



Conference in Canada Probes Economic Potential of the Pacific Community

THE KEY message from the second Pacific Rim Opportunities Conference was that the countries of the Pacific together have an economic potential superior to any other region of the world.

The conference, which was organized by the Canadian Committee of the Pacific Basin Economic Council, was held in Toronto, Canada, from February 22-24. More than 400 people attended, including two Canadian federal government ministers, prominent guests from the Pacific region, and heads of diplomatic missions accredited to Canada. Among the 60 panelists were successful Canadian businessmen and prominent academics as well as trade commissioners posted at Canadian missions in Pacific Rim countries.

Canada's Minister of State for International Trade Ed Lumley, who chaired the first Pacific Rim Opportunities Conference in Vancouver in November, 1980, opened the conference by

reminding the participants that Canada, more than any other industrialized country in the world, is dependent upon trade for the well-being of its economy. Over the last two years, trade has represented nearly one-third of Canada's Gross National Product (GNP), compared with an average of 18 per cent for other industrialized countries.

While noting that high unemployment and slow growth rates were being experienced by nearly all nations of the world, Mr. Lumley said that protectionist policies work in the long run to the detriment of domestic interests, and the Canadian government will do its utmost to resist the domestic and international pressures to go back to the days of protectionism.

Another distinguished speaker at the conference was Tun Tan Siew Sin, a former finance minister and now a financial adviser to the Malaysian government and chairman of Sime Darby

	Page
<i>Conference in Canada Probes Economic Potential of the Pacific Community</i>	1
<i>Canada-ASEAN Developments</i>	2
<i>SSEA Due at ASEAN FMs' Meeting</i>	2
<i>Manila to Host Dialogue Session</i>	2
<i>Joint-Venture Show for Singapore</i>	2
<i>Airport Service Firms Seek ASEAN Agents</i>	3
<i>Trade Officials Meet in Bangkok</i>	3
<i>IDRC Supports Relevant Regional Research</i>	3
<i>Canada: a Pioneer in the Computer World</i>	4
<i>Telidon Technology Takes Hold Abroad</i>	5
<i>Ottawa: Canada's Capital and Computer City</i>	6
<i>Mitel is Growing Mightier</i>	7
<i>Canadians Develop the Potential of CAL</i>	7
<i>Commodity Information is Now On-Line</i>	7
<i>Toward Tidier Trading Systems</i>	8
<i>Doctoring by Disk</i>	8
<i>Terminals Streamline Table Service</i>	8
<i>ASEAN Market Interests Canadian Companies</i>	8
<i>Canada's Agricultural Industry: Quality Output</i>	9
<i>Bovine Transplants for Quality Herds Quickly</i>	10
<i>Soya Sauce Without the Beans</i>	10
<i>The Maple Gives a Sweet Treasure</i>	11
<i>Agriculture Experts Export Advice</i>	12
<i>New Shopper Convenience is In the Bag</i>	12
<i>Fish: a Growing Factor in Canada-ASEAN Trade</i>	12
<i>Around the Region</i>	
<i>Canadian Connections with ASEAN Countries</i>	13
<i>News Briefs</i>	16

FEATURE ARTICLES:

Canadian computer scene, p.4;
Canadian agriculture and food products, p. 9



Three distinguished speakers at the second Pacific Rim Opportunities Conference were (l-r) Mr. Derek Davies, editor of the *Far Eastern Economic Review*, Canada's Minister of State for International Trade Ed Lumley, and Malaysian financier and industrialist Tun Tan Siew Sin.

Berhad, the large Asian multi-national.

While noting the wealth of strategic raw materials in Pacific Basin countries, Tun Tan also pointed out the excellent economic performance of countries in the region that have practically no natural resources—Japan, South Korea, Taiwan, Hong Kong, and Singapore. These five economies have one characteristic in common: the most important resource, which is people who are prepared to work hard, who are frugal, enterprising and dynamic. In the final analysis, this is what really counts, he said.

