

FOREIGN INVESTMENT REVIEW

A journal on
investment conditions in

CANADA

Spring 1980 Vol. 3, No. 2

Focus on Alberta

U.S. investment in Canada

Are foreign subsidiaries more
innovative?



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Canada

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News briefs

Ministerial appointments



Herb Gray,
Minister
responsible for the
administration
of the
Foreign Investment
Review Act.

As a result of the general election victory of the Liberal Party on February 18, a new Cabinet has been named, including: the Honourable Herb Gray, Minister of Industry, Trade and Commerce; the Honourable Edward Lumley, Minister of State for Trade; and the Honourable Charles Lapointe, Minister of State for Small Business.

By virtue of his appointment as Minister of Industry, Trade and Commerce, Mr. Gray becomes the Minister responsible for the administration of the Foreign Investment Review Act. The Minister has an intimate knowledge of the Act, having headed the group whose mandate was to analyse the foreign investment situation in Canada in 1970 and recommend appropriate policy measures to the government of the day. The group's 1972 report, Foreign Direct Investment in Canada or as it is commonly known, the Gray Report, led to the enactment of the Foreign Investment Review Act and to the creation of the Foreign Investment Review Agency. Mr. Gray has also held other Cabinet posts, namely National Revenue and Consumer and Corporate Affairs.

The Honourable Edward Lumley is a former chairman of the House of Commons Standing Committee on Regional Development and has served as parliamentary secretary to both the Minister of Regional Economic Development and the Minister of Finance.

The Honourable Charles Lapointe is a former professor at the Université du Québec. First elected to the House of Commons in 1974, Mr. Lapointe was parliamentary secretary to the Minister of Transport in the last Liberal administration.

Increased domestic control of Canadian industry

A recent study carried out by the Foreign Investment Review Agency

shows a sizeable increase in the level of Canadian control of industry in Canada between 1970 and 1977. The study is based on data published under the Corporations and Labour Unions Returns Act (CALURA) which requires non-financial companies in Canada to file an annual return listing key financial data about the ownership of share capital.

For the non-financial sector as a whole, assets under Canadian control grew from 64 percent of the total in 1970 to 70 percent in 1977. An increase was evident in each of the seven broad industry groups, though it was more striking in some than in others. By far the largest change in control occurred in mining, an industry that includes metal mines, mineral fuels (but not the large integrated oil and gas producers) and other non-metallic mineral mines. The remarkable increase in Canadian control, from 32 percent in 1970 to 49 percent in 1977, reflected substantial increases in both the major sub-groups: metal mines, where Canadian control rose from 38

percent to 62 percent; and mineral fuels, where it increased from 18 percent to 40 percent. There was no change in control in the much smaller "other mining" sector.

Manufacturing, the largest of the broad industry groups in terms of assets and the one with the highest proportion of foreign control, showed a modest increase in Canadian control during the period. That increase was evident in varying degrees in 14 of the 21 manufacturing industries, and was particularly marked in primary metals, wood products, chemicals and machinery. There was, however, a decrease in the share of assets under Canadian control in 6 manufacturing industries, most notably in tobacco products, where Canadian control became virtually non-existent as a result of the acquisition by a U.S. company of the last major Canadian-controlled firm in the industry. In only one manufacturing group, clothing industries, was there no change in control.

Canadian control in non-financial industries

	Canadian control				
	Asset value Million dollars		Percent		Increase or (decrease)
	1970	1977	1970	1977	
Mining	15,203	35,886	31	49	18
Manufacturing	47,287	95,414	42	46	4
Primary metals	4,657	8,670	57	86	29
Wood products	1,810	4,126	67	79	12
Chemicals	2,984	7,722	20	32	12
Machinery	2,122	3,742	25	36	11
Leather products	252	448	70	80	10
Transportation equipment	3,762	8,324	15	23	8
Metal fabricating	2,761	5,652	53	60	7
Furniture	442	903	79	84	5
Petroleum, coal products	5,853	13,442	4	8	4
Printing, publishing	1,171	2,480	85	89	4
Paper	7,084	12,016	57	61	4
Knitting mills	249	374	79	82	3
Miscellaneous	1,204	2,642	49	52	3
Beverages	1,373	2,420	68	69	1
Clothing	643	1,308	86	86	0
Rubber products	599	1,438	7	6	(1)
Food	3,806	7,336	64	61	(3)
Electrical products	2,439	4,875	35	31	(4)
Textiles	1,483	2,476	48	42	(6)
Non-metallic mineral products	1,884	3,998	37	30	(7)
Tobacco products	709	1,022	14	0	(14)
Agriculture, forestry, fishing	1,505	4,063	87	92	5
Services	6,154	21,250	78	82	4
Construction	6,564	16,305	84	88	4
Trade	20,694	49,360	75	78	3
Utilities	39,223	81,662	92	93	1

Examining the reasons for the increase in Canadian control, the study identified four major factors:

- Faster growth of Canadian-controlled companies, as a group, in certain industries or sectors. In a few notable cases this was the result of the start-up of a new enterprise or the rapid growth of one that had only entered the industry in 1970. Examples include Sidbec-Normines Inc., with its new iron-mining operations, and Petrosar, a new world-scale petrochemical complex.
- Takeovers of foreign firms in Canada by Canadian-controlled companies. In the mining industry, for example, this category included the purchase of a controlling interest in Texasgulf Inc. and of the assets of Tenneco Inc. by the Canada Development Corporation and the acquisition of the Great Plains Group by Norcen Energy Resources. In the transportation equipment industry, the purchase of MLW-Worthington by Les Entreprises de J. Armand Bombardier Ltée, was an important factor in increased Canadian control, as was the purchase of Zellers Ltd. by Field Stores Ltd. in the retail trade sector.
- "Canadianization" of a number of large firms (without actual takeover). This occurred in some cases as a result of deliberate steps taken by the company or its foreign parent to become Canadian-controlled. Notable examples were Dome Mines Ltd. and Dome Petroleum Ltd., both in the mining industry, Hudson's Bay Company Ltd., a major company in the retail trade sector, and Aluminum Company of Canada Ltd., a large company in primary metals manufacturing. In other cases "Canadianization" followed the accumulation by Canadians of a majority of shares through normal trading activity, the most notable example being Inco Ltd. This large mining company had been classified as foreign-controlled in 1970, but in succeeding years Canadians came to own a majority of its widely-distributed shares, resulting in a re-classification of its assets to Canadian control.
- Re-classification of companies to Canadian from foreign control as a result of more or better information concerning the locus of control. Such revisions influence the share of assets under Canadian control only because they are not carried back to 1970. Two examples that affected the level of

control in their respective industries were the transfer to Canadian control of the large groups of companies controlled by the Irving and Weston families.

Another kind of re-classification affected the level of Canadian control in certain industries without influencing the overall position. This occurred when certain corporations, classified to one industry in 1970, were transferred to another in 1977 because of a change in their principal activity based on value added (which determines industry classification) in the intervening period. Such a transfer, after 1970, of a number of important foreign companies to other industries was one reason for the increased Canadian control in machinery manufacturing.

Ontario encourages world product mandating

Last January, the province of Ontario's Minister of Industry and Tourism, Larry Grossman, announced the establishment of a special task force whose mission was to find the best ways of encouraging multinational enterprises to grant world product mandates to their Ontario subsidiaries.

When a subsidiary is granted a world product mandate (WPM), it acquires total responsibility, within the corporate family, for a given product line, including control over research and development, design, manufacture and marketing from its home base, in this case Ontario. WPMs are important because they almost invariably involve technology-intensive products, create jobs requiring not only factory know-how but also managerial, professional and technical skills, and contribute significantly to the amount of research and development carried out locally.

Mr. Grossman explained Ontario's new strategy by pointing out a key structural problem which has preoccupied Canadians for several decades: the fact that branch plants generally duplicate the parent company's product line without having the economies of scale necessary for making such a wide product variety as vigorous and profitable as possible. The Minister identified another serious element of the branch-plant problem, which is that "...multinationals tend to centralize core skills such as research and development, marketing and management ... while constraining the subsidiary's ability to develop its

own skills." WPMs free the innovative and growth potential of subsidiaries and make it possible for the host community to enjoy the full benefits of foreign investment.

Several multinational enterprises have already adopted the world product mandate approach. One U.S. multinational, Westinghouse, whose Canadian subsidiary was featured in the Autumn 1979 issue of the Foreign Investment Review, has granted a range of world product mandates to its Canadian subsidiary. Westinghouse Canada has evolved from being a struggling branch plant in a shrinking market to a growing concern in international markets. This change required a considerable amount of planning and rationalization with other subsidiaries, but Westinghouse's new corporate strategy has already borne fruit. The Canadian subsidiary now serves the North American and other foreign markets with a range of products which have been designed, developed and manufactured in Canada, and nearly 40 percent of the company's employees in Hamilton and Burlington, Ontario are employed in world mandate activities. Other subsidiaries mentioned by Mr. Grossman, as having adopted a mandating strategy to some degree, include Black and Decker, which produces a line of sanders for most of the world, Honeywell, Garratt Manufacturing, Xerox and Canadian General Electric.

B.C. moratorium on uranium mining

On February 27, British Columbia Premier William Bennett announced a seven-year moratorium on uranium exploration and mining in the province. In announcing his decision, the Premier cited popular opposition to such mining and potential health and environmental threats.

The Premier, whose province holds only about 1.7 percent of Canada's proven uranium reserves, underlined the fact that British Columbia had no need of the uranium at this time, having abundant sources of energy such as hydro dams, natural gas, coal and wood wastes.

Companies now holding rights to uranium deposits, said Mr. Bennett, will have them protected.

Meanwhile, in Saskatchewan and Ontario, which hold the bulk of Canada's uranium reserves, exploration and mining continue.

Focus on Alberta

Canada is blessed with enormous energy resources, including hydrocarbons and other forms of energy such as water power, and Alberta is the richest single source of hydrocarbons among Canada's 10 provinces. Given the long-term demand for hydrocarbons and their fundamental role in the economy, it would be wrong to qualify the fast-paced growth of Alberta's economy as a 'boom' because booms are by their very nature transitory phenomena. Alberta is experiencing a type of growth which could transform its industrial and economic structure.

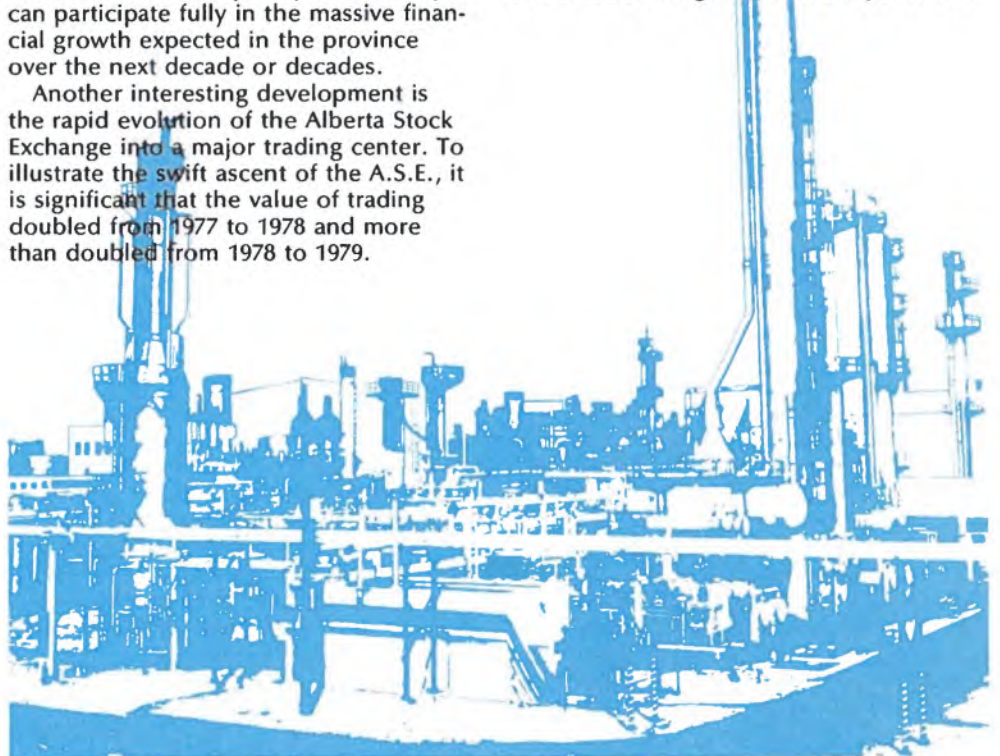
The international preoccupation with energy, particularly oil, has encouraged a similar focus in Canada in relation to Alberta. But more, much more is really happening there. Albertans, fully conscious of the finite nature of their non-renewable resources, have been trying to use those resources as a base on which to diversify their economy and encourage the development of secondary and tertiary industry. The province's economic surge has also had a far-reaching impact on its service sector. Construction firms, real estate firms, in fact, every kind of service industry has taken firm root in the hydrocarbon-rich soil of the province.

Domestic and foreign financial institutions have been taking the steps necessary to meet the vast capital needs of all sectors of Alberta's economy, particularly the resource sector. Huge expenditures on oil and gas development will be made over the next few years. Banks and other financial institutions want to ensure that sizeable on-the-spot decisions can be made quickly so that they can participate fully in the massive financial growth expected in the province over the next decade or decades.

Another interesting development is the rapid evolution of the Alberta Stock Exchange into a major trading center. To illustrate the swift ascent of the A.S.E., it is significant that the value of trading doubled from 1977 to 1978 and more than doubled from 1978 to 1979.

Indeed, what has been called the development of the New West may very well prove to be the development of a new Canada. The rise of the West, particularly Alberta, will have a permanent effect on Canada's economic structure.

This issue of the Foreign Investment Review presents two articles which throw light on the dominant economic trends in Alberta. In the first article, Jeff Carruthers looks at the cornerstone of Alberta and Canada's energy future, the development of non-conventional oil resources. He identifies the major participants, the costs and financing of the mammoth projects and the technological and economic challenges they present. The second article, written by Richard Osler, focuses on the financial side of Alberta's growth, the principal players, their objectives and strategies. He also puts the development of Alberta's financial community into a national and international perspective, tracing the movement of traditionally eastern establishments West and identifying the growing number of foreign firms in the province.



The challenge of Alberta's non-conventional oils

By Jeff Carruthers

More than one foreign visitor has remarked ironically that many countries would love to have Canada's energy problems. They point to Canada's impressive energy mosaic: domestic uranium reserves lasting into the next century with a domestically developed nuclear-reactor system which runs on natural uranium; hydroelectric sites still not fully tapped even with mammoth projects such as Churchill Falls (Newfoundland), Nelson River (Manitoba) and James Bay (Quebec); surplus natural gas reserves measured in trillions of cubic feet; and largely untapped coal reserves. Yet, the most interesting and the most promising piece of the mosaic, for a world which runs on oil, is the strange oil deposits known variously as tar sands, oil sands and heavy oil found in Alberta and, to a lesser extent, Saskatchewan in Western Canada. These geological phenomena have proven oil reserves that rival those of the Middle East itself.

On paper, the numbers overwhelm. The largest of Canada's oil sands deposits, the Athabasca-Wabiskaw-McMurray deposit under the scrub of northeastern Alberta, contains an estimated 720 billion barrels "in place", according to Alberta government figures. When combined with the three other deposits, Cold Lake (159 billion barrels), Peace River (64 billion), and Wabasca (24 billion), the total of 967 billion barrels approaches the magic trillion barrel mark.

