foreign trade

Department of Industry, Trade and Commerce, Canada

Libyans Are Impatient Customers

Australia in 1970

Brazil's Power Drive

December 5/70

So What's New in Exporting?

To us, one aspect of export trade that is continually fascinating is the constant change, as technological progress brings new products into the international marketplace or provides new services for today's exporters. This rather trite observation was prompted by our plunge this morning into the pile of news items and press releases on our desk.

Take transportation, for instance. One of the fast developing services is containerization. We discover that to further container traffic between Windsor, Ontario, and Detroit, Michigan, Canbarge Limited is now operating a barge ferry that carries the containers across the river. At the moment it is a lift-on lift-off operation but soon will become a drive-on drive-off service. The company, whose docks lie just west of the Ambassador Bridge, offers associated services, such as packaging, consolidation of small shipments, storage and repair and leasing of containers At the moment, the ferry can handle 40 containers a day.

If your firm is shipping perishable cargo to Western Europe, you will be interested in a consolidated refrigerated container service between Montreal and Hamburg and Rotterdam. The first shipment, almost 20 tons of frozen fish and shellfish, was made up of orders packed by five different suppliers in Quebec. The ship docked at Hamburg and agents there of Kuehne & Nagel (Canada) Limited, which is operating the service, unpacked the shipment and sent the orders on to their several destinations. The firm is offering service twice a month and it may be expanded later to include other ports in Western Europe and in Britain.

By the end of this year, CP Ships plans to have in service one of the three containerships that Cammel Laird & Co. is building for it at its Birkenhead shipyard. *CP Voyageur*, the first one to be completed, will be in service by the end of the year and, like its sister ships, *CP Discoverer* and *CP Trader*, will have a total capacity of 700 twenty-foot containers.

Then there are aircraft, and especially short takeoff and landing types, in which Canada has become a recognized leader. The Sultan of Muscat and Oman recently bought three *Caribou* transport aircraft for his Air Force, and his country thus became the 16th to adopt the *Caribou* for transporting military supplies and personnel. The *Caribou's* sister aircraft the *Twin Otter*, also made by de Havilland, is getting about the world just as fast. A Norwegian feeder airline has bought four *Twin Otters* to use on flights between Bergen and Bodø. The purchase underlines Norway's determination to provide efficient transportation services to its isolated communities. Another *Otter* has been at work for two years on the Trondheim-Bodø route.

Latest news is that the *Twin Otter* is being bought by Allegheny Airlines Inc. for its run between Atlantic City, New Jersey, and Philadelphia, Pennsylvania. The *Otter's* STOL feature will make it possible to land passengers at the downtown airport in Atlantic City. Sixteen flights a day at half-hour intervals should be possible.

The back page of this issue carries a picture of a timber skidder made by Canadian Car Division of Hawker Siddeley at work in New Guinea. Over in Thailand, Timberjack Machines of Woodstock, Ontario, has five of its wheeled log skidders in operation— and it has sold 80 of these models altogether in Southeast Asia.

From the big boys at work in jungle terrain, it's a long jump to a British golfer trying to blast his way out of a sand trap. But he too may be using Canadian equipment in the form of clubs made by Campbell Manufacturing of Willowdale, which turns out golf balls and clubs. Campbell has recently obtained the services of a major British agent who distributes golfing equipment to pro and sporting-goods shops. This past summer the Canadian clubs were displayed in a show window at Ontario House on Charles II Street in London.

Our engineers are busy too on overseas assignments. Watts, Griffis and McOuat Limited of Toronto recently took on a Canadian foreign aid assignment in Niger, West Africa. There it will conduct a survey that calls for both geological mapping and economic evaluation aimed at identifying an exploitable phosphate deposit to form the basis of a fertilizer industry. And over in Nordenham, Germany, Asbestos Corporation is putting up a $15 million plant to grade, pack and distribute asbestos fiber from northern Ungava, Quebec. The contract to design the plant and oversee the building of it has gone to Surveyer, Nenniger and Chenevert of Montreal. It will be able to handle 100,000 tons of fiber a year.

For the moment, that's everybody but us chickens. We've left Peel's Poultry Farm, Port Perry, for Khonkaen University in Thailand, to help out with the Thai Government's poultry development program. We brought our own hatchery man, Harry Durance, with us and he says that us broiler breeders are doing a good job.

The cover? It shows a Libyan worker planting a eucalyptus seedling in the Libyan desert. Why? It's all part of Libya's drive to modernize the country and diversify its production. See our leading article on page two.

foreign trade

Vol. 134 No. 9

December 5/70

The Hon. Jean-Luc Pepin, Minister
J. H. Warren, Deputy Minister

O. Mary Hill, Editor
W. B. Lambton, Assistant Editor

Established in 1904. Published fortnightly by the Department of Industry, Trade and Commerce.

Address correspondence to the Editor, "Foreign Trade", Tower B, Place de Ville, 112 Kent Street, Ottawa, Canada.

Subscription

$5 a year in Canada, $7 abroad. Single copies 25 cents each. Please forward all orders, with cheque or money order made out to the Receiver General of Canada, to Information Canada, Ottawa, Canada.

92470—1

Articles

Libyans Are Impatient Customers 2

Australia Balances Gains and Losses 6

Canadian Dairy Cattle Could Go Tropical 10

Norway Seeks Lumber 12

Brazil Powers Its Industrial Drive 14

Canada Sells to and Invests in the Dominican Republic 19

Electronics Markets—Texas 21

Mexico 25

South Africa 27

Departments

Trade Commissioners on Tour 30

Trade Lines 30

Foreign Tariffs and Trade Regulations 32

Foreign Exchange Rates 34

Markets in Brief: Bolivia 36

Libyans Are Impatient Customers

The oil companies, the consumer, the Libyan Government all are seeking imported goods. And they want them now. Step one in selling to them is understanding the new Libyan trade regime.

CLAUDE RENAUD, Commercial Secretary, Rome

Libya became a rich country rather dramatically with the discovery ten years ago of vast oil reserves and their exploitation. The Libyan GNP reached Cdn. $3,000 million in 1969, and although there is widespread poverty, the per capita GNP ranks ahead of that in Austria, the U.S.S.R., Israel, Japan, Italy and Ireland. At the rate of 20 per cent a year, the Libyan economy is one of the fastest growing in the world.

The great potential of this market is unknown to many Canadian companies primarily because of this rather sudden upsurge. In less than ten years Libya has become a ranking world trader. In 1960, exports totalled Cdn. $9 million and imports Cdn. $180 million. By 1969 exports had reached a value of approximately Cdn. $2,260 million and imports Cdn. $700 million. Crude oil accounts for 99 per cent of total exports, but imports into Libya are very diversified. Because local industry is only in its infancy, almost all finished goods needed are imported. Two-thirds originate from the Common Market countries, the United States, and Britain.

The main influence on the economic and political life of the country since independence in 1951 and the beginning of crude oil exports in 1962 was the overthrow of King Idris on September 1, 1969. The leaders of the new Libyan Arab Republic have introduced widespread economic reforms, and their policies are reflected in the development budget for 1970/1971. The emphasis is on agricultural development and the establishment of new industry, with the long-term objective of making the country self-sustaining. To work toward this goal, a development budget of Cdn. $600 million has been approved this year, in addition to the general budget of Cdn. $550 million. The Government will probably not be able to spend the entire amount allocated but projects not completed will be added to the new plan in the next fiscal year. Oil royalties continue to flow in at the rate of about Cdn. $1,000 million a year and accumulated monetary reserves are estimated at Cdn. $1,200 million.

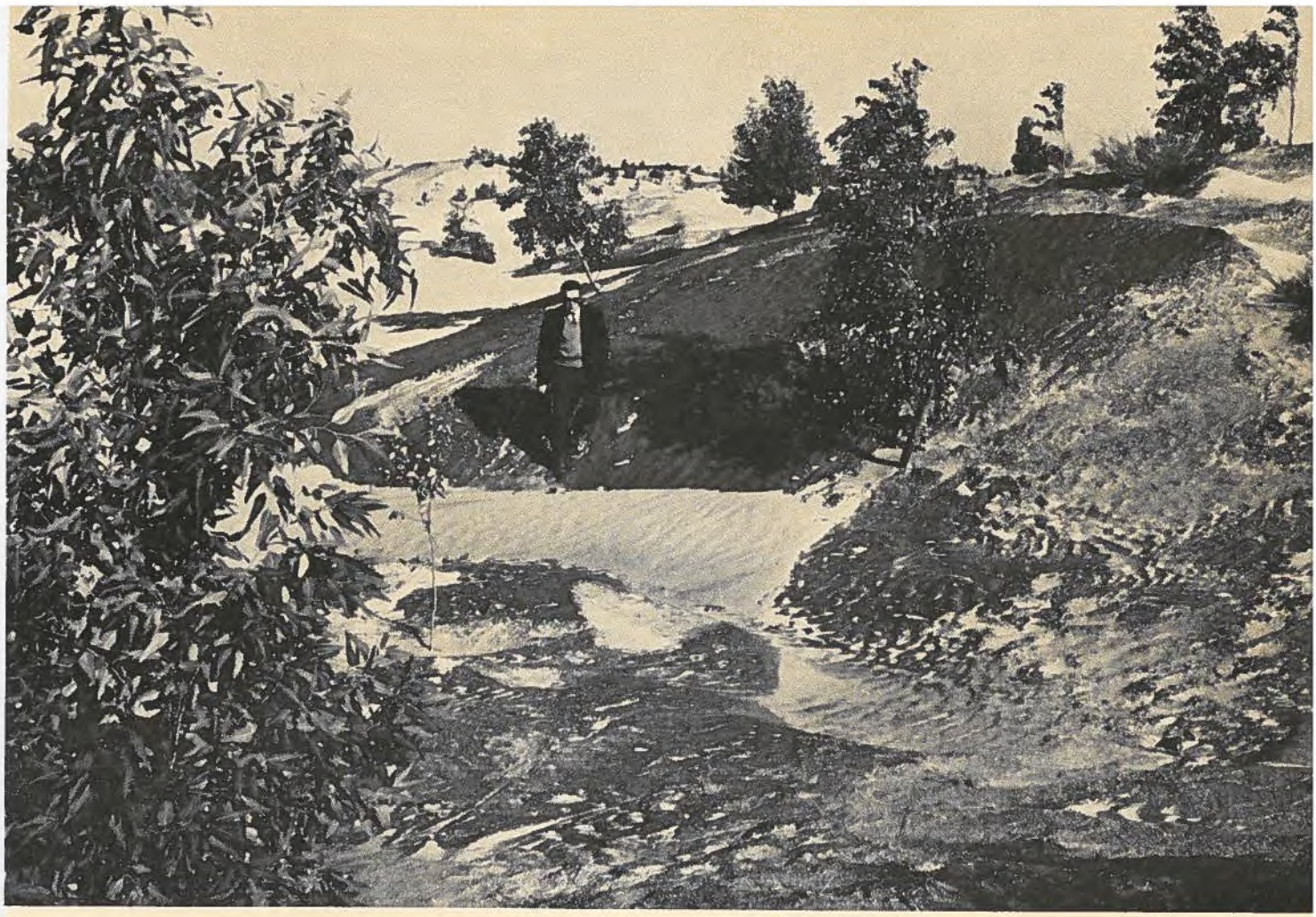
In the course of the last twelve months the Libyan Government has imposed Arabic as the sole official language, has initiated negotiations with the oil companies to gain more revenue, and has nationalized the banks, the marketing of petroleum products, and the real property owned by Italians. The obtaining of work permits has been made more difficult for foreigners and non-Libyans, particularly Italians, have departed in large numbers. The only remaining non-Arab personnel are working for the oil companies. Furthermore, the Government has decreed that by next year all corporations operating in Libya, excluding the oil companies, must be at least 51 per cent Libyan-owned. The shortage of experienced personnel becomes more acute every day. These conditions, however, do not preclude Canadians from doing business in Libya, provided that the situation and the approach are carefully studied.

It is useful to consider the opportunities for trade with Libya in terms of three different markets.

1. *The oil companies operating in Libya.* These companies buy their requirements in the same way as they do in other Middle East countries. Several important sales have been made from Canada, mainly through the New York or London offices (materials divisions) of these multinational corporations, but also to their field employees in Libya. The oil companies operating in Libya are not stepping up their operations for the time being, at least until the conclusion of their price negotiations with the Libyan Government. Nevertheless, the extent of their operations in Libya is still impressive (they export about three million barrels of crude oil per day, three times the corresponding production of Alberta).

2. *The Libyan consumer.* The Libyan population consists of fewer than two million people who must import all

The Libyan Government is laying great stress on reclaiming from the desert land that can be made productive. In Western Libya, thousands of acres of sand dunes have already been planted with eucalyptus and acacia seedlings, as the picture top right shows. The saplings arrive on camelback and are then set out. To protect the young trees from blowing sand, the nearby dunes are sprayed with a special oil product that holds them stable for twelve months or more. Planted during the winter season, when there is a modest rainfall, they grow to six feet or more within two years. Photos by Standard Oil (N.J.).



their needs. Because of the presence of an estimated 5,000 Americans working for the oil companies, the Libyan of 1970 is aware of and buys North American products. Canada already sells prepared foods, such as frozen dinners and salmon, and finished products such as air conditioners. Although this is a small market, the opportunities are many. The main drawback is that importers have been short of ready money for a year now, since the nationalization of the banks.

The interested Canadian exporter should send price quotations c.i.f. Tripoli, Libya, to some of the better known importers. From past experience we know that only a few of his letters will be answered but this approach has generated enough business to be recommended.

It is necessary to have a Libyan agent, and it is unwise to deal with companies which are not yet Libyanized (51 per cent Libyan-owned). Canadian exporters already selling to Libya should review their present representation at regular intervals.

3. *The Libyan Government.* This represents the best possibility for an expansion of our trade. With Cdn. $1,000 million per year in oil revenue and with even larger foreign exchange reserves, the group which has now been in power for one year is young, dynamic and ambitious to succeed. Many of their projects are identified in the development budget. The administrators are also young, new to their jobs, and very busy. They are receptive to proposals for development. Here are a few hints on what Canada might sell them.

Agriculture—The emphasis is on agriculture. This will mean a demand for irrigation equipment in all its forms, expertise in water and soil conservation, dry land and other farming equipment, cattle, chicken-raising farms, pumps, pipes, and all the devices needed to transform fertile but dry land into profitable production.

Manufacturing—Tenders have been announced in the last few months for a glass factory, two modern dairy plants, and an electrical cable factory.

In addition, before April 1971, calls for tender will be issued for the expansion of the cement factory at Homs, a limestone plant, a shoe factory, and several other smaller projects.

The Industrial Bank has $10 million to loan to small industries and the Organization for Industrialization has $19 million for large projects. These organizations are working on proposals which would allow them to displace some of the imports by assembling, packaging, processing, etc., locally. The most acceptable way to establish in Libya would be to include a local partner, maintain a minor equity for the Canadian partner, and emphasize training for Libyans. Libyans are eager to receive training and to do things themselves. Any proposal should include training in the country and in Canada as part of the package.

Education—The departure of most foreigners, except Egyptians and oil company personnel, has created a vacuum that is difficult to fill with the present human resources of the country. In addition to the long-term program to provide free schooling for everyone, crash programs have to be initiated in several fields to turn out the trained workers necessary to the functioning of the economy. The scarcity of teachers has resulted in a ready market for teaching devices such as films, teaching machines, readymade curricula, and technical training equipment. There are good opportunities for school supplies, from chalk and blackboards to language laboratories.

Communications—The microwave network is being expanded and will soon have a carrying capacity comparable to the Trans-Canada system. There will be a demand for a ground satellite tracking station and several sophisticated pieces of equipment to improve radio communications inside this country, which is 15 per cent larger than the Province of Québec. The telephone system has not kept up with demand and its capacity will have to be tripled.

Tenders will be called soon for new terminals of the two main airports in Tripoli and Benghazi. Improved electronic equipment is being purchased.

The program for the expansion of the ports of Tripoli and Benghazi continues and tenders have just been called for several pieces of heavy equipment such as cranes and pilot vessels. There is a pressing need for grain silos and better offloading facilities.

Housing—The residential construction that has taken place has not been sufficient to cope with the exodus of people from the rural areas to the main cities. Prefabricated structures will be needed. Construction materials are a major import. Canadian companies with preassembled or other products of advanced technology stand a good chance to compete with European suppliers.

Much remains to be done to equip the main cities with adequate water and sewerage systems. Contractors are open to offers of pipes, valves and fittings.

Electricity—Tenders have been called for two new 60 mw power generators. Contracts have been awarded for the extension of the distribution network. A detailed survey of this sector is available.

There are three markets in Libya—and it is also a market with four outstanding characteristics:

1. *It is an impatient market.* Importers and officials are expecting proposals which will bring products or expertise to the country in a hurry.

2. *It is a hungry market.* All foreign products are available locally at a price. Libya is eager to buy new plants and to launch development projects.

3. *It is a flexible market.* The Canadian exporter should not expect detailed specifications for all requirements, but in making his proposals should contribute to shaping the requirement.

4. *It is a rapidly changing market.* Canadian exporters should review their representation in the country, especially if they have not done so since the change of government on September 1, 1969.

Canada has a favorable image in Libya and businessmen should profit from this and be prepared to make a new effort to develop their sales. If your company can compete internationally, we in the Rome office, which is responsible for trade with Libya, would like to hear from you. We visit the country regularly to keep ourselves up-to-date with conditions.

PRINCIPAL OIL COMPANIES OPERATING IN LIBYA

American Overseas Petroleum Limited
P.O. Box 693
Tripoli, Libya
Tel. 37141/9

Amerada Petroleum Corporation of Libya
P.O. Box 561
Tripoli, Libya
Tel. 32091

B.P. Exploration Company (Libya) Ltd.,
P.O. Box 325
Tripoli, Libya
Tel. 35436

Continental Oil Company of Libya
P.O. Box 1075
Tripoli, Libya
Tel. 31760, 39340

Esso Standard Libya, Inc.
P.O. Box 385
Tripoli. Libya
Tel. 30021/30

Gulf Oil Company of Libya
P.O. Box 599
Tripoli, Libya
Tel. 33511/4

Libyan National Oil Corporation (LINOCO)
P.O. Box 2655
Tripoli, Libya
Tel. 41421/4

Marathon Petroleum Libya Limited
P.O. Box 918
Tripoli, Libya
Tel. 34635, 37402

Mobil Oil Libya Limited
P.O. Box 690
Tripoli, Libya
Tel. 30081

Oasis Oil Company of Libya Inc.
P.O. Box 395
Tripoli, Libya
Tel. 31116

Occidental of Libya Inc.
P.O. Box 2134
Tripoli, Libya
Tel. 38011/4, 40956

AMOCO Libya Oil Company
P.O. Box 982
Tripoli, Libya
Tel. 34036

Phillips Petroleum Company
P.O. Box 1070
Tripoli, Libya
Tel. 32161/2

Shell Company of Libya Limited
P.O. Box 402
Tripoli, Libya
Tel. 30016/9

LIBYAN TRADE WITH CANADA

Canadian Imports from Libya

Only crude oil
1967, $11 million
1968, nil
1969, $8.8 million

Canadian Exports to Libya

1964, $ 900,000
1965, $ 660,000
1966, $ 700,000
1967, $1,131,000
1968, $ 825,000
1969, $2,363,000

Canadians Sell to Libyans

Prefabricated structures for use in the desert
Tobacco
Equipment for oil companies bought from U.S. subsidiaries in Canada
Wire and cable
Agricultural machinery
Tires, batteries, hoists for automotive trade
Aircraft and parts

LIBYAN DEVELOPMENT BUDGET FOR 1970/71

Grand total—Cdn. $600 million

Agriculture—$150 million

Details have not been published

Industry—$60 million

Main items: industrial and real estate loans, participation in industry, development of fisheries industry.

