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WEST GERMAN CHILDREN PROVIDE A BIG MARKET, OCTOBER 16 ISSUE

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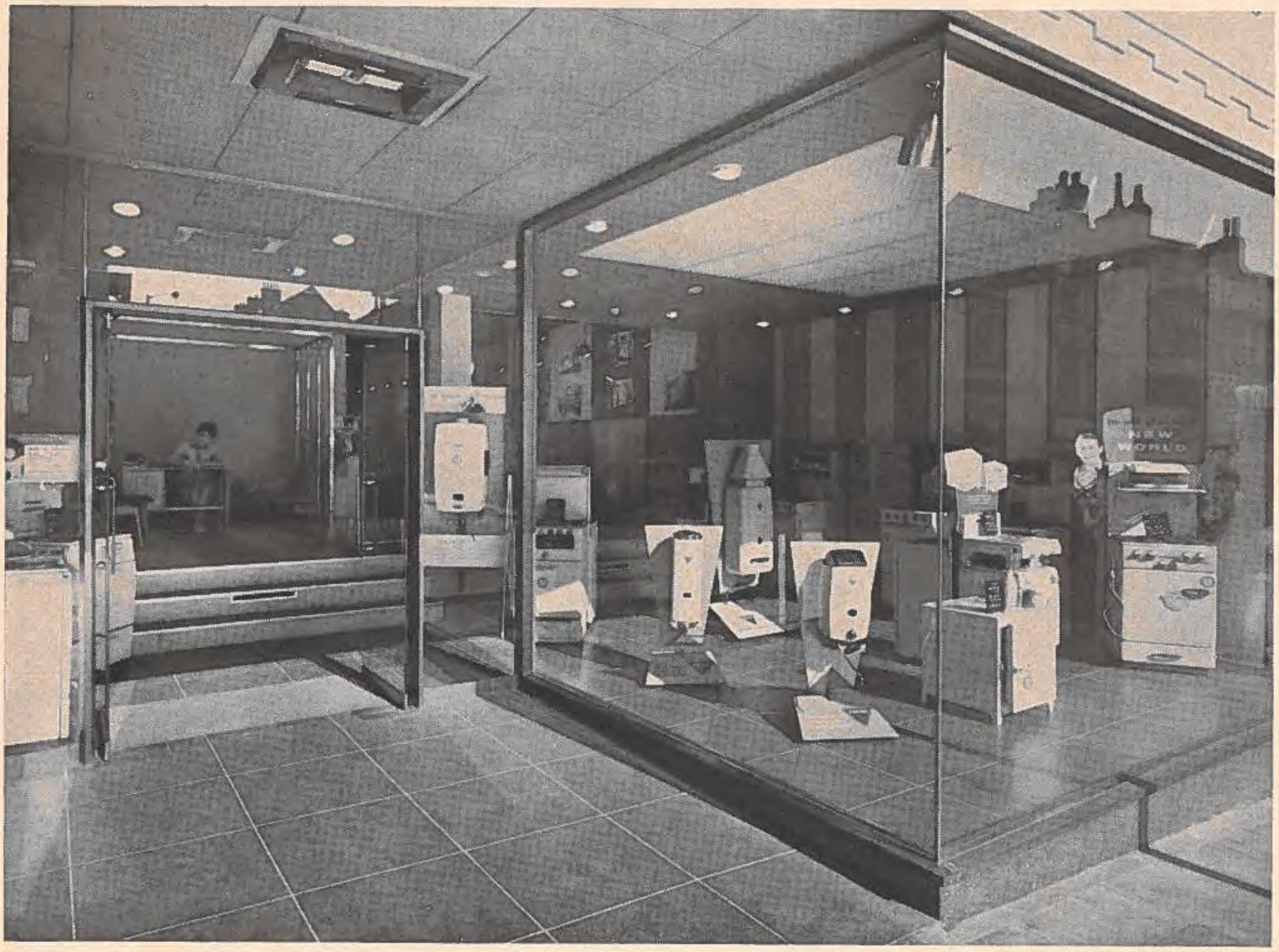
Markets for Gas Appliances



in Britain
Belgium-Luxembourg
West Germany
Italy
France
Australia

ınd Heating Equipment

Britain

Clever promotion by the gas industry and cheaper sources of gas supply promise well for future sales of gas appliances, space heaters, and warm-air heating equipment. Some Canadian companies are already active in this market and others could be.

E. L. BOBINSKI, *Assistant Commercial Secretary, London.*

ıs stoves, refrigerators and water ıaters are displayed in Winchester, Engıd, as part of an up-to-date, intensive ɔmotion campaign. Sales of all gas pliances have been on the rise in Brit-, and if a major gas strike is made in North Sea, cheaper rates could well an a sharp increase in purchases.

INTENSIVE ACTIVITY in research, production and marketing has in the last few years completely transformed the British image of the state-owned gas industry as an old-fashioned and declining public utility. In the domestic sector, (which accounts for half of its revenues) the result has been a steadily growing demand for gas appliances and a spectacular increase in the sales of gas-fired heating equipment for housing.

This revolution has stemmed primarily from fundamental changes in production techniques. Traditionally, Britain has had to manufacture gas from coal—its only sizable natural resource. In the next year or so, however, coal will account for only 40 per cent of production. This change began with the postwar establishment of a British refining industry which made available for gas production local sources of petroleum raw materials, particularly light distillates. New and highly efficient techniques were evolved which today can produce gas at a rate of about 7½ cents a therm (100,000 BTU's) as against 16 cents a therm for gas from a coal carbonization plant.

The gas industry, by far the largest in Europe and growing by about 7 per cent a year, is locked in a fierce commercial battle for a greater share of the fuel (present share only 6 per cent) and appliance market. It has no intention of becoming as dependent on oil as it formerly was on coal. It has invested £13.5 million in a scheme to import 700,000 tons of liquefied methane each year from the Sahara (at a cost of about 8 cents a therm) using specially built ships and a 280-mile distribution pipeline network. At present, the methane is being used to enrich leaner gases. This long-term enterprise, which accounts for 10 per cent of Britain's current annual gas requirements, is both stabilizing prices and giving Britain its first major experience in the handlng of natural gas.

Natural Gas Studied

With the example of the United States (where natural gas has 30 per cent of the fuel market) before it, the gas industry is currently negotiating with the Netherlands about possibly importing natural gas from Groningen. A pipeline between the two countries has even been rumoured. Eastern Nigeria is also under examination as an additional source. And, of course, there is the North Sea search in which the Gas Council itself is one of the licensees. (See the article on page 19.) A major find of natural gas on Britain's doorstep could completely transform the gas industry.

The industry, foreseeing the possibility of an eventual change to natural gas, is determined to enlarge its experience with it. A Canadian firm, Consumers Gas Company, with much natural gas knowhow, is under contract to advise one Gas

Board in this field. Canvey Island, the British terminal for the Sahara methane, will probably be converted to natural gas and the results may have a decided bearing on the way the whole of Britain would be changed over to natural gas in the future.

Town Gas

The twelve autonomous Area Boards which under the Gas Council comprise the industry have for years maintained their manufactured or town gas at a calorific value of from 450-550 BTU's per cubic foot, (as opposed to 1,000 BTU's for natural gas) and most burners in use are designed for this range. However, growing integration of supply within each Board's area, resulting from new plants and feedstocks richer in hydrocarbons, is tending to raise progressively the calorific values over wide areas of the distribution systems. In several localities last year it was found economically more advantageous to convert to liquefied petroleum gas/air supplies with calorific value of about 720 BTU's per cubic foot. This trend has already resulted in research and development on a suitable range of universal burners.

Bottled Gas and Propane

In outlying and isolated areas, Boards do supply bottled gas in place of piped town gas and some use is made of propane piped from a central storage point, but these are not highly significant in the total gas picture.

Space and Central Heating

It is in space and central heating that gas has been making remarkable progress. The central heating market alone is large—about £100 million this year—and is expanding rapidly as consumers demand better heating in a form which is labour-saving, clean and easily controlled. Ease of control and speed of heating are particularly important where both husband and wife are working, a common situation in Britain.

TABLE I

SALES OF CENTRAL HEATING AND SPACE HEATERS

	1960	1961	1962	1963	1964	1965
	(year ending March 31st)					
Gas Central Heating—number of installations						
Warm Air	3,000	8,000	15,000	21,000	30,000	45,000
Hot Water	10,000	18,000	22,000	35,000	60,000	85,000
Gas Space Heaters—number of units						
	245,000	265,000	326,000	533,000	744,000	930,000

Table I indicates the rapid rate of progress made by gas in the number of central heating installations and in sales of space heaters in the last six years.

It is important to understand the term central heating as used in Britain. It can have the following meanings:

Full Central Heating—An adjustable system capable of warming the whole house to whatever temperature is desired. This is central heating as Canadians know it. Only 5 to 10 per cent of British homes have it. The remainder with central heating use one of the following three forms.

Background Central Heating—With this system, the whole house can be heated to somewhere between 50 and 60 degrees F., depending on the weather. This satisfies people who like to sit by a fire. The lower temperatures are achieved by smaller boilers in conjunction with fewer or smaller radiators or ducts.

Partial Central Heating—Only part of the house, perhaps the ground floor, contains a central heating system. The remainder is unheated or warmed by electric or gas space heaters. At the moment, this represents the bulk of the central heating market.

Selective Central Heating—This may or may not cover the whole house. The smaller boiler is capable of generating only a limited amount of heat which can be directed to just one part of the system at a time. This is attractive to many families in Britain who only want living rooms heated during the day and bedrooms warmed during the late evening.

Because installation costs are roughly the same regardless of the fuel used (about £535 to provide full central heating to a three-bedroom house), the main reason for the growth of four types of central heating is a matter of fuel costs. Examples are given in Table II.

TABLE II

COMPARATIVE HEATING COSTS, CENTRAL LONDON

Type of Fuel	Fuel cost	Cost per Useful Therm
Electricity	Normal, 1.65d. per unit	4s. 0 d.
	Off peak, 85d. per unit	2s. 1 d.
Oil	1s. 7½d. per gallon	1s. 3½d.
Coke	£13. 8s. 0d. per ton	1s. 7½d.
Gas	1s. 4d. per therm	1s. 8 d.

As Table II shows, gas costs only slightly more than coke and oil and much less than electricity. As the gas industry's highly effective advertising constantly points out, gas is cleaner than coal, does not require storage facilities (a big factor in Britain where cellars are almost unknown and space is so limited that the boiler must usually be located in the kitchen), and supplies are constant (a reminder that electricity power-cuts are not unknown). Coupled with the relatively stable price of gas and the possibility of cheaper natural gas supplies, these are convincing arguments.

Warm Air Central Heating

As Table I indicates, central heating by warm air is a relatively recent development. The necessary ducting, lack of cellars and the cavity wall-construction methods generally used in Britain make warm-air heating more suitable in new housing. By developing new flueing techniques for new construction methods, the Gas Boards have been able to compete very successfully for large contracts in high-rise apartment developments. These account for the majority of warm-air sales. The continued popularity of hot water or small bore central heating is due in the main to the ease with which it lends itself to installation in existing British houses.

Canadian Firms in Market

The half-dozen or so Canadian heating firms engaged in developing a market in Britain can take much of the credit for stimulating initial interest in warm-air heating. Its success, however, has so impressed domestic manufacturers that competition, particularly in the 50,000 BTU and under range, is now keen, especially as British firms have recently been able with longer production runs to cut costs by about 10 per cent. Unfortunately, this range caters adequately to the partial central heating market which is the one expanding most rapidly. Transportation costs, damage in shipping (one Canadian firm claims 15 per cent damage on shipments despite improvements in packing), insurance costs and the temporary surcharge of 10 per cent on imported goods have all tended to make the smaller Canadian warm-air units non-competitive. As a result, some firms are planning to manufacture these smaller units wholly or partially in Britain. Others are content to concentrate on the more limited full central heating market with its larger, more competitively-priced units. They feel living standards are rising rapidly and that demand for these larger units will naturally follow. Table III indicates the relative competitiveness of Canadian and British boilers at various ratings.

TABLE III

COMPARATIVE COSTS, BRITISH AND CANADIAN BOILERS

Boiler	List Price British Firms	List Price Canadian Firms
Up to 60,000 BTU's	£55-£65	£75 and up
Above 60,000 BTU's	£105	£85-£90

Most Canadian firms operating in Britain are currently concentrating their efforts on new housing (350,000 units a year), and are placing more stress on gas-fired warm-air units which seem to be well suited to British conditions. Some have even dropped oil completely.

Advice for New Firms

Any firm seriously interested in the British gas market must have its heating equipment tested by the Gas Council's laboratories in Watson House, London. Basically, electrical characteristics need to be converted to 50 cycle/220-240 volt single phase and burners to a jet or acceptable 'universal' type. Testing takes from six months to a year and a fee of £200 is average. Testing time might be cut down by taking advantage of the Canadian Gas Association's facilities in Toronto for testing to British standards. Although this CGA test does not at the moment obviate the necessity of undergoing complete Watson House retesting, it should facilitate Watson House approval.

Gas Council approval *per se* does not mean automatic sales success. The new firm has a major task ahead of it in educating the heating engineer. It is he who is most often asked, by either the Gas Board or the contractor, to quote on the complete heating contract. And to be successful the firm must establish and train a national network of approved installers.

Space Heaters

In five years, the sales of gas space heaters have risen by nearly 400 per cent. (See Table I.) Their popularity is due to a number of factors which include quick heat, ease of installation (over 75 per cent of Britain's 16.7 million households are connected for gas), and the relatively low initial cost of about £20 per room. In addition, if heaters installed at the same time cost more than £100, the purchaser can qualify for a special Gas Board loan scheme which in most instances involves no deposit and allows five years for repayment. A cheap gas tariff also makes a unit system built up of gas room heaters and convector radiators quite economical to run. Lastly, gas heater manufacturers are offering an extremely wide range of advanced designs and paying more and more attention to making heaters attractive. To date, only one Canadian firm has entered this highly competitive but expanding market.

Water Heaters

Close to a quarter of a million water heaters were sold through the Gas Boards last year, an increase of 9 per cent over 1963. Very popular were insulated, self-contained storage heaters of about 25-gallon capacity, some of which were supplied from Canada. Sales of instantaneous water heaters ranging from single point heaters for basins (about £27) to multi-point models for a number of basins and baths (about £53) increased.

Refrigerators

Gas refrigerators are made specially for the gas industry by a small number of manufacturers. They tend to be of 2.7, 4 and 4.6 cubic-foot capacities and prices are competitive (£30, £36 and £40 respectively).

In 1964, some 91,000 gas absorption-type refrigerators were sold by the industry, an increase of 6 per cent over 1963. Although electric refrigerators will no doubt always retain the bulk of the market, it must be remembered that only about 30 per cent of British homes are currently equipped with a refrigerator. As the market expands, gas will no doubt increase its sales proportionately.

Gas Cooking Ranges

About 80 per cent of Britain's households cook with gas. Sales of gas ranges in 1964 reached 669,000 —a rise of 11 per cent in one year. The British housewife seems to prefer gas and the industry has given her no reason to switch. In the last few years, mainly as a result of Canadian competition, models have been completely restyled. Even the new models have had to restrict widths because of the compactness of the English kitchen. The most popular are about 22 inches wide. One unique feature is the British preference for an eye-level grill. This has been recognized by a large Canadian firm now manufacturing a part of its British range in Scotland, when it recently introduced two new models with eye-level grills. This same firm pioneered the introduction of a built-in cooker in Britain. British firms are beginning to follow this lead; recently a very large U.S. firm offered a similar model in this market.

Other Gas Appliances

The gas industry actively promotes many other appliances which range from drying cupboards, kettles and shower cabinets to washing machines and wash boilers but these sales are small when compared with the appliances previously described.

Our offices in Britain feel that the buoyant conditions prevalent in Britain's gas industry, reflected in its rising share of the fuel and appliance markets, should lead more Canadian companies (whose products enter duty free) to examine this expanding market more closely. ●

Belgium - Luxembourg

Expected advent of natural gas from Netherlands fields should increase opportunities to sell Canadian lines, especially inexpensive gas stoves and water heaters, space heaters, and warm-air gas furnaces. Competition from domestic and EEC producers is keen.

H. T. F. PETTERSON, *Commercial Assistant, Brussels.*

MANUFACTURE of gas for public consumption by means of coking ovens began in Belgium about 1918. The high degree of industralization achieved during this period and, in particular, the expansion of the steel and chemical industries were mainly responsible for this evolution. The traditional gasworks were gradually relegated to the role of emergency or standby producers and today there are only six of them in the whole country.