This, then, is one of the non-conventional oil sources that many countries such as the United States (oil shales) and Venezuela (Orinoco heavy oil deposits) hope will provide the alternative to dwindling and increasingly undependable conventional oil reserves in the Middle East. Many of Canada's trading partners, including most notably the United States, Japan (Canada's second largest trading partner) and West Germany look fondly to Canada's oil sands as a salvation for their growing energy problems. In fact, some European politicians have complained that Canada is not moving quickly enough to begin developing the oil sands in a major way to allow oil exports to other western nations. The United States, through its Department of Energy, is contributing to oil sands research in Canada through a joint program with the Canadian Department of Energy, Mines and Resources, the Alberta Oil Sands Technology and Research Authority and the Saskatchewan Department of Mineral Resources. Japan is also contributing directly to such research in Canada through joint ventures by Japanese-controlled oil companies with Canada's state-owned oil company, PetroCanada.

Canada is already tapping the enor-

mous potential of the oil sands. A first plant, operational since the country's centennial year of 1967, will soon have its production increased from 45,000 to about 60,000 barrels a day. Suncor, Inc., part of the Sun Oil group of companies, recently amalgamated with its oil sands subsidiary, Great Canadian Oil Sands Ltd. (GCOS), which is finally turning a profit after many years of losses. As some experts had feared, the oil sands, which are tar soft in summer and rock hard during winter, have turned out to be much more difficult to transform into useful oil than optimists had believed. Yet, progress, however agonizingly slow and expensive, is being made. No longer are the oil sands useful only for tarring Indian canoes or paving Alberta roads.

A second and larger plant was started by Syncrude Canada Ltd. in the summer of 1979, marking the achievement of the first truly commercial-scale operation. As with its GCOS predecessor, Syncrude is largely a mining operation. First, tons of dirt overburden are scraped aside to expose the oil sands below. The current technological limit is an overburden of 45 metres. Then the oil sands themselves are scooped up in monster draglines (GCOS used huge bucket wheels) and transported by conveyor belts to a centrally located plant, where a water separation technique first developed in the late 1930's is used to extract the bitumen or oil tar. Then, the tar is partially refined to a light, high-quality synthetic crude oil.

Syncrude has faced problems almost since its inception. Originally expected to cost only \$200 million, it eventually cost \$2.1 billion for an output of more than 100,000 barrels a day. It almost did not get built. Escalating costs forced one

Jeff Carruthers is a syndicated energy correspondent.

of the four original private oil company partners, Atlantic Richfield Canada Ltd., to withdraw. As a result, the project had to be bailed out by the financial participation of the federal, Alberta and Ontario governments. This crisis underlined one of the biggest problems facing oil sands development: the need for huge amounts of money. The last minute rescue of Syncrude by government as well as the interest shown by both the federal and provincial governments in participating in the projects portends a significant involvement of the public sector in future oil sands developments.

Syncrude has also faced serious technical problems: several expensive fires in the upgrading coker units, which cut production in half during critical oil-short months in 1979; continued breakdowns of equipment due to the highly abrasive nature of the oil sands; and particular problems during the exceedingly cold winters, when the oil sands deposits become rock hard and almost impossible to handle. Experts believe that most of these problems will be solved by the end of the year. But the major problem which promises to haunt oil sands developers beyond 1980 is the unsatisfactory current technology for unlocking even the most accessible deposits, that is the 7 percent of the oil sands which can be surface mined. Only one-third of the 7 percent can actually be transformed into usable synthetic oil.

Both Syncrude and the GCOS currently receive world oil prices (more than double domestic oil prices) for their partially-refined light synthetic oil; this is just one of the financial incentives provided by the federal and provincial governments in the pricing, taxation and royalty area to accelerate development of non-conventional oils in Canada. World prices have increased so rapidly in recent months that the Syncrude project is reportedly close to breaking even with only half of its final production equipment in operation. The same phenomenon should allow Suncor to recover its investment in the expansion of the GCOS plant in less than two years.

The potential profitability of the two existing oil sands plants is such that the federal government may review the policy of automatically paying higher and higher world prices for the synthetic oil from the oil sands. This pricing issue could become a major controversy in determining the timing and pacing of future oil sands projects. At a minimum, the federal government will have to pay a much higher price for synthetic oils, to encourage non-conventional oil development, than is paid for conventional oil from existing sources. If the non-conventional oil price were to be different from the world price, it would probably have to be determined on a cost of production basis, with a guaran-

teed return on investment, something that would encourage investment by reducing risks but also discourage investment by increasing government involvement and reducing the prospects for much higher profits.

Two oil sands plants do not make much of a dent on even the mineable oil sands deposits. In fact, the resulting production of about 180,000 barrels a day fails to cover the drop in conventional oil production in only two years in Canada's regular oil fields.

So far, only two other oil sands plants are on the drawing board: a third mining operation, the Alsands Project Group which is headed by Shell Canada Resources Ltd., in the Athabasca deposits, expected to cost \$6 billion; and the first commercial-scale *in situ* project in the nearby Cold Lake deposits to the south, on the Alberta-Saskatchewan border. The Cold Lake project, proposed by a subsidiary of Exxon's Imperial Oil Ltd., would involve injecting steam into the oil-bearing formations in an attempt to heat the oil enough that it could flow naturally to production wells and be pumped to the surface. It represents the first attempt at the type of technology needed to tap the largest portions of the unmineable oil sands reserves, but it is still not the type of technology needed to tap the deeper deposits in the vast Athabasca reserve.

To illustrate the Athabasca challenge, it would be useful to place those deposits on a scale of oil accessibility. The highest ranking or the most accessible oils are the light crude oils which are extracted by means of traditional wells. Canada has recently phased out exports to the United States of this kind of oil, exports which in the mid-1970's amounted to one million barrels a day or half of Canada's total production. Lower on the accessibility scale are the heavy crude oils which resemble molasses, have low production rates of 10 or 20 barrels a day and, consequently, require a huge number of wells. These conventional production techniques, however, account for only 10 to 25 percent of the oil currently recovered. To produce more oil, non-conventional techniques must be used, requiring special and expensive advanced recovery schemes such as steam injection or even burning oil underground to speed up the flow of oil. The Lloydminster reserves on the southern Alberta-Saskatchewan border are the largest such deposits. These heavy oils are used in Canada largely for producing paving materials. To be useful for making gasolines and other higher grade petroleum products would require the construction either of more sophisticated oil refineries nearer markets or of partial refineries, called upgraders, near the oil fields, at a cost of \$1 billion or more for 50,000 to 100,000 barrels a day. While several Canadian companies have

been studying the feasibility of constructing upgraders, namely Husky Oil Ltd. and PetroCanada, the availability of U.S. export markets, where heavy oils command higher prices, has provided a disincentive for such schemes.

Still lower on the accessibility scale are the even more viscous heavy oils in the Cold Lake and Peace River deposits. These require even more sophisticated advanced recovery schemes, greater investments, and upgrading of the recovered oil. The oil industry, with financial support from the Alberta government, is currently involved in a number of pilot projects to perfect various technologies in advance of commercial plants that could begin producing oil in the mid to late 1980's. The Cold Lake project of Esso Resources Canada Ltd. is the first commercial-scale plant in this category; it is expected to cost more than \$7 billion, in part because of the large number of development wells needed to produce the heavy oil. As with the third mining plant now on the drawing boards, the Cold Lake project is in the final stages of government approval but still requires guarantees on special financial incentives, including pricing, taxes and royalties.

Finally, at the bottom of the accessibility scale are the Athabasca deposits, 90 percent of which cannot be mined from the surface and which might, in time, be accessible using *in situ* techniques not yet perfected.

Thus, Canada is literally only scratching the surface of the oil sands, using technologies developed since the 1930's. Canada expects to rely heavily on the oil sands in the campaign to regain oil self-sufficiency by 1990 or the turn of the century. To achieve this without major new oil finds of conventional oil would require the construction of at least one new oil sands plant every year over the next decade and a half, something that is impossible given the enormous sums of money required (\$5 billion or more per plant), the strain on human and material resources (Canada only has enough manpower to handle one such plant at a time over a two-year construction period, if other major capital projects are not to be delayed), and the length of time between conception and completion of a project (now averaging 10 years).

With oil sands development in fact already lagging behind earlier projects, the likelihood of exports of Canadian non-conventional oil seems extremely slim in the next decade or two even if major technological breakthroughs make possible the exploitation of the deeper Athabasca oil sands. Even then, the same manpower, financial and time constraints faced by current oil sands plants will inhibit the progress of more advanced oil sands plants until the 1990's at the earliest.

Thus, at best, the Canadian oil sands represent only a partial solution in the short term. In the medium term, however, they will be a major contributor to Canadian oil supplies, though at a high cost, and in the long term a potential source of supply for other countries if and when the technology to develop deeper deposits on a large scale are found to be commercially viable.

Alberta has been financing a research program known as the Alberta Oil Sands Technology and Research Authority (AOSTRA), using funds diverted from energy revenues. The major emphasis of the research program, which involved some \$144 million during 1978-79, has been to develop, test and perfect *in situ* techniques, since these would appear to be the key to unlocking the bulk of the oil sands which span some 43,000 square kilometres of eastern and northern Alberta. For example, AOSTRA is providing 50 percent of the \$50 million needed to test the suitability for Athabasca deposits of a patented technique involving a combination of forward combustion (underground burning of some of the oil sands to heat up other deposits) and water flooding (injecting water into the oil sands to drive the heated, less viscous oil to central pumping stations). Amoco Canada Petroleum Co. Ltd., PetroCanada and Sun Oil are involved.

Another Athabasca deposit experiment involves fracturing techniques that will allow deeper deposits of oil sands (below 200 metres of overburden) to be extracted more completely after they have been made less viscous by other techniques. In the Peace River deposit to the west, near the British Columbia border, pilot studies are being funded to test a Shell technique involving an on-again off-again steam injection technique. In the Cold Lake heavy oil deposit to the south of Athabasca, field research is underway on a combination steam injection and combustion displacement technique. BP Exploration, PanCanadian Petroleum Ltd., and Hudson's Bay Oil and Gas Co. Ltd. are involved. The concept of using horizontal shafts or tunnels for gaining access to oil sands and heavy oils for production from vertical shafts is also being evaluated, based in part on visits to Russian underground thermal mining sites.

For the nearer-term, AOSTRA is funding a pilot project on advanced recovery of heavy crude oils in the Lloydminster area of southeastern Alberta. One test will employ steam to drive oil to production wells; a second will involve air injection to aid combustion of part of the oil reservoir. Another test recovery scheme is being underwritten for the Suffield gas reserve in southern Alberta, involving a cyclic combustion process. Before any new facilities can be built to upgrade these types of heavy oils for

more advanced use in Canada, the production rate of such fields will have to be increased significantly. The most obvious way to accomplish this is by perfecting advanced recovery schemes which can be applied to both existing and new heavy oil reservoirs. Such schemes would also increase Canada's producible oil reserves.

Important over the longer term are studies just being started to determine the extent of bitumen deposits in carbonate rocks thought to extend in a huge triangle over much of the same area now known to contain oil sands deposits. Field research tests on an underground combustion recovery method for these deposits are also being funded, involving Union Oil Co. of Canada Ltd. These carbonate deposits are not yet included in any estimates of oil reserves.

AOSTRA is also funding tests of novel oil sands production schemes, including ones which would use electric heating to warm up deposits, and of new oil sands extraction and upgrading processes. For example, oil sands are being sent to West Germany to a Lurgi process pilot unit to test the feasibility and comparative economics of the Lurgi-Ruhr gas direct distillation process (compared to the most advanced traditional hot water separation process). The Lurgi process is more traditionally used to gasify coal. The results of this test will be used to decide whether a demonstration plant should be built in Canada. Another "dry" separation technique, this time involving a patented rotating dry kiln, is also being tested, with possible applications to the upgrading of heavy oils as well.

The federal government's own researchers are pursuing the feasibility of directly hydrocracking oil sands and heavy oils instead of or in conjunction with the more traditional coking techniques. In addition, AOSTRA has financed the testing of Exxon's fluid "flexicoking" technique.

In a more futuristic vein, AOSTRA and a subsidiary of the Japanese company Mitsubishi are undertaking bench unit tests of a direct thermal cracking technique, to see whether it is feasible to produce petrochemical feedstocks directly from oil sands bitumen. Such an approach could lower feedstock costs and provide an opportunity for much higher upgrading of oil sands.

Beyond issues related to technology and economics, a number of other problems are emerging. On the environmental front, the hot water treatment in surface mining plants places strains on available water supplies. Huge quantities of water are required, in part because of the lack of advanced technology for clarifying and recycling treatment water. The huge settling ponds of oily water attract and then

cripple waterfowl along one of North America's major migration routes. Sulphur emissions and potential acid-rain problems are a growing concern. Strip mining and consequent revegetation problems will also be an increasing concern as mining plants multiply.

On the social side, the modest oil sands development envisioned to date — three mining plants and one *in situ* plant — have already threatened to overwhelm social services in sparsely settled parts of Alberta. Thousands of skilled and unskilled workers from other parts of Canada have been attracted to Alberta in search of high-paying jobs, overheating the provincial economy. New towns have to be built at considerable cost to local governments.

Another concern which has been expressed is that the degree of control exercised by a few multinational oil companies, over oil-sand leases and technology, might lead to the pace and nature of oil-sand development being determined by non-Canadian interests at the very time when oil sands account for an increasing share of Canada's domestic oil supply. More consideration is being given, therefore, to ensuring greater Canadian participation in existing and future projects at both the financial and technical levels. The aim is to ensure Canadian capability to develop the oil sands even without foreign participation, if necessary.

A key to the future of the oil sands is federal-provincial relations. In Canada provincial governments have jurisdiction over natural resources and the federal government jurisdiction over interprovincial and international trade. This cross-jurisdictional relationship between the two levels of government has led to confrontation over issues such as pricing and pace of development. Indeed, the pricing question was still not resolved at the time this issue went to press. Alberta, conscious of the finite nature of its petroleum resources and the growing disparity between domestic and international prices, is intent upon getting maximum value for its oil, whereas the federal government is preoccupied with the effect that large price increases would have on the economy. The pace of development is another bone of contention, Alberta wanting to avoid overheating the provincial economy and overtaxing its public services, and the federal government wanting to accelerate development to reduce Canada's dependence on imports of expensive foreign oil. As long as even the possibility of confrontation exists, private investors will be that much more cautious about committing the huge sums required for the development of commercial oil sands projects. That is why federal-provincial relations have been and will continue to be a pivotal element in the development of the tar sands.

A new financial community in the West

by Richard Osler

The old truism "It takes money to make money" is being proven again in Alberta, whose burgeoning economy, particularly its resource sector, requires an increasingly large and sophisticated financial community to meet current and future needs for financing.

Though revenues from oil and gas are enormous in their own right and are generating staggering wealth in other industries, resource exploration and development projects such as heavy oil and oilsands, the vast sums needed for infrastructure and the development of industries allied to and independent from resources all require large-scale and on-the-spot financing services. This is why an important financial community is taking shape in Alberta. Both domestic and foreign financial organizations are quickly establishing offices in Calgary and Edmonton in order to take advantage of the current market for their services and, more importantly, the anticipated huge future market.

The Canadian financial contingent

There was a time when Canadian chartered banks, which operate nationwide, did their major business in Alberta at head offices in Toronto and Montreal. Needless to say, those days are now a closed chapter of Canadian financial history. The Bank of Montreal announced last year its intention to build a two-tower corporate edifice in Calgary, one tower of which will reach 47 storeys and the other 64 storeys, the tallest building in the Commonwealth. The bank has also relocated its chairman and its vice-president (corporate banking) to Calgary. The Royal Bank of Canada, the country's largest and most important chartered bank, has also relocated its vice-chairman to Calgary. Furthermore, it has formed a new department, the Global Energy Group, whose headquarters will be in that city.

