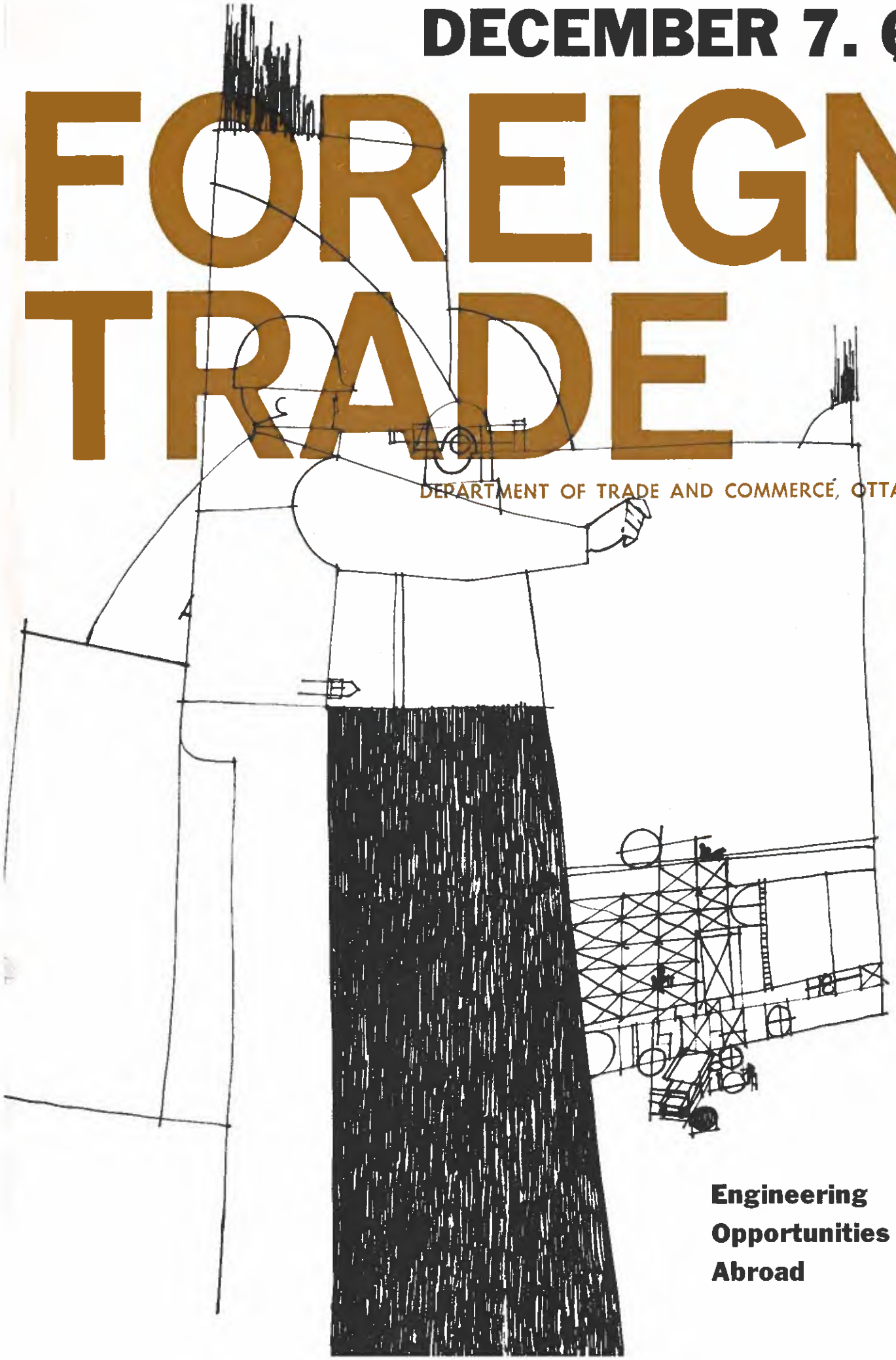
DECEMBER 7. 68

FOREIGN TRADE

DEPARTMENT OF TRADE AND COMMERCE, OTTAWA



Engineering Opportunities Abroad

IN THIS ISSUE

VOL. 130 NO. 12

"Tell us about the prospects for selling engineering services in your territory during the next year or two. Discuss the chances for Canadian participation in specific projects. Are there opportunities for supplying capital equipment as well?"

In August we put these questions to 15 offices of the Trade Commissioner Service, mainly in the developing countries. Their answers, the brief reports in this issue, reveal the extraordinary range of projects planned—everything from earth satellite stations to water supply systems, the development of mineral deposits, turning impassable roads into all-weather highways, building television and broadcasting centers, expanding airports, and designing huge dams.

While the Trade Commissioners were collecting this information, we at "Foreign Trade" were busy talking to Canadian consultants who have actually done work abroad. We asked them how they had obtained these assignments and how they were carrying them out. You will find the results of these six interviews scattered throughout the issue.

These engineers also gave us their views on doing work abroad, on Canadian assets and liabilities in competition with engineers of other countries, and on the problems and rewards of operating in the developing world. We were not surprised to find that one of the rewards is an intangible one—the satisfaction of seeing the desert blossom as the rose and of helping a new country to set its feet on the path to economic progress.

The man on the cover looks familiar? So he should; he appeared in our issue of November 26, 1966, which was also devoted to consulting engineering abroad. We hope that you will see him again next year, because we plan an annual review of engineering opportunities.

In our next issue, we shall turn to the eight EFTA countries, to discover how business is going there and what Canadians can do to cultivate the market in this important segment of Europe.

FOREIGN TRADE

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O. MARY HILL
Editor, "Foreign Trade"

Canadian Consultants Sell Knowhow Abroad

They enhance Canada's reputation and pave the way for other suppliers of goods and services

■ Canadian consulting engineers today are marketing their skills across the world. They design pulp and paper mills in Europe, Asia and Latin America; they help to route transmission lines in West Africa; they design a communication system in Iran; they check plans for a natural gas pipeline and advise on specifications in Algeria; they provide the engineering for a zinc smelter in Germany. They also plan airports for jumbo jets in Brazil and water supply services and hydraulic controls for Manila in the Philippines.

The value of these exports of engineering and related services—including aerial surveys, geophysical exploration, management and architectural services—cannot be determined by looking up DBS statistics. In 1966, however, 100 consulting engineering and related firms reported to the Department of Trade and Commerce that they had exported services worth $34.5 million, covering 500 projects. An informed estimate puts the figure for 1967 at $40 million—a substantial rise over the $16.5 million of 1964. There are no reliable figures on the proportion of foreign work that Canadian consultants undertake. One Montreal firm puts it at 6 to 7 per cent of its total volume of work; for a Vancouver company it is close to 20 per cent.

Some of these assignments in foreign countries represented projects or feasibility studies financed by Canadian grant aid or development loans. Others were sponsored by the international financing agencies such as the World Bank and the Inter-American Development Bank and thus were obtained against international competition. A good number, however, were straight commercial contracts captured in the face of stiff international bidding and many were in industrially advanced countries. In fact, of the 500 projects covered in the Trade and Commerce survey mentioned above, 46 per cent were carried out in the United States and Europe, 2 per cent in Australasia, and 52 per cent in the developing world.

Where Canadians Excel

It has become a cliché to say that Canadian consultants succeed best abroad in the fields where their experience has been greatest: forestry and allied industries, mining and mineral processing, power generation and its transmission over long distances, transportation, and resources surveys. The 1966 survey of services bears this out: of the 500 projects 101 were aerial surveys, 95 forestry or related projects, 78 mining, 75 transportation, and 56 power generation. The Canadian consultants who designed the concrete arched dam, Manic 5, in northern Quebec are now designing one for the huge Idikki project in southern India. Several firms have put their power knowhow to work in Guatemala, Ecuador, Brazil, Laos and other countries; the list of clients for our aerial survey companies includes Sudan, Malawi, Nigeria, and Ethiopia, and Canadians have done transportation studies in Turkey, Brazil, the Republic of Guinea, and other countries.

Predictably, the type of engineering services most in demand varies from country to country and is related closely to the degree of economic development in each. Analyzing figures contained in the 1966 survey of 500 projects illustrates this change in emphasis. These were the leading categories in the various areas, by per cent:

United States—forestry (69 per cent)

Europe—mining (47)

Latin America—power (31)

West Indies—transportation (28)

Middle East—transportation (57)

India and Pakistan—power (86)

Far East—power (29)

Africa—aerial surveys (55)

Australasia—forestry (60)

Sources of Financing

Figures on the sources of financing for the 500 projects are equally illuminating. It is a misconception that Canadian Government aid or long-term loans finance most of the consulting engineering work done overseas; actually only 21 per cent was financed in this way, compared

One of the major assignments for Canadian engineers in South America is the designing of the continent's first supersonic and jumbo jet airport in Brazil. The contract, won by a Canadian consulting consortium, was signed in Ottawa. (Left to right) E. R. Wilbee of John B. Parkin Associates, Her Excellency Dora Alencar de Vasconcellos, Brazilian Ambassador to Canada, and George Clayton of Acres International Limited. In the background, Embassy Secretary F. Alves.

with 34 per cent by United States sources (covering work both inside and outside the U.S.), 9 per cent by private Canadian funds, 6 per cent by the international financing agencies, 23 per cent by local public and private funds, and 7 per cent by private and government sources other than Canadian and U.S.

It remains true, however, that aid-financed projects are more important than the percentage figures would suggest. They serve to introduce many consultants to foreign work and help them to acquire experience without facing the chill winds of competition. And the international experience that they build up helps enormously when they go on to bid for contracts under the World Bank or the UN Special Fund or for commercial assignments. In addition, a completed foreign aid contract can lead directly to new commercial opportunities. A power study in Guatemala carried out for the World Bank brought the consultants the job of designing one of the power projects financed by the IADB and later a small contract for a thermal power station being established by a private company.

The sources of financing for consulting engineering vary with the country, just as the types of the assignments do. The table classifies the type of project and the financing sources for Latin America, the West Indies, Africa and Asia.

The dollar value of these exports of engineering services is only part of the picture. Equally important is the influence that the consultant often exerts on Canadian sales of materials and equipment and allied services. He is the forerunner who prepares the way for other Canadian companies to follow. Haiti provides a good example. Several years ago a Canadian consulting firm obtained a contract to

Financing Sources for Consulting Engineering*

FIELD:	Forestry	Power	Aerial Surveys	Mining	Industrial	Hydraulics	Transportation	Others
	%	%	%	%	%	%	%	%
SOURCES:								
Canadian Government	26	70	31	—	7	25	27	14
Canadian private	5	14	6	28	3	—	—	15
United States sources	4	—	—	31	13	—	—	11
Foreign private and government sources	4	—	5	7	1	—	4	6
Local public and private funds	57	3	47	22	76	31	60	53
International agencies	4	13	11	12	—	44	9	1

*Table covers Latin America, the West Indies, Africa and Asia.

90517—1½

design a water supply system in Haiti —a project financed by the Inter-American Development Bank. After the design was completed and the specifications prepared, the contract for building the system was won by a Canadian contractor and the pipe was supplied by a Canadian company. Across the world in the Sheikdom of Abu Dhabi, Canadian consultants designed the airport and Canadian airport equipment is now flowing in.

Canadian Assets and Problems

In competing for foreign work, Canadian consultants have both strengths and weaknesses, according to the firms that *Foreign Trade* has interviewed in the last two months. A major strength, they agreed, is the goodwill towards Canada in most foreign countries—an intangible but valuable asset. Another is the fact that we live next door to the most technologically advanced country in the world, the United States, and have been exposed to that technology. But because we have a much smaller market we have had to adapt U.S. practices to our special needs. For this reason, Canadian consultants often can adapt more easily to the peculiar needs and demands of less advanced economies, combining American knowhow with Canadian flexibility. Generally speaking, Canadian costs compare favorably with those of their competitors or may even be lower.

Canadian engineers also have certain competitive disadvantages. One is the fact that many countries, particularly in the developing world, are looking for turnkey projects. This faces Canadians with the need to enter into consortia with contractors and suppliers of equipment, etc., and to make these consortia work. Some consulting consortia have already been set up to undertake special projects; one Canadian consulting firm has teamed up with a prominent architectural company to do the feasibility study and to design an airport for jumbo jets in Brazil. A few consortia of the other type have been formed and are competing for contracts in various countries.

Another problem that Canadian engineers bring up is the cost of developing business overseas. The 100 firms who responded to the Trade and Commerce survey estimated that they spent on the average one per cent of their total annual volume of business on developing assignments abroad. One firm pointed out that it has been doing spadework in Spain for two to three years and is just beginning to see results. If this careful cultivation brings in business, well and good; if not, the company bears the loss*. Some of the countries competing with Canada in this field offer to carry out prefeasibility or feasibility studies free; this naturally gives them a head start in getting contracts and often appeals to developing countries short of funds. Most Canadian firms cannot afford to do this. All the consultants with whom we discussed work abroad agreed that obtaining assignments takes not only money and hard work but also patience. Two to five years may elapse between the first contact with a potential client and the obtaining of an engineering contract.

How to Prospect

Because looking for foreign work is an expensive business, most consultants suggest that the effort be concentrated on one area at a time or even on one country. Visit it as often as necessary. Then, when the firm's position is consolidated, prospect in another area. In the developing countries, the government or government entities are usually the only possible clients; in more developed areas where there are competent local civil engineering firms, the consultant's best hope may lie in selling specialized knowhow to private industry.

Most of the consultants make a point of obtaining good representatives abroad or of associating with a local engineering firm. One company has linked up with local civil engineers in Sweden, Germany, France and Spain and has representatives in other countries as well, normally engineers or with some engineering training. Other Canadian consultants believe that a good agent need not necessarily have engineering knowledge—the essential is contacts at fairly high levels and a good intelligence system. But a representative of some kind is a must to keep the firm in the know about opportunities that arise, to supply expert guidance on local conditions and local politics, and generally to keep the firm's name before the right people. As one engineer put it, "no amount of correspondence can substitute for the fact that the local representative can keep in personal contact with the client."

The representative, however, cannot be expected to carry the whole burden, especially when business begins to materialize. One group of consultants believes that "in order to effectively negotiate contracts . . . it is very necessary for senior personnel, preferably one of the principals, to make personal visits. Later during the implementation and construction stages personal visits of senior personnel are again very necessary, otherwise the impression is created that the firm has lost interest in the project once the contract has been signed."

By and large, the successful Canadian abroad is the adaptable Canadian. In engineering terms this means that, especially in the developing countries, he may have to modify his engineering practice to meet prevailing conditions. As one of them puts it, "You have to throw the rule book out of the window and start from scratch." As an example, in Canada one of the objectives is to make maximum use of machinery and labor-saving devices; in India or Malaysia it may be to use as many people as possible on a project to provide employment. And the engineer must spend more time in training people, a vital preoccupation if the mill or the power plant is to run smoothly after the Canadians depart.

Most engineers with whom *Foreign Trade* discussed foreign assignments agreed that they confer both tangible and intangible benefits. On the tangible side, they help to even out the work load; foreign jobs normally take longer and the time schedule is usually not as tight. And they broaden the firm's experience. Equally important, the engineer who leaves behind him in other countries a respect for Canadian technical achievements and for the ability and integrity of its engineers may help the acceptance of other Canadian products and services and so further the expansion of our foreign trade.

*The Province of Ontario, however, has a fund for financing part of the development costs for Ontario-based firms.

The United Nations Development Program

its implications for the consulting engineer

R. D. LUCAS, *Permanent Mission of Canada to the United Nations, New York*

■ The United Nations Development Program (UNDP), main channel for UN assistance to developing countries, is catching the eye of more and more private firms looking for sales and investment opportunities. Canadian engineering consultants have succeeded in participating in aid projects financed by the Special Fund component of UNDP; in fact, in 1967 (the most recent figures) Canada was the second largest supplier of consulting services to the entire United Nations family. On a cumulative basis measured since the beginning of Special Fund operations in 1959 Canada stood in third place, following France and the United States. Subcontracts awarded to Canadian firms by UN agencies to the end of 1967 had earned Canada over U.S.$10.5 million.* This exceeded 14 per cent of the $74 million value for all subcontracts awarded during the 1959-67 (inclusive) period. Services provided by Canadian firms included studies of water, mineral, power and forestry resources; transportation feasibility reports; diamond drilling, and aerial photography, geological and geophysical assignments. Table I lists contracts awarded both cumulatively and for 1967 only by headquarters country of the subcontractor (see page 7).

The United Nations Development Program, formed at the beginning of 1966, is headed by an eminent American, Paul Hoffman. It merges two previous UN development assistance programs, the Expanded Program of Technical Assistance (EPTA), and the UN Special Fund (SF). The two components, although they are gradually fusing, are still distinguishable. EPTA finances the sending of individual technical experts to assist developing countries, and SF carries out major pre-investment studies aimed at attracting substantial amounts of follow-up investment capital to the world's less wealthy areas, thereby stimulating economic and social development.

Special Fund projects cover a wide range of fields and countries. Including those approved in June 1968 by UNDP's Governing Council, 925 Special Fund projects have been sponsored so far. Projects are going forward in nearly 100 countries; others are regional in nature, benefiting several countries. Project costs are financed by voluntary contributions from both developed and developing countries. Forty per cent of the $185 million pledge to UNDP in 1968 came from the United States; other major contributors were Sweden, Britain, Denmark and Canada. In 1968 the Canadian pledge was nearly U.S. $10 million.** Even the smallest and poorest countries make token contributions. As an addition to UNDP financing from voluntary resources, recipient countries put up counterpart funds to meet local costs. The 925 projects so far approved actually represent about $2.2 billion in total commitments, of which over $900 million was from UNDP's resources and $1.3 billion came from counterpart contributions.

Types of Projects

Projects cover many fields, including economic planning, strengthening of public utilities, education and public health, and public and social services. The area of greatest interest to consultants is resource surveys. These are usually technico-economic feasibility studies of latent natural resources such as forests, minerals, soils, water and so on. Transportation and land-capability studies are included in this group.

A second category of Special Fund projects deals with the development of human resources through education and training. These include centers for advanced university science and engineering training, secondary teacher training, vocational training, and adult literacy projects. Of the 522 projects in operation in 1967, nearly 40 per cent were in the field of training.

Applied research forms another group of Special Fund projects, comprising roughly one-fifth of projects in operation during 1967. Mainly institutional in nature, these projects have as their object the application of modern science and technology to the development process. Still other projects deal with economic planning and support of essential government services, improvement of rural life, and demonstration of new industrial processes based on local resources.

*All figures are in U.S. dollars.

**Cdn.$10.75 million.

Each year, members of the United Nations pledge support to the UNDP. This year Canada increased its contribution from $10 million to $12.5 million and the total from all countries came to almost $200 million. Here J. P. Goyer, Parliamentary Secretary to the Secretary of State for External Affairs, signs for Canada. Watching him is Bruce Rankin, Canada's Ambassador to Venezuela and delegate to this year's UN General Assembly, who presided over the Pledging Conference. Behind them are Paul Hoffman (left), Administrator of the UNDP (formerly Administrator of the Marshall Plan) and David Owen (right), Co-administrator of UNDP.

How Projects Originate

An underlying premise of UNDP assistance is that it is responsive: any country desiring assistance must first make a formal, well-documented request to UNDP headquarters in New York. Requests are prepared in close collaboration with UNDP's field organization, which comprises nearly ninety resident representatives' offices throughout the developing world. All requests are closely investigated to ensure that they have the making of viable projects. If so, UNDP's secretariat recommends to the 37-member Governing Council that the project be approved and the required funds earmarked. Projects are approved in "programs" of up to a hundred individual projects at each January and June session of the Governing Council. Once this step is completed, the project passes for implementation into the hands of one of the 13 "executing and participating agencies" of UNDP. The list of agencies responsible for implementation of UNDP-financed projects is slowly increasing. Recently the Inter-American Development Bank and the African Development Bank were added. Also included are members of the UN family of specialized agencies, the UN Secretariat itself, and the World Bank. (See accompanying box for full listing of UNDP's executing agencies.) The nature of the project determines which organization is named as implementing agency. For example, power and transport studies are done by either the World Bank or the UN; irrigation, forestry, fisheries and agricultural projects are carried out by FAO, and so on. UNDP itself does not implement projects, although it does maintain a watching brief on them.

Subcontracting Increasing

Agencies implement projects in two ways. Because some are long-lasting and have a heavy element of training, certain agencies have traditionally recruited internationally technical experts to carry out the substantive work. The second method is to subcontract the work to an outside organization, usually a consulting firm. Sometimes subcontracts are awarded to semi-government bodies or to universities. Because of difficulty in locating, hiring and retaining individual experts, a gradual trend to increased subcontracting has developed. In the most recent program, approved by the Governing Council in June 1968, $8.8 million or 17.6 per cent of project costs (excluding counterpart funds) was allocated for subcontracts compared with a cumulative figure of 11.5 per cent. Other financial allocations are made for hiring of technical experts, provision of study and travel fellowships, purchase of equipment, and meeting of agency and UNDP costs. Over the years, a total of $908 million from voluntary financial resources has been allocated, of which $104 million, or 11.5 per cent, has been for subcontracts. By the end of 1967, only $74 million had actually been expended on subcontracts because of the inevitable time lag between allocation of funds and actual disbursement.