From 1945 on, great strides have been made in the petroleum and oil-refining industries of Belgium and the Grand Duchy of Luxembourg. As a result, the byproducts of the refining industries have become more and more acceptable as a source of heating and lighting for industrial and domestic purposes. Manufactured ("town") gas continues to be developed at an increasing rate and remains the largest source of gas energy. The production of this form of power is almost entirely in the hands of private companies. The net production and consumption of town gas for 1963 (the latest figures available) are shown in Table I.

TABLE I

Production of Manufactured Gas	**(cubic metres '000)**
Gasworks	407,844
Coke Ovens	
Public distribution system	992,748
Supplies direct to industry	1,219,524
Collieries	123,420
Total	2,743,536
National Consumption of Gas Supplied by the Public Distribution System	
Domestic consumption	798,004
Commercial and artisanal consumption	96,752
Industrial consumption	543,845
Public lighting services	61,279

Natural Gas from Netherlands

A new milestone will be reached in the use of gas in this area before long, when natural gas from the gas fields in the Netherlands enters the national distribution system in Belgium during the latter part of 1966.

One of the two Belgium distributing companies responsible for the distribution of manufactured gas and the export division of the Netherlands organization signed an agreement in November 1964 which will permit Belgium to take 6,000 million cubic metres a year of natural gas. Half of this quantity will be fed into the national grid for public distribution and the remainder will go to Belgian industry. Supplies of natural gas to Belgium will be increased progressively from the introductory period to 1975. The rate of progress will depend entirely on the rapidity with which the distribution systems and gas appliances and equipment are adapted to the demands made by the greater calorific value of natural gas and its higher working pressure.

In accordance with the terms of the agreement, the gas will be supplied to the municipal distribution companies at the price of 0.97 to 1.04 B. Frs. per cubic metre. Industrial consumers using large quantities will pay approximately 0.76 B. Frs. per cubic metre plus an annual fixed charge. The current manufactured (coke oven) gas for distribution to the public now costs the municipalities about one Belgian franc per cubic metre but the price fluctuates. However, taking into account the calorific value of town gas compared with the much higher value of natural gas, the cost of the latter will be only approximately 0.55 B. Frs. per cubic metre for the equivalent calorific value.

As a result, natural gas when it is introduced will undoubtedly play a large part in domestic central heating. If the program is carried through as planned, it is estimated that by 1975 natural gas will be supplying 16 per cent of industrial requirements and as much as 35 per cent of domestic requirements.

Although the use of petroleum and oil byproducts has increased sixfold in the last fifteen years, at the expense mainly of coal, it is nevertheless bound to be affected by the availability of natural gas, especially in the urban domestic field, where competition and pressure on prices of petroleum byproducts will be increased. The oil industry would also be at a disadvantage in a price war because of the storage factor and heavy fiscal charges. Because there are no long-term contracts for the distribution of the current manufactured gas, this form of energy will feel fairly rapidly the effect of the introduction of natural gas. Coking ovens, responsible for the bulk of the manufactured gas, may face in the next few years a situation similar to that faced by the traditional gasworks thirty or forty years ago.

A Look at the Market

Belgium and Luxembourg, a highly industrialized area with a relatively high density of population, constitute a competitive and price-conscious market. The current population is approximately 9.7 million, housed in some 3.2 million dwelling units. It is estimated that 70 per cent of the population lives in houses and 30 per cent in apartments, with approximately one million dwelling units either currently using gas or potential users. Some form of heating is usually necessary for eight months of the year—October through May.

A considerable number of the houses are still using coal fires as the main source of heating. In the cities, however, the apartment is preferred and modern apartment blocks have some kind of central heating. By far the most widely accepted form is the one which circulates hot water through radiators from a central boiler. Fuel oil in one of its many forms is the principal source of this energy. Gas does supply about 10 per cent of heat and is much more widely used for cooking. It is estimated that 90 per cent of homes use manufactured gas for cooking where this is available.

Appliances and Equipment

A close study of these markets indicates that gas is mainly used for space heating, cooking ranges and water heaters. Canadian appliances to be operated on Belgian manufactured gas may require another type of burner to that used in Canada in order to work efficiently, because gas pressure is said to be 30 to 40 per cent lower than in Canada. On the other hand, the advent of natural gas, with its high quality and relatively low cost, should mean much greater use of gas as a form of heating instead of fuel oil. The cost of electricity puts this type of power out of the running as a serious competitor to either gas or oil.

Warm air heating has not yet been generally accepted although it is finding favour in some quarters because it eliminates the danger of a freeze-up in the heating system during extremely cold weather.

Competition Is Keen

Some 16 important firms manufacture a wide range of gas stoves and cookers in Belgium and another six specialize in geysers and water heaters. In most modern apartments and homes, hot water comes from gas-fired geysers or boilers installed in bathrooms and kitchens and it is estimated that some 80 per cent are made in Belgium. About 60 per cent of kitchen stoves are made domestically. One general comment is perhaps necessary—the quality of Belgian stoves may leave something to be desired by Canadian standards. The majority of heaters and cookers are made of light metal with a minimum of trimming and do not normally include time-clocks, automatic lighting, etc., except on a few of the most expensive models. Competition in this sector is keen, and although it is not possible to provide a complete breakdown of relative prices, some of the more popular lines of equipment are now selling at:

Gas Ranges (Belgian and European models): Can. $85 to Can. $175.

Water Heaters: Can. $40 to Can. $80.

Space Heaters: Can. $75 and up, depending on the area to be covered.

The most popular form of domestic cooking stove is the square type with a minimum of three burners and usually four, plus a white enamel top which comes down to form a table.

In approximately 20 per cent of the apartments and houses now being built the heating of water is provided for as part of the central heating installation. For the remainder, two companies located in Brussels install water heaters—usually a large, gas-operated heater in the bathroom and a small one in the kitchen. These two firms build their own water heaters and also install and maintain them.

Several well-known international appliance manufacturers, such as Hoover, Frigidaire, Westinghouse, etc., assemble or manufacture in Europe to local style and taste. Throughout the year, domestic appliance makers, not excluding those with international names, offer a series of price reductions and other sales gimmicks, and nearly all retail outlets provide easy payment terms, normally spread over 12 or 24 months.

Apart from domestic producers, strong competition can be expected from other West European manufacturers, particularly member states of the Common Market, such as France and West Germany.

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These countries not only have a relatively short and inexpensive transport haul but also an important customs tariff advantage, the significance of which becomes clear when it is realized that duty is payable on the c.i.f. price at port of entry. Taking this into account, it is evident that, although there is a demand, Canadian appliances face strong price competition. Canadian manufacturers should perhaps endeavour to sell inexpensive small gas cookers and water heaters, etc., to compete successfully in the Belgian and Luxembourg markets.

The following figures have been obtained for the year 1961. Although they are a little out-of-date, they do give some idea of the market.

Appliances	Annual Consumption (units)	Saturation Rate (per cent)
Ranges, gas and electric	15,000	10
Water heaters	20,000	7

Regulations and Standards

The Belgian gas industry, together with manufacturers of appliances and equipment, has instituted a series of norms. Full information on any particular item or appliance may be obtained from: Institut Belge de Normalisation, 29 avenue de la Brabanconne, Brussels 4, Belgium.

The Institut Belge de Normalisation is not concerned with the testing of appliances but is merely a library which maintains the complete range of specifications for appliances and equipment. On this matter of standards, the Canadian Gas Association recently received an incoming mission of officials from various West European countries. The purpose of the mission was to visit the Canadian gas industry and obtain data on its relatively long experience, particularly in the distribution and use of natural gas. A further objective was to examine the possibilities of a reciprocal agreement for the inspection and testing of gas equipment and gas appliances to ensure that they conform to local standards. If an agreement were to be reached between Canada and Belgium, it would free a Canadian manufacturer from the obligation to send an appliance to this country and have it tested to make sure it conforms to Belgian standards.

Whatever the outcome of the discussions between the Canadian Gas Association and its Belgian counterpart, a Canadian manufacturer would be well advised to ensure in making arrangements for this area that his agent/distributor is able to provide adequate servicing of the equipment and that a reasonable supply of spare parts will be available at all times. This is particularly important because of the time factor and the distance.

Canadian Opportunities

Canadian manufacturers, to obtain a share of the business in Belgium and Luxembourg, should concentrate on selling products that are less likely to enter into direct competition with domestic production and that of other West European suppliers. To do this effectively requires the co-operation of an aggressive agent/distributor

TABLE II

IMPORT DUTIES ON GAS APPLIANCES AND EQUIPMENT

Tariff Item No.	Description	General Tariff	EEC Tariff	Common External Tariff
			(per cent)	
73.36	Stoves (including stoves with subsidiary boilers for central heating), ranges, cookers, grates, fires and other space heaters, gas-rings, plate warmers with burners, wash boilers with grates or other heating elements, and similar equipment, of a kind used for domestic purposes, not electrically operated, and parts thereof, or iron or steel	15.3	5.4	14
	("Taxe forfaitaire" or Outright Tax of 11 per cent on imports from all sources. No import licence required.)			
73.37	Central heating boilers, (excluding steam-generating boilers and other vapour-generating boilers) and radiators for central heating, not electrically heated, and parts thereof, of iron or steel; air heaters and hot air distributors (including those which can also distribute cool or conditioned air), not electrically heated, incorporating a motor-driven fan or blower, and parts thereof, of iron or steel			
	A. Radiators and their elements			
	I. of non-malleable cast-iron	17.0	5.4	17.0
	II. of iron, steel or malleable cast-iron:			
	(a) finned tube radiators	12.2	3.0	17.0
	(b) other	17.0	5.4	17.0
	B. Other	17.0	5.4	17.0
	("Taxe forfaitaire" or Outright Tax of 12 per cent on imports from all sources of all of the above articles. No import licence required.)			
84.17	Machinery, plant and similar laboratory equipment, whether or not electrically heated. for the treatment of materials by a process involving a change of temperature such as heating, cooking, roasting, distilling, rectifying, sterilizing, pasteurizing, condensing or cooling, not being machinery or plant of a kind used for domestic purposes; *instantaneous or storage water heaters, non-electrical:*			
	F. I. Water heaters, other than electric, for domestic and similar purposes	13.2	4.5	12
	("Taxe forfaitaire" or Outright Tax of 17 per cent on imports from all sources. No import licence required.)			

who is prepared to promote the installation of warm air furnaces, gas-operated space heaters, etc., in this area. Most of the gas space heaters sold here are relatively small in size and simple in construction, and the experience of some Canadian manufacturers already in this market has shown that attention should be paid to local preferences in design and styling. Some Canadian manufacturers have already adapted themselves successfully to meeting European competition by making arrangements with Belgian firms to produce locally under licence or to ship parts to be assembled in this area. This has enabled these manufacturers to participate in this market and at the same time cater to local tastes. Other Canadians might consider this possibility.

A great deal of additional work and promotion would be required to sell Canadian hot-water heaters in this area. Canadian equipment is undoubtedly simpler in design, more practical and better engineered, but it will require on-the-ground and personal effort on the part of the Canadian firm to introduce its products.

Canadian exporters should seize the opportunity now to explore possibilities personally. With their experience and knowhow in the use of natural gas, they have a definite advantage over most European competitors at the moment.

A number of Belgian agents/distributors have expressed interest in Canadian heating equipment and appliances, and Canadian manufacturers who want to follow up should write to the Commercial Counsellor at the Canadian Embassy, Brussels, for information and names of potential contacts. ●

West Germany

Output of manufactured gas is rising, large deposits of natural gas have been discovered, and the distribution system is being extended. Coupled with the growing popularity of gas for heating and cooking, these developments spell opportunity for the Canadian manufacturer willing to enter a competitive but lucrative market.

D. S. McCRACKEN, *Vice Consul, Hamburg.*

COAL GAS continues to play a dominant role in meeting industrial and household requirements in West Germany although the use of natural gas has increased dramatically in recent years. Liquefied gases are becoming more widely used also but the greatest increase in future consumption is expected in natural gas. As a sidelight on gas consumption in Germany, it is interesting to note that industry consumes just over 75 per cent of production and households 15.5 per cent. The remainder is used for a variety of other purposes.

Extensive exploration has uncovered increasingly large deposits of natural gas. The known reserves have leaped from 25 billion cubic metres in 1960 to 350 billion in 1964 and the search continues. As a result, production has also climbed rapidly and now stands at approximately 1,500 million cubic metres, 17 times as great as it was ten years ago. It is expected that within four years production will more than treble to five billion cubic metres. In addition, Germany will be able to obtain further supplies from the Dutch gas fields which are currently estimated to contain 1,500 billion cubic metres. These reserves do not include the possible gas deposits which are being actively sought in the North Sea but it may be assumed that substantial quantities will be found there in the future if the results of early exploration are any indication.

Gas Transmission Lines

At present there are only 45,000 miles of gas transmission lines in Germany. Of these, a number are short-distance trunk lines which total perhaps 4,000 miles in all. However, there are several plans to increase the number of big-inch lines. The two most notable developments in this field are the construction of long-distance lines from the Dollart-Ems field on the Dutch border to Hamburg, Hannover and North Germany and to the southern German industrial centres. Plans are also going ahead to tap the offshore resources in the North Sea.

The gas distribution system in Germany is regional rather than national. This stems partly from the fact that natural gas is somewhat new to this area and was not an intensively developed resource until recently. As this situation changes, a more integrated system will develop that will increase the general use of gas for domestic purposes.

Official Approval Required

An indication of Germany's awareness of Canada's technological progress in this field and a pointer to the future is the recent visit to Canada of two senior German gas officials. They were members of a European gas mission which was sponsored by the Department of Trade and Commerce.

The members studied Canadian methods of manufacture and testing of gas appliances and heating equipment. As a result, the regulating authorities in Germany are already aware of our achievements in this field, which could be an advantage for any Canadian manufacturer when he applies to have his product certified for use in this country.

The two German members of the mission were officials of the Deutscher Verein von Gas- und Wasserfachmaennern (German Association of Gas and Water Experts). This organization, located in Frankfurt but with testing laboratories in several other large German cities, must approve all gas equipment before it can be sold in Germany. This may take a little time and effort but it is an essential procedure. It can be done in two ways, either by sending the test articles from Canada directly to the testing laboratory or indirectly through a local agent. The second alternative is probably the easiest but the Canadian manufacturer must still submit detailed specifications and performance figures. He will, of course, have to co-operate fully with his agent who will inform him of any modifications that the testing laboratory requires.*

Experiment Under Way

A large-scale experiment in natural gas heating and cooking is under way near Hamburg. A local producer has installed natural gas in about a thousand homes and this control group is using it exclusively for all heating and cooking.

*Since this report was prepared, the Canadian Gas Association has informed us that it has signed agreements with Germany and France covering the preliminary testing of appliances in its laboratories and also on the follow-up inspection procedure. Agreements have also been sent to the Belgian and Italian authorities for signature. Follow-up inspection procedure for appliances made in Britain and shipped to Canada or made in Canada and shipped to Britain has also been agreed upon.

The object is to determine precise consumer reaction to all phases of domestic gas consumption and to determine whether it is more economical to convert existing equipment to gas or to buy new equipment. An indication of the gas company's optimism is that 2,000 additional households are soon to be added to the control group to make the detailed study more reliable. The results of this study will have widespread effects on the acceptance of gas-fired equipment throughout Germany.

Equipment in Use

Stoves—The majority of gas stoves in use in Germany are considered to be out-of-date and the industry probably is on the threshold of a new and strong demand. The consumer is just becoming more style-conscious and aware of the bigger and more efficient models currently available.

Styling is different from the models in general use in Canada. Most stoves have a large enamelled steel lid which closes over the whole top of the unit when it is not in use. Automatic timers and clocks are virtually unknown. More important, stoves tend to be much smaller than Canadian models. Thus success in this market will depend upon the ability to introduce new styles and to make the German consumer aware of the advantages of our more sophisticated models.

Because of the differences in styling and in size it is difficult to give comparative prices. But as a general indication, a de luxe kitchen range with four burners and a glass-front oven retails for $200 to $230. However, most sales are of the smaller stoves, usually the three-burner models which sell for about $100 and up.

In 1964 a total of 331,000 gas ranges were produced in Germany at a value of over $21 million. Although the figures show a drop in production of approximately 16 per cent compared with 1962, this should not be taken as an indication of continually decreasing sales. The reason is the slackening in the residential construction industry with a parallel decrease in demand for gas stoves. It is expected, however, that production and demand will remain strong and as more gas becomes available at cheaper rates, the sales of gas stoves will increase.

Last year 2.5 million households used propane gas stoves and water heaters. Service is provided from 100 large central distribution centres which are in turn connected with nearly 50,000 small distribution points. Propane costs about 41 cents a pound which limits its use but costs are being progressively reduced and this should lead to increased sales. The cost of electricity, especially for the smaller households, is higher than gas and there is no indication that this will change for some time.

Water Heaters—The tank-type of gas water heater used in Canada is not common in Germany. German gas water heaters are usually the stop-start type: the burner operates only when the tap is turned on and the water is heated as it flows through the unit. The average householder finds the large tank heater too expensive to operate at present and the market will not develop until gas costs are much lower. None the less, there is a small market and it should expand.