The president of the Alberta Stock Exchange, who has witnessed these and other eastern establishment moves to the West, made a most cogent observation when he said that Alberta's financial community "... will probably never be in the same league as Toronto, but (is) gaining a large measure of decision-making power..." That is the key: decision-making power. Representatives of the banks in Alberta must be in a position to approve significant loans without the inevitable delays associated with head office review and approval. The

competition which already exists and which is expected to intensify further makes loan turn-around time a determining element in the success of a financial institution. The Royal Bank, the Bank of Montreal and the Canadian Imperial Bank of Commerce have opened specialized corporate banking units to which they have given discretionary lending limits of up to \$20 million and \$25 million, subject to board approval. This has meant the possibility of approval in days instead of weeks. Strangely, top Alberta executives of both the Royal Bank and the Bank of Montreal have discretionary lending limits that are lower than those of their corporate banking executives. Nevertheless, the limits are in the \$5 million range, which is twice as high as those of their competitors and five times greater than the most common level of only three or four years ago. By far the most important bank in the oil business is the Royal Bank, which is reputed to hold about a third of all oil and gas loans. One of the five big chartered banks is expected to open a money market desk soon, which is another key financial center ingredient. The Royal Bank, the Bank of Montreal and the Toronto-Dominion Bank have already opened foreign exchange desks.

Other smaller Canadian banks are establishing themselves in Alberta. For example, the Northland Bank, which is one of Canada's newest chartered banks, has executive offices in Calgary. It has grown quickly by using the wholesale commercial lending approach as well as making significant commitments to international loan syndications. Among its shareholders are the giant Deutsche Genossenschaftsbank of Frankfurt (5 percent) and Girard International Bank of Philadelphia (5 percent). Another bank is the Canadian Commercial and Industrial Bank based in Edmonton which, also as a wholesale commercial lender, has seen its assets grow to more than \$500 million in slightly over three years.

The banks, however, are just one source of financing. Oil companies, particularly fledgling ones, have found a new financing source, tax-shelter drilling funds, which provide financing normally only available through equity financing.

Richard Osler is Alberta editor of the Financial Post.



An artist's concept of the Bank of Montreal's projected two-tower office complex in Calgary.

This highly leveraged money source has helped to launch many companies, including the highly successful Czar Resources Ltd., which went from nothing to a market capitalization of \$100 million in a relatively short period. This form of financing has been very popular with investors because of the attractive tax write-offs (100 percent for exploratory drilling and 30 percent for development drilling) which usually average between 60 and 70 percent in the first year for Canadian funds. About \$1.5 billion have been invested in the oil and gas industry in this way since West Germans first started investing in the funds in 1974. West Germans have bought about \$700 million worth of these tax-induced offerings because of tax laws which allowed as much as 200 percent write-offs for such investments. Recent reductions in those tax benefits in West Germany, however, appear to have reduced the annual inflow of investment in those funds from that source. Since 1976, when tax changes encouraged Canadian drilling funds, Canadians have spent about \$800 million, including an unprecedented \$500 million in 1979.

One result of the popularity of these drilling funds has been to provide a new line of business for brokerage firms who market the public funds. Indeed, this business has drawn many firms to Calgary. Several national brokerage houses find that about one third of their new underwritings, including drilling funds, originate from Alberta. This explains why most of those firms have sent one if not more corporate underwriters to Calgary. Large national firms, such as MacLeod Young Weir and Wood Gundy Ltd., as well as smaller firms, such as Walwyn Stodgell Cochran Murray Ltd. and Midland Doherty Ltd., have been very busy underwriting in Calgary.

In addition to the national brokerage houses which opened shop in Calgary, a number of local firms have seen the light of day. Most notable among the Calgary firms is Peters & Co. which had a modest beginning in 1971 and has become a major underwriter for solid junior companies. With its close industry connections Peters was one step ahead of the bigger firms which were not ready for the equity boom which started in the last half of 1978.

Retail brokerage business has also thrived, as is shown by the fact that most houses have, at a minimum, doubled their retail staff since 1978. Ideally placed for taking advantage of the oil and gas business, salesmen in Calgary have been doing an unprecedented volume of business. For example, Merrill Lynch, Royal Securities Ltd.'s Calgary office is its busiest in Canada.

The evolution of the Alberta Stock Exchange has paralleled the growth of the resource sector, particularly oil and

gas. Established in 1914 as the Calgary Stock Exchange, the A.S.E. is rapidly gaining prestige and recognition as a major trading centre in Canada. This year alone trading dollar value jumped more than 150 percent. The A.S.E. is consolidating its position as a specialized marketplace, launching junior resource companies. It expects to broaden its trading base and to benefit in the future from more trading of interlisted stock. The heart of the A.S.E.'s business, however, is and will continue to be the floating and trading of petroleum industry issues.

Insurance companies are also participating in Alberta's rising fortunes. One of the most interesting firms is the Cascade Group, which in 1979 became the second largest group of insurance companies in the West. A sign of the times was Cascade's decision to move the head offices of two of the firms it had acquired, namely Sovereign General Assurance Co. (assets \$30 million) and Sovereign Life Assurance Co. (assets \$93 million) to Calgary from Toronto. Including Cannon Assurance Co. of Britain, which it acquired in 1978, Cascade controls more than \$570 million worth of insurance assets. The Calgary firm hopes to increase this asset figure to over \$1 billion by the early 1980s.

Not to be forgotten as an important

element of Alberta's financial picture is the provincial government's huge savings fund which was created to manage the income generated by oil and gas royalties. The Alberta Heritage Savings Trust Fund, worth \$5 billion and expected to grow to \$30 billion over the next 10 years, is and will be an important instrument in Alberta's strategy to diversify its industry and economy.

The foreign financial contingent

Calgary has always been an important suitcase banking stop for foreign banks and it is quickly becoming a permanent location for many of them as they seek to get a share of the huge volume of business anticipated for the 1980's. An interesting perspective on what foreign banks are trying to accomplish in Calgary is given by Terry Baker, honorary British consul for Calgary and local manager for Natwest Canada Ltd., a subsidiary of National Westminster Bank Ltd. of London which established itself in Calgary last year. He maintains that, though foreign banks are transacting some offshore business and medium-sized corporate loans, their main efforts are being devoted to establishing contacts for the large businesses yet to come. The key target of the foreign banks is

the syndicated loan business, which will be an integral part of the huge oil and gas projects of the 1980's. Syndicated loans, where a number of banks jointly finance huge loans, have been rare in Canada because the chartered banks have been able to make most loans on their own. Mr. Baker stresses the point, however, that in an era of billion-dollar projects "... syndicated loans become a necessity." He maintains that the chartered banks must broaden their base and that "... they can't expect to handle all the oil and gas mega-project debt of the 1980's. Canada is going to need to tap international sources of funds."

Another representative of a foreign bank already finds business good in Calgary. Udo Studner, manager for SBC Financial Ltd. a subsidiary of Swiss Banking Corporation, says that he booked more loans than expected in 1979 and thinks that it will be easy to double his volume of business this year. SBC landed a \$30 million loan with a large foreign-controlled company in Calgary. Studner says that foreign banks have an advantage over domestic banks in that their rates are based on the London interbank rate, whereas the domestic banks base theirs on the higher Canadian prime rate. He says that the difference can amount to as much as one percentage point.

Readers will note that both firms referred to above are subsidiaries. In fact, most foreign banks in Canada have established subsidiaries instead of representative offices because they anticipate changes in Canada's Bank Act which would allow them to take deposits and compete fully with Canadian banks.

If statements made by a British business mission last year can be interpreted as being representative of foreign interest in Alberta, future foreign participation in Alberta's financial community seems destined to grow. Representing major clearing banks, merchant banks and brokerage houses, 12 British businessmen visited Alberta for a week last June and concluded that more British institutions should be established in the province. William Clarke, Director General of the London Committee for Invisible Exports, speculated that Alberta was becoming Canada's second most important banking center after Toronto.

Oil and gas are fueling the rapid evolution of Western Canada, particularly Alberta. This has created the need for an important Alberta-based financial community capable of providing the services required for the immense transactions associated not only with oil and gas but also other industries. The movement of important financial organizations to Alberta from Eastern Canada and abroad is clear evidence that what Alberta is experiencing is not just a boom, but a permanent transformation of its economy.

Foreign banks represented or soon to be represented in Alberta

The Chase Manhattan Bank	U.S.A.
Citicorp	U.S.A.
Crédit Suisse	Switzerland
National Westminster Bank Ltd.	U.K.
Swiss Bank Corporation	Switzerland
Société Générale de Banque S.A.	France
Seafirst Corporation	U.S.A.
The Hong Kong & Shanghai Banking Corporation (Wardley)	Hong Kong
Bankers Trust New York Corp.	U.S.A.
Schroders Ltd.	U.K.
The First Boston Corporation	U.S.A.
Crédit Lyonnais S.A.	France
Continental Illinois Bank & Trust Co.	U.S.A.
Chemical New York Corp.	U.S.A.
The Bank of Tokyo	Japan
Barclays Bank Ltd.	U.K.

U.S. investment in Canada

by Joan Gherson

To many Canadians, foreign investment is synonymous with American investment and indeed there is good reason for that impression. U.S.-controlled firms are the major foreign presence in Canada, controlling nearly half of all capital employed in the manufacturing and natural resource sectors. Although the American presence has been paramount for only the latter half of this country's 112-year history and in recent years has shown some slight sign of diminution, its importance and influence have made it the subject of intense study both in Canada and in the United States. This article outlines the history, size and concentration of that investment.

Though the United States has always had a profound influence on cultural and commercial life in Canada, it has not always played a major role as a source of investment funds in this country. In fact, up to the middle of the nineteenth century the role of foreign creditor was almost entirely borne by Great Britain in Canada just as in the United States itself. It has been estimated that at least 90 percent of the \$200 million of total foreign investment in Canada in 1867 originated in Britain. Most of that investment was portfolio investment, largely government and railway bonds. Direct investment amounted only to about 20 percent of the total, Britain being also the foremost direct investor.

Britain's dominant position changed only slightly during the period leading up to the first world war in spite of the substantial increase in foreign borrowing, particularly between 1900 and 1913 when approximately \$2.5 billion worth of foreign capital entered Canada. While securities, chiefly of government origin, continued to be the major financial vehicle, with Britain still the leading source of funds, U.S. investment stock was growing twice as fast as British investment. By 1914 the British share of total foreign capital in Canada had declined to about 72 percent, whereas the U.S. share had increased to about 23 percent. It was during this period that the United States supplanted Britain as the leading source of direct investment, most of the U.S. capital going into forestry and mining, and some into manufacturing.

While the more rapid growth of American investment was already evident before 1914, it was overshadowed by the dominant size of British investment. This situation changed, however, during and after the war. The British began to liquidate outstanding government and railway debt and Canadian governments and corporations began to turn to New

York instead of London for funds. From 1914 to 1926 U.S. portfolio investment in Canada increased from approximately \$250 million to \$1.8 billion; it was the major factor in the rapid increase of total U.S. investment during that period. This, coupled with the more than doubling of U.S. direct investment, made the United States Canada's principal creditor by 1926, the first year for which official Canadian data on foreign investment are available. The United States maintained this position in spite of a slight increase in British investment in the late 1920's and a modest decline in U.S. investment in the 1930's. With the further erosion of British investment during the second world war, much of it replaced by U.S. sources, the positions of the United States and Britain as Canada's creditors were, by 1946, exactly the reverse of what they had been in 1914; that is, some 72 percent of the \$7 billion of foreign capital was owned in the United States and about 23 percent in Britain.

The 1950's and 1960's were decades of massive influxes of foreign investment in Canada, foreign long-term investment increasing by over \$30 billion. In 1967, Canada's centenary, the U.S. share of foreign capital in this country peaked at 80 percent. The 1970's, however, were an even more dramatic period of increasing foreign investment, averaging \$6 billion per year between 1970 and 1976. So great was the increase that, although the U.S. share decreased to below 75 percent by 1976, its value had more than doubled since 1966.

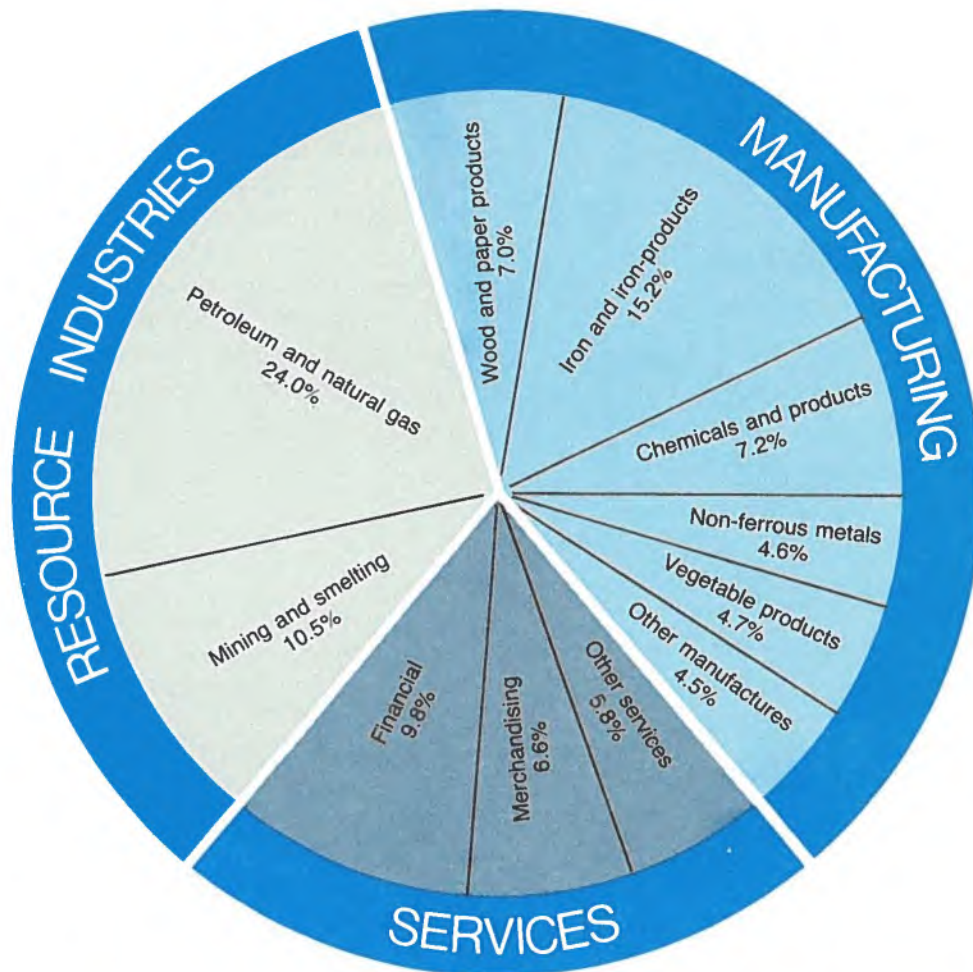
Characteristics of U.S. investment

The principal characteristic of U.S. investment is its sheer size. With a book value in 1977 of over \$65 billion, it represents nearly 75 percent of all foreign

investment in this country. Moreover, Canada is also the chief locus of U.S. external investment, accounting for 25 percent. In fact, Canada's share of U.S. external funds during this century has stayed consistently in the 25 percent range, even in the early years when Britain was the major source of funds. The present size of U.S. investment in Canada is due, therefore, not to any increase in concentration in Canada, though that was a factor in the 1950's and 1960's, but to the remarkable growth of U.S. investment world-wide and Canada's consistent share of that investment.