Education and National Guidance—$34 million

Divided between elementary, preparatory, secondary technical schools, teacher institutes and boarding houses.

Information and Culture—$6 million

Labour and Social Affairs—$4 million

Public Health—$17 million

Primarily for health centers and medical services

Transport and Communications—$71 million

Main items: ports, telecommunications, roads, Libyan Arab Airlines.

Municipalities—$75 million

Main items: water, sewerage, financial aid.

Housing—$96 million

Public Works—$54 million

Main items: electricity, Marce city program, Beida city program.

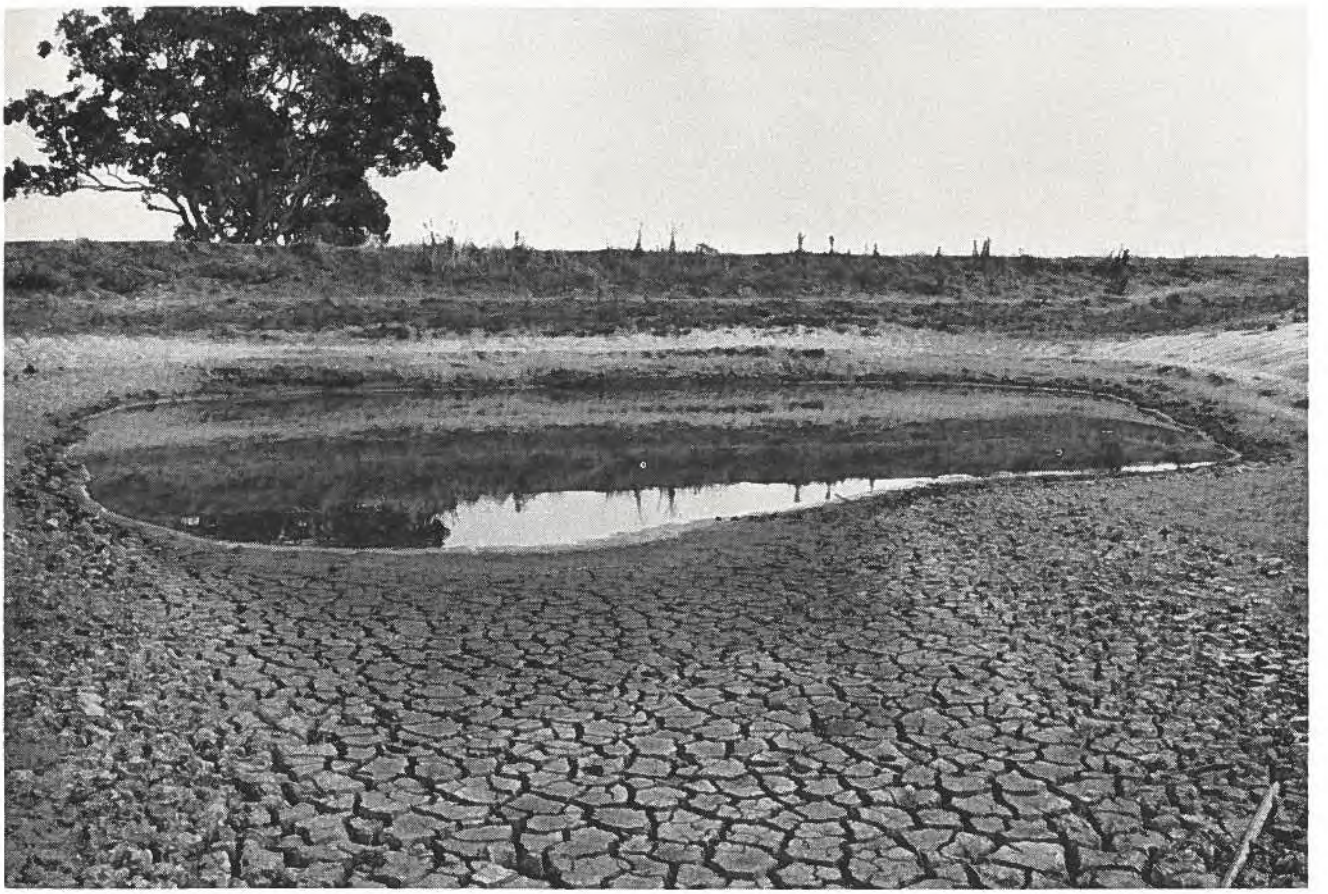
Interior—$3 million

Plus others and contingency reserves

92470—3½

Australia Balances Gains and Losses

Drought affected agriculture last year and continues, but the mining boom is taking up the slack. Industrial expansion, investment inflow strong, keeping import demand healthy.



This picture needs no comment; it illustrates how drought has affected agriculture on this, the driest of all continents.

A. J. STEWART, Assistant Commercial Secretary, Sydney

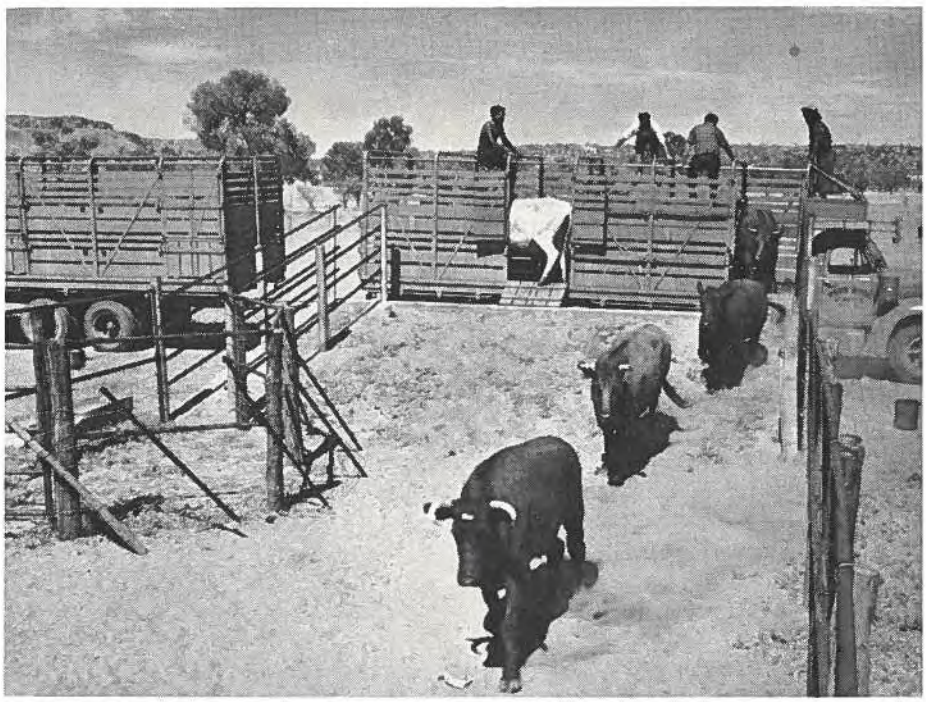
This past year in Australia was, on the whole, one of solid economic growth, with only the continued threat of inflation and the effects of the drought on agricultural production to cause concern. Preliminary statistics indicate that the gross national product, at market prices, rose by 10.6 per cent to over A$30,000 million.* The agricultural sector, however, which traditionally has its ups and downs, suffered from the drought and, contrary to 1968-69, when the agricultural portion of the GNP went up by almost 28 per cent, this year it decreased by almost 13 per cent. Once again, it was the mineral sector that made a major contribution to the economy: preliminary figures show that the ex-mine value of all minerals increased to A$1,100 million in the calendar year 1969.

The continued mineral boom was probably the major factor contributing to private investment which, although it was not as high as in 1968-69, still made a worthwhile contribution to the economy. About one-half of the private investment, in fact, was related to mineral development in 1968-69 and it appears that a significant portion of the money coming in in 1969-70 was also directed to this area. The demands on Australia's resources were heavy and the entry of some 127,000 persons into the country contributed to its ability to meet the record demand on production facilities.

*All figures in this report are given in Australian dollars: the present conversion rate is approximately A$1.00 equals Cdn.$1.138. The fiscal year runs from July 1 to June 30.

The agricultural sector has seen some dramatic shifts in recent years. Table 1 outlines the changes in farm income since 1965-66, measured in current dollars.

Drought is a fact of life on this, the driest of all continents, and in 1969-70 many areas were severely affected, in particular much of Queensland, northern New South Wales, and parts of Western Australia. The wheat growers suffered most, with the 1969-70 crop estimated at almost 400 million bushels, some 28 per cent below the record 1968-69 harvest. The forecast for this year's crop is not bright. Drought is continuing in the regions mentioned above and early estimates of this year's crop indicate a further reduction to about 240 million bushels. In part, this is due to the policy of reducing the acreage sown to wheat. Wheat exports for 1969-70, however, are estimated at approximately 280 million bushels.



A road-train delivers cattle at Alice Springs, the railhead for shipping them to southern markets. The drought has not affected meat production and exports in 1969-70 rose sharply, particularly to Canada, Britain, the United States and Japan.

Nearly half the private investment in Australia in 1969-70 went into mineral development. Here iron ore is being stockpiled at Mount Tom Price; much of it will go to Japanese steel mills.

Wool too proved a disappointment in 1969-70. An early estimate placed the gross value of wool production at A$780 million for the year, or some 6 per cent below the previous year. The decline resulted from softening prices; at the 1969-70 opening these were some 5 per cent below the previous closing and this downtrend continued throughout the year, ending with an average fall of 8 per cent. Because of drought and the price decline the Government has recently stepped in to give emergency aid to wool-growers. It will be based on half the average fall in price and on a grower's gross wool income over the past two years.

Meat, on the other hand, was one of the agricultural highlights in 1969-70, with a strong increase in export demand, largely from the United States. Preliminary figures indicate that exports of meat and meat preparations for 1970 were valued at some A$420 million, compared with the 1968-69 total of A$285 million. Prices remained strong on the U.S. market but since the implementation of U.S. quotas and the Australian meat-diversion program larger amounts have been shipped to Britain, Japan and Canada.

Figures to the end of calendar year 1969 leave little doubt that the mineral boom continued and estimates for the months since confirm this trend. Table 2 gives ex-mine production of some of the major minerals.

Nickel production is included in the table largely because it was during 1969-70 that the first locally produced nickel was delivered to Australian manufacturers. In addition, last year saw continued expansion of aluminum facilities at the bauxite, alumina and aluminum manufacturing stages. Plans were announced for a new alumina refinery in Western Australia and for the expansion of existing refining facilities in Queensland. Development continued in the iron ore fields of the Pilbara in Western Australia, where the term "iron province" has become commonplace.

The manufacturing sector contributed its share to the 1969-70 expansion. Data are available only for the first three quarters of the year but the Australia and New Zealand Bank index of industrial production rose between 6 and 7 per cent during the March quarter. This solid growth apparently continued through the final three months of the financial year.

The seasonally adjusted durable goods index, after a sluggish last 1968-69

quarter, went up four points in as many months in 1969-70. This stemmed largely from buoyant motor vehicle production, the index of which rose some 11 points during the same period. Vehicle sales slackened in the latter part of the year and production was adjusted. By that time, however, output of construction materials, which had been easing since the end of 1968, recovered and contributed its share to the lively industrial production. The seasonally adjusted production index of non-durables eased during the first quarter of 1970 and this probably continued throughout the last quarter of the past financial year. All told, industrial production kept expanding in 1969-70, with a greater emphasis on durables.

Though price rises in Australia have not been as significant as in many other countries, officials are still concerned about them. The wholesale price of building materials moved ahead by some 4.9 per cent in the year to May 1970; the increase for the corresponding period in 1969 was 4.3 per cent and in 1968, 3.0 per cent. Consumer prices increased 3.2 per cent to the end of the March quarter this year and the rise over the entire year 1969-70 is expected to be more than 3 per cent.

Employment was at an all-time high throughout the first half of the fiscal year 1969-70. Unemployment by October 1969 was as low as 0.8 per cent of the labor force. Since that time, however, conditions have changed a bit and the rate of increase in unfilled jobs and the number of unemployed are both beginning to indicate decreasing pressure. The continued high immigration helped ease the labor situation last year.

The rate of increase in prices and the tight labor situation prompted the monetary authorities to move toward credit restriction in 1969-70. Steps taken included raising the statutory reserve deposit ratio by a total of 1 per cent in August and October, an increase in the long-term bank rate from 5.4 to 6 per cent in July, and a rise in the overdraft rate in March and the maximum savings bank deposit rate in April 1970. Though building starts had shown signs of decreasing before the credit restrictions, the probable effect of the latter is to curtail these even further and non-residential construction, which has remained high, probably will also be affected.

Final figures for the over-all balance of payments have not yet been published but estimates to date indicate that there will be either a rough balance or a relatively small deficit. Reserves, in any case, are adequate. The highlight in 1969-70 was the dramatic increase in exports, roughly 24 per cent over 1968-69. As expected, mineral exports led the way, but manufactured goods performed well and despite difficult conditions, increases in agricultural exports were notable. Imports did not go up as much as exports—only about 12 per cent.

Last year, Australia's total merchandise and non-merchandise exports were valued at A$4,139 million. Major exports by category were (major items in brackets): textile fibers and waste A$770 million (wool); metalliferous ores and metal scrap A$504 million (iron ore, copper, lead, rutile, ilmenite); cereal grains A$434 million (wheat); meat and meat preparations A$421 million (meat); manufactured goods from non-ferrous metals A$284 million; goods manufactured from iron and steel A$135 million. Japan remained Australia's largest market (A$1,020 million), followed by the United States (A$557 million) and Britain.

Canada remained Australia's tenth largest market, but was less than A$1 million behind the ninth one, France. Australian exports to Canada totalled some A$113.8 million in 1969-70 compared with A$66.5 million the previous year. Meat and meat preparations, metalliferous ores including nickel ore, and sugar and sugar preparations showed the major increases.

Australian imports totalled A$3,885 million for 1969-70. The most important commodities were again machinery (A$710 million), transportation equipment (A$568 million), textiles (A$287 million), petroleum ($254 million), instruments (A$121 million), and chemicals (A$117 million).

Canada was again Australia's fifth largest supplier after the U.S. (A$965 million), Britain (A$846 million), Japan (A$482 million), and West Germany (A$259 million). Exports from Canada to Australia totalled A$151 million; major categories were machinery (A$23.9 million), finished paper and its products (A$23.1 million), timber (A$17.2 million), fertilizers and minerals (A$14.0 million), and pulp and waste paper (A$10.5 million). This past year, however, Canada's share of total imports has declined from 4.4 to 3.9 per cent.

What's ahead? With only two months of this present fiscal year past, all

TABLE 1

AUSTRALIAN FARM INCOME

	A$ million	Per cent change
1965-66	1,043	
1966-67	1,334	+28
1967-68	810	−39
1968-69	1,228	+52
1969-70	1,017*	−21

Source: Commonwealth Bureau of Census & Statistics

*Preliminary

TABLE 2

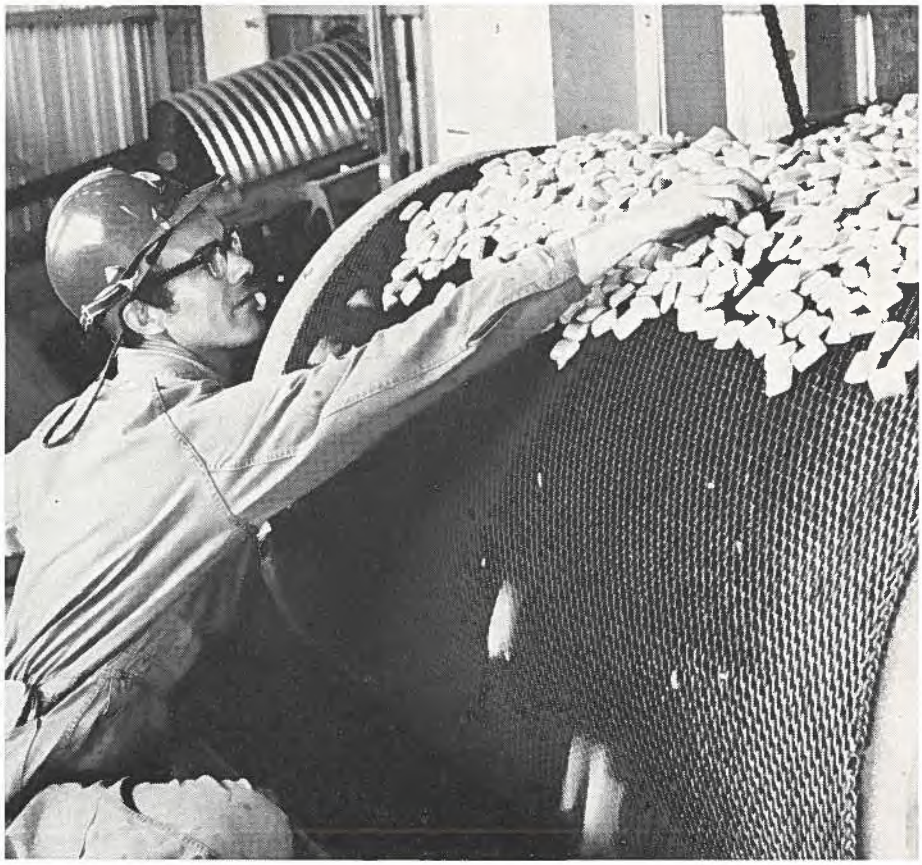
AUSTRALIAN MINERAL PRODUCTION RISES

Mineral	Unit of Quantity	1968	1969	Per cent change 1968-69
Bauxite	'000 tons	4,877	7,792	+ 60
Copper	'000 tons	107	128	+ 20
Iron ore and concentrate*	'000 tons	25,929	38,478	+ 9
Manganese ore	'000 tons	734	907	+ 24
Nickel	'000 tons	5	11	+120
Petroleum	'000 bbl.	13,877	15,805	+ 15

*Iron content, 1968, 16,920,000 tons, and 1969, 24,468,000 tons.

Source: Australian Bureau of Mineral Resources.