Some research is currently being conducted to develop and improve the tank heater. The long-term view is for a much wider acceptance of this form of water heating, particularly for multi-family dwellings, although it is not likely to gain any significant acceptance for single-family units in the foreseeable future.

Space Heaters—Gas space heaters are used extensively for domestic heating and as gas becomes more widely distributed, numbers will increase. However, the trend toward central heating will eventually limit the use of space heaters. Those in current use range from the strictly functional to the high-style models designed to resemble a piece of furniture. Most of them are made in the country and prices are kept low through volume production; prices for standard sizes range from $100 to $175. All heaters of this type must be designed for connection with a standard chimney or a special outer-wall outlet.

Furnaces—Gas-fired furnaces will not be in widespread domestic use until supplies of gas have increased substantially. Coal and oil furnaces will therefore continue to dominate the market for some time. In 1964, for example, there were 1.5 million oil-fired central heating plants in Germany. Although this is interesting, the figures for Hamburg, a city about the size of Toronto and with a similar winter climate, are possibly more significant. Last year Hamburg had 35,000 oil central heating plants, mostly in multiple-family dwellings; the remainder were coal-fired. Gas did not play a significant role.

Coal-fired boilers are currently preferred up to the 20,000 kcal/h* size. Boilers exceeding these sizes rely heavily on oil but gas is beginning to make some headway. Boilers in the large industrial class or for large apartment complexes are nearly always oil-fired.

The general consensus is that gas-fired furnaces will be introduced on a large scale as soon as greater supplies of gas become available—and when this form of domestic heating receives more public attention. It follows that Canadian firms already established in the market when this occurs stand the best chance of doing the greatest amount of business.

Warm-air systems are rare and the more traditional hot water and steam heating are preferred for domestic use, partly because of the large number of multi-family dwellings in Germany that lend themselves to hot water or steam heating. In addition, building codes and architectural specifications discriminate against warm-air systems. Until this changes, warm-air heating will not make much headway in Germany.

The exceptions to this general statement are large industrial plants and public buildings such as cinemas. In these, forced-air heating is frequently preferred but it is usually part of a larger system which filters the air, cools it in summer, and warms it in winter.

Meeting the Competition

As one would expect, Germany produces the bulk of the gas stoves sold in this market and imports are not a significant factor. Canadian exporters must contend with large domestic production but have the advantage of being able to offer models featuring advanced styling and added refinements. Of course this will entail creating a new demand.

The same general comments apply to furnaces. Domestic production is extensive and competitive. The advantages which Canadian producers have probably are greater experience with gas-fired equipment and, to a lesser extent, the modern look for which Canadian equipment is noted.

Besides the inevitable freight charges, the cost of Canadian equipment to the German consumer will be raised by the substantial tariffs which are levied against foreign stoves, furnaces and space heaters. There is an 11.2 per cent duty on stoves and similar articles plus a 6 per cent turnover equalization tax which is payable on the duty-paid value. Furnaces and space heaters face a tariff of 9 per cent and the usual 6 per cent turnover tax.

A well-connected and reliable agent able to give good after-sales service is essential. With one or two exceptions, Canada is not well-known as a major producer of gas-fired appliances and heating equipment and an aggressive agent is necessary to help in breaking into the market and to supply sales and maintenance staff.

To this end, promotion literature must be produced in German. This can be done in Canada but it is frequently advisable to give the agent an allowance to have the material printed in Germany. This literature should, of course, show all measurements and performance figures in the metric system.

Display Your Product

A specialized heating exhibition, open to manufacturers of gas- and oil-heating equipment, will be held in Stuttgart in the spring of 1966. The Department of Trade and Commerce will sponsor a display of Canadian equipment where it will be seen by buyers from all over Europe.

Canadian companies interested in this exhibition should write to the Department of Trade and Commerce in Ottawa or to the Commercial Counsellor of the Canadian Embassy in Bad Godesberg, West Germany.

Make Long-Term Plans

Gas is growing in popularity in Germany and as it becomes more easily available, the market for appliances and heating equipment will expand accordingly. There are many problems facing Canadian exporters and these range from large-scale domestic competition to tariff barriers. Although these obstacles are real, the opportunities for Canadian manufacturers are substantial, particularly for those who are willing to take a long-term view and who are prepared to give this market of 60 million people close attention.

Canadian manufacturers would be advised to act now and establish themselves here to take advantage of future sales possibilities. This will require time and effort and a willingness to conform to German standards but the Trade Commissioners in Germany will help you to obtain approval for your equipment. They are also in a good position to recommend an aggressive and reliable agent—essential for success in any market. ●

* 1,000 kilogram calories=3,968 BTU.

Italy

Most central heating units are assembled in Italy or made under licence; imports of some types of stoves are large; West Germany dominates import market for these and for hot-water heaters. Greater development of natural gas appliances may change picture.

A. B. BRODIE, *Consul General and Trade Commissioner, Milan.*

A CANADIAN EXPORTER making a study of the Italian market for gas appliances and forced air heating equipment for the first time would probably return home to report some of the following findings:

- The use of gas for central heating units is very limited. The emphasis is on oil-fired units using bunker fuel which must be preheated before entering the combustion chamber.

- Italian manufacturers are not interested in importing knocked down central heating units but in manufacturing under a licensing arrangement, using certain imported miscellaneous parts.

- Italy is self-sufficient in gas cooking ranges.

- Germany enjoys a good market there for miscellaneous stoves of varying sizes and descriptions and holds almost 30 per cent of the small hot-water heater market.

- The Italian heating and gas appliance industry is well developed but the distribution of natural gas is still limited and it is used primarily by industry. There is an abundance of LPG in the country.

Abundant Gas Deposits

An estimated 100 milliards cubic meters (1 cubic meter=35.31467 cubic feet) of gas deposits are spread out across Italy, a country of 119,733 square miles with a population of over 51 million. Though the principal and best-known source continues to be the Po Valley—especially in the areas between Milan, Piacenza, Ravenna and Rovigo—other areas in the central and southern parts of the country are taking on limited importance. In the latter group are Vasto (on the Adriatic coast south of Pescara), Candela (in the province of Foggia near Bari), Ferrandina Pisticci (in the province of Matera near Taranto on the Ionian Sea) and Sicily. Italy's present deposits will suffice for the next ten years under the current method of gas distribution. However, bore surveys are now in progress (primarily in the southern parts of the country) in the search for new gas areas, but no important deposits have been revealed.

To look after Italy's gas consumption beyond 1975, the authorities are currently studying the possibilities of using natural gas from outside sources. No official reports on the discussions have been published but it is understood that the feasibility studies include the use of ocean shipments of liquid methane from Algeria and Libya and piped natural gas from the Netherlands.

The various types of natural and other gases supplied for the home and for industry vary from area to area and from city to city. Much depends on the existing natural gas pipeline network and the end use of the gas. As an example, the gas used in Milan, where a high BTU content is not necessary for domestic use, is a mixture of natural gas (25 per cent) and coal gas (75 per cent) to produce an average of 4,526 calories expressed in HHV (High Heating Value). On the outskirts of Milan, however, where there are a number of heavy industries, the type of gas supplied is high-BTU-content natural gas.

The various types of gas used in Italy are:

1. Coal gas—coal gas with natural gas, coal gas with LPG, coal gas with natural gas and LPG.

2. Natural gas—natural gas with air, natural gas with LPG.

3. Propane—propane with air, LPG.

The types of gas used by some of Italy's principal cities are:

Type of gas	Calorific value expressed in HHV
Bologna natural gas	9,100
Bolzano coal gas	4,091
Brescia natural gas	9,100
Busto Arsizio natural gas with air	4,800
Genoa	
(1) coal gas with natural gas and LPG	4,212
(2) natural gas (industrial use)	9,100
Ivrea natural gas with LPG	3,700
Milan coal gas with natural gas and LPG	4,526
Naples coal gas with LPG	4,025
Palermo coal gas with LPG	4,215
Pisa LPG	4,000
Rome coal gas with LPG	4,200
Turin coal gas with natural gas and LPG	4,200
Trento coal gas with LPG	3,913
Treviso natural gas	9,010
Trieste coal gas with LPG	4,127
Varese coal gas with natural gas	4,500
Vigevano natural gas with air	4,500

The cost of gas varies from area to area according to consumption.

Special tariffs are applied for high-BTU natural gas for industrial use which competes favourably with diesel fuel.

For comparison purposes, here are approximate costs of fuels used in the Milan area:

Kerosene
$0.070 per lb. (retail)

Fuel oils
heavy over 10°E—$0.021 per kilo (tank trucks to destination).
7°E to 10°E—$0.023 per kilo (tank trucks to destination).
5°E to 7°E—$0.028 per kilo (tank trucks to destination).
3°E to 5°E—$0.031 per kilo (tank trucks to destination).
3°E—$0.052 per kilo (tank trucks to destination).

Gaseous fuels
Natural gas (methane)—$0.045 per cu. meter (retail).

LPG
10-kilo bottles—$2.60 per bottle (retail).
15-kilo bottles—$3.70 per bottle (retail).
Coke gas
$0.061 per cu. meter (retail).

Electricity
$0.045 per kwh.

How Italians Heat Homes

Though no recent statistics have been published on how the 14 million or more homes, apartments and office buildings are heated, the following data give some indication of the more conventional types of heating methods used across the country:

	per cent
no means of heating	10-12
central heating	11-15
individual stoves	21-23
combination cooking/heating stoves	30-32
fireplace or braziers	24-26

It is interesting to note that in northern Italy, which has a dense population of over 23 million, more than 50 per cent of the buildings are heated by combination cooking and heating units and under 23 per cent by individual stoves. The percentage of unheated buildings is insignificant—possibly under 2 per cent. In central Italy, which has a population of about 10 million, the methods of heating are evenly divided between combination cooking and heating units, fireplaces with chimneys, and individual stoves. The southern Italians, on the other hand, because of a more temperate climate, use fireplaces for the most part though some 24 per cent of the houses are heated by individual stoves. Over 12 per cent have no means of heating.

Central heating units using bunker-type fuel oil with a viscosity between 3°E and 5°E are taking on more importance and are installed in most modern buildings across the country. Only a very small percentage of central heating units are currently using natural or coal gas and this situation is not expected to change within the foreseeable future. The use of expensive electricity for heating, apart from hot water boilers, is insignificant in the north, though more popular in the south where the weather is milder and heating is only needed for short periods at a time.

Market for Heating Units

• *Central Heating Equipment*—The present trend is to assemble or manufacture the complete central heating units under licence. However, the trade is showing some interest in specialized imported units, up to some 120,000 BTU, which have high production runs and can be landed in Italy at competitive prices. The bunker-type fuel used in Italy for central heating units is between 3°E and 5°E viscosity and must be preheated before entering the combustion chamber. The use of gas central heating units is insignificant.

Imports of central heating equipment (non-electrical) in 1964 (not the complete assembled units) are shown in Table I.

• *Water Heaters*—Italian manufacturers furnish about 70 per cent of Italy's requirements for small hot-water heaters. The remainder of the units are imported primarily

TABLE I

ITALIAN IMPORTS OF CENTRAL HEATING EQUIPMENT

	Tons	Approx. cost (dollars, c.i.f.)
Special tubing for inside of combustion chambers, principal supplier: U.S.	135	194,000
Hot water boilers, principal suppliers: France, Germany	4,963	1.8 million
Radiators, principal suppliers: Britain ($2.3 million), France ($2.3 million), Germany ($700,000)	37,565	7.8 million
Combustion chambers and burners		
(a) using liquid fuels	408	1.6 million
(b) using gas fuel	141	420,000
(c) unassembled parts for combustion chambers, principal suppliers: U.S., Germany	259	730,000

TABLE II

ITALIAN CUSTOMS DUTIES AND TAXES ON HEATING EQUIPMENT

	EEC	Ex-EEC
	(per cent)	
Domestic water heaters	5.40	14.40
taxes	11.40	11.40
Domestic cooking equipment		
Room heaters (non-electrical)	4.80	14.00
taxes	12.50	12.50
Domestic central heating boilers, forced air heating equipment	5.40	17.00
taxes	12.50	12.50

580 lire=approx. $1.00 (Can.).

TABLE III

CHARACTERISTICS OF ITALIAN WATER HEATERS

	Units 5 litre	10 litre	13 litre
Quantity of heated water at 40°C litre/min.	5	10	13
Quantity at 50°C litre/min.	2.5	5	7
Gas consumption litre/min.	40	79	103
Approximate sizes (in inches) height×width×depth	21×9×7	32×13×9	41×16×9
Cost of units to wholesalers			
Italian production—approx. $43 to $60.			
Imported German brand—approx. $38 to $43.			

from Germany—"Junker", "Valliant" and "Auer" are the best known brands—and imports from all sources amounted to some 1,700 tons in 1964 (about $3.7 million) from all sources. The units are supplied to run on coal gas, natural gas or LPG. All types have gas valve-cocks, water silencers in the pipe coil, temperature selectors, and water volume controls.

The general characteristics of the hot water heaters—which are normally supplied in 5, 10 and 13 litre sizes—are shown in Table III.

• *Cooking Ranges (Gas)*—Italy is a better source of supply than a market for a wide variety of gas cooking ranges. Depending on the size of the ranges, prices vary from $90 to over $200. Units are equipped to function on liquid gas as well as the conventional coke or natural gases. As an added feature, certain Italian brands have electrically-operated spits for roasting chickens and other meats. Italy's exports of gas cooking ranges reached an all-time high of some $14 million in 1964 (13,950 metric tons). The principal markets were France, Belgium, Algeria, Lebanon, and West Germany, in that order.

• *Stoves (using gas or other fuels, excluding electricity)*—A number of stoves—many used as combination cooking and heating stoves as well as heaters—are imported. The models vary from the cast-iron type wooden/coal stoves which are still being used in many rural parts of Canada to small sophisticated oil-fuelled space heaters. The quantity imported during 1964 was important and exceeded 5,300 metric tons (worth $5.8 million). The principal suppliers were West Germany, Belgium and France.

• *Domestic Hot Water Boilers*—Most homes are equipped with individual hot-water boilers consuming electricity. However, some of the modern apartment and office buildings control the supply of hot water from central boilers which are normally fired by oil. A very small percentage of hot-water boilers in use across the country consume gas as opposed to heavy oil and electricity. The principal manufacturers of gas-fired hot-water boilers in Italy are Triplex, Safim and Sim-Brunt. (The latter is a German unit manufactured in Italy under a licensing agreement.) Imports are negligible, though Rohleder, a German brand, has had limited success on the Italian market.

Testing and Safety Standards

There is currently no compulsory testing of gas equipment in Italy and Canadian heating units can be sold in the Italian market without testing or approval here. Eventually Italy will be adopting the same safety standards as will be applied throughout the European Economic Community and at that time testing to certain standards will become obligatory. •

France

Many French families are seeking the comfort of modern heating which, coupled with the widespread use of gas, should lead to sales of Canadian gas heating equipment. Canadian-made commercial gas cooking appliances may also find a market here.

D. H. M. BRANION, *Assistant Commercial Secretary, Paris.*

THE FRENCHMAN was for years looked upon as a man who spent a large part of his income on food but only an infinitesimal part of it on his home and comfort. This was perhaps true before World War II but the way of life in France has changed considerably. The Frenchman is still an avid devotee of fine foods and wine but he has also developed a taste for modern comfort. Automobiles, holiday trips and household appliances now play an increasingly important role in the average budget.

Canadian companies should take advantage of this change in attitude and should consider seriously the possibilities of selling their equipment in France. It is essential for them to keep in mind, however, that this is a long-term proposition.

To give the reader some idea of living habits in France, the following statistics are useful: 99.2 per cent of families have electricity; 89.6 per cent have facilities for gas (either manufactured or bottled); 80.9 per cent have running water; 46.7 per cent own a refrigerator; 42 per cent own an automobile; 38 per cent have a vacuum cleaner; 35 per cent have gas or electric stoves; 34.2 per cent have a washing machine; 30.6 per cent have sanitary equipment; 30.4 per cent have television; 20.1 per cent have central heating, and 11.7 per cent have a telephone.

As the above statistics show, a large portion of the French population has access to gas. It is available in almost all forms, including manufactured, propane and butane. In the south of France there is also a considerable supply of natural gas which is not available to household consumers in other regions.

Heating Equipment

Most apartments and houses in France have inadequate heating equipment. Coal is the most popular source of heat although oil and gas burners are becoming more common. Central heating is not turned on before the middle of October and is usually turned off by the middle of April; many families supplement central heating with portable electrical or gas-burning equipment.