Tun Tan's second message was one that was often repeated throughout the conference. It was that more and more Canadians should visit the region to acquaint themselves with the needs of Pacific Basin countries and the available opportunities. Until Canadians see for themselves they cannot really size up the situation, he advised.

Mr. Derek Davies, editor of the *Far Eastern Economic Review*, reinforced that message in a separate speech when he argued that some of the images that dominate Canadian thinking about Asia are wrong. He added that the Pacific Rim warrants more attention than the traditional Canadian trading areas like the North Atlantic.

Canada's Secretary of State for External Affairs Mark MacGuigan echoed Mr. Davies' call for greater attention to the priorities and aspirations of the people of Asia and the Pacific and encouraged Canadians to demonstrate that they are alive to the interests of the region. Dr. MacGuigan cited Canada's relationship with the member countries of the Association of Southeast Asian Nations (ASEAN) as a case in point and remarked that the Canada-ASEAN Economic Co-operation Agreement signed last September goes well beyond economic and trade interests.

Dr. MacGuigan also referred to the Pacific Community concept and noted that the Canadian government continues to support the concept and the work being carried out to encourage its examination.

With growth in Western economies reduced to a slow pace, speakers and panelists at the conference had no difficulty in portraying the ASEAN region as one of great economic potential. One government trade official told the conference that the ASEAN nations are like most developing countries in that they need just about everything. The difference, he said, is that the burgeoning level of economic activity means that ASEAN nations have the ability to purchase goods and services on a commercial basis.

Among the positive economic elements common to all five ASEAN countries, panelists mentioned the

Canada-ASEAN Developments

SSEA Due at ASEAN FMs' Meeting

CANADA's Secretary of State for External Affairs Mark MacGuigan expects to attend the Post Ministerial Conference (PMC) of ASEAN foreign ministers and foreign ministers of dialogue countries, which will be held in Singapore June 17-18, 1982. Foreign ministers from ASEAN's other dialogue partners—Australia, New Zealand, Japan, the European Economic Community and the United States of America are also expected to attend. This will be Dr. MacGuigan's third set of deliberations with ASEAN foreign ministers as he participated at the PMC in Kuala Lumpur (1980) and Manila (1981). It also will be his second visit to Singapore.

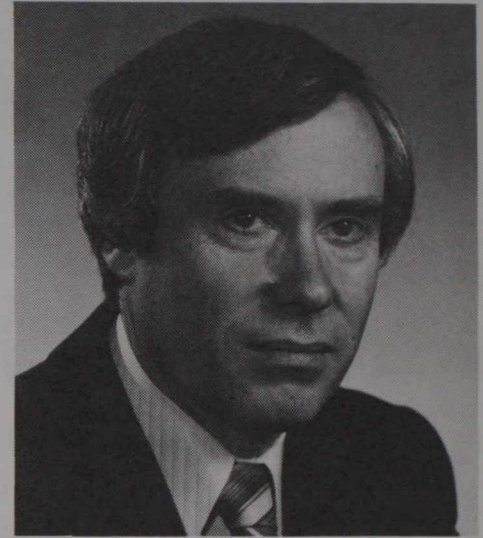
While in Singapore Dr. MacGuigan expects to address the second international (twelfth annual) conference of the Canadian Council for South East Asian Studies (CCSEAS). The conference, which is a collaborative effort between the CCSEAS and the Institute of Southeast Asian Studies (ISEAS), will be held from June 21-24 and is expected to attract about 80 scholars and academics from Canada and ASEAN countries.

Manila to Host Dialogue Session

THE THIRD dialogue session of senior officials from Canada and ASEAN is expected to be held in Manila in the near future. Officials will review the progress in the development of Canada-ASEAN relations over the past few years. They also will explore areas for future co-operation including industrial, commercial technological, developmental, economic, educational and scientific.

openness of the markets to trade and investment, the easily trained, basically well-educated and always willing labour force, and countless opportunities in the fields of resource development and high technology at which Canadians excel.