These are nickel briquettes that were produced at Australia's first nickel refinery that went into production last May. As a start, the plant will produce 15,000 tons of these per year and 90 per cent will be exported. The nickel ore is mined at Kambalda, is turned into nickel concentrate, and then the briquettes are manufactured at the Kwinana refinery. The picture shows them coming from the sintering plant; they then move on to the loading hopper for shipment.



forecasts for the Australian economy in 1970-71 are optimistic. The mineral boom is likely to continue, especially with the recent announcement of the world's richest uranium strike in Northern Queensland. Industrial expansion is expected to add to its record of solid growth. The balance of payments should remain healthy as new influences are exerted, particularly the positive effects of domestic petroleum production lessening import spending, and of mineral exports moving into high gear. This growth is not without its problems. Prospects for some parts of the agricultural sector are not good as drought continues in Queensland, northern New South Wales, and Western Australia. A recent projection, for instance, indicates that this year Queensland will have its poorest wheat crop since 1946. Much will also depend on whether inflation can be controlled with the restraints already adopted or whether other measures will be necessary.

Even with these problems, continued active growth is probable for next year. Accompanying this growth will be new and varied opportunities for Canadian products. Australians are continuing to shift towards North American products and there is a demand for high-technology machinery, scientific equipment, chemicals, consumer products and textiles. Canadian goods are generally well received in Australia. The exporter's first approach to this market should be to write to the nearest Regional Office of the Department of Industry, Trade and Commerce or to the Trade Commissioner in Sydney or Melbourne. The information provided from these sources will help them in most instances to assess their chances in the small but significant, and increasingly sophisticated, Australian market.

CIDA to Aid Overseas Investment

Canadian business and industrial firms will be encouraged to increase their participation in the economic growth of the developing countries by a pre-investment incentives program that the Canadian International Development Agency will administer. This program offers assistance to Canadian firms that undertake "starter" and feasibility studies of possible investments in developing countries. In extending this aid, the first criterion will be that the Government of the host country approve all prospective enterprises and that they fit into the country's over-all development plans.

CIDA will cover reasonable expenses for a "starter" study that qualifies under the program and involves a short visit to the country by a company executive, in order to make an initial investigation of an investment opportunity.

For an approved feasibility study that comprises an in-depth analysis of the profitability of a proposed enterprise, CIDA will provide a company with support services. If the company later decides not to proceed with an investment after it has reflected on the results of the study, CIDA will reimburse it for 50 per cent of the approved costs of the study, on the condition that the latter then becomes the property of the Government and can be made available to other potential investors.

In support of this new program, CIDA will provide businessmen with current information on investment conditions in developing countries, including regulations on taxation, repatriation of profits, and requirements for participation by nations or host governments.

For further information on the program, write to the Director, Business and Industry Division, Canadian International Development Agency, 75 Albert Street, Toronto 4, Ontario.

Canadian Dairy Cattle Could Go Tropical

Matching Cebu or Creole cattle with Holstein or Brown Swiss is producing dairy cows that adapt to the tropical environment. Canadian bulls for crossbreeding—that's the opportunity this development offers.

G. J. FONS
Commercial Officer, Caracas

One of the interesting developments in the livestock industry is the fact that ways are being found to introduce high-production dairy cattle into tropical regions. By crossbreeding, by inducing immunity to tropical diseases, and by developing new and improved forage crops, scientists are slowly finding ways to produce much-needed milk and dairy products in the tropical environment.

The major problems affecting cattle in tropical regions such as Venezuela are heat, poor forage, and disease.

Heat has two effects: it makes the air expand so that the same volume of tropical air does not contain the same amount of oxygen as the colder northern air. The cow is therefore breathing without absorbing the same volume of oxygen and reacts like an alpinist in the thin air of the high altitudes. Heat also increases the stress on the heart and the strong solar radiation causes severe sunburns on cattle that do not have pigmented skin.

What the Venezuelans want is sturdy pedigreed bulls like this one, for cross-breeding with native cattle. This Holstein, six months old, went to two artificial insemination studs in Canada, and this method of improving breeds may also be used in Venezuela. The Government is offering large credits to farmers there who want to build up good herds of cross-breeds on their dairy farms.

The tropical breeds of cattle possess the unique ability to dissipate excess heat by means of perspiration, a process facilitated by the greater surface area of their loose, pliable skin. Perspiration also acts as a repellant for tropical insects such as flies and ticks.

There are problems too in tropical forage plants. As these plants reach full maturity, the fibrous material becomes increasingly difficult for the animal to assimilate and this puts added stress on the digestive system. It also means less nutritive value per unit of forage. The additional strain on the digestive system produces more heat, increasing stress and uneasiness in cattle. It is not surprising, therefore, that northern breeds of cattle produce less milk in tropical areas than they do in their native habitat.

New methods of forage crop management are being developed to increase conversion efficiencies and result in higher protein yield.

Heat and inadequate fodder are handicaps which could be accepted were it not for the tropical cattle diseases that lead inevitably to death if they are not promptly discovered and treated. To combat them requires around-the-clock supervision and care of each animal.

The most deadly of the tropical diseases, anaplasmosis, piroplasmosis and babecielosis—also called "tick fevers" because ticks transmit them—are caused by haemoparasites. Native cattle are immune to them in the sense that the disease does not progress as rapidly and is less harmful to them than to cattle from temperate climates without antitoxins in their blood. This immunity can be achieved also in northern cattle to a certain degree by injecting blood from native cattle and letting them have a milk infection which creates the antitoxins in their bodies. If they are infected, however, with a different strain against which they have not achieved a defence, this im-

munity fails to protect them. Cross-breeds benefit from the hereditary immunity of the native parent.

The permanent threat of tropical diseases is the reason why there are so few purebred northern cattle in Venezuela and why most of the existing ones are dairy cattle that most of the time are stabled and receive meticulous individual care. Beef cattle, kept on the open range as a rule, could not be given that care and be protected from ticks, the bearers of the dread tropical diseases. For this reason, there are almost no northern beef cattle in Venezuela.

Why import northern cattle?—this is the question of interest to Canadian breeders. These cattle have been bred systematically to give a high production of milk or beef at favorable feed-yield ratios. Native Venezuelan cattle are the progeny of animals brought by the Spanish conquerors which have survived droughts, tick fever, hunger, floods, bad treatment, bush fires, snake poisoning and other exposures and dangers. They are tough—and so is their meat. Breeders are proud when native cattle yield three or four pounds of milk a day as against the 30 pounds of which most northern Holsteins are capable. There are apparently two ways to meet present-day demand and come nearer to northern production figures: importing northern cattle, or crossbreeding native with northern cows to achieve higher production and immunity at the same time, thus creating a high-production local cross-bred cattle breed.

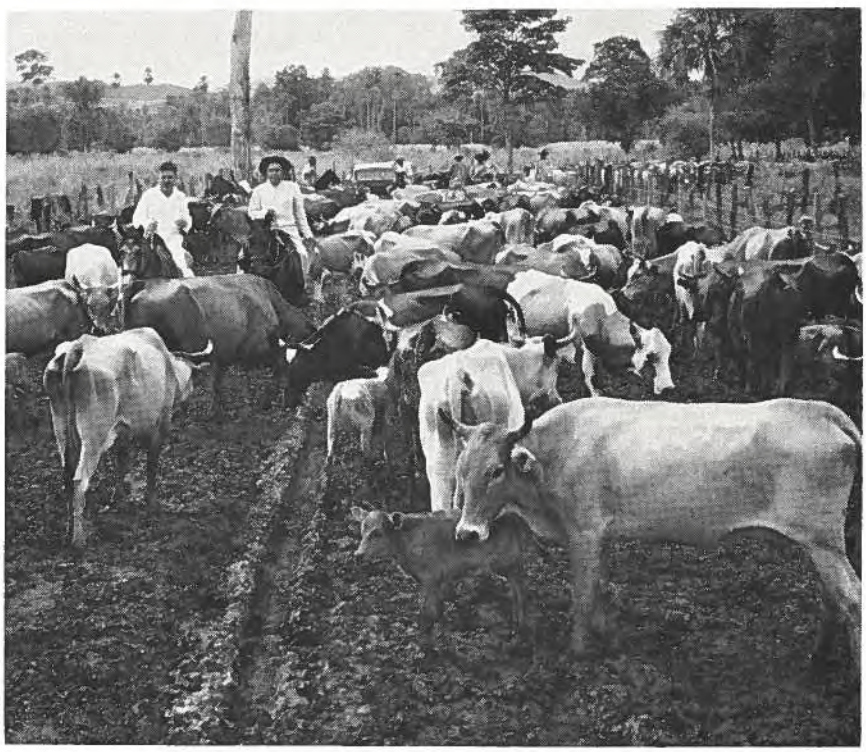
Venezuelan breeders started adopting the first solution to satisfy the urgent demand for liquid milk. Many small dairy farms sprang up around areas of major consumption. Purebred cattle were kept stabled under tight health controls and submitted to frequent treatment against ticks. As cities expanded and a large network of speedways and airports came into existence, dairy farming moved out to rural districts farther away. Steady increase in the cost of land, labor, cattle, machinery, implements and feed, plus the threat of tropical diseases, has made large-scale imports of heifers in first calf less attractive to the Venezuelan breeder.

In the meantime, the Government and private entities have been experimenting with cross-breeding. It soon became evident that in milk and beef production, the native Creole cattle were too poor to serve as a basis for cross-breeding. Trials with Cebu breeds produced far more promising results and crossbreeding them with Charolais cattle gave an ideal new breed of beef cattle. Crossbreeding with Holstein or Brown Swiss produced good dairy cows resistant to tropical diseases and better suited to breeding in tropical areas.

The Government and cattle breeders' associations are now supplying on easy terms suitable bulls for improving the herds. Artificial insemination is also available from both sources.

Canadian cattle have a good reputation in Venezuela, as we in the Caracas office found during a recent tour through the main dairy-farming areas of the country. Large credits are available for the improvement of Venezuelan livestock breeds. In view of these two favorable factors, Canadian cattle exporters should take a new look at the Venezuelan market and add their promotion efforts to those of the Canadian Trade Commissioner's office in order to achieve cattle exports to this territory.

At this stage, bulls for crossbreeding with Creole or Cebu offer probably the best prospects. Heifers or cows will be less in demand but may be sold to dairy farmers operating near large centers of consumption. As artificial insemination becomes more popular and trained personnel in the main cattle breeding areas increase, frozen semen may eventually displace the import of bulls for crossbreeding. When offering cattle for export, the exporter should remember that the shipping charges by air (the only practical way of shipping) virtually double the cost of each cow and that importers will therefore not be interested in receiving low or average quality animals that they could buy locally at much lower cost.



These are typical Creole cattle being rounded up on a farm in Western Venezuela. These cattle can stand heat, and are resistant to tropical diseases, but they produce much less milk than the northern breeds. Cross-breeding of the stocks would, hopefully, produce an animal that would stand up well to tropical conditions but also produce a greater quantity of milk. Northern breeds imported previously have been kept stabled and carefully watched for any disease or pests.

Norway Seeks Lumber

Building methods using wood, and decreasing forest areas, open worthwhile market for Canadian suppliers.

J. R. CAUX, Commercial Secretary, Oslo

The Norwegian economy has been marked by a more than satisfactory expansion during the past decade. The gross national product in 1969 was twice that of 1960, and recent analyses have shown that it will probably again double within the next 20 years. Naturally, private incomes have also increased. For example, the hourly wage of a worker in the manufacturing industries has risen by 59 per cent since 1960.

This growth in the economy is reflected in the building industry, and especially in the sector for residential construction. For instance, in 1965 there were 27,445 dwelling accommodations under construction, and 37,392 in 1969. In 1965, 27,585 were completed, against 33,056 in 1969. The same upward trend is evident in other types of building such as offices, and is expected to continue. The forecasts for 1970 indicate some 39,000 building starts on homes, and the Government believes that residential construction will increase considerably in the 1970-73 period. In its three-year plan, the Government intends to encourage the number of starts by 2,000 or so a year, primarily through the granting of funds to the Husbanken (Building Bank).

Almost 70 per cent of all the dwellings being built in Norway are of wood, roughly 20,000 units a year, or practically as many as in Sweden. Experts predict that this number should double by 1990. Moreover, with the rising standard of living, the Norwegians will be able to afford more spacious private homes.

Canadians often like to visualize Norway as a forest-clad country with a large forest industry. Actually, this industry accounts for about 2 per cent only of the GNP. Norway's productive forest surface has dwindled by about 1,950 square miles since 1927, and sawmill production has remained virtually the same since 1950, despite the pressing needs of the building industry. As a matter of fact, comments can be heard on all sides about the scarcity of basic materials supplied by the Norwegian forest industry, especially in the lumber sector.

It seems that with the steady rise in the price of pulp for paper and newsprint, more of the forest wealth is being channelled toward these two products, creating a shortage of timber and planks. There is a reforestation program in existence, but it is not expected to bring about an increase in tree-felling before the year 2000.

Consequently, the Norwegian building industry is already turning, and will increasingly do so, to imported materials for its annual consumption.

As can be seen from Table 1, Sweden has been Norway's principal supplier of softwood lumber used for construction, the main reason being the lower cost of transportation. (There are no customs duties on timber in Norway.) But Sweden may well lose this dominant role in the supplying of timber

TABLE 1

NORWEGIAN IMPORTS OF SOFTWOOD FOR CONSTRUCTION

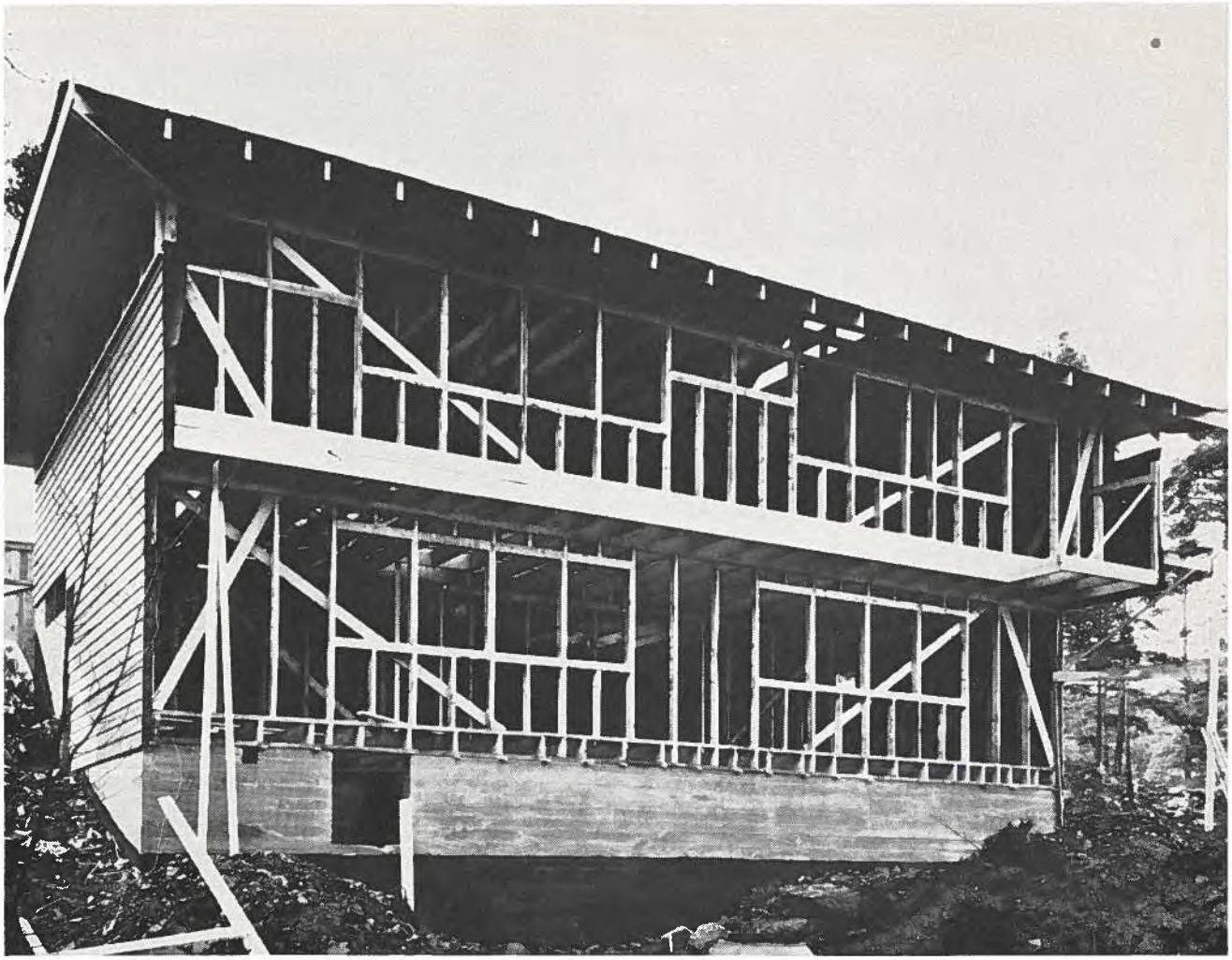
Country	1966 cu. m.	1966 MBM	1967 cu. m.	1967 MBM	1968 cu. m.	1968 MBM
Finland	6,974	2,955	9,751	4,132	10,491	4,445
Sweden	206,129	87,343	231,445	97,646	215,209	90,766
Denmark	424	179	—	—	39	17
United States	1,045	443	690	292	868	368
Brazil	867	367	304	128	1,337	567
Argentina	118	50	—	—	117	49
Canada	45	20	—	—	29	12
West Germany	34	14	—	—	—	—
Others	44	20	2,350	1,438	322	140
Total	**215,680**	**91,391**	**244,540**	**103,636**	**220,412**	**96,364**

Conversion factor: 1 cu. m. = 423.8 B.M.

TABLE 2

CANADIAN PLYWOOD EXPORTS TO NORWAY—1965 TO 1969

	Douglas fir		Softwood		Hardwood	
	Quantity ¼″ equiv.	Value $	Quantity ¼″ equiv.	Value $	Quantity ¼″ equiv.	Value $
1965	568,073	35,993	—	—	—	—
1966	1,358,168	81,796	—	—	—	—
1967	2,436,062	153,802	12,159	1,495	—	—
1968	5,362,254	325,519	21,120	5,075	8,000	1,180
1969	6,550,093	380,662	41,536	6,840	192,300	33,749



As in Canada, a majority of the homes built in Norway are of wood; almost 70 per cent of them, in fact. But the country does not produce enough lumber to satisfy the insistent demand and the building industry is turning more and more to imported timber and planks. Canadians are already selling large amourts of softwood plywood, particularly the Douglas fir variety.

and planks. Like Norway, its forest resources are decreasing and domestic demand is going up. Before long, the Swedes will probably be obliged to curtail their exports for lack of products to sell.