The "big three" of UNDP's implementing agencies in terms of contracts awarded are the UN itself, FAO and the World Bank. This group accounted for well over 90 per cent by value of subcontracts awarded. The World Bank, which subcontracts virtually 100 per cent of its UNDP-sponsored projects, heads the list, but other agencies such as ITU have never resorted to subcontracting. The wide disparities in the amount of subcontracting by different agencies result mainly from the nature of the projects handled. For example, it is difficult to subcontract any part of the work involved in setting up and running a training school for animal health assistants, but a conventional river-basin study or mineral survey would be suited to subcontracting. In addition, certain of the agencies have been more receptive than others to subcontracting as an effective way of implementing projects. A breakdown of subcontracts by awarding agency is given in Table II. Table III lists the various types of contractual services which have been required.

Evaluating Proposals

Each agency maintains a roster of qualified firms and organizations interested in being considered for Spe-

cial Fund contracts. When professional services are called for, the agency prepares a "short list" of up to a half-dozen firms it considers competent to carry out the work. This list is submitted to the recipient government for clearance, after which the agency headquarters invites the firms to make proposals in accordance with the specifications of the project. What does the UN look for in evaluating proposals? The following factors, singly or in combination, are regarded by the UN as applicable:

1. Experience of the firm, its principals and key employees in the type of work under consideration

2. Experience in the use and professional development of personnel from the area of the work

TABLE I

UNDP/SPECIAL FUND CONTRACTS AWARDED

By Headquarters Country of Subcontractor	In 1967		Cumulative to end 1967	
	No.	*Cost*	*No.*	*Cost*
		(U.S.$ equivalent)		
Australia	1	1,053,000	1	1,053,000
Austria	—	—	1	99,000
Belgium	2	212,500	5	775,200
Canada	13	2,837,800	45	10,242,100
Colombia	1	3,100	1	3,100
Czechoslovakia	1	5,500	1	5,500
Denmark	2	744,000	3	753,000
Ecuador	1	20,000	1	20,000
Finland	—	—	2	13,300
France	15	1,593,700	75	14,397,400
Germany, West	4	536,500	17	1,693,200
Greece	1	4,800	3	1,096,400
Hungary	1	8,400	1	8,400
India	—	—	1	14,700
Israel	—	—	2	925,000
Italy	5	1,069,100	28	6,265,900
Ivory Coast	—	—	3	126,900
Jamaica	—	—	1	20,500
Japan	2	895,000	9	2,344,100
Kenya	—	—	1	32,500
Lebanon	—	—	5	124,600
Mexico	—	—	3	20,200
Netherlands	3	172,400	13	3,179,900
Norway	1	210,000	4	925,000
Peru	—	—	2	81,000
Philippines	—	—	1	23,800
Poland	—	—	1	394,200
Senegal	—	—	1	30,400
Sierre Leone	1	24,400	1	24,400
Spain	—	—	1	227,300
Sweden	3	526,900	12	2,027,200
Switzerland	2	1,391,000	5	1,871,700
Uganda	—	—	1	18,900
United Kingdom	14	2,397,100	49	5,441,900
United States	16	4,967,700	66	12,853,500
Venezuela	1	5,300	2	11,800
Yugoslavia	1	31,000	6	643,500
Inter-government agency (EACSO)	—	—	2	538,600
International Consortia				
Italy/Poland	1	102,600	1	102,600
France/Netherlands	1	324,700	1	324,700
Britain/France	—	—	1	480,000
Canada/Netherlands	—	—	1	593,900
United States/France	—	—	1	3,346,000
France/Sweden	—	—	1	230,000
Netherlands/United States/Italy	—	—	1	471,000
France/Italy	—	—	1	566,900
Total	**93**	**19,136,500**	**384**	**74,442,200**

TABLE II

UNDP/SPECIAL FUND CONTRACTS AWARDED

By Agency	In 1967		Cumulative to end 1967	
	No.	*Cost*	*No.*	*Cost*
		(U.S.$ equivalent)		
UN	37	5,619,400	158	24,026,000
FAO	31	3,135,300	156	19,079,600
WHO	4	1,984,000	8	3,391,100
IBRD	18	7,951,800	47	25,590,400
IAEA	1	305,800	5	444,800
UNIDO	1	137,000	3	555,400
UNESCO	1	3,200	4	1,179,600
WMO	—	—	1	10,000
ILO	—	—	2	165,300
Total	**93**	**19,136,500**	**384**	**74,442,200**

TABLE III

UNDP/SPECIAL FUND CONTRACTS AWARDED

By Type of Service	In 1967		Cumulative to end 1967	
	No.	*Cost*	*No.*	*Cost*
		(U.S.$ equivalent)		
Aerial surveys, photography	19	1,192,400	76	6,436,300
Mineral, geophysical surveys	18	1,348,500	82	8,093,400
Soils, hydrological studies	6	2,219,900	48	13,258,700
River basin studies	3	1,796,500	12	6,199,200
Electric power studies	4	852,100	27	7,333,900
Transport, communications surveys	16	7,175,500	34	19,245,200
Urban planning	5	3,037,000	16	5,568,800
Economic studies	9	374,300	23	1,471,500
Equipment design, supply	2	332,800	21	2,018,700
Air transportation	1	276,400	12	1,005,000
Other	10	531,100	33	3,811,500
Total	**93**	**19,136,500**	**384**	**74,442,200**

3. Length of time the firm has been operating under its present name and organization

4. Past record of performance

5. Professional reputation and technical proficiency of principals and key employees

6. Record of litigation on work for former clients

7. Availability of qualified personnel from the firm's own organization for the proposed period of work

8. Extent and nature of any proposed subcontracting and the qualifications of other firms being proposed as participants

9. Probable ability to start work promptly and to maintain schedules

10. Ability to supply any required materials or equipment

11. Availability of financial resources necessary to carry out the work and the financial strength of the firm

12. Relationship of the work to the firm's total capacity

13. Capability and experience in dealing with local personnel (in the work area) on technical and administrative matters.

Competition for most UNDP/Special Fund work is intense—for example, the UN itself has over 1,000 names on its roster of interested firms. To have carried out a Special Fund job represents a significant addition to a firm's professional qualifications. In this highly competitive climate, Canadian firms have so far done well: two dozen different firms were awarded forty subcontracts, valued at $10.5 million, through 1967.

What were some of the ingredients of the success formula used by these firms?

Although individual cases vary, successful consultants normally have had:

—*Good over-all comprehension of the UNDP system*—how projects are formulated, the role and importance of the executing agencies, and the procedures involved. (UNDP's "Guide to Firms and Organizations Desiring to Participate in the Activities of the UNDP", available on request, is very helpful.)

—*A selective approach, both as to agency and project.* They have sought only one or at the most two projects at any one time.

—*Strong competence in one particular field.* They have emphasized this in approaching the executing agency.

—*A good sense of timing in their sales efforts with the agencies.* Shortly after approval of the project, they have stated their strong interest in it to the agency, and thereafter have followed the project carefully in order to "make their pitch" at the most critical time.

—*Registered fully with the agencies of greatest interest to them* and have been careful to update the information as they gained further experience. They usually have established personal contacts, particularly at the technical levels, within the agencies.

—*Previous foreign experience* either for private clients, the Canadian International Development Agency or foreign governments.

—*A willingness to spend fair amounts of time and money* in development of overseas consulting work.

—*Readiness to assign top-notch personnel* to develop and carry out overseas work, in order to establish a sound reputation for the firm.

—*Put in proposals of high technical caliber.*

There is, of course, no magic road to success in obtaining Special Fund contracts; in the last analysis, technical competence and an effective selling effort probably count most. To help consultants in achieving even greater success with UN aid programs, the Canadian Government last year posted a trade officer to its Permanent Mission to the United Nations in New York. The Mission keeps in close touch with UNDP on operational aspects of projects and gives help to Canadian consultants desiring it. Firms interested in exploring business possibilities with the UN and its family should contact the Mission, sending inquiries to: Permanent Mission of Canada to the United Nations, 866 United Nations Plaza, New York, N.Y. 10017. (Attention: R. D. Lucas).

UNDP's Executing Agencies

The number in brackets follow the name of the agency indicates number of projects allotted to e as of June 30, 1968.

UN/United Nations Secretariat (1
Director
United Nations Technical Co-operation Office
Department of Economic and So Affairs
United Nations
New York, N.Y. 10017

—surveys and feasibility studies the utilization of mineral, geotherm surface and groundwater resource.

—transport

—hydrographic studies, water management and flood control

—power development, geophysica surveys, mapping and training

—research and training for urban regional planning and housing construction

—national and regional economic social development planning and implementation

—public administration and streng ening of government services

UNESCO/United Nations Educational, Scientific and Cultural Org ization (127)
Director
Bureau of Relations with International Organizations and Progra
United Nations Educational, Sci tific and Cultural Organization
Place de Fontenoy
Paris VIIe, France

—secondary school teacher traini

—scientific and engineering educ tion and technical teacher trainin at university level

—work-oriented adult literacy p projects

—support of polytechnic schools

—applied research centers includ those for petroleum, mining, ina trial standards and testing institutic hydrological studies, and power e neering research

UNIDO/United Nations Industrial Development Organization (26)

Director
Technical Co-operation Division
United Nations Industrial Development Organization
Felderhaus, Rathausplatz 2
A-1010 Vienna, Austria

—industrial planning and programming, feasibility and marketing studies

—assistance in establishment of pilot plants and industrial estates

—advisory services in industrial technology and for the development of specific industrial sectors such as petrochemicals

FAO/Food and Agriculture Organization (365)

Assistant Director-General
Program and Budget
Food and Agriculture Organization
Via delle terme di Caracalla
Rome, Italy

—studies for the development of the basic soil and water resources for agricultural development

—promotion of the global exchange of improved and new plant species and their introduction

—the spreading of advanced agricultural techniques

—the expansion of animal husbandry and the combatting of animal diseases

—the development and utilization of the resources of the sea

—applied research into nutrition, food science and processing

—soil erosion control

—the expansion of training and extension services

—storage and marketing of agricultural products

—the improvement of hides, skins and leather production

—land reclamation and resettlement

—pilot schemes and demonstration projects

—development of forests and forest industries

—irrigation engineering

—control of agricultural pests and diseases, and production of fertilizers

IAEA/International Atomic Energy Agency (5)

Deputy Director-General for Technical Assistance
International Atomic Energy Agency
Kaerntnerring 11
Vienna 1, Austria

—studies involving the development of nuclear power and the use of radio-isotopes in agriculture, hydrology and industry, and of radiation for the disinfestation of grain and for insect eradication

ICAO/International Civil Aviation Organization (11)

Director
Technical Assistance Bureau
International Civil Aviation Organization
International Aviation Building
1080 University Street
Montreal 3, P.Q.

—expanding and improving the safety of air transport services, particularly through the training of flight and ground personnel

ILO/International Labour Organization (111)

Chief
Field Department
International Labour Organization
154 rue de Lausanne
Geneva, Switzerland

—training of vocational instructors, supervisors, managerial and specialized personnel

—strengthening of productivity and other centers for raising output

—small-scale industries

—labor/management relations institutes

—improvement of occupational environment

—advisory services for crafts and industry

—assistance in manpower planning

ITU/International Telecommunications Union (26)

Chief
Technical Co-operation Department
International Telecommunications Union
Place des Nations
Geneva, Switzerland

—telecommunications training and research centers

—centers for training in electronics and in broadcasting

—telecommunications surveys

ADB/African Development Bank (1)

The President
African Development Bank
Boîte Postale 1387
Abidjan, Ivory Coast

—financing of economic development projects throughout Africa

IBRD/International Bank for Reconstruction and Development (48)

Projects Department
International Bank for Reconstruction and Development
1818 H. Street, N.W.
Washington, D.C. 20453

—surveys and feasibility studies in fields which include electric power, roads, railways, ports, harbors, telecommunications, minerals and irrigation

IDB/Inter-American Development Bank (1)

The President
Inter-American Development Bank
808 17th Street, N.W.
Washington 25, D.C.

—financing of economic development projects throughout Latin America

WMO/World Meteorological Organization (18)

Chief
Technical Co-operation Division
World Meteorological Organization
41, avenue Guiseppe Motta
Geneva, Switzerland

—the setting-up and expansion of meteorological, hydro-meteorological and hydrometric stations

—the improvement and expansion of typhoon and flood warning services

—meteorological training centers

—hydro-meteorological surveys

WHO/World Health Organization (24)

Deputy Director-General
World Health Organization
20 avenue Appia
Geneva, Switzerland

—regional and national centers for the control and eradication of disease

—training of nurses and certain other health personnel

—institutions for sanitary engineering and occupational health

—public health engineering research centers

—protection against air and water pollution

—assistance in the preparation of master-plans for water supply and sewerage

FAO
Develops World Agriculture

As executing agency for some 40 per cent of UNDP programs, FAO can be a valuable source of opportunities for the consultant.

J. E. MONTGOMERY
Commercial Secretary, Rome

■ During the last two years the Food and Agriculture Organization, the United Nations body solely responsible for world agriculture, has placed the main emphasis of its activities on development.

At the 51st Session of the FAO Council, held in Rome in October 1968, the Director-General, in referring to the brighter picture of food production in developing countries during the past eighteen months, stated that "the cumulative effect of long years of development effort at last seems to be bearing fruit."

But there is much more to be done and FAO has been strengthened by the importance attached to agricultural development by the World Bank. The address of Robert S. McNamara, President of the IBRD, on October 1, 1968, issued a call to arms on behalf of agricultural production:

"Irrigation schemes, fertilizer plants, agricultural research and extension, the production of pesticides, agricultural machinery, storage facilities—with all of these we will press ahead in the immediate future. Indeed in the coming year we plan to process more than twice the value of agricultural loans as in the last, and our agricultural dollar loan volume over the next five years should quadruple."

FAO's Strategy

FAO in co-operation with the UNDP, IBRD and other UN agencies intends to stress five priority areas in its future program:

1. The development and wider cultivation of high-yield varieties of basic food crops.

Under the guidance of an FAO expert, A. Marasovic of Yugoslavia, (left) a Lebanese technician (center) is examining irrigation pipes. The exercise is part of a UNDP-financed project being executed by FAO to raise agricultural production in the Lebanon by introducing irrigated farming. Following soil surveys, six experimental stations have been set up in the country and are carrying out varied tests.

2. A war on waste—food storage losses and soil erosion.

3. An all-out attack on protein deficiency, encouraging on a world scale the production of low-cost animal and vegetable protein.

4. Mobilization of human resources for rural development, intensified efforts in agricultural training at all levels, agrarian reform, co-operatives and credit.

5. The promotion of foreign exchange earnings and savings in the developing countries.

Accompanying this new strategy of development, FAO is implementing a fundamental reorganization designed to make its forward planning and field operations more effective. Canadian companies could with profit call upon the new Economics and Social Development, Project Development, Operational and Administration Departments.

Types of Opportunities

The opportunities for Canadian companies fall into four main categories:

consulting engineering and aerial surveys

provision of experts

provision of equipment

package project programs

FAO acts as an executing agency for UNDP programs in tbe developing countries. New projects are allocated twice a year, in January and June, and about 40 per cent of UNDP-approved projects are executed by FAO. At the June 1968 session of the UNDP Governing Council, 24 new or expanded projects were allocated to FAO.

The following selections from this list of projects illustrate their diversity:

Bolivia: improvement of agricultural development in the Altiplano

Cambodia: irrigation and drainage network on the Prek Thnot River

Republic of Korea: tubewell irrigation project

Fiji: development of rice-growing in the Rewa River basin.

Within the last two years Canadian consulting engineering firms have succeeded in obtaining business worth over a million dollars from FAO projects.

Steps to Take

If your firm wants to learn more about these projects and perhaps share in them, these are the steps to take.

1. Write to the Chief, Contracts Branch, Administrative Services Division, FAO, Via delle Terme di Caracalla, 00153 Rome, Italy, expressing interest in FAO field projects and asking that your firm be registered as a consultant. Send a set of appropriate liternature to FAO and additional copies to the Commercial Division, Canadian Embassy, Rome. Your registration file at FAO should be kept continuously up-to-date showing all your fields of interest.

2. Registration with FAO is insufficient for you to receive an invitation to tender on contracts. Write to the Canadian Permanent Mission to the United Nations in New York, asking for a list of UN Special Fund projects assigned to FAO each six months. After studying the list of projects, send individual letters to the Chief, Contracts Branch, Administrative Services Division, FAO, expressing your interest in specific projects. Then contact the Commercial Division, Canadian Embassy, Rome, asking for the name of the project officer assigned by FAO to the specific project.

3. Write directly to the project officer at FAO outlining your capabilities for undertaking each specific project. Don't forget to stress:

—capabilities of your firm (include curricula vitae of your staff and express willingness to find other experts for the project team if required)

—previous international experience

—language capabilities.

4. Personal contacts are all-important. Instead of writing to the project officers, why not call on them during your next trip through Rome? The Commercial Division, Canadian Embassy, Rome, can make the appropriate appointments. Visits are recommended in February or September to discuss new projects delegated by UNDP to FAO.

FAO assigns the project it is asked to execute by the UNDP to a particular division in FAO, which designates a project officer to assume overall responsibility for the project during the operational period. Whether a project is contracted or not, these officers are pleased to have up-to-date information on the capabilities of Canadian consultants. Although an increasing percentage of FAO/UNDP projects are contracted, some projects are undertaken by a team of experts fielded by FAO recruitment.

When FAO grants a contract to a consultant, it is the project officer who makes initial recommendations to an interdepartmental Contracts Subcommittee of the FAO/SF Steering Committee. This committee then establishes a short list of three firms which, in its opinion, based on technical expertise and subject to approval by the recipient country, should be invited to submit comparative proposals. Hence the need to express interest in specific projects.

FAO is also open to proposals from consortia of specialized consultants to undertake projects, even those which cover a number of disciplines. These, however, would involve a wide range of talents. For example, an irrigation project in Uganda might require not only experts in irrigation engineering, but also those in cotton growing, farm management, animal breeding, land settlement and soil surveys. Canadian consortia interested in this type of project must demonstrate their ability to field the required teams.

Canada has just recently increased its contributions to the UNDP to U.S. $12.5 million from U.S.$10 million, and the World Bank is placing urgent emphasis on agricultural development. The FAO intends to play a leading role in this activity, stressing the five priority areas mentioned above.

In addition to FAO/UNDP projects which will continue to be devoted to agricultural education and pre-investment studies, FAO has established an investment center which will assist the World Bank and the regional banks in the formulation and evaluation of projects for financing. Thus, as FAO's program expands, so will the opportunities for Canadians.

■ *The Asian Development Bank, with a billion dollar capitalization, officially opened for business in December 1966, with headquarters in Manila, Philippines. Today it has 19 regional members which subscribe a total of U.S.$615 million and 13 non-regional members (including Canada) which subscribe $355 million. Canada's subscription to the Bank's capital stock is $25 million.*

The ADB's first project, in August 1967, was technical assistance to Indonesia in food production. Since then it has made four loans—to Thailand, Ceylon, the Republic of Korea, and Malaysia—and carried out technical assistance programs in five countries. It is particularly interested in financing development projects in industry, agriculture, power, and transport and communications. It will also make loans for pre-investment and feasibility studies and project preparation.

We reproduce below, in full, the text of the ADB booklet "Uses of Consultants by Asian Development Bank and Its Borrowers". A second booklet, "Guidelines for Procurement under Asian Development Bank Loans" will be used in a later issue.

Uses of Consultants by Asian Development Bank and Its Borrowers

Published by Information Office
Asian Development Bank
Commercial Center P.O. Box 126
Makati, Rizal, Philippines
Tel. No.: 88-87-81
Cable: ASIANBANK, Manila

It is expected that the services of consultants will be utilized by the Bank and its borrowers from time to time to provide assistance in many fields.

Consultants must be fully competent for the task in hand and, where they are paid from the Bank's resources, they should be drawn from a member country of the Bank.

Consultants Employed by the Bank

The Bank will employ consultants in connection with technical assistance programs financed by the Bank, with studies for which the Bank is the executing agency, and where the Bank finds it necessary to supplement its own staff, whether at the stage of project appraisal or of scrutiny of project execution. In all these cases, the consultants will be selected by the Bank.

After termination of their employment such consultants are required to abstain from any subsequent work on the same project, except as agreed by the Bank.

Consultants Employed by the Borrower

Borrowers may find it desirable to employ individual consultants as advisers where expertise not otherwise available is needed, or to employ consulting firms to facilitate the satisfactory implementation of the project for which a loan is made by the Bank. The need for the employment of consultants will be carefully considered by the Bank and the borrower at the time of making the loan, and subsequently as circumstances warrant; and the Bank may, where necessary, require that consultants be engaged by the borrowers. Where borrowers employ consultants, they will be responsible for the selection of such consultants. The Bank will, however, need to be satisfied as to the competence and functions of the consultants so engaged.