Manufacturers of heating equipment must submit sample units to the Direction des Industries Mécaniques Electriques so they may be subjected to official testing in laboratories of the Office Central du Chauffage Rationnel. Additional standards have been adopted by the Association Française de Normalisation (AFNOR), the French counterpart of the Canadian Gas Association and the Canadian Standards Association. It would be very difficult to sell Canadian heating equipment unless approval from this organization is also secured.

To sell heating equipment in France, it is essential to have an agent who is prepared to look after the servicing. From past experience, we have found that unless an agent is able to service the equipment he sells, it will make no impact on the French market.

The principal heating trade association is the Chambre Syndicale des Entreprises d'Installations Thermiques, which includes French manufacturers, importers and distributors of heating equipment. The members are directly concerned with the purchasing, selling and installation of central heating equipment

TABLE I

TARIFFS ON IMPORTS OF HOME HEATING EQUIPMENT AND APPARATUS

Tariff Item		EEC Common External Tariff	Present French tariff on goods originating from Canada	Present French tariff on goods originating from EEC-Countries
			(in per cent)	
73–36	Stoves (including stoves with subsidiary boilers for central heating), ranges, cookers, grates, fire and other space heaters, gas-rings, plate warmers with burners, wash boilers with grates or other heating elements, and similar equipment, of a kind used for domestic purposes, not electrically operated, and parts thereof, of iron or steel:			
	A. Appliances burning solid fuel	14	15	6
	(a) Kitchen ranges			
	(b) Other			
	B. Appliances burning liquid fuel	14	15	6
	C. Appliances burning gaseous fuel, including those burning both gas and liquid fuel	14	15	6
73–37	Central heating boilers, air-heaters, unit heaters and radiators, for central heating, not electrically operated, and parts thereof, of iron or steel:			
	A. of cast iron	17	17	6.9
	B. Other	17	17	6.9
84–13	Furnace burners for liquid fuel (atomizers), for pulverized solid fuel or for gas; mechanical stokers, mechanical grates, mechanical ash dischargers and similar appliances			
	A. Furnace burners	11	15.4	6.6
	B. Mechanical stokers, mechanical grates, mechanical ash dischargers and similar appliances	11	14.6	6
	Electric coil heating apparatus and electric space heating apparatus	17	18.5	7.5

TABLE II

FRENCH TRADE IN HEATING AND COOKING APPLIANCES

Tariff Item	1963	1964
	(Francs'000)*	
73.36.01 Ranges, burning solid fuel		
Imports	2,279	1,729
West Germany	1,177	1,050
Belgium	1,043	625
Exports	2,285	2,768
Belgium	1,354	1,724
West Germany	460	688
73.36.02 Other apparatus, burning solid fuel		
Imports	7,892	7,577
Belgium	6,072	5,891
West Germany	1,027	1,027
Exports	4,984	4,813
Italy	2,169	1,357
West Germany	1,822	1,997
Belgium	565	567
73.36.11/14 Heating appliances, burning liquid fuel		
Imports	72,015	86,070
West Germany	45,478	54,910
Belgium	17,670	24,225
Exports	10,217	12,352
West Germany	2,010	3,559
Italy	3,037	2,306
Belgium	2,306	937
73.36.21 Appliances burning gaseous fuel		
Imports	23,642	26,889
Italy	11,027	15,023
Belgium	8,398	7,510
West Germany	2,312	2,063
Exports	40,839	57,679
Belgium	13,738	16,330
West Germany	5,569	6,125
73.37.01 Cast iron radiators for central heating		
Imports	158	529
Exports	21,526	14,224
Italy	12,194	7,950
West Germany	6,889	3,363
84.13.01 Oil burners		
Imports	11,747	15,805
West Germany	2,475	3,699
United States	2,158	3,041
Italy	1,933	1,456
Belgium	3,462	4,530
Netherlands	536	1,052
Exports	5,302	9,651
Belgium	1,468	1,927
Algeria	539	1,809
84.13.02 Other burners		
Imports	1,623	2,550
West Germany	505	654
United States	474	621
Britain	353	592
Exports	2,837	3,216
West Germany	823	647
Belgium	414	407

*Note: For conversion purposes, One franc=$0.22 Canadian.

and are therefore one of the major contacts for Canadian manufacturers of heating equipment who wish to penetrate the French market. One important technical factor that Canadian manufacturers must keep in mind is that the equipment must operate on a 50-cycle, 220- or 230-volt electrical supply. Controls must also be calibrated in Centigrade rather than in Fahrenheit.

Table I lists the duties applicable to heating equipment made in Canada and Table II gives the import and export totals for France in 1963 and 1964 and the principal countries involved in these exchanges.

Cooking Equipment

Many types of fuel are used for cooking in France; by far the most popular is gas. Of 1.2 million stoves manufactured in 1963, 790,000 were equipped to operate on gas, 250,000 on coal, 200,000 on oil and 100,000 on electricity. Table II confirms that the value of exports of gas appliances from France was more than double the value of imports. A number of large companies are making gas cooking equipment in France and it would be almost impossible for Canadian cooking equipment to compete. One French company last year produced nearly 250,000 gas stoves. However, a Canadian Government Mission discovered on its recent visit that although there is no market for domestic gas cooking appliances, Canadian commercial cooking equipment is competitive in France. Canadian producers would be well advised to examine the possibilities in this segment of the market.

Perseverance Required

It is essential that Canadian companies keep in mind that it requires perseverance to sell heating equipment in France and that success will not come overnight. The Commercial Section of the Canadian Embassy in Paris will be pleased to assist any Canadian interested in this market. ●

Australia

If current search for oil and natural gas pays off, prospects for selling space heaters and gas-fired central heating units would become brighter, despite the present tariff barrier.

JOHN D. TENNANT, *Assistant Commercial Secretary, Melbourne.*

AUSTRALIA appears to be on the threshold of a significant change in the pattern of its energy supplies. If it comes, it will be stimulating news for the country's gas appliance industry.

Traditionally, Australia depends for energy on brown coal and on electricity and gas produced from it. The deposits of coal are vast but still it is a relatively high-cost energy source. The second basic fuel—oil—has always been imported for refining in Australia and currently costs more than Can. $225 million in foreign exchange each year.

The next few years, however, should hold exciting prospects for the development of oil and natural gas fields within Australia. In fact, present events have been compared to Canada's pre-Leduc days following the Second World War.

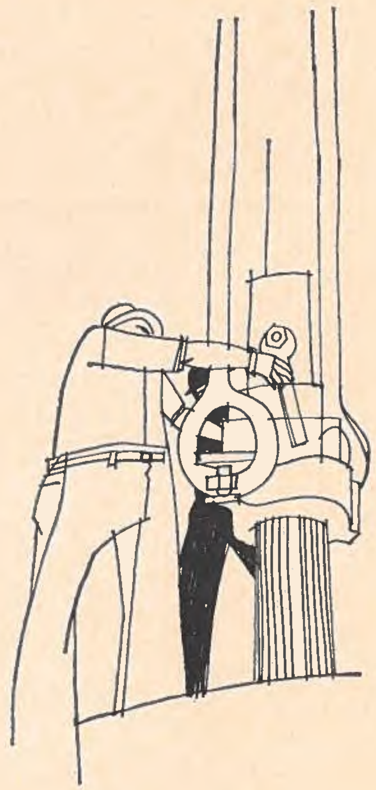
Initial progress towards exploitation of discoveries is already being made. Last year the first Australian crude oil reached refineries. It still makes up only 2 per cent of consumption but other promising strikes are still being defined.

Natural gas is now the focal point and at the current pace of discoveries, it could eventually be more important than oil. Apparently large fields have been found in widely separated areas. Initial unofficial estimates are encouraging—as high as 1,000 billion cubic feet in the remote Mereenie (Northern Territory) field.

Whatever the current optimism, there is still one big 'if'—whether sufficient *proven* reserves will be at an economic distance from population centres in eastern Australia. Indications are good but far too few wells have so far been drilled to predict the ultimate size of the resources.

Pipelines will be the next step once the existence of proven reserves is established. Plans have been sketched over several routes and estimates of costs are in hand. New strikes, however, particularly when they are close to population centres, quickly alter the over-all plan.

Encouraged (or at least not recently discouraged), gas marketing authorities (government corporations) in eastern Australian states are now working to 1968 and 1969 target dates for the conversion to natural gas. Officials have laid the broad plans and are now getting down to specific problems. At the same time, local appliance man-



AUSTRALIAN PRODUCTION OF STOVES, WATER HEATERS AND SPACE HEATERS

	Number		
	1962/63	1963/64	eleven months* 1964/65
Domestic Cooking Stoves			
Electric	145,670	174,574	180,237
Coal gas	56,147	64,147	63,502
LP gas	9,426	13,237	13,614
Solid fuel	27,149	28,081	21,633
Oil, kerosene and spirits	15,856	13,345	9,542
Domestic Hot Water Systems			
Electric —Storage type	72,612	91,771	105,292
Heat exchange type	12,562	14,576	14,105
Instantaneous	15,273	15,586	13,677
Gas —Storage	19,022	21,215	21,098
Instantaneous	10,453	14,427	15,481
Solid Fuel	15,389	16,523	17,661
Domestic Water Heating Appliances (not systems)			
Bath Heaters —Electric	11,783	14,439	13,106
Gas	14,143	11,967	10,456
Solid fuel	19,967	17,522	13,774
Sink Heaters —Electric	11,619	11,333	11,157
Wash Boilers —Electric	10,385	10,443	9,972
Gas	10,959	8,085	7,012
Warm Air Heaters			
Gas	19,566	26,568	26,728
Oil	6,605	23,513	33,990
Solid Fuel	38,360	37,819	42,488

*Fiscal year—July 1 to June 30.

IMPORTS INTO AUSTRALIA OF GAS AND OIL-FIRED HEATING AND COOKING APPLIANCES

	Value f.o.b. country of origin	
	1962/63† £A‡	1963/64 £A
Oil-Fired		
Cooking Units		
United States	....	41,401
Sweden	....	11,932
Other foreign countries	....	4,305
	14,197	**62,241**
Other Oil-Fired Appliances		
(including blow lamps)		
CANADA	....	34,582
Britain	....	17,261
Sweden	....	16,827
Japan	....	9,585
Hong Kong	....	5,727
Other foreign countries	....	7,915
	41,660	**91,897**
Gas-Fired Cooking Appliances		
Britain	....	143,524
United States	....	24,733
Sweden	....	19,425
Italy	....	12,206
Other foreign countries	....	10,972
	204,106	**210,860**
Instantaneous Gas Water Heaters		
Britain	....	122,326
Germany, West	....	64,006
Other foreign countries	....	127
	147,430	**186,459**
Gas-fired Heating Units		
Britain	....	109,219
United States	....	68,049
Sweden	....	8,584
Italy	....	8,446
Other foreign countries	....	13,907
	149,539	**208,205**
Other Gas-fired Appliances		
Austria	....	17,244
United States	....	16,045
Britain	....	15,670
Other foreign countries	....	9,041
	97,990	**58,000**

† Fiscal year—July 1 to June 30.
‡ £A1=approximately $2.40.

ufacturers, with technical and financial assistance from the marketing authorities, have also started to move.

State governments themselves are anxious to ensure full development of the resource. State officials have visited North America and other large producing areas to study various implications and overseas consultants have offered long-term assessments.

Gas Appliances

These developments promise well for the established Australian domestic appliance industry, particularly in the growing and competitive field of home heating.

The existing market for gas appliances is dominated by Australian manufacturers. Imports are minimal. (See tables above.) What imports there are come largely from Europe or Britain and these same influences are evident in present styling though the use of North American ideas is increasing.

Australian manufacturers have at least three years lead-time before conversion and without question will be fully prepared, if and when it comes.

The greatest expansion in domestic appliance sales has been in home heaters and it is here that the lower natural gas price would have the greatest effect.

Australians, particularly in Victoria and Canberra, began in earnest five years ago to discard the Spartan ideal that it is good for one to be slightly cold in winter. The focal point of the household is no longer the flickering open fire but instead the television set. In 1960, nearly 60 per cent of Melbourne home-owners used open fires as their main source of heat but in the past five years this percentage has been cut almost in half.

Space heaters are almost invariably installed. These Australian-designed units are either built into a fireplace or free standing, using no ducts. Floor furnaces have also enjoyed a certain popularity.

Central Heating Units

A fully heated home is not essential in the relatively moderate Australian climate so central ducted heating systems have enjoyed only limited sales—principally a luxury market. Installation costs are high and fuel bills are beyond the average pocket. Rough estimates of annual sales of both imported and locally manufactured units are in the vicinity of 600 units last year, mostly oil-fired. Although they are restricted to a small portion of the total warm air heating market, sales should increase substantially. Lower-cost natural gas would definitely improve the prospects for sales of gas-fired units.

Limited numbers of Canadian oil-fired central heating units are being sold successfully in competition with several locally-made systems. At least one Australian gas-fired unit is already available and before natural gas arrives, other local manufacturers will probably have followed suit, possibly with their own designs or on the basis of manufacture or assembly under licence.

The other major avenue open to Canadian firms at the time of conversion of appliances to natural gas should be components, including burners. Manufacturers will be reassessing designs and adjusting production. In doing so, they will create opportunities for producers of world standard components.

Competitive Market

Tariff rates on most gas appliances are 17½ per cent preferential (including Canada) and 27½ per cent general. As a guide, the comparable rates for oil-fired appliances are normally 27½ and 60 per cent. These rates tend to discourage imports once the local market reaches an economic size. Canadians should allow for the possibility of eventual manufacture or assembly under licence in their initial plans.

Canadian firms benefit from preferential tariffs and solid background knowledge in natural gas-fired heating and should be excellently placed to explore these potential markets. However, before tackling the Australian market, Canadians should realize that a serious effort is needed, for reasons outlined below.

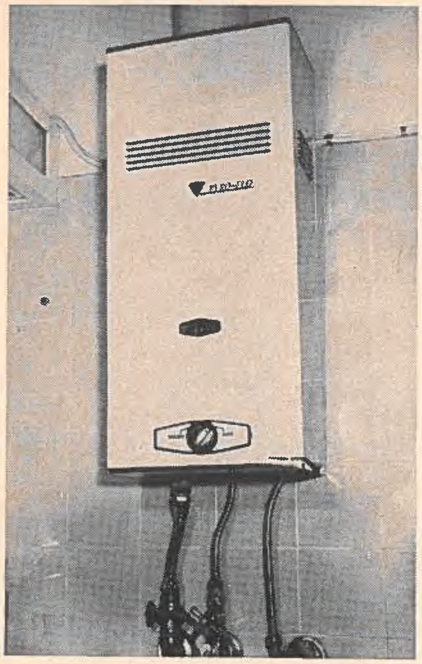
- Australian businessmen travel extensively and are open to a flow of product ideas from all over the world. As a result, the firms assess components, ideas and manufacture-under-licence proposals critically against these world standards. Exporters must have a first-class product backed by enthusiastic salesmanship.

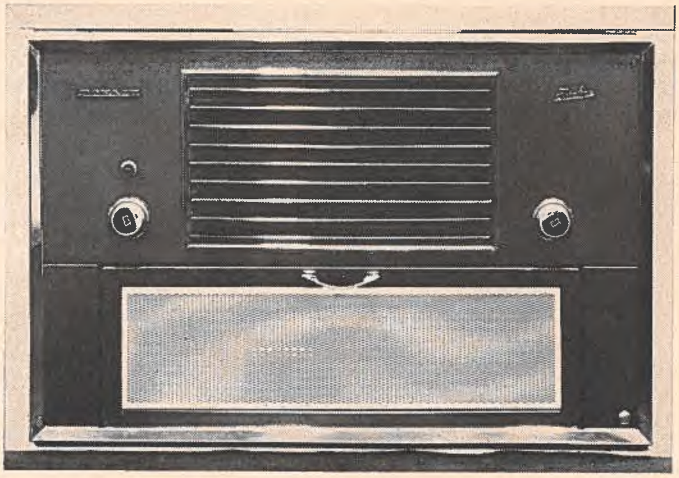
- Australian manufacturers, despite the distance from Europe and North America, do not work in a technical vacuum. Australian manufacture of overseas products and future competition from locally developed products must be considered wherever there is a worthwhile market.

- Correspondence and expensive five-cent-a-second telephone calls will not give an Australian agent 9,000 miles away the technical help he expects. In some instances, he may take the lead and visit Canada but potential Canadian exporters should be prepared to visit Australia to promote their sales.

Ideally, many Canadian firms will be able to combine the longer-term drive to gain a share of the gas-fired appliance market with their current Australian efforts to sell oil-fired appliances.

