport runway (by a Canadian contractor) to accommodate larger jets will help a great deal. Aruba offers excellent merchandise from around the world and at bargain free-port prices.

With their constant sunshine, unvarying temperature and cooling trade winds, Canadians should find Aruba and Curacao pleasant places in which to holiday and to do business. ●

Canadian Sports Clothes in Sweden

STRÖMS HERREKIPERING, one of Sweden's leading chain stores dealing in men's wear, recently featured Canadian manufactured sports jackets, sweaters and shirts, and a display of ties in maple leaf tartan. This was the final result of a long period of discussion and co-operation between Ströms Herrekipering, the Canadian Embassy in Stockholm, and the Department of Trade and Commerce, Ottawa.

Early in February 1966, Alvar Ström, director of the company, advised the Stockholm Embassy that one of his buyers would be visiting New York and asked if it would be worthwhile for the buyer to include Canada in his itinerary. A staff member at the Embassy mentioned that there were a number of quality clothing manufacturers in Canada producing styles adaptable to Swedish conditions and taste. A list of Canadian companies was provided and additional names requested from the Textile and Consumer Goods Division, Department of Trade and Commerce, Ottawa. This gave encouragement to Ströms, and it was decided that the buyer would spend several days in Montreal before returning to Sweden.

Later the Canadian Embassy in Stockholm inquired if any purchases had been made and whether further assistance was required. Ström's reaction was a pleasant one. Their buyer had found a number of Canadian manufacturers producing stylish goods, competitive in price and quality with those made in Sweden and other Scandinavian countries. This discovery led to a proposal that Ström's would allocate part of its advertising budget to a Canadian theme and use Canadian window displays in the Gothenburg and Stockholm stores.

Again the assistance of the Commercial Division of the Canadian Embassy in Stockholm was sought. Suitable photographs, brochures, and display backdrops were requested from the Exhibition Commission in Ottawa. These were forwarded to Ström's, providing an appropriate background for the Canadian garments.

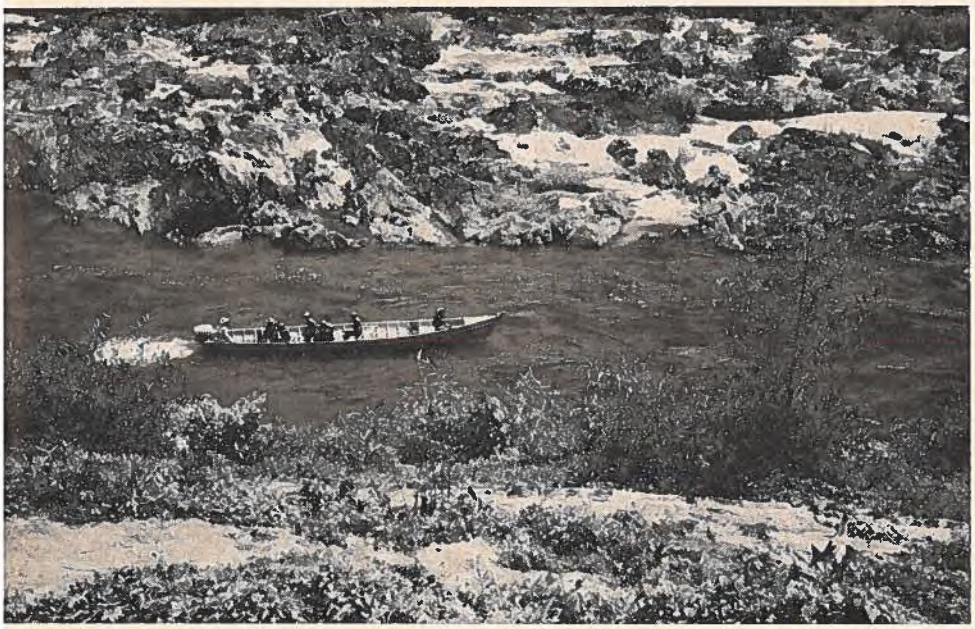
All the clothing on display moved briskly. It is expected that several of the articles will become a part of Ström's regular stock after the Canadian promotion finishes.

Canada's publicity on Expo 67, this year's birthday Centennial celebrations, and visiting Canadian ice-hockey teams have given our country an unusual amount of publicity abroad. This has accented Canadian-produced consumer goods exported to Europe, highlighting their quality and design.

—J. P. BELL,
Assistant Commercial Secretary, Stockholm.

Canada Studies Malaysia's Power Needs

To help Malaysia plan development of its hydroelectric resources to meet demand for power, a Canadian company has carried out a feasibility study under Canadian Colombo Plan aid.



In the rough country and amid the fast waters of the Upper Perak River region a Canadian company surveyed hydroelectric potential, produced a detailed study.

P. STUCHEN, *Commercial Counsellor, Kuala Lumpur.*

A STUDY recently completed under the Canadian Colombo Plan program by the Shawinigan Engineering Company Limited of Montreal has indicated that the development of the hydroelectric potential of the Upper Perak River in Malaysia is both feasible and economic. The results of this study are set out in a detailed four-volume report which summarized eighteen months of field and office studies. It has been handed over to the Malaysian Government.

In recent years the demand for electricity in Malaya has been increasing at almost double the normal rate of load growth. To meet this demand, new hydro generating facilities are under construction at Batang Padang and additional thermal capacity is being installed at Port Dickson and Prai, both on the west coast. In addition to these, however, new sources of power will be required in the early 1970's.

The Shawinigan Engineering report recommends the stage-by-stage development of hydroelectric plants at Temengor, Bersia, and Kenering, with construction initially at Temengor. The proposed installations for these developments are as follows:

	Initial	Ultimate
Temengor	192 Mw	384 Mw
Bersia	84 Mw	84 Mw
Kenering	94 Mw	157 Mw

The hydroelectric station at Temengor is the key to the development of the Upper Perak River. In addition to

generating a substantial block of energy, it will regulate the river to improve the production of the proposed Bersia and Kenering plants and the existing Chenderoh plant on the Perak. And because of its size, Temengor will be able to control production to complement the uncontrolled output from other hydro plants in the system, such as Cameron Highlands. The National Electricity Board will thus obtain maximum use of its hydro and thermal stations.

Projects Recommended

If the recommendations of the report are followed, a rock-fill dam 1,570 feet long and 350 feet high would be built at the Temengor site about 15 miles upstream from Grik. This dam, containing eight million cubic yards of material, would provide the main storage on the river and would create a lake fifty miles long and holding 4.76 million acre-feet of water. The initial installation in the powerhouse would consist of three 85,000 horsepower turbines with an ultimate capacity of six units totalling 384 megawatts.

The second development would be built at Kenering, some 25 miles downstream from Grik and 29 upstream from the existing plant at Chenderoh. This plant would have an initial installation of three units with a capacity of 94 megawatts, operating under a head of 96 feet. The ultimate installed capacity would be five units totalling 157 megawatts. The Bersia site is located some eight miles upstream of Grik. This station would complete the three-stage development of the Upper Perak. An 87-foot head would be built up and the four units would have an installed capacity of 84 megawatts.

Attention was first focused on the possibility of developing waterpower on the Upper Perak by engineers of the National Electricity Board in the early 1950's, although an existing plant of the Perak River Hydro-Electric Power Co. Ltd. at Chenderoh had been in operation since 1930. In 1959-60, under a previous Colombo Plan study sponsored by Canada, the hydroelectric resources of Malaya were assessed. This study indicated that the potential of the Upper Perak River was of major importance and should be investigated in detail. In late 1963, officers of the Shawinigan Engineering Company Limited visited Malaysia and made preliminary arrangements for carrying out this feasibility study.