Canada is Norway's main source of supply for softwood plywood, despite the fact that Sweden and Finland are next door neighbors. The reason is that Norwegians have long recognized the inherent characteristics of Douglas fir plywood and find that, for certain uses, it can do a superior job.

In 1969 American competition made a significant impression on the Norwegian and many other markets. It is to be hoped that this is temporary and that Canadian plywood will recover its position in the warehouses of the Norwegian importers. At this time, there is a large demand for plywood, chiefly because of the increased use of building methods similar to those in North America. For instance, more and more Norwegian contractors are employing the so-called "platform" method in which plywood has a vital function.

Wood-fibre panels, manufactured by more than 20 Norwegian firms, are no substitute for plywood in the estimation of Norwegian builders, mainly because they are not moisture-proof and because they constitute added danger for the workers. But, owing to a temporary over-production in 1969, the Norwegian factory owners have lowered their prices considerably in order to dispose of their surplus.

From the foregoing, it can be seen that there is a very worthwhile potential market in Norway for Canadian building products such as lumber and plywood. There are two ways of putting these products on the market: appointing an exclusive agent for the whole of Norway or selling direct to an importer-distributor. Where this market is concerned, the appointing of a distributor or agent residing in another Scandinavian country is not to be recommended.

The Canadian forest products most in demand are 2″ x 4″ lumber, surfaced on four sides and dried to a moisture content of 12-18 per cent, and construction-grade softwood plywood ranging in thickness from 3/8″ to 3/4″ (9mm to 18mm). The Trade Commissioner's office in Oslo has already received numerous requests from Norwegian importers and distributors interested in Canadian forest products and we would be pleased to put Canadian firms in touch with the Norwegian companies.

Brazil Powers Its Industrial Drive

Plans call for generating capacity to be doubled by 1980 at a cost of billions of dollars. This should mean excellent opportunities for Canadian suppliers of all types of electrical equipment.

G. D. VALENTINE, Commercial Secretary, Rio de Janeiro

Last July the Brazilian Minister of Mines and Energy officially put into service 700 mw of power at the Estreito Dam east of Sao Paulo on the Rio Grande. The ceremony was attended by various state and national officials and was well covered by the various media. Such events are going to become rather common in the future because Brazil is undertaking a power expansion program that will cost billions of dollars in the next ten years and boost installed capacity to over 18,600 mw by 1975.

A few years ago, a 700 mw expansion in one year was considered a remarkable event in Brazil. The last time it happened was in 1954, when total capacity reached 2,805 mw. But in 1969 the increase totalled 1,798 mw, raising the generating capacity to over 10,350 mw. This doubled the installed capacity in ten years and there are plans to double it again in the next ten. Some officials even see a possibility of reaching close to 30,000 mw by 1980!

Among the main hydro power projects in Brazil is Jupia, part of the huge Urubupunga complex. Shown here under construction, it is producing already but will not reach its total capacity of 1,400 megawatts until the year 1973.

There are many estimates of the total power potential of Brazil and the figure of 130,000 mw for waterpower alone apparently is possible. Naturally, however, not all of this power is economically usable, principally because of the remoteness of some sites from the power-consuming areas. There have been no close studies of the entire country, but the south-central region, which consumes over 70 per cent of the total power produced, has been closely studied under a United Nations Development Program grant of 1962. (See *Foreign Trade*, January 31, 1970.)

The study was carried out by a consortium, including Canadian engineering firms, and it uncovered many promising hydro sites. Some of these are now well under development; one of them was the Estreito plant. Plans for others are rapidly being completed as it is estimated that by 1975 the demand for power will have reached 48 million watt hours. Additional studies of the southern and northern regions were put in hand recently, as power demand in these areas too is increasing rapidly.

The history of power development in Brazil is a long and complicated one and the firm Light S.A., owned by Brascan of Toronto, is deeply involved in it. There are more than 800 electric utility companies operating in Brazil and Light is the largest, but its generating capacity is limited and it purchases large quantities of power from other producers for distribution in the Rio and Sao Paulo areas. Of the 800 companies, ten of them generate more than 80 per cent of the power. A total of 70 companies generate an additional 12 per cent and the remainder produce the remaining 8 per cent.

To help rationalize the power situation, a state-owned holding company, Eletrobras, was formed in 1962. The formation of this company enabled Brazil to present a united front to seek financing and to regulate power production. Eletrobras is composed of 16 wholly-owned power companies and in addition, 20 other companies are associated with it, with Eletrobras participating in their capitalization in amounts varying from 2 to 33 per cent. Federal legislation governs the activities of the private, state and municipally-owned companies, including Eletrobras, its subsidiaries and affiliates.

With the need to invest $700 million annually over the next four years, obviously money is a prime requisite to enable Brazil to develop the needed power. Approximately 80 per cent of the required funds will be obtained locally from taxes, profits and local borrowing. The remaining 20 per cent will be obtained from foreign borrowing, principally from the IADB, World Bank, U.S. AID, and individual foreign suppliers who obtain financing from their government lending agencies such as the Export Development Corporation in Canada and the Export Credits Guarantee Department in Britain. Credit appears to be easy to obtain abroad because of the booming Brazilian economy. Thus the circle is complete: a growing industrial base guarantees credit for power-generating equipment and this in turn provides energy to enable industry to increase even more rapidly and become more efficient.

The Inter-American Development Bank has been a basic source of funds for power development. Since 1961, it has lent $210,199,454 towards the financing of power projects worth more than one billion dollars. Of the $210 million, only $82 million had been spent up to the end of February 1970. This leaves well over $100 million still available for current projects and both local and foreign equipment manufacturers are submitting competitive tenders to obtain a share of the business. The World Bank has also been generous in assisting Brazilian power development with loans of $73 million for Furnas, $140 million for Estreito and Jaguara, and $22 million for Xavantes.

Brazil's Power Program

Name of Plant	Present capacity mw	Planned capacity mw 1970	1971	1972	1973	1974	Ultimate capacity mw
Power Installations over 100 Megawatts—Present and Planned							
Ilha Solteira (H)*	—	—	—	—	—	640	3,200
Paulo Afonso (H)	1,215	—	330	165	165	330	2,215
Jupia (H)	600	400	200	200	—	—	1,400
Marimbondo (H)	—	—	—	—	—	—	1,400
Furnas (H)	900	—	150	150	—	—	1,200
Estreito (H)	700	—	—	350	—	—	1,050
Jaguara (H)	—	—	236	236	104	104	680
Santa Cruz (T)*	160	—	—	200	200	—	560
Tres Marias (H)	130	65	—	—	—	—	520
Mascarenhas Morais (H)	300	—	—	—	—	—	475
Henry Borden I (H)	485	—	—	—	—	—	485
Cachoeira Dourada (H)	136	—	50	52	—	52	426
Piratininga (T)	410	—	—	—	—	—	410
Xavantes (H)	—	200	200	—	—	—	400
Henry Borden 2 (H)	390	—	—	—	—	—	390
Nilo Pecanha (H)	330	—	—	—	—	—	330
Porto Colombia (H)	—	—	—	160	—	80	320
Passo Real (H)	—	—	—	—	125	—	250
Capivari Cachoeira (H)	—	125	125	—	—	—	250
Tubarao (T)	100	—	—	132	—	—	232
Passo Fundo (H)	—	—	—	220	—	—	220
Boa Esperanca (H)	108	—	—	—	54	—	216
Funil (H)	70	140	—	—	—	—	210
Promissao (H)	—	—	—	—	—	117	200
Ilha dos Pombos (H)	162	—	—	—	—	—	162
Mascarenhas (H)	—	—	—	—	77	77	154
Fontes (H)	154	—	—	—	—	—	154
Jacui (H)	25	—	—	—	—	—	150
Candiota II (T)	—	—	—	126	—	—	126
Bariri (H)	124	—	—	—	—	—	124
Barra Bonita (H)	122	—	—	—	—	—	122
Ibitinga (H)	115	—	—	—	—	—	115
Salto Grande (H)	104	—	—	—	—	—	104
Paredao (H)	66	—	—	—	—	—	100
Power Installations over 500 Megawatts—1974 Onward							
Sete Quedas	—	—	—	—	400	1,200	10,000
Xingo	—	—	—	600	600	600	4,200
Sao Simao	—	100	100	200	200	200	1,700
Itaparica	—	—	—	300	600	600	1,500
Agua Vermelha	—	—	—	400	400	400	1,200
Negra-Iguacu	—	—	100	200	200	300	1,000
Mocoto (Paulo Afonso IV)	200	200	400	200	—	—	1,000
Gamba	—	174	174	348	348	—	1,044
Sobradinho	—	—	—	300	300	300	900
Porto Alegre (Thermal)	—	—	—	—	200	200	800
Ibo	—	—	—	—	340	340	680
Oroco	—	—	—	330	—	330	660
Nuclear	—	—	500	—	—	—	500
Itauba	—	200	200	100	—	—	500
Sao Felix	—	100	100	100	100	100	500

*H = Hydro
T = Thermal

In May 1970 an IBRD loan of $106 million was arranged for the $287 million Marimbondo plant that will eventually produce 1,400 mw from eight 175 mw units. Of the $106 million, $26 million will be borrowed under a joint financing scheme with various countries, including Canada—the first time this has been done in Brazil. Other loans from U.S. AID and the Eximbank, and private loans from Britain, West Germany, Czechoslovakia, the U.S.S.R. and France, are also being obtained for small and large projects in various areas of the country.

As already mentioned, the Brazilian economy is progressing rapidly on all fronts and as it advances, the demand for power increases. Of the various government objectives, a drive to increase exports of products other than coffee is receiving the most attention and the results have been startling. Increases in 1969 of 50 to 150 per cent over 1968 are commonplace, with an over-all increase of 20.5 per cent.

Iron ore contracts for millions of tons have been signed with Japan. Agricultural exports of soyabeans, cotton, sugar, castor oil and peanuts are all showing large gains. Manufactured products such as textiles, shoes, tires and even automobiles are now appearing on export lists.

TABLE 1

CANADIAN EXPORTS OF ELECTRICAL POWER EQUIPMENT TO BRAZIL

DBS Class. No.	Item	Dollars 1967	1968	1969	Jan.-May 1970
50239	Hydraulic turbines and parts	—	31,500	—	520
50299	Engines, turbines and parts	5,126	3,828	—	10,648
50319	Generators and parts	128,736	878,438	—	—
68039	Transformers and parts	42,477	15,746	61,368	3,516
68045	Circuit breakers and parts	—	16,240	42,767	3,570
68049	Switchgear, protective equipment and parts	69,981	32,498	723,491	340,694
70029	Measuring equipment and parts	304,299	248,487	323,509	89,010

Last year pulp and paper machinery was exported to Canada, as well as metal lathes, scissors, shotguns and electronic parts. This year tomatoes, furniture, leather goods and even hearts of palm are finding their way into the Canadian market.

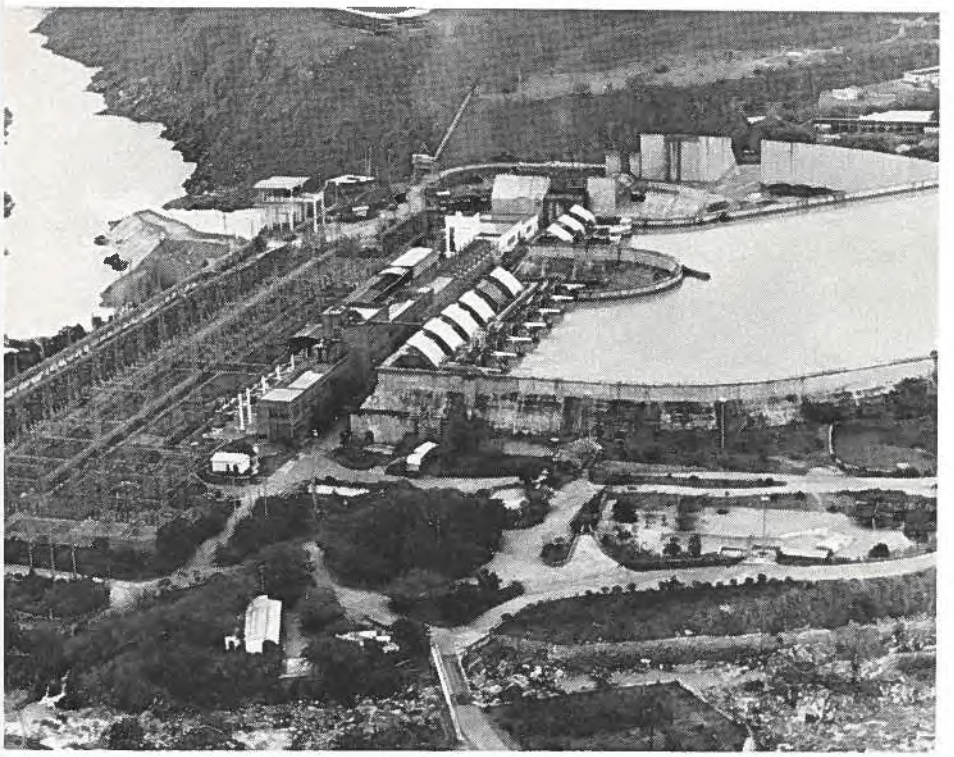
Table 2 shows exports for 1968 and 1969 and the first few months of this year, plus the 1969 percentage gain over 1968. Everything indicates that 1970 is another banner export year.

As exports increase, so do production and domestic consumption. Brazil is now the world's 12th largest producer of automobiles, with 99 per cent Brazilian content. Cement production rises steadily and steel production still cannot meet domestic demand.

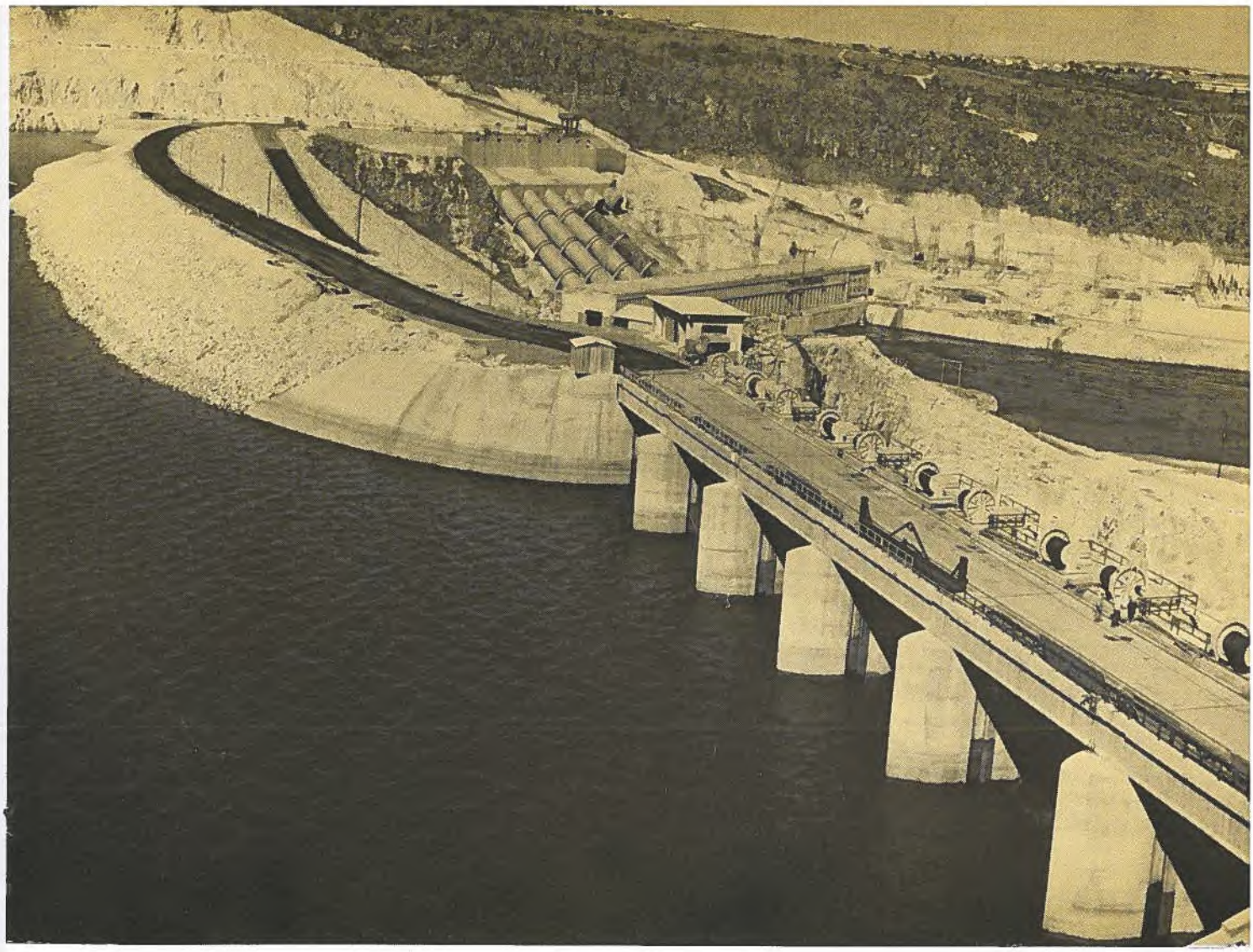
Increasingly large agricultural crops produce a demand for tractors, combines and other implements. Fish production is rising and plans to catch over two million tons per year by 1972 are being implemented. (See *Foreign Trade*, June 13, 1970). Housing starts continue high but cannot keep up with the demand resulting from a population increase of 3 per cent on a base of 90 million people.

New steel mills, automobile plant expansions, new towns and cities, new industrial areas are springing up everywhere under generous government incentive schemes. In fact, the industrial city of Sao Paulo will become the third largest city in the world by 1990 if the present expansion rate continues. Brasilia, the new capital, celebrated its 10th anniversary in April with a population approaching 500,000.

Transportation facilities are being improved: two new subway systems are under construction in Rio and Sao Paulo; a new supersonic airport



This is the Paulo Afonso development on the Sao Francisco River, taken just a year ago. It supplies power to the expanding industrial area in the Northeast; present capacity is 1,215 megawatts and this will be raised by 1974 to 2,215 mw.



Last July this project at Estreito was officially inaugurated. It was undertaken following a study of the promising hydro sites made by a Canadian consortium, and is already producing 600 megawatts; this will be increased gradually.

in Rio; a new iron ore port south of Rio capable of handling 200,000-ton ore carriers; an expansion of the present iron ore port at Tubarao and expansions of the ports of Belem, Porto Alegre, Santos and Rio; a new 13.9 kilometer six-lane bridge across the Rio harbor, and many more kilometers of railroad track, some of it electrified. Most dramatic, however, are the highway projects to open up and connect the centers of population. The newest road, announced last June and to be completed soon, is a 3,000-kilometer trans-Amazonic road to be cut through the jungle, with a hoped-for completion time of 18 months.

Small wonder, then, that power to keep the wheels of industry humming is leading the industrial expansion.