An array of opportunities for trade and two-way benefit was outlined, including manufacturing, computer equipment and software, and aerospace in Singapore, agriculture in Thailand, consulting services in Malaysia and Indonesia, and communications in the Philippines. Prospects perceived as being



Canada's Secretary of State for External Affairs Mark MacGuigan.

Discussions under the Canada-ASEAN Economic Co-operation Agreement, which was signed in September, 1981, will also take place.

Joint-Venture Show for Singapore

ESTABLISHING a joint-venture relationship with a company in the ASEAN region will be the objective of each of the 25 Canadian firms with appropriate technologies participating in CANEX '82.

The joint-venture technology transfer exhibit will take place from June 22-24 at the Century Park Sheraton Hotel in Singapore, the venue of the first such Canada-ASEAN technology exchange, which was held in May, 1981. Like that successful venture, CANEX '82 is sponsored by the Industrial Co-operation Division of the Canadian International Development Agency (CIDA).

foremost were for the provision of equipment and services related to energy, capital project development of resource-based industries, and various forms of direct sales and co-operation in the field of technology, including joint ventures, transfer of technology, and investment.

Amongst other things the second Pacific Rim Opportunities Conference was a manifestation of growing awareness among Canadian businessmen that the key to business success in the Asian and Pacific region is an adequate appreciation of local cultural, social and political factors.

Invitations are being extended to 80 key business people from Malaysia, Thailand, Indonesia, and the Philippines to travel to Singapore and join local companies' representatives at the exhibition, which will be directed towards all facets of joint venture, such as licensing agreements and co-production arrangements.

Airport Service Firms Seek ASEAN Agents

CANADIAN manufacturers of specialized airport maintenance and service equipment will be spending three weeks in ASEAN countries in April-May to identify market opportunities. The manufacturers represented produce a range of airport equipment including runway sweepers, towing tractors, aircraft refuellers, crash rescue vehicles, cargo high-lift trucks and cargo conveyors. The Canadian firms plan to meet with local airport authorities and are interested in acquiring local agents to handle their products. Further details on the com-

panies and their products are available from Canadian diplomatic missions in ASEAN capitals.

Trade Officials Meet in Bangkok

CANADIAN Trade Commissioners to the five ASEAN countries held their annual meeting in Bangkok from January 25-27 to review developments of the previous year and plan programs for the future.

All five ASEAN countries have witnessed substantial increases in their trade with Canada over the last few years. This is largely due to the heightened interest of the Canadian business community in the ASEAN market, which it recognizes as one of the fastest growing and most prosperous in the world. As a consequence, Canada is increasing its commercial representation in Singapore and Malaysia this year, and additional personnel are expected soon in Thailand, Indonesia and the Philippines. ☐

tation Centre (PDIN) and the national libraries of Malaysia, Singapore, and Thailand.

Information is vital to the cultural, social, economic, scientific, and technological development of countries in Southeast Asia. The NLDC-SEA project was designed to develop an inter-library exchange network for the national libraries of Southeast Asia so that each will have access to the collections of the others. The extension of IDRC's agreement will permit a pilot issue of a regional computerized selective bibliography to be produced on computer output microfiche as well as printed formats.

This project will test the creation of a standardized computerized machine-readable catalogue (MARC) format for the region—SEAMARC. It should result in the development of a regional bibliographic data base that can be used by other libraries within and outside the region for bibliographic and cataloguing purposes, thereby realizing the theme of the project, which is the sharing of resources in this region.

IDRC Supports Relevant Regional Research

THE International Development Research Centre (IDRC) is a public corporation established by an Act of the Canadian Parliament in 1970 to support research designed to adapt science and technology to the specific needs of developing countries. The following details of projects that are currently most prominent in the ASEAN region show the extent and diversity of the centre's support.