Beginning the Study

Engineering personnel from Canada arrived in Malaysia in May 1964 and headquarters were established at the Kuala Rui camp near Grik in Upper Perak. Field surveys were started immediately and a reconnaissance of the valley confirmed that the sites at Temengor, Bersia and Kenering would be the locations at which to carry out detailed engineering studies. Ground surveys were made at the three sites and sufficient topographic detail was obtained to map all areas where structures are planned. In addition, topography was extended over large areas which held promise as possible sources of construction materials. Aerial mapping of the Perak Valley was completed from the Kenering site upstream to include the Temengor reservoir. The ground control for this work was provided by the field parties.

Geological reconnaissance was extensive and mapping of the sites was sufficiently comprehensive to provide for the layout of various alternative schemes. Sources of construction materials within economic distance were investigated and laboratory testing carried out to prove up the most promising deposits. To carry out the sub-surface exploration program, diamond drilling equipment and operators were brought out from Canada. Foundation conditions were checked at the three sites.

Hydrological records of the past were obtained from the National Electricity Board and the Perak River Hydro-Electric Power Co. Ltd., and these data, combined with the current field work, provided detailed information. Flow measurements were carried out at various river stages and these were later checked with production discharge figures from Chenderoh. All these data were related to the automatic stage level recorder which was installed at Temain on the Upper Perak. An assessment was made of the existing siltation problem in the Perak River.

Liaison Maintained

As the field investigation continued, information was dispatched to Canada, where office studies were being carried out concurrently. This close liaison between field and office ensured the maximum usefulness of all data obtained. Field data were obtained in sufficient detail to enable layouts and estimates to be made both for the feasibility report and also to serve as the basis for future contract documents.

During the course of the investigation, close liaison was maintained with engineers of the National Electricity Board. Monthly meetings were held and the progress of the work reviewed. In addition, engineers of the National Electricity Board made periodic visits to the various sites to become familiar with the work going on in the field.

The over-all feasibility study costing one million dollars (Canadian) could well be the blueprint for meeting a portion of Malaysia's hydro power requirements in the future. It is estimated that the projected scheme in its entirety could cost Can.$150 to $200 million and would require about four years to build. If the three dams or installations are proceeded with, they could provide electric power equal to Malaysia's total consumption in the early 1960's. ●

Information for Exporters

THE Office of Trade Relations of the Department of Trade and Commerce publishes bulletins covering shipping documents and customs regulations for a number of countries of interest to Canadian exporters. This information is available in summary form, by area, for the Far East, the Middle East, Latin America, Europe and the Commonwealth.

Also available are bulletins on *Customs Information for Canadian Exporters to the United States* and *Tariff Preferences for Canadian Goods Abroad.*

The Office attends to general inquiries from exporters about foreign import duties and trade regulations for particular products and other related subjects affecting Canadian exports.

For copies of any of the documents described, readers should get in touch with the Office of Trade Relations directly. ●

Germany Improves Canal Network

The proposed Rhine-Danube canal to link the Black Sea with the industrial heart of Europe will cost Can.$500 million. Other canals will be built and existing canals improved.

ROBERT J. BUCHAN,
Assistant Commercial Secretary, Bad Godesberg.

The main project in Germany's canal improvement plan is a new link between the Mittelland Canal (above) and the Elbe River to eliminate crossing the East German border. It will be 70 miles long and cost about $200 million.

THE DIRECT inland water link between the Rhineland and the Black Sea, which Charlemagne dreamed of a thousand years ago, came a step nearer on September 16, 1966, when the Federal Government of West Germany and the Free State of Bavaria agreed to build a canal connecting the Rhine-Main waterway and the Danube by 1980. The estimated cost of this canal is Can.$500 million.

In the previous year, the Federal Government had agreed with the City State of Hamburg and the Provinces of Lower Saxony, Schleswig-Holstein and North Rhine-Westphalia to share the cost of modernizing and expanding the inland waterway system in northwest Germany. It was estimated that this would cost Can.$800 million; the Federal Government was to pay two-thirds and the provinces involved would share the remainder.

The proposals, which together amount to an expenditure of Can.$1.3 billion over the next twenty years on what many Germans consider an outmoded form of transport, were carried in the face of strong opposition. There was a public outcry because of the already large federal budget deficits. Pipeline, rail, and road interests also protested. Advocates of the plans to improve and extend the canals, however, pointed out that canals are now the leading source of water in West Germany, providing industry with 300 million cubic metres annually. Germany's inland waterways and navigable rivers also provide three billion killowatt-hours of hydroelectric power and carry 30 per cent of Germany's inland freight —195 million tons in 1965. Germany's fleet of 7,600 barges employs 21,000 people, while transshipment terminals and wharves employ another 32,000. Although canal transport is slow, it requires only a small fraction of the horsepower needed to move the same loads by rail or road.

Modernizing in the North

Hamburg and Luebeck lost their industrial hinterland in the division of Germany after the Second World War; now the only waterway between these ports and the rest of Germany is along the Elbe River and the Mittelland Canal, making a U-turn inside the Soviet-occupied zone of Germany. The main project in the 1965 agreement was a 70-mile-long Elbe lateral canal linking the Elbe with the Mittelland Canal inside West Germany so that barges do not have to cross the border. This will cost about Can.$200 million and, it is hoped, will be completed by 1972. Its construction involves removing 43 million cubic metres of sand and peat and building 51 bridges and 8 underpasses to span the 160-foot wide canal. It is hardly surprising that canal building in Germany today costs Can.$3 to $4 million per mile.

The remaining Can.$600 million is to be spent over the next twenty years in widening and deepening existing waterways in the Northwest to accommodate the new 1,350-ton

"Europa" barges. The "Europa" barge has a 2½ metre draught when loaded and requires four metres of water for safe passage the year round. At present, only 700-ton barges can use the whole system and, in some places, only at high water.

Joining Rhine and Danube

The proposed canal between the Rhine-Main waterway and the Danube has run into greater opposition and is more visionary in concept. Its supporters stress industrial development and the benefits to the less industrialized area round Nuernberg which is lacking in water resources. They also emphasize the political importance of a new trade and transport link with Southeast Europe, painting the picture of Bulgarian, Rumanian, and Hungarian flags flying on barges in the ports of Duisburg and Hamburg. The new canal, only 96 miles in length between Bamberg on the Main and Kelheim on the Danube, will cut the distance by water between Hamburg and Tulcea on the Black Sea from 4,700 to just 2,100 miles.

Besides digging the new canal from the Main to the Danube via Nuernberg and Regensburg, the Danube between Regensburg and the Czechoslovakian border at Passau must be widened and deepened in places to take "Europa" barges. The Bamburg-Nuernberg section is being built and financed by a private canal company and will be finished in 1969. Work on the Nuernberg-Regensburg section will begin this year and both it and the improvements to the Danube should be completed by 1980. The Federal Government's share of the Can.$500 million project is under Can.$100 million; the rest will be raised by the Free State of Bavaria and the Rhein-Main-Donau Company, which was formed in 1921 for the purpose of developing this waterway and its hydroelectric potential.

These two new canals will only add 170 miles of navigable water to the present German inland waterway system of 2,780 miles, of which 2,040 miles are river; their special significance is in providing a direct inland water link between the North Sea and the Black Sea. ●

Hong Kong's Electronics Industry Is Growing Fast

Beginning as an assembly operation for cheap transistor radios, the industry now makes many of the components it needs and does a substantial export trade too. It could be a potential market for Canadian materials, especially for the higher-priced models.