By 1976, nuclear power also will be on the scene, with a 500 mw reactor to be built between Rio and Sao Paulo. Tenders for this first plant were called recently and four countries are being asked to submit their propositions. Actually six companies are being considered, three from the United States and one each from Germany, Sweden and Britain. No matter who wins the bid, thought to be in the area of $150 million, Canadian uranium will probably be another new export to Brazil in a few years' time.

Hydro power, however, is still the prime source of power in the circuits and plants like Marimbondo, Jupia, and Ilha Solteira will soon be joining the present Tres Marias, Furnas, Paulo Afonso and Estreito installations which, with many smaller plants, help make up the 7,933 mw of power currently produced. Thermal power is also used in Brazil, principally in the northern and southern areas, although there are some good-sized thermal installations in the south-central part of Brazil, and together they produce some 2,420 mw of power.

More thermal plants are being planned and a small one is being built in Belem, using Canadian funds loaned to Brazil through the IADB. The Santa Cruz plant south of Rio is to be greatly expanded to supply power for the growing number of industrial plants in that area, among them a proposed one-million-tons per year steel mill.

Transmission lines are being constructed continually to connect the

new sites with the consuming areas. Until recently, no high voltage lines had been built in Brazil but now there are plans for 440 kv and 500 kv lines for economical transmission. Tenders for 1,600 kilometers of 500 kv line will be issued this year, and prequalification for foreign suppliers was sought earlier in 1970. Other lines are being built and tenders for towers, cable and hardware are being issued regularly.

With all this activity and with the large amounts of money being made available, there should be almost unlimited opportunities for foreign suppliers of equipment. Again, however, the expansion of Brazilian industry appears to limit sales opportunities for would-be exporters of many items.

A close analysis of Brazilian industry shows that a large percentage of the required equipment used in the power field is marked "Industria Brasileira", and automatically obtains many benefits over imports. Companies such as General Electric, Asea, Brown Boveri, Phillips, Siemens, Mannesmann and Alcan are all long-established in Brazil and their production capabilities are growing with the country. Transformers, switchgear, generators, cables and towers are all produced to some extent and have even been exported.

High-voltage equipment is not yet produced nor are larger pieces of equipment such as turbines, but some of these items are partially manufactured in Brazil or can be partially assembled here. Therefore, bids containing some local involvement usually are more competitive and are considered much more favorably by the various power companies.

Naturally there are exceptions to the rule. The size of many tenders is such that even partial imports may amount to between $3 and $5 million per order, and thus competition is strong, but the results bring costs per kilowatt into a reasonable range. Costs for the 700 mw Estreito installation averaged $110 per kilowatt.

Some Canadian firms have been active in Brazil for many years and Canadian equipment is at work in many projects around Brazil. A Canadian firm was awarded a contract in July for turbines for the Volta Grande project in the State of Minas Gerais. The plant will eventually have a capacity of 360 megawatts.

Recently orders have been placed for watt-hour meters, line traps, and switchgear. The future looks bright for firms willing and able to analyze the market closely, obtain a keen agent, and take into account Brazilian manufacturing capabilities wherever they can.

Brazil is on the move. The Commercial Division of the Canadian Embassy in Rio and the Consulate in Sao Paulo are ready to assist any Canadian manufacturer who wants to move with it.

TABLE 2

LEADING BRAZILIAN EXPORTS

Commodity	U.S.$'000 1968	1969	Percentage increase	Jan.-March 1970
Coffee, green	774,474	779,823	.69	196,718
Coffee, soluble	22,786	32,948	45	8,029
Cotton	130,817	195,199	49	23,529
Iron ore	104,450	148,941	43	40,481
Sugar, demerara	101,577	115,024	13	14,942
Cocoa beans	46,098	106,105	130	18,928
Sawn pine wood	68,863	71,626	4	12,585
Caster oil	36,373	44,793	23	9,686
Meat, canned and fresh	20,176	43,402	115	12,038
Corn	57,009	33,038	−42	NA
Cocoa butter	25,888	30,471	18	8,525
Soya	6,291	29,159	363.5	NA
Tobacco leaves	18,869	26,825	42	5,003
Leather and hides, crude	10,624	22,544	112	2,631
Wool	15,332	21,666	41	5,207
Total, all exports	**1,881,344**	**2,268,836**	**20.5**	**519,666**

German Agricultural Trade Increases

West German trade in food and agricultural products increased in 1969. According to the Federal Bureau of Statistics the value of imports came to $5.4 billion, an increase of 13.2 per cent over the previous year, and the value of exports amounted to $1.1 billion, an increase of 23 per cent.

Trade with the Common Market countries expanded more than with countries outside the Common Market. Imports from the EEC countries increased by 24 per cent to $2.46 billion in 1969 and exports to the same market increased by 27 per cent to $589 million, representing 58.3 per cent of West Germany's total food and agricultural exports.

German imports from outside the EEC of foodstuffs of animal origin increased by $53.4 million to $469 million, and of luxury goods by $50 million to $636 million. Imports of live animals rose by $31 million to $88 million, and of foodstuffs of vegetable origin by $16.5 million to $1,767 million.

Exports to countries outside the Common Market also increased; foodstuffs of vegetable origin by $46 million to $241 million, and of animal origin by $26.6 million to $81 million, of live animals by $5 million to $12 million. Exports of luxury goods, however, showed a decrease of $1.4 million to $92 million.

West Germany's agricultural trade with countries not in the Common Market decreased last year, imports dropping from 58.8 per cent to 54.7 per cent of the country's total foreign trade, and exports from 43.6 per cent to 41.7 per cent.

Canada Sells to and Invests in the Dominican Republic

Sales by Canadian companies more than trebled in first five months of '70, and Canadian investment is increasing; in prospect, more stability greater demand.

R. A. FAIRWEATHER
Consul and Assistant Trade Commissioner, San Juan

During 1969, the gross national product of the Dominican Republic increased in real terms by 7 per cent. This increase resulted from the high level of both public and private investment, greater export earnings, and ideal weather conditions that enabled the agricultural industry to recover from the droughts of 1967 and 1968.

One of the chronic problems affecting the country has been the substantial deficit in the balance of payments. For years, exports of goods and services did not generate sufficient income to cover payments for imports and repatriation of foreign investment. However, by restricting imports in recent years, the country has been able to remedy this situation. In fact, in 1969 there was a net surplus and it is expected that 1970 also will show a favorable balance.

The economy of the Dominican Republic is still closely tied to agriculture. The output of sugar, rice, tobacco and cacao contributes to the growth of the country. Tremendous production gains were realized in 1969 over previous years and 1970 will show a further rise. Raw sugar is the most important export earner and production in 1969 totalled 975,000 short tons. Since the Dominican Republic has had almost perfect weather for sugar cane recently, the general feeling is that the 1970 production will be considerably higher.

The country was able to fill the U.S. sugar quota of 693,000 short tons, supply the increasing local demand, and finish with a substantial surplus of raw sugar in stock. This has permitted the sale of quantities of sugar on the world market for the first time since 1966. There is hope that the United States will increase substantially this year's sugar quota. Dominican producers are able to get a much better price for their product in the U.S. than on the open market.

The Dominican Republic is keeping in step with the trend to self-service in merchandising; here is a modern supermarket which offers one-stop shopping.

In recent years the other principal exports—coffee, tobacco and cocoa—have commanded relatively high prices on the world market, improving the balance-of-payments situation.

In past decades, the overseas image of the Dominican Republic has not been good. Both foreign and local businessmen have had to cope with political uncertainty, labor unrest and monetary difficulties. With the recent re-election of Joaquin Balaguer for a further four-year term, however, the Dominican Republic should be able to look forward to a bright economic future.

Already the improvement in the balance of payments, increases in agricultural production, price and wage stability, and relative political tranquillity over the last four years have resulted in a noteworthy inflow of private investment. The most important example is the construction by Falconbridge Dominicana of a mineral reduction plant to produce ferro-nickel concentrates. The firm is investing approximately $185 million in this project, which is scheduled for completion in 1972. The export of the concentrates will earn the Dominican Republic about $65 million a year, equivalent to one fourth of its total exports.

Shell Petroleum Company is investing $30 million in a petroleum refinery. Nestlé-General Milk is building a $5 million dairy products plant, and the Dominican Telephone Company, a Canadian subsidiary, is carrying out a $20 million expansion program.

Several new hotels are planned: Iberia Airlines will build one costing $13 million, and Gulf Western Industries one costing $4 million. Incidentally, Project Planning Associates (International) Limited of Toronto did the preliminary feasibility study for Iberia Airlines.

The Government itself has undertaken an ambitious infrastructure program. Such projects as the Tavera Dam in the center of the country and the Valdesia Dam in the south will provide additional power and irrigation.

Since the election, however, the economy of the country has slowed down. Consumer sales have declined. The premium on the U.S. dollar sold on the open market has risen within six months from 10 per cent to 15 per cent. People are using whatever money they have to buy dollars. Import controls are in effect and quotas continue to be allocated to traditional importers based on their 1967 import levels. These importers and others can buy products abroad by using foreign exchange held outside the country or buying U.S. funds "on the street".

The country's balance-of-payments surplus in 1969 means that more money may become available for imports. Nevertheless, exporters are still cautioned to sell only on letter of credit when dealing with the Dominican Republic. Remittances of foreign exchange by the Central Bank still take up to six months to be processed when goods are sold on sight draft. The 15 per cent premium on the U.S. dollar means that fewer exporters will buy large amounts of currency to pay for additional imports. But the larger reserves of foreign exchange should offset any resulting downward trend.

CANADA'S MAIN EXPORTS TO THE DOMINICAN REPUBLIC

Commodity	$'000 January to May 1969	1970
Structural steel & piling	1,147	1
Pre-fab buildings & structures	652	—
Industrial furnaces, ovens	575	—
Newsprint and other paper	557	234
Copper	362	350
Fish, cured	329	418
Canned sardines	305	239
Insulated wire and cable	215	26
Aluminum	207	150
Telephone apparatus & equipment	169	132
Mining, quarrying machinery	152	7
Asbestos	101	64
Cranes and derricks	94	—
Total, main exports	**4,865**	**1,621**
Total, other exports	**898**	**766**

Income from the tourist industry makes a contribution to the Republic's earnings; this is the Hotel El Embajador in Santo Domingo, the capital city of the D.R.

Canadian exports to the Dominican Republic have risen sharply in 1970. In the January to August period, our total exports to the Republic amounted to $12.7 million compared with $3.8 million in the same period in 1969. (See accompanying table of exports by commodity January—May.)

A great proportion of this rise in exports can be attributed to the activities of Canadian companies in the Dominican Republic. Part of the Telephone Company's expansion program is being financed by a loan from the Export Development Corporation, which means it is buying a major proportion of its requirements in Canada. Alambres Dominicanos, the local cable manufacturer, is an affiliate of Canada Wire and Cable Company and is increasing its production facilities. This means that it also purchases more raw materials from Canada.

But above all, the surge can be attributed to Falconbridge and its tremendous investment in the Dominican Republic. Much of the equipment being used at the mine site in Bonao, about 75 kilometers northwest of Santo Domingo, is being obtained in Canada. It is interesting to note that by 1972, Canadian investment in the Dominican Republic will be larger than that of any other foreign country conducting business there.

The Dominican Republic is a country with good potential. Dominicans are striving to sort out their political and economic problems to make it an attractive area for both investment and tourism. Recently, a group of leading Dominican businessmen met to determine how they, as individuals, could assist the Government in attracting more foreign enterprises. They proposed that the Government define more clearly the Industrial Incentives Act and indicate the type of firms that should be encouraged to locate there.

The Government has initiated an active campaign to attract more tourists to the country. As well as advertising its attractions abroad, steps are being taken to restore many of the historical monuments and buildings, such as the tomb of Columbus.

Measures such as these, coupled with a healthier economic outlook and political stability, are changing people's previous impressions of the Dominican Republic. It is a Caribbean country that merits closer examination by Canadian exporters and investors.

TEXAS

Texan oil companies, military contractors, the aerospace industry, computer manufacturers all want and use electronic components and equipment. Here's how to go after a share of the business.

J. A. LANGLEY, Consul and Assistant Trade Commissioner, Dallas

Texas has long been known for its cattle ranches and its oil wells, and men like H. L. Hunt and Clint Murchison have personified Texas to the outside world. But in the last few years a new breed has begun to emerge. The Hunts and Murchisons are losing newspaper space to such men as Jim Ling of LTV, Ross Perot of EDS, and Patrick Haggerty of Texas Instruments. These men have all achieved prominence through association with electronics or electronics-related industries. Recent figures from the Texas Employment Commission showed only 53,600 persons employed in electronics manufacturing in Texas. But this does not take into account those persons involved in electronics assembly at such large aircraft manufacturers as LTV Aerospace, Bell Helicopter, and General Dynamics, and at business machines manufacturers such as IBM in Austin. If this group were included, the electronics industry might be the second largest manufacturing employer in the state, after aircraft fabrication.

The term "electronics" covers a broad spectrum, but in the context of this article, "electronics" includes the following four main categories:

1. Electronic measuring, integrating, controlling and testing instruments

2. Commercial, industrial and military communications and navigation equipment, including search and detection apparatus

3. Electronic components

4. Engineering, laboratory and scientific instruments, including computer hardware and peripheral equipment.

Telephone and electric power apparatus has not been included, and there is little discussion of home entertainment or consumer electronics because of the somewhat different channels of distribution and the nature of the end user.

There appear to be no statistics on electronics manufacture in Texas, either on an absolute or on a relative basis, perhaps because of the diverse nature of the industry. An examination of military prime contract awards does give some indication of its importance to the state. Texas has ranked second among all states for the last few years in defence prime contract awards, obtaining close to $4 billion annually. Electronics and communication equipment has ranked third in importance within the state, after air frames and petroleum contract awards. On a national basis, Texas ranks with California, Illinois, New York and Pennsylvania as a major center for military electronics equipment. Much of the equipment developed for the military has been adapted to commercial use also.

Texas offers an attractive industrial climate, and there seems little doubt that companies with advanced technology will continue to locate and expand in the state. Selling components to these manufacturers is one obvious area of opportunity, but there are others that must not be ignored.

Prominent among customers for electronics components are the military electronics equipment manufacturers themselves. Dominating this field are Texas Instruments and Collins Radio, followed by a number of medium-sized manufacturers including Varo Inc., Tracor, F & M Systems Ltd., and LTV Electrosystems. A thumbnail sketch of these firms, including their principal products, is given in the box.

The huge oil and petrochemical industry also provides a major market for electronics of a different type. Oil companies spend millions of dollars annually on supervisory control systems and annunciators for refineries, cracking plants and pipelines. In addition, there are over 60 geophysical consultants in Texas and numerous exploration firms purchasing geophysical instruments.

Some $188 million is spent annually in the U.S. for geophysical work, and a sizable proportion of these funds goes to the 35 geophysical equipment manufacturers in Texas. Obviously there are major opportunities here for both suppliers of electronic components and manufacturers of geophysical instruments, and for producers of supervisory control systems, annunciator control panels, and other electronic controls.

The Texas aerospace industry is a major user of avionics equipment and other "black box" electronics, although purchasing decisions are not always made locally. General Dynamics, LTV Aerospace and Bell Helicopter all have air-frame assembly plants in the Dallas-Fort Worth area, but much of the navigation and communication equipment, computers, radar and display systems are specified by such government agencies as Air Force Systems Command and AVSCOM which are located elsewhere.

Of the three air-frame producers mentioned, only Bell Helicopter produces

commercial aircraft, and there is considerable interchangeability in parts between commercial and military versions of its various models.

In the business aircraft field, Swearingen Aircraft in San Antonio and Mooney Aircraft in Kerrville offer potential for airborne electronics equipment. Windecker Research in Midland has built a revolutionary all-plastic aircraft which it hopes to market soon. Although most aircraft producers tend to buy "black boxes" as opposed to discrete components, there is some potential for producers of edgelit panels and printed circuit boards.

The U.S. Government is not a major purchaser of electronics from Texas, although two agencies procure a considerable volume of equipment. San Antonio Air Materiel Area (Kelly Air Force Base) co-operates with four other air materiel areas in the U.S. to provide the logistics necessary to keep American military aircraft flying. In this capacity, it purchases, repairs and overhauls service and replacement equipment totalling almost $1 billion annually. Much of this includes electronics and avionics equipment, but chiefly as replacement purchases from the original manufacturer.

The Manned Spacecraft Center in Houston is a major center for NASA activities, and a number of NASA contracts for R and D and electronic equipment of all types originate here. The *Commerce Business Daily* is the best source of information on procurement by NASA, but Canadian firms should bear in mind that purchases by NASA are not covered by the Defence Production Sharing Agreement and do not enter duty-free.

In addition to these two major agencies, the Aerospace Medical Division of Brooks Air Force Base and Brooks Army Medical Center, both in San Antonio, purchase some R and D services and medical electronic instruments.

In the past few years, there has been a proliferation of computer peripheral equipment manufacturers, all biting away at what *Fortune* magazine estimates is a $5 billion market. At least 15 of these firms are located in Texas, with the saturation point not yet in sight. In addition, both Texas Instruments and Collins Radio have entered the computer field, with small- and medium-sized scientific computers. Recognition Equipment, with headquarters in Dallas, is the acknowledged leader in optical character recognition systems.

Texas is a major market for electronic equipment and components, where such facilities as this key-edit system manufactured in Canada can be sold.

Manufacturers of computer equipment should be aware that Houston and Dallas are major centers for corporate headquarters, with their vast requirements for centralized data processing equipment. Thirty-six firms, each with revenues exceeding $20 million, have their head offices in Houston.

The channels of distribution for electronics in Texas depend upon what you are selling, in what volume, and to whom.

Original equipment manufacturers who purchase electronic components may buy direct from the factory, through manufacturers' representatives, or through industrial distributors. For large production-line quantities, manufacturers may buy from company salesmen or through a manufacturers' representative. According to one estimate, the manufacturers' representative accounts for about 45 per cent of all electronic components sold to the industrial and defence-related market. In addition to calling on original equipment manufacturers, many representatives sell also to distributors.

Selling to the oil and petrochemical industry is a complex subject in itself (see "Oil Equipment Markets—Southwestern United States", *Foreign Trade*, November 7, 1970). Because of the highly technical nature of geophysical instruments, most of this equipment is sold directly by the manufacturer to the consultant or to the exploration firm. Supervisory control systems and annunciator control panels may be sold either through manufacturers' representatives or by direct approach to the end users. Electronic components can be supplied to instrument manufacturers either through manufacturers' representatives or stocking distributors.

In selling avionics equipment to the ærospace industry, it is often necessary to approach the government agency ultimately purchasing the aircraft, because it is usually responsible for defining the technical specifications. Because of the highly sophisticated nature of this type of equipment, most firms employ their own salesmen in making presentations to the military

or the prime contractor. For 'off-the-shelf' items it is necessary to become established on the Qualified Products List maintained by the various military agencies. This also applies to items sold to San Antonio Air Materiel Area.