Expanded Energy Activities

At the United Nations Nairobi Conference on New and Renewable Sources of Energy in August, 1981, Canadian Prime Minister Pierre Trudeau promised \$10 million to IDRC for energy research. IDRC President Ivan Head recently announced that the funds will be used for an expansion of current energy activities and the introduction of major new initiatives in the period of four years covered by the \$10-million allocation. He said emphasis would be placed on research to define energy problems, to identify and evaluate energy technologies, and for energy planning.

The most significant of the proposed new energy projects will be the creation of an international research advisory group. This Energy Research Group (ERG), composed of eminent researchers and policy makers from the less developed countries, will review energy research needs, priorities, and resources. It will be an independent source of

information to assist developing countries and donors in making critical decisions involving their energy options.

Within IDRC there will be increased support for research in forestry and on fuel-related aspects of post-harvest agricultural production technologies. A new sub-program will be created to support research in developing countries on energy policy. And the energy-information requirements of developing countries will be examined. The centre's new Co-operative Programs Unit will invite proposals for collaboration between Canadian and Third World researchers, including co-operation on the development of technologies.

IDRC also intends to strengthen communications between donor agencies active in energy research. At present money being channelled into energy research is rapidly increasing, but there is little co-ordination or information exchange among donors. IDRC hopes to encourage a series of informal meetings of donors to improve co-operation, and will also make available to donors the findings of the ERG.

Inter-Library Exchanges

The IDRC recently extended its project agreement with the National Libraries and Documentation Centre-Southeast Asia Consortium (NLDC-SEA). The members of NLDC-SEA, which was established in January, 1979, are the Indonesian National Scientific Documen-

Integrated Library Functions

Meanwhile, the National University of Singapore (NUS) library has concluded an extensive testing program it began last July of MINISIS, a generalized information management system developed by IDRC specifically to meet the need for a low-cost hardware/software package permitting on-line data entry and interactive retrieval.

The NUS is satisfied that the system is suitable as an on-line integrated system to control library functions in acquisitions, cataloguing, and information retrieval for the library.

One of the system's major advantages is that these library functions are integrated into one software package, rather than using different packages for each function as is usually done in most libraries. The system is also able to accept bibliographic records from an external data base. This allows the NUS library to use other records to create its own cataloguing data base, thus reducing the amount and cost of original cataloguing.

Later this year, an advisory team from IDRC's headquarters in Ottawa will visit the NUS library to discuss how the MINISIS system might be implemented to achieve full automation of the library's operations.

IDRC provides support for installations around the world, including the maintenance of the system and the addition of new features to enhance its flexibility and power. Licensees

All figures in this publication are in Canadian dollars unless otherwise specified.

become members of the MINISIS User's Group that pools information on new applications and common problems and advises IDRC on future developments. Within Asia, groups in Malaysia, Korea, China, and Singapore are presently licenced to use the MINISIS system.

Problem—Solving Workshops

Difficulties encountered with finance and administration can often hinder the successful implementation of a research project. In an effort to examine how these problems can be overcome, the IDRC, in co-operation with the Philippine Social Science Council (PSSC), sponsored a meeting in Manila on February 11–12.

Fifteen IDRC-assisted national institutions were represented in the workshop. In total, 30 project co-ordinators and finance officers attended. Some of the major problem areas that were identified were related to personnel, transfer of funds, lack of co-ordination between researchers and finance staff, improper budgeting, procurement of equipment and supplies, travel, and government red tape.

The workshop was extremely valuable because it gave a national focus to problems and allowed solutions geared to localized situations to be developed. The dialogue between participants was stimulating because actual practices being followed by some institutions offered immediate solutions to the problems encountered by others. The interaction with representatives from government agencies afforded the participants a chance to air specific problems in their dealings with these agencies and to clarify certain procedures which appeared vague before.

Because of the impact of the workshop held in the Philippines, consideration is now being given to holding similar seminars in other ASEAN countries.

Bivalve Culture

The Primary Production Department of the Ministry of National Development of Singapore and the IDRC recently held a workshop in Singapore on the culture of bivalves—aquatic animals with two shells, such as oysters, mussels, cockles, and clams.