The employment of domestic firms either alone or in combination with foreign firms is encouraged where such firms are found to be qualified to perform the work.

Of the various kinds of consultants that borrowers may use, firms of consulting engineers are most frequently needed. In general, such firms fall into one or another of the following three classes:

(a) firms of independent consulting engineers;

(b) firms which combine the functions of consulting with those of contractors, or which are associated with, affiliated to, or owned by contractors;

(c) firms of consulting engineers affiliated to manufacturers, or of manufacturers with departments or design offices offering services as consulting engineers.

The employment of consulting firms will have to be based on satisfactory assurance of the suitability of their qualifications for the work in question and on their capacity to render their services (inclusive of recommendations to be made and specifications and designs to be proposed) in a demonstrably impartial manner and in keeping with the Bank's requirements regarding international competitive bidding.

Firms in categories (b) and (c) above will normally be acceptable only if they agree to limit their role to that of consulting engineer and will disqualify themselves and their associates/affiliates for work in any other capacity on the same project (including bidding on any part of the project); in addition, in the case of category (c) firms, it would be necessary to ensure that the specifications proposed by them as consulting engineers will be impartial and can meet with compliance on a competitive basis. Therefore, only in special circumstances and with clear justification, after taking into account the nature of the services performed as consultant, may the Bank and the borrower jointly agree, in the course of pre-qualification procedures, to permit category (b) and (c) firms and/or their associates/affiliates to tender for participation in a project either as a contractor or as a manufacturer and supplier.

Relevant information, particularly in such special circumstances referred to in the preceding paragraph, should be made available to the Board of Directors.

Functions and Duties of Consulting Firms

The functions of consulting firms used in connection with projects financed by Bank loans include:

(a) Preliminary investigations and reports concerning feasibility, economic and financial justification, general layout and design, estimated cost of the project; time required for its construction and related problems;

(b) Detailed engineering of projects, including the preparation of designs, specifications and contract documents, the analysis of bids and recommendations thereon; and/or

(c) Supervision of the execution of the project including, sometimes, its operations for an initial period.

The duties of consulting firms depend upon the circumstances in each case. They usually include all three of the categories listed above, but in some cases preliminary investigations and general designs may have been carried out before the project is submitted to the Bank for consideration. The consulting firm's work will then be limited to categories (b) and (c). It is normally essential that functions (b) and (c) shall be carried out by the same firm, and if a firm has already carried out functions (a), there may be advantages in appointing the same firm to carry out also functions (b) and (c).

A consulting firm whose terms of reference include the preparation of final designs and specifications is responsible for the accuracy and suitability of its work; the contract entered into witb the firm should make appropriate provisions in this regard. With regard to other matters, the consulting firm will ordinarily act as an adviser to the borrower on all technical problems and may be invested by the borrower with authority to make final decisions within prescribed limits.

Where a borrower, after due consideration of a recommendation or advice furnished by a consulting firm, deems it necessary to deviate from, or inadvisable to accept, such recommendation or advice, the borrower should ascertain from the Bank whether it has any objection to the proposed deviation from the consultant's recommendation or advice; in such cases, the Bank will obtain the consulting firm's view, normally through the borrower, before deciding on concurrence or otherwise. In considering the functions assigned to a consulting firm, the Bank would satisfy itself that the role envisaged for the consulting firm is appropriate and adequate and that the borrower will give to the consulting firm adequate authority to exercise its responsibilities and carry out the terms of its contract.

Responsibilities of Borrowers in Selecting Consulting Firms

Subject to the provisions in the first paragraph on Consultants Employed by the Borrower, it is the responsibility of the borrower to select the firm it is to employ. A borrower accustomed to using consulting firms will ordinarily have no difficulty in doing this.

A borrower without such experience may make its selection on the basis of recommendations received from qualified sources, such as other employers or the various associations of consulting firms. The diplomatic missions to the borrower's country will usually be in a position to furnish information about qualified consulting firms in their countries, or similar information can be obtained through the borrower's own diplomatic missions. Where so requested by a borrower, the Bank would be prepared to make available such information as it may have (see Bank's Files on Consulting Firms below); the Bank would however not make specific recommendations on the names of consulting firms that may initially be considered by the borrower.

Procedure for Selecting Consultants

The selection of a consulting firm or firms for a particular assignment should usually begin with the preparation of a reasonably sized list of firms claiming expertise in the field. On the basis of detailed studies of the experience and capabilities of each firm, a final list most suitable to receive invitations for proposals should be prepared.

Borrowers should submit to the Bank the names of consulting firms under consideration before invitations for proposals are sent out, so that the Bank may satisfy itself that those nominated are qualified to perform the work and that there is a reasonably wide field of choice. The Bank retains the right to disapprove firms named by the borrower, but will refrain from making specific nominations or suggestions unless the task to be performed is of

such an unusual character that only a few qualified firms may be found to accomplish it.

In cases where the Bank itself is selecting a firm or firms to be employed by it (other than for project appraisal or scrutiny of project execution) the names of firms to be solicited for proposals are usually submitted to the beneficiary for comment and statement of any objections before the invitations for proposals are sent out.

Invitations should define the objectives of the undertaking and stipulate the conditions under which the work is to be performed. It should be clearly indicated that, at this stage, financial terms are not desired and selection will be made entirely on the basis of qualifications to perform the work.

Consulting firms should furnish, as a part of their proposals, estimates of the time required both in the field and at the home office to comply with the terms of reference as well as the names and qualifications of those who would comprise the team.

Proposals, when received, should be carefully analyzed and compared with respect to plans of approach, schedules, experience and capabilities of personnel to be assigned, the quality of supervisory leadership to be furnished, attention to be given by principals of the firm, facilities of the home office, and the assistance, if any, that may be available from others. Familiarity with the language and customs of the country in which the work is to be performed should be given due consideration.

After selection of a firm or firms considered to be best qualified for the assignment has been made, negotiations to agree upon the financial and other terms of the contract should be opened without delay. The representatives who are conducting the negotiations must be prepared to discuss their estimates of costs and to justify the elements involved, and must have authority to conclude a binding agreement. If it is not possible to reach agreement, negotiations should be terminated and opened with the firm/firms next in line.

Bonk's Files on Consulting Firms

In order that the Bank may be able to judge the acceptability of firms chosen or proposed by borrowers, it maintains files of information concerning the capabilities and experience of a large number of firms as supplied by them. The fact that the Bank has been supplied with information about a firm does not entitle that firm to any work connected with the Bank, nor does it indicate that the Bank will approve the appointment of such firm for any specific project. In other words, the Bank has no list of approved consulting firms.

Co-ordinotion of Responsibilities

After a consulting firm satisfactory to the borrower and the Bank has been chosen, the Bank's primary interest is to see that the responsibilities of the consulting firm are clearly set out in its contract with the borrower and are duly carried out by it. To achieve this, it may be necessary in most cases to hold discussions with the borrower and the consulting firm to define and clarify the responsibilities, and to ensure both that the consulting firm is aware of the terms and conditions of its employment and that the borrower fully appreciates the responsibilities and authority which the consulting firm will bear on its behalf. During these discussions, the Bank would make clear any requirements which it may have in regard to the work, and satisfy itself that the borrower will give to the consulting firm sufficient power and discretionary rights to exercise its responsibilities and carry out the terms of its contract.

CN Provides Transport Knowhow

■ *For many years, Canadian National Railways has provided technical assistance to overseas countries on an ad hoc basis. Its new International Consulting Division, headed by Alton V. Johnston, will systematize this work and will operate as a financially self-supporting venture, complementing the activities of private Canadian consultants rather than competing with them.*

The International Consulting Division will be able to draw on CN expertise in many fields: railway engineering and operation, trucking, telecommunications, and hotel management, to name a few. Experts from other parts of the company will be seconded to the Division for particular projects. Often the CN staff will work closely with private consultants on site overseas; the previous experience of CN personnel in Africa, South America and the Middle East will be a valuable asset.

ENGINEERING OPPORTUNITIES

Argentina

Big development program launched; foreign consultants needed

W. L. B. PERKINS, *Commercial Assistant, Buenos Aires*

■ Canadian consulting engineering companies have been showing increasing interest in Argentina in recent months. They are keeping in closer contact with the office of the Trade Commissioner in Buenos Aires, writing to potential clients, and visiting this area more often to obtain first-hand knowledge of local conditions and business prospects. This interest is encouraged by the rapid and important changes now taking place in Argentina. In the past few months, Canadian companies have participated in tenders for engineering services for various projects, including a hydrological port project, an inter-city expressway, an asbestos mineral survey, a nuclear power station, a city subway extension, a regional electric power study, a grain elevator program and a hydroelectric development. To participate in these tenders and to establish valuable contacts for future business, several Canadian firms have signed association or representation agreements with local companies.

Important government measures such as the simultaneous loosening of foreign exchange controls, sizable tariff reductions and a large currency devaluation, plus a policy of fiscal austerity and wage control, have resulted in control of inflation, currency stability, and drastic reduction of the budget deficit, thus setting the country on the road to progress and helping to strengthen overseas confidence in Argentina.

To give firm support to development the Government has assigned the highest priority to a vast public works program now being implemented. The 1968 Federal budget earmarks almost one billion dollars, an increase of over 40 per cent over the previous year, for a number of large projects in transportation, power, mineral fuels, communications, sanitation, education and port facilities. Provincial and private programs for construction of important projects are following the federal example.

Financing Development

To finance this extraordinary effort, the Federal Government has not only diverted a sizable proportion of its regular resources but has also been successful in special domestic fund-raising schemes and in obtaining increasing amounts of indispensable outside assistance from international financing agencies, foreign governments, overseas financial markets and suppliers' credits.

The Inter-American Development Bank has so far awarded 24 loans totalling $167.4 million to Argentina from ordinary capital resources. Eight of these, totalling about $63 million, are not fully committed and some of the money is still available and can be used for procurement in non-member countries, including Canada. This includes loans made to the following:

Banco Industrial de la Republica Argentina—$15 million for small and medium industry.

Junta Nacional de Granos—$7.1 million to build or expand seven terminal grain elevators in six ports.

Empresa Provincial de Energia de Cordoba—$4.5 million to expand electric power in the Province of Cordoba.

Empresa del Estado Agua y Energia Electrica—$20.65 million for the expansion of generating capacity in Mar del Plata, Santiago del Estero Province, and expansion of the distribution system in Mendoza Province.

Buenos Aires—$3.8 million (from the Fund for Special Operations) to complete Jose de San Martin hospital school.

Comision Nacional de Energia Atomica—$1 million to improve advanced training and research in metallurgy.

Banco Industrial de la Republica Argentina—$10 million for the improvement of private industrial plants.

National Development Council—a tied Canadian loan to the Republic of Argentina of Cdn.$756,000 for preinvestment projects and studies.

Loans made from the IADB's other resources which are not open to Canadian procurement so far amount to $127.9 million from the Fund for Special Operations and $43.5 million from the Social Progress Trust Fund. Further loans requested from the IADB to a total of almost $90 million are expected to be granted this year. These are for agricultural mechanization, electric power, livestock health, steel, power interconnection, and technical education. Loans under discussion for next year cover port channel dredging, electric power transmission and university technological studies.

The World Bank has loaned Argentina $70 million for pasture improvement and electric power and has agreed to supply a further $70 million for the huge Chocon hydroelectric complex now beginning, for which a number of countries, including Canada, have also agreed to supply long-term financing. Further credits are also being negotiated with the Bank for projects in the transportation and communication fields.

Two bond issues in Germany and one in the United States for $25 million each have been successfully placed and will raise funds for the Argentine public works program. Important credits have also been obtained from foreign suppliers of turnkey projects.

In the private sector, overseas companies are making large investments in new enterprises or expanding existing facilities in response to the Government's promotion program; industries such as steel, automobiles, electric power, petroleum, petrochemicals, textiles and equipment manufacture are undergoing the largest expansion. On the internal market, special taxes and recent bond issues totalling over $80 million, which have been successful beyond expectations, are helping raise additional funds for investment in public works.

Foreign Consultants Needed

All these projects require a large amount of engineering which the country is not able to supply. Until a short time ago there was little work for professional consultants in Argentina because every entity of the Administration carried out its own engineering. But now public offices cannot cope with the accelerating pace of development and instead of expanding their staff they have turned to private consultants for assistance. The large number of capable engineers graduated from the tuition-free state universities were not able to satisfy this demand, because they lacked the necessary experience and organization. The international financing agencies require the participation of consultants in whom they have confidence and as a result overseas consulting engineering companies are finding an important market in Argentina.

Meanwhile, local engineers have been collaborating with foreign consultants and acquiring valuable experience. Where there was virtually no local firm in this field some months ago, a number have been established and are seeking greater participation in the large foreign-financed projects. Indeed, specifications in recent tenders for engineering services indicate that preference will be given to presentations which include a local firm and sometimes even establish this as a requirement. Although local consultants do not yet have the experience to work independently on large projects, they are much sought after by foreign firms, even though the principal ones prefer to remain free to associate with the strongest foreign partner on each project.

At this point of time, the Argentine market therefore offers increasing potential to Canadian engineers whose capabilities and experience gained in varied projects and conditions places them in an advantageous position to compete for commissions. The $756,000 Canadian loan for prefeasibility studies to the Argentine National Development Council, which is expected to be used to finance an electric power study of northwestern Argentina, will give Canadian engineers a further opportunity to prove their well-earned reputation.

These motor graders were supplied to the Highways Department of Argentina's Formosa Province by Dominion Road Machinery Company of Goderich, Ontario. Almost a billion dollars of Argentina's 1968 budget has been earmarked for development projects that will require both engineering services and equipment like this.

Finder's Fees Make Sense

■ "What is the best way to obtain engineering assignments in foreign countries?" *Foreign Trade* asked Marc Benoit, a director of Asselin, Benoit, Boucher, Ducharme and Lapointe of Montreal, and president of Tecsult International Limited, an associated company.

"Hire a good agent and set him to finding business for you," was his answer. "Don't insist that he be an engineer himself—only one of ours is and we now have agents in Mexico, Peru, Brazil, Argentina and Pakistan. The important thing is his contacts; he must have access to people at a fairly high level. Pay him 'finder's fees'—a commission on the work that he obtains for the firm."

Does this prescription work? Mexico provides a test case. In April 1966 Marc Benoit was a member of a Trade and Commerce trade mission that visited Mexico and Venezuela to investigate opportunities in the power generation field. Convinced that there was good potential in Mexico for engineering services, he hired an agent in Mexico City. Not long after, this agent informed the firm of an opportunity to carry out studies for an $11 million thermal power plant in Yucatan, to be built in two stages. Tecsult was eventually appointed to draw up the plans and specifications for the plant; these are now 60 to 70 per cent complete and some of the equipment has been purchased. Construction, which will be open to international bidding, is to begin next year.

The same agent obtained an urban planning job in Monterrey for the Montreal firm. It covers a review of the sewerage system, traffic studies, building and zoning regulations, and so on.

Six months after appointing an agent in Pakistan, opportunities opened up there. One of the urgent needs for the new capital that the Government of Pakistan is building, Islamabad, is an ample supply of pure water. Tecsult International obtained through its agent a contract with the Capital Development Authority for designing and supervising the construction of a dam to provide a reservoir, a water treatment plant, and two pipelines 14 miles long with a capacity of 24 million gallons a day.

Agents are not the only medium through which business comes; occasionally another Canadian company does the pioneering. A Canadian contractor, a subsidiary of a French firm, obtained for Tecsult a commission to design a cement plant in the Republic of Guinea. The firm has since been working in the Republic on studies for an $18 million hydroelectric plant, a 150-kilometer transmission line, and the design of a road. These projects will keep it engaged in Guinea for the next four years.

All this adds up to seven different assignments overseas on which Tecsult is currently working. It has not entered into any permanent associations with engineering firms in foreign countries, though occasionally it becomes good policy to set up a temporary association for the duration of a contract. In Argentina an arrangement with a local engineering firm is a prerequisite to obtaining business.

Tecsult likes most of its engineers to get the feel of working abroad, especially in the developing countries, as one way of enlarging their experience. For this reason it seldom sends out resident engineers to spend two or more years on the job. Instead it dispatches staff members from head office for shorter periods as the need arises.

Que No Llueva!

■ *Don't let the rain come down.* As soon as it begins to rain in Western Paraguay, all traffic on the highway through the Gran Chaco comes to a halt. The army posts along the route close down their sections and will not allow vehicles to move again until the sun has thoroughly dried the road; otherwise, it would soon be churned into a sea of mud. On average, the road is closed 150 days out of the 365. The delays also push up the cost of transport—depreciation does not stop for a rainstorm and the truck-driver has to be paid just the same. Then, while the sunshine does its work, cheeses sweat, vegetables wilt, and butter melts. Cattle which leave the Mennonite farms round Filadelfia in prime condition lose weight on their way to the slaughterhouse. As a result, some 60 per cent of the country is virtually unexploited.

Why don't they build a proper all-weather road? The answer used to be: how will it be financed? Although this has not been resolved, a start has already been made with a feasibility study financed by Canadian aid.

Canada earmarked Cdn.$50 million of its aid for development projects in Latin America. The Inter-American Development Bank administers these funds on our behalf and there is full consultation at every stage. The Bank suggested that some of these funds should be used for highway studies in Paraguay. The suggestion met with the approval of the External Aid Office* and the sum of Cdn.$800,000 was allocated. This is being used to finance engineering and economic studies for a modern highway to Filadelfia in the Gran Chaco with a bridge over the Paraguay River at the Asuncion end, a traffic study in Asuncion itself to see if a ring road is needed, and a study to determine the feasibility of improving the road from the Paraguay/Brazil border to the river port of Concepcion.

The Bank asked a number of consultants for proposals. The one submitted by De Leuw, Cather and Company of Canada, an Ottawa-based firm, was accepted. Ed Bennett, whom we talked to a short time ago, was insistent on one point: "You don't get jobs by sitting around in Ottawa. You must go to the country and make yourself known. Remember that where loan funds are involved, the contract is drawn up between you and the local Government, not with the lending agency."

Dave Duggan, the project engineer, told us that it was one of the biggest overseas jobs his firm had undertaken. De Leuw, Cather retained H. Q. Golder and Associates of Toronto to provide soils information (particularly important on the 440-kilometer highway from Asuncion to Filadelfia where no local aggregate material is available) and Terra Surveys of Ottawa to do the aerial photography and mapping.

"Before I set off the first time," Dave explained, "I had to take a crash course in Spanish at Berlitz. We have now built up a Latin American team at De Leuw, Cather and we intend to keep our language capability in good shape. It allows us to get on with the job faster and maybe gives us a competitive edge. It was also important on this assignment when we were teaching Paraguayan engineers Canadian techniques; after the roads are built, the Paraguayans will have to maintain and develop them."

De Leuw, Cather will take just over a year to complete the three studies, submitting the final report in May 1969. Six months of this will have been spent on site and eight months interpreting data and preparing reports in Canada.

*Now the Canadian International Development Agency.

Brazil

Brazilian-based firms offer stiff competition

W. G. HUXTABLE, *Consul and Trade Commissioner, Sao Paulo*

■ Carrying coals to Newcastle or selling refrigerators to Eskimos offer a challenge to the creative salesman. So does the sale of engineering services to Brazil. It is not impossible but it certainly is not easy.

Both the public and private sectors offer numerous and varied engineering opportunities, but there are some 700 engineers of various types and groupings in public practice in the city of Sao Paulo alone. They are particularly competent in most facets of architecture and civil engineering and in electrical engineering. As a result, there is a steady pressure on governments here not to use foreign engineering firms when local groups can do the job. All foreign engineers must register with FINEP, the Division of Project Financing (actually a sort of Crown corporation operating through the Brazilian Planning Ministry) to participate fully in Brazilian projects. In many of these, even some financed from abroad, foreign engineers are not allowed to work alone but must associate with Brazilian counterparts. This is a sound idea in any event because Brazilian working and operating conditions differ from those in Canada.

The State of Sao Paulo has gone farther. Local construction companies are forbidden to engage foreign consultants unless they obtain specific permission with proof that no similar Brazilian service is available. Naturally, these measures would not have been taken if foreign firms were not obtaining important assignments here.

Projects Planned

In the public sector many government-sponsored projects planned for the future could benefit from Canadian engineering experience. The development of inland water transportation routes, extension of municipal water supply, expansion of rapid transit, forest and mineral inventories, city traffic control, air and water pollution control, urban planning, rural land use planning, nuclear power generation, fisheries development, and the expansion of agricultural, refrigeration, storage and marketing facilities all offer opportunities. All of these urgently require development in Brazil, but only a few of them will have priority for serious attention in the next few years.

Where these projects can be financed by Brazilian governments, state and federal, foreign engineers will be used only for the most sophisticated parts and every attempt will be made to use only Brazilian engineering expertise.

But there are many demands on Brazil's capital for social and economic development and many projects in the fields listed above will be carried out only with foreign financial assistance. The Canadian and international bodies providing this aid can be expected to consider Canadian engineering services for design, execution, and supervision. Two major projects, a national electrical power survey and a feasibility study for a supersonic airport, are currently under way using Canadian engineering groups. But this business was secured only after many difficulties were surmounted.