A second and long-standing characteristic of U.S. investment is the high proportion represented by direct investment, involving ownership or control of Canadian industry. Between 1900 and 1913, for example, about 55 percent of U.S. investment was direct investment, compared with only 11 percent of British investment. After 1914 the proportion fell below 50 percent but resumed its predominance after 1945. Between 1946 and 1974 the book value of U.S. investment increased by nearly \$44 billion of which nearly \$27 billion or 62 percent was due to increased direct investment. Although portfolio investment was again relatively stronger in 1975 and 1976, the proportion of direct investment in the total stock was still 58 percent at the end of 1976. By comparison, only 40 percent of other foreign investment was direct investment. One consequence of the size and age of U.S. direct investment is its ability to grow from earnings generated in Canada. In recent years retained earnings of subsidiaries have been the principal source of additions to foreign direct investment in this country. Thus, the early establishment of American companies enabled them to consolidate their position and in some cases to inhibit the entry of others because the size of the market would not support new producers.

Historically, the two principal motives for U.S. direct investment have been to secure supplies of raw materials for its industries and their subsidiaries, and to extend the market for U.S. products. The first can be attributed to the close proximity and the complementarity of Canadian resources. It has led to large-scale investment in Canada's natural resources and, consequently, to an orientation of Canada's exports towards raw materials and towards the United States. Canada's forest industries were the first to attract large investments. Beginning with purchases of large timber tracts in the last century, that investment moved into sawmills, pulp mills and newsprint as export restrictions, tariffs or relative costs of production made these desirable or imperative. Securing a captive source of raw materials has increasingly been an important element in mineral developments such as iron ore,



Percentage distribution of U.S. investment in Canada - 1976

asbestos and petroleum. In other cases, however, where the gain to be had from the development of rich deposits was the only force motivating Americans to become principal investors, the existence of a large market to the south has always been an important underlying factor.

The second motive for direct investment, to extend the market for the products of American industry, is responsible for the vast number of American branch plants in Canada. Strong evidence suggests that the Canadian tariff, and later the Commonwealth Preferential Tariff, stimulated that development. But as the relative importance of the tariff declined, other factors, such as the considerable growth of the Canadian market, special market characteristics requiring modification of the American product and service needs, contributed to the continued growth and expansion of the American branch-plant presence.

The predominance of the two motives identified above has been so strong that, by 1975, resource development and secondary manufacturing together accounted for 78.5 percent of the book value of all U.S. direct investment in Canada. As much as 43 percent of that investment was in the manufacturing industries, 24 percent in petroleum and natural gas, and 11 percent in mining.

U.S. control in Canadian industry

One of the results of the high concentration of investment in resources and manufacturing has been the commensurate degree of U.S. control in those sectors of Canadian industry. Some 43 percent of the book value of capital employed in manufacturing, 58

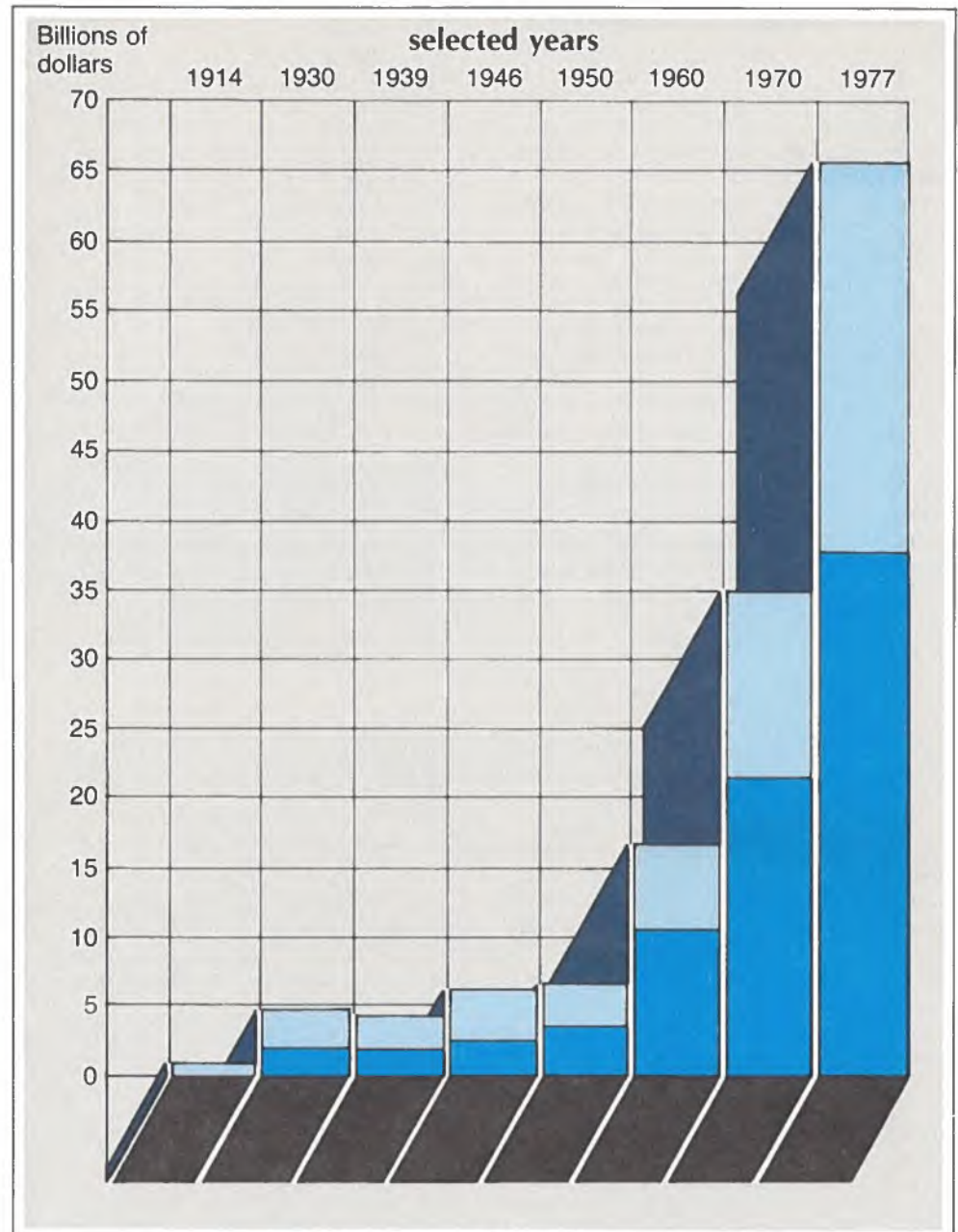
Book value of U.S. investment in Canada

percent in petroleum and natural gas, and 45 percent in mining is controlled in the United States. Within these sectors, American-controlled firms account for 80 percent of shipments in iron-mining, rubber manufacturing, transportation equipment and electrical industrial equipment. Yet, despite the size of that American share it is now a smaller proportion in all three major sectors (manufacturing, mining and oil and gas) than it was at the end of the 1960's, largely as a result of a growing Canadian share but also because of a faster rate of growth in other countries' investment.

American-controlled companies tend to be among the largest in a great many industries in Canada and are, therefore, not only particularly notable but also especially profitable and influential. One measure of their importance is that, in 1977, they generated nearly 60 percent of corporation profits in manufacturing and mining. Another is that more than one third of the 100 largest Canadian industrial companies are more than 50 percent American-owned. They include the two very largest companies in Canada, General Motors of Canada Ltd. and Ford Motor Co. of Canada Ltd., each with revenues in the \$7-billion range in 1978. Chrysler Canada Ltd. is also among the top 10, as are Imperial Oil Ltd. and Gulf Canada Ltd.

Many of these large industrial companies have links with Canada that go back to the earliest period of American investment. Imperial Oil Ltd., for example, has been in Canada since about 1880 and, as early as the turn of the century, it dominated the eastern Canadian market. Growing rapidly from its early strong base as a distributor and also as a producer (first in Ontario and subsequently in Alberta) the company and its subsidiaries now own and operate a large distribution network, six refineries and major gas processing plants, manufacture petrochemicals and other products, engage in oil, gas and other mineral exploration and development, and have major interests in pipelines.

Among the hundred or so other companies that were here before 1900 are the two leaders in the electrical apparatus industry, Canadian General Electric Co. Ltd. and Canadian Westinghouse Co. Ltd., as well as the Canadian branches of Sherwin-Williams Company, for long the largest American-owned paint company, The Singer Sewing Machine Company, Ingersoll Rand and the International Paper Company. Only slightly later, in the early years of this century, came the two largest automotive companies, Ford and General Motors, though neither were in the first instance organized by the parent company. Ford, the earliest, was started by a Canadian, with 51 percent of the initial capitalization given to the American



Portfolio and other
 Direct

company in return for rights and processes. The predecessor of General Motors was also started by a Canadian, who maintained control until the first world war. Also established before 1914 were the Ontario Paper Company, owned by the Chicago Tribune, the first explosive plants of the duPont Company, the Otis Elevator Company, the Goodyear Tire and Rubber Company and the two large agricultural implement manufacturers, International Harvester and John Deere.

Indeed, the early decades of this century were years of prolific branch-plant development. By the mid-1930's, the list of American companies had grown to well over a thousand. Only slightly set back by the depression, the growth has continued until over 4,000 corporations are now classified as being American-controlled. Still more spectacular than the increase in numbers has been the growth in assets through expansion and acquisition.

Regional distribution

Although there are American companies in all regions, the investment is concentrated in Ontario, Quebec and Alberta where 81 percent of the taxable income of U.S.-controlled non-financial corporations was generated in 1976. A breakdown by source of income shows that U.S.-controlled mineral (including oil and gas) investment is mainly in Alberta, while manufacturing investment is predominantly in Ontario and, to a considerably lesser extent, in Quebec.

That this regional concentration of investment is vitally significant for provincial economies is evident from the fact that U.S.-controlled companies earned 58.5 percent of all corporate taxable income in Alberta and 45 percent of the total in Ontario. This is also true for other provinces, where American investment is considerably smaller, because its concentration in either mining or manufacturing can make it particularly important to the economy.

Outlook

The magnitude and evident profitability of U.S. investment in Canada shows that this country has been a good place for American capital. But the very size of that investment and changes in the world investment picture such as tariff reductions, which diminish the advantage of branch plants, put the future rate of growth in question. The huge post-war influx of American capital has subsided in recent years and a plateau may have been reached in the establishment of new American manufacturing plants. Though the U.S. presence continues to grow in Canada, that growth is increasingly financed from Canadian sources, principally the retained earnings of subsidiaries, and its rate has declined. The U.S.-controlled share of the total capital employed in manufacturing, mining and oil and gas has also been declining. This is partly due to repatriation of a number of American-controlled investments, notably in resource industries, but also in manufacturing. Another factor is the more rapid growth in investment from other countries, including the acquisition of American parent companies by non-Americans and the resulting change in ownership of Canadian subsidiaries. Yet, it would be unwise to conclude that present trends will continue. More than 40 years ago an important study of Canadian-American industry concluded, in similar circumstances, that because American industry had nearly reached "saturation", its rate of increase must in future be much slower. Instead, in the ensuing years, a new surge of development brought new investment to unprecedented levels.

U.S. Control of largest Canadian companies

Group (Ranked by 1978-79 sales)	U.S. share of ownership			
	100%	80-99%	50-79%	over 50%
	— number —			
Industrials				
1 - 50	6	6	0	12
51 - 100	15	5	3	23
101 - 150	20	2	1	23
151 - 200	22	1	4	27
Total, 200 largest	63	14	8	85
Merchandisers				
25 largest	8	0	1	9
Petroleum producers^a				
20 largest	3	4	2	9
Mining producers^a				
20 largest	0	0	2	2

^aProducers of raw materials only; companies with integrated refineries are included in industrials

Source: The Financial Post

U.S. applications to the Foreign Investment Review Agency

Since the inception of the Foreign Investment Review Act Americans have been responsible for 61 percent of all reviewable applications. In terms of the value of assets acquired or new investment proposed, the U.S. share is smaller, though the difference is slight. This U.S. share, whether in terms of number of applications or the value of investment involved, is substantially less than the U.S. share of the value of all foreign direct investment in Canada, which exceeds 80 percent. That difference undoubtedly reflects the fact that a large part of the increase in the book value of U.S. investment is due to the growth and expansion of existing U.S.-owned businesses.

	Acquisitions ^a	New businesses ^b
	— number —	
Reviewable applications	950	675
Allowed	732	548
Disallowed	78	42
Withdrawn	64	53
	874	643
Reviewable applications by sector	— percent —	
Primary	7.8	5.5
Manufacturing	49.0	25.9
Services	43.2	68.6
	100.0	100.0
Reviewable applications by region		
Atlantic provinces	2.5	1.9
Quebec	15.7	10.1
Ontario	57.0	64.3
Western provinces & Territories	24.8	23.7
	100.0	100.0

^aApril 1, 1974 to December 31, 1979 ^bOctober 15, 1975 to December 31, 1979

O & K Orenstein & Koppel: a case study

by Alan Darisse

Though German investment in Canada is nothing new, significant investments in resources having been made in the 1950's and 1960's, its orientation and amplitude are. German investment in this country is being increasingly directed to manufacturing and services, a trend confirmed by statements made by members of a high level German business mission last September. The mission members also identified several reasons for choosing Canada as an operating base for North America, including proximity to the huge U.S. market, an abundance of relatively cheap energy, reasonable labour costs and political stability. O & K is a good example of the new trend in German investment.

O & K was founded in Berlin in 1876 to manufacture transport systems and narrow gauge railways primarily for the sugar, agricultural and forestry industries. The business thrived. By the end of that decade, O & K was producing locomotives in its Berlin-Schlachtensee factory and, by the end of the century, constructing new factories in Berlin-Tempelhof, Berlin-Spandau, Berlin-Babelsberg, Dortmund and Bochum in order to meet increasing demand for its products.

The turn of the century saw O & K's product variety continue to grow. The 1911 acquisition of Lubecker Maschinenbau Gesellschaft added large earthmoving equipment, such as bucketwheel excavators and dredgers, to its manufacturing list. Production had expanded to such a point that by 1926, O & K's 50th anniversary, employment reached 12,000 in its various factories and branches.

The 1930's proved to be another great period of growth for the company. Two acquisitions, that of Dessauer Waggonfabrik AG and Bothaer Waggonfabrik AG, highlighted 1930. They enabled O & K to rationalize and greatly increase its production of rolling stock. During that decade O & K built up a world-wide network of subsidiaries, sales offices and service stations in order to expand sales and provide local servicing of O & K equipment in centers such as Amsterdam, Paris, Milan, Madrid, London, Zurich, Johannesburg and Buenos Aires. By 1939 O & K could count on 125 sales branches around the world.

But just as the company was reaching greater and greater peaks of activity and success, the second world war broke out. The war was a devastating blow to O & K. Entire factories and valuable equipment were destroyed and a number of factory installations were lost due to the circumstances of the war. Though O & K's operations had been almost completely wiped out, the company managed to become operational again in 1948. The 1950's were a period

of expansion and increased research. By 1961, O & K had developed and was producing fully hydraulic excavators, which were a technological first in this kind of equipment. By 1968 the Berlin-Spandau works had produced 10,000 excavators and only five years later, this figure doubled. The fact that exports played an important role in the company's comeback was no accident. Throughout the post-war period, O & K concentrated heavily on foreign markets to the point where, by 1972, exports represented 31 percent of its revenue. Licensing agreements with firms in Japan and the United States were also part of O & K's drive to increase sales in foreign markets.

New factors in the 1970's, however, made it difficult for O & K to continue relying on exports as a prime way of increasing its share of foreign markets. Most important was the rise of the Deutschmark's exchange value, which made German exports, including O & K's, more expensive and thus less competitive. O & K, which wanted to increase its share of a growing North American market for the kind of product it produced, began to search for opportunities to establish a manufacturing arm in North America. In 1974 it found that opportunity in the intended disposal by Clark Equipment Ltd. of its struggling Industrial Machinery Division in Dundas, Ontario.