This seems to be a particularly opportune time to examine the potential. Trade Commissioner offices in Melbourne and Sydney are prepared to make initial inquiries for Canadian firms and to approach suitable Australian firms on their behalf. Several copies of brochures and price lists are essential and could usefully be accompanied by comments on special features of the product, its use, and current sales in Canada and other markets. ●





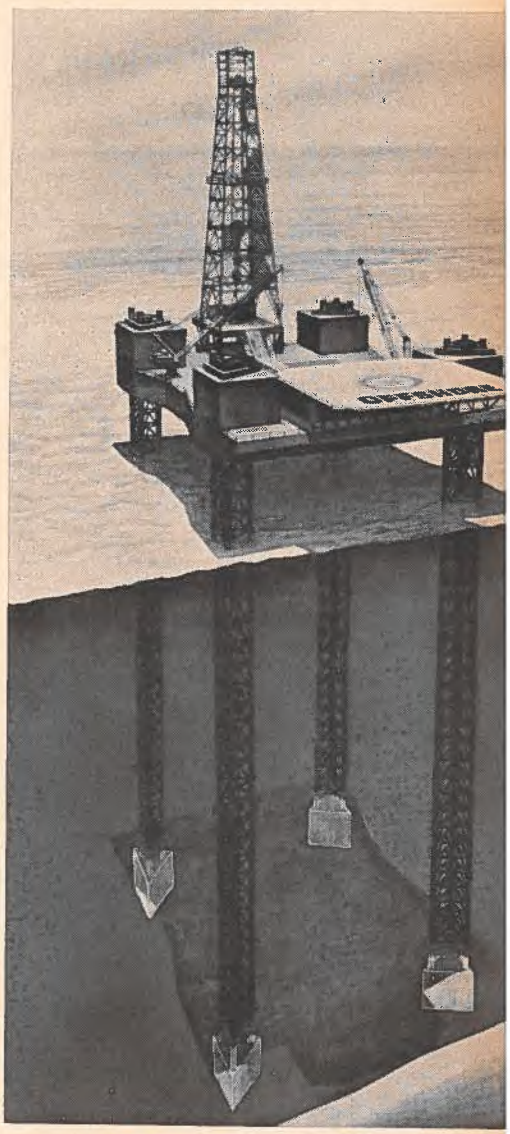
Australian-Designed Gas Heaters

Gas-fired, instantaneous water heaters like the one on the left enjoy a substantial portion of the Australian market. Although modelled on European lines, the unit is manufactured in Australia. The space heater above is designed to fit into an existing fireplace and is also very popular.

Britain's North Sea Gamble

In September 1964 the British Government granted licences covering the search for and production of gas and oil under the North Sea. In mid-September 1965, after this report was written, BP announced the first hopeful natural gas strike. Development of an integrated British oil industry thus moves considerably closer.

E. L. BOBINSKI, *Assistant Commercial Secretary, London.*



This artist's sketch shows how one of the drilling platforms being built for oil exploration in the North Sea is held in place by retractable legs that are driven into the ocean bed. The drilling platform is then jacked up on these legs to about 50 feet above water level. This platform is expected to cost over £2½ million.

OFF BRITAIN'S SHORES on the North Sea, major international oil companies and other British, Canadian, U.S. and European interests are engaged in the world's most extensive search for natural gas and oil. If successful—and confidence is high—this colossal international treasure hunt which has now reached the drilling stage could result in a massive marine "Klondike" with terrific impact on both Britain's economy and its recurrent balance-of-payment difficulties.

Although geologists have long felt that the rock formations under the North Sea indicated important petroleum deposits, the present intensive exploration was triggered by two important events during the last five years.

First came the discovery in 1959 of the enormously rich reserves of natural gas in Groningen province in Holland. Surveys showed that the most likely direction in which to search for further reservoirs was towards the north and this meant *under* the North Sea.

The second was the ratification in 1964 of the United Nations Convention on the continental shelf, an international instrument under which Britain acquired the sovereign right to exploit 100,000 square miles (or practically half) of the bed of the North Sea. It became the first nation under the Convention to enact legislation for the granting of licence concessions.

Licences Allocated

For licence purposes, the Ministry of Power gridded the British sector outside territorial limits into blocks, each covering nearly 100 square miles. Last September the first major allocation of licences was announced. To date licences for exploration and production have been granted for 348 blocks—more than a third of the whole British area of the continental shelf—to 23 licensees (see acccompanying list) representing more than 50 British and foreign companies.

Production licences give the holder the right to explore for and produce natural gas or oil for a period of six years, after which the licensee has an option to retain half the area for a further 40 years. Exploration licences are granted to cover any part of the continental shelf not already covered by a production licence. They allow the holder to search for hydrocarbons but give no production rights.

Licences were granted on the basis of work programs submitted by the companies or groups; these call for the expenditure of some £80 million over the next six years. Also taken into account were other factors, such as the potential contribution by the applicants to the British economy and their abilities to explore their areas satisfactorily. Regulations also ensure that any oil or gas not consumed in the field must be landed in Britain, with royalties of 12½ per cent payable to the Crown.

Since last fall the concessionaires have wasted little time. To date seven companies have started drilling operations; by the end of this year the figure should reach ten.

Difficulties peculiar to open-sea drilling have had to be accepted. Although the North Sea is relatively shallow (650 feet deep in the north to 100 feet in the south) it is particularly subject to storms and rough seas. Fifteen drilling rigs (some as large as a football field and designed to withstand these weather conditions) are on order or are earmarked for North Sea exploration. The majority should be in operation by this time next year. Most are of the "jack-up" design where the unit is held in position on the site by retractable "legs" driven into the sea bed. The hull itself, the deck of which forms the actual drilling platform, is jacked up on the same supports until it is about 50 feet above the water level. Several rigs, however, will be of the free-floating type. These are anchored fore and aft and are particularly suitable where the water is too deep for the legs-on-bottom design.

Apart from weather, there are problems over the depth of the bore-holes themselves. The drilling companies fully expect these will range from 8,000 to 20,000 feet and some will be bored at a full 150 miles from land.

Costs Are High

North Sea exploration is an expensive business: one large firm spent £1 million on seismic work alone before making applications. With each drill rig operating at a cost of £5,000 to £6,000 a day, each borehole costing an estimated £500,000 to £1 million to complete (at a drill cost per **foot of**

Production Lic

When licences are held by a consortium, the first-named is the operatin company for the group. All applicants had to be British-registered companie therefore names of parent companies and their countries are listed whe possible.

Symbols:

Per cent Percentage held
PL Number of production licences issued
B Number of blocks issued
EL Exploration licence issued

	Per cent			
British Petroleum Development Ltd. (wholly owned by British Petroleum)	100	3PL	22B	EL
Burmah North Sea Group		3PL	26B	EL
Burmah Oil Exploration Co. (Burmah Oil)	40			
Imperial Chemical Industries	40			
Murphy Petroleum (Murphy Oil) (U.S.)	10			
Ocean Exploration Co. (Ocean drilling & Exploration) (52 per cent controlled by Murphy Oil)	10			
Shell: Esso Group		9PL	75B	EL
Shell Co. of the U.K. (Royal Dutch/Shell)	50			
Esso Petroleum Co. (Standard Oil Co. of New Jersey)	50			
Gas Council/Amoco Group		5PL	36B	EL
Amoco U.K. Petroleum (Standard Oil Co. of Indiana)	30.77			
Amerada Exploration Ltd. (Amerada Petroleum)	30.77			
Gas Council	23.08			
Texas Eastern (U.K.) (Texas Eastern Transmission)	15.38			
American Overseas Petroleum Ltd. (Amoseas)	100	4PL	24B	EL
(This company itself acts as operator; jointly owned by British subsidiaries of Standard Oil Co. of California and Texaco)				
Mobil Producing North Sea Ltd. (wholly owned by Socony Mobil)	100	2PL	14B	EL
Phillips Petroleum Group		2PL	17B	EL
Phillips Petroleum Exploration U.K. Ltd. (Phillips Petroleum)	35			
Fina Exploration Ltd. (Petrofina)	30			
AGIP Ltd. (80 per cent ENI; 10 per cent each by other Italian state bodies)	15			
Plascon (1909) Ltd. (Tarmac Ltd.)	4.26			
Century Power & Light Ltd.	7.22			
Halkyn District United Mines Ltd. (owned 88 per cent by Courtaulds)	4.26			
Oil Exploration Ltd.	4.26			
Gulf Oil (Great Britain) Ltd. (wholly owned by Gulf Oil Corporation)	100	4PL	22B	EL
Continental Oil (U.K.) Ltd.	100	1PL	6B	EL
Total Oil Marine Group		1PL	7B	EL
Total Oil Marine Ltd. (Compagnie Francaise des Petroles)	30			
Coastal Oil Co. Ltd. (Bureau de Recherches de Petrole)	30			
Auxirap (U.K.) Ltd. (Regie Autonome des Petroles)	30			

:oncessionaires

	Per cent			
urafrep Co. Ltd. (controlled by Eurafrep)	4			
ofrasea Oil Co. Ltd. (controlled by Francarep)	3			
oparex North Sea Petroleum Co. Ltd. (controlled by Coparex)	3			
rpet Group		4PL	30B	EL
rpet Petroleum Ltd. (Atlantic Refining)	33⅓			
ritish Sun Oil Co. Ltd. (Sun Oil Co.)	23⅓			
orth Sea Exploitation and Research Co. Ltd.	10			
ıperior Oil (U.K.) Ltd. (Superior Oil Co.)	30			
anadian Superior Oil (U.K.) Ltd. (Canadian Superior Oil Co.)	3⅓			
ignal Oil & Gas Group		1PL	5B	EL
ignal Oil & Gas Co. Ltd. (Signal Oil & Gas) (U.S.)	25			
ichfield U.K. Petroleum Ltd. (Richfield Oil Corp.) (U.S.)	25			
larathon Petroleum North Sea (G.B.) Ltd. (Marathon Oil) (U.S.)	25			
ities Service (U.K.) Ltd. (Cities Service Co.) (U.S.)	25			
ome Oil of Canada Ltd.		2PL	17B	EL
ome Oil Co. of Canada Ltd. (Home Oil Co.) (Canada)	50			
anadian Pacific Railway (Canada)	25			
lminex (U.K.) Ltd. (Alminex Ltd. Canada)	25			
io Tinto/Hamilton Group		1PL	3B	EL
amilton Bros. Oil Co. (G.B.) Ltd. (Hamilton Bros. Inc.)				
io Tinto-Zinc Corp. Ltd.				
orthcliffe Developments Ltd. (controlled by Associated Newspapers)				
orth Sea Selection Co. Ltd.		2PL	11B	
max Petroleum (U.K.) Ltd. (American Metal Climax) (U.S.)	33⅓			
:lection Trust Ltd.	33⅓			
alcon Seaboard (U.K.) Ltd. (Falcon Seaboard Drilling)	33⅓			
lace Oil & Gas Co. (U.K.) Ltd.		1PL	9B	
lace Oil & Gas (U.K.) (Canada)	45			
oranda Mines Ltd. (Canada)	45			
ırcee Petroleum Ltd. (taken over by Huskey Oil Canada Ltd.)	10			
lacid Oil (G.B.) Ltd.	100	2PL	13B	EL
'hitehall Petroleum Ltd.	100	1PL	4B	EL
anadian Industrial Gas (U.K.) Ltd. anadian Industrial Oil and Gas Ltd.	100	1PL	1B	
rinidad Canadian Oils Ltd.	100	1PL	1B	EL
'hiterock Oil & Gas Ltd.		1PL	2B	
:ruvian Oils & Minerals	37			
'hiterock Exploration	21			
'estern Canadian Explorers	21			
:ober	12			
onsanto Chemicals Ltd.	100	1PL	1B	
rizzly Petroleum Ltd. (Canada)	100	1PL	1B	

three times that on land) plus the expenditure of up to £2¼ million on a rig, one gets some idea of the sums involved in this commercial gamble. These heavy expenses have quickened competition between the drilling companies; security has become a vital aspect of operations and crews have been sworn to secrecy.

North Sea drilling operations also require a fleet of specially designed supply boats. Extensive use of helicopters is planned as an alternative means of transport, particularly for moving crews who work and live for two-week periods on the more distant rigs.

Assuming that a test drilling program leads to the discovery of a commercial natural gas or oil field, the wells will certainly be completed in the conventional way by means of surface platforms. These will be connected by pipelines to central gathering stations—in turn linked to a shore terminal or an offshore tanker terminal. Even with an immediate find, it has been estimated that production from the North Sea would enter the British market not less than five years from now. A more realistic appraisal, again assuming a relatively early strike, would be about ten years.

Results Uncertain

It is impossible at this stage to assess the drilling results accurately. Since the flood of rumours which surrounded operations on the first well drilled by Caltex earlier this year (which appears to have revealed definite traces of hydrocarbons but nothing more) an even tighter security has been maintained by the other companies.

Although there is no guarantee of a major North Sea find on Britain's shores, the exploring companies appear optimistic. Recently a top official publicly stated that his firm is so convinced of eventual success that it will not be unduly concerned if it has to spend £10 million per year for the next ten years without making a major strike. There is a vast and expanding market for power sources in Europe itself as West European energy demands have been growing at an annual rate of some 4 per cent over the past decade, which means an additional equivalent energy requirement of about 40 million tons of coal every 12 months. A major discovery could mark a turning-point in the economic development of Britain and could lead to a new industrial revolution.

Opportunities for Sales

Although long-term prospects could be extremely promising, even at this early stage commercial opportunities are attractive for firms interested in supplying the needs of the drilling firms. British shipbuilders were the first to obtain the side benefits of the North Sea search when they received orders for mobile drill rigs and special supply ships to carry piping and other stores to the platforms. Other initial requirements have ranged from packaged ship-to-shore communication systems to helicopters, electricity generators, food (a drilling crew consumes a ton a day), and pumps of all kinds. All this activity has also been important to the economy of the east coast towns adjacent to the search area.

Although Canadian interests are already involved with the 23 licensees, there still seems to be a relatively untapped market here for a wide range of competitively priced Canadian products for maintaining the men and equipment involved. The market's potential is sizable bearing in mind that British Petroleum alone expects to spend £7 million during 1965 on drilling operations in the North Sea.

Our London office has had a number of inquiries from Canadian companies wishing to examine the possibilities of obtaining some business from the North Sea operations. We are hoping that others will be prompted by this introductory article to contact us for assistance. ●

Venezuelan Guiana Offers New Markets

Rich in minerals, timber and hydroelectric power, the rapidl industrializing Guiana region of Venezuela offers many oppo tunities for securing government and private engineering and co struction contracts. Here is an outline of proposed developme plans, with hints on appropriate methods of obtaining business.

G. J. FONS, *Commercial Assistant, Caracas.*

THE Indian roaming Venezuela's "Gran Sabana" in the old days must have been awed when lightning struck the top of some of the table mountains rising out of the Guiana plains. The Spanish conquistador in search of the "Dorado" —and less superstitious—called the phenomenon the "flowerpot" or "El Florero". It was left to the scientists of our day to suspect and prove the existence of large iron ore deposits that attracted the lightning and are now one of the main resources of Venezuelan Guiana.

This territory has one of the world's finest high-grade iron ore deposits as well as deposits of other minerals, including manganese, nickel, chrome, industrial diamonds and gold, many of which have not yet been exploited. The hydroelectric power potential of its Caroni River is perhaps the greatest of any single river system in the Western Hemisphere. In addition, this territory has direct deep-water access to the world's shipping routes, direct connection through pipelines with the nearby oil and gas fields, and an unexploited hinterland of forest and many other resources. It is small wonder that Venezuelan planners have conceived an ambitious future for this area. They may perhaps convert it into the Pittsburgh of South America if they succeed in carrying through the ideas.

Exploitation of the Guiana iro ore started when Venezuela wa not yet in a position to undertak this venture singlehanded. Tw United States companies spent larg amounts of capital and labour i bringing the ore development to it present stage. Oil-rich Venezuel which has used time and resource to train its people for the technic jobs awaiting them, has decided t step in now and develop the are as a fully integrated industria territory.

New City Founded

The first step in integrating th area demographically was th foundation of a new city, Sant Tome de Guayana, at the junctio of the Orinoco and Caroni Rivers This township was planned in minut detail and since its foundation i 1961, when it brought togethe four dispersed centres of population its development has been impres sive. An area which contained onl 4,000 people in 1950 had a popula tion of 50,000 by 1962 and is ex pected to reach 100,000 by 1966 400,000 by 1975, and 600,000 i the early eighties.

This is the backdrop for the de velopment of all the resources i the Guiana region. The housin areas will be built on the easter slopes facing the sea breezes. Industries will be limited to the high plateaus, and access roads to the deep-water channels of the Orinoco River will be built where the prevailing eastern winds will carry smoke and odours away from the residential areas. The location of the industrial district to the west of the city will allow free communication by road with the rest of Venezuela without passing through the city.

Government Plans for Industry

The development of basic industries will be reserved for the Venezuelan Government. Present plans cover hydroelectric power, primary and some of the secondary iron and steel industries, and aluminum in co-operation with Reynolds International.