The workshop was held from February 16–19 and attended by 35 participants from all the ASEAN countries as well as Bangladesh, Burma, China, Fiji, India, Papua-New Guinea, Sri Lanka, Tahiti, and Canada.

In most countries, there is extensive natural growth of bivalves in the coastal areas. However, a number of countries have now started artificial culture and it is estimated that, with suitable research, culture techniques can increase production three-fold.

Therefore, emphasis during the workshop was placed on how existing or related bivalve-culture technology might be adapted to local conditions in neighbouring countries to increase production. Participants also had an opportunity to visit the impressive raft-culture system and associated post-harvest equipment for mussels developed by the Singapore Primary Production Department.

A number of research areas were identified for priority. Among these were training in culture techniques, improved seed supply, improved site selection criteria, detailed economic studies, and encouragement of the exchange of technical information on bivalve research.

To date, IDRC has supported two bivalve projects in Asia: one on mussel culture in Singapore and another on oyster culture in Sabah, Malaysia. As part of its continuing commitment to the development of bivalve culture in Asia, IDRC will be sponsoring the participation of a number of Asians in a bivalve-culture training course to be held at Dalhousie University in Halifax, Nova Scotia, from June 16 to August 4.

Fish Processing

The greatest number of fish-processing projects supported by the IDRC are concerned with fish drying. One project recently approved is to develop and test a hot-air dryer for the production of salted dried fish.

The aim of the project is to reduce the post-harvest losses, improve product quality and storage life, and thereby increase the marketability of the products and the incomes of fisherfolk in remote fishing villages of rural east coast Peninsular Malaysia.

It is proposed that the dryer will be heated by solar radiation during the daylight hours and by burying agricultural wastes, such as rice hulls, coconut husks and shells, rice straw, and sawdust, during the night to achieve drying within 24 hours. Initial work will begin by adapting the design of a fish dryer used in the Philippines. The project is expected to last three years.

Fish Surveying

The Royal Ontario Museum in Toronto, Canada, is conducting a survey of the fish in Malaysia's Baram River basin for a joint project of the State of Sarawak and the IDRC.

The aim of the survey is to determine how much protein will be available to the 53,000 people, mostly rice farmers, living along the river. The project will also establish guidelines for fish harvests in the area.

Computers

Canada: a Pioneer in the Computer World

CANADA'S information processing industry represents a large and still growing segment of the country's economy. It dates from 1952, when Canada's first and the world's second computer was installed at the University of Toronto. Since that pioneering day, the country's computer/data processing industry has remained in the forefront of this technology.

Canadians are setting the pace in interactive computerized banking networks. They are in the forefront in the design and manufacture of word processing systems and in telecommunications products—they lead in the development of specialized software for intelligent terminals, in the use of data communications such as packet-switched networks, in the development and use of fibre optics and in the application of the unique Telidon technology of interactive video.

It is a rapidly expanding industry, with annual growth rates in excess of 20 per cent, and the industry's technological capabilities are finding ready acceptance in countries around the world.

Data Processing Exports

Data processing equipment and services are exported worldwide, having already established a reputation for excellence in the highly competitive, highly knowledgeable domestic market. Indeed, Canadian products have gained a firm foothold in what must be the world's hardest-to-crack data processing market—the United States.

Canada's success is partly due to a long-standing capability in electronics technology, particularly in its application to telecommunications, in which Canadian engineering has long enjoyed a worldwide reputation. Also, Canadian firms have focussed on specialized areas in data processing in which an apparent demand existed.

Thus, drawing on existing technological resources, emphasizing inherent strengths, and capitalizing on specialized market demands, Canadian firms have gained a degree of expertise second to none. Today, Canada is the world's eighth-largest exporter of computing equipment.

Several multi-national corporations now established in Canada have given their Canadian operations total responsibility for specific product lines, including design, development, and production for the world market, a challenge to which these Canadian

companies have responded with vigour. In 1980, 90 per cent of all domestic production of computing equipment was being exported.