C. R. GALLOW, *Senior Trade Commissioner, Hong Kong.*

THE DEXTERITY of the Chinese worker, combined with a good degree of free enterprise, a free port, adequate credit facilities and a willingness on the part of both labour and management to work hard, have made electronics Hong Kong's fastest growing industry.

Eight years ago it hardly existed but by 1966 there were 53 factories employing over 15,000 workers, of which approximately 85 per cent were women. It is still a relatively small industry compared with textiles or clothing, but it is notable for its outstanding rate of growth and there is every indication that greater acceleration will take place as the emphasis shifts from the radio field to more sophisticated components for the computer industry. It is mainly export-oriented and can be considered among the Colony's most important industries because world-wide growth is forecast for electronics.

Components Now Made Locally

This industry began as an assembly operation, using Japanese parts to make transistor radios. From 1959 to 1964 it was a case of Hong Kong nibbling away at Japan's main overseas markets for inexpensive transistor radios. Almost all production was shipped overseas and by 1965 exports were running at over six million sets a year (valued at some Can.$26 million), with the United States the biggest customer, followed by Britain. The intention has been to put as much local content as possible into the sets; this has been increasing steadily and now some of the larger manufacturers report that from 50 per cent to 60 per cent of the value of their sets represents locally manufactured components. These now include antenna coils, printed circuit boards, silicon transistors and diodes, speakers, condensers (ceramic or polystyrene), electrolytic condensers, interstage and intermediate frequency transformers, fixed carbon resistors, oscillator coils and variable tuning capacitors. Until 1964 about 90 per cent of the sets manufactured were a standard type of six-transistor AM medium wave but there has been a noticeable shift since then to more sophisticated models, such as seven and eight transistor AM sets with greater sensitivity, improved sound reproduction and higher audio

output power. A few manufacturers are making FM portables with up to 10 transistors.

Stereos Next

The trend to higher-priced, more sophisticated models is the result of fierce competition in the market for cheap models which are now also made in Taiwan and Korea, where costs appear to be lower than in Hong Kong. It is a repetition of the circumstances of several years ago, when Japan was edged out of the low-price market by Hong Kong and had to turn more and more to the quality field. For the future, Hong Kong's manufacturers have their sights set on solid-state stereo FM/AM radios and probably TV sets, although up to now labour problems have prevented the production of TV sets from progressing beyond the pilot stage. However, a U.S. subsidiary is successfully turning out VHF and UHF television tuners and plans to expand and diversify into detented UHF tuners and similar products in the near future.

Components Exported

The production of sub-assemblies and components has doubled each year for the past few years and in the first quarter of 1966 exports of components apparently exceeded transistor radios in value for the first time. Several firms now produce silicon transistors, and semi-conductors, commercial integrated circuits and diodes, antenna matching transformers for TV tuners, LW audio amplifiers. Generally these firms are subsidiaries of or are associated with overseas manufacturers. Subsidiaries of U.S. firms have probably contributed most to the expansion and diversification of the industry—one produces a wide range of silicon transistors of varying power capabilities and exports its entire production to the parent organization; two produce transistors and diodes (other firms are expected to set up in that field); another makes ceramic condensers for transistor radio applications where high voltage capability is not important and will probably export them. Walkie-talkies and radio spectacles are also made. Computer memory arrays using ferrite cores are an important development and five U.S. subsidiaries are producing memory planes and memory stacks for electronic computers, electrolytic and film capacitors, and other ancillary components.

Training Problems

The major problem in the near future is providing adequate technical training for a reasonable number of personnel. Working conditions in the industry at the present time are considered to be the best in the Colony—plants are air-conditioned, dust-free, and a great deal of attention is paid to lighting. Eight-hour shifts are standard with actual working time ranging from 7 to 7¼ hours after allowing for meal and rest breaks. Supervisory personnel earn between HK$280 and HK$340 (Can.$53-$64) per month. The employees are mainly women and could probably earn 10 to 15 per cent more in the textile industry on a piecework basis, but there hours are generally longer and working conditions not as agreeable. In the electronics industry there is a turnover of 55 to 60 per cent in the first month after hiring but after that it becomes almost negligible, although some pirating of personnel is now developing. In the past year or so, new training methods have substantially reduced the training period required, in some instances by one-third or more.

Source of Supply

Hong Kong industry is a potential source of supply of components for Canadian electronics manufacturers which could help them to compete with United States, British and Japanese competitors. It is also a potential market for Canadian suppliers of the materials required in the manufacture of the sub-assemblies, components, and radio equipment. They must, however, be able to meet the prices of Japanese and European firms without the benefit of any preference because Hong Kong is a free port. ●

—Trade Development Council, Hong Kong

Women workers assemble components in one of the 53 transistor radio factories that have sprung up in the past eight years. Hong Kong firms are now making their own components, and in 1965 exported almost their total production—six million sets worth Can.$26 million. The industry is planning a shift from the radio field to more sophisticated components for the computer industry.

What's current in commodities?

Packaging Materials

Jamaica—As industrial production increases, need for a variety of packages expands. Local firms supply some of these needs, often using imported materials that Canada does or could supply.

L. D. BURKE, *Commercial Counsellor, Kingston.*

JAMAICA has had a packaging industry for a long time. In its original form it consisted primarily of the packaging of local products, using imported containers. Now, however, a wide range of cardboard, paper, metal, glass and plastic packages, previously imported, is manufactured in Jamaica. In addition, the demand for packaging materials and for containers has increased substantially in the past two or three years, and particularly in 1966. New factories and the manufacture of new lines have meant a growing need for more packaging, and local production has expanded in an effort to meet it.

There has also been a marked change in the quality of packages and packaging materials. What might have been acceptable a few years ago is unacceptable today. The Jamaican packaging industry is, however, still a relative infant and despite its real achievements, those in the field here accept the fact that much remains to be done.

At the present time the following types of packages are manufactured in Jamaica:

Corrugated Fibreboard Cases and Fittings—used mainly by the banana trade but also for the packaging of canned fruits, juices, detergents and other locally produced items. The fluting medium and kraft liner for these cases are both imported. Canada obtains part of this business, with the remainder going to U.S. and Scandinavian suppliers.

Multiwall Paper Sacks—these are used in Jamaica for the packaging of cement, sugar, fertilizers, feedstuffs, etc., and are produced locally in sizes ranging from 25 to 112 pounds, both printed and unprinted. The kraft for these sacks is imported, mainly from the U.S. The next item likely to be manufactured here is a polyethylene-lined paper sack.

Unprinted Paper Bags—are used for general packaging, such as for rice, coffee, spices, etc. These bags are also made locally in sizes from a quarter-pound to 20 pounds. Printed bags, however, are not made here and must be imported. So are shopping bags and any high quality bags used in the retail trade. Kraft for locally produced bags must also be imported and originates mainly in the U.S., Britain, and the Scandinavian countries.

Folding Cartons—There are several companies in Jamaica producing folding cartons for packing shirts, stockings, pharmaceuticals, cosmetics, etc. The board for such cartons is imported: the U.S. is the principal supplier. In addition, one other company has recently entered the field and will be producing high quality cartons for the major detergent manufacturers and for the packaging of cigarettes, hand soaps, dessert powders, and other products. A good quality white patent-coated board will have to be imported for these.