• **Hydroelectric Power**—A government-owned and operated company was established in 1963 as a subsidiary of the Government Guiana Corporation: C.V.G. Electrificacion del Caroni C.A. (EDELCA). Based on studies conducted by Harza Engineering Company International of Chicago, the huge Guri Dam project was started about two years ago. It is the largest of a series of twelve possible power projects on the lower Caroni River and when fully developed, is expected to produce 6 million kw. The Macagua I Dam, already operating is producing 375,000 kw. The Caruachi Dam could produce 1.5 million kv. and the Tocoma Dam another 1.1 million kw. The total possible power production is estimated at over ten million kw.

On August 28, 1964, 51 per cent of all earthmoving for the Guri Dam and 45 per cent of the excavation for the powerhouse had been completed and other phases of the project were well advanced. The initial height of the dam will be 106 meters but it will be increased later to 130 meters and finally to 154 meters. The first phase will start with three generators producing a total of 525,000 kw., but when completed it will have ten generators and a capacity of 1.75 million kw. In the second phase, the height of the dam will be increased to 130 meters and generation will amount to 3 million kw. In the third and last phase, production may be increased to 6 million kw. An important share of that electric power potential will be available for present and future industries operating in the Guiana region and the remainder will be transmitted over a high voltage power line to Central and Western Venezuela to supply cheap electric power to the large cities and industrial complexes there.

• **Iron and Steel Industries**—The initial phase of the Orinoco plant aims at a production level of 600,000 metric tons of finished products, of which steel structural profiles will make up 70,000 metric tons, rails and other railway products 61,500 metric tons, rods 86,150 metric tons, steel plate 10,350 metric tons, wire (galvanized etc.) 27,000 metric tons, seamless steel piping 295,000 metric tons, making a total output of steel products of 550,000 metric tons.

Iron production will amount to only 50,000 metric tons, of which 30,000 will be centrifugally cast iron piping and 20,000 metric tons pig iron. The proposed plant has been designed so that the initial capacity can easily be doubled to 1.2 million metric tons.

• **The Aluminum Plant**—This company, known as Aluminio del Caroni S.A. (ALCASA), is projected as a joint venture in which the Venezuelan Government and the Reynolds International interests will participate equally, but with management left to Reynolds. The plant will be located one kilometer to the east of the steel mill and it is expected that construction will start some time in August or September and will be finished in mid-1967. Production capacity will be about 10,000 metric tons of aluminum ingot a year, reduced by local electric power from imported bauxite. According to the latest production schedules, the plant will use most of its ingots to produce sheet, extrusions and wire rods.

Private Industry

Government planners hope that the existence of the primary steel and aluminum industries and the availability of cheap electric power and transportation will encourage the private sector of the economy to promote secondary industries in the Guiana area.

• **Complementary Metal Industries**—These would include grey iron and steel foundries, forge shops, machine shops, metal fabricating shops, engineering design and assembly enterprises. As production has been forecast officially, it can be expected that, if necessary, a favourable climate for private enterprise will be created by fiscal measures and import controls.

• **The Electro-Chemical Complex**—The coincidence of mineral resources and petroleum, gas and cheap electric energy in one area makes the Guiana territory a favourable location for electrochemical industries. The Venezuelan Guiana Corporation has contracted with a foreign corporation specializing in that field to make feasibility studies for the production of elemental phosphorus, ammonia, phosphate fertilizer and sodium. Should these studies be favourable, a joint venture might be undertaken by the Venezuelan Government Corporation and the foreign firm.

• **Pulp and Paper**—Similar feasibility studies of the prospects for a pulp and paper mill in that area have been undertaken. It is believed that the timber resources north and east of Santo Tome de Guayana and the mangrove swamps of the Orinoco delta might supply the raw materials. Cheap electric power, an ample supply of water, caustic soda and chlorine produced by the projected chemical plants would furnish the basic needs. Because of preliminary steps taken by the existing paper mills in the private sector, it has been decided officially to limit the Guiana plant to the production of pulp and transfer it to the private sector once the feasibility study is completed. A production capacity of 65,000 tons of paper pulp has been mentioned but it is not known whether further planning will be confined to that figure or other goals established.

• **Mining**—So far, most mining in the area has been on a small scale except for the large iron ore mining companies and the government-owned and operated gold mines. It is expected that large mining corporations will absorb the small miners and organize mining throughout the territory on a large scale.

Prospects for Canadian Sales

The proposed development of this area should offer opportunities for Canadian exporters. These would not necessarily be limited to large industrial machinery or equipment for huge plants. Exporters of many types of commodities, even those now catering to the Venezuelan market, should revise their present agency set-up and prepare to penetrate this new regional market. Those exporters who aim at large government contracts would do well to peruse earlier reports about the ways of doing business with the Venezuelan Government.* Such contracts are subject to a system of tenders and the Government often insists on financial guarantees from the bidders to make sure they will complete the work if the contract is awarded to them. Price is often but not always decisive. In many cases, preference has been given to technical solutions more advantageous for operation under local conditions or to higher quality of construction or design. Feasibility studies are generally awarded to technical consultants directly but for the actual construction of a project or a turnkey job, it may be advisable for Canadian engineering firms to establish a consortium with suitable local companies and maintain representatives to act on their behalf when the bids are presented or awarded.

Sales to the private sector of the economy are of course made in a different way—offers from all possible suppliers are studied and the contract is awarded according to the personal preference of the promoters. A skilful agent is as important in this business as in one that involves government tenders.

Long-term financing that lightens the financial burden of the local promoters is always sought after and often large industrial contracts are awarded to suppliers who offer the most convenient terms. Industrial projects based on feasibility studies often are backed by government guarantees or auxiliary financing through the special corporations set up by large local oil companies. Financing such projects therefore need not constitute an unwarranted risk. ●

*See: "How the Venezuelan Government Buys", *Foreign Trade*, September 23, 1961, p. 18.

Four Trade Commissioners touring Canada last summer converged on Winnipeg at the same time and were photographed with officials at the Canadian Wheat Board. Left to right, Y. Jauron, on posting as Assistant Commercial Secretary, Moscow; J. D. Blackwood, Commercial Secretary, Caracas, on transfer from Tokyo; H. E. Campbell, Consul, Duesseldorf; J. G. Ireland, Commercial Secretary, Bogota; W. C. McNamara, Chief Commissioner, Canadian Wheat Board (beside globe); J. B. Lawrie, Commissioner, CWB; G. A. Gillespie, Acting Regional Manager, Winnipeg office, Department of Trade and Commerce, and W. Riddel, Assistant Chief Commissioner, CWB, (now retired).

How to Win World Markets 14

Licensing Production Abroad

The export of knowhow can mean profits, especially in developing countries or where direct sales are out. The author, drawing upon the broad experience of his company in making licensing agreements, discusses the basic elements in negotiating them.

C. F. TERRELL,
Vice-President and General Manager, Export Division,
The Canadian Coleman Company Limited.

ARE YOU losing export sales because of import barriers, high landed costs of your merchandise, or inability to compete with other exporters? Are you unable to enter a foreign market for these reasons? Do you have a process or a patent or even a trademark that is of value?

If your answer is "yes" to any of these questions, it is time for you to consider the export of knowhow, commonly referred to as "licensing". Licensing can open up an entirely new and profitable field to those who are prepared to sell to overseas manufacturers drawings, specifications and technical assistance for products and processes that are already introduced or for which there is a need.

Developing countries look to industrialization for economic progress and in pursuing this goal, they frequently impose import barriers to create the need for local manufacturing. Whether or not to accede to this pressure depends upon the potential profit to the exporter who must consider whether to become a "licensor".

The needs of these developing countries also offer opportunities to the owners of manufacturing processes and patents who have never engaged in the export of material or products.

What Are the Benefits?

What benefits should the exporter of knowhow expect to receive from a licensing agreement? These include:

Knowhow fees

Service fees

Royalties

Technical improvements

Exports of components or raw materials.

The knowhow fee usually is the total sum payable for the disclosure of all currently available technical data and for access to future research and development for the licensed products. A down payment is made upon the signing of the agreement and this should be sufficient to cover the cost of transferring the required initial technical data. If no patents are involved or if the product is new and highly desired by the market, the initial disclosure fee should be as high as possible, even at the risk of lower service and royalty fees.

The service fee is calculated as a percentage of sales or as a specific amount per unit or per period of time. It is payable for continuing technical assistance and generally is applied to the remainder of the knowhow fee owing. Frequently the agreement specifies a lower rate of service fee after the payments equal the amount of the knowhow fee.

Royalty, payable for the use of the licensor's trademark and which can be considered the real profit from the arrangement, is generally calculated in the same manner as the service fee but without a later reduction in rate.

It is advisable to keep the service and royalty fees separate because certain countries assess no or little tax on the former but apply maximum rates to the latter. Some countries even place a limit on the amount of royalty payable.

There is the possibility that the licensee, as a result of your technical assistance, may develop better production methods or other improvements. It is not uncommon for the agreement to specify the free use of such improvements by the licensor.

Licensees may start production by an assembly operation that merely adds a coat of paint. Or they may be dependent, initially at least, on a supply of components or special raw materials. There is profit in this type of export for the licensor.

May Take Patience

Frustration is a way of life to those engaged in licensing activities but do not let this deter you from participating in this potentially lucrative business. Manufacturers in the developing countries do not always realize the cost of research and development and consequently the possible savings to them resulting from your technical assistance. This applies also to foreign governments. To convince the potential licensee and the government authorities (when their approval is required) of the value of your assistance sometimes requires a good deal of patience.

Most less developed countries have stringent foreign exchange and import controls and in many instances these extend to licensing agreements. In the extreme, this form of enterprise is looked upon by bureaucrats as a way of transferring capital abroad illegally. Although they favour local production, they view suspiciously fees and the tied supply of components and raw materials. This attitude adds to frustration and encourages such devices as the payment of royalties in advance.

Too often the formal licensing agreement is lengthy and involved because both parties want to be fully protected. Unless a foreign government must approve the agreement and requires detailed information, it is desirable that it be practical and workable. The document should reflect the thoughts and intentions of both parties, the result of successful negotiations based upon good faith. Competent legal advice is necessary and the services of a local attorney should be secured. The Canadian Trade Commissioner or the Chamber of Commerce can usually supply a list of recommended attorneys.

Basic Elements Outlined

Some of the basic elements that need to be considered in the negotiation of an agreement are:

1. Determination of the products or processes and/or trademarks to be licensed.

2. Country or area for which the licensee is to have the exclusive or non-exclusive right to manufacture.

3. Is the licensee to have the exclusive or non-exclusive right to sell in the same area or a larger area? The licensor should retain the right to change the territory if conditions make this necessary—for example, if production or sales are not up to original expectations.

4. If licensor's trademark is to be used, determine whether it alone is to be applied to the product or if it is to be in combination with the licensee's trademark. The use of a combination trademark is sometimes desirable, but there should be a provision in the agreement that the joint mark be discontinued if and when the agreement terminates.

5. Determine who will defend trademark infringement. Normally it is the licensor with the full assistance and co-operation of the licensee, but within certain cost limitations which should be in proportion to the income.

6. Determine in the beginning minimum sales or production goals, increasing over the period of the agreement, with the licensor retaining the right to terminate the agreement or be compensated should these minimums not be reached. This is necessary because the performance of the licensee is most important.

7. Are you agreeable to the licensee producing similar or competitive products? Most licensors object and specify this in the agreement.

8. What kind of technical assistance are you able to provide and by what method will it be transmitted? Insure that the control and timing of this assistance are maintained by you, the licensor.

9. Your licensee will probably want to send his technical people to your plant and will also expect your engineers to visit him. Specify the maximum number of personnel and frequency of interplant visits and who pays the expense (usually the licensee). Make sure that it is understood that special services are subject to mutual agreement at the time of discussion.

10. You will want to insure that products are manufactured according to specifications and to your quality. Decide whether samples are to be submitted to you at specified times or whether inspection of the licensee's facilities and production will suffice.

11. The licensor should be flexible about changes in design and specifications, (in fact, this is recommended) but you undoubtedly will wish to retain the right to approve these changes.

12. Who will own the technical information you supply when the agreement terminates? It is to be returned or destroyed or are you agreeable to the licensee retaining it?

13. It is conceivable that the intended licensee may develop from your technical assistance certain improvements or new methods and consequently you should require the

For Reference

Cardinale, J. S. *Manual on the Foreign License and Technical Assistance Agreement.* New York, Ashwell, 1958. 128p.

Price—$12.50

Order from: Thomas Ashwell & Co. Inc., 20 Vesey St., New York, N.Y. 10007.

Hale, N. E. *Know-How & Licensing.* 3p.

Price: Free

Order from: Mr. N. E. Hale, Hale & Associates Ltd., 2483 Lakeshore Blvd. W., Toronto 14, Ont.

Myers, J. G. *Foreign Licensing—an Export Alternative.* Pros and Cons of Using Foreign Licensing Agreements in Lieu of, or Along with, an Active Export Program (Canada). (In *Business Quarterly,* Fall '60, p. 167-175)

N.I.C.B. *Foreign Licensing Agreements:* I. *Evaluation and Planning.* (88 p.)—II. *Contract Negotiation and Administration.* (96 p.) New York, 1958-1959. (Studies in Business Policy, No. 86 and No. 91)

Price: Pt. I. NICB Associate Members—$3.00. Non-Associate —$15. Pt. II. NICB Associate Members—$4.00. Non-Associate —$20.

Order from: National Industrial Conference Board, Inc., 615 Dorchester St. W., Montreal, Que.

reverse flow of technical information and, hopefully, the free use of it.

14. You will want to receive periodic reports on sales, production, etc., as well as to have the right of audit. Exercise this right regularly.

15. What are to be the duration, termination and renewal requirements of your arrangements? Most agreements are for from five to ten years, depending upon the starting time required and the investment of the licensee.

16. Will the licensee have the right to assign or sub-license under your agreement? In most agreements there is no right without the approval of the licensor.

17. The purpose of your contemplated agreement is to earn a profit in Canadian dollars. What happens if the licensee is unable to pay because of exchange regulations? Perhaps the licensee has a foreign exchange account outside of his country from which he would be willing to guarantee payment. In some countries, government approval of the licensing agreement carries with it the automatic right to foreign exchange. Local income and/or withholding tax also affect profits. Be sure your agreement specifies whether your fees are before or after tax.

18. When an agreement is reached, it will be because of the confidence between the parties involved. What is to happen if these or other key personnel change? Should your licensee decide to sell out (perhaps to a competitor) do you want the right to first refusal?

19. If materials, components or parts are to be imported by the licensee, what strings, if any, are to be attached?

20. You cannot be expected to know all the laws and regulations in overseas countries and thus you will find it desirable to make it an obligation of the licensee to comply with those in effect in his country, both present and future.

21. In the event of bankruptcy by the licensee, you certainly will want the agreement to be terminated automatically.

22. Do you expect the licensee to advertise or conduct a sales promotion program? It may be desirable to specify that a certain percentage of sales be devoted to these purposes.

For the uninitiated, the foregoing list provides some of the basic considerations in a licensing agreement. There are numerous publications that give a complete checklist, but it is difficult to establish a standard form of agreement suitable for all situations. Foreign government requirements vary and obviously one must adhere to their customs and laws. Nevertheless, the elements remain the same.

Where does one find a potential licensee? Your distributor may be a candidate or may be able to recommend one. The Canadian Trade Commissioner, the local Chamber of Commerce, the correspondents of your bankers and established "foreign" manufacturers are all in an excellent position to make suggestions.

Licensing offers additional profit to those who are unable to export merchandise, to the expanding international trader, to exporters who are losing a market and wish to maintain their foothold (particularly if their trademark has become well established), and to those who own only a process or a patent of use to others. All will require competent legal guidance. ●

L. H. Ausman, then Commercial Counsellor, Brussels, and now Minister (Commercial), London, (right) drinks a symbolic glass of Gini, made under licence from a Canadian company, at a Canadian food promotion in a large department store in the capital city.

TRADE COMMISSIONERS ON TOUR

In Canada

The following officers are undertaking tours of business centres throughout Canada as detailed below. Businessmen who wish to see them should get in touch with the Board of Trade or Chamber of Commerce in the cities mentioned, with the following exceptions: Toronto, Canadian Manufacturers Association; Windsor (Ontario), Greater Windsor Industrial Commission; St. John's, Halifax, Montreal, Ottawa, Winnipeg, Edmonton and Vancouver, Department of Trade and Commerce; Fredericton, Department of Industry.