To obtain this type of work Canadian engineering companies will have to make many visits to Brazil and also keep in close touch with financing bodies such as the Canadian International Development Agency, the Export Credits Insurance Corporation, the World Bank and the Inter-American Development Bank. In Brazil they must maintain liaison with governments, the commission or state companies, the Central Bank and Brazilian engineering associates. Most of the work has to be done before projects are finally planned and the engineers are usually appointed before public announcements are made.

Work in Industry

Brazil's manufacturing industry offers a more accessible market for foreign engineering expertise. The foreign-controlled sector, about 50 per cent of Brazil's total, is constantly using contracted engineering services for new plant construction, expansion and rationalization. Competition, especially from international United States firms, many of them with offices in Canada, is intense. But Canadian engineering firms that have worked successfully with subsidiaries of large international companies in Canada would be well advised to seek assignments through the Canadian branches and foreign head offices of these global clients. In this way they could discover whether Brazilian branches, generally at earlier stages of development, could benefit from Canadian engineering services.

Hardly any work has been done by independent engineering firms in the fields of productivity and standards. There should also be good opportunities for engineering services in the petrochemical and food industries, in pollution control, and in industrial air-conditioning.

Brazilian-owned industry is beginning to feel threatened by the superior technology of the international industrial companies operating in Brazil. But selling Brazilian industrialists on the need for foreign advice and expert assistance takes a great deal of hard work. Frequent visits, the development of personal contacts and confidence, hospitality in Canada on occasion, and even fluency in the Portuguese language are all important selling aids.

Canadian Executive Service Overseas, based in Montreal, is developing an awareness of Canadian skills in Brazil by supporting the short-term loan of experts in many fields (some of whom have recently retired) to Brazilian companies and institutions. Engineering companies who would like to make one or more of their current or recently retired members available for service in Brazil should contact Claude Hebert, president, or Walter Eversfield, vice-president, of Canadian Executive Service Overseas in Montreal. CESO is now opening a co-ordinating office for South America in Sao Paulo.

Some good engineering opportunities will be developed in Brazil but they are like the nuggets in a gold rush. You have to come to find them and you need both a lot of work and a lot of luck.

Colombia

Supply of capital equipment is best opportunity

G. D. VALENTINE
Commercial Secretary, Bogota

■ Colombia has many engineering firms composed of well-trained ambitious engineers. There are 75 consulting engineering firms listed in Bogota alone and twice that number which are specialists in one field or another. This, coupled with the persistent shortage of foreign exchange, makes it extremely difficult for foreign engineering firms to participate in Colombia's development. Local firms can be paid in local currency and the limited foreign exchange used to import equipment.

Another factor affecting the efforts of Canadian engineers is the widespread use of foreign funds for engineering studies. These come chiefly from the U.S. under the *Alliance for Progress*, but other developed countries have also loaned or given money for prefeasibility studies.

There are, of course, still opportunities for certain specialists, particularly in communications engineering, forestry, mining, aerial surveying and (to a lesser extent) thermal and hydro power engineering. Association with a Colombian firm is necessary and as much work as possible should be given to the local associates.

Canadian Loan

Canada has now joined the list of international lenders to Colombia. The sum of $1,080,000 was recently made available to the Colombian Department of Planning for use in prefeasibility studies. These funds are of course tied to Canada and can only be used to pay Canadian engineering firms which will be selected on a competitive basis. At this time details of the exact projects are not available but it is assumed that they will be in one or more of the fields of hydro power, highways, agricultural reform, irrigation, communications, forestry and industry. Firms interested in participating in these projects should register their interest with the Departamento Administrativo de Planeacion, whose address appears in the box feature.

Capital Equipment Sales

Closely related to engineering projects is the supply of capital equipment and it is in this field that prospects are more promising. Although international bidding for the necessary equipment will be very competitive, Canadian manufacturers can usually make offers because most projects are being financed through the World Bank, the Inter-American Development Bank or the United Nations Special Fund. Over $110 million is going to be spent in the next few years on imported equipment for the Bogota water supply project, national railroads, airports, communications systems, power, highways, forestry and mining. Details about some of these areas follow.

Water Supply—A World Bank loan agreement for $14 million was signed in 1968 and work is under way on the Bogota water supply. Many bids have already been opened and in early 1969 more will be announced for water treatment equipment, supply and installation of distribution pipe, storage tanks, etc. The best opportunity appears to be for steel plate which will be made into pipe by local firms.

Railroads—An $18.3 million loan was approved this summer to rehabilitate, modernize and expand the national railway. The loan will be for rails, ballast cars, track maintenance equipment, freight-handling equipment and

The intriguing building in the picture is Guadelupe III, a 270-megawatt hydroelectric station near Medellin in Colombia. Canada has recently made Cdn.$1.1 million available to the Colombian Department of Planning for prefeasibility studies. In the next few years, Colombia will spend $110 million on imported equipment, most of it financed by international agencies and open to tender by Canadian firms.

Canadian Engineers Should Register with These

Departamento Administrativo de Planeacion
Carrera 10 No. 27-27 P. 9
Bogota
Attention: Dr. Miguel Rivera A.

All types of infrastructure engineering Canadian loan registration

Instituto Colombiano de la Reforma Agraria, "Incora",
Centro Administrativo Nacional
Aeropuerto Eldorado
Bogota
Dr. Carlos Villamil Chaux

Agricultural irrigation and land reclamation

Instituto de Fomento Industrial "IFI"
Carrera 6# 15-32 P. 11
Bogota
Dr. Miguel Fadul

Industrial engineering, fishing studies, forestry, aerial surveys, mining

Corporacion Autonoma Regional de los Valles del Magdalena y del Sinu
Carrera 14# 25A-66 Piso 5
Bogota
Dr. Daniel Gonzales Plata

Forestry, land reclamation, agriculture

Instituto de Aprovechamiento de Aguas y Fomento Electrico "Electraguas"
Carrera 13# 27-00
Bogota
Dr. Gerardo Silva

Hydro power, thermal power

Corporacion Autonoma Regional del Cauca "CVC"
Apartado Aereo 2366
Cali
Dr. Henry Eder

Hydro power, thermal power

Ministry of Public Works
Centro Administrativo Nacional
Aeropuerto Eldorado
Bogota
Dr. Bernardo Garces

Highways, transportation studies

Colpuertos
Puerto de Colombia
Carrera 10 No. 15-22 P. 6
Bogota
Dr. Alvaro Dugand

Ports, bulk materials handling

Empresa Colombiana de Aerodromos "ECA"
Aeropuerto Eldorado
Bogota
Sr. Juan Beron

Airports, airport equipment

Aeronautica Civil
Aeropuerto Eldorado
Bogota
Dr. R. Van Meerbecke

Airports, airport equipment

Interconexion Electrica S.A.
Calle 13# 37-35
Bogota
Dr. Jose Maria Piedrahita

Electrical transmission line, hydro

Empresa Nacional de Telecomunicaciones "Telecom"
Carrera 13A# 22-54
Dr. F. Lozano

Telecommunications studies, equipment

Instituto de Investigaciones Tecnologicas
Ave. 30 No. 52A-77
Bogota
Dr. Norton Young

Forestry, agriculture

Empresas Publicas de Medellin
Apartado Aero 940
Medellin
Dr. Octavio Aristizabal

Power, telephone, other municipal public works

some telecommunications equipment. Tenders will be forthcoming shortly although some of the requirements will probably be obtained by bartering coffee, principally for rails.

Telecommunications—In addition to a $16 million World Bank loan for improvement and expansion of the national communications network, suppliers' credits have been requested for an earth satellite station and expansion of the Bogota and Sincelejo phone systems. There will be a need for microwave equipment, marine radio equipment, cables, switching equipment, consultants, etc. Other communications equipment will be required by the power companies and air transportation services.

Electric Power—The field of electric power is always open to imported capital equipment. Two large projects now being executed are the Interconexion project and the Bogota power project. Many tenders have already been called and future ones will include miscellaneous transmission, distribution and substation material. Suppliers' credits have been requested for a 132-megawatt thermal plant and Canadian interest in this project is keen.

Highways—The World Bank loan of $17.2 million includes about $2 million for consultants in the areas of construction supervision, management and preinvestment studies. The bulk of the loan is for construction and reconstruction of 450 kilometers of highway and many contracts have already been let, principally to local or South American contractors.

Airports—In the next few years some Colombian airports will be installing lighting systems, ILS & DME equipment, radar and rescue equipment. All purchases will be made by public tender with funds of the ECA (Empresa Colombiana de Aerodromos).

Forestry—Although Colombia is reputed to have the second largest timber resources in the world, two thirds of the annual production of 12 million cubic meters is used for fuel in rural areas. Recent information indicates that much development will be undertaken in coming years and forestry engineers from Canada and other for-

eign countries are actively pursuing all leads.

Mining—Petroleum is the most actively exploited mineral in Colombia and manufacturers of oilfield equipment could capitalize on present and future development. Competition comes principally from the United States and sales are usually made to the large U.S. companies. Coal deposits in the northeast are due to be developed in the next year and nickel and phosphate rock deposits are slated to be exploited soon. Mining, crushing, and screening equipment will probably be imported for these projects. A mineral inventory is being undertaken and the reports will probably result in increased activity in new deposits.

Other Projects—Although prospects for engineering firms are not bright, some specialists are required. Canadian engineers seeking foreign markets should not ignore Colombia when they are visiting South America. Fishing ports, bulk materials-handling systems and ore-processing systems are other fields of interest, but fancy brochures and letters will not bring results. On-the-spot visits and association with a local engineering firm are essential.

For equipment manufacturers who are competitive with European and Japanese suppliers, the future is better. Capital infrastructure equipment is required but prices, quality and service remain the keys to success and financing in many instances is equally important.

Any Canadian firm wishing to participate in the many forthcoming international tenders should register its interest with the Commercial Secretary in Bogota, who will keep it informed of all developments.

Chile

Limited opportunities; local partner important

GARY E. MULLINS, *Assistant Commercial Secretary, Santiago*

■ Chile outstrips many Latin American countries in the field of consulting services. There is a large and well-qualified engineering and consulting community based in Santiago. Justified pride in this professional group, plus the desire to utilize prudently the limited reserves of foreign exchange, has led the Government to place restrictions on the hiring of foreign consultants. Local consultants are used on all projects for which they are qualified and which they are able to undertake.

These restrictions affect the role of foreign consultants considerably. They are used only on large investment projects which usually have either bilateral or multilateral foreign financing. In a country the size of Chile, these projects are often one or two of a kind. The need for a petrochemical installation, specialty paper plant, national telecommunications system, oilfield development, or aerial surveys may arise only once in five or ten years. In many instances, the complete engineering contract is beyond the capabilities of Chilean consultants but the level of their experience is sufficient for them to take a significant part in the project.

Canadian consultants can improve their competitive position by associating with Chilean firms. Any project can be divided between the Canadian consultant and the Chilean partner. This reduces the hard currency cost of the contract and at the same time increases the capabilities and experience of the Chilean partner. Both of these factors may be important when consultants are being chosen.

A new opportunity for Canadian consultants arises from the construction of the Arauco bleached kraft pulp mill, a joint venture of CORFO (the Chilean Development Corporation), Lyddon of England, and Parsons and Whittemore. This is proceeding according to schedule and should be in production by mid-1971. CORFO has decided to integrate with this plant a bleached printing- and writing-paper mill with an annual capacity of roughly 30,000 metric tons. The estimated cost is U.S.$6 million. CORFO has not yet found a partner for this plant but would welcome discussions with Canadian firms interested in the design contract.

Of interest to Canadian aerial surveying firms is a water resource survey of the province of Antofagasta in northern Chile. This UNDP (Special Fund) project will receive official approval early in 1969, but initial planning is already under way in Santiago. The object is to find underground water in the dry north which can be used for intensive cultivation of the rich soils in the region's river valleys.

Two other UNDP (Special Fund) projects have potential for Canadian firms. One is the setting-up of a Chilean civil aviation agency to organize that important and growing segment of Chile's transportation system. A French expert is now in Chile; further large-scale assistance will be requested early in 1969. A second but unrelated project is creating a quality control system and center to ensure adequate standards for Chile's expanding metallurgical industries.

There are many other large-scale projects under discussion but few apart from the above are suitable for Canadian firms and are at the important stage of development between first consideration and the beginning of implementation. CORFO plans are being developed and finalized which will provide consulting and investment opportunities in the pulp, refrigeration, metallic and non-metallic industries. Other priority projects, in abeyance until the setback resulting from the disastrous drought in Chile's central region is overcome, will be made known early in 1969.

Peru

Feasibility studies are greatest need

LUCIO G. POMA
Commercial Officer, Lima

■ Only a few years ago hardly any businessmen in Peru or Bolivia were aware or could be convinced of the desirability of commissioning feasibility and engineering studies for new industrial projects and the expansion of existing ones. Industrial leaders had an innate distrust of outside expert advice. Even the local private and government banks asked for only a minimum of market information, cost estimates and production figures before making substantial loans to new industrial, agricultural and mining developments. The only local consulting firm in Peru that achieved any measure of success during this period was initially in a position to offer advance assurance of financing, but was soon unable to continue in business.

The receptivity to professional consulting services has recently undergone an almost complete reversal. Even the simplest commercial propositions must now be submitted with at least a well-supported memorandum of basic profitability. A member of the board of a corporation would not dare propose a new undertaking without an analysis of the main aspects and a breakdown of required capital, expenses, costs and profits. The chronic scarcity of investment capital in these areas, however, makes the average businessman reluctant to spend a portion of his limited resources on feasibility and engineering studies at the outset of a project, particularly when a foreign consultant needs to be engaged and his fees paid in precious foreign exchange.

Sophistication Required

Some European and American consulting firms have developed working arrangements with financial organizations and have been offering reasonable prospects for eventual loans to launch worthwhile projects once these are proved viable. A limited number of European capital equipment manufacturers use their connections with consultants to offer free feasibility studies and engineering services in exchange for letters of intent on equipment to be purchased. Other local and foreign consultants include in their proposals a commitment to negotiate loans with local banks or international agencies. A Swiss manufacturer of looms makes his technicians available free of charge anywhere in the world to study and advise on plant layout, operating costs and equipment installations for textile factories.

Getting Business

Based on our experience of the mechanics of business in Peru and Bolivia and considering that feasibility studies are the natural introduction to further engineering services, we make the following recommendations to Canadian consultants interested in these markets:

1. Appoint a local representative on commission. He will help with promotion, periodic reporting on market conditions and developments, participation in local tenders and competitions, and follow-up of proposals. An individual engineer or a small professional organization is usually better suited to this work than a local consulting firm or a large contracting company.

2. Distribute two types of promotion literature printed in Spanish, a small brochure for mass distribution and a more elaborate one for selected prospective clients.

3. Be completely familiar with (and if possible have access to) Canadian financing sources, in order to be able to offer reasonable possibilities for credits to cover both the engineering services and Canadian equipment needed.

4. Be able to supply small services free of charge, such as preliminary assessments of investment and working capital needed for a particular project, assistance to prospective clients visiting Canada, the supply of manufacturers' catalogues and specifications, market information on potential exports to Canada, and so on.

More often than not, the local sponsors of a sound project have good credit and are able to furnish adequate guarantees to local banks in support of dollar loans to pay fees. The resident agent for a Canadian consultant should be able to establish a firm's credit facilities.

Peru and Bolivia are in an economic development stage that could be compared to Canada's thirty years ago. Even primary industries are in need of more efficient methods and selective application of capital resources. However, current economic trends and certain government policies make for favorable conditions for new enterprises, particularly in the following fields:

Food processing

Forestry and wood processing

Mineral ore beneficiation

Tourism

Power generation and transmission

Regional socio-economic studies

Industrial parks

Colonization and development of tropical areas

We are eager to assist in promoting the sale of qualified engineering services in Peru and Bolivia by supplying names and background of eligible agents and prospective clients, economic information on relevant areas, and leads to securing collaboration from local experts if required for field work.

Turkey

Infrastructure and industrial projects emphasized

M. B. BURSEY
Commercial Counsellor, Athens

■ Turkish planners are endeavoring, in spite of a serious foreign exchange problem, to change the traditional agrarian nature of the Turkish economy through a program of essential infrastructure and industrial projects. They realize that before rapid economic progress can be made the country must have a plentiful supply of cheap electric power and fuel oil, an efficient communications network of roads, railways, airports and harbors, and certain basic industries.

The medium through which these objectives, hopefully, will be achieved is a series of five year economic development plans, which provide general outlines of aims broken down into annual programs of specific targets and projects. The First Five Year Plan began in 1963 and made some substantial progress. Much remains to be done, however, to assure a firm industrial base for Turkey within the next decade.

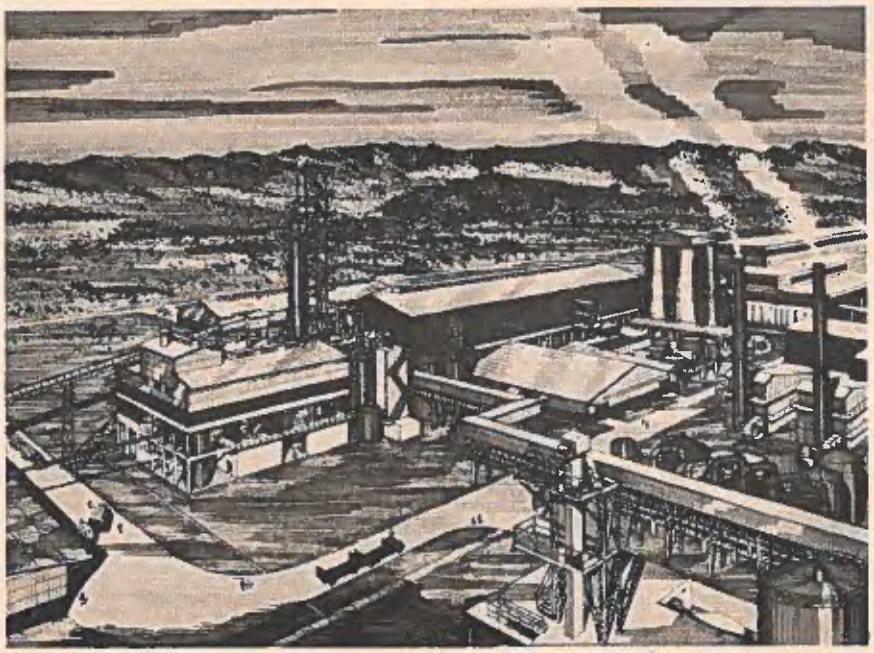
The list of engineering projects that the Turkish authorities would like to see completed during the Second Five Year Plan (1968-72) is impressive. It offers opportunities for Canadian services and equipment in the fields of hydro and nuclear-generated electric power, pulp and paper, petrochemicals (including fertilizers and synthetic rubber), natural gas and oil transportation, communications, mining and metallurgy, and so on. Canadian firms are being kept advised of all such opportunities either directly or through the Department of Trade and Commerce, Ottawa.

For turnkey projects or package deals (a number of these are pending) and for the separate supply of plant equipment and machinery, offers of credit financing, preferably at "concessional" interest and repayment terms are, however, invariably required.

To limit expenditure of foreign exchange, all feasibility studies, engineering design and turnkey projects must provide for the maximum use of Turkish engineers and equipment. The Athens office can suggest a number of Turkish engineering firms willing to work with Canadian engineers on upcoming projects.

Over the past year or so there has been an encouraging response from Canadian engineers to opportunities in Turkey and a number of firms have participated actively in the prequalification and detailed proposal stages of projects covering nuclear and hydroelectric power, pulp and paper, chemical fertilizers, minerals and metallurgy, transportation studies, highway planning and construction, and the Bosphorus crossing. In addition, many Canadian engineers have visited Ankara for discussions with the various state organizations.

So far four Canadian firms have actually been awarded contracts. The most important of these is is a hy-



Tbis is an artist's drawing of the Dalaman pulp and paper project in Turkey. The mill is being designed and construction supervised by Canadian consultants, Stadler Hurter of Montreal. This firm will also assist with the start-up and during initial operations.

droelectric power project design engineering contract worth approximately U.S. $400,000. The others cover a lake minerals study, a potash survey and an oil transportation survey. In addition, another Canadian firm acted as consultant to SEKA, the Turkish state pulp and paper agency, on two earlier pulp and paper mill projects which are now under construction. The same firm acted in a similar capacity for a Japanese group which was awarded the contract for a third (newsprint) mill also under construction at this time. (See article on page 25.)

U.S. Government AID, Export-Import Bank and foreign government financing have been and no doubt will continue to be made available for a number of Turkish projects, thus excluding Canadian engineering and equipment suppliers. However, some of the studies and projects to be undertaken over the next few years will probably be financed through the World Bank or UNDP (Special Fund) channels or with Turkey's own limited foreign exchange. This would permit Canadian engineers and suppliers to participate on an equal basis with other international bidders. Canadian engineers and equipment suppliers should therefore acquaint themselves with the procedure followed by international financing agencies and make sure that they are registered with these bodies.