Glass Bottles & Jars—These are made in Jamaica but in flint glass (white) only. All coloured bottles and jars come in from abroad and so do specialized bottles for the local pharmaceutical and cosmetic trades. Fairly good silica sand is available in Jamaica but soda ash and the other

TABLE I

Principal Packaging Materials and Containers Imported into Jamaica

Item	1963 Quantity (lb.)	1963 Value (£)	1964 Quantity (lb.)	1964 Value (£)	1965 Quantity (lb.)	1965 Value (£)
Common packing and wrapping paper	12,202,593	326,788	14,875,908	483,552	16,931,988	514,385
Paperboard (cardboard) including corrugated cardboard, but not including building board	11,401,605	316,599	12,364,862	361,842	11,763,069	413,801
Waxed paper	510,231	55,828	349,845	33,636	566,145	29,447
Paper bags other than garment bags of paper	746,504	67,832	1,002,857	95,988	577,285	67,160
Cardboard boxes and other containers of paper or cardboard	2,960,495	315,315	3,738,047	401,093	6,085,523	564,112
Bottles, flasks and other containers, stoppers and closures of common glass, blown, pressed or moulded, not otherwise worked	9,994,445	312,648	19,880,954	593,775	15,326,770	478,552
Tin cans empty, including broken down in pieces	12,204 cwt.	243,600	14,357 cwt.	151,239	16,318 cwt.	167,336
Other metal containers for transport or storage	77,205 cwt.	405,506	21,593 cwt.	221,146	15,035 cwt.	229,340
Cellulose film sheets and cellulose film	657,052	118,603	891,083	171,109	1,064,313	211,393
Total		**2,162,779**		**2,513,380**		**2,675,526**

£1 Jamaican = approximately $3.00 Canadian.

chemicals required for the manufacture of glass have to be imported.

Metal Cans—A local company produces metal cans in 14 different sizes ranging from 7 to 40 fluid ounces. Their total output per year is approximately 45 million cans and these are used mainly for citrus products (juices, concentrates, fruit sections, etc.). One other firm which operates a condensed milk factory produces 50 million cans a year but these are for its own requirements. The tinplate for the local manufacture of cans is imported mainly from Britain and the U.S. Smaller cans for local manufacturers of drugs, toiletries and aerosol products must, however, be imported and are brought in at present mainly from Britain. Paint cans and drums are made in Jamaica.

Collapsible Tubes—These are used almost exclusively in Jamaica for toothpaste. Very few other items are put up in collapsible tubes. The aluminum slugs required are imported from Britain.

Polyethylene and Cellulose Bags—These are used in Jamaica for packaging bakery products, poultry, garments, etc. The bags are made out of imported cellulose film and out of both imported and locally produced polyethylene film. The imported cellulose and polyethylene film comes mainly from Canada and the United States. Polyethylene flake for the manufacture of extruded film is bought from Britain and the U.S.

Plastic Bottles—A company has just begun the production in Jamaica of blow-moulded plastic bottles. These will be used for detergents, cosmetics, suntan oil and similar items. The establishment of this company represents an important development in the local industry because once production gets under way, imports of these bottles will be substantially reduced. Polyethylene and PVC resins required for this operation are imported from Canada and the U.S.

Paper Cups, Milk Cartons and Ice Cream Containers—These are produced locally but not in sufficient quantities to meet all domestic requirements; imports supply the remainder. The light paperboard required for the domestic production of these paper products is imported, principally from the Scandinavian countries.

Now that a basic packaging industry has been established in Jamaica, refinements and expansion will probably come fairly quickly. This opens up opportunities for Canadian suppliers in two fields:

1. For the raw materials required by the local packaging manufacturers. Examples of these have been provided in this article.

2. For those packages and containers that are needed in Jamaica but are not yet produced locally, usually because demand is not large enough to warrant it. We have mentioned a number of these in this report.

Canadian companies making any of the above products or any lines required by a developing packaging industry are encouraged to write to our office in Kingston, Jamaica, and we will endeavour to determine what the opportunities are in this country. Statistics showing the main lines of packages and packaging materials imported into Jamaica in the period 1963-1965 are given in the accompanying table as a guide to the market possibilities in this country for such products. ●

Water Skis

Britain—The World Water Skiing Championships at Sherbrooke, Quebec, this year should give Canadians a chance to show the British our water-skiing equipment, particularly for the expert.

J. C. MERCER, *Commercial Assistant, London.*

A SMALL but devoted band of accomplished semi-professional water skiers from Britain will be making an appearance in Canada this year, many of them for the first time. They will be participating in the World Water Skiing Championships to be held in Sherbrooke, Quebec, from August 28 to September 23, as part of our Centennial celebrations.

This event should offer an excellent opportunity for Canadian water-ski manufacturers to show their latest designs to the elite of the water-skiing world and to expert British water skiers in particular. Canadian manufacturers have made little inroad into the British market and British skiers are therefore not familiar with Canadian products.

Over the past six to eight years, water skiing in Britain has increased in popularity at a rapid rate. This growth has created a substantial water-ski market. The majority of the skis sold are naturally in the mass-market price bracket, but there is a steadily growing group who require more sophisticated skis and it is the foreign producers who are at present catering to these more discerning and competitive skiers.

This particular section of the sport is open for development. There are 66 water-skiing clubs affiliated with the British Water Skiing Federation, whose officials claim that there should be some 500,000 members in Britain by the early 1970's.

The first water-skiing club in Britain was started in the 1950's and by 1966 the skiing population totalled some 75,000. The anticipated expansion to 500,000 in the early 1970's gives an indication of the interest being shown in this sport—and the growth potential.

Mass Market

This market enjoys a sales volume of about 3,000 to 5,000 ski pairs annually, in an £8-£15 (Can.$24-$45)

price range. These skis are sold through sports shops, boating/yacht clubs, holiday camps, and water-ski clubs. Domestic producers supply 85 per cent of this demand.

Quality/Competition Market

This much smaller market with a turnover of 350 to 500 skis a year (1965 figures) caters to the competitive skier. The quality skis for this market are almost entirely imported from the United States, France, Australia and Italy. These skis usually cost from £15 to £30 (Can.$45-$90). The quantity involved is so small that the Board of Trade does not record the source of these imports.

Because of the uncertain British climate, the plastic bindings used in Canada are not really suitable or acceptable. Without exception, British skis are fitted with Neoprene rubber and this type of binding should be used when quoting for the British market. The majority of locally made skis are laminated with a clear varnish finish. Painted-on chevrons and/or light and dark veneer stripes are used for decoration. To achieve reasonable results in this market, foreign manufacturers will have to pay special attention to the over-all finish of skis.

The retail markup is 50 per cent of the manufacturer's selling price, plus a 25 per cent purchase tax which is calculated on the wholesale value.

We feel that the Water Skiing Championships will present an excellent opportunity for Canadians to demonstrate their expertise in ski designs and manufacture to those attending. Australia has developed a useful water-ski market in Britain in competition skis, but this was only possible because the Australian manufacturers went to England, evaluated the conditions and requirements, and designed skis specifically for the British market. New designs of water skis are being developed continually, and the championships at Sherbrooke could give Canada the oportunity to introduce itself to the British water-skiing market. The potential buyers will all be on hand, within easy reach of the personal contact required when trying to break into a particular market of this kind.

Should any Canadian ski manufacturer require details of the British water skiers taking part in or visiting the Sherbrooke championships, please contact:

The Office of the High Commissioner for Canada, Department of Trade and Commerce, One Grosvenor Square, London, W.1, England. ●

trade lines

Brazil builds electric locomotives

The first of 40 electric locomotives ordered by the São Paulo Government from General Electric S.A. will be delivered this year. Brazilian content of these locomotives is 95 per cent by weight and 70 per cent by value—São Paulo.