France—G. P. Morin, Assistant Commercial Secretary in Paris:

Niagara Falls, Fort Erie, Jordan Station—October 12
Brantford, Woodstock—October 13
London—October 14
Toronto—October 18-22
Oshawa, Port Perry, Oakwood—October 25
Belleville, Delta, Cornwall—October 26
Montreal—October 27-November 5
Drummondville, Gentilly—November 8
Levis, Montmagny, Rivière du Loup, Rimouski—November 9
Montjoli—November 10
Halifax—November 12
Shediac, Cocagne, Lancaster—November 15
Black's Harbour, St. Andrews—November 16
Florenceville—November 17
Quebec City, Loretteville—November 18-19

Temporary Duty in Ottawa

G. P. Morin, Assistant Commercial Secretary in Paris, October 4-8. Contact European Division, phone: 992-8727.

M. S. Strong, Commercial Counsellor in Accra, Ghana, October 7-27. Contact Commonwealth Division, phone: 992-2421.

In Territory

British Guiana—L. D. R. Dyke, Commercial Secretary in Port-of-Spain, Trinidad, will visit British Guiana October 12-16.

El Salvador—J. H. Nelson, Commercial Secretary in Guatemala City, will visit San Salvador October 28 and 29.

Honduras—J. H. Nelson, Commercial Secretary in Guatemala City, will visit San Pedro Sula October 25 and 26, and Tegucigalpa October 27.

Netherlands Antilles—L. D. R. Dyke, Commercial Secretary in Port-of-Spain, Trinidad, will visit Surinam October 12-16.

Businessmen who would like these officers to undertake assignments for them should write to them at their posts as soon as possible.

FOREIGN TARIFFS AND TRADE REGULATIONS

Finland

NEW LIBERALIZATION LIST—The Government of Finland has freed from restrictions imports of a number of products, effective August 1, 1965. Included in the list of liberalized imports are:

Raw materials for use in dyeing or tanning, gums, resins and other vegetable saps and extracts;
Sanitary articles;
Locks, mountings, springs;
Primary batteries;
Travel goods, working and sports gloves;
Woven fabrics of coarse animal hair, carpets, rugs (knotted);
Certain clothing accessories, such as ties, collars, gloves, socks, stockings (not being knitted or crocheted goods);
Tableware of porcelain or china;
Insulated electric wire, cable, bars, strip, etc.;
Generators, transformers for telecommunications, etc., parts of turbines, motor and turbo pumps for liquids.

Detailed information may be obtained from the Office of Trade Relations, European Division, Department of Trade and Commerce.

Iran

FOREIGN TRADE REGULATIONS FOR YEAR 1344—The Iranian Government announced on March 20 the General Regulations for Imports and Exports for the year March 21, 1965, to March 20, 1966.

The schedule of commodities affected by the regulations that are of interest to Canadian exporters has not changed greatly from previous licensing periods. For the current period the following goods are now authorized: wheat, lubricating oils, unfinished plastic goods and materials, valves for gas stoves and ranges as well as burners, refrigerators for blood banks, accumulators and their plates. The import of iron or steel doors, and windows and shutters is prohibited except for cold storage purposes.

Under the regulations, only those who have obtained a trade card may import and export goods for commercial purposes, unless an exemption is made specifically by law. However, persons, establishments and firms not possessing trade cards may import goods to be used by them personally or professionally, subject to the approval of the Ministry of Economy.

Again under the new regulations, it is permitted to import goods not classified as unauthorized and not otherwise prohibited by law. However, the import of unauthorized goods may be permitted by reason of shortfall in domestic production, poor quality of domestic products or excessive increase in their price. Importers of machinery and technical equipment who hold a monopoly on their import are required to import sufficient quantities of spare parts of such machinery and equipment to meet the consumer demand and to establish suitable repair shops. Goods which were authorized under the regulations of the previous period but have been declared unauthorized under the new regulations may be cleared through the Customs provided they were in Customs bond before the new regulations were issued or letters of credit were opened with an authorized bank before the end of the previous Iranian year. Imports of raw materials, spare parts and technical equipment required by industry and otherwise declared as unauthorized imports shall be considered as authorized provided that such goods are not locally manufactured. Goods the import of which is authorized by the Central Bank of Iran only by documentary letters of credit may not be imported by means of bills for collection.

The sale of foreign exchange for the import of authorized goods shall be subject to the laws and regulations governing exchange control. If the foreign exchange is not sufficient to meet the demands of importers, the Ministry of Economy and the Central Bank shall jointly establish a priority system for essential goods, in which case the sale of foreign exchange shall be confined to the import of such essential goods. Exporters who sell goods to countries whose currency is not negotiated by the authorized banks in Iran, may use their currency earnings for the import of authorized goods. Persons earning money abroad through any means other than export of goods may spend their foreign currency earnings in the purchase and import of authorized goods.

Details regarding authorized and unauthorized imports into Iran may be obtained upon request from the Asia and Middle East Division, Office of Trade Relations, Department of Trade and Commerce, Ottawa.

Phillipines

SOME CUSTOMS IMPORT DUTIES AMENDED —In Executive Order No. 162, dated August 17, 1965, the Phillipine Government amended the rates of import duty affecting some 20 items of the Customs Tariff, to become effective 30 days from the issue of the Order. The rates of import duty have been lowered for most of the items affected, but for a few they have been raised.

Items of interest to Canadian firms on which the rate of import duty has been decreased include:

Cigarettes
Filter paper and waste paper
Filterboard
Typewriter ribbons
Knotted net fabrics for fishing nets other than of cotton or man-made textile fibres
Opal glass containers, bottles and vials for antibiotics and serums
Grinding balls and rods and industrial belt lacing
Pipe and reed organs
Other wind instruments
Electronic, electromagnetic and similar instruments
Empty gelatine capsules

Commodities on which the rate of import duty has been increased include:

Varnishes, lacquers, enamels and other paints
Gummed tape, not printed
Cotton knotted net fabric for fishing nets

Details of the rate of duty applicable on any particular commodity affected by this amendment may be obtained from the Asia and Middle East Division, Office of Trade Relations.

Sweden

TEMPORARY EXEMPTION FROM DUTY—The Swedish Government has announced that the following products are exempt from duty during the period 1.8.1965-30.6.1966.

Brussels Nomenclature No.		*Description*
84.45	109 155 205	Numerically tape-controlled (punched tape or magnetic tape) machine-tools for removing metal or metallic carbides.
	305 402 404 409	*Notes* The exemption from duty does not cover: boring and drilling machines weighing each less than 4,000 kgs. (separate numeric control unit not included) grinding machines weighing each less than 6,000 kgs. (separate numeric unit not included)
	500—	Horizontal for automatic production of threaded bolts.
		Horizontal eccentric-shaft presses with a pressure capacity of more than 400 tons.

Foreign Trade Service Abroad

Territory	Officer	City Address	Mail and Cables, Office Telephone & Telex
Argentina Paraguay	M. B. Bursey Commercial Counsellor H. E. Ryan Assistant Commercial Secretary (Agriculture)	Canadian Embassy Bartolome Mitre 478 BUENOS AIRES	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 33-8237
Australia (Capital Territory New South Wales, Northern Territory Queensland) Dependencies	J. A. Stiles Commercial Counsellor for Canada R. L. Richardson Assistant Commercial Secretary A. D. Schulman Assistant Commercial Secretary	21st Floor A. M. P. Building Circular Quay SYDNEY	*Mail:* P.O. Box 3952 G.P.O. *Cable:* CANADIAN *Phone:* 27-7565 *Telex:* SYD 600 (CANADIAN SYD)
Australia (Victoria, South Australia, Western Australia, Tasmania)	H. A. Gilbert Commercial Counsellor for Canada R. D. Lucas Assistant Commercial Secretary J. D. Tennant Assistant Commercial Secretary	Mobil Centre 2 City Road MELBOURNE	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 61-3473 *Telex:* MLB 501 (CANADIAN MLB)
Australia	J. B. O'Neill Commercial Counsellor D. I. Campbell Assistant Commercial Secretary	Office of the High Commissioner for Canada Commonwealth Avenue CANBERRA	*Mail:* (City Address) *Cable:* DOMCAN *Phone:* 7-2541 *Telex:* CBA 62017 (DOMCAN CBA)
Austria Albania, Bulgaria, Czechoslovakia, Hungary, Rumania, Yugoslavia	C. F. Wilson Minister-Counsellor (Commercial) F. I. Wood Commercial Secretary R. G. Godson Assistant Commercial Secretary R. J. L. Berlet Assistant Commercial Secretary	Canadian Embassy Obere Donaustrasse 49/51 VIENNA II	*Mail:* P.O. Box 190, Vienna 1/8 *Cable:* CANADIAN *Tel.:* 23-32-94 *Telex:* 07-5320 (DOMCAN VIENNA)
Belgium Luxembourg, European Economic Community, European Atomic Energy Com- munity, European Coal and Steel Community	D. M. Holton Commercial Counsellor M. Faguy Assistant Commercial Secretary	Canadian Embassy 35 rue de la Science BRUSSELS 4	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 13.38.50 *Telex:* 221613 (DOMCAN BRU)
Brazil	C. M. Forsyth-Smith Commercial Counsellor J. P. Richards Assistant Commercial Secretary	Canadian Embassy Edificio Metropole Av. Presidente Wilson 165 RIO DE JANEIRO	*Mail:* Caixa Postal 2164-ZC-00 *Cable:* CANADIAN *Phone:* 42-4140 *Telex:* RIO 175 (DOMINION RIO)
Brazil	C. T. Charland Consul and Trade Commissioner R. W. Burchill Vice Consul and Assistant Trade Commissioner	Canadian Consulate Edificio Alois Rua 7 de Abril 252 SÃO PAULO	*Mail:* Caixa Postal 6034 *Cable:* CANADIAN *Phone:* 36-6301
Britain	L. H. Ausman Minister (Commercial) W. D. Wallace Commercial Counsellor	Office of the High Commissioner for Canada One Grosvenor Square LONDON, W.1	*Mail:* (City Address) *Cable:* SLEIGHING, LONDON, W.1 *Phone:* MAYfair 9492 *Telex:* 22526 (DOMINION LDN)

Territory	Officer	City Address	Mail and Cables, Office Telephone & Telex
Britain	G. E. Woollam Commercial Counsellor (Agriculture) J. M. Rochon Commercial Counsellor (Metals and Minerals) H. M. Maddick Commercial Counsellor W. M. Miner Commercial Secretary (Agriculture) E. J. Ward Commercial Secretary (Timber) O. Hickie Commercial Secretary (Timber) R. M. Shaw Attaché (Publicity) E. L. Bobinski Assistant Commercial Secretary M. R. Bell Assistant Commercial Secretary H. G. Garland Attaché (Fisheries) Miss M. A. Armstrong Attaché (Exhibitions)		*Cable:* TIMCOM, LONDON, W.1
Britain (Midlands, North England)	W. R. Van Canadian Government Trade Commissioner D. S. Armour Assistant Trade Commissioner	Martins Bank Building Water St. LIVERPOOL	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* MARitime 2177
Britain (Scotland)	Finlay Sim Canadian Government Trade Commissioner D. G. Nelson Assistant Trade Commissioner	Cornhill House 144 West George St. GLASGOW C.2	*Mail:* (City Address) *Cable:* CANTRACOM *Phone:* DOUglas 6751
Britain (Northern Ireland)	Finlay Sim Canadian Government Trade Commissioner D. G. Nelson Assistant Trade Commissioner	15-17 Chichester St. BELFAST 1	*Mail:* (City Address) *Phone:* 21867
Cameroun Central African Republic, Chad, Congo (Brazza- ville), Gabon		Canadian Embassy Soppo Priso Bldg. rue Joseph Clerc YAOUNDE	*Mail:* P.O. Box 572 *Phone:* 38-03
Ceylon	Commercial Division	Office of the High Commissioner for Canada 6 Gregory's Road Cinnamon Gardens COLOMBO	*Mail:* P.O. Box 1006 *Cable:* CANADIAN *Phone:* 91341 *Telex:* 106 (DOMCAN COLOMBO)
Chile	R. E. Gravel Commercial Counsellor Z. W. Burianyk Assistant Commercial Secretary	Canadian Embassy 5th Floor Agustinas 1225 SANTIAGO	*Mail:* Casilla 771 *Cable:* CANADIAN *Phone:* 64189
Colombia Ecuador	J. G. Ireland Commercial Secretary J. C. Bradford Assistant Commercial Secretary	Canadian Embassy Edificio Banco de Los Andes Carrera 10, No. 16-92 BOGOTA	*Airmail:* Apartado Aereo 8582 *Surface Mail:* Apartado 1618 *Cable:* CANADIAN *Phone:* 43-00-65

Territory	Officer	City Address	Mail and Cables, Office Telephone & Telex
Congo	Chargé d'Affaires	Canadian Embassy C.C.C.I. Building Boulevard Albert 1er LEOPOLDVILLE 1	*Mail:* Boîte Postale 8341 *Cable:* CANADIAN *Phone:* 2706 *Telex:* LEO 268 (DOMCAN LEO)
Cuba	Commercial Division	Canadian Embassy Calle 30 No. 518 esquina 7ª Avenida Miramar HAVANA	*Mail:* Gaveta 6125 *Cable:* CANADIAN *Phone:* 32-3526
Denmark Greenland, Poland	K. Nyenhuis Commercial Counsellor G. H. Musgrove Assistant Commercial Secretary (Agriculture)	Canadian Embassy Prinsesse Maries Allé 2 COPENHAGEN V	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* Hilda 3306 *Telex:* 5036 (DOMCAN KH)
Dominican Republic Puerto Rico	J. E. Kepper Acting Commercial Secretary	Canadian Embassy Edificio Copello 408 Calle El Conde SANTO DOMINGO	*Mail:* Apartado 1393 *Cable:* CANADIAN *Phone:* 2-8138
France Algeria, Morocco	R. Campbell Smith Minister-Counsellor (Economic/Commercial) J. E. Montgomery Assistant Commercial Secretary (Agriculture) G. P. Morin Assistant Commercial Secretary D. H. M. Branion Assistant Commercial Secretary C. J. St. Pierre Assistant Commercial Secretary	Canadian Embassy 35 Avenue Montaigne PARIS 8e	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* BALzac 99-55 *Telex:* 20600 OR 20601 (DOMCAN A PARIS)
Germany Federal Republic (States of Baden-Wuerttemberg, Bavaria, Hesse, Rhineland-Palatinate, Saar; West Berlin)	H. J. Horne Commercial Counsellor W. F. Hillhouse Commercial Counsellor (Agriculture) R. J. Buchan Assistant Commercial Secretary	Canadian Embassy Kennedy-Allee 35 BAD GODESBERG	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 76995 *Telex:* 886421 (DOMCAN BONN)
Germany (State of North Rhine-Westphalia)	H. E. Campbell Consul J. A. Elliott Consul G. D. Valentine Vice Consul	Canadian Consulate Koenigsallee 82 4 DUESSELDORF 1	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 2-05-25 *Telex:* 8587144 (DOMCAN DUESSELDORF)
Germany (City States of Bremen and Hamburg, States of Lower Saxony and Schleswig-Holstein)	R. W. Blake Consul General D. S. McCracken Vice Consul	Canadian Consulate General Ferdinandstrasse 69 HAMBURG	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 326149
Ghana Guinea, Ivory Coast, Liberia, Mali, Mauretania, Togo, Upper Volta	V. B. Chew Commercial Secretary K. R. Higham Assistant Commercial Secretary	Office of the High Commissioner for Canada E 115/3 Independence Ave. ACCRA	*Mail:* P.O. Box 1639 *Cable:* CANADIAN *Phone:* 4824 *Telex:* 224 (DOMCAN ACC)
Greece Turkey	B. A. Macdonald Commercial Counsellor E. E. Price Assistant Commercial Secretary	Canadian Embassy 31 Vassilissis Sophias Ave. ATHENS 138	*Mail:* (City Address) *Cable:* DOMCAN ATHENS 5584 *Phone:* 714-041 *Telex:* 5584 (DOMCAN ATHENS 5584)