It has been estimated that, for every dollar's worth of installed computer hardware, two dollars' worth of software has been generated. In software development, as well as in the closely related area of systems development, Canadian firms have particularly made their mark.

Both in hardware and software, Canadians have shown an aptitude in the application of data processing techniques to an infinite variety of practical problems. Besides extensive experience in computerization in financial institutions, industry and business in general, and in scientific applications, Canadian firms have developed highly specialized computer applications, such as in the telecommunications and transportation industries as well as in the resources and energy sector.

In the development of a hardware technology, Canadian companies have been particularly successful—at home and abroad—with data entry systems employing multiple key-to-disc techniques.

These systems, which feature integrated data communications capabilities, represent a technology pioneered in Canada. Systems of this kind are being sold in more than 30 countries.

Word Processing Systems

Canada has a lead in the design and manufacture of word processing systems, and is actively pursuing technological advances leading to office automation or, as it has been called, the "electronic office." Canadian firms have already sold word processing systems in more than 80 countries.

Intelligent video display terminals are being manufactured by a score of Canadian companies. In many cases, their worldwide success has been assured by these companies' ability to tailor their products to specific needs—notably in the areas of graphic display, computer-aided learning, and industrial data collection and manipulation. An outstanding example of this is the development of a special, high-resolution terminal for Canada's Telidon videotex system.

Canadian technology has been in the forefront in the field of data communi-

cations. In 1973, Dataroute was the first long-distance, dedicated digital data communications system in the world. In 1976, Canada led the rest of the world in the development of packet switching, a digital data communications technique leading to until then unheard-of efficiencies in computer inter-communication.

In the area of data processing services, and particularly software-related services, Canada has already demonstrated world-class development expertise, which has been applied by Canadians to a wide range of requirements within the country.

Canada counts among its educational institutions several that have a world name in the area of software development, and produce top-notch data processing professionals.

In the systems area, Canadians have developed particular expertise in the application of microprocessor technology to industrial control, and in the integration of industrial process control and business data systems.

Custom-designed, on-line computer systems for banks, hospitals, and the retail industry, as well as for more

Telidon Technology Takes Hold Abroad

TELIDON, Canada's two-way television technology, is expanding in Canada and around the world.

Teleglobe Canada, the Crown corporation which operates Canada's international telecommunications network, is introducing the first international Telidon information network, called Novatex. The data base will be available to international organizations by way of standard telephones and data networks through Canadian embassies abroad.

Telidon terminals have been installed in Canadian embassies and consulates in Washington, Chicago, Bonn, Mexico City, Brussels and London. A total of 19 missions, including several in the Far East will have Telidon terminals in place by mid-1982.

The Novatex data base uses a Telidon data base to provide information to specific industries such as mining and metals, agriculture and food processing, energy and international trade.

Up to 100,000 pages of information will be stored in a central computer in Toronto. The overseas machines will be connected to the central information bank by long-distance telephone and data lines.

Because of the interactive nature of Telidon, the organizations can use Novatex to send their own private, internal information to branch offices throughout the world.

Telidon is being used in Caracas to help the Venezuelan government streamline its operations.

The videotex system, developed by Canada's federal Department of Communications, is supervised by Venezuela's Central Office of Statistics and Information (OCEI) to provide the public with consistent "one-stop" information on government programs.

With the Canadian system the OCEI, in conjunction with other ministries, can provide instantaneous, accurate government information on all government policies.

Terminals are distributed among various institutions in Venezuela for information input and appear in such public places as airports, libraries, post offices and government tourism offices.

The Canadian system provides that someone seeking information need only visit or phone one of the user terminals to discover exactly what is required for a particular permit or program and the fee, if one is applicable.

In the first stage, the OCEI is providing government, health, welfare, tourism, and educational program information to residents of the capital. Public information will be stored in the system as well as demographic information and statistics. The highest priority has been given to emergency information—medical, fire and police.