The Dundas facilities

Established in 1861 as the family firm of John Bertram and Sons, the Dundas firm developed a national reputation for the quality of its heavy machinery and industrial equipment, predominantly machinery tools. It was a stable enterprise for over 80 years, but, as is often the case with family firms, it eventually became necessary to consider an ownership change. This happened in 1951 when Russel Industries acquired the firm. Though the activities of the Dundas

firm were relatively stable through the 1950's, it was soon to experience an increasingly rapid succession of different owners. In 1963, Russel Industries sold it to Levy Industries and, only three years later, Levy Industries formed a new company with Baldwin-Lima-Hamilton. John Bertram and Sons Ltd. thus became BLH-Bertram. In 1969 another change of ownership occurred when Baldwin-Lima-Hamilton bought out Levy Industries. BLH-Bertram became BLH Canada Ltd., a wholly owned U.S. subsidiary with Armour and Company Ltd. of Chicago as the ultimate controller. This continual change of ownership would, in any circumstances, be enough to send any firm into a spin, but BLH Canada Ltd. was not yet at the end of what had been a kind of revolving-door ownership. Only two years after the 1969 development, BLH's ownership again changed hands. The new owner was Clark Equipment Company Ltd., a large U.S. manufacturer of heavy construction machinery. Clark Equipment soon concluded that the Dundas plant was not everything it had hoped for. In fact, by 1974, it too sought to sell the Dundas plant, concluding that what had become its Industrial Machinery Division was incompatible with its overall operations. It was at this point that O & K Orenstein and Koppel made its move.

O & K's acquisition

The Foreign Investment Review Act having been enacted in 1974, the O & K-Clark transaction was subject to review. The following is a summary of its investment proposal.

O & K planned to carry out the acquisition by establishing a Canadian subsidiary under the legal name of O & K Orenstein & Koppel of Canada Ltd., which was to purchase from Clark Equipment of Canada its fixed assets as well as the raw materials, work in progress and existing orders. The subsidiary was to be provided with capital stock of \$1,250,000 with provision for increases in capital stock and shareholders loans for the purpose of acquiring machinery and equipment. O & K Canada's activities were to be concentrated on two fronts, the first being a continuation of Clark's industrial sales operations, and the second being the standard production of three models of hydraulic excavators. The Dundas facilities had been operating at only 30 percent capacity and most of this activity was accounted for by manufacturing agreements which were to be continued and possibly increased. O & K planned to increase the mining equipment side of operations through partial manufacture of bucketwheel excavator reclaimers for the huge Syncrude oil-sands project in Alberta.

Before production could be increased, however, O & K estimated that major

capital expenditures would have to be made on additional buildings, new machinery and revision of lay-out and alterations to existing facilities. A dealer network was to be set up in Canada and the United States, and the company estimated that two-thirds of its excavators would be sold in Canada and the rest in export markets, principally the United States. From a Canadian point of view, a key element of O & K's plans was its unqualified intention to make O & K Canada fully responsible for production, marketing, pricing, purchasing and financial matters. It should be noted that the Government of Ontario was eager to help O & K because it perceived the acquisition as being beneficial to the Dundas firm and, indeed, to the community in a wide range of ways from employment to new technology. In fact, Ontario offered to lend O & K \$1 million in support of its acquisition of the Dundas facilities.

O & K submitted a set of undertakings with its investment application. First, it undertook to improve the Dundas facilities by renovating existing buildings, constructing two new building additions and spending \$1.5 million on new equipment. Another undertaking was to maintain current business activities and initiate the manufacture of O & K construction machines. The firm was to follow planned production development which in 5 years would increase sales from \$7 million to \$30 million and employment from 200 to 600. It also undertook to retain current management and consider Canadian financial participation of between 25 and 49 percent. Finally, it undertook to retain the employees currently working at the Dundas plant.

Those were the initial undertakings which FIRA reviewed together with the investment plan. After negotiation, an expanded set of undertakings was agreed upon which included a number of new and interesting commitments. One was that O & K was to move from Germany to Canada the partial manufacture of certain large equipment items, such as the bucketwheel excavator for Syncrude. Another concerned sourcing in Canada, particularly the purchase of new equipment and new materials and parts used in production in Canada, if competitive and available. The employee related undertaking was expanded to ensure that there would be no loss of seniority or other benefits. It was agreed that no restrictions were to be placed on O & K Canada's freedom to export. Furthermore, O & K agreed to provide its subsidiary basic research services at no charge and to make the Canadian subsidiary responsible for the design, testing and production aspects of modifying the parent's products for the North American market. Finally O & K undertook to transfer technology and

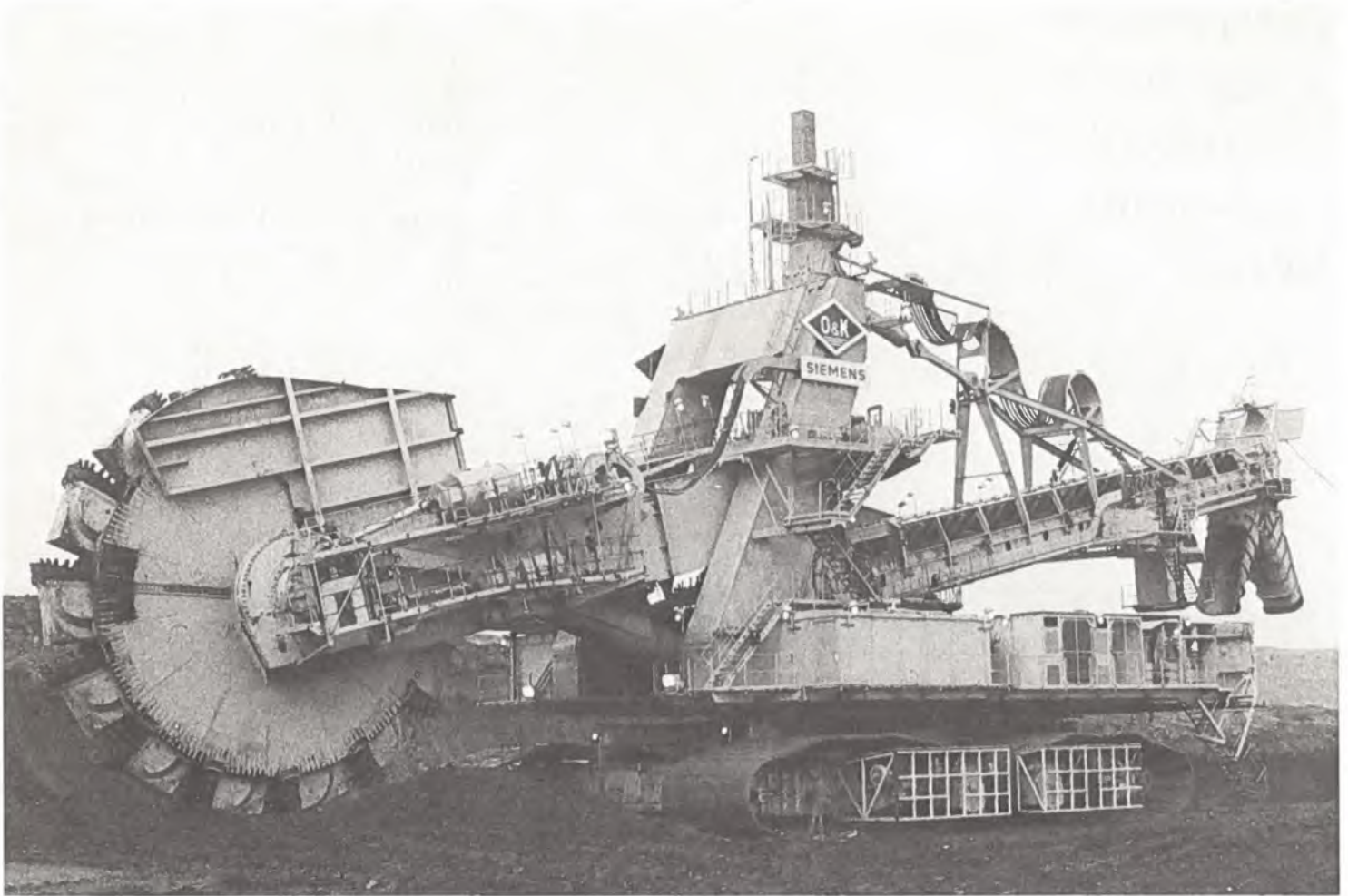
know-how for the new product line at the Dundas plant at a cost not exceeding 2.5 percent of net sales, for a period of 15 years.

The investment was allowed because the Government concluded that it would be beneficial to Canada in several very important respects. The investment, if successful, would greatly increase prospects for employment and utilization of materials, parts and components produced in Canada, provide considerable import replacement and increase export potential. Canadian participation was guaranteed in the management and direction of the firm, and would be considered seriously in relation to its equity. The planned modernization and reorganization of the Dundas facilities would significantly improve their productivity and industrial efficiency. While custom fabricating would continue, the introduction of proprietary products, hydraulic excavators and bucketwheel excavators would ensure a more balanced workload and, consequently, greater utilization of the plant. Competition would be enhanced in a Canadian market principally supplied by imports for these products. Finally, the transaction conformed with national and provincial economic and industrial policies.

O & K Canada today

For the past several years the company has concentrated its efforts in two areas: the first was to make its Dundas facilities as efficient and technologically advanced as possible through a programme of rationalization and renewal of plant and equipment; the second consisted of a significant marketing and promotion effort aimed at increasing sales, introducing new products and, more importantly, trying to change the buying habits of major users of excavation equipment who have traditionally used cable equipment in major mining and other excavation activities and who are not as familiar with fully hydraulic equipment such as that produced by O & K. In other words, O & K saw a huge potential market for its products, which it had to develop, and had to gear its Dundas facilities to meet the anticipated demand.

"Anticipated demand", however, has been the key expression at O & K because actual demand for its products in mining and construction has been relatively weak. This reflects the soft conditions in the construction industry and the traditional reliance of North American mining on cable systems or cable equipment. This situation could change radically with the successful promotion of O & K's products and with certain major energy initiatives: in particular, new non-conventional oil developments (bucketwheel excavators), the renewed interest in and emphasis on



Mammoth bucketwheels such as the one above, built by O & K, will help dig out Canada's buried treasure, the oil in the tar sands.

coal (bucketwheel excavators and hydraulic shovels) and the construction of pipelines (excavators and pipeline valves). In spite of the rather uninspiring situation in the construction industry, O & K Canada has managed to keep its plant humming. Employment has risen from approximately 200 in 1974 to well over 300 in 1979, and that for a highly capital-intensive product line. The U.S. market has been a boon to the company, accounting for two thirds of its sales. This is largely the result of the creation of a sales network in the United States run by O & K Orenstein & Koppel Inc., which is the firm's U.S. promotional arm.

In the five years since its acquisition of the Dundas facilities, O & K has been most active on the industrial sales side, that is in sub-contracting activities. Examples are products such as equipment for the smelting and refining industry (hot metal cars, ladles, casting wheels and converters) and custom-designed products such as components for atomic power plants, steel mills and also components for armoured vehicles.

It is interesting to note how well O & K has complied with the undertak-

ings it gave in 1974. Officials in the Department of Industry, Trade and Commerce have identified O & K as a model foreign-controlled enterprise in Canada. One reason is its sourcing policy. One government official has stressed that, for certain products, O & K could not source any more of its components in Canada without re-inventing its German technology or moving its home manufacturing facilities to Canada. Up to 65 percent of the components used in some of its excavators are produced in Canada. It has bought virtually all its new equipment and materials in Canada, when such materials were available here.

As undertaken in 1974, O & K has given its Canadian subsidiary the freedom it needs to export its products. In fact, as previously mentioned, most of O & K Canada's product sales have been exports, mainly to the United States. The technology-transfer undertaking has been honoured and so has the research commitment to the point where the subsidiary has hired and maintained an important engineering research staff. Furthermore, after the initial participation of German managers for the introduction of new technology and products at the Dundas facilities, more and more of

the management is now being taken over by Canadians. Employees who were part of the acquisition in 1974 have kept their seniority and other benefits. Though employment and sales have not increased at the rate anticipated in 1974, they have expanded, the former from 200 to well over 300 and the latter from \$90,000 (low figure was due to a lengthy work stoppage) to over \$11,000,000 in 1978. The other principal undertaking, that O & K would consider Canadian equity participation of between 25 and 49 percent, has not been possible to carry out yet. Considering the very real difficulties in the company's primary markets, its performance has been exceptional.

One of the major observations made by members of the German business mission in 1979 concerned the abundance of relatively cheap energy in Canada. The importance of O & K's investment will become clearer as Canada concentrates even more than it has on immense energy projects related to coal, natural gas and non-conventional oil, projects that will require the kind of equipment that O & K Canada is ready to deliver.

Pétromont: a key to Montreal's economic future

by Marie Plante

The need for rationalizing Canadian industry is no longer subject to debate. This is especially true for the petrochemical industry which is the foundation stone for a great number of other industries. So vital is the role of that industry, as a source of feedstocks for so many products, that it could easily be called the spinal cord of the economy. The recent creation of Pétromont, a consortium which includes Montreal's two largest petrochemical producers and a Quebec provincial government agency, is clear evidence that the importance of the petrochemical industry is fully recognized.

In its June 1978 report the Sector Task Force Committee on the Canadian petrochemical industry recommended that a concerted effort be made to direct investments to the three petrochemical centers in Canada, namely the province of Alberta, Sarnia (Ontario) and Montreal (Quebec). In the eyes of the Committee such a strategy would prevent the fragmentation of Canada's petrochemical industry and improve its efficiency through the exploitation of existing infrastructures and the reduction of transportation costs.

Montreal's petrochemical industry

Montreal has two major petrochemical companies: Gulf Canada Ltd., which produces 500 million pounds of ethylene a year; and Union Carbide Canada Ltd., which produces ethylene on a smaller scale, 150 million pounds a year. Together, they supply more than 400 small and medium-sized local enterprises, particularly in the plastics industry, as well as Hercules, which is a world-scale polypropylene producer. For those downstream industries to thrive in Montreal, however, would require an increasing quantity of feedstocks at competitive prices. To understand Montreal's situation better, a brief look at the activities of Gulf and Union Carbide would be useful.

With its petrochemical plant located in Varennes, a municipality on the south shore of the St. Lawrence River near Montreal, Gulf Canada is a subsidiary of the Gulf Oil Corporation of the United States. The Varennes plant, whose naptha supplies are from Gulf's Montreal-East refineries, produces ethylene, propylene as well as butylene, butadiene, acetylene and several other related derivatives. Approximately 60 percent of Gulf's petroleum is domestically sourced. Its major market is local derivative producers, including Union Carbide. Gulf's feedstocks are used as primary petrochemicals for producing resins, plastics, adhesives, synthetic fibres, solvents, specialty chemical products and synthetic rubber. Gulf has 200 employees.

Union Carbide Canada is a subsidiary of the Union Carbide Corporation of New York. Its plant is located in the east end of Montreal. Its principal primary petrochemical production consists of ethylene, propylene and other related derivatives (polyethylene and glycol). Four local refineries supply Union Carbide, namely Imperial Oil, B.P., Gulf and Fina. Union Carbide uses a considerable proportion of the primary petrochemicals it produces to manufacture a number of semi-finished and finished goods. It has 150 employees.

Without any improvement to the structure of Montreal's petrochemical industry, Gulf and Union Carbide might have faced an uncertain future. If production were to prove insufficient or its price uncompetitive, downstream industries would have to rely on alternative sources of supply, particularly if they wished to expand. But the investment necessary to improve the industry's structure was very large. One has only to consider the construction costs for new petrochemical facilities to appreciate the financial commitment required. The expansion of the Varennes plant alone will cost approximately \$500 million. Another consideration is the relative initial costs of constructing plants in Montreal compared to the Gulf Coast of the United States, where such investment is estimated to be 25 percent cheaper. This is due principally to the high relative costs associated with labour, materials and, most importantly, climate. The rigour of Canadian winters necessitates deeper foundations, heavier insulation and better heating systems.