Iran

Team up with a local firm

D. M. BRANION
Commercial Secretary, Tehran

■ During the Fourth Five Year Plan (March 1968 to March 1973) Iran will invest a total of U.S.$10,800 million, per capita income is expected to rise from U.S.$200 to U.S.$304, and the economy will expand at the rate of 9 per cent.

Agricultural output will increase by 28 per cent. Mining and manufacturing development will be doubled and electric power output will increase by 22 per cent a year, a total rise of 7.85 billion kilowatts. Port capacity will be expanded by 75 per cent, 17 airports will be re-equipped and six new ones built. There will be 4,600 kilometers of new asphalt highway, 12,500 kilometers more feeder roads, and 1,550 kilometers more railway track. An increase of 125 per cent in telephone lines is planned. A VHF network will be created and at least ten new television stations built.

Consulting services are crucial to the success of the Fourth Plan. Contracts will be awarded for consulting work in all of the fields mentioned. If you want the business, the first step is to visit Iran. It is absolutely essential for Canadian consultants to come here, make contact with local government officials, and find an Iranian consultant to team up with.

The Plan Organization is the government body responsible for all development work. Before a foreign consultant can undertake work within the context of the Plan he must register with the Plan Organization. The requirements are relatively simple: the Canadian consultant must write to the Plan Organization listing his expertise in all fields, stressing particularly work done outside Canada. A new regulation requires foreign consultants to register in conjunction with an Iranian consultant. During his visit the Canadian must therefore enter into such an arrangement.

The Plan Organization looks after the over-all administration of development work but the various Imperial Iranian Ministries develop and carry out the various projects. For example, if a Canadian firm wished to undertake a power project, it would have to contact the Ministry of Water and Power and demonstrate its competence in the power field.

No list of specific projects is available because they are developed as the need arises by the different Ministries. The Imperial Iranian Government seldom calls for tenders or announce consulting work. It is up to the foreign consultant to find out about work from the Ministries.

It should not be difficult for a Canadian consultant to find an Iranian partner. He may not have had a great deal of experience in the area in which the consultant is interested but it is essential that he have a good working relationship with the Ministries. The importance of the Iranian partner's contacts cannot be overstressed; without them the Canadian consultant has little or no hope of locating a good project.

An important point in Iran is whether or not the consultant can offer some form of credit. If he is in a position to offer long-term financing for a particular project, he will certainly receive a much more sympathetic hearing from government officials. The Imperial Iranian Government is also very anxious to encourage foreign investment in the development program. There are many possibilities for joint ventures, especially in mining and forestry. With this type of backing, the consultant's chances would again increase substantially.

Although there is much consultant work to be done, do not assume that a contract can be found overnight. There are foreign consultants from all parts of the world already working in Iran and competition for contracts is extremely keen. Canadian consultants, however, have obtained worthwhile ones in Iran through perseverance.

The Trade Commissioner's Office in Tehran will give you as much help as possible. Other countries in the area also have potential. Make the trip and see for yourself.

Could a Turkish Land-Bridge Pay?

■ When the Turkish Government's State Planning Department was wondering whether a land-bridge from Basra to Iskenderun on the Mediterranean could compete for the transport of crude oil with existing pipelines and the sea route round the Cape if the Suez Canal remained closed, it called on N. D. Lea & Associates Ltd. for advice. It chose this Canadian firm because, together with other members of the General Engineering Group, it had had considerable experience with this kind of problem and was held in high regard.

The difference between a prefeasibility study and a feasibility study is as much a difference of kind as of degree. The prefeasibility budget allows only the minimum of field work and compels the consultants to rely heavily on statistics produced for quite another purpose. Many techniques which engineers like to use must be ruled out because of their cost or the time they take. In short, prefeasibility studies call for a great deal of ingenuity, a flair for spotting and correcting bias in data, and the ability to keep in mind many alternatives.

N. D. Lea & Associates Ltd. teamed up with a Turkish company to do the job. The Turkish Government provided bilingual secretarial staff and put railway officials at their disposal. Together they looked at all modes of transportation—road, rail and pipeline, including associated terminal facilities—and considered the possibility of attracting traffic other than oil. They tried to assess the effect of political realignments in the Middle East on the feasibility of competitive routes and to estimate their comparative costs. At the same time, they had to bear in mind the chance of fresh oil discoveries close to their route.

A look at the map reveals that there is already a railway from Iskenderun eastwards along the Turkish/Syrian border. The line passes through Syria for 50 miles, then continues on to Mosul in Iraq, and down the Tigris to Baghdad and Basra, a distance of some 1,150 miles in all. At present, it is serviced by coal-burning locomotives and trains are cleared through section by section on the instructions of the stationmasters. There are about five trains a day through to Iraq. Traffic stops at night so that crews can go to sleep. Under the Five Year Plan the axle loading is to be increased to not less than 20 tons on the Turkish part of the line.

The consultants examined the problems of adapting this railway to unit train operation which, under certain conditions, might be a practical alternative to building a pipeline. Whether or not this is eventally done, some of their findings will certainly be useful in improving current working. For this part of the assignment the consultants were able to draw on the expertise of the Canadian National Railways which has a consulting division that will assist Canadian engineers and economists at home and abroad.

Political events in Iraq at the time made it difficult to do on-the-spot studies. Existing maps and published material were used to bridge the gap. However, the consultants believe that their report on the Turkish part of the route, which will be ready very shortly, will be sufficient to indicate whether the Government should proceed with a detailed feasibility study.

Experience Begets Opportunities

■ Canadian knowhow and experience in the pulp and paper industry is recognized throughout the world and has brought to Canadian consultants many foreign assignments. Currently in two Middle Eastern countries, Turkey and Iraq, integrated pulp and paper mills are taking shape under the supervision of a Montreal consulting engineering firm, Stadler Hurter. One of the Turkish projects, financed by West German capital, is at Dalaman and the other, with French and Italian capital, is being built at Caycuma. A newsprint mill is going up at Aksu. In Iraq, a $50 million kraft pulp and paper mill is being built at Basra.

Rudy Meyer, vice-president of Stadler-Hurter International, advances two main reasons why his firm obtained these contracts. The first is that it has acquired an international reputation in the design and engineering of pulp and paper mills —a reputation that has brought it business even in Sweden and Finland. The second is that it has built up contacts of many types all over the world to ensure that it will hear about projects quickly.

Some time ago the firm set up an office in Zurich, Switzerland, which operates under the personal supervision of its president, A. M. Hurter, and looks after its interests in Europe and Africa. An early contact was the European Investment Bank in Brussels, for which Stadler Hurter carried out some supervisory services. About three years ago it became involved in several proposed pulp and paper mill projects in Turkey and requested Stadler Hurter to review the projects to ensure that they were sound. Later the Turkish organization responsible for the pulp and paper industry asked the firm to design and supervise the construction of the Dalaman and Caycuma mills, and to assist during the start-up and initial operations. Acting on behalf of the Turkish owners, the Canadian engineers have been able to bring about improvements in capacity and savings in costs. For the third plant at Aksu they carried out the general design of the mill and the detailed design for the wood-handling system.

The $50 million kraft pulp and paper mill at Basra, Iraq, is being financed by the Iraq Government and is part of the development program of the Ministry of Industry. Stadler Hurter did the feasibility study for this mill in co-operation with its Swedish associates. The mill will use as its raw materials local reeds and bagasse, waste paper and purchased pulp. Stadler Hurter also prepared the plant layouts and specifications, analyzed the tenders, and is now supervising the detail design and construction. The contract was won by the West Germans, who offered a package deal on the basis of the Canadian tender specifications.

Stadler Hurter's international experience is not confined to the pulp and paper field nor to the Middle East. It has carried out engineering assignments in more than 40 countries, some of them in the thermal power and chemical fields. At the moment it is also working in Peru, Taiwan, Switzerland, Norway, Burma, Thailand, India, Pakistan, the Ivory Coast and Tanzania.

In taking on foreign work, particularly in the developing countries, this firm tries to combine technical competence with a sensitive appreciation of the milieu in which it must operate. Stadler Hurter personnel who have carried out overseas assignments have arrived at a working philosophy that Rudy Meyer recently put into words: "In providing technical assistance to developing countries," he said, "quite a different and more flexible approach is required on our part than is . . . normally required at home. We have to be able not only to find the best solutions for the specific technical and management problems that present themselves but we have also to be able to co-operate successfully with the overseas counterpart personnel . . . If our Canadian personnel takes the attitude that the local counterpart engineers and personnel are just as intelligent and capable as our own engineers except that they have less experience in certain industrial fields than we have, then there will be no problem."

Greece

Development projects often need foreign consultants

M. B. BURSEY
Commercial Counsellor, Athens

■ Greece has a continuing need for engineering services but in some fields Greek engineers are capable of undertaking the necessary work. In others, the knowledge and experience of foreign consultants will be needed for many years to come.

A previous report in *Foreign Trade** described the Five Year Plan which the Greek Government has developed covering the years 1968 to 1972. This is a general plan which establishes guidelines. Using it as a basis, the Government is now setting up committees to prepare detailed programs for various sectors of the economy. For example, an air transport development committee has been formed to plan air transport development in Greece.

Greece has sufficient funds to pay for foreign engineering services but only when these are for projects essential to the development of the country. In addition, international financing has been obtained for several projects in recent months. But Greek authorities prefer to receive aid or technical assistance from foreign countries to cover a portion of the cost of some feasibility studies and similar projects. This has precluded Canadian participation in some Greek requirements.

A further difficulty sometimes encountered is that the Government often prefers to call tenders for package deals on major projects. These packages usually include design engineering, equipment supply, supervision and financing. The size of some of these packages has discouraged some Canadian engineering companies in recent years.

Power Generation—During the past winter Greece suffered from a severe shortage of electricity. To overcome this problem the Greek Public Power Corporation has placed considerable emphasis on new power generation projects. The first of these, the Megalopolis thermal project, is being financed by German sources. The second major project will be Polyfyton, a combination hydroelectric power and irrigation project on the Aliakmon River in west central Greece.

A German firm is now doing feasibility studies in preparation for a package contract which the Public Power Corporation hopes to sign with a foreign supplier. Greece is also well advanced in the planning of its first nuclear power generating station.

At the present time the United Nations Development Program is planning a study of the power generation potential of three rivers in western Greece. This study may offer opportunities for Canadian engineers and should, when translated into specific projects, provide additional openings.

Transportation—The major transportation project is the master plan for the Athens Airport. Foreign firms have been invited to submit proposals for this study which will involve the expansion of the Athens Airport to handle increased traffic and larger and faster aircraft. Studies of other airports in Greece may follow.

The major interest in ports and harbors centers around the expansion and redesigning of the Piraeus harbor, the largest in Greece.

Forestry—A number of forest industry development projects are currently being planned and Canadian engineers are already involved in one of these. When these initial studies are completed there may be a demand for further engineering services to design and construct sawmills, particle board plants and other facilities.

The UNDP is also planning to conduct a forest industry feasibility study in the Acheloos River basin. Approximately U.S.$700,000 has been earmarked for this project.

Mining—About two years ago there was a considerable amount of Canadian interest in a Greek project for a mineral survey of the whole country. The project was not carried out at the time but we have recently received indications that all or part of it may be reinstated in the next few years. Canadian firms have expressed interest in a number of studies, including asbestos, copper, iron ore and others. One Canadian firm was awarded a contract for the study of asbestos deposits in the Kozani region of northern Greece. This study is being conducted for the Hellenic Industrial Development Bank. (See article on page 27.)

A substantial amount of mineral exploration remains to be done in Greece and future studies may offer additional opportunities for Canadian mining engineers. At the moment some preliminary uranium prospecting is going on in the north.

Getting Business

If Canadian companies can offer financed package deals there are excellent opportunities in the building of tourist facilities and in other fields. Other projects which may arise in the near future include a subway system for Athens, extension of the existing electric railway in the Athens area, a new sewerage system for Athens, and waterfront development in the area.

Greece is rapidly developing its own engineering skills and for this reason foreign companies would be well advised to associate with local firms. The Greek authorities are much more interested in awarding contracts with at least partial Greek participation than they are in awarding them to completely foreign companies.

To meet local engineering firms and establish contacts with the appropriate government and private organizations, Canadian engineers must visit Greece.

*See issue of August 17, 1968.

It is a convenient stopping-off point en route to the Middle East, the Far East, Australia and even parts of Africa.

Greece offers generous inducements to foreign engineering companies wishing to establish branch offices to serve the whole Middle East.

A number of foreign engineering companies have already taken advantage of these and have set up branch offices in Athens.

Greeks Turn to Canadian Experts

■ The Greeks had a problem. For a number of years they had been trying to decide whether a small asbestos deposit was worth exploiting; at one stage they had built a pilot plant at the site. Was it worthwhile to go further? The Hellenic Industrial Development Bank was faced with the decision.

Why not ask the expert? At a meeting of the United Nations Industrial Development Organization held in Athens November 1967, a Bank officer discussed the problem with a knowledgeable Canadian. The Canadian was Jack Hahn, vice-president of Surveyer, Nenninger, & Chenevert Inc. of Montreal. Further negotiations followed, both with the Trade Commissioner's office in Athens and the company. The result was that SNC was engaged to undertake a feasibility study to answer the question: "Is there economic justification for developing this asbestos deposit and processing the product?"

To this assignment Mr. Hahn and his firm brought a knowledge of asbestos and the problems of processing it that would be hard to match. SNC engineers designed the Johns-Manville mill at Asbestos, Quebec, the largest in the world, and others in Canada, including the engineering of the Advocate development in Newfoundland. They could certainly find the answer to the Greek problem.

To carry out the study in Greece, SNC associated itself with a Toronto firm of mining geologists Watts, Griffis and McOuat. The latter will undertake the mining and geological aspects of the investigation, such as evaluating the quality of the deposit and its size and advising on the actual mining techniques. SNC will study the milling of the asbestos, estimate what capital will be needed, and analyze the financial side of the venture. Together they will also investigate potential markets for asbestos cement products in the Mediterranean Basin and in Eastern Europe. Now under way, the study is expected to take six months to complete.

Ore specimens from a Greek asbestos mine, obtained by diamond drilling, are "in the bag" for Canadian mining geologists to study and evaluate size and quality.

SNC engineers are engaged on a similar study in Australia, again in collaboration with Watts, Griffis and McOuat, who this time were the original consultants on the project. The white asbestos deposit near Barraba on the eastern side of Australia is owned by Pacific Asbestos Company, a Calgary-based firm. Preliminary investigation has been completed and a more detailed study, to cost about a million dollars, is now going forward, including a diamond core drilling program, also sampling and testing.

Asbestos mining and processing is not the only type of expertise that SNC puts to use in Canada and in many countries abroad. Another specialty is hydro power development and river control. Its experience in this area has brought it a large contract, to date the only SNC job financed by Canadian grant aid. At Idikki in Kerala, India, a hydroelectric complex to cost $125 million and produce 390,000 kw. by 1970 and 780,000 by 1979, is being built. Included is a double-curvature arch dam—and SNC designed the largest dam of this type in the world, Manic 5, in Quebec. The Montreal firm drew up the specifications for the Idikki project and is responsible for the design, engineering, procurement of equipment and supervision of construction. Eight of its staff members are on the site.

A rather different assignment took some of its engineers down to Colombia. Here again, the need was for an expert opinion. Because SNC had registered with the World Bank and was favorably known to it, it was called in to appraise the expropriated assets of the American Foreign Power Corporation.

SNC may be the only Canadian firm ever to become involved in a project in Mongolia. It obtained a commission from the World Health Organization to review and report on a water treatment and sewage disposal project in that remote Far Eastern country.

Middle East

Oil revenues are financing development projects; Canadian consultants can and do find opportunities if they adopt the right approach.

R. H. M. CATHCART, *Assistant Commercial Secretary, Beirut*

■ The Middle East offers excellent opportunities to sell engineering services provided that firms are willing to pursue work aggressively. Saudi Arabia, Iraq, and the other states in the Gulf area are for the most part undeveloped but thanks to the large income from oil, their governments have adequate amounts of money to carry out ambitious development plans. Syria, Jordan and Lebanon do not have as much development capital but do offer interesting prospects for consultants. Kuwait, by contrast, is rather fully developed.

There are very few local engineering firms which can cope with the types or the scale of projects planned. Governments and, in a few instances, private investors must rely on foreign consultants and architects to do everything from feasibility studies to supervision of construction and occasionally to undertake management training.

In the last fifteen years governments have formulated development programs with the assistance of internationally known consulting firms. Much work has been done and a number of consultants have established themselves at a time when they were the first to break the ground.

The Right Approach

Any firm wishing to work in this area has three main points to bear in mind:

1. It must be flexible in its approach; conditions of work, terms of reference for a consultant, etc., frequently differ widely from those in Canada. This flexibility applies to such things as competitive bidding. In the Middle East, engineering services are frequently equated to goods or commodities and once a firm has established its competence with the appropriate government agency, the latter usually awards the tender to the firm offering the lowest price. Unfortunately, this frequently reduces the quality of the work but this is a fact that must be lived with. With few exceptions, contracts for engineering services are on a lump sum fee basis. Occasionally work like road design and supervision is on a per kilometer basis and very infrequently contracts are on a cost plus basis.

2. Important also is aggressiveness. Too frequently Canadian consulting firms tend to consider one call on a key government official or one intensive tour of the area as sufficient both to introduce the firm and to see what is going on. This may result in a contract, but to become well established in this area, a firm must plan to make frequent tours (coupled with visits to particular countries as the situation warrants) seeing as many officials as possible and holding detailed discussions on proposed developments.

3. All this requires an investment in promoting the firm's interest in the Middle East. This investment must cover a fairly long period, possibly several years, of patient cultivation before work is secured.

Each Middle Eastern country has widely differing government setups with different approaches to development planning. The following paragraphs give the highlights of economic development in the countries for which the Beirut office is responsible and offer suggestions on the best approach to take in selling engineering and architectural services.

Saudi Arabia

It is expected that the 1968/69 budget in Saudi Arabia will be substantially increased, which means that the development proposals which were shelved last year will be rescheduled in the new year.

It is only in the last five years that Saudi Arabia has set up programs to develop all aspects of the economy. During this time a number of prominent U.S. and European consulting firms have been retained by various Ministries to do general economic studies, road designs, agricultural surveys, reports on opportunities for the establishment of industries, and work in city development, including designs of sewerage and drainage, town planning, etc.

Two Canadian firms, Cansult Limited and Lockwood Survey, have been doing work in Saudi Arabia for the past few years. Cansult has worked on sewerage and drainage projects for Riyadh and Medina, and Lockwood Survey, in co-operation with two other prominent aerial survey firms, has completed a large geophysical survey.

Important deposits of mineral resources other than oil have been found in commercial quantities and sizable revenues from copper and iron ore, sulphur and potash should be realized when these are exploited. Construction of a huge petrochemical complex is already under way, which will make Saudi Arabia a major exporter of fertilizers and sulphur. The Government has spent a great deal of money on surveys for agricultural development and used some four different consulting firms.

Previously registration with the Supreme Planning Board (now re-

named the Central Planning Organization) was all that was necessary for consulting firms. Now consultants who wish to work in Saudi Arabia on government projects must register with each Ministry, showing relevant experience, size of operation, etc. By simply registering a consulting firm may receive a direct invitation to work on a particular project. However, most of the projects come to the attention of consultants already working in the area or who are in close touch with the officials concerned. The firm which is not on the spot is at a disadvantage.

Certainly wealthy Saudis are starting to invest directly in industrial operations or in developing real estate and often require the services of foreign engineers and architects. It is difficult to determine opportunities of this kind without visiting Saudi Arabia and calling on a number of leading entrepreneurs, banks etc., which may from time to time be either interested in or aware of such projects. It is important to have a good local agent to make key introductions and to help conclude arrangements for contracted work. All Ministries are located in Riyadh, the political capital, but many have important branches in the commercial center, Jeddah. A visit to both and possibly to the Dammam area is recommended.

Kuwait

Kuwait has a history of orderly economic development through well-organized centralized planning authorities operating under a series of five-year plans. The forthcoming budget is expected to contain cuts in the development programs. Nevertheless, with revenues of over $800 million a year and a small population of 450,000, this is in reality only a levelling-off in the already grand-scale development program.

New hospitals, a major university complex and a huge water pipeline scheme are among the developments being planned at the moment. There are prospects in the mixed government and private sector for new industries where consultants can offer services for complete feasibility studies and eventual design work.

The Central Planning Board is the government agency charged with the responsibility of selecting appropriate consultants and architects for all government projects. The Consultants' Committee which draws up the short list of firms before final selection by the Ministry does so from the list of over 800 consultants already registered with it. Consultants cannot have any local agent or any official contact with Kuwaitis except local firms engaged in consulting or architectural work. The registration with the CPB requires the careful completion of a set form. The firm must give full details of all work done as it is on the basis of this that the Board's officers classify each firm to make up the short list for direct invitation. This registration form should be kept up-to-date by forwarding details of any new work completed, especially work done outside Canada.

A visit to the Board as well as to the various Ministries and government agencies which will eventually be directly responsible for implementing the consultants' work is highly recommended.