The Venezuelan government plans to

purchase a further 70 Telidon user terminals, at an estimated cost of \$1 million, if the initial one year experiment works as well as is expected.

The final stage of the program would see a Telidon terminal in every Venezuelan home, providing government information and other services—such as at-home banking and grocery shopping, and news programming—on a pay-by-use basis.

Users of the Telidon system are able to retrieve, by phone or interactive cable, information stored in computer data bases and have it displayed on modified TV receivers or business video terminals. Telidon has a capability allowing users to transmit graphic, tonal or textual information to each other or to a data bank. Connected to the TV is a push-button unit like a pocket calculator or a keyboard unit like a typewriter for retrieving or inserting information.

In North America, Telidon will bring news, advertising, shopping, mail, banking facilities and education into the home over the telephone, cable or broadcast networks. Users will be able to make airplane reservations and carry out banking transactions without leaving the home.

Telidon equipment is being manufactured by Canadian companies such as Electrohome Limited, Northern Telecom, SED Systems Incorporated, Microtel Pacific, and Norpak Limited.

specialized areas such as the insurance business, stockbrokers, and various government departments, are quite common in Canada, and employ the latest advances in data processing technology both in terms of hardware and software.

Canadian department store operators Simpsons Limited of Toronto and Hudson's Bay Company of Winnipeg have announced their participation in a trial project, co-sponsored by Bell Canada of Montreal, linking consumer terminals to a data base of information about shopping, banking and other topics. The 491 terminals will be located in homes and busy commercial outlets in Ontario and Quebec, and the information will be carried on existing telephone lines.

Numerous Canadian companies produce proprietary systems software packages for such applications as data base management, file retrieval and data manipulation.

Applications software is produced for general business use in all fields, with an emphasis on small business systems for financial management in small companies.

EXAMPLES OF CANADIAN KNOW-HOW

A Canadian company is currently developing a full-service, non-television entertainment package by which broadcast cable subscribers can have personal computers (small microprocessor-based systems) linked with a centrally located switching computer that provides access to a wide range of data bases.

Another Canadian company markets a two-way interface that turns a stand-alone electronic typewriter into a multiple-use computer terminal.

Advantages of Telidon

One of Canada's recent success stories is the development of Telidon, one of three videotex systems that have been classified as world standards by the International Telegraph and Telephone Consultative Committee, an agency sponsored by the United Nations.

Developed by a government research and development agency, Telidon offers higher resolution and greater flexibility than systems developed elsewhere, and has the capability of terminal-to-terminal communications. The latter feature places this Canadian system well within sight of full-scale "electronic mail."

Telidon-compatible software for microcomputers has been developed as

well, further extending the system's potential usefulness.

A field in which a combination of Canadian data processing, computer and telecommunications expertise has been applied is that of mobile data communications.

Automatic Airline Operations

A completely automatic airline flight operations system has been developed in Canada, in which aircraft are linked to a central computer system by means of an on-board computer communicating by means of digital data radio transmission. It also integrates previously separate functions such as crew and aircraft scheduling. The system has already been supplied to a Canadian, a U.S., and two European airlines.

Taxi Despatch System

A taxi company in Canada's capital city, Ottawa, utilizes a Canadian-developed advanced digital dispatch system. The standard taxi radio interfaces with a small computer with a one-line message display and a small key pad. Telephone orders are entered into a central computer at the dispatch office, which automatically allocates them to available vehicles. The system, because it is digital, has significantly reduced radio traffic and resulted in faster service.

Urban Transit and Vehicle Control

An urban bus transit system in Ontario is evaluating a computerized route monitoring system. The position of each bus along a route is tracked via digital radio (reading an on-board odometer). The location of each bus is continuously updated in a central computer data base. Potential bus passengers can call the computer by telephone and receive an automatically generated voice message giving the estimated time of arrival of the next bus at any bus stop. This system, too, has been developed and is being manufactured in Canada.