Neither Gulf nor Union Carbide were ready to absorb, on their own, the huge costs associated with achieving world-scale production. Enter the Quebec Government, which was concerned with the health of that vital Montreal industry. The Government was well aware of the fact that what was at stake was not just the 350 jobs in Gulf and Union Carbide, but the over 20,000 jobs maintained by the downstream industries. In fact, it has been estimated that for each job in petrochemicals one can count 17 in primary manufacturing and up to 250 in secondary and other manufacturing.



Petrochemicals will enhance Montreal's economic future.

Ethylec

Given these high stakes, the Government of Quebec, through its provincial Crown corporation the Société générale de financement du Québec (SGF), became actively involved in the discussions for the consolidation and expansion of Montreal's petrochemical industry. The SGF is one of the Government's principal financial and industrial arms. Its mandate is to invest in Quebec businesses in industrial sectors considered vital to the economic growth of the province. With or without partners, the SGF seeks to ensure the survival and growth of important businesses on the basis of business standards of viability and profitability. The SGF is already involved in a number of different industries such as shipbuilding, electronics, mechanical equipment, pulp and paper processing, furniture and office equipment. Consistent with its investment strategy in other industries, the SGF formed a new subsidiary, Ethylec, which was to be its representative in a projected petrochemical consortium which would include Gulf and Union Carbide.

Pétromont

Gulf, Union Carbide and Ethylec undertook extensive discussions on the possibility of forming a consortium to integrate the activities of the two petrochemical firms and increase Montreal's

petrochemical production capacity to meet the needs of the local market. They decided to form the consortium as a partnership owned equally by the three participants.

The first phase of the project, financed in great part by Ethylec, consisted of integrating or rationalizing the activities of the two petrochemical firms. In addition, a study was to be carried out on the economic processing of heavier liquid hydrocarbon materials as a way of making the firms' use of crude oil more efficient. The second phase was to involve the expansion of Gulf's Varennes plant, doubling its production capacity and achieving the elusive world-scale production level.

FIRA and Pétromont

Ethylec is, obviously, Canadian-controlled, but Gulf and Union Carbide are U.S.-controlled firms, which means that the Pétromont project was subject to review under the provisions of the Foreign Investment Review Act. Having reviewed the application by the consortium, the Government concluded that the investment would bring significant benefits to Canada and, therefore, approved it last January.

Among the more obvious benefits were the rationalization and improved efficiency of Montreal's petrochemical

industry which, in turn, would ensure that downstream industries could count on adequate supplies of feedstocks at competitive prices. The improved efficiency of primary petrochemical production would have a beneficial impact on employment and industrial possibilities downstream. The planned investment in the Varennes facilities would inject approximately \$600 million into the local economy, a conservative estimate when one considers the multiplier effect of such an investment. In addition, the possible increased efficiency of downstream industries could very well increase demand for primary petrochemicals, if not create whole new markets for them. It has also been suggested that the improved efficiency and viability of Montreal's petrochemical industry would, in itself, draw new industries to the area.

The investment was also seen as having a beneficial effect on Canadian participation in Montreal's petrochemical industry. With the SGF's share of the consortium (33 1/3 percent) and existing Canadian equity participation in Gulf and Union Carbide (25 percent each), Canadian equity participation in this large enterprise amounts to 50 percent.

The integration or rationalization of both production and administrative functions will undoubtedly be beneficial. World-scale production of a wide variety of primary petrochemicals as well as intermediaries and derivatives will result in significant economies of scale and more efficient use of crude oil, which together will improve the profitability of the business. The expansion plans for the Varennes facilities would use the latest technology in plant design, which is estimated to be 30 percent more energy efficient than any plant currently operating in Canada. With the participation of Gulf and Union Carbide, Pétromont will have access to results of advanced research being carried on by the parents of the two subsidiaries.

The Government of Quebec's participation in the consortium through Ethylec (SGF) was a clear indication of its support of the investment. The creation of Pétromont is consistent with Quebec's economic development strategy, as articulated in its 1979 policy document *Bâtir le Québec*. The policy underlines the importance of certain basic industries which "are vital economic development matrices ... This is true of the petrochemical industry." In fact, reference was made in that document to the establishment of a consortium like Pétromont as a foundation stone for Montreal's petrochemical future.

Montreal's petrochemical industry now has the tools necessary for increasing its efficiency and growth and, with the help of Ethylec, joining Sarnia and the province of Alberta as world-scale producers of petrochemicals.

Are foreign subsidiaries more innovative?

by Herman P. Bones

There are few countries in which the role of foreign investment has attracted more attention or generated more controversy than Canada. As part of the continuing debate on this subject, the impact of foreign-controlled firms on domestic innovative capacity has been a topic of particular interest. And one element that often is cited as important concerns the research and development activities of foreign-controlled firms.

Past investigations have generally concluded "... that subsidiaries perform either as well as or better than Canadian-owned firms in terms of R&D."¹ Such findings, however, have been based either on highly aggregate statistics, which do not distinguish Canadian from foreign-controlled firms, or on sample surveys and case studies, the validity and representativeness of which it has been difficult to determine. Data allowing direct comparisons of the R&D activities of Canadian and foreign-controlled firms have only recently become available.²

Analysis of the new data shows that more than 80 percent of industrial R&D is performed by manufacturing and is concentrated in seven key industries — aircraft and parts, electrical products, petroleum, machinery, chemicals, primary metals, and pulp and paper. These industries, although accounting for just 40 percent of manufacturing value added, make up 85 percent of manufacturing R&D. In addition, when their R&D expenditures are related to overall measures of industry size (sales, value added), they are the most research-intensive (see Table 1).

Manufacturing also accounts for 60 percent of all foreign control in the economy and it is the only sector, other than mining, in which foreign-controlled firms are predominant, with the level of control reaching 57.7 percent in 1975. Foreign control is highest in the most research-intensive industries, with foreign-controlled firms accounting for over 80 percent of sales in 1975.

The predominance of foreign-controlled firms in the research-intensive industries does not mean that they are necessarily more research-intensive than their Canadian-controlled counterparts but only that they tend to be concentrated in those industries where most R&D is performed. For example, Table 2 relates the R&D expenditures of Canadian- and foreign-controlled firms in the research-intensive industries to their

respective level of sales in 1975. Where possible, industries have been further disaggregated to produce more precise results. With one minor exception, these data show that even in the most research-intensive industries, the R&D expenditures of Canadian-controlled firms are higher relative to sales than their foreign-controlled counterparts.

Despite their lower R&D-to-sales ratio, it would be premature to conclude that foreign-controlled firms are less technology-intensive than their Canadian-controlled counterparts. R&D expenditures do not account for a foreign-controlled company's access to imported technology. The importance to subsidiaries of parent technology is reflected in their payments to non-residents for technology-related services. While the notion of "technology-related payments" is imprecise and while there often is no explicit charge associated with transfers of technology with multinational corporations, the figures that are available seem quite striking. Even when the analysis is limited to visible payments for patents, industrial designs, royalties and scientific and research services (which excludes the more general categories of engineering services, and professional and management services), and when these are added to firms' R&D expenditures, the divergence between Canadian and foreign-controlled firms disappears in a most systematic manner (see Table 3). Because of the statistical and definitional problems mentioned above, probably not too much significance should be attached to the precise figures in Table 3. However, they do tend to confirm that foreign subsidiaries are no less and, in fact, probably more technology-intensive than their Canadian-controlled counterparts, and that their access to foreign technology is the principal reason for their lower research intensity.

The stronger economic performance of Canada's technology-intensive indus-

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tries is now well documented. They have been shown to have higher aggregate rates of growth in output, employment and productivity, and lower rates of price increases.³ In a similar fashion, it seems that foreign-controlled firms' access to imported technology gives them a competitive edge over their Canadian-controlled counterparts. They are much larger in size and "... labour productivity in foreign-owned firms is higher (and) ... foreign-owned corporations tend to earn higher profits."⁴

At the same time, foreign-controlled firms would appear to export less than Canadian-controlled ones. Table 4 compares U.S.-controlled firms' share of sales and exports in the most research-intensive industries and, although data are unavailable, it seems reasonable to assume that a similar pattern would exist for other foreign-controlled firms as well. On this basis, it is seen that foreign-controlled firms, although accounting for almost 75 percent of sales in 1970, were responsible for only 35 percent of exports.

The poorer export performance of foreign-controlled firms may seem paradoxical in light of their better profit and productivity record. To a large extent, this reflects the impact on their

Table 1 — Foreign control and research intensity by research-intensive industry, 1975

	Foreign control of industry sales %	R&D/Value added (total industry) %
High research intensity	82.0	4.2
Aircraft and parts	82.7	11.0
Electrical products	65.6	5.1
Petroleum	96.0	4.6
Machinery	67.5	3.2
Chemical products	82.9	2.5
Medium research intensity	32.4	1.2
Primary metals	17.1	1.8
Paper and allied	43.6	0.7
Other manufacturing	51.6	0.3
Total manufacturing	57.7	1.3

Source: Statistics Canada

Table 2 — Relative sales and R&D by research-intensive industry, 1975

	Canadian-controlled		Foreign-controlled	
	% Sales	% R&D	% Sales	% R&D
Pulp and paper	56.4	67.2	43.6	32.8
Primary metals	82.9	86.0	17.1	14.0
Ferrous	87.0	88.8	13.0	11.2
Non-ferrous	78.6	85.2	21.4	14.8
Electrical products	34.4	59.2	65.6	40.8
Machinery	32.5	31.4	67.5	68.6
Business machines	14.8	11.3	85.2	88.7
Other machinery	35.0	43.8	65.0	56.2
Chemicals	17.1	31.7	82.9	68.3
Pharmaceuticals	13.2	29.3	86.8	70.7
Other chemicals	18.3	33.2	81.7	66.8
Aircraft and parts	17.3	41.9	82.7	58.1

Note: The petroleum industry is excluded since the data on R&D by firm group is confidential.

Source: Statistics Canada

Table 3 — Relative "R&D" (including R&D and technology-related payments to non-residents) by research-intensive industry, 1975

	Canadian-controlled firms		Foreign-controlled firms	
	% Sales	% "R&D"	% Sales	% "R&D"
Pulp and paper	56.4	52.7	43.6	47.3
Primary metals	82.9	78.9	17.1	21.1
Electrical products	34.4	53.2	65.6	46.8
Machinery	32.5	25.0	67.5	75.0
Chemicals	17.1	19.7	82.9	80.3

Note: If Northern Telecom were excluded, Canadian-controlled firm's share of sales and "R&D" in Electrical products would be roughly equivalent, about 20 percent in each case.

Source: Statistics Canada

more diversified production activities of the historically high levels of tariffs imposed on manufactured goods both in Canada and abroad. In fact, it has recently been shown that Canadian-controlled firms, because of their more limited product range, are generally more specialized than their foreign-controlled counterparts.⁵ The findings in this paper indicate that they are also concentrated in relatively less-technology-intensive areas. Accordingly, in their own product fields, Canadian-controlled firms are probably competitive both domestically and abroad but, because of their greater specialization, the Canadian market accounts for a relatively smaller proportion of their overall sales.

There has been a tendency on the part of some observers to attribute the more fragmented production structure of foreign-controlled firms, and their subsequent lack of exports and R&D, to foreign ownership *per se* instead of more fundamental causal factors. It is important to note in this context that similar variations in product diversification occur among firms even in countries where foreign investment is insignificant. Thus it is unlikely, given the small domestic market and significant domestic and foreign trade barriers, that the behaviour of these more diversified firms would be very different, even if they were Canadian-controlled and the necessary technology had been acquired through other channels such as licensing agreements and joint ventures.

Japan is often cited as a case where an indigenous innovative capacity has been developed by retaining domestic control of industry while relying on licensing

arrangements with foreign firms for technology. However, this overlooks the fact that the national market in Japan is sufficiently large to allow domestic producers to achieve the minimum critical size required for meaningful R&D programs, despite the existence of trade barriers. A strong case can be made that the licensing option would have left Canada relatively worse off, given its small internal market. Licensing agreements generally preclude exports to a much greater degree than parent/subsidiary relationships, and provide no access to other types of foreign expertise in areas such as marketing, administration, production control and personnel training.

It has been argued in the past, given the higher profits and productivity and the greater technological intensity of foreign-controlled firms, that the substitution of more domestic R&D for imported technology would be inefficient, since Canada would only be duplicating at much greater cost and risk that which is already available from foreign sources. This fails to recognize, however, that the divergence in the research activities of Canadian and foreign-controlled firms is more than just a quantitative one.

R&D covers a wide range of activities, and firms with comparable expenditures may be involved in fundamentally different types of work. For example, considerable emphasis has been placed in previous studies on the tendency of foreign subsidiaries to use the basic designs and processes of their parents, while concentrating their own R&D efforts on adapting this technology to the special

requirements of the small Canadian market. In fact, the relationship between subsidiaries and their parent corporations can vary widely, from one of relatively complete autonomy to that of largely dependent branch plants with limited decision-making and policy-making authority. Similarly, in the conduct of R&D, examples can be found of firms doing relatively independent research projects. Despite extensive work, therefore, no clear impression has emerged of the degree to which R&D expenditures of foreign subsidiaries reflect adaptation functions, as opposed to truly innovative activities, and there is even less agreement on what would constitute the optimal mix.

The data now available confirm that subsidiaries draw heavily on the technology of their parents. Of course, access to imported technology does not necessarily mean that foreign-controlled firms' R&D expenditures are qualitatively different from those of Canadian-controlled firms. However, the small size of most Canadian markets, relative to the number of products and production runs, has generally been viewed as insufficient to support extensive R&D programs.⁶ This has led to the observation that firms with large R&D expenditures, although servicing the domestic market, must also strongly orient themselves toward export markets. On the basis of their export performance, therefore, there is little doubt that R&D in most subsidiaries is not only quantitatively less, but also qualitatively different.

Overall, the lack of specialization by foreign subsidiaries has tended to reduce their level of R&D expenditures because domestic sales have generally been insufficient to support the R&D required to develop new products and production techniques. More fundamentally, however, it also affected the qualitative make-up of the remaining R&D effort, directing it toward adaptive functions for the domestic market, as opposed to more innovative work aimed at exports.

No country is technologically independent and, because of Canada's small size, imported technology will continue to account for a significant part of its technological base. However, it seems clear from the preceding analysis that the net gains from both imported technology and domestic R&D performed by foreign-controlled firms, have not been maximized due to insufficient opportunities for greater specialization.

The need for greater rationalization in Canadian manufacturing has long been recognized. The evaluation of this question, however, has been discussed almost exclusively in terms of the free trade issue. The proponents of free trade, although clearly showing the efficiency losses inherent in limited scale

and specialization, have tended to focus on the overall gains in the long run of economy-wide tariff cuts. The problem with this approach is that it tends to ignore the path of adjustment to this better position, specifically in terms of the impact on those individuals and industries who would lose at least in the short run as a result of these measures.

The somewhat narrow perspective of the free trade literature is unfortunate since the most significant gains from increased specialization would occur within industries, especially on the part of foreign-controlled firms in the technology-intensive sector. Of course, because the decision by foreign firms to locate in Canada has commonly been attributed to the influence of tariffs, it has often been asserted that trade liberalization would result in their departure, with Canadian operations reverting to a simple distribution function for imports.

This view fails to account for the significant changes which have occurred in the Canadian economy over the last 25 years. A well-educated and highly trained labour force, a sophisticated service economy, especially in financial and capital markets and in the supporting infrastructure of transportation and communications, and a relative abundance of increasingly scarce energy sources, especially in hydro-electricity and natural gas, combine to give Canada a comparative advantage which did not exist many years ago. Indeed, many foreign-controlled firms, as a result of tariff reductions in the 1960s, have already started to rationalize at least parts of their operations, and they are becoming more research-intensive and export-oriented.