Getting engineering business in the Middle East means covering the area frequently. Here a member of a Canadian consulting engineering firm discusses prospects with R. H. M. Cathcart, the Assistant Commercial Secretary in Beirut.

Iraq

Iraq provides interesting prospects for consulting engineers in the development of other mineral resources besides oil, especially sulphur. There is also a need for an over-all survey of electric power requirements, mineral surveys and a review of sewerage, drainage and irrigation facilities.

Revenues from oil exports, which in 1967 totalled $340 million, have provided most of the capital required for the Government's development projects. To maintain a high rate of development with the large population there is great need for industrial diversification and improvements in agriculture.

The conflict in June 1967 and the disruption of oil exports because of the outstanding dispute with the oil company have set back the development program considerably. At the present moment the Government is taking a new look at its current Five Year Plan to ensure that the targets are related to the total development of the economy. It is also studying a proposed national electric power grid and a more detailed industrial survey. The agricultural sector needs revitalizing. Canadian consultants with fresh ideas might be able to interest the Ministry of Agriculture in retaining their services.

The Minister of Planning can provide consultants visiting Baghdad with

up-to-date information on the current Five Year Plan. The Ministry of Industry retains consultants for all industrial projects and engineering firms offering services for thermal and hydroelectric power. The Directorate of Roads & Bridges, Ministry of Communications, retains consultants from time to time in connection with its large-scale program. Consulting firms must register directly with the above Ministries and with other government agencies which use consultants or architects. Usually appropriate firms are then put on a short list and are invited directly to prepare proposals on various projects. To be short-listed, however, requires more than simple registration. It requires one or several personal calls on the particular official making the selection. Although a local agent is helpful, Iraqi officials prefer to deal directly with the technically competent representatives of the firm itself.

A number of consulting firms have been doing work in Iraq for many years. Recently Stadler Hurter of Montreal completed the design of a complete pulp and paper mill in southern Iraq and are now supervising construction of the final phase.

Lower Gulf States

Nine of the states in this area are moving to form a Federation of Emirates. Preliminary discussions resulted in an association but a more formal union will take some time to come into being. This Federation should offer excellent opportunities because there will be a need to link up communications and to undertake economic studies for the area as a whole.

Development has been going on for a number of years in Qatar and Bahrain, where mainly British consultants have been the advisers to the Government. In Abu Dhabi, Cansult of Ottawa has secured a number of important contracts for a major international airport, a bridge and a large port complex, among other work.

To keep abreast of developments where engineering services will be needed requires frequent visits. The authorities, who are in close contact with British consultants, more often than not extend direct invitations without the benefit of open competition or short-listing in the way Kuwait selects its consultants.

The Rulers of these States frequently choose consultants themselves and it is therefore most important for firms to be well introduced at this level as well as to senior sheikhs or ministers holding the direct responsibility for development, usually under the portfolio of a Public Works Department. In Dubai, a call on the Secretary of the Trucial States Development Board, which was set up some years ago under British auspices to assist in industrial development of the Trucial States, would be useful.

Muscat and Oman

Muscat now has oil revenues of nearly $70 million coming in and the Sultan can finance basic development projects. There appear to be many opportunities for consultants because little or no development has yet taken place in this area. To explore opportunities, consultants must visit Muscat and to do this must have an agent well placed to secure a visa. A visa is difficult to obtain at present but entry regulations may be eased should the Sultan decide to join the Federation of Emirates as he has indicated he may in the near future.

Lebanon

Lebanon does not draw revenues from oil or other resources and its development programs are more modest. Consultants who wish to work in this country on government projects must register with the Ministries concerned, showing relevant experience, size of operations, etc. The most important Ministries are the Public Works Ministry and the Hydroelectric Ministry. There are also two executive councils for major projects—the Conseil Executif des Grands Projets de Beyrouth and the Conseil Executif des Grands Projets de Liban. There are important developments in the private sector as well and these must be followed up with the many entrepreneurs in Lebanon.

A few interesting government projects coming up in the near future are the sugar beet factory, sewerage studies for the city of Beirut, and a sewage treatment plant. A number of studies are needed for major auto routes throughout the country. In the private sector there are possibilities for a pulp and paper industry and a steel mill. In contrast with other Arab countries, there are local engineering firms in Lebanon capable of handling all but the most complex industrial projects.

Personal contacts with government officials and private entrepreneurs are most important and a local agent well able to make the proper introductions is a must. Several visits to the proper Ministry or divisions are required to convince the authorities that the firm is the one best able to do particular work. Teamwork with a local agent is therefore needed. Recently Cansult of Ottawa completed a small study for the development of a ski resort in the Mount Hermon area.

Syria and Jordan

Syria and Jordan do offer opportunities for consultants but because foreign exchange is tight, both countries generally require financed package proposals for any development project. The consulting aspects of the work must therefore be tied together with the contracting and equipping of any industrial plant or any social welfare project. The Syrian Government is at present interested in hearing from firms able to assist in general tourist studies, hospitals, complete turnkey projects for railroads, petrochemical complexes, and the gridding of electric power throughout Syria.

In Jordan discussions should be arranged with the Jordan Investment Promotion Office, the Ministry of National Economy, and the Jordan Development Board. Both agencies from time to time retain consultants to assist in particular projects. For the moment, however, most Western governments offer Jordan free engineering services for a number of basic economic development projects. This makes it difficult for Canadian firms working on a straight commercial basis to compete.

We Can Help

The Beirut office has had a great deal of experience in assisting Cana-

dian consultants and architects wishing to do work in the Arab Middle East. Interested firms should first contact our office by letter to determine in which area their services would be most useful. Should prospects for an individual firm or group of firms appear encouraging, they should at first opportunity plan an extensive tour of the area. The Beirut office can help plan itineraries, make introductions, and suggest suitable contacts and agents. For the serious firm, there are many opportunities in this area. Let us help you to uncover them.

An electronic technician watches his instruments during a geophysical survey of Sudan and Ethiopia. Survair Ltd. won this UNDP contract over 13 other countries. The special Canadian gamma-ray spectrometer (right) was the decisive factor.

Prospecting from the Air

■ How would you like to fly up and down the desert for twelve hours a day at an altitude of 500 feet? Besides needing a strong stomach and steady nerves, you have to be either a superb pilot or a skilled electronic technician to take part in a geophysical survey such as the one Survair has been doing in the Sudan and Ethiopia for the UNDP (Special Fund).

The main object of this 37,000 line/mile survey was to pin-point the most promising places to prospect for iron ore —a steel industry makes an excellent technological base for a developing country. The UNDP, however, decided to broaden the scope of the search to include certain radioactive minerals.

Thirteen companies from six countries were in the running for the job. The UNDP's Technical Board scrutinized all the presentations and made recommendations based on the technical capabilities of the various firms and on the methods and equipment they proposed to use. A second Board weighed technical advantages against cost. The qualifications and experience of the personnel—particularly experience in working abroad—also counted for a lot.

Survair Ltd. of Ottawa satisfied the requirements of both boards and was available to start work when the UNDP gave the signal. It proposed to use a special four-channel differential gamma-ray spectrometer made by Exploranium Corporation of Canada, which could identify thorium, potassium, bismuth and thallium and differentiate between them —a plus that may have been the deciding factor in the award of the contract.

"Our pilots have operated all over the world and have to their credit many flying hours in Africa," Tom Rowlands, Survair's president, told me. "For this project we used three pilots, two electronic technicians (to operate the instruments in flight), two data technicians (to analyse data and do primary compilation on site), a geophysicist, and an aircraft engineer. Flying began in July and was completed in November. The data will be assembled in map form in Ottawa and the report presented to the UNDP next April. By then, forty of our staff will have been involved in some part of the work."

"We didn't have any unusual problems in Sudan and Ethiopia," remarked Bill DesLaurier, who was in charge of the project. "We chose Khartoum as the base in the Sudan because we could consult the Geological Survey there and the UN Project Manager had made it his headquarters. Temperatures were in the 120-degree range, which meant that the aircraft engineer could not work until the metal had cooled off. Afterwards, we moved up to Addis Ababa, where it was only 60 degrees and the rain was pouring down. Quite a change, believe me."

Overseas survey work provides Survair Ltd. with a substantial part of its business. The company is at present engaged on mapping parts of Trinidad and Tobago, an External Aid (Canadian International Development Agency) project which began in 1966 and won't be finished until 1971. In partnership with another firm, it is working in Guyana on another survey program financed by Canadian grant aid which will continue for some time to come. Besides this, Survair is busy with projects in Canada for various government agencies and private industry.

Libya

Good opportunities now

Office of the Minister-Counsellor (Commercial), Rome

■ It is only eight years since the first major oil strike but the quantity and high grade of Libyan petroleum plus proximity to European markets have made it one of the most exciting oil-boom countries in the world. Fast-climbing government oil revenues should reach $600 million in 1969.

The Libyans, who readily acknowledge their lack of consulting engineering and technical skills, are seeking to develop their country with the assistance of experienced and capable foreign firms. Qualified Canadian companies should need no further encouragement to investigate the situation at first hand.

The Ministry of Planning and Development is now establishing priorities for the next Five Year Plan which begins in April 1969. It will include expansion of education and technical training, water resource studies and tourist development projects. But one does not have to look to the future to find major developments in Libya. The following projects are already in the planning stages—Canadian firms should move quickly if they wish to participate.

● New airport terminals at Tripoli and Benghazi. Tobruk airport is to be improved. Tender documents are being prepared; invitations to tender should be issued early next year.

● Tripoli and Benghazi will be linked by coaxial cable. The Government is considering whether it should be a submarine cable across the Gulf of Sirte or an overland one.

● The oil industry has several major developments on the drawing board. Oasis will install a master control system for its pipeline network, which includes five pumping stations and handles 700,000 barrels of oil a day. Occidental's facilities are being constantly enlarged; in the last two years, it has become one of the biggest producers and hopes to be pumping 1.5 million barrels a day soon. It will need more pumping stations and both remote and local control equipment.

If your firm would like to provide consulting engineering services to the Libyan Government, you must first enter it on the roll of consultants. Write to the Canadian Minister-Counsellor (Commercial) in Rome and he will send you the necessary forms. Second, ask him about suitable agents because it is usually advisable to have a Libyan agent or representative to keep a close watch on developments, advise on local practices, and arrange productive calls when you visit Libya.

West Africa

Opportunities for those who seek them out

GEO. HAZEN, *Commercial Secretary, and*

BERNARD DUSSAULT, *Assistant Commercial Secretary, Accra*

■ West Africa presents the consulting engineer with a paradox. It is one of the areas which most needs to build up its infrastructure but it has the greatest difficulty in financing this from its own resources. With few exceptions, its developing countries must look to the international agencies and bilateral aid agreements for help.

And it is to these same international agencies that the consulting engineer must normally turn. Bilateral aid usually restricts the employment of consultants to those from the donor country. There are certainly opportunities in each West African country in non-government sponsored projects but they are generally industrial in nature and the choice of consultants rests solely with the investor. Foreign investors tend to favor their own nationals. French West African countries are a field that is almost untouched by Canadian firms; few trade missions have been there and a special effort is needed.

Historical ties predispose Ghana to look to Britain for technology and financial support. Liberia, on the other hand, a country without a colonial history, seems to favor its United States connections more strongly with each passing year.

One can recognize two separate streams or lines of thought in the French West African countries. The first includes Togo, Upper Volta, the Ivory Coast and Mauritania. These maintain close relations with France and other European Common Market countries; consequently, we find that major projects are supervised by French, Italian and German engineers and financing is arranged either through the European Development Fund (FED) or through the Assistance and Co-operation Fund (FAC). The second group includes Mali and Guinea whose relations are mainly oriented towards the Eastern Bloc.

A step-by-step review of project opportunities is difficult because of the unwillingness of individual governments to discuss their plans in detail. Formal national development plans reveal areas of need but seldom pro-

vide clues on financing and timing. We will attempt to describe these areas of need and will give some indication of the probability of work starting in the near future.

Ghana

The 512 mw. power project at Akosombo on the Volta River has made possible dramatic industrial growth. The electrical distribution system in the new industrial town and port of Tema was set up while the power plant was being built and work is now in progress in the city of Accra. Much remains to be done in other parts of the country. The Electricity Corporation will be seeking funds continuously over the next few years to modernize distribution systems in other cities and towns. If financing comes from the World Bank, Canadian engineers will have a chance to participate. Because of the possibility of retroactive financing, it is wise for consultants to make their capability known to the local authorities now.

Ghana's recently published Two Year Plan did not envisage extensive new roadworks. Heavy destructive rains have changed this picture somewhat. It is possible that realignment of roads will often be as cheap as repairing the damaged stretches but the extent of work required will not be known until the dry season begins and UNDP personnel make their examination. Specific road projects in the offing which will require economic and engineering feasibility studies include a coastal connection between Ghana and the Ivory Coast (100 miles), improvement of the road between Tamale in northern Ghana and Ouagadougou, the capital of Upper Volta (230 miles), and reconstruction of the present track from Kumasi north along the western border of Ghana to Wa (280 miles). U.S. AID is involved in the initial studies of the coastal link with the Ivory Coast.

Transportation on the artificial Volta Lake is being studied. Landings and navigation facilities at various places along the 280 miles of navigable waterway will have to be planned and built.

Ghana's railways, although damaged by recent flooding, are said to be in moderately good shape. Apart from routine maintenance, the only major work is realignment of several miles of track on the Kumasi/Takoradi section in the west. It is expected that the railway's own engineering staff will do this work. A much larger undertaking will be the expansion of the railway signalling and telecommunications system for which the equivalent of some Cdn.$3 million is to be allocated. No announcement regarding engineering has been made yet, although both Britain and the United States are known to be interested in the supply of equipment.

No large new port development is likely in view of the fine facilities at Tema and Takoradi. Engineering designs are to be sought for facilities for fishing vessels at Takoradi. The need for dredging at Tema is under review.

It is difficult to get a clear picture of what is happening with water supply and sewerage projects. Engineering design for the Accra-Tema system is now under way and studies have been commissioned for water-supply projects in other areas within 100 miles of Accra. Development plans call for extensive development of water resources and the next few years should see a start made on distribution schemes to serve many communities.

There does not appear to be any comprehensive long-range planning of resource development. Mineral surveys for several areas are under discussion and the Government will allocate offshore exploration concessions to a number of petroleum companies. Several foreign governments are known to be interested in aiding Ghana with these projects.

Forestry is an important contributor to Ghana's foreign exchange earnings. However, attempts to place the industry in the hands of small producers

It is not only Canadian engineers who find business in the developing countries; so do equipment suppliers. Here, for example, is a Timberjack log skidder hard at work in the forests of Gabon, West Africa. It is one of 80 the firm has sold there.

have caused its growth to falter. An extensive long-term conservation plan is required and an adjunct to this must be the development of adequate access roads.

Ivory Coast

In the Ivory Coast, development is forging ahead. The San Pedro harbor scheme is the most recent major project; laying of the foundation stone took place on August 12, 1968. In addition to the harbor infrastructure, the works planned (which are expected to take about four years to complete) include highway construction and street improvement for a city that is expected to have a population of 25,000, and a railway and road network capable of bringing all the products of the area to the harbor. Of the total investments amounting to CFA Fr. 7,500 million, France will provide CFA Fr. 2,700 million, Germany 1,500 million, Italy 1,150 million, and the Ivory Coast the remainder.

There will be, however, other projects in which Canada might participate. The Ivory Coast hopes to establish soon several cold stores to encourage the expansion of commercial fisheries. A railway connection between Bongolo and San Pedro is being studied, U.S. AID is considering a survey for a coastal road between the Ivory Coast and Ghana. The Kossou Bandama irrigation and power generation project involves an investment of U.S.$105 million, of which U.S.$36.5 million will be financed by the Eximbank, U.S.$36.5 million probably by the Italian Government, and the remainder by the Ivory Coast.

The repercussions of this dam project will be felt for several years to come. The flooding of a large area means that 178 villages will have to be evacuated and between 60,000 and 80,000 people resettled. This will involve a major reorganization of the road network, power transmission lines and water supply, and the irrigation of new areas. It is significant that all the people concerned are from the Baoulee tribe, the most influential political group in the Ivory Coast. So far, only one study has been made. This was done in 1964 by a French firm but it now seems to be out of date. Estimates of the cost of the project are over U.S.$60 million.

As a result of the Economic Co-operation Mission presided over by Mr. Chevrier, the Canadian Government will take part in the rural electrification pilot project covering 48 villages. Canadian participation includes the technical study of the project by experts and participation in financing the program that results.

Between 1968 and 1970, the country hopes to invest CFA Fr.6,000 million in a paper mill, CFA Fr.4,000 million in the textile industry, and CFA Fr.3,000 million in the food processing industry. Competition is strong and the market is new but Canada should be able to make its mark.

Liberia

Factual material on project possibilities in Liberia is difficult to acquire. The Government prepared a draft development plan in 1967 covering the period to 1970 but there are no specific details.

The major part of investment in Liberia has been private and foreign. Public financing has also relied heavily on foreign sources because of the country's narrow revenue base. The future is uncertain because of the difficulty in servicing its foreign debt. Most opportunities for engineering work will probably lie in the development of industries financed by private capital. The choice of consultant will, of course, be made by the investor.

Major infrastructure projects have either been completed or are in progress. Railway construction is related solely to the development of four iron mines and has been privately financed. Roads built before 1961 were financed by the Eximbank; work done since has been financed by the World Bank. There has been a rapid increase in mileage recently and it is in this field that further projects will appear because many promising parts of the country are still inaccessible.

Airport development plans are not known, despite the Government's wish to expand internal air services. No major port developments are anticipated. Expansion of the Mount Coffee hydro project is on the drawing board but it will probably be financed with U.S. AID. The construction of schools is expected to continue at a vigorous pace but opportunities for Canadian participation may be limited, given U.S. AID's past and continuing interest. Major additions to hospital plant are not contemplated now that the JFK Memorial Medical Center in Monrovia (U.S. AID) and a medical and teaching center linked with the University of Turin (Vatican financing) are complete. Water and sewerage systems for Monrovia are now being built with U.S. AID funds.

There has been talk of investigating the development of the Mano River area in co-operation with Sierra Leone and the Cavalla River basin with the Ivory Coast, but intentions have yet to be defined. If financing can be found, these two projects hold some promise for the future.

Resources development is expected to continue but specific plans and the source of funds have not been announced. West Germany recently completed a comprehensive forest inventory and U.S. assistance has been secured for an aerial geophysical survey.

A feasibility study for a possible iron and steel complex at the port of Buchanan is under way with UNDP financing. There is scope for the development of forest-based industries, particularly for plywood and veneer factories, but no public financing is contemplated.

Mali, Guinea Mauritania

Little can be done in development projects in Mali without complete reliance on outside financing. It has virtually no natural resources and no exports with which to earn foreign exchange. The Senegal River Scheme in co-operation with Senegal, Mauritania and Guinea provides some hope and UNDP has commissioned studies which include mapping in the Kayes area. Further funds for irrigation development in the Niger inland delta may come from FED (European Development Fund). IDA is said to be prepared to finance a railway rehabilitation program. A hydro development on the Senegal River near Gouina is to be studied but the financing is not known. Perhaps the greatest

hope for the future is that minerals will be found that can be mined economically but there seem to be no plans for systematic exploration.

Guinea is completely cut off from the French community and from assistance from FED. Financing for development projects has come principally from the U.S.S.R., the United States, and West Germany. Projects thought to be near the commencement stage include a 50-mile roadway to connect the southeastern forest region with the railway to Buchanan in Liberia and a high priority port and railway development to handle Boke bauxite.

Income from the export of iron ore and the imminence of exploitation of the copper deposits have injected new life into the economy of Mauritania. As a result of increased foreign exchange earnings, many new projects may be realized. New development plans offer opportunities for engineers, particularly in roads and telecommunications. Possibilities for Canadian firms depend largely on where the money comes from.

Upper Volta

Togo

Upper Volta has prepared a careful development plan but it depends almost entirely on external financing and most projects are unlikely to be realized in the near future. Mineral surveys will continue to preoccupy the authorities because they offer the greatest promise of foreign exchange earnings. Economic studies on the feasibility of a dam at Banfora in the southwest have been completed and funds are being sought.

Apart from the Ghana-Togo-Dahomey power transmission line (*Foreign Trade* July 20, 1968 issue), the only known possibility is the cement plant which Togo and Dahomey are planning together. Details of this are not available. Road development financed by the World Bank is under way; the engineering decisions seem to have already been taken.

East Africa

Power, airports, paper mill provide opportunities

P. J. GOSSELIN
Assistant Commercial Secretary
Nairobi

■ The sale of capital equipment and engineering services in East Africa frequently depends on the type of financing which can be provided. The Canadian firm will often find that its competitor has had a great deal of experience in East Africa—some of its key personnel may even have been seconded to the buyer on a long-term basis. To compete in this market, it may be necessary for Canadians to adopt the same tactics and offer a package deal; the buyer's need for technical advice is in many instances as great as for financial assistance.