Manufacturers of computer peripheral items often use manufacturers' representatives, and some electronic representatives specialize in this field.

The Southwestern Chapter, Electronics Representatives Association, numbers some 75 manufacturers' representatives, or about 70 per cent of all Texas electronic representatives. Most of the electronic representatives are based in Dallas, with a few in Houston and some in Fort Worth. Larger firms frequently have offices in both Dallas and Houston, and most representatives cover a territory that includes Texas, Oklahoma, Arkansas and Louisiana. A firm may employ from one to six salesmen and may have limited warehousing facilities. Most reps require an exclusive arrangement for the territory they cover, and do not carry competing lines.

The term "five percenter" is associated, often erroneously, with manufacturers' representatives. Commissions can vary considerably, but the normal range is from 5-10 per cent, averaging about 7 per cent. Manufacturers introducing a new product in Texas should expect to pay a commission of at least 7 per cent. Some representatives operate on a sliding scale of commissions and higher sales volumes result in lower commission rates. Contracts between the rep and the manufacturer may usually be terminated on 30 or 60 days' notice by either party. Manufacturers should be prepared to pay commissions to their rep on all sales within his territory, whether the contact was made through the rep or not.

Appointing a manufacturers' rep should be done with as much care as hiring a company salesman. A poor rep can cause as much ill-will and tarnish the company's reputation as easily as a poor salesman. Careful thought should be given, for instance, to the type of customers the representative already calls on.

Once the rep has been chosen, time should be devoted to training him, and a visit to the factory is highly desirable. It would also help to send a factory salesman with him on some of his initial calls or visits to his more important accounts.

The Electronics Representatives Association publishes a membership list, and the Canadian Consulate in Dallas also keeps a card file on electronic representatives in the area. At least 10 Canadian electronic firms are now using Texas-based manufacturers' representatives, and the type of product sold varies from resistors and potentiometers to complex measuring instruments and avionics equipment.

Some firms prefer to sell directly to the end user, employing either factory personnel or Texas sales offices. Geophysical equipment manufacturers will probably find most of their competitors in this category, because of the complexity of the equipment and the geographical proximity of manufacturer and end user. Manufacturers of avionics equipment also tend to use their own personnel, except for smaller, off-the-shelf items.

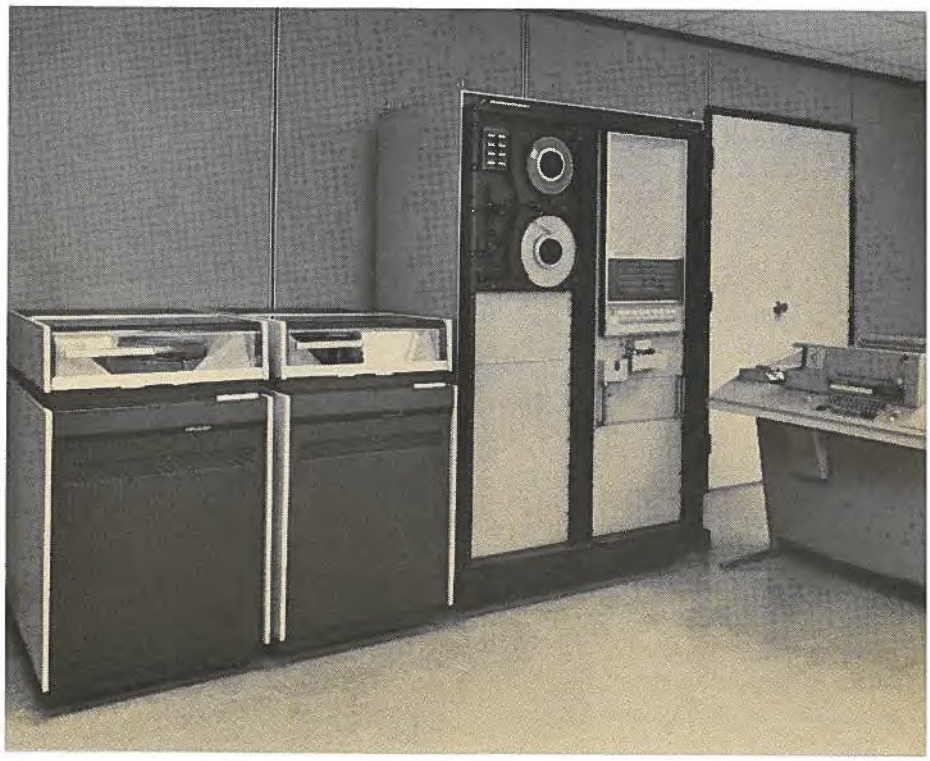
Many components are sold through distributors who fall into one or both of two major categories. The industrial distributor does not sell over the counter, but calls on large accounts such as Texas Instruments. The profit ratio obtained by the industrial distributor, who must often stock a large inventory of components, averages somewhere around 18 per cent, but depends on the volume of business he can get in a given line. Some prominent industrial distributors in Texas are Swieco, Inc., All-State Electronics, Hall-Mark Electronics Corp., and Texas Instruments Supply Co.

The replacement parts jobber or general line parts distributor sells over the counter to radio and TV servicemen and to the general public. There are about 12 well-established parts jobbers in Texas, including Wholesale Electronics Supply and Crabtree's Electronics.

Electronics distribution has been further complicated by a trend among many of the larger companies such as General Electric to establish their own local repair and parts offices.

The *Directory of Texas Manufacturers*, published by the Bureau of Business Research in Austin, is a useful publication for Canadian firms seeking information on certain types of manu-

Equipment such as this Consolidated Computer Services CCS 2,100 timesharing computer is an example of what Canada can produce for the electronics market.



facturers. Details are given on major product lines and on the size of each firm, with firms grouped under the Standard Industrial Classification.

A number of trade publications are used as sourcing guides by electronics buyers, and Canadian manufacturers may find it profitable to have their firms listed in one or more of these directories. A brief summary of the more prominent directories is given in the accompanying box.

Firms selling to the oil and gas industry should also be aware of specialized directories in the field. The Canadian Consulate in Dallas helps by providing lists or directories of potential customers for specialized equipment.

There are a number of associations prominent in the electronics industry, including the Southwestern IEEE and the Southwestern Electronic Representatives Association. The oil and gas industry has spawned numerous specialized associations, some of which are discussed below.

Among the various electronics conferences and exhibits, the annual show of the Institute of Electrical and Electronic Engineers, held in March in New York City, still ranks first in attendance. The National Electronic Conference Show in Chicago in October and the Western Conference of the IEEE in California in August vie for second place in popularity.

Of the two regional trade shows in the Southwest, the Southwestern Electronics Conference, held biennially, is primarily a forum for distributors, manufacturers and representatives to discuss mutual problems, and is one of 12 such forums held in the United States. The Southwestern IEEE Conference provides manufacturers and/or their representatives with an opportunity to exhibit their products, and about 90 exhibitors took part in this year's show in Dallas in May.

For firms selling to the computer industry or to manufacturers of computer peripheral equipment, the Fall Joint Computer Conference and the Spring Joint Computer Conference are of particular importance. The FJCC was held in Houston in November of this year, and for the first time the Canadian Department of Industry, Trade and Commerce, in co-operation with six Canadian computer-oriented firms, exhibited at this show.

Manufacturers of electronics instrumentation should also be aware of the Instrument Society of America Show held last year in Houston, and oriented strongly toward the oil and gas industry. In addition to ISA, there are a number of petrochemical-oriented national and regional trade shows, including the Petroleum Electrical Suppliers Association Show, the Offshore Technology Conference and the International Petroleum Exposition, to be held in Tulsa in May 1971. This latter show takes place every five years.

The Texas market for electronic components and equipment manufacturers is already large, and growing rapidly. There are few manufacturers of discrete electronic components in Texas, in spite of a large local usage of parts, particularly by manufacturers of military electronic equipment. Those firms manufacturing instruments for the oil and gas industry should not neglect Texas, because more purchasing deci-

Major Texas Electronics Manufacturers and Their Products

Texas Instruments, Inc.,
13500 N. Central Expressway,
Dallas, Texas.
semiconductors, integrated circuits; guidance, navigation, radar, sonar and infrared systems.

Collins Radio Co.,
1200 N. Alma Rd.,
Dallas, Texas.
microwave communication and data systems; electronic navigational aids; space tracking systems.

Tracor, Inc.
6500 Tracor Lane,
Austin, Texas.
analytical, frequency and navigational instruments; electronic medical instrumentation.

Varo, Inc.,
2201 Walnut Street,
Garland, Texas.
image intensifiers, night vision devices, integrated circuits, power controls, semiconductors.

Recognition Equipment,
1500 W. Mockingbird Lane,
Dallas, Texas.
optical recognition systems; high speed readers and sorters.

F and M Systems Co.,
Div. of Fischbach and Moore, Inc.,
2525 Walnut Hill Lane,
Dallas, Texas.
broadcast equipment; search and detection apparatus; communications equipment.

LTV Electrosystems, Inc.,
1200 Jupiter Road,
Garland, Texas.
communications systems; satellite communication antennae.

Directories

Electronics Buyer's Guide
Published by McGraw-Hill
330 W. 42nd Street,
New York, New York.

Electronic Industry Telephone Directory
Published by Electronic Periodicals, Inc.
33140 Aurora Road
Cleveland, Ohio 44139
(sources of supply and manufacturers' list, with telephone numbers)

E.I.A. Guide
Published by Directories of Industry, Inc.
3701 West 54th Street
Los Angeles, California 90043
(covers 13 western states and Texas—lists products, distributors, representatives, manufacturers)

Who's Who in Electronics
Published by Electronic Periodicals, Inc.
33140 Aurora Road
Cleveland, Ohio 44139
(sources of supply)

Electronic Engineers Master
Published by United Technical Publications, Inc.
645 Stewart Avenue
Garden City, New York 11530
(sources, trade names, manufacturers, sales representatives)

sions for that industry are made here than in any other part of the world. Opportunities also exist in the ærospace and government areas, and among users of computer equipment.

Armed with a knowledge of the major purchasers of electronics, and an understanding of the appropriate channels of distribution, the Canadian electronics manufacturer who is competitive in other parts of the United States should be able to generate a considerable volume of business here, in America's second biggest state.

MEXICO

Telecommunications and telephone equipment, a $90-million program to update airports and air navigation services, and other developments should all interest Canadian suppliers.

GEORGES E. BELANGER, Commercial Officer, Mexico, D.F.

The Mexican electronics industry has expanded faster than either over-all manufacturing or the gross national product. The establishment of protective measures has decreased imports and aided consolidation, and the industry is now operating competitively and, generally speaking, meeting demands of the rapidly growing domestic market. It has also entered the export market on a modest but growing scale and, through bilateral agreements, is supplying electronic components to the Latin American Free Trade Association countries.

The industry began with the establishment in 1955 of a small plant producing simple replacement parts for imported household appliances such as radios, T.V. receivers and phonographs.

From 1966 to 1969 the industry continued expanding traditional product lines and began a phase of product diversification.

Within the consumer field (which represents the bulk of the industry's output) radios, stereos, high fidelity equipment and television receivers are the major items in demand. Industry sales for 1968 and 1969 are set out in Table 1.

It is worth noting that so far only one Mexican firm has successfully introduced cable television. The company has linked up with United States TV stations in southern Texas to provide daily English-language programs in certain areas of Mexico City, and eventually will establish service units within the interior of the country. Closed circuit TV is also being used in government medical centers and technical institutes.

Total value of production in the consumer sector in 1969 amounted to U.S. $304 million. Investment in fixed assets is said to be U.S. $150 million.

There are more than 240 firms producing electronic equipment, components and accessories in Mexico. A number of them are subsidiaries of well-known international organizations such as General Electric, Admiral, Philco, Zenith, Philips and Telefunken. Many local firms have joint venture and licensing agreements with foreign companies for local production. A detailed list of electronics manufacturers operating in Mexico is available from the Commercial Division of the Canadian Embassy in Mexico City.

The electronics industry now has 80 per cent local content. The percentages of domestic content on a selected range of products are: domestic B/W TV receivers 92; color TV receivers 85; home radios 98; VHF and SSB communications equipment 65; gramophone records 100; electro-medical equipment 20; amplifiers 90, and hi-fi and stereo consoles 96.

Based on past consumer demand patterns, the industry is forecasting an increase in sales of radio and TV receivers over the next five years. By 1975 total radio units in use in the country should amount to 1.1 million; black and white TV sets 521,000 and color TV sets 98,000. Last year these figures were, respectively, 825,500, 360,040 and 43,160.

Within the past few years the electronics industry has begun to turn out a limited range of radio communications and telecommunications equipment and replacement parts. It is not geared, however, to producing highly sophisticated equipment, and the internal demand does not yet justify the large capital investment required to do this.

During the last five years the Government has been putting into effect a program to develop the communications system, including a national microwave network and the expansion of the national telex system and international communications lines using high-frequency radio wave lengths and satellite stations. Most of the complex electronic equipment needed was obtained from abroad, including Canada.

Future expansion of the national communications network will include development of secondary stages requiring low-capacity microwave equipment, installation of lines for carrier communication units, and an expansion of the rural telephone system. Part of the future requirements of the expansion program may be covered by local equipment produced through joint venture and licensing arrangements with foreign manufacturers.

TABLE 1

MEXICAN ELECTRONIC INDUSTRY PRODUCTION 1968/1969

	Total Units 1968	1969
Commercial amplifiers	10,612	11,001
Hi-Fi stereo amplifiers	5,712	7,235
Hi-Fi stereo consoles	104,509	139,039
Car radios	131,812	132,100
Table radios	29,491	46,697
Portable radios	918,659	583,524
Portable record players	81,657	66,091
TV receivers B/W	322,015	360,029
TV receivers—color	37,876	43,160
Tape recorders	5,931	13,486

TABLE 2

MEXICO'S PRINCIPAL IMPORTS OF ELECTRONIC COMPONENTS & EQUIPMENT 1969

	U.S. $'000
Microwave equipment	2,183
American-type receiving tubes	1,224
Radio-communication equipment	788
Radio-communication, spare parts	523
Glass parts for kinescopes	482
Electronic transmission tubes	361
Electronic receiving tubes	357
Silicon diodes & rectifiers	296
Wafers/leads for channel selectors	285
Memory cores	252
Closed circuit TV equipment	233
Parts for electronic tubes	209
Silicon transistors	186
Professional audio recorders	182
Photo-electric computer cells	171
Telephone dial units	163
Plate spark condensers	161
Phonograph parts	144
Automatic telephone exchanges	139
Parts for diodes or rectifiers	138
Laboratory equipment	128
Digit disks	125
Switchboard spare parts	124
Germanium transistors	114
Jacks-plugs	112
Industrial electronic tubes	101
Yokes	99
Components for channel selectors	97
Spare parts—telephones	93
TV cameras	91
Playback cores	90
Varistors	89
Carbon potentiometers	82
TV monitoring units	81
Transistor parts	80
Power transistors	80

Computers are a new concept in Mexico but are being used by Government, hospitals and universities. Shown above is the modern medical center in Mexico City.

Electronic computers were introduced into the Mexican Government in 1952 and today are used extensively by the National Revenue and Statistics Departments and, to a lesser extent, by government-owned hospitals, universities, and transportation systems and by the census bureau.

Although computers are a new concept in Mexican business and industry, many companies are planning to improve their existing computer installations, and others to purchase equipment for the first time. Many are using service centers prior to or instead of buying their own equipment. But prospects for sustained growth appear good. Some industry analysts are looking for annual increases in billings of about 25 per cent for the next few years.

Of the computer equipment installed in Mexico, the private sector uses 25 per cent, and the Government and its decentralized agencies 60 per cent. The remaining 15 per cent is in educational institutions.

At the end of last year, there were approximately 1,000 units of data processing equipment installed in Mexico, virtually all of them in Mexico City. Of these, about 200 were computer units, and the rest recording equipment. There are eight major companies in the computer field in Mexico: IBM, RCA, Control Data, Burroughs, Honeywell, Univac, Bell-General Electric and NCR. IBM has between 70 and 75 per cent of the market, while Bell-G.E. is a distant second with 8 per cent.

Imports of electronic equipment and parts in 1968 amounted to U.S. $48.8 million, compared with $63.8 million in 1967. During 1969 the figure fell to $40.8 million (see Table 2). Of this total, the electronics industry itself accounted for $14.8 million, the commercial trade $3.3 million, the Mexican Government and its decentralized agencies $7.8 million, and Telefonos de Mexico $14.8 million.

The volume of exports of domestic electronic components is modest in relation to imports. Exports of electronic equipment and components in 1968 amounted to U.S. $4.1 million, and in 1969 to $5.2 million. Principal equipment sold was electronic valves,

TABLE 3

WHAT MEXICO NEEDS

Receiving transmitting capsules
Zener diodes
Controlled diodes
Dialing discs with dialing mechanisms
Oscilloscope
Voltmeter
Peachmeters
Protection equipment
Signalling equipment
TV monitors
Nucleus or antenna
Rotatory switches or circuit breaker
Varistors
Thermistor
Piezoelectric crystal

kinescope tube parts, transistors, resistors and ceramic condensers. The main buyers were the U.S., Austria, Argentina and Brazil. Sales to Argentina and Brazil were made under tariff concessions extended to members of the Latin American Free Trade Association.

Before 1968, Canadian sales of telecommunications equipment to this market were negligible. During 1968/1969, however, Canadian interests were successful in obtaining a $5 million microwave contract with the Mexican Department of Communications and Transport. Opportunities for future participation should be good over the next three to five years, particularly in the development of spur lines on the national communications system.

Although telephone receiver apparatus is being produced locally, Canada could participate in this field through joint ventures or by licensing arrangements for production of the more complex components or equipment. Rural telephone systems are being improved and there are also opportunities for consulting engineers.

A $90 million improvement program for airports, air navigation systems and air services, undertaken by the Government with UNDP aid, should also provide opportunities for Canadian expertise and equipment.

Table 3 gives a brief list of items for which there is a wide demand in Mexico, and is taken from a list published by the Mexican Ministry of Industry and Commerce.

Although sales can be made directly, many local firms prefer dealing through a representative agent. Local agents are aware of procedures and documentation required for imports and are in constant touch with local demand. The agent works mostly on commission, although some equipment dealers import smaller items on their own account.

The Commercial Division of the Canadian Embassy in Mexico has prepared a comprehensive brochure, "The Electronic Industry in Mexico", that includes data on local manufacturing organizations, imports and duties, and a list of potential manufacturers' agents interested in Canadian products. Similar booklets have been prepared on "Communications in Mexico", "Electrical Power and the Electrical Equipment Industry in Mexico", and "Educational Systems in Mexico". Copies of these reports may be obtained from the Commercial Counsellor, Canadian Embassy, Melchor Ocampo 463—7th floor, Apartado Postal 5364, Mexico 5, D.F.