The further reduction of both domestic and foreign tariffs, as a result of the most recent GATT negotiations, should provide additional incentive and opportunities for greater rationalization in the technology-intensive sector. This is the area where tariffs have had their most detrimental effect and where the potential for export growth is greatest, given current trends in international trade. The achievement of greater specialization in the technology-intensive industries would require some restructuring in the current pattern of production but, fortunately, these adjustments could be handled largely within existing firms. More importantly, however, the benefits of increased specialization would be clearly visible in the form of overall increases in employment and production.

More efficient use would be made of highly qualified manpower, as resources now engaged in adapting imported technology would be released for more innovative work in those fields where firms chose to specialize. In this manner, access to foreign technology could be maintained, but it would act to complement and not distort or substitute for domestic R&D. In addition, the growth in new exports of technology-intensive commodities would reduce the current account deficit in end products, and the overall increase in national productivity would act to strengthen even further Canada's international competitive position.

In brief, it is time to recognize that Canada, although benefiting enormously as a consumer of technology-intensive products, has hardly started to exploit the payoff from their production to its full potential.

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Table 4 — Relative export performance in the high research-intensive industries, 1970

	U.S. — controlled firms		Other foreign- controlled firms		All foreign- controlled firms	
	% sales	% exports	% sales	% exports (est.)	% sales	% exports
Electrical products	55.0	25.9	8.0	3.8	63.0	29.7
Machinery	70.6	33.6	6.4	3.0	77.0	36.6
Chemicals	59.2	29.3	23.3	11.5	82.5	40.8
TOTAL	61.3	30.8	12.7	5.0	74.0	35.8

Note: Total exports from these industries accounted for 15 percent of all Canadian exports and 40 percent of end product exports in 1970.

Source: U.S. Tariff Commission and Statistics Canada

Capital investment projects in Canada

Manufacturing industries

This list shows major capital spending projects in progress or firmly committed in the manufacturing sector. Except for a few small projects of particular interest, only projects costing over \$10 million are included. Information on these projects has been obtained from press reports. Other sectors will be covered in the next issue of the Foreign Investment Review. This report was prepared by the staff of the Foreign Investment Review Agency with the assistance of the Economics Department of the Bank of Nova Scotia.

Capital spending in the manufacturing sector is expected to be particularly strong in 1980. A recent survey of large firms by Industry, Trade and Commerce showed that firms in this sector are expecting to increase their capital expenditures by about 29 percent in real terms. The largest increases are likely to be in transportation equipment, primary metals and forest products.

In the forest industry sector, many companies are engaged in very large expansion or renovation programs. For example, MacMillan-Bloedel Ltd. recently increased its five-year capital spending program to \$1.5 billion while Abitibi-Price Inc. will spend \$1 billion and Crown Zellerbach \$300 million in the next five years. Such programs include many projects that are not individually large enough to be included in the following list of major projects.

In 1980 capital spending in the transportation equipment sector is expected to be double its 1979 level. Of particular importance are the large expenditures by the major automotive companies but many manufacturers of automotive parts and accessories have also announced expansion projects, though some of them were below \$10 million.

Although major petrochemical projects totalling some \$800 million have been completed in the past year, new projects continue to be announced for this industry. In Alberta the Alberta Gas Ethylene Company, which has only recently completed its 1.2 billion lb. per day ethylene plant, announced plans for a second plant of equal size at the same location. Alberta Energy Co. plans a new synthetic natural gas plant as well as a benzene plant, the latter in partnership with Esso Chemicals Canada. At Sarnia, Ontario, Imperial Oil Limited will build a new polyethylene facility. In the Montreal area, the new petrochemical joint venture by Gulf Canada Ltd., Union Carbide Canada Ltd. and the Société générale de financement du Québec will study the possibility of doubling ethylene capacity.

Company and project description	Completion date	Cost (\$million)	Location
British Columbia			
Alcan Smelters and Chemicals Ltd. New carbon paste plant	1982	46	Kitimat
British Columbia Forest Products Ltd. Third newsprint machine	1982	150	Crofton
Crown Zellerbach Canada Ltd. New sawmill	1981	46	Coquitlam
Pulp and paper mill expansion	1982	171	Elk Falls
Doman Industries Ltd. New sawmill	1980	20	Nanaimo
Evans Products Co. Ltd. Expansion, forest products	1986	10	Lillooet
Finlay Forest Industries Ltd. Expansion, pulp mill, new sawmill	n.a.	32	MacKenzie
Lakeland Mills 1973 Ltd. Sawmill expansion	n.a.	15	Prince George
Mayo Forest Products Ltd. New sawmill	1980	16	Nanaimo
MacMillan Bloedel Ltd. Newsprint expansion	1981	163	Powell River
Modernize kraft pulp bleaching	n.a.	19	Harmac
New sawmill	1982	50	Chemainus
Rebuilding plywood mill	1980	22	Port Alberni
Modernize newsprint machines	1980	23	Port Alberni
Pulp mill expansion	n.a.	75 - 220	Nanaimo

Northwood Pulp and Timber Ltd. Pulp mill	1982	245	Prince George
Ocelot Industries Ltd. New methanol plant	1981	140	Kitimat
Prince George Pulp & Paper Ltd. and Intercontinental Pulp. Co. Ltd. Expansion, under study	n.a.	150 - 250	Prince George
Rayonier Canada Ltd. Sawmill modernization	1980	22	Vancouver area
Improvements, pulpmill	1980	20	Port Alice
Modernize kraft pulp mill	n.a.	200	Woodfibre (near Squamish)
Tahsis Co. Ltd. Sawmill improvements	1980	20	Tahsis
Tree Island Steel Co. Ltd. New steel rolling mill	1980	50	Richmond
West Fraser Timber Co. Ltd. and Daishowa Canada Ltd. New thermo-mechanical pulp mill	1981	70	Quesnel

Alberta

Alberta Gas Chemicals Ltd. Methanol plant expansion	1982	130	Medicine Hat
Alberta Gas Ethylene Company Ltd. Second ethylene plant	1984	370	near Joffre
British Columbia Forest Products Ltd. Lumber mill	1981	21	Grande Cache
Sawmill	1982	23	Fox Creek
Newsprint complex	1985	165	Hurdy
Canada Cement Lafarge Ltd. Cement plant expansion	1980	70	Exshaw
C-I-L Inc. Polyethylene plant expansion	1981	45	Edmonton
Dow Chemical of Canada Ltd. Ethylene glycol plant	1980	95	Fort Saskatchewan
Esso Chemicals Canada Ammonia and urea fertilizer plant (planned)	1983	300	Edmonton
Genstar Ltd. Cement plant expansion	1980	78	Edmonton
Interprovincial Steel & Pipe Corp. Ltd. New spiral pipe mill	1981	12	Edmonton
Liquid Carbonic Canada Ltd. Expansion	1980	n.a.	Fort Saskatchewan
Molson Companies Ltd. Brewery expansion	1983	24	Edmonton
Petrochemicals Alberta Project Benzene plant	n.a.	216	Fort Saskatchewan
Procter & Gamble Co. of Canada New sawmill	1980	15	Grande Prairie

Manitoba — Saskatchewan

Dominion Bridge Co. Ltd. (Manitoba Rolling Mills) Expansion, steel rolling mill	n.a.	6	Selkirk, Man.
Interprovincial Steel & Pipe Corp. Ltd. Expansion — 1st phase	1980	45	Regina, Sask.
— 2nd phase	1981	29	Regina, Sask.
Prince Albert Pulp Co. Ltd. Modernization, bleached kraft pulp mill	1980	40	Saskatoon, Sask.
New sodium chlorate plant	1980	8	Saskatoon, Sask.
Truroc Gypsum Products Ltd. Wallboard plant expansion	1980	5	Saskatoon, Sask.
Versatile Cornat Corporation Expansion, tractor assembly	1981	26	Winnipeg, Man.

Ontario

Abitibi-Price Inc. Replace sulphite mill	1980	18	Thunder Bay
Air Products and Chemicals (Canada) Ltd. New air separation plant	1980	n.a.	Nanticoke
Liquid hydrogen plant	1981	n.a.	Sarnia
Algoma Steel Corp., Ltd. Heat treating line, plate mill		24	Sault Ste. Marie
Upgrade and expand rail and structural mill	1981	15	
Upgrade hot strip mill	1982	49	Sault Ste. Marie
American Can of Canada Ltd. Pollution abatement and modernization	1981	60	Marathon
Canadian International Paper Co. Ltd. Expansion, tissue plant	1981	36	Toronto
Consumers Glass Co. Ltd. New glass container plant	1980	20	Milton
Dominion Foundries and Steel Ltd. Second hot strip mill	1983	350	Hamilton
Galvanizing line	1981	40	Hamilton
Dow Chemical of Canada Ltd. Expansion, polypropylene glycol plant	1981	11	Sarnia
E.B. Eddy Forest Products Ltd. Pulp and bleach facilities, speciality paper machines and other projects	n.a.	225	Espanola
Erco Industries Ltd. Expansion sodium chlorate plant	n.a.	15	Thunder Bay
Euclid Canada Ltd. Expansion	1981	12	Guelph
F.W. Fearman Co. Ltd. Addition to meat packing plant	1980	10	Burlington
Firestone Canada Ltd. Expansion, steel products plant	1981	20	London
Ford Motor Company of Canada Ltd. New engine plant	1981	535	Windsor
Aluminum castings plant	1980	44	Windsor
Fruehauf Trailer Co. of Canada Ltd. New plant to manufacture van trailers	1980	12	Ingersoll
General Motors of Canada Ltd. Expansion, transmission plant	1982	2000	Windsor
Conversion and expansion	1982		St. Catharines
B.F. Goodrich of Canada Ltd. Radial tire plant	1981	11	Kitchener
Increased capacity	1980	6	Thorold
Great Lakes Forest Products Ltd. Modernization, paper plant	n.a.	200	Dryden
Hayes-Dana Ltd. Expansion, axle plant	1981	25	Barrie
Imperial Oil Ltd. Polyethylene plant	1983	100	Sarnia
Jannock Corp. Ltd. Steel tube mill	1980	19	Toronto
Lake Ontario Steel Co. Ltd. Steel plant expansion	1980	85	Whitby
William Neilson Co. Ltd. Confectionery plant renovation	1981	11	Toronto
Spruce Falls Power & Paper Co. Ltd. Modernization, new thermo-mechanical pulp mill, pollution control	1982	88	Kapuskasing
Stanley Steel Co. Ltd. Steel plant expansion	1980	10	Hamilton
The Steel Company of Canada Ltd. New steel plant	1982	1250	Nanticoke
Expansion program	n.a.	365	Nanticoke, Hamilton
Union Carbide Canada Ltd. Expansion, polyethylene products	1981	40	near Sarnia
Uniroyal Inc. Increased capacity, tire plant	1982	23	Kitchener
Westinghouse Canada Ltd. Gas and steam turbine components plant	1980	30	Renfrew

Zymaize Company
(Redpath Industries Ltd. and John Labatt Ltd.)
Corn sweetener plant

1980 60 London

Québec

Abitibi-Price Inc. Conversion to uncoated groundwood papers	1980	32	Kénogami
Alcan Aluminium Ltd. New smelter — 1st phase	1980	200	Grande Baie
— 2nd phase	1981	90	Grande Baie
— 3rd phase	1982	150	Grande Baie
Upgrade alumina plant	1982	42	Vaudreuil
Canada Malting Co. Ltd. Malt processing plant	1980	16	Montréal
Canadair Ltd. Assembly plant	1980	25	Dorval
Canadian International Paper Co. Speed up paper machine	1980	19	Gatineau
Consolidated-Bathurst Ltd. New pulp mill	1981	25	Grand'mère
Renovations, newsprint mill	1980	12	Shawinigan
Donohue-Normick Inc. Newsprint mill	1982	140	Amox
Finachem Canada Inc. Polystyrene plant	1981	15	Montréal
Forex Inc. Waferboard plant	1981	19	Val d'Or
Hercules Canada Ltd. Polypropylene film plant	1980	30	Varenes
Kruger Pulp & Paper Ltd. Modernization, newsprint mill	1980	35	Bromptonville
Modernization, newsprint mill	1980	12	Trois Rivières
Normick-Perron Inc. Waferboard plant	1980	10	La Sarre
Ogilvie Mills Ltée Mushroom plant	1980	10	near Montréal
Pratt and Whitney Aircraft of Canada Expansion	1980	35	Longueuil
Rolland Inc. Paper machine rebuild	n.a.	12	Mont-Rolland
Expansion, fine paper	n.a.	14	St. Jerome
Sotispro Technologie Ltée New dairy products plant	n.a.	10	St. Hyacinthe
Tembec Forest Products Inc. Expansion, sulphite pulpmill	1980	12	Temiscaming

Atlantic Provinces

Abitibi-Price Inc. Conversion to newsprint production	1981	60	Stephenville, Nfld.
Bowater Newfoundland Ltd. Improvements, newsprint mill	1980	10	Corner Brook, Nfld.
MacMillan Rothesay Ltd. Improvements, newsprint mill	1980	11	Saint John, N.B.
Michelin Tires (Canada) Ltd. Expansion and new tire plant (planned)	n.a.	100	Granton, N.S. Bridgewater, N.S. Waterville, N.S.
New Brunswick International Paper Co. Expansion, newsprint mill	n.a.	125	Dalhousie, N.B.

n.a. — not available

Federal incentives

Over the years the federal government has developed a system of incentives that generally foster a number of economic objectives such as regional development, industrial expansion, international competitiveness, and research and development. These incentives are also designed to stimulate business capital spending and investor confidence. Below is a brief outline of those programs.

Department of Finance

Investment tax credit

An investment tax credit, which varies regionally from 7 percent to 20 percent, is available as a direct reduction from federal tax payable. This credit reduces the cost of most new buildings, machinery and equipment used principally in Canada in manufacturing and processing. In 1978 it was extended to expenditures on scientific research and development and to investment in equipment for rail, air, water and long-haul transport used principally for the purposes of transportation within or to and from Canada. The credit is limited in any one year to \$15,000 plus one half the federal tax payable in excess of \$15,000, but any unused credits may be carried forward for 5 years, subject to the same annual limits. In 1978, this tax credit was extended indefinitely beyond its scheduled expiry date.

Research and development incentives

The investment tax credit for R&D expenditures is 20 percent in the Atlantic Provinces and 10 percent in the rest of Canada, while small businesses are allowed a special R&D tax credit of 25 percent. In addition to writing off 100 percent of current and capital expenditures for R&D, taxpayers can deduct from their income a further 50 percent of any increase in such expenditure over the average level of the previous three years.

Accelerated capital cost allowance for manufacturing and processing industries

Taxpayers may charge 50 percent straight-line depreciation on most new machinery and equipment for use in manufacturing and processing in Canada (including heavy-oil upgrading), thus writing off such assets in two years.

Inventory allowance

In recognition of the distortion of business income from inventory inflation, three percent of the opening cost of inventories (except real property and goods not for resale) can be deducted in calculating business income.

Special rate for corporate manufacturing and processing profits

A special rate of tax on manufacturing and processing activities carried on in Canada (including heavy-oil upgrading) reduces the general rate on corporate profits from 36 percent to 30 percent. Provincial corporate tax rates ranging from 10 percent to 15 percent are levied in addition to the applicable federal rate.

Special tax rates for incorporated small businesses

Small Canadian-controlled private corporations are accorded lower income tax rates on active business income derived from activities carried on in Canada. The federal rate is 10 percent in manufacturing and processing industries and 15 percent in other activities. Provincial corporate tax rates ranging from 5 percent to 12 percent of income are levied in addition to the applicable federal rate.