The following are the main projects involving the sale of capital goods and engineering services:

Power Development in Uganda—The Uganda Electricity Board announced recently its plans for the development of a 600 mw. hydroelectric power station at Murchison Falls on the Nile. The project consists initially of a barrage to divert the water to intake tunnels which will carry it to the powerhouse below ground. After pass-

UNDP provided money for experts who trained this surveyer at work in Uganda.

ing through the turbines, the water will flow through mile-long 30-foot diameter tailrace tunnels and be released at the foot of the Falls. The initial generating capacity will be 150 mw.; an additional 450 mw. will be added as and when needed. High voltage transmission lines will have to be constructed to take the power to the urban centers.

The Uganda Electricity Board has not yet announced what kind of financing will be used on this project. We understand, however, that the World Bank is being kept informed of its plans.

Airport Expansion in Kenya—A plan involving an outlay of more than K£30 million in the Nairobi area has been presented to the Kenya Government. It calls for a continuous program of capital expenditure up to 1990. The first stage, to be completed by 1972, includes initial redevelopment at the main Nairobi airport and the relocation of the other airport at an estimated cost of K£9.5 million. The international terminal building and a second runway with the necessary aprons and taxiways will be built at Nairobi. In addition to facilities at Nairobi, a new air traffic control center with further navigation aids will be required at Embakasi.

The World Bank and various foreign governments have been kept informed of developments but the source of financing has not yet been established.

Pulp and Paper Mill in Kenya—Discussions aimed at the establishment of a pulp and paper mill at Broderick Falls in western Kenya appear to be nearing a satisfactory conclusion. The project involves participation by the Kenya Government, the International Finance Corporation and the Birla (private) Company of India. It consists of a K£30 million pulp and paper mill with a capacity of 45,000 tons a year. At the outset, existing forests will provide raw materials but eventually plantations will take over.

Because the International Finance Corporation is participating, it is hoped that procurement of much of the machinery and equipment will be by international tender, which would give Canadian manufacturers an opportunity to bid. The Broderick Falls project will create a demand for ancillary equipment such as chain saws, log skidders, and off-highway vehicles as well as for pulp mill machinery.

India

Consultants must enter into joint ventures

DOUGLAS W. R. McTAGGART, *Assistant Commercial Secretary, New Delhi*

■ India, like many other developing countries, has long drawn the attention of Canadian consulting engineers as a likely market for their services. This attention continues to be justified, although the market has become more restricted and difficult to penetrate. Basic changes in the Indian economy and government policy have significantly altered the demand for consulting engineering. There are attractive opportunities but Canadian firms should carefully examine the nature of the market and of their own resources and intentions before pursuing them. The Department of Trade and Commerce will be pleased to advise them and give them all possible assistance.

The example of a Canadian consulting engineering firm that has achieved considerable success in India may help illustrate the current situation.

Joint Venture Established

India's Fourth Five Year Plan includes a program for development of its major seaports. For a number of these, consulting engineering services will be provided, chiefly by India-based Canadians. The over-all consulting on a portion of the program has been entrusted by the Indian Government to Howe India Private Limited, a joint venture of Indian interests, Howe International of Montreal, and Steve Roessler, a Canadian who is chairman and managing director of the firm.

Roessler first arrived in India in 1964 as a project engineer for Howe International (then known as C. D. Howe Ltd.) on a project for the construction of grain storage facilities. Howe International subsequently obtained a contract to examine the iron ore handling facilities at a major port and prepare a report for the Indian Government. Convinced that there was still more business worth seeking for a firm established in India, Roessler, with the collaboration of Howe International, finally stayed in India to set up Howe India Private Limited. He now lives in New Delhi.

The story of Howe India Private Limited helps demonstrate an important trend. Increasingly, success for Canadian consulting engineering firms in India demands two things—specialized knowledge in sophisticated fields and a willingness to enter into joint ventures with Indian firms. The exception is firms obtaining business under the Canadian aid program, discussed later in this article.

Government Policy Changed

In the past, the introduction of Five Year Plans resulted in numerous opportunities for consulting engineering services in India. This was especially true of the Second Plan (1951-1956) with its emphasis on basic and heavy industry. Because there were few Indian firms with experience in this area, many consultants had to be hired abroad. In industrial joint ventures, the foreign partners often made the hiring of foreign consulting engineers a condition of contract. So long as there was foreign exchange and not enough Indian expertise, the Indian

Government was able to sanction this import of services.

With the deterioration of foreign exchange reserves towards the end of the Second Plan, the Government had to restrict the hiring of foreign consultants. It began instead to encourage the establishment of joint ventures and has since approved a number of these schemes. In addition to Howe India Private Limited, there are today numerous ventures with foreign partners from the U.S., Britain, Germany and elsewhere. Where a number of foreign firms are competing for a contract the Government almost always gives preference to the firms that are established in India as partners in joint ventures. The reason is that the Government has helped develop the Indian construction and manufacturing industries and is anxious that they be used to the greatest possible extent. The Indian partners in joint ventures are familiar with the capacities of these industries and are thus able to help develop project specifications that maximize the Indian content.

Even joint ventures result in the outflow of precious foreign exchange, so the Government has enacted regulations dealing with their establishment and operation. The scope of the intended activity must be clearly defined and maintained. Foreign partners are limited to minority holdings and the partnership group or board of directors must include qualified Indian engineers. Foreign exchange outflows must be carefully controlled and must be restricted to payment for the specialized services that the foreign partner provides. Finally, the Indian Government must approve all agreements establishing joint ventures after careful examination of the terms and conditions.

Specialized Knowledge

These regulations show clearly that India is no longer a wide open market for all types of consulting engineering services. They should not, however, deter the firm with specialized knowledge to sell. Canadian engineers are still coming to India and finding sufficient demand for sophisticated consulting services to warrant considering establishing in India. The most likely opportunities exist in areas such as the establishment of petrochemical and fertilizer plants, the manufacture of heavy chemicals, ship design, nuclear energy, aeronautics, electronics, and advanced instrumentation.

This is the Idikki gorge, site of a huge hydroelectric project. On the right is the chief geologist of Surveyer, Nenninger & Chenevert which is responsible for the design, engineering, procurement of equipment, and supervision of construction.

Aid Program

There is, of course, an area where a Canadian consulting engineering firm that does not wish to establish in India may still seek business. That is within the Canadian aid program in India. Canadian loans and grants have financed numerous projects and for most of these the consulting engineers have been hired in Canada. Canadians have provided knowhow for numerous major hydroelectric projects; for the construction of atomic reactors for research and power; for pulp and paper feasibility studies, plant construction, and management; for the construction of specialty steel mills and cable factories, and for design and building of a supersonic wind-tunnel. Whenever the Canadian Government supports work of this nature, opportunities result for Canadian consulting engineers.

For firms interested in pursuing business in India, the Department of Trade and Commerce offers two main sources of information and assistance. One is the International Financing Branch in Ottawa. The other is the Office of the Commercial Counsellor for Canada in New Delhi.*

In direct contact with the Canadian International Development Agency (formerly the External Aid Office), agencies such as the United Nations and the World Bank, and the Department of Trade and Commerce, the International Financing Branch is well equipped to advise Canadian firms on what new projects are coming up in many countries besides India. It can also provide advice on the varied purchasing and contracting procedures involved.

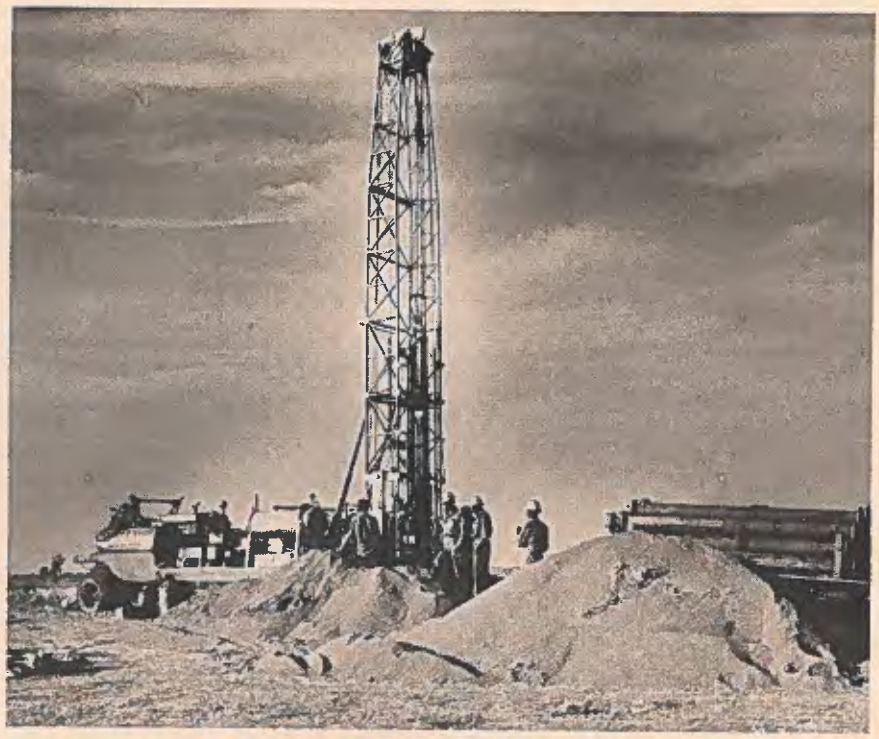
The Office of the Commercial Counsellor for Canada in New Delhi will be pleased to provide any necessary assistance to firms pursuing business either under aid programs or on a strictly commercial basis. If it becomes apparent that the commercial demand for a firm's services justifies the formation of a joint venture enterprise, we can help establish initial contact with potential Indian partners.

*See also "The Canadian Businessman and Aid to India" in the March 30, 1968, issue of *Foreign Trade*.

Pakistan

Agriculture and power projects are big business

BLAIR NORTHGRAVE
Assistant Commercial Secretary
Islamabad



Among the areas stressed in the aid program in Pakistan is irrigation, with empbasis on providing tube wells, like the one being bored at Chaj reclamation project.

■ Aid programs in Pakistan mean a continuing multi-million dollar market for Canadian engineering services. The Canadian International Development Agency (formerly External Aid Office) has provided substantial funds for Pakistan and the largest component is for Canadian engineering services and capital equipment. Canadian engineering firms can also bid for projects financed by multilateral aid agencies, such as the World Bank, International Development Association, International Finance Corporation, and the Asian Development Bank.

In recent years, Canada has pledged some Cdn.$36 million annually in tied funds through the aid-to-Pakistan consortium. To help Pakistan plan its programs, Canada has given its assurance of comparable amounts for at least the next few years. In the past two or three years, approximately Cdn.$12 million has gone towards Canadian engineering services, particularly in the field of power generation and transmission. In the next two years Pakistan will seek to maximize the commodities and equipment component of its foreign aid package; a significant increase in demand for engineering services under the Canadian aid program should probably not be expected. However, the Pakistan Planning Commission anticipates that after 1970-71 its requirements will be primarily for projects and, given the responsive nature of Canadian aid, we would expect more emphasis then on our engineering services and capital equipment.

Even during the next two years, however, Pakistan requires project aid. Canadian engineering firms should keep in touch with the Canadian International Development Agency in Ottawa to find out which Pakistani requests for engineering services and equipment it considers appropriate for assistance. The International Financing Branch of the Department of Trade and Commerce will advise Canadian firms on the availability of international financing, the projects being taken up, and the steps necessary for prequalification.

The Pakistan authorities tend to request the kind of projects which the CIDA has approved in the past. One of the Canadian projects now under way is construction of three 132 kv. transmission lines in East Pakistan. Canada provides funds with which Pakistan hires consultants for the Power Authority and purchases transmission line and substation equipment. Other Pakistani projects which have Canadian engineering input are a hardboard mill, a natural resources survey, a thermal power station, and a nuclear power station.

Some of the areas of special interest are:

Irrigation—Plans concentrate on tube-well irrigation in both East and West Pakistan. Sprinkler irrigation is also receiving attention and a pilot project is to be set up with the help of FAO.

Fertilizers—Canadian consultants may bid on untied funds going to this sector, such as the U.S.$32 million which the World Bank recently announced that it had earmarked for a new urea plant.

Feasibility Studies—Pakistan is interested in feasibility studies for agricul-

tural programs (handling, storage and marketing of agricultural commodities). Given Canada's interest and competence in this area, Pakistan may want our help.

Power Generation and Transmission—Upcoming projects Canada may be asked to finance under aid are: a 132 kv. transmission line from Dabeji to Kotri in West Pakistan, a 132 kv. transmission line from Khulna to Barisal in East Pakistan, and a 132 kv. transmission line from Sukkur to Quetta in West Pakistan. There is a balance of $324 million in untied funds in the Indus Basin Fund. Between $15 and $20 million of this is made up of past untied Canadian contributions. Canada has offered a further Cdn.$5 million in tied aid financing for the Tarbela Dam project which can only be used for Canadian goods and services.

Malaysia

Studies recently completed may reveal projects

PHILIP STUCHEN, *Commercial Counsellor, Kuala Lumpur*

■ The Malaysian Five Year Plan (1965-1970) is being reassessed at the halfway mark and a number of earlier identified projects and development schemes may possibly be delayed or postponed. The fact that natural rubber reached its lowest price in 20 years last August made this reassessment necessary. But we can assume that the majority of projects originally in the Plan will be proceeded with and that the amendments and/or exceptional postponements will be slight.

Included in the Plan are two land resettlement schemes, the Jengka Triangle in the State of Pahang and the larger one-million-acre Pahang Tengarra project. The latter would cover primarily agricultural settlement and development, mining, hydro power, and large-scale forest development. An over-all forest inventory to cover all Malaysia is being considered, with possible emphasis on certain portions of West Malaysia and the State of Sabah. Harbor extensions at Port Swettenham and Penang are proceeding as outlined in a previous Plan but port developments will also be required for Kuching, Sarawak, and possibly extensions at Kota Kinabalu in Sabah. The UN transport survey recently completed will probably identify many new projects and firm up some of those listed above.

A comprehensive hydro power study was carried out from 1963-1966 by Shawinigan Engineering Limited of Montreal. This survey identified three possible dam sites on the Upper Perak River. Projects resulting from the survey have not been included in the Five Year Plan but might be considered in the light of future power requirements.

Another Canadian firm has participated in natural resources development in West Malaysia. Lockwood Survey Corporation of Toronto has carried out for the past three years, under Canadian Colombo Plan auspices, a survey starting with aerial photography of West Malaysia to mark out certain areas with agricultural, forestry and mining potential. This survey involved as many as 12 Canadian experts at its peak.

N. J. Pappas and Associates, Montreal have been engaged in the design and construction of the Malaysian Broadcasting Center in Kuala Lumpur. The complex embraces not only

N. J. Pappas & Associates, Montreal, designed and supervised construction of the Malaysian Broadcasting Center in Kuala Lumpur. This is the striking looking administration building seen from the west side; Television House is on the right.

television but radio services and the headquarters of the Ministry of Information and Broadcasting.

There was only one Canadian bidder on television equipment and it did not win the contract, which went to five contractors—two Japanese, two British and one American.

International tenders will be called late this year for the supply and installation of the technical equipment for radio studios and ancillary facilities, to cost about Cdn.$1.4 million.

Plans are being discussed for a Cdn.$1.5 million Broadcasting Training Center for radio and television technical and production personnel for all members of the Asian Broadcasting Union. The building would go up next to the Malaysian Broadcasting Center and provide administration offices, classrooms, workshops and laboratories for technical and production purposes, a large radio studio, one two-camera television studio and a complete news/film training unit.

When the reassessment of the Malaysian Five Year Plan is made known and the details of the UN transport survey published, there may be further opportunities for Canadian consulting engineers and equipment suppliers. Interested Canadian firms should make their interests and capabilities known to the Commercial Counsellor, Kuala Lumpur, or to the Manufacturing Industries and Engineering Branch, Department of Trade and Commerce, Ottawa.

■ A Canadian company, Sherritt Gordon Mines Limited, is co-operating with Marinduque Mining & Industrial Corporation of the Philippines in the development of a nickel deposit there. Early in October Marinduque announced the loading of the first 10,000 tons of laterite ores mined at Nonoc Island in the Surigao nickel reservation for shipment to Canada. There it will be processed in the pilot plant that Sherritt Gordon is building for the purpose at Fort Saskatchewan, Alberta. The company expects that this plant will be completed in the first few weeks of 1969. Demonstration runs will begin immediately and will continue for the next six to eight months.

Here the first 10,000 tons of laterite ores mined at Nonoc Island are being unloaded from a barge onto the ship that will take the ore to Canada for processing at a pilot plant at Fort Saskatchewan, Alberta.

The purpose of these runs is to determine designs and specifications for the much larger plant that Marinduque will eventually build on Nonoc Island, Surigao del Norte. The cost of this demonstration, including mining and shipping of the ore to Canada, is an estimated $500,000. The plant to be established on Nonoc Island is expected to cost about $75 million.

While test runs are being conducted in Canada, exploration on Nonoc Island is continuing to prove out additional ore reserves. The plan is to increase the capacity of the proposed nickel refinery from the original 50 million pounds of nickel a year to 75 to 100 million a year. Piers, an airstrip, housing and office accommodation, and essential utilities such as roads and a water distribution system will also be built at Nonoc Island.

Early next year, some 20 of Marinduque Mining & Industrial Corporation's engineers and technicians will proceed to Canada to receive training and to participate in the test runs at Fort Saskatchewan.

—J. L. MUTTER
Consul General and Trade Commissioner, Manila

C. R. DONLEY, *Assistant Commercial Secretary, Singapore*

Singapore

Industrial development stressed

■ Singapore has extensive road, harbor, power and communication facilities and therefore opportunities for selling engineering services are limited in these fields. Prospects in resources development engineering are few because of the island's shortage of natural resources. However, Singapore requires industrial engineering services because of its industrialization program.

The Republic of Singapore possesses a large labor force and has a considerable amount of capital but requires the application of modern industrial technology. Engineering opportunities are often associated with the foreign component of joint-venture projects and Canadian firms interested in securing industrial engineering contracts should develop and maintain close contacts with potential capital investors. Future industrial development will probably concentrate mainly on labor-intensive industries. For example, at present, the possible manufacture of electronic components is receiving considerable attention.

Canadian engineering firms familiar with the technology applicable to Singapore's industrialization should look into those with the greatest opportunities for employment but there are other possibilities also. By 1971, for example, major decisions will have been taken as to future airport, power (including perhaps atomic power), water and gas distribution facilities. Once these decisions have been made, one can expect that engineering proposals will be called for on short notice and these projects will be undertaken quickly in keeping with the business tempo of Singapore.

Indonesia

External financing essential for all projects

■ The sheer size of Indonesia's resources make it an attractive area for Canadian engineering firms specializing in the development of natural resources. But because the Government of Indonesia has virtually no money to spend on development projects, international agencies like the World Bank, the United Nations Development Program, and the Asian Development Bank or foreign firms will have to finance these. Initially the international agencies will attempt to mobilize the economic potential of Indonesia by emphasizing transportation, irrigation and agricultural development projects.

Canadian engineers can benefit from the various concessions that are being offered by the Indonesian Government to spur resource development. Considerable petroleum exploration rights have been granted to various foreign companies and more are expected. Canadian geophysical and petroleum engineers who have had experience with international oil companies should be in a good position to secure contracts.

The situation is similar in the forestry and mineral fields and private companies are being granted exploitation permits. Just recently International Nickel Co. of Canada Ltd. concluded an agreement with the Indonesian Government to explore nickel deposits in the Celebes. Foreign firms entering the country could benefit from Canadian forestry and mining experience. It is estimated that only fifteen of Indonesia's huge forests have ever been the subject of the most cursory of inventories. Some areas are being reserved for nationalized Indonesian companies which will be in the market for qualified personnel.

Although there are many fields in which Canadian firms might find opportunities in Indonesia, they should acquaint themselves thoroughly with the procedures followed by international financing agencies and also develop close relationships with private firms operating in mineral, petroleum and forestry development.

Thailand

Prospects for engineering services good

■ Thailand is approaching the midpoint in its second national economic and social plan with emphasis on highway construction, irrigation, power and telecommunications projects. Canadian engineering firms should take note of these developments and opportunities.

In the next three years, Thailand plans to construct over 1,000 miles of new roads and reconstruct another 350 miles. It is probable that this work will be financed mainly by the World Bank.

Harbor development is expected to increase in importance; feasibility studies of the coastal ports of Songkhla, Chumphon, Satul, Ranong, Krabi, Pah Phanang and Surat Thani are to be undertaken. Continued ex-

pansion of the port of Bangkok is expected and the initial survey and studies for a port east of Bangkok are also planned.

An intensive irrigation development program is under way to raise agricultural production, particularly of rice which is Thailand's major export crop. Many of the major irrigation dams also have hydroelectric potential. A total of seven major irrigation projects are scheduled to begin in the next three years.

Power generation, telecommunications, waterworks, railway, industrial estate, mining and forestry surveys are all planned for the future. A growing number of engineering studies form part of large packages which include capital equipment and construction. These packages are usually open to international bidding. The ability to offer competitive financing is an important factor in offering engineering services. The multiplicity of government organizations generally connected with any one project can add some complications.