SOUTH AFRICA

Demand for communications, medical, computer equipment and components still strong. Delivery time is important; licensing and joint ventures should be studied.

W. D. WALLACE, Trade Commissioner, Cape Town

South Africa's electronics industry is still in its infancy but is growing in line with the rapid industrial expansion that has taken place here. The local industry is centered in the Johannesburg area and, to a smaller extent, in the Cape Town region. It is estimated that the turnover is well over $150 million a year and that it provides employment for over 8,000 people. Though many of the large international companies have moved into the market, local manufacture of items previously imported—particularly in the telecommunications field—has contributed to the growth of the industry. The size of the market is somewhat restricted by the limited population and this, combined with the high costs of production, means that South Africa for some time to come will continue to import the major portion of finished electronic equipment and components.

As any industrial society develops, its need for computers becomes greater. South African heavy industry has taken advantage of the tremendous natural wealth of the country and expanded accordingly. The growth of the large financial institutions has kept pace with the growth of the economy in general and the country boasts some of the largest industrial-mining-financial groups in the world. This rapid expansion has prompted the entry into the market of the international giants in the computer and data-processing field: Honeywell Computers, IBM, Burroughs, National Cash Register and International Computers Ltd. All these firms, however, import completely manufactured equipment.

Many of the large foreign or overseas firms have local manufacturing facilities; others maintain only representatives here. Many have licensing arrangements with domestic manufac-

turers. The South African Government, and in particular the Post Office, the railways and the Electricity Supply Commission, encourage local manufacture by subsidiary companies of parent organizations or under licensing agreements. They give preference in their tender calls to locally manufactured products, and this makes it lucrative for companies like Siemens, Philips, Foxboro, Plessey and others to manufacture locally or to enter into joint ventures or licensing agreements with domestic companies.

The demand for telecommunications equipment from the South African Railways, the Post Office and other branches of the Government is increasing rapidly and firms like Plessey, Standard Telephones and Cables, Siemens, Philips, GEC-AEI, with plants in this country, have ten-year contracts with the Post Office to supply equipment. Northern Electric Company Ltd. recently appointed an agent in this country and will be bidding on future requirements. The Post Office is considering two earth satellite stations for satellite communication, which should provide considerable stimulus for the local electronics industry.

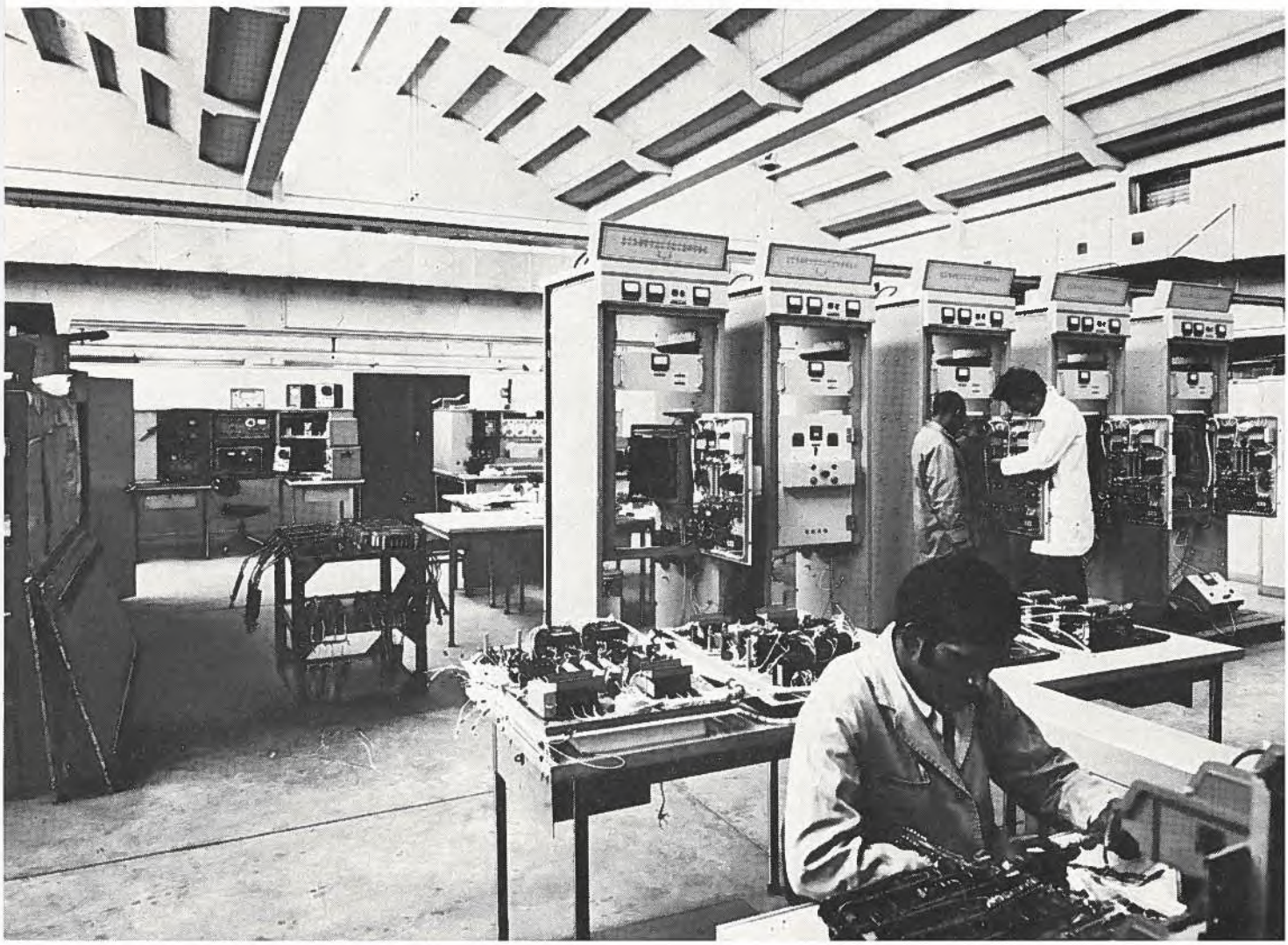
Television is not new to South Africa. Closed circuit television has become very much a part of life here and is found in many hospitals, banks and industries. It is becoming important in the educational field. The big impetus to the electronics industry, however, should come from the imminent introduction of regular television. During the first two years after introduction, it is estimated that there will be a demand for 750,000 sets. The market will then decline to an annual average of about 250,000. But development could be faster if there were more technicians and service experts to install transmitters and receiving sets.

Most of the components will be imported and assembled but transmitting equipment will have to be imported. Many companies, such as Philips, who have facilities in South Africa are already prepared. Others such as Westinghouse International, Hitachi and National Radio have made arrangements with local firms for direct imports or for imports on an assembly basis. Broadcasting equipment firms such as Richmond Hill Laboratories, a Canadian company, have appointed exclusive agents to handle their lines.

Automation in the electric power generating field, mining and other industries, is taking hold as operations are modernized and new sophisticated equipment such as instrument controls and computers is required. Local manufacturers are barely touching the potential market and most of the equipment must be imported.

Recent developments have included an order from the Iron and Steel Corporation to the South African General Electric Company, a subsidiary of the U.S. General Electric Company, for the installation of a $1.5 million on-line process control computer.

Local manufacturers of electronic equipment in South Africa are interested in joint ventures or licensing arrangements, and several foreign firms have set up operations. Here employees are shown at work at the electronics plant of South African Philips (Pty) Limited at Cape Town. The market in this country is growing rapidly, but imports are still large.



The Electricity Supply Commission has awarded a contract to a local firm for direct current contactors manufactured by Canadian Controllers, Ltd.

Modern surgery and medicine rely to a great extent on electronic apparatus and there is considerable interest in medical equipment. The modernizing of existing hospitals and the building of new ones is creating a demand for the latest equipment. South Africa produces little if any and depends almost entirely on imported equipment for its more than 900 hospitals and institutions that come under the jurisdiction of the Hospital Services Departments of the various Provincial Administrations. Most of the equipment is ordered through tenders issued by the Departments and it is important for manufacturers to have representatives in South Africa who can bid on these requirements.

The market for electronic consumer products is very competitive and inundated with products from Japan, Europe and the U.S. This applies to radios of all descriptions, hi-fi equipment, and to all the latest electronic gadgets. The prospects for Canadian electronic consumer products are very slight unless our manufacturers have something new in this field.

The market for components in the South African electronics industry is expanding steadily and turnover is estimated at more than $4 million. Most of them have to be imported from overseas because the demand for a specific type of component usually does not warrant local production. Nevertheless, in the communications field there is limited production by such firms as Standard Telephones and Cables, Plessey, and Siemens which, by virtue of their ten-year agreements with the Post Office and other government contracts, enjoy a largely captive market for the types of components they produce. Some of these companies have additional plant capacity and are receptive to the idea of manufacturing under licence.

The majority of overseas component manufacturers—for example Philips, Siemens, Allen Bradley, Fairchild and Texas Instruments—are represented here either by their local subsidiary, a sales office or by an agent.

As demand grows there will be more local production of components, but for several years to come direct import will be the only solution. Delivery times are very important and local importers often pay a bit more if they can count on prompt delivery. Many European companies take six to eight months, whereas Canadians can deliver in four weeks.

The foregoing, then, are the developments with the greatest impact on the South African electronics industry. But it is important to note that the requirements for improved communications, computer systems and control systems have spawned a first generation of smaller industries. Such small industries (many are in Johannesburg) are manufacturing industrial instrumentation and control systems on a very limited scale, oscilloscopes, and a wide variety of instruments for teaching purposes and industrial applications. One or two have even manufactured locally designed computers. These smaller industries are still in their infancy, but will grow as the markets for their goods increase and service requirements become greater. It is not too late for Canadian manufacturers of electronic equipment and components to enter this expanding and competitive market.

The manufacturers' representative or agent is the key figure in the distribution of electronic equipment, but he must have the necessary contacts and be able to provide essential technical assistance and servicing. It must be remembered that local buyers, especially government departments, often select suppliers who have representatives in South Africa.

There are local manufacturers very interested in manufacturing under licence or joint ventures and Canadians should consider this method of approach also. Another avenue is participation in trade fairs, which are becoming popular in this country. Some of the more important are:

International Medical Equipment Fair—usually held every two years in Johannesburg. It may become an annual show. The last exhibition was June 1970.

Electronic and Nucleonic Engineering, Foundry and Welding Equipment Fair (ELECTRA)—held every two years in Johannesburg. The last show was in September 1970.

Instrumentation and Automation Fair—held every two years in Johannesburg. The next show will be September 1971.

Marine and Fishing Industries Exhibition—held in Cape Town every two years. The next exhibition will be October 1971. This is useful for electronic equipment in these industries.

The trade journal *Electronics and Instrumentation*, published monthly in Johannesburg, is always receptive to articles on new electronic products. Why not take advantage of this opportunity?

Canadian firms interested in this market should contact the Canadian Government Trade Commissioner, P.O. Box 61619, Marshalltown, Johannesburg, and the Canadian Government Trade Commissioner, P.O. Box 683, Cape Town, for assistance in finding a good agent, making joint venture arrangements, or participating in trade fairs.

Rice Milling in Pakistan

The foreign currency cost of the machinery, equipment and spare parts and the costs of the engineering design and supervision for the first two modern, integrated rice mills in West Pakistan will be covered by a $3.12 million loan from the Asian Development Bank.

The combined cost of the two mills is estimated at $7.87 million. Each mill will produce up to 49,000 tons of milled rice a year, and will have the capacity to recover 70 to 72 per cent of high quality milled rice from paddy, compared with recoveries of 62 to 69 per cent of low quality rice by the traditional huller and sheller type mill. They will be capable of processing 15 tons of paddy per hour, and will have integrated facilities for the handling, cleaning, drying, and storage of paddy, and for the milling, polishing, grading and storage of rice. Grain storage silos, each with a capacity of 34,000 tons of paddy, will be considered at each mill site.

The two mills will be established in each of the two main rice producing zones in West Pakistan-Sheikhupura and Sukkur.

Trade Commissioners on Tour

In Territory

Businessmen who would like Trade Commissioners to undertake assignments for them should write to the post as soon as possible.

Bulgaria, Hungary, Rumania

Trade Commissioners in the Vienna, Austria, office make frequent visits to these countries, but often there is not time to publish their itineraries in advance. Therefore, Canadian businessmen who would like the Trade Commissioners to undertake assignments for them in these East European countries are advised to write to the Vienna office immediately.

Cyprus

An officer from the Tel Aviv, Israel, office will visit Cyprus every month for at least three days, usually in the second half of the month.

Finland

A Trade Commissioner from the Stockholm, Sweden, office visits Helsinki once a month for about a week, except during July and August.

Ireland

R. A. Bull, Commercial Counsellor in Dublin, will visit Cork, December 15-17.

Puerto Rico

Trade Commissioners from San Juan regularly visit the Dominican Republic, Haiti and the Virgin Islands. Canadian businessmen who would like officers to undertake assignments for them in these countries are invited to write to the Canadian Consulate.

Turkey

Trade Commissioners in Ankara visit Istanbul frequently. Canadian businessmen who would like the officers to undertake assignments for them in that city are invited to write to the Commercial Division, Canadian Embassy, Vali Dr. Resit Caddesi 52, Cankaya, Ankara, Turkey.

Trade Lines

Jamaican Ports Handle More Cargo

Greater efficiency at Jamaica's modern deepwater ports of Newport West in Kingston and Montego Freeport has increased the volume of cargo handled and cut down ships' turn-around time. The removal of shipping operations from congested downtown Kingston to Newport West has been an important factor. Since 1958, cargo passing through Kingston has increased 170 per cent and at other Jamaican ports 156 per cent. The island is now served by seven containerized shipping lines—Kingston.

Fiberglass in Norway

A new subsidiary of Christiania Spigerverk, Norsk Glassfiber A/S, will produce raw materials for fiberglass mats. Initially $572,000 will be invested in a small plant, but this will be enlarged to a value of $5.7 million within three years. Fiberglass mats will be produced and sold by Norsk Glassfiber A/S, under licence from Scandinavian Glassfiber and a U.S. firm, Owen Corning Fiberglass Corporation. Christiania Spigerverk owns 60 per cent of the shares and Scandinavian Glasfiber 50 per cent—Oslo.

Mexican Petrochemical Plant Nears Completion

Officials of Petroleos Mexicanos, the government-owned petroleum agency, recently announced that construction of its new petrochemical complex at Poza Rica will be completed this year. It will evolve around the projected polyethylene plant at Poza Rica, which will have an annual capacity of 51,000 metric tons. Future plans call for the construction of ethylene, propylene and dodecylbenzene producing facilities through an additional investment of some $57.2 million—Mexico, D.F.

Jamaican Trade Figures

In 1969 Jamaica's foreign trade totalled $853.2 million, an increase of $7.6 million, or 15.8 per cent, over the previous year. Earnings from domestic (merchandise) exports amounted to $304.2 million, an increase of $41.6 million—Kingston.

Alcoa Builds Jamaican Refinery

Alcoa Minerals of Jamaica Incorporated, one of the six bauxite and alumina companies operating on the island, is building a 450,000-ton alumina refinery. The structure, estimated to cost $1 million, is expected to be ready for operation by July 1971—Kingston.

South African Rail Link to Handle Iron Ore Exports

The South African Government has agreed in principle to support a plan to build a 525-mile rail link between Sishen in the Northern Cape to Saldanha Bay, to handle iron ore exports. Estimated cost of the rail line is $270 million and the harbor terminal $275 million. The Iron and Steel Corporation (Iscor) will assess possible iron ore contracts and determine to what extent the required capital can be raised from outside sources. If

the contracts and external financing can be arranged with no extensive claims on the local capital market, the scheme will be given definite consideration. If approved Iscor would build or arrange contracts for building the railway line and harbor but ore and other producers could use the facilities—Cape Town.

U.S. Outlets for Specialty Foods

The franchised specialty food shops being established by Chef International Gourmet Shops, 8050 13th Street, Silver Springs, Maryland, offer opportunities to Canadian manufacturers of gourmet foods. Already eight of these shops have been franchised; they carry a complete selection of gourmet items—Philadelphia.

Belgium to Produce Lasers

The Société Belge d'Optique et d'Instruments de Précision, S.A. (OIP) of Ghent and Compagnie Industrielle des Lasers, (Cilas) a CGE and Saint-Gobain subsidiary, have agreed to share their resources and knowhow in the laser field. The agreement further provides for the establishment of a new company, located in Ghent, for the development and production of lasers. The optical and scientific instruments which OIP manufactures are chiefly destined for military purposes. The company's close collaboration with the American Optics Technology Corp. has enabled it to make rapid progress in lasers, fiber optics and thin films—Brussels.

Pipeline for Ecuador

Ecuador's second oil pipeline will be built for the Texaco Gulf Consortium by Williams Brothers of Tulsa, Oklahoma, through its subsidiary in Ecuador. Pipeline capacity will be 250,000 barrels per day and it will be made up of 511 kilometers of main pipeline (20-26″) and 92 kilometers of feeder lines. There will be five pumping stations and four pressure-reducing stations on the line, which will cross the Andes, rising to 4,053 meters above sea level, and end at the port of Esmeraldas—Bogota.

Italy Does More Advertising

In 1969 Italian advertising expenditures, according to preliminary estimates, reached $422.4 million, $32 million more than the 1968 total of $390.4 million. The 1969 expenditures, by media, were: press 61 per cent, television 15, posters 8.5, movies 7, radio 6, others 8.5. About 14,000 theatres in Italy accept commercial advertising—Milan.

Bridge for the Bahamas

Alexis Nihon, Belgian-born Canadian financier, with a substantial investment in the Bahamas, is said to be contemplating the construction of a "dream bridge", linking the islands of Grand Bahama and Abaco in the Bahamas chain. He envisages a bridge following an eight-mile curving line from the northeast point of Grand Bahama to the northwest extremity of Abaco. Bahamian Government officials have approved the project in principle. The multiple islands along the probable route and the shallow water make the realization of this project possible at an estimated cost of £2.5 million—Kingston.

More Hydro for South Africa

The South African Electricity Supply Commission (ESCOM) is planning a multi-million dollar hydroelectric scheme in the Western Cape which will include the construction of an underground mountain reservoir. It may be linked with South Africa's first nuclear power station to be built at Melkbosstrand, near Cape Town. Surplus power would be used to pump water into the reservoir and it will then be fed through penstocks to the powerhouse turbines at peak periods to generate extra power—Cape Town.

Steel Mill for Singapore?

The Singapore Government is studying the possibility of setting up a $1,052 million steel plant with aid from a Japanese steel consortium. Australian interests may also become involved. The proposal calls for an integrated steel mill with an annual production capacity of five million tons of finished goods, such as billets and slabs for regional and international markets. Singapore, with its ideal location and easy access to iron ore and other raw materials in Australia and India, is in a position to become a low-cost steel producer provided the volume of production is sufficiently large—Singapore.