Mexico will manufacture air compressors

A Mexican firm, Atlas Copco Mexicana, plans to build a Can.$800,000 plant to produce air compressors. These will have a Mexican material content of approximately 70 per cent—Mexico.

Business failures rise in Netherlands

In the first quarter of 1967, 619 bankruptcies were declared in the Netherlands compared with 444 in the same period of the previous year—The Hague.

British refrigerator manufacturers worried

The Domestic Refrigerator Development Committee recently made representations to the British Government about the flood of foreign refrigerators coming into the country. The move came after an analysis of the domestic industry—London.

Chile steps up seaweed exports

Chile plans to export 4,000 tons of seaweed worth $2 million this year. Japan is the largest customer. Later Chile will expand its own agar-agar industry—Santiago.

Spain's petrochemical industries growing

The British firm Rio Tinto and the Gulf Oil Company of the U.S. have started up their new $85 million refinery and petrochemical complex in Huelva, Southwest Spain. Production, at two million tons a year, will be entirely exported.

These two companies are also building in the same area an $18 million aromatics plant to produce 120,000 tons of benzene and 40,000 tons of cyclohexane a year. The latter will be used in the 20,000-ton caprolactam plant also under construction.

Other plans for Huelva include a 15,000-ton carbon black plant and an ethylene cracker with a capacity of 250,000 tons. In the past three years, 127 Spanish and foreign companies have invested over Can.$260 million in various projects in the growing industrial centre of Huelva—Madrid.

East Pakistan to produce its own fertilizer

East Pakistan expects to be self-sufficient in fertilizer by the end of its Third Plan Period (1970). A fertilizer factory under construction at Ghorsal will produce 340,000 tons of urea per year. Three superphosphate factories are in the preliminary stages and are expected to turn out 270,000 tons a year. It is estimated that East Pakistan's total arable land will require 700,000 tons of fertilizer each year—Karachi.

The Dutch drink more beer

Per capita beer consumption in the Netherlands rose to 39 litres in 1966 from 37.2 litres the year before. Production totalled 5.7 million hectolitres, of which one million hectolitres were exported. Imports rose by 14 per cent to 216,000 hectolitres—The Hague.

New Zealand exports more forest products

New Zealand's exports of forest products were up by NZ£ 1 million last year to NZ£ 12.5 million. Australia is the best customer, taking 74 per cent of the total; Japan took 24 per cent. The major items exported were newsprint, chemical pulp, logs and some timber—Wellington.

Packaging for Britain

New packaging materials for the British market have become the joint concern of the American Can Company, U.S., and Courtaulds Ltd., England. The two companies recently signed an agreement for technical co-operation in the development and introduction of new packaging materials—London.

German chemical industry expands rapidly

The chemical industry in Germany increased sales by 7.5 per cent in 1966 to a total of Can.$9 billion. This represented more than twice the average rate of growth for German industry as a whole. Exports, accounting for 31.6 per cent of total sales, rose by 17.3 per cent compared with only 3.7 per cent for domestic sales—Duesseldorf.

Chile installs copper wire-drawing plant

The Export-Import Bank of the United States has granted a credit of U.S.$12 million to the Chilean firm Madeco for a copper wire-drawing plant. The new plant is intended to make Chile self-supporting in copper wire and provide a surplus for export to LAFTA countries—Santiago.

Rumania increases production of pesticides

The Rumanian chemical industry continues to expand and this year will produce 86,000 tons of pesticides in five plants. Production includes benzene hexachloride (BHC) which is an insecticide used against plant pests and to protect young trees. New synthesized products developed in Rumania are "Pinetox", an insecticide, and "Permidin" which is a substitute for Bordeaux mixture used in vine spraying—Vienna.

Trade Commissioners on Tour

Temporary Duty in Ottawa

The following officers will be on temporary duty in Ottawa. Anyone who wishes to see them should contact the Trade Commissioner Service, phone: 992-9930.

J. H. Bailey, Commercial Counsellor in Singapore, July 31-August 4.

G. E. Blackstock, Commercial Secretary in Berne, Switzerland, July 4.

M. B. Bursey, Commercial Counsellor in Buenos Aires, Argentina, July 31-August 4.

V. B. Chew, Commercial Counsellor in Accra, Ghana, July 4-14.

D. H. Clemons, Assistant Commercial Secretary in Port-of-Spain, Trinidad, July 31-August 4.

A. W. Evans, Consul and Trade Commissioner in Cleveland, July 4-14.

C. M. Forsyth-Smith, Commercial Counsellor in Rio de Janeiro, Brazil, July.

O. Hickie, Commercial Secretary (Timber) in London, June 26-July 7.

W. G. Huxtable, Commercial Secretary in Dublin, Ireland, July 10-20.

J. E. Lancaster, Commercial Counsellor in Oslo, Norway, July 31-August 4.

R. R. Parlour, Commercial Counsellor in New Delhi, India, July 5-14.

R. F. Turcotte, who will be posted to Moscow, U.S.S.R., as Commercial Secretary, July 17-28.

L. R. Wilson, who will be posted to Tokyo, Japan, as Assistant Commercial Secretary, June 26-30.

Foreign Commercial Representatives in Canada

ARGENTINA
Ottawa—Economic Counselior's Office, Embassy of Argentina, 211 Stewart Street.

AUSTRALIA
Ottawa—Commerclai Counseilor and Austrailan Government Trade Commissioner, Austraiian Hlgh Commission, 90 Sparks Street.
Montreai—Austrailan Government Trade Commissioner, Canadian Imperial Bank of Commerce Bldg., 1155 Dorchester Bouievard West.
Vancouver—Australian Government Trade Commissioner, Suite 608, Burrard Bldg.

AUSTRIA
Ottawa—Embassy of Austria, 445 Wiibrod Street.
Caigary—Consuiate of Austria, 1132 Kensington Road N.W.
Halifax—Consuiate of Austria, 526 Young Avenue.
Montreai—Austrian Trade Deiegate, Suite 2275, 630 Dorchester Bouievard West.
Austrian Consulate General, National Trust Bidg., 1350 Sherbrooke Street West.
Toronto—Austrian Trade Delegate, Suite 616, 62 Richmond Street West.
Vancouver—Consuiate of Austria, 525 Seymour Street.
Winnipeg—Consulate of Austria, 54 Harrow Street.

BAHAMAS
Toronto—Trade Commissioner of the Bahamas, Room 707, Victory Bldg., 80 Richmond Street West.

BELGIUM
Ottawa—Counselior, Belgian Embassy, 85 Range Road.
Montreal—Consul General of Beigium, 913 Royai Bank of Canada Bidg.
Toronto—Consui Generai of Beigium, Room 1901, 8 King Street East.
Vancouver—Consui Generai of Belgium, Room 916, Baxter Bidg., 1111 West Hastings Street.

BOLIVIA
Montreai—Consui, Consuiate Generai of Boilvia, Suite 827, 305 Dorchester Bouievard West.

BRAZIL
Ottawa—Office of the Commercial Attaché, Brazilian Embassy, 450 Wiibrod Street.
Montreal—Brazilian Consulate Generai, Suite 1505, 1 Place Ville Marie.