Because Bangkok is the Asian base of many specialized UN agencies, an engineering firm should find a visit there worthwhile. Officials of these agencies can often provide information on proposals with respect to other countries. A Canadian engineering firm interested in selling engineering services in Thailand might consider the appointment of a resident representative to keep it informed.

trade lines

Swiss supply generating equipment to Turkey

A Swiss consortium—Sulzer Bros. Ltd., Escher Wyss Ltd., Brown Boveri and Co. Ltd., Maschinenfabrik Oerlikon—will supply the entire mechanical and electrical equipment for a 300 mw. thermal station to be built near Istanbul in Turkey—Berne.

New Zealand cuts back automobile production

Some 5,486 fewer cars were assembled in New Zealand from January to June 1968, a substantial decline from the 29,616 cars assembled in the same period of 1967. The cutback is attributed to depressed economic conditions in the first half of the year and the 40 per cent sales tax—Wellington.

West Germany will harvest fewer apples

West Germany's 1968 apple crop is estimated at 1,345,283 metric tons, considerably below the 1967 figure of 2,273,654 and the 1962/67 six-year average of 1,646,298. Pear crop estimates are good: 520,389 metric tons will be harvested in 1968, an increase over the 1967 figure of 405,031 and the 1962/67 average of 398,604—Bad Godesberg.

Hong Kong upgrades telephone service

Hong Kong by the end of 1968 expects to have 425,000 telephones in service compared with just under 220,000 in 1964; this figure will increase to 840,000 by the end of 1978. The Telephone Company has introduced ultra-high frequency microwave links with the outlying islands within Hong Kong waters. It also plans a 10,000-line field trial of semi-electronic switching equipment in the new exchange at Laichikok, Kowloon, to test its suitability—Hong Kong.

Canadian firm signs licensing agreement

Babcock & Wilcox Canada Ltd. will manufacture pumps in Canada under licence for the French firm Pompes Cuinard. The pumps, designed by the French firm, will be of various types: nuclear, for liquefied gases, and for the petroleum industry—Paris.

Italian firm builds pipeline in Libya

Italy's SNAM Progetti has won a contract with Esso to build a 55-mile, 20-inch pipeline in Libya. Italsider Company will supply 7,000 tons of steel pipe for the pipeline which will be completed by January 1969. The contract is linked to Esso's agreement with ENI, the National Italian Hydrocarbons Authority, under which Italy will import three million cubic meters of Libyan natural gas a year—Rome.

Cement industry flourishes in Spain

Spain's cement industry is running at 87 per cent of total capacity, with current production estimated at some 15.1 million metric tons, up from 13 million in 1967. Cement imports, which totalled 600,000 tons in 1967, are expected to be negligible in 1968. Investment in the industry during 1968-71 will be an estimated $170 million—Madrid.

Mexico plans huge dam and power project

An $80 million dam and hydroelectric project will be built on the Grijalva River in Southeast Mexico. The complex will generate 1.5 million kw. of energy and provide water for farmland irrigation. This is the second big complex to be built in this region—Mexico City.

West Germany will test imported equipment

A new West German law, effective December 1, 1968, requires that a wide range of technical equipment, including most electrical items, may not be imported, sold, exhibited or used in West Germany unless it has received official approval from VDE, the German Electrical Standards Association. The law is designed to ensure higher safety standards—Bad Godesberg.

Two Dutch firms integrate aluminum industry

The Royal Netherlands Blast Furnaces and Steelworks of Ijmuiden and the Billiton Co. of The Hague intend to develop a completely integrated aluminum industry, from raw materials to finished products. This will be a joint venture to begin in January 1969. The two companies are already participating jointly (66 per cent interest) in the Kimberley project in Australia, and in an aluminum development institution in the Netherlands. Billiton already operates bauxite mines in Surinam—The Hague.

Tenders called for New Zealand pipe mill

New Zealand Steel Ltd. plans to call tenders early in 1969 for a pipe mill which will be in production by the end of 1970. The firm is working with the Steel Company of Canada on feasibility studies for the manufacture of a range of tubes and pipes up to an internal diameter of four inches and a similar range of rectangular hollow sections—Wellington.

Venezuela plans huge petrochemical complex

The Venezuelan Government plans to build a petrochemical complex over the next three years in the El Tablazo area financed by local and foreign capital. The complex, to begin operating by 1970, will produce each year 50,000 tons of polyethylene, 75,000 tons of vinyls and polyvinyls, 300,000 tons of ammonia and 500,000 tons of urea. International sales potential of these products is estimated at U.S.$150 million—Caracas.

New Container Service Begins

■ The picture shows the *Manchester Challenge* loading for its maiden voyage to Montreal early in November. This vessel can carry 500 containers, all below deck and stowed in cellular hatches. It will be joined in December by the *Manchester Courage* and in March next year by the *Manchester Concorde*. When all three of these new ships are in service, there will be weekly sailings in both directions between Montreal and Manchester. Unit trains will be used to provide overnight delivery of containers from Montreal to Toronto and Hamilton, under an arrangement with Canadian National Railways. Later, it is hoped to have a fully containerized service to other cities in Canada and the United States. Various types of container are available, including the standard 20 feet × 8 feet × 8 feet with a capacity of 20 tons, the metstack which is half the height and is used for more dense materials (its sides can be removed for unloading),

the top-loading steel container for machinery and heavier goods, and the standard insulated container. Manchester Liners will continue its conventional service between Manchester and the Great Lakes. The Canadian agents are Furness, Withy and Company Limited.

ITALY

Area: 119,733 square miles.

Population: 53,648,000 (1967).

Climate: temperate, but warm and dry in non-mountainous areas in summer.

Language: Italian; French and English known to limited number.

Currency: lira; one lira equals Cdn.$0.0017 (November 1968).

Foreign exchange and import regulations: import licence not necessary except for a limited number of items listed in "Table A Imports", for which a Foreign Trade Ministry licence is required. Items not included on this list are free of licence. An exchange permit is not required except with advanced or delayed payments for more than 180 days, and in a few other cases.

Weights and measures: metric system.

Capital: Rome.

Chief ports: Genoa, Naples, Venice, Trieste, Savona, Leghorn, Bari, Palermo (Sicily).

Marketing centers: Rome (population) 2.6 million, Milan 1.8 million, Naples 1.3 million, Turin 1.2 million.

Economy: industrial (automobiles, textiles, chemicals, machinery, food processing, steel, oil, rubber) and agricultural (grapes, wheat, corn, tomatoes, apples, olives, sugar beet, potatoes); encouragement given to foreign investment.

Total Italian imports: 1967—Cdn.$10,485 million; 1966—Cdn.$9,287 million.

Chief imports: mineral fuels, cattle, corn, iron ore, cotton in bulk, oilseeds, frozen meat, rough-cut wood, laminated steel and iron, copper and alloys, machinery and parts, motor vehicles.

Chief suppliers: (Cdn.$ million) 1967—West Germany 1,828, France 1,130, United States 1,109, Britain 468, Kuwait 402, Netherlands 397, Benelux 312, U.S.S.R. 297, Argentina 270, Saudi Arabia 278.

Value of imports from Canada: 1967—Cdn.$141.4 million; 1966—Cdn.$141.8 million.

Chief imports from Canada: (Cdn.$ million) 1967—iron ore 19.6, wheat 19.3, wood pulp 18.6, barley 17.9, rapeseed 10.0, aluminum scrap 4.2, lumber 4.0, aluminum ingots 3.8.

Total Italian exports: 1967—Cdn.$9,409 million; 1966—Cdn. $8,692 million.

Chief exports: (Cdn.$ million) 1967—machinery and parts 600, petroleum derivatives 567, motor cars and parts 552, leather footwear 338, iron and laminated steel 272, writing and accounting machines 260, fresh fruits 253, electrical apparatus 224, underwear of synthetics 210, synthetic fibers 199, high precision machinery 198, woollens and other textiles 177.

Chief markets: (Cdn.$ million) 1967—West Germany 1,661, France 1,138, United States 933, Britain 456, Switzerland 450, Netherlands 431, Benelux 418.

Value of Canadian purchases: 1967—Cdn.$110.3 million; 1966—Cdn.$86.7 million.

Chief Canadian purchases: (Cdn.$ million) 1967—footwear 8.2, textile fabric 6.7, office machines 6.3, metal-working machinery 5.1, prefab structures 4.1, tomato paste 3.6, wine 3.4, knitted suits and dresses 3.3, cheese 2.8.

Prices: quote in U.S. or Canadian dollars, c.i.f.

Usual terms of payment: sight up to one year; 60 to 90 days most common.

Samples: if of commercial value, duty has to be paid on them; otherwise samples may enter Italy free of duty.

Visas: no visa is required.

Trade agreements: Canada and Italy exchange most-favored-nation treatment under a modus vivendi, as well as under the provisions of GATT.

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

Correspondence: airmail only; letters 15 cents per half ounce.

For detailed information on this market write to: European Division, Office of Area Relations, Department of Trade and Commerce, Ottawa, Ontario, or

Minister-Counsellor (Commercial), Canadian Embassy, Via G. B. De Rossi 27, 00161 Rome.

Consul General & Trade Commissioner, Canadian Consulate General. Via V. Pisani 19, 20124 Milan.

WEST GERMANY

Area: 95,957 square miles (including West Berlin).

Population: 60 million (including West Berlin).

Climate: temperate, with a winter appreciably shorter and milder than in Canada.

Language: many officials and businessmen know English or French, but correspondence and sales literature in German is almost a necessity.

Currency: Deutsche Mark which is fully convertible. One DM equals Cdn.$0.2701 (November 1968).

Foreign exchange and import controls: dollar exchange is readily obtainable in any amount. Most non-agricultural products may be imported freely but many agricultural products require a specific import licence.

Weights and measures: metric system.

Capital: the provisional capital is Bonn.

Chief ports: Hamburg, Bremen, Bremerhaven and Emden. Many German imports, especially of bulk materials, enter Europe at Dutch and Belgian ports and are transported by barge up the Rhine.

Marketing centers: West Berlin (population January 1967) 2,200,000, Hamburg 1,900,000, Munich 1,300,000, Cologne 900,000, Essen 800,000, Duesseldorf 800,000, Frankfurt 800,000, Stuttgart 700,000, Hanover 600,000.

Economy: a highly developed industrial economy based to a large extent on foreign trade.

Total West German imports: 1967—DM70,200 million; 1966—DM72,670 million.

Chief imports: (millions of DM) 1967—food 6,321; textiles 5,239; non-ferrous metals 5,330; chemicals 4,920; petroleum, natural gas 4,705; engineering products 4,299; iron and steel 2,691; electrical products 2,527; road vehicles 2,188.

Chief suppliers: (per cent) 1967—United States 12.19, France 12.09, Netherlands 10.36, Italy 9.17, Belgium-Luxembourg 7.75, Britain 4.17, Sweden 3.09, Switzerland 3.01, Austria 2.10, South Africa 1.49, Canada 1.35, Norway 1.35, Japan 1.32.

Value of imports from Canada: 1967—Cdn.$177.96 million; 1966—Cdn.$176.8 million.

Chief imports from Canada: (Cdn.$ million) 1967—wood, wood pulp, paper 34.8; wheat 28.5; agricultural products 18.2; copper (ore, scrap, shapes) 16; aluminum 10.9; asbestos 10.3; iron (ore, scrap, pig) 10.3; furs, skins, leather 5.8; nickel 5.7; non-metallic metals 5.7; lead 4.2; molybdenum 3.6; zinc 3.5; navigation instruments 3.1.

Total German exports: 1967—DM87,100 million; 1966—DM80,800 million.

Chief exports: (millions of DM) 1967—engineering products 18,905, road vehicles 11,032, chemicals 12,506, electrical products 7,858, iron and steel 5,895, textiles 3,755, hardware 3,696.

Chief markets: (per cent) 1967—France 11.8, United States 10.4, Netherlands 10.1, Italy 8.5, Belgium and Luxembourg 7.6, Switzerland 4.5, Britain 4.1, Sweden 3.6, Austria 3.5, Denmark 2.3.

Value of Canadian purchases: 1967—Cdn.$256.9 million; 1966—Cdn.$235.2 million.

Chief Canadian purchases: (Cdn.$ million) 1967—motor vehicles and parts 56.9; machinery and parts 42.8; chemicals and chemical products 28; iron, steel and steel products 28.1; communications and related equipment and parts 8.7; office machines and computers 6.9; photographic equipment 4.4; electrical appliances and parts 3.9; non-ferrous metals 3.7.

Prices: quotations in Canadian or United States dollars are acceptable. They should be c.i.f. North European ports.

Usual terms of payment: all periods from sight to 180 days and even longer.

Samples: those of little or no commercial value may be brought in free of duty. Other samples may come into the country against payment of a bond in the amount of the duty, which is refundable if the samples are re-exported within one year.

Visas: no visa required. **Inoculations:** smallpox.

Trade agreements: West Germany, as a GATT signatory, exchanges most-favored-nation treatment with Canada.

Correspondence: airmail only; letters 15 cents per half ounce.

For detailed information on this market write to: European Division, Office of Area Relations, Department of Trade and Commerce, Ottawa, or

Canadian Consulate General, Esplanade 41-47, 2000 Hamburg 36, or

Commercial Counsellor, Canadian Embassy, Kennedy-Allee 35, Bad Godesberg, or

Canadian Consulate General, Koenigsallee 82, 4 Duesseldorf 1.

Foreign Exchange Rates

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

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

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

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

Country and Currency	Value of Foreign currency unit in Canadian dollars	Value of Canadian dollar in foreign currency units
	at November 22	
Algeria		
Dinar	.2158	4.63
Argentina		
Peso (free)	.0031	322.58
Australia		
Dollar	1.193	.8340
Austria		
Schilling	.0415	23.98
Bahamas		
Dollar	1.051	.9506
Belgium and Luxemhourg		
Franc	.0213	46.25
Bermuda		
Pound	2.567	.39
Bolivia		
Peso	.0901	10.97
Brazil		
Cruzeiro (official free)	.2911	3.43
Britain		
Pound	2.556	.39
British Honduras		
Dollar	.6410	1.55
Burma		
Kyat	.2253	4.43
Ceylon		
Rupee	.1802	5.54
Chile		
Escudo (bank rate)	.1452	6.88
(free)	.1274	7.72
China, Republic of		
New Taiwan Dollar (official)	.027	37.04
Colombia		
Peso (fixed)	.064	14.95
Congo, Republic of[1]		
Franc	2.149	.4653
Costa Rica		
Colon	.1619	6.12
Cuba[2]		
Peso	.....	.....
Czechoslovakia		
Koruna	.1490	6.70
Denmark		
Krone	.1428	6.98
Dominican Republic		
Peso	1.073	.93
Ecuador		
Sucre (official)	.0596	16.50
(free)	.0534	18.45
El Salvador		
Colon	.4291	2.35
Fiji		
Pound	2.464	.41
Finland		
Markka	.2554	3.91
France, Monaco, etc.[3]		
Franc	.2158	4.63
Franco-African Republics[4]		
Franc	.0043	235
French Pacific[5]		
Franc	.0119	84.24
Germany		
D Mark	.2701	3.70
Ghana		
New Cedi	1.051	.95
Greece		
Drachma	.0358	27.93
Guatemala		
Quetzal	1.073	.93
Guyana		
Dollar	.5364	1.85
Haiti		
Gourde	.2146	4.65
Honduras		
Lempira	.5364	1.86
Hong Kong		
Dollar	.1770	5.64
Hungary		
Forint (official)	.0921	10.86
Iceland		
Krona (official)	.0188	52.91
India		
Rupee	.1421	7.02

Country and Currency	Valne nf Foreign currency unit in Canadian dollars	Canadian dollar in foreign currency units
	at November 22	
Indonesia[6]		
Rupiah	.....	.....
Iran		
Rial	.0142	70.42
Iraq		
Dinar	3.004	.33
Ireland		
Pound	2.556	.39
Israel		
Pound	.3065	3.23
Italy		
Lira	.0017	581.86
Jamaica		
Pound	2.556	.39
Japan		
Yen	.0030	333.33
Kenya		
Shilling	.1526	6.55
Lebanon		
Pound (free)	.3326	3.00
Malaysia		
Dollar	.3505	2.85
Mexico		
Peso	.0858	11.64
Morocco		
Dirham	.2120	4.72
Netherlands		
Florin	.2972	3.35
Netherlands Antilles		
Florin	.5689	1.76
New Zealand		
Dollar	1.196	.83
Nicaragua		
Cordoba	.1533	6.51
Nigeria		
Pound	2.991	.33
Norway		
Krone	.1502	6.64
Pakistan		
Rupee	.2253	4.43
Panama		
Balboa	1.073	.93

Country and Currency	Valne of Foreign currency unit in Canadian dollars	Canadian dollar in foreign currency units
	at November 22	
Paraguay		
Guarani (free)	.0086	116.28
Peru		
Sol (free)	.0241	41.66
Philippines		
Peso (free)	.2752	3.63
Poland		
Zloty (fixed basic rate)	.2685	3.72
Portugal & Colonies[7]		
Escudo	.0373	26.80
Saudi Arabia		
Riyal	.2066	4.84
Sierra Leone		
Leone	1.503	.66
Singapore		
Dollar	.3505	2.85
Soutb Africa		
Rand	1.503	.66
Spain & Dependencies		
Peseta	.0154	64.25
Sweden		
Krona	.2073	4.81
Switzerland		
Franc	.2499	4.00
Syria		
Pound (free)	.2812	3.55
Tbailand		
Baht (free)	.0520	19.19
Trinidad & Tobago[8]		
Dollar	.5392	1.85
Tunisia		
Dinar	2.044	.48
Turkey		
Lira	.1192	8.38
United Arab Republic		
Pound (official)	2.468	.40
United States		
Dollar	1.073	.93
Uruguay		
Peso (free)	.0043	232.55
Venezuela		
Bolivar (official free)	.2387	4.18
Yugoslavia		
Dinar (official)	.0858	11.64

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

Trade Commissioners on Tour

In Canada

If you wish to meet the officers whose itineraries are listed below, get in touch with—

Ottawa—Department of Trade and Commerce

St. John's, Halifax, Montreal, Winnipeg, Edmonton and Vancouver—Regional Office, Department of Trade and Commerce

Toronto—Canadian Manufacturers Association

Windsor, Ontario—Greater Windsor Industrial Commission

Fredericton, New Brunswick—Department of Industry

All other centers—Board of Trade or Chamber of Commerce

Hong Kong—R. G. Godson, Trade Commissioner in Hong Kong:

Montreal—January 13-17
Thetford Mines, Valcourt—January 20
Quebec City, Levis—January 21
Toronto—January 22-28
Ajax, Port Perry—January 29
Acton, Stratford—January 30
Sarnia—January 31
Niagara Falls, Welland—February 3
Hamilton, Oakville—February 4
Winnipeg—February 5-6
Edmonton—February 7
Lethbridge—February 10
Calgary—February 11
Kelowna—February 12
Vancouver—February 13-14

Temporary Duty in Ottawa

The following will be on temporary duty in Ottawa and may be contacted through the Trade Commissioner Service, phone 992-9930 (area code 613).

R. G. Godson, Trade Commissioner in Hong Kong, January 6-10.

In Territory

Barbados—K. G. Ramsay, Commercial Counsellor in Port-of-Spain, Trinidad, will visit Bridgetown January 13-16.

Britain—Trade Commissioners in the Liverpool office will make periodic visits during December and January to business centers in their territory, including Birmingham, Leeds and Manchester.

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

Guyana—D. Hobson-Garcia, Commercial Officer in Port-of-Spain, Trinidad, will visit Georgetown January 7-9.

Leewards—J. A. Ahow, Commercial Officer in Port-of-Spain, Trinidad, will visit Antigua, Montserrat and St. Kitts January 20-24.

Surinam and French Guiana—K. G. Ramsay, Commercial Counsellor in Port-of-Spain, Trinidad, will visit Paramaribo, Surinam, and Cayenne, French Guiana, January 27-30.

Thailand—A Trade Commissioner from Singapore will be making a monthly visit to Thailand throughout 1968. Correspondence should normally be addressed to the Singapore office although contact can also be made through the Canadian Embassy in Bangkok, P.O. Box 2090 (telex: 2277; cable: DOMCAN, Bangkok; phone 32-956).

Tobago—D. Hobson-Garcia, Commercial Officer in Port-of-Spain, Trinidad, will visit Tobago December 12.

Trinidad—South Trinidad will be visited on December 17 by J. M. C. Lavoie, Assistant Commercial Secretary, and on January 28 by D. Hobson-Garcia, Commercial Officer, from the Port-of-Spain office.

Turkey—Trade Commissioners in the Athens, Greece, office visit Istanbul and Ankara approximately every six weeks.

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

Visa Now Needed for Yugoslavia

■ *Businessmen visiting Yugoslavia require a visa which may be obtained at the port of entry. The special law that used to allow tourists and businessmen to enter without a visa has expired.*

What would you be thinking of, my fair Maureen?

—the sun-baked desert

—the blue of old Ireland's hills

—the teeming cities of the East?

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