Mexico Seeks Japanese Investment

The Mexican Government is inviting Japanese interests to invest in joint venture industries that will contribute to the country's technological and economic advancement. The invitation was extended through the joint Japanese-Mexican trade commission when it visited Japan. Japan has offered to build a port on Mexico's Pacific coast. Japan is also interested in buying Mexican raw cotton, grains, shrimp and motion picture films —Mexico, D.F.

Electronics in Singapore

Singapore is offering various incentives to electronics firms locating in the Republic, including tax holidays varying between two and five years for pioneer industries, low rents (seven to fifteen cents per square foot) for factory space in industrial estates, and loans for equipment. There are now more than 30 electronics plants in Singapore, 18 of them U.S.-owned with a total capital investment of $8.3 million—Singapore.

Angola Imports More Vehicles

The Portuguese Province of Angola imported close to $30 million worth of motor vehicles in 1969, almost 17 per cent over 1968. Britain, Japan and Germany were the main suppliers, followed by France, Italy, Czechoslovakia, the Netherlands and South Africa. Currently

the motor vehicle assembly company, SACMA, whose plant near Luanda is nearing completion, has applied for a permit to assemble up to 5,000 cars a year. These will include Ford, General Motors and Renault products —Johannesburg.

Ecuador Publishes Survey Maps

Ecuador's National Geographic Service has recently published two geological and mineralogical maps of the country. The six-year project was completed with help from the United Nations and the Institut Francais de Pétrole—Bogota.

Bauxite Found in Mexico

The rich bauxite deposits recently discovered in the State of Puebla contain an estimated 120 square kilometers of bauxite reserves with an alumina yield of about 50 to 60 per cent. Mexico uses some 80,000 tons of alumina each year, importing it from Canada, the U.S., and Guadaloupe—Mexico, D.F.

Mexico Exports Wheat Seed

Mexican technology in wheat production will help expand the world's acreage of wheat over the next five years, according to a report submitted recently to the International Centre for the Improvement of Corn and Wheat. Mexico has shipped its improved wheat seed to 26 countries and has contributed to the world's major wheat programs during the last five years. Its technicians have participated in wheat development programs in several countries. Mexico has signed a contract with the UNDP to supply it with improved corn hybrids—Mexico, D.F.

Argentina to Increase Steel Production

Argentina's largest Government-owned steel producer, SOMISA, has entered the second phase of its U.S. $300 million expansion program. Some $150 million will be subcontracted with local firms, and substantial supplier credits have been obtained for the rest. A 34-foot, 4,500-ton-per-day blast furnace will be supplied by a British firm. Two German groups have been awarded contracts for an oxygen converter, a continuous casting plant and a coke oven battery. The coking plant will be supplied from Belgium and a French firm will erect the oxygen plant. Coal and ore-handling equipment will come from Japan. The expansion is scheduled to be completed by early 1972, at which time SOMISA will be in a position to produce 2.5 million tons of crude steel a year—Buenos Aires.

Japan Makes Motorcycles in Singapore

Yamaha Motors of Japan will manufacture motorcycles in Singapore, under an agreement between Motor Cycle Industries (Pte) Ltd. of Singapore, Yamaha, and the Singapore Government. Authorized capital is expected to be Cdn. $3.5 million. The factory should be completed by the end of the year on a 5½-acre site in Jurong Industrial Estate. About 40 per cent of the initial production of 2,000 motorcycles per month will be sold in Singapore and the remainder will be exported to Indonesia and neighboring countries—Singapore.

Hotel at Oslo Airport

Construction of the 300-room Globetrotter Hotel, at Fornebu, near Oslo and very close to the airport, is expected to be completed by April 1971. Sound insulation and air conditioning have already been installed. A second building stage, which will double the number of beds, is planned—Oslo.

German Grain Crop Down

West Germany's grain crop this year is considerably below the extremely high yield of 1969. Preliminary estimates place it (excluding corn) at 16.8 million metric tons as against last year's total of 18.5 million tons. Crop yields decreased from 3.6 metric tons per hectare to 3.3. The quality of this year's crop is judged to be good, especially wheat and rye—Bonn.

Colombia to Build Oil Refinery

Colombia will build two new oil refineries to serve the western part of the country, each with a capacity of 50,000 barrels a day. One will be built at the Pacific Coast terminal of the Colombian trans-mountain pipeline and will export most of its production. The other, at Cali, will serve the local market where shortages have occurred because present supplies must be shipped through the Panama Canal from Colombia's Caribbean Coast refineries—Bogota.

Foreign Tariffs and Trade Regulations

Argentina

The Central Bank of Argentina now requires that documents covering overseas purchases be forwarded to the local importers through a commercial bank.

Uruguay

A recent decree by the Government of Uruguay establishes a 5 per cent surcharge on imports of all goods not at present subject to surcharge, with the exception of the following products: rock salt, maté, tea, green coffee, unrefined sugar, crude petroleum, coal and a few specified drugs, chemicals and pharmaceutical products. The present surcharges of 10, 30, 60, 90, 150 and 225 per cent are increased by 5 percentage points.

Export News in Brief

People's Republic of China

Following the establishment of diplomatic relations between Canada and the People's Republic of China, *Foreign Trade*, in collaboration with the Hong Kong office, prepared and published a special supplement "Canada and China", designed for members of the Canadian business community interested in following up trade opportunities there. This has now been distributed to all those on the *Foreign Trade* mailing list. Requests for additional copies should be sent to the Foreign Trade Division, Publicity Branch, Department of Industry, Trade and Commerce, Ottawa.

Exporters who are corresponding with the foreign trade corporations or other bodies in Peking or other Chinese centers must take care that all mail is addressed to the People's Republic of China. If the terms Mainland China or Continental China are used, the mail will be returned to the sender, says a recent bulletin of the Canada Post Office. In addition, mail destined for the capital city must be addressed "Peking"; if other spellings, such as "Peiping", are used the mail will not be delivered.

Cameroon Increases Trade with Canada

Canada's exports to the Federal Republic of Cameroon have more than doubled since 1968, when they amounted to only $385,000. In 1969, they rose to $853,000. In the January to June period of 1970, exports totalled $636,000, more than double the total for the same period in 1969. This is in step with the Republic's significant increase in world trade over the past decade.

Promising prospects for Canadian businessmen lie in agricultural equipment, food processing, textiles, chemicals and pharmaceuticals, tourism, transportation and communications, wood industries and hydro equipment. To date imports from Canada have been essentially capital goods destined for development projects totally or partially financed by the Canadian Government.

Cameroon is keenly interested in the development of her economic ties with Canada and in the trade which will follow. Somc immediate opportunities for Canadian suppliers and investors, as well as a variety of long-range projects, are possiblc within and beyond the third five-year phase (beginning in 1971) of the country's Development Plan. The Cameroon Investment Code provides for tax holidays of up to 25 years depending on the size and nature of the investment made.

Dublin Airport Builds New Passenger Terminal

Dublin airport authorities, moving to meet the jumbo-jet age, have undertaken construction of a new passenger terminal building.

The first stage of construction program, which comprises about 60 per cent of the three-stage project, will cost $9.7 million and is scheduled for completion by April, 1971, the month Aer Lingus, the Irish airline, begins its jumbo jet service at the airport.

The development program, aimed to meet the anticipated increase in air traffic over the next 10 years, calls for construction of a five-storey terminal building—two floors of passenger facilities and services and three for parking cars—and three passenger pavilions connected to it.

Contractor for the first stage, John Sisk & Son (Dublin) Limited, will build the first four floors and the first of the pavilions. Extension of the airport's apron will be necessary to provide aircraft parking around each pavilion.

Independent Countries in Southern Africa

In southern Africa there are three small developing countries that achieved their independence from Britain two and three years ago: Botswana, Lesotho, and Swaziland. These three countries are part of a customs and monetary union with South Africa and therefore use the South African rand.

It is difficult to do business directly from Canada with these countries and usually the South African agents of foreign firms are responsible for handling business there.

However, these countries in the process of development receive assistance from the United Nations Development Program—in Lesotho the feasibility study for the Ox Bow Project, a huge dam project to sell water to South Africa and to produce electricity for the whole of Lesotho, and in Botswana some infrastructure for the Sachi mining project and a livestock project.

Botswana also has received assistance from the Canadian International Development Agency in the form of an $18 million loan for the development of the Sachi project. For a few years to come, Botswana and Lesotho will be involved mainly in developing their infrastructure.

Swaziland is somewhat more advanced and has well-organized sugar and pulp and paper industries. The Government plans further progress in education, road construction and industrialization.

French-speaking African Islands

Between Mauritius and the east coast of Africa lie a few islands where the predominant business language is French: Malagasy, Reunion, the Comoro Islands and the Seychelles. These islands have close relations with France; Reunion is even a Department of France.

Because of their ties with France, it has proved difficult for Canadian firms to enter these markets directly. A Canadian firm that has an agent in and is exporting to France should ask him to canvass the market in these islands.

Import controls, especially in Malagasy, make trade difficult but certainly not impossible, especially if the exportable product is unique. Malagasy, however, is an agricultural island and has few sophisticated industries. Electronic components or sophisticated machinery with a high output would not find a ready market.

Firms with French capabilities should analyse the potential for their products in these islands. Very few Reunionais or Malgache speak English, and technical information and business correspondence in French is a distinct advantage.

Foreign Exchange Rates

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

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

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

For conversion of column one to the U.S. dollar equivalent, *multiply* by .97. **To convert column two, *divide* by .97.**

Country and Currency	Value of foreign currency unit in Canadian dollars at November 18	Value of Canadian dollar in foreign currency units
Algeria Dinar	.1862	5.37
Argentina Peso (free)	.2552	3.91
Australia Dollar	1.1386	.87
Austria Schilling	.0394	25.33
Bahamas Dollar	1.0206	.97
Belgium and Luxembourg Franc	.02057	48.61
Bermuda Dollar	1.027	.97
Bolivia Peso	.0857	11.66
Brazil Cruzeiro (official free)	.2107	4.74
Britain Pound	2.4399	.40
British Honduras Dollar	.5364	1.86
Burma Kyat	.2143	4.66
Ceylon Rupee	.1715	5.83
Chile Escudo (bank rate)	.0863	11.58
(free)	.0711	14.05
China, Republic of New Taiwan Dollar (official)	.027	37.04
Colombia Peso (fixed)	.0541	18.48
Congo (Kinshasa) Zaire	2.144	.46
Costa Rica Colon	.1541	6.48
Cuba[1] Peso	.....	.....
Czechoslovakia Koruna	.1417	7.05
Denmark Krone	.1362	7.34
Dominican Republic Peso	1.0206	.97
Ecuador Sucre (official)	.0408	24.49
El Salvador Colon	.4083	2.44
Fiji Dollar	1.1782	.84
Finland Markka	.2430	4.11
France, Monaco, etc.[2] Franc	.1850	5.40
Franco-African Republics[3] Franc	.0037	270.27
French Pacific[4] Franc	.01018	98.23
Germany D Mark	.2812	3.55
Ghana New Cedi	1.00	.99
Greece Drachma	.0340	29.39
Guatemala Quetzal	1.0206	.97
Guyana Dollar	.5367	1.86
Haiti Gourde	.2041	4.89
Honduras Lempira	.5103	1.95
Hong Kong Dollar	.1684	5.93
Hungary Forint (official)	.0921	10.85
Iceland Krona (official)	.0116	86.20
India Rupee	.1355	7.38
Indonesia[5] Rupiah	.....	.....

Country and Currency	Value of foreign currency unit in Canadian dollars at November 18	Canadian dollar in foreign currency units
Iran Rial	.0142	70.42
Iraq Dinar	2.8578	.34
Ireland Pound	2.4399	.40
Israel Pound	.2916	3.42
Italy Lira	.00163	610.12
Jamaica Dollar	1.220	.81
Japan Yen	.00285	350.38
Kenya Shilling	.1526	6.55
Lebanon Pound (free)	.3164	3.16
Malaysia Dollar	.3334	2.99
Mexico Peso	.0816	12.24
Morocco Dirham	.2050	4.87
Netherlands Florin	.2837	3.52
Netherlands Antilles Florin	.5412	1.84
New Zealand Dollar	1.1419	.87
Nicaragua Cordoba	.1458	6.85
Nigeria Pound	3.017	.33
Norway Krone	.1429	6.99
Pakistan Rupee	.2143	4.66
Panama Balboa	1.0206	.97
Paraguay Guarani (free)	.00816	122.47
Peru Sol (free)	.0235	42.51
Philippines[6] Peso (free)	.1590	6.28
Poland Zloty (fixed basic rate)	.2700	3.71
Portugal & Colonies[7] Escudo	.0355	28.16
Saudi Arabia Riyal	.2062	4.84
Sierra Leone Leone	1.508	.66
Singapore Dollar	.3507	2.85
South Africa Rand	1.4251	.70
Spain & Dependencies Peseta	.01467	68.16
Sweden Krona	.1975	5.06
Switzerland Franc	.2367	4.22
Syria Pound (free)	.2819	3.55
Thailand Baht (free)	.0495	20.20
Trinidad & Tobago[8] Dollar	.5103	1.95
Tunisia Dinar	1.9441	.51
Turkey Lira	.0680	14.69
United Arab Republic Pound (official)	2.3474	.42
United States Dollar	1.0206	.97
Uruguay Peso (free)	.00408	244.91
Venezuela Bolivar (official free)	.2271	4.40
Yugoslavia Dinar (official)	.0816	12.24

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

2. Franc is also used in French Guiana, Guadeloupe and Martinique.

3. Chad, Central African Republic, Congo (Brazzaville), Dahomey, Gabon, Ivory Coast, Islamic Republic of Mauretania, Niger, Senegal, Upper Volta, Cameroons, Togoland, and Malagasy. Also Reunion, Comoro Islands, St. Pierre and Miquelon.

4. New Caledonia, New Hebrides, French Polynesia.

5. Because of the complexity of the Indonesian exchange rate system, it is impractical to quote a single representative rate for the rupiah.

6. Exchange rate in Philippines on floating basis with daily quotations by banks.

7. Approximately same rate for Portuguese territories in Africa.

8. Also used in Barbados, Leeward and Windward Islands.

Markets in Brief

BOLIVIA

Area: 424,163 square miles.

Population; 4,804,000 (UN estimate, 1969).

Climate: Varies from cold with snow in the high plateaus to very tropical in the eastern plains.

Language: Spanish. Quechua and Aymara are widely spoken as second languages; sales literature in Spanish is essential.

Currency: Peso; one Bolivian peso of 100 cents equals Cdn.$0.09180.

Weights and measures: Metric system.

Capital: Sucre, with La Paz the seat of government.

Chief ports: Bolivia has no seaports. Main ports for foreign trade are Matarani, Peru; Antofagasta and Arica, Chile; Santos, Brazil; and Buenos Aires, Argentina.

Economy: Mainly dependent on tin mining for foreign exchange, but other minerals are increasing in importance. Bolivia has become in recent years a net exporter of crude oil, lumber, beef, rice and sugar. Approximately 60 per cent of the population is engaged in agriculture. Petroleum production is highly developed in eastern Bolivia.

Total Bolivian imports: (U.S.$ million) 1965—133.9; 1966—138.4; 1967—151.8. All totals: f.o.b. values.

Chief imports: (per cent) 1967—consumer goods, 38; raw materials, 22; capital goods, 39.

Chief suppliers: (per cent) 1964 to 1968—United States, 42; West Germany, 12; Japan, 11; Britain, 5; LAFTA countries, 10.

Values of imports from Canada: (Cdn.$'000) 1969—newsprint, 597; rock drilling machinery, and parts, 197; steel castings, 194; insulated wire and cable, 148; switch gear and protection equipment, 76; transformers and parts, 65; nuts, bolts, screws and washers, 51.

Total Bolivian exports: (U.S.$ million) 1967—155.2; 1966—133.1; 1965—115.5; All totals: f.o.b. values.

Chief exports: (per cent) 1964 to 1967—tin, 65; other minerals, 24; petroleum, 5.

Chief markets: (per cent) 1967—United States, 35; Britain, 45; LAFTA countries, 8.1.

Value of Canadian purchases: 1969—Cdn. $138,989; 1968—Cdn.$67,561; 1967—Cdn.$55,730.

Chief Canadian purchases: (Cdn. $'000) 1969—lumber, (mahogany) 46; non-ferrous metals, 36; metal ores, concentrates and scrap, 30; undressed furs, 15; carpets, rugs, mats and runners, 5.

Prices: Quote in U.S. dollars, preferably c.i.f. Matarani, Peru; Africa, Antofagasta, Chile; Santos, Brazil; Buenos Aires, Argentina.

Usual terms of payment: Sight draft to 180 days.

Samples: Dutiable only if of commercial value. If value in U.S.$50 or less, no consular invoice or legalization required. Any duty levied is non-recoverable.

Visas: Are required. May be obtained at any Bolivian consular office, (U.S.$3); alternatively a free tourist card may be requested at Braniff or Panagra offices. It allows a 90-day stay and is renewable for a further 90 days.

Inoculations: Smallpox, plus a certificate stating the absence of trachoma.

Foreign exchange and import controls: Import licences required only on certain items. Foreign exchange available at market rate through the Central Bank.

Import controls, documentation, customs tariffs, marking and labelling: Consult the Office of Area Relations, Department of Industry, Trade and Commerce, Ottawa.

Correspondence: Airmail only; letters 10 cents per half ounce.

For detailed information on this market write to: Latin American Division, Office of Area Relations, Department of Industry, Trade and Commerce, Ottawa or Commercial Secretary, Canadian Embassy, Casilla 1212, Lima, Peru.

He Comes in Peace

Pushing out of the New Guinea jungle, lured by a sound that is unfamiliar to him, comes a bushman. He's armed with a bow, a quiver of fighting arrows, and a bush knife—and his eyes are wary. But he comes in peace, because the boar's tusks in his nose are turned down. When they're turned up, he's on the warpath!

He's posing beside the machine he came to see—a Canadian-made "Tree Farmer", one of the five such tree skidders at work near Bulolo for Golden Pine Mills. It is in the business of harvesting extensive stands of pine, with some trees that stand 350 feet tall. Some of them are growing amid dense undergrowth or up the sides of steep gulleys. When they are felled, they are hauled to the mill about 16 miles away and are sawn there into building lumber.

To make this operation pay, logs have to be recovered quickly and in some areas, crawler tractors are just too slow. But the Tree Farmer, made by the Canadian Car Division of Hawker Siddeley Canada Ltd. at Thunder Bay, Ontario, can skid loads of 15 tons or more at a time. The five machines have already boosted log recovery for Golden Pine by nearly 400 per cent.

If undelivered return to:
The Queen's Printer, Ottawa, Canada

CANADA
POSTAGE PAID
PORT PAYÉ

One of Canada's important exports to the Dominican Republic is newsprint—$377,000 worth last year. On the streets of Santo Domingo, workers are unloading a shipment that has just arrived from a Canadian supplier.