Territory	Officer	City Address	Mail and Cables, Office Telephone & Telex
Guatemala Costa Rica, El Salvador, Honduras, Nicaragua, Panama and Canal Zone	J. H. Nelson Commercial Secretary P. D. Donohue Assistant Commercial Secretary	Canadian Embassy 5a Avenida 11-70, Zone 1 GUATEMALA CITY, C.A.	*Airmail:* P.O. Box 400 *Surface Mail:* P.O. Box 444 *Cable:* CANADIAN *Phone:* 28448
Haiti	Chargé d'Affaires, a.i. and Consul	Canadian Embassy Route du Canape Vert St. Louis de Turgeau PORT AU PRINCE	*Mail:* P.O. Box 826
Hong Kong Cambodia, Communist China, Laos, Vietnam, Macao	R. K. Thomson Senior Canadian Government Trade Commissioner P. M. Roberts Trade Commissioner R. G. Woolham Trade Commissioner A. Blum Assistant Trade Commissioner	P & O Building 11th Floor 21-23, Des Vœux Road, Central HONG KONG	*Mail:* P.O. Box 126 *Cable:* CANADIAN *Phone:* 224087 *Telex:* HKG 391 (DOMCAN HKG)
India (except States of Gujerat, Maharashtra, Andhra Pradesh, Mysore, Madras, Kerala) Bhutan, Nepal, Sikkim	R. R. Parlour Commercial Counsellor for Canada W. G. Roberts Assistant Commercial Secretary	13 Golf Links Road NEW DELHI 1	*Mail:* P.O. Box 11 *Cable:* CANADIAN *Phone:* 61-8254 *Telex:* 346 (DOMCAN DLI)
India (States of Gujerat, Maharashtra, Andhra Pradesh, Mysore, Madras, Kerala)	S. G. Harris Canadian Government Trade Commissioner	Gresham Assurance House Mint Road BOMBAY 1-BR	*Mail:* P.O. Box 886 *Cable:* CANADIAN *Phone:* 255154
Iran	W. Gibson-Smith Commercial Counsellor	Canadian Embassy Bezrouke Building Corner of Takht Jamshid Ave. and Forsat St. TEHRAN	*Mail:* P.O. Box 1610 *Cable:* CANTRACOM *Phone:* 4-9291
Ireland	W. G. Huxtable Commercial Secretary for Canada	66 Upper O'Connell St. DUBLIN	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 44251
Israel Cyprus	B. C. Steers Commercial Secretary for Canada	Canadian Embassy 84 Hahashmonaim St. TEL AVIV	*Mail:* P.O. Box 20140 *Cable:* CANADIAN *Phone:* 37161/2 *Telex:* 740 (DOMCAN TV)
Italy (Toscana, Marche, Umbria, Lazio, Abruzzi-Molise, Puglia, Campania, Basilicata, Calabria, Sicilia, Sardegna), Libya, Malta	J. H. Stone Commercial Counsellor W. J. Jenkins Commercial Secretary J. J. R. Gagnon Assistant Commercial Secretary	Canadian Embassy Via G. B. De Rossi 27 ROME	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 864-327 *Telex:* 61056 (DOMCAN ROME)
Italy (Emilia-Romagna, Lombardia, Piedimonte, Trentino-Alto Adige, Veneto, Liguria, Trieste, Valle D'Aosta, Friuli-Venezia)	A. B. Brodie Consul General and Trade Commissioner N. R. Cumming Consul and Assistant Trade Commissioner C. E. Rufelds Vice Consul and Assistant Trade Commissioner	Canadian Consulate General Via Pirelli 19 MILAN	*Mail:* C.P. 3977 *Cable:* CANTRACOM *Phone:* 652-485/652-600 *Telex:* 31368 (CANTRACOM MILAN)

Territory	Officer	City Address	Mail and Cables, Office Telephone & Telex
Jamaica Bahamas, British Honduras	L. D. Burke Commercial Secretary D. I. Ditto Assistant Commercial Secretary	Office of the High Commissioner for Canada 32 Duke St. (corner Duke and Barry Sts.) KINGSTON	*Mail:* P.O. Box 225 *Cable:* CANADIAN *Phone:* 26948
Japan Korea, Okinawa	R. G. C. Smith Minister (Commercial) W. G. Brett Commercial Secretary E. L. Gray Assistant Commercial Secretary	Canadian Embassy 16, Omote-Machi 3-chome, Akasaka, Minato-ku TOKYO	*Mail:* Canadian Embassy c/o Akasaka Post Office, Tokyo *Cable:* CANADIAN *Phone:* 408-2101/8 *Telex:* TK 2218 (DOMCAN TK 2218)
Lebanon Iraq, Jordan, Persian Gulf area, Saudi Arabia, Syria	I. V. Macdonald Commercial Counsellor R. H. M. Cathcart Assistant Commercial Secretary V. G. Lotto Assistant Commercial Secretary	Canadian Embassy Alpha Building Rue Clemenceau BEIRUT	*Mail:* Boîte Postale 2300 *Cable:* CANADIAN *Phone:* 250955 *Telex:* 652 (DOMCAN BERYT)
Malaysia Thailand, Brunei	P. Stuchen Commercial Counsellor	Office of the High Commissioner for Canada Great Eastern Life Assurance Co. Bldg., 44 Ampang Rd. KUALA LUMPUR	*Mail:* P.O. Box 990 *Phone* 89921/2
Mexico	M. B. Blackwood Commercial Counsellor J. E. G. Gibson Assistant Commercial Secretary R. A. Kilpatrick Assistant Commercial Secretary	Canadian Embassy Melchor Ocampo 463, 7th Floor MEXICO 5, D.F.	*Mail:* Apartado Postal 5-364 *Cable:* CANADIAN *Phone:* 33-14-00 *Telex:* 00017716 (DOMCAN MEX)
Netherlands	D. A. B. Marshall Commercial Counsellor J. B. McLaren Assistant Commercial Secretary	Canadian Embassy Sophialaan 5-7 THE HAGUE	*Mail:* (City Address) *Cable:* CANADIAN *Phone:* 61-41-11 *Telex:* 31270 (DOMCAN HAGUE)
New Zealand Fiji, Tahiti, Tonga, Western Samoa	W. B. McCullough Commercial Counsellor C. A. Carruthers Assistant Commercial Secretary	Office of the High Commissioner for Canada 3rd Floor, ICI Building Molesworth Street WELLINGTON	*Mail:* P.O. Box 1660 *Cable:* CANADIAN *Phone:* 70-644 *Telex:* WELLINGTON NZ 3505 (DOMCAN NZ 3505)
Nigeria Dahomey, Gambia, Niger, Senegal, Sierra Leone	G. F. Mintenko Commercial Secretary H. R. Wilson Assistant Commercial Secretary	Office of the High Commissioner for Canada Barclays Bank Building, 4th Floor 40 Marina Road LAGOS	*Mail:* P.O. Box 851 *Cable:* CANADIAN *Phone:* 25262
Norway Iceland	J. E. P. Lancaster Commercial Secretary	Canadian Embassy Fridtjof Nansens plass 5 OSLO 1	*Mail: (City Address)* *Cable:* CANADIAN *Phone:* 33-30-80 *Telex:* OSLO 1880 (DOMCAN OSLO)
Pakistan Afghanistan	R. D. Sirrs Commercial Secretary R. D. Lee Assistant Commercial Secretary	Office of the High Commissioner for Canada Hotel Metropole, Victoria Road KARACHI	*Mail:* P.O. Box 3703 *Cable:* CANADIAN *Phone:* 50322 *Telex:* KRC 10 *Telex:* KARACHI 10 (DOMCAN KHI)
Peru Bolivia	K. G. Ramsay Commercial Counsellor A. T. Eyton Assistant Commercial Secretary	Canadian Embassy Edificio El Pacifico (Insurance Co.) Corner Avenida Arequipa and Plaza Washington LIMA	*Mail:* Casilla 1212 *Cable:* CANADIAN *Phone:* 72760

Territory	Officer	City Address	Mail and Cables, Office Telephone & Telex
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Spain Balearic Islands, Canary Islands, Gibraltar, Rio Muni, Spanish Sahara	L. A. Campeau Commercial Counsellor R. M. Dawson Commercial Secretary	Canadian Embassy Edificio Espana Avenida de Jose Antonio 88 MADRID	*Mail:* Apartado 117 *Cable:* CANADIAN *Phone:* 247-54-00
Sweden Finland	G. A. Browne Commercial Counsellor for Canada J. P. Bell Assistant Commercial Secretary	Skeppsbron 24 STOCKHOLM	*Mail:* P.O. Box 14042 *Cable:* CANADIAN *Phone:* 24-87-42
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Venezuela Netherlands Antilles	J. D. Blackwood Commercial Secretary J. R. Caux Assistant Commercial Secretary	Canadian Embassy Avenida La Estancia No. 10 Ciudad Comercial Tamanaco CARACAS	*Mail:* Apartado 11452-Este *Cable:* CANADIAN *Phone:* 32.40.41.44

The following nominal quotations may prove useful in checking prices. Canadian traders should consult their banks before making any firm commitments.

Conversion into Canadian dollar equivalent and units of foreign currency per Canadian dollar have been made at cross rates with sterling or the United States dollar on the date shown.

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

When several rates are indicated, the rate applicable 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.

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

For conversion to United States dollar equivalent multiply by .9283.

Foreign Exchange Rates

Country	Unit	Type of Exchange	Can. dollar equivalent Sept. 17	Units per Canadian dollar	Notes (see below)
Algeria	Dinar		.2198	4.55	
Argentina	Peso	Free	.006052	165.23†	
Australia	Pound		2.4114	.4147	
Austria	Schilling		.04175	23.95	
Bahamas	Pound		3.0142	.3318	
Belgium and Luxembourg	Franc		.02170	46.08	
Bermuda	Pound		3.0142	.3318	
Bolivia	Peso		.09156	10.92	
Brazil	Cruzeiro	Official Free	.0005862	1,705.90	
Britain	Pound		3.0142	.3318	
British Guiana	Dollar		.6280	1.59	
British Honduras	Dollar		.75355	1.33	
Burma	Kyat		.2262	4.42	
Ceylon	Rupee		.2261	4.42	
Chile	Escudo	Bank rate	.3288	3.04	
		Free	.2746	3.64	
Colombia	Peso	Free	.05655	17.68	
		Certificate	.1197	8.35	
Congo, Republic of	Franc		.007181	139.25	(1)
Costa Rica	Colon		.1626	6.15	
Cuba	Peso		‡	‡	
Czechoslovakia	Koruna		.1496	6.68	
Denmark	Krone		.1559	6.41	
Dominican Republic	Peso		1.07719	.9283	
Ecuador	Sucre	Official	.05984	16.71	
		Free	.05709	17.52	
El Salvador	Colon		.4309	2.32	
Fiji	Pound		2.7155	.3683	
Finland	Markka		.3366	2.97	
France, Monaco, etc.	Franc		.2198	4.55	(2)
Franco-African Republics, etc.	Franc		.004396	227.48	(3)
French Pacific	Franc		.01209	82.71	(4)
Germany	D Mark		.2687	3.72	
Ghana	Cedi		1.2559	.7962	
Greece	Drachma		.03590	27.86	
Guatemala	Quetzal		1.07719	.9283	
Haiti	Gourde		.2154	4.64	
Honduras	Lempira		.5386	1.86	
Hong Kong	Dollar	Free	.1869	5.35	*Sept. 9
		Official	.1884	5.31	

†Argentina devalued the peso Sept. 13/65 by about 4%, raising the exchange rate from 171 to 178 pesos to the $1 U.S.

‡There is no trading in Cuban pesos in U.S. or Canadian banks at present.

*Latest available date.

Country	Unit	Type of Exchange	Can. dollar equivalent Sept. 17	Units per Canadian dollar	Notes (see below)
Iceland	Krona	Official	.02505	39.92	(1)
India	Rupee		.2261	4.42	
Indonesia	Rupiah		.004309	232.09	(1)
Iran	Rial		.04122	70.32	
Iraq	Dinar		3.01613	.3316	
Ireland	Pound		3.0142	.3318	
Israel	Pound		.3591	2.78	
Italy	Lira		.001724	580.05	
Japan	Yen		.002992	334.22	
Lebanon	Pound	Free	.3533	2.83	
Malaysia	Dollar		.3519	2.84	
Mexico	Peso		.08618	11.60	
Morocco	Dirham		.2154	4.64	
Netherlands	Florin		.2992	3.34	
Netherlands Antilles	Florin		.5712	1.75	
New Zealand	Pound		3.0035	.3329	
Nicaragua	Cordoba		.1539	6.50	
Nigeria	Pound		3.0142	.3318	
Norway	Krone		.1508	6.63	
Pakistan	Rupee		.2261	4.42	
Panama	Balboa		1.07719	.9283	
Paraguay	Guarani	Free	.009695	103.15	
Peru	Sol	Free	.04016	24.90	
Philippines	Peso	Free	.2764	3.62	
Poland	Zloty	Fixed—basic rate	.04488	22.28	
Portugal & Colonies	Escudo		.03747	26.69	(5)
Sierra Leone	Leones		1.5081	.6631	
South Africa	Rand		1.5071	.6635	
Spain and Dependencies	Peseta		.01799	55.59	
Sweden	Krona		.2088	4.79	
Switzerland	Franc		.2496	4.01	
Syria	Pound	Free	.2817	3.55	
Thailand	Baht	Free	.05278	18.95	(1)
Tunisia	Dinar		2.0628	.4848	
Turkey	Lira		.1197	8.35	(1)
United Arab Republic	Pound	Official	2.4775	.4036	
United States	Dollar		1.07719	.9283	
Uruguay	Peso	Free	.01573	63.57	
Venezuela	Bolivar	Official Free	.2395	4.18	
West Indies	Dollar		.6280	1.59	(6)
	Pound		3.0142	.3318	(7)
Yugoslavia	Dinar	Official	.0008618	1,160.36	

Notes

1. Additional rates are in effect.
2. Franc is also used in French Guiana, Guadeloupe and Martinique.
3. 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.
4. New Caledonia, New Hebrides, French Polynesia.
5. Portugal; approximately same rate for Portuguese territories in Africa.
6. Barbados, Trinidad and Tobago, Leeward and Windward Islands.
7. Jamaica

From Sweden

Home Appliances

SWEDEN—Sales of home appliances in 1964 were well ahead of 1963. Swedish householders bought 33,192 ranges, 213,022 refrigerators, 106,192 deep freezes, 110,003 washing machines and 41,162 dryers. Sales of washing machines were 30 per cent and dryers 42 per cent larger than in 1963—Stockholm.

Oxygen

SWEDEN—Domnarfvet Steel Works at Borlange, south central Sweden, have now put their new oxygen works into operation. This $4.2 million plant, said to be the biggest in Europe, can produce 400 tons of oxygen per day. It is a low pressure type, highly mechanised and can be operated by eight men working in four shifts of two each—Stockholm.

Paper

SWEDEN—The Karlstad Mechanical Engineering Company (KMW) has developed a combined pick-up and first press (the Uni-press) for papermaking machines. This development, which is described as of great importance to the future of papermaking, arose out of a study of wet suction boxes.

Other new ideas which have come from KMW's laboratory are a new head box in which the distribution system is constructed with one-sided inlet direction and a system for the continuous drainage of the condensate collected in drying cylinders—Stockholm.

Sulphuric Acid

SWEDEN—Rejmersholms AB, Halsingborg, southern Sweden, plans to spend $7.3 million on a new sulphuric acid factory which should be in operation late in 1966. The existing plant at Halsinborg produces about 125,000 tons of sulphuric acid a year and this new factory will add 175,000 tons.

Rejmersholm (and the United Phosphate Factories) belongs to the Boliden organization which is planning a total yearly production of 700,000 tons of sulphuric acid by the end of 1967. Boliden produces 80 per cent of Sweden's total output—Stockholm.

Textiles

SWEDEN—In 1964 exports of textiles totalled $8.4 million of which 60 per cent went to EFTA countries. Sweden's textile exports have doubled in value since 1960, and its exports in general have doubled in value since 1954—Stockholm.

From West Germany

Bicycles

WEST GERMANY—Although Germany is deeply committed to the automobile with 7,772,000 passenger cars registered, sales of bicycles in this market are rising even faster. In the year ended April 30, 1965, bicycle sales increased 14 per cent compared with 12.8 per cent for automobile sales—Duesseldorf.

Plastic

WEST GERMANY—Production of all types of plastics in Germany last year rose to 1.7 million tons and was valued at $875 million, an increase of 21 per cent over 1963. Experts forecast that production in the current year will exceed 2 million tons.

The expansion of the industry is reflected in increased German imports of raw materials used to manufacture plastics. These imports amounted to $110 million in value, an increase of 22 per cent over 1963, of which the U.S. supplied a quarter—Duesseldorf.

Shoes

WEST GERMANY—Shoe production in 1964 rose 3.6 per cent over the previous year and totalled 147 million pair. In addition 40 million pairs of shoes were imported. The German people purchased more shoes per person than citizens of any other European country —an average of 3.2 pairs each. Almost 45 per cent of the imports came from Italy and an additional 25 per cent from Asian countries. Canada's shoe exports to Germany totalled only $2,500 in 1964—Dusseldorf.

Tents

WEST GERMANY—Manufacturers sold approximately 200,000 tents in 1964, worth $12.5 million, of which $1.5 million worth were exported. Imports during the year totalled $1.8 million with France the chief source of supply. Between imported and locally made tents German campers now have over 400 different models from which to choose—Duesseldorf.

Women's Hosiery

WEST GERMANY—The production of women's hosiery reached a record of 500 million pairs in 1964, making Germany Europe's largest producer. Exports reached 43.5 million pairs and imports were up by 10 million to 35.7 million pairs. Italy is the largest exporter of women's hosiery to Germany and supplied 25.3 million pairs in 1964. Canadian exporters sold 17,000 pairs to Germany last year—Duesseldorf.

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