Employment tax credit

Employers hiring workers to fill newly created jobs which are additional to their normal work force may be entitled to a tax credit which varies regionally.

Department of Regional Economic Expansion

Development incentives for designated regions

The Department offers cash incentives to firms that establish themselves, expand or modernize their installations in the following designated regions: Newfoundland, Nova Scotia, New Brunswick, Prince Edward Island, Northwest Territories, Quebec (except for the Montreal region which is discussed later), Northern Ontario, Northern Alberta and British Columbia.

Most manufacturing and processing firms are eligible for the development incentives and loan guarantees. Facilities for primary processing — oil refining and certain pulp and paper industry activities — and commercial facilities are not eligible. However, loan guarantees may be offered to business offices, warehousing and freight handling facilities, shopping centres, convention facilities, hotels and motels, recreation centres and research establishments.

Incentives for the construction of new facilities or the expansion of existing ones to produce new products are provided in the following way: a) 25 percent of approved capital costs plus \$5,000 a project and b) \$30,000 for each job created. Incentives for modernizing facilities or increasing production capacity are equal to 20 percent of the investment. The Department guarantees loans to service firms in order to help them obtain favorable financing terms. **Contact:** Industrial Incentives Branch, Department of Regional Economic Expansion, Ottawa, Ontario, Canada K1A 0M4.

Incentives for Montreal as a designated region

The Department also has an incentive program for businesses wanting to establish themselves in the Montreal region. The incentives are based on approved capital costs. The amount offered varies with the nature and location of the project. The maximum level of an incentive is 25 percent of the approved capital costs.

Only the industries involved in the following activities are eligible for the incentives: food industries dealing in prepared and quick frozen foods; metal, electrical and plastic products; metal fabricating; machinery; transportation equipment; chemicals and chemical products; scientific and professional equipment; miscellaneous manufacturing; and research and development, including research centers. A minimum investment of \$200,000 is required. **Contact:** Department of Regional Economic Expansion, Tour de la Bourse, 300 Place Victoria, P.O. Box 247, Montreal, Quebec, Canada H4Z 1E8.

Department of Industry, Trade and Commerce

Enterprise Development Program (EDP)

This program assists small- and medium-sized manufacturing and processing businesses to become more viable and internationally competitive. Introduced three years ago, the program is expected to provide about \$1.3 billion to Canadian business over the next five years.

In order to receive assistance, the applicant must prepare and submit a plan that shows how the project will affect the firm's viability. EDP officers analyse the firm's resources (human, financial, physical and technological), the potential and limits of the market, and the plans for deploying the resources and penetrating the Canadian and foreign markets. The results of the analysis are submitted for approval to the Enterprise Development Board, which is composed of businessmen and public servants.

The two main forms of assistance are cost-sharing and loan insurance. Cost-sharing is available for marketing and productivity studies, and innovation and design projects. Loan insurance is generally used for the expansion or modernization of facilities, working capital, mergers and acquisitions.

The eligibility criteria focus on the viability of the firm and project and on the

firm's ability to finance its projects. As for cost-sharing, the activities must represent a heavy financial burden for the firm when compared with its resources. Loan insurance is provided on a last-resort basis to firms unable to obtain debt capital on reasonable terms and conditions. Firms seeking loan insurance must have called upon other institutions such as the Federal Business Development Bank before applying to the Department.

Manufacturing and processing firms are generally eligible for all forms of assistance offered by the program. Firms in the service sector can obtain loan insurance if they can demonstrate that their services will produce a direct, tangible and substantial benefit for manufacturing and processing firms.

Special assistance to general and special trade contractors

The program provides an extension of EDP loan insurance and other benefits to general and special trade contractors, especially those who want to improve their position on the international market and who are interested in constructing turnkey operations. It is designed to help Canadian firms to modernize facilities, re-equip themselves and even merge with other firms in order to bid competitively for large foreign capital projects. **Contact:** Enterprise Development Board, Department of Industry, Trade and Commerce, 235 Queen Street, Ottawa, Ontario, Canada K1A 0H5

Program for Export Market Development (PEMD)

The purpose of the program is to help Canadian suppliers penetrate new export markets or increase their exports. Financial assistance is provided in the form of a repayable loan (in the event of success) for eligible expenses: 1) when a firm presents bids involving unusually large and complex capital expenditures; 2) in cases of exceptional international competition; and 3) for establishing a consortium to respond to demand in foreign markets.

The program has five sections offering a wide range of assistance designed to meet the needs of industry. The program encourages participation in major projects abroad, export market identification or adjustment, trade fairs abroad, trips to Canada by potential buyers and the formation of export consortia. About 2,000 firms use this assistance program each year. **Contact:** Program for Export Market Development, Department of Industry, Trade and Commerce, 235 Queen Street, Ottawa, Ontario, Canada K1A 0H5.

Small Business Loans Act

Department of Industry, Trade and Commerce guarantees loans made to small businesses whose gross annual income does not exceed \$1.5 million during the year in which the loan is made or, in the case of a new firm, if the estimated income in the first financial period — at least 55 weeks — does not exceed \$1.5 million.

All chartered banks, Alberta Treasury Branches and designated financial institutions — credit unions, trust, loan, insurance and finance companies — are authorized to make loans under the provisions of the Act.

Loans may be authorized to finance the cost of stationary and transportation equipment, of buildings and land necessary for operating a commercial venture and construction, installation, renovation, improvement or modernization of facilities.

The maximum rate of interest payable on SBLA loans is one percent over the prime lending rates of the chartered banks. The repayment period may not exceed 10 years. The terms of the loan are settled between the lender and the applicant without prior reference to the government. The amount to be repaid may not exceed \$75,000 and the applicants must invest a reasonable portion of the purchasing cost out of their own resources. **Contact:** Bank manager or the Department of Industry, Trade and Commerce, 235 Queen Street, Ottawa, Ontario, Canada K1A 0H5.

Machinery Program

This program provides for the remission of customs duties on imports of machinery not manufactured in Canada but of vital importance for the firm. **Contact:** Machinery and Equipment Advisory Board, Department of Industry, Trade and Commerce, 235 Queen Street, Ottawa, Ontario, Canada K1A 0H5.

Other programs

Other programs have been developed for shipbuilding, trade fairs and missions, defence production, footwear and tanning, fashion, and export growth and development. **Contact:** Department of Industry, Trade and Commerce, 235 Queen Street, Ottawa, Ontario, Canada K1A 0H5.

Export Development Corporation (EDC)

The Corporation provides financial assistance for Canadian export business

by means of insurance, loans, guarantees and other services. The value of EDC's financial assistance amounts to billions of dollars a year.

The EDC has extensive powers for helping all firms in Canada, regardless of size, insuring them against non-payment by foreign buyers of Canadian goods and services in almost all export sectors.

Through its "Risk Protection" insurance, the EDC can insure financial institutions against calls on surety instruments provided on behalf of Canadian exporters and can insure consortium members against the possibility of non-performance by another member of the consortium. The EDC also extends long-term loans, or guaranteed loans, to foreign buyers of Canadian goods and services. These loans are arranged in the private sector with interest rates which are the most competitive possible in the international market. The EDC offers this service when the foreign buyer needs long-term (5 years or more) credit but cannot obtain it from private sources.

The EDC can insure Canadian firms investing abroad against political risks, including losses or damages resulting from expropriation, insurrection, war or the impossibility of converting profits or capital. Almost any interest an individual or firm can have in a business concern abroad is insurable, including shares, loans, contracts for administrative or technical services, royalties and licensing agreements. However, only new investments in developing countries are eligible for insurance at the present time, the main condition being that the investor maximize the benefits to be derived by Canada and the host country. **Contact:** Export Development Corporation, 110 O'Connor Street, Ottawa, Ontario, Canada K1P 5T9.

Federal Business Development Bank

The Federal Business Development Bank, a Crown corporation, offers financial assistance to businesses who cannot find it elsewhere on reasonable terms and conditions. The Bank is directed to give particular consideration to the needs of small businesses.

The Bank's assistance may take the form of loans, loan guarantees, share capital or a combination of these, according to what best suits the special needs of the firm. The loans, normally guaranteed against fixed assets, are extended at market rates. As for the share-capital program, the Bank usually takes a minority position and agrees to have its shares bought back on suitable terms.

Most of the Bank's customers spend the money they obtain in purchasing land, buildings or equipment. Others use it to augment their firm's working capital, to start up new firms or for other purposes.

In addition to financial assistance, the Federal Business Development Bank offers a management consulting, management training and information service to small businesses. **Contact:** Federal Business Development Bank, 901 Victoria Square, Montreal, Quebec, Canada H3C 3C3.

Canadian Commercial Corporation (CCC)

Each year, the CCC helps more than 400 Canadian firms make transactions abroad involving a wide range of products from advanced electronics systems to commercial supplies of every description. A good many of these purchases are destined for aid programs of the Canadian International Development Agency (CIDA).

In many cases, the CCC is able to link Canadian suppliers with the purchasing services of foreign governments and international agencies, which are significant markets for Canadian firms. Thousands of bids can be submitted in this way each year. **Contact:** Canadian Commercial Corporation, 110 O'Connor Street, Ottawa, Ontario, Canada K1A 0S6.

National Research Council (NRC)

Industrial Research Assistance Program (IRAP)

Through this program the National Research Council analyses research projects submitted by industry and shares the cost of selected research projects. **Contact:** National Research Council, Montreal Road, Ottawa, Ontario, Canada K1A 0R6.

Pilot Industry/Laboratory Program (PILP)

This is a shared-cost program between NRC laboratories and industrial firms. **Contact:** National Research Council, Montreal Road, Ottawa, Ontario, Canada K1A 0R6.

Statistical tables

REVIEWABLE ACQUISITION CASES*

Table 1 — Outcome or status

	1975	1976	1977	1978	1979
Reviewable new cases	166	171	261	360	380
Carryover from previous period	52	54	65	73	106
Total of above	218	225	326	433	486
Total resolved	164	160	253	327	372
Allowed	116	124	231	282	320
Disallowed	21	19	12	28	24
Withdrawn	27	17	10	17	28
Carried over to next period	54	65	73	106	114
Allowed cases as percent of resolved (%)	71	78	91	86	86
Value of assets, all cases (\$000,000)	1,070	1,069	1,145	4,491	4,050

Table 2 — Country of control

	1975	1976	1977	1978	1979
Total	166	171	261	360	380
United States	116	109	171	243	248
United Kingdom	15	23	40	47	52
Other Europe	27	34	41	52	68
Austria	-	-	-	-	1
Belgium	2	1	2	1	2
Denmark	-	-	2	1	1
Finland	-	-	-	-	2
France	6	6	6	5	9
Germany, West	2	10	15	17	22
Greece	-	-	-	-	1
Italy	2	1	3	1	2
Liechtenstein	2	-	-	1	1
Luxembourg	-	3	-	1	-
Netherlands	5	-	4	8	6
Norway	1	-	-	1	-
Spain	-	-	-	-	1
Sweden	2	9	2	7	13
Switzerland	5	4	7	9	7
All other	8	5	9	18	12
Australia	1	-	1	-	3
Bermuda	2	1	-	-	1
Japan	2	3	3	7	2
Others	3	1	5	11	6
Allowed cases as percent of resolved	%	%	%	%	%
United States	77	73	91	87	85
United Kingdom	79	82	95	78	89
Other Europe	50	86	90	89	88
All other	30	100	80	80	93

Table 3 — Industrial sector

	1975	1976	1977	1978	1979
Total	166	171	261	360	380
Primary	18	15	20	30	29
Agriculture, fishing and trapping	1	2	4	5	4
Forestry	1	-	1	1	-
Mines, quarries, oil wells	16	13	15	24	25
Manufacturing	82	93	108	161	178
Food, beverage and tobacco	11	9	15	15	14
Rubber, plastic and leather	3	4	6	12	5
Textiles, knitting and clothing	3	3	5	4	14
Wood, furniture and paper	10	7	12	14	10
Printing, publishing, and allied	3	1	2	4	5
Primary metal and metal fabrication	9	19	12	20	34
Machinery and transport equipment	17	7	14	27	43
Electrical products	9	11	12	16	20
Non metallic mineral products	3	9	5	8	4
Petroleum and coal products	-	2	1	1	1
Chemical	11	15	10	22	17
Miscellaneous	3	6	14	18	11
Construction and services	66	63	133	169	173
Construction	2	2	3	1	6
Transportation, communications, utilities	6	9	10	11	9
Trade	37	38	72	102	93
Finance, insurance, real estate	14	8	15	19	12
Community, business, personal services	7	6	33	36	53

*Provision for review of acquisitions came into force April 9, 1974.

**REVIEWABLE NEW
BUSINESS CASES***

Table 4 — Outcome or status

	1975	1976	1977	1978	1979
Reviewable new cases	6	196	328	331	379
Carryover from previous period	-	6	58	52	64
Total of above	6	202	386	383	443
Total resolved	-	144	334	319	372
Allowed	-	115	297	273	322
Disallowed	-	9	12	21	22
Withdrawn	-	20	25	25	28
Carried over to next period	6	58	52	64	71
Allowed cases as percent of resolved (%)	-	80	89	86	87
Planned investment, all cases (\$000,000)	5	324	803	323	202

Table 5 — Country of control

	1975	1976	1977	1978	1979
Total	6	196	328	331	379
United States	4	90	184	193	205
United Kingdom	-	22	30	26	45
Other Europe	1	63	85	80	82
Austria	-	-	-	3	-
Belgium	-	1	-	1	5
Denmark	-	5	6	4	2
Finland	-	1	1	1	7
France	-	9	17	16	15
Germany, West	-	22	26	18	19
Greece	-	-	1	1	-
Ireland	-	-	-	1	1
Italy	1	9	10	10	6
Liechtenstein	-	2	-	-	-
Luxembourg	-	-	-	1	-
Monaco	-	-	1	-	-
Netherlands	-	2	3	1	4
Norway	-	-	3	3	1
Portugal	-	-	-	1	-
Spain	-	1	-	2	1
Sweden	-	3	9	5	6
Switzerland	-	8	8	12	15
All other	1	21	29	32	47
Australia	-	2	3	3	2
Hong Kong	-	3	3	3	4
India	-	3	1	1	1
Japan	-	4	10	6	17
Others	1	9	12	19	23
Allowed cases as percent of resolved	%	%	%	%	%
United States	-	73	88	86	86
United Kingdom	-	93	82	85	92
Other Europe	-	80	95	87	88
All other	-	91	81	79	83

Table 6 — Industrial sector

	1975	1976	1977	1978	1979
Total	6	196	328	331	379
Primary	-	12	22	27	16
Agriculture, fishing and trapping	-	2	6	2	-
Forestry	-	-	2	2	1
Mines, quarries, oil wells	-	10	14	23	15
Manufacturing	2	67	94	99	100
Food, beverage and tobacco	-	3	7	6	11
Rubber, plastic and leather	-	4	5	5	9
Textiles, knitting and clothing	-	4	9	5	8
Wood, furniture and paper	1	5	5	6	9
Printing, publishing, and allied	-	-	-	4	5
Primary metal and metal fabrication	1	15	19	12	13
Machinery and transport equipment	-	6	19	19	20
Electrical products	-	7	5	7	8
Non metallic mineral products	-	3	5	6	1
Petroleum and coal products	-	-	-	-	-
Chemical	-	6	3	6	7
Miscellaneous	-	14	17	23	9
Construction and services	4	117	212	205	263
Construction	-	4	4	14	12
Transportation, communications, utilities	1	10	5	11	11
Trade	1	68	133	102	156
Finance, insurance, real estate	1	10	16	11	14
Community, business, personal services	1	25	54	67	70

*Provisions for review of new businesses came into force October 15, 1975.

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