BRITAIN
Ottawa—Minister (Commerciai), British High Commission Bidg., 80 Elgin Street.
Edmonton—The British Trade Commissioner in Alberta, Suite 600, Bank of Montreal Bidg., 101st and Jasper Avenue.
Halifax—The British Trade Commissioner in the Atlantic Provinces, 10th Fioor, 1645 Granville Street.
Montreal—The Senior British Trade Commissioner in the Province of Quebec, 635 Dorchester Boulevard West.
Regina—The British Trade Commissioner in Saskatchewan, Room 207, Derrick Bldg., 2431 11th Avenue.
Toronto—The Senior British Trade Commissioner in Ontario, 200 University Avenue.
Vancouver—The Principai British Trade Commissioner in British Columbia, Bank of Nova Scotia Bidg., 602 West Hastings Street.
Winnipeg—The British Trade Commissioner in Manitoba and Saskatchewan, 4th Floor, 333 Broadway Avenue.

BULGARIA
Montreai—Trade Office of Bulgaria, Suite 610, 1745 Cedar Avenue.

BURMA
Ottawa—Embassy of the Union of Burma, Royal Trust Bidg., 116 Aibert Street.

CEYLON
Ottawa—First Secretary, Ceyion High Commission, Suites 103 and 104, 85 Range Road.

CHILE
Ottawa—Embassy of Chiie, 56 Sparks Street.
Montreal—Consuiate Generai of Chiie, Apt. 101, 1745 Cedar Avenue.
Vancouver—Consul of Chile, 1575 West Sixth Avenue.

CHINA, REPUBLIC OF
Ottawa—Economic Counsellor, Embassy of the Republiic of China, Suite 406, 85 Range Road.
Vancouver—Consui Generai of the Republic of China, 510 Hastings Street West.

COLOMBIA
Ottawa—First Secretary and Consui, Embassy of Coiombia, Suite 102, 140 Weilington Street.
Montreai—Consui Generai of Coiombia, Suite 320, 1500 Stanley Street.
Toronto—Consui of Colombia, Suite 726, 67 Yonge Street.
Vancouver—Vice-Consul of Coiombia, 2705 West 22nd Avenue.

COSTA RICA
Montreai—Consul Generai of Costa Rica, 4753 Lacombe Avenue.

CUBA
Montreal—Cuban Trade Commissioner, Suite 1200, 3737 Metropolitan Bouievard East, Ville St. Michel.

CZECHOSLOVAKIA
Montreal—Office of the Czechoslovak Trade Commissioner, 1280 St. Mark Street.

DENMARK
Ottawa—Royal Danish Embassy, Suite 702, 85 Range Road.
Montreal—Royal Danish Consulate General, Suite 1525, 1245 Sherbrooke Street West.
Toronto—Royal Danish Consulate, 151 Bloor Street West.
Vancouver—Royal Danish Consulate, 1201 West Pender Street.

DOMINICAN REPUBLIC
Montreal—Consul General of the Dominican Republic, 6609a St. Hubert Street.

EASTERN CARIBBEAN (Barbados, Leeward and Windward Islands, and British Honduras)
Montreal—Acting Commissioner, Eastern Caribbean Commission, Suite 351, 2100 Drummond Street.

ECUADOR
Ottawa—Chargé d'Affaires, Embassy of Ecuador, Room 728, 56 Sparks Street.
Montreal—Consul General of Ecuador, Apt. 1105, 2150 Boulevard de Maisonneuve.
Vancouver—Honorary Consul of Ecuador, Apt. 1, 1480 Arbustus Street.

EL SALVADOR
Montreal—Consul General of El Salvador, Room 926, 1255 University Street.

FINLAND
Ottawa—Embassy of Finland, 85 Range Road.
Montreal—Trade Commissioner for Finland, Suite 1114, 1010 St. Catherine Street West.

FRANCE
Ottawa—Commercial Counsellor to the French Embassy, 10 John Street.
Montreal—Commercial Counsellor of France, 2060 Mackay Street.
Toronto—Commercial Counsellor of France, 185 Bay Street.
Vancouver—French Trade Commissioner, Suite 1216, 736 Granville Street.

GERMANY
Ottawa—Commercial Counsellor, Embassy of the Federal Republic of Germany, 1 Waverley Street.
Edmonton—Consulate of the Federal Republic of Germany, 11618 100th Avenue.
Montreal—Consulate General of the Federal Republic of Germany, Trade Commissioner, 1545 McGregor Street.
Toronto—Consulate General of the Federal Republic of Germany, 77 Admiral Road.
Vancouver—Consulate of the Federal Republic of Germany, National Trust Bldg., 325 Howe Street.
Winnipeg—Consulate of the Federal Republic of Germany, 424 Wellington Crescent.

GHANA
Ottawa—Counsellor, Office of the High Commissioner for Ghana, Suite 608, The Fuller Bldg., 75 Albert Street.

GREECE
Ottawa—Royal Greek Embassy, Suite 110, Chateau Laurier.

GUATEMALA
Montreal—Consul General of Guatemala, Suite 407, 5185 Sherbrooke Street West.

HAITI
Ottawa—Consul General, Embassy of Haiti, Apt. 111, 150 Driveway.
Halifax—Honorary Consul of Haiti, 6070 Quinpool Road.
Montreal—Vice-Consul of Haiti, Apt. 202, 1500 St. Catherine Street West.

HONDURAS
Montreal—Consul General, Consulate General of the Republic of Honduras, Suite 101, 1225 St. Mark Street.
Toronto—Honorary Consul, Consulate of Honduras, 19th Floor, 25 Adelaide Street East.

HUNGARY
Montreal—Hungarian Trade Commission, 1390 Pine Avenue West.

INDIA
Ottawa—Second Secretary (Commercial), Office of the High Commissioner for India, 200 MacLaren Street
Vancouver—Trade Commissioner for India, Suite 804, Standard Bldg., 510 West Hastings Street.

INDONESIA
Ottawa—Economic Affairs, Indonesian Embassy, Box 233, Terminal A.

IRAN
Ottawa—Imperial Embassy of Iran, Apt. 502, Sandringham Apartments.

IRAQ
Washington—First Secretary (Commercial), Embassy of the Republic of Iraq, 1801 P. Street. N.W.

IRELAND
Montreal—Irish Trade Representative (Irish Export Board), 2100 Drummond Street.

ISRAEL
Montreal—Consul and Trade Commissioner of Israel, 1555 McGregor Avenue.
Toronto—Consul for Economic Affairs of Israel, 159 Bay Street.

ITALY
Ottawa—Commercial Counsellor and Senior Trade Commissioner, Embassy of Italy, 172 MacLaren Street.
Montreal—Consul and Trade Commissioner, Suite 3601, 800 Place Victoria.
Toronto—Italian Trade Commissioner, Suite 510, 100 University Avenue.
Vancouver—Italian Trade Commissioner, 736 Granville Street.

JAMAICA
Ottawa—Counsellor, Office of the High Commissioner of Jamaica, Suite 203, 85 Range Road.

JAPAN
Ottawa—First Secretary (Commercial), Embassy of Japan, 75 Albert Street.
Edmonton—Consulate of Japan, 5th Floor, Toronto-Dominion Bank Bldg., 10004 Jasper Avenue.
Montreal—Consulate General of Japan, Suite 2505, 1155 Dorchester Boulevard West.
Toronto—Consulate General of Japan, 11th Floor, 20 Toronto Street.
Vancouver—Consulate General of Japan, Room 1211, 409 Granville Street.
Winnipeg—Consulate of Japan, 301 Tribune Bldg.

LEBANON
Ottawa—Embassy of Lebanon, 401 Albert Street West.

KOREA
Ottawa—Second Secretary and Consul, Embassy of the Republic of Korea, 151 Slater Street.

LUXEMBOURG
Montreal—Consul General of the Grand-Duchy of Luxembourg, 3877 Draper Avenue.

MEXICO
Ottawa—Embassy of Mexico, Room 706, 88 Metcalfe Street.
Montreal—Consulate General of Mexico, Suite 1730, 1245 Sherbrooke Street West.
Quebec—Consulate of Mexico ad honorem, 2040 Terrasse Stuart, Sillery.
Toronto—Consulate of Mexico, Room 309, 20 Carlton Street.
Vancouver—Consulate of Mexico, Room 607, Burrard Bldg., 1030 W. Georgia Street.
Winnipeg—Consulate of Mexico ad honorem, 906-908 Confederation Bldg.

MONACO
Montreal—Consul General of Monaco, Suite 501, 31 St. James Steet West.

NETHERLANDS
Ottawa—Commercial Counsellor, Embassy of the Netherlands, 12 Marlborough Avenue.
Edmonton—Netherlands Consulate, Merit Bldg., 10008 106th Street.
Montreal—Netherlands Consulate General, Room 1736, Place Ville Marie.
Toronto—Netherlands Consulate General, 159 Bay Street.
Vancouver—Netherlands Consulate General, 475 Howe Street.

NEW ZEALAND
Montreal—New Zealand Government Trade Commissioner, Suite 708, 635 Dorchester Street West.
Vancouver—New Zealand Government Trade Commissioner, Suite 615, 409 Granville Street.

NICARAGUA
Montreal—Consul General, Consulate General of Nicaragua, 3601 Decarie Boulevard.

NORWAY
Ottawa—Secretary, Royal Norwegian Embassy, Suite 700, 140 Wellington Street.
Montreal—Consul General of Norway, Royal Norwegian Consulate General, 2112 Place Victoria.
Vancouver—Consul General of Norway, Royal Norwegian Consulate General, 837 West Hastings Street.

PAKISTAN
Montreal—Trade Commissioner for Pakistan, Suite 606, 1230 McGregor Street.

PANAMA
Montreal—Consul General, Consulate General of Panama, 3458 Prudhomme Avenue.

PERU
Ottawa—Second Secretary and Consul, Embassy of Peru, 539 Island Park Drive.
Halifax—Honorary Consul General of Peru, 65 Hollis Street.
Quebec—Honorary Consul of Peru, 55 d'Auteuil.
Vancouver—Consul General of Peru, Suite 116, 525 Seymour Street.
Winnipeg—Honorary Consul of Peru, 4th floor, 356 Main Street.

PHILIPPINES
Vancouver—Philippine Consulate General, 525 Seymour Street.

POLAND
Ottawa—Commercial Counsellor of the Polish Embassy, Apt. 58, 255 Stewart Street.
Montreal—Commercial Section, Polish Consulate General, 1500 Stanley Street, Suite 315.

PORTUGAL

Ottawa—Embassy of Portugal, 285 Harmer Avenue.
Halifax—Consulate of Portugal, 428 Barrington Street.
Montreal—Consulate of Portugal, 4920 Western Avenue.
North Sydney—Consulate of Portugal, P.O. Box 769.
Quebec—Consulate of Portugal, 155 Laurier Avenue.
St. John's—Consulate of Portugal, King's Bridge Court, Apartment 2D.
Toronto—Consulate of Portugal, Suite 712, 159 Bay Street.
Vancouver—Consulate of Portugal, 7th Floor, 736 Granville Street.

REPUBLIC OF SOUTH AFRICA

Montreal—South African Trade Commissioner, Suite 1404, 800 Dorchester Boulevard West.

SAN MARINO

Montreal—Consul General of San Marino, 27 McNider Avenue.

SPAIN

Ottawa—Commercial Counsellor to the Spanish Embassy, 162 Daly Avenue.

SWEDEN

Ottawa—Royal Embassy of Sweden, Suite 604, 140 Wellington Street.
Montreal—Royal Consulate General of Sweden, Suite 800, 1155 Dorchester Boulevard West.
Toronto—Trade Commissioner for Sweden, 94 Cumberland Street. (Eastern Canada)
Vancouver—Trade Commissioner for Sweden, Dominion Bank Bldg., Suite 912, 1111 West Hastings Street. (Western Canada)

SWITZERLAND

Ottawa—Counsellor of Embassy, Swiss Embassy, 5 Marlborough Avenue.
Montreal—Consul General of Switzerland, 1572 McGregor Street.
Toronto—Consul General of Switzerland, 100 University Avenue.
Vancouver—Consul of Switzerland, 402 West Pender Street.
Winnipeg—Consul of Switzerland, Tribune Bldg., 257 Smith Street.

THAILAND

Montreal—Consulate General of Thailand, 1155 Dorchester Boulevard West.
Vancouver—Consulate of Thailand, 608-1445 Marpole Avenue.

TRINIDAD AND TOBAGO

Montreal—Trade Commissioner, Suite 200, 1210 Sherbrooke Street West.

TURKEY

Ottawa—Commercial Counsellor, Turkish Embassy, 197 Wurtemburg Street.

UNION OF SOVIET SOCIALIST REPUBLICS

Ottawa—Commercial Counsellor, Embassy of the U.S.S.R., 24 Blackburn Avenue.

UNITED STATES

Ottawa—Commercial Attaché, Embassy of the United States, 100 Wellington Street.
Calgary—Consul General of the United States, 805 8th Avenue S.W.
Halifax—Consul General of the United States, Bank of Nova Scotia Bldg.
Montreal—Consul General of the United States, 1558 McGregor Avenue.
Quebec—Consul General of the United States, 1 Ste. Genevieve Avenue.
Saint John—Consul of the United States, Suite 701, Harbour Bldg., 133 Prince William Street.
St. John's—Consul General of the United States, King's Bridge Road.
Toronto—Consul General of the United States, 360 University Avenue.
Vancouver—Consul General of the United States, Burrard Bldg., 1030 W. Georgia Street.
Windsor—Consul of the United States, Kent Trust Bldg., 500 Ouelette Avenue.
Winnipeg—Consul General of the United States, 6 Donald Street.

URUGUAY

Uruguay—Chargé d'Affaires a.i., Apt. 102, The Rockliffe Arms, 124 Springfield Road.

VENEZUELA

Montreal—Consul General of Venezuela, Room 850, 1980 Sherbrooke Street West.
Vancouver—Consul of Venezuela, 525 Seymour Street.

YUGOSLAVIA

Ottawa—Embassy of the Socialist Federal Republic of Yugoslavia, 17 Blackburn Avenue.
Montreal—Trade Representative for Yugoslavia, Interprogress Company Ltd., 2055 Peel Street West.
Toronto—Consul General of the SFR of Yugoslavia, 377 Spadina Road.

Foreign Exchange Rates

These nominal quotations may help exporters in checking prices, but they should consult their banks before making any firm commitments. When more than one rate is shown, the one to be used depends on the commodity traded. Information on the rate for any specific commodity may be obtained from the Office of Trade Relations, Department of Trade and Commerce, Ottawa.

The mid market rates only are quoted, except when buying and selling rates are specified. The buying rate is that at which banks purchase exchange from exporters; the selling rate is that at which banks sell exchange to importers.

Rates used exclusively in non-merchandise trading are *not* included in this table.

For conversion of column one to the U.S. dollar equivalent, *multiply* by .93 To convert column two, *divide* by .93.

Country and Currency	Value of Foreign currency unit in Canadian dollars at June 9	Value of Canadian dollar in foreign currency units at June 9
Algeria Dinar	.2200	4.54
Argentina Peso (free)	.0031	322.58
Australia Dollar	1.21	.8333
Austria Schilling	.0418	23.98
Bahamas Dollar	1.056	.9470
Belgium and Luxembourg Franc	.0217	46.25
Bermuda Pound	3.018	.33
Bolivia Peso	.0913	10.98
Brazil Cruzeiro (official free)	.3999	2.50
Britain Pound	3.018	.33
British Honduras Dollar	.7545	1.33
Burma Kyat	.2269	4.41
Ceylon Rupee	.2363	4.42
Chile Escudo (bank rate)	.2199	4.55
(free)	.1951	5.13
China, Republic of New Taiwan Dollar (official)	.0233	42.92
Colombia Peso (intermediate)	.080	12.50
Congo, Republic of[1] Franc	.0072	139.50
Costa Rica Colon	.1631	6.14
Cuba[2] Peso	.....	.....
Czechoslovakia Koruna	.1501	6.67
Denmark Krone	.1560	6.41
Dominican Republic Peso	1.081	.93
Ecuador Sucre (official)	.0600	16.67
(free)	.0546	18.35
El Salvador Colon	.4323	2.32
Fiji Pound	2.719	.37
Finland Markka	.3377	2.96
France, Monaco, etc.[3] Franc	.2200	4.54
Franco-African Republics[4] Franc	.0044	227.79
French Pacific[5] Franc	.0121	82.64
Germany D Mark	.2719	3.68
Ghana New Cedi	1.513	.60
Greece Drachma	.0361	27.86
Guatemala Quetzal	1.081	.93
Guyana Dollar	.6287	1.59
Haiti Gourde	.2161	4.63
Honduras Lempira	.5403	1.85
Hong Kong Dollar	.1886	5.30
Hungary Forint (official)	.0921	10.86
Iceland Krona (official)	.0251	40.00
India Rupee	.1437	6.87

Country and Currency	Value of Foreign currency unit in Canadian dollars at June 9	Value of Canadian dollar in foreign currency units at June 9
Indonesia[6]		
Rupiah	.....	.....
Iran		
Rial	.0143	69.93
Iraq		
Dinar	3.025	.33
Ireland		
Pound	3.018	.33
Israel		
Pound	.3602	2.78
Italy		
Lira	.0017	581.86
Japan		
Yen	.0030	335.37
Kenya		
Shilling	.1402	7.13
Lebanon		
Pound (free)	.3506	2.85
Malaysia		
Dollar	.3530	2.83
Mexico		
Peso	.0865	11.61
Morocco		
Dirham	.2161	4.62
Netherlands		
Florin	.2997	3.33
Netherlands Antilles		
Florin	.5730	1.75
New Zealand		
Pound	3.007	.33
Nicaragua		
Cordoba	.1544	6.49
Nigeria		
Pound	3.024	.33
Norway		
Krone	.1512	6.61
Pakistan		
Rupee	.2263	4.42
Panama		
Balboa	1.081	.92
Paraguay		
Guarani (free)	.0086	116.27
Peru		
Sol (free)	.0403	24.94
Philippines		
Peso (free)	.2761	3.62
Poland		
Zloty (fixed basic rate)	.2706	3.69
Portugal & Colonies[7]		
Escudo	.0376	26.66
Saudi Arabia		
Ryal	.2066	4.84
Sierra Leone		
Leone	1.509	.66
South Africa		
Rand	1.509	.66
Spain & Dependencies		
Peseta	.0180	55.55
Sweden		
Krona	.2100	4.76
Switzerland		
Franc	.2503	4.00
Syria		
Pound (free)	.2832	3.52
Thailand[1]		
Baht (free)	.0523	19.25
Tunisia		
Dinar	2.075	.48
Turkey		
Lira	.1201	8.35
United Arab Republic		
Pound (official)	2.485	.40
United States		
Dollar	1.081	.93
Uruguay		
Peso (free)	.0122	81.97
Venezuela		
Bolivar (official free)	.2405	4.16
West Indies		
Dollar[8]	.6287	1.59
Pound[9]	3.018	.33
Yugoslavia		
Dinar (official)	.0865	11.63

1. Additional rates are in effect.
2. There is no trading in Cuban pesos in U.S. or Canadian banks at present.
3. Franc is also used in French Guiana, Guadeloupe and Martinique.
4. Chad, Central African Republic, Congo, Dahomey, Gabon, Ivory Coast, Mali, Islamic Republic of Mauritania, Niger, Senegal, Upper Volta, Cameroons, Togoland, and Malagasy. Also Reunion, Comoro Islands, St. Pierre and Miquelon.
5. New Caledonia, New Hebrides, French Polynesia.
6. Because of the complexity of the Indonesian exchange rate system, it is impractical to quote a single representative rate for the rupiah.
7. Approximately same rate for Portuguese territories in Africa.
8. Barbados, Trinidad and Tobago, Leeward and Windward Islands.
9. Jamaica.

Marketing Data Sheet

REPUBLIC OF IRELAND

Area

27,136 square miles.

Climate

Temperate climate, humid. Centigrade scale is used.

Population

The total population is 2.9 million.

	Males	*Females*
35 and over	607,000	631,000
25 to 34	141,000	141,000
15 to 24	238,000	224,000

Households

There are 676,400 households and 404,000 dwellings are owner occupied.

Income

GNP is Can.$2.9 billion. Per capita consumption is Can.$702. The average hourly wage is Can.$0.85.

Motor Vehicles

296,000 passenger cars registered, 51,000 commercial vehicles and 47,000 motorcycles and scooters.

Telephones

75 per thousand persons.

Radio and Television

There are 230,000 households with radio only, 320,000 have both radio and TV receivers (405 and 625 lines per picture). Radio and TV stations are publicly owned.

Water Supply

Safe to drink. Pressure usually 20-24 p.s.i.

Electric Power

50-cycle a.c. 220/380 volts (variation + or — 5 per cent), single- and three-phase. The distribution system has a ground wire and a grounding conductor is required in the electrical cord attached to the appliance. There are 646,000 domestic customers, 70,000 commercial and industrial. National capacity is 1,069,000 kw. and a common electrical grid with Northern Ireland is proposed. Cost averages Can.$0.029 per kwh.

Coal

All types available. Annual consumption 1.5 million tons of which 200,000 tons (two-thirds anthracite, one-third semi-bituminous) produced in the country. Peat is also used as a domestic fuel.

Gas

Manufactured gas of the coal/oil type is available in Dublin, Cork and Limerick. The thermal content is 475 b.t.u. per cu.ft. and the analysis:

CO_2	14
O_2	0.5
CnHm	4.3
CO	8
CH_4	15.2
H_2	56
N_2	2

Gas is piped at 0.25 p.s.i. pressure. There are 180,000 domestic customers, 3,400 commercial. Cost varies from Can.$0.42 per therm for domestic use (less for heating) down to Can.$0.35-0.22 per therm for industrial use. Consumption is increasing slowly. LPG is also available and costs Can.$3.93 for 30 pounds.

Petroleum Products

All petroleum products are available. The refinery at Whitegate, Cork, has a capacity of 50,000 barrels a day. 92, 94 and 98 octane gasoline and three grades of fuel oil (200, 900 and 3,000 seconds) are produced and lubricating oils are imported and blended. Ireland has no petroleum deposits.

Weights and Measures

Metric, imperial and U.S. are all used.

Screw Thread

Whitworth and BSF right hand.

Standards

Gas appliances: Compliance with British specifications is mandatory. These specifications are made by the Gas Council, Watson House, Peterborough Road, London S.W.6, England.

Electrical appliances: The standards are those of the British Standards Institute, Mark House, 153 London Road, Kingston-upon-Thames, Surrey, England.

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