A distributed intelligence system for monitoring and supervisory control of haulage vehicle traffic in an open-pit mine is another Canadian mobile data communications system development. Data from all operating trucks are sent via digital radio to a central dispatch location. A computer tracks truck cycle times, queueing times, loading times, shovel idle times and similar data. This has resulted in significantly greater efficiency of the mine and optimization of equipment utilization.

Canadian data processing expertise has found highly specialized niches in which it has established a world leadership position. Problem-oriented, the Canadian computer industry thrives on challenges presented to it from every imaginable kind of business, industrial or institutional activity.

Ottawa: Canada's Capital and Computer City

CANADA'S capital city, Ottawa, has emerged as the country's biggest centre for advanced technology research and manufacturing, particularly in telecommunications.

During World War II, Canada's National Research Council vastly increased its facilities for developing sophisticated electronic military equipment. Personnel jumped from 200 to more than 2,000, providing a nucleus for an industry using fast-changing electronic technology.

Computing Devices of Canada, the first of the new technology plants, was founded in 1948 as a maker of signal-processing computers, navigational aids and other military goods. Ten years later, what is now known as Northern Telecom Limited, Canada's biggest high-technology company, established laboratory facilities in space provided by Computing Devices. The facilities have become Bell Northern Research, which has 2,000 employees in the region and is the largest private research facility in Canada.

Northern Telecom, owned mostly by Bell Canada, has branches throughout Canada and in six foreign countries including Malaysia and Singapore. It is Canada's biggest producer of semiconductors, which it uses for its digital transmission equipment. About half the semiconductors are produced in Ottawa.

During the 1960s and 1970s, a dizzying series of new companies spun off from the older set-ups, so that now there are more than 100 high-technology manufacturers in the area. From the 20,000 people connected with the industry now, there are predictions of a work force five times that by 1990.

For example, Mitel Corporation has grown from 43 employees at the beginning of 1975 to a workforce of 2,400.

The company has doubled its earnings every year in the course of becoming one of the world's leading manufacturers of PABX (private automatic branch exchange) systems—microswitching telephone exchanges that handle internal and external communications in offices and in homes.

Two universities, Ottawa and Carleton, and a technical community college, Algonquin, have developed their curricula to respond to the demand for skilled personnel, and industry is working closely with them.

Government research facilities and libraries, official purchases of advanced equipment and financial help for research and development have also helped make Ottawa a high technology centre.



Ottawa, Canada's capital city and the Canadian computer industry's biggest centre. At its heart, the turreted Chateau Laurier Hotel and the old Union Station—now the Government Conference Centre—contrast strikingly with the modernistic National Arts Centre in the foreground.

Canadians Develop the Potential of CAL

COMPUTER-AIDED learning (CAL) will undergo a dramatic shift this decade, changing from being a little-used and high-cost part of modern computer technology to being both affordable and widely used.

As with telecommunications, Canadian companies can legitimately claim to be among the world leaders in the field and they possess a number of unique advantages for exploiting the educational software (or "courseware") side of the business.

Canadian penetration of two potentially major markets, the educational and the corporate training fields, is not far off. A paper describing the marriage of Telidon and a special CAL language called Natal, which stands for National Author Language, was presented recently at the Viewdata-81 Conference in London.

Developed by the National Research Council (NRC) of Ottawa, Natal is a special computer language used to create educational courseware for computers, and applicable to computer systems manufactured by a number of major companies.

Initial results of an experiment linking Telidon and Natal suggest that a mass audience for computer-assisted learning can be reached. Because videotex technology could provide an effective means of distribution, CAL—precursors of which have existed since the 1950s—will come into its own in the 1980s.

The on-line interactive and individua-

lized capabilities of CAL can cut corporate training times by 25 per cent, as well as significantly increasing students' comprehension of subject matter.

CAL promises to be a multi-billion-dollar market in Canada alone. But the world—and especially the Third World—is considered a potential market.

The primary CAL market is industrial because commercial and military retraining markets are more lucrative than the school systems at this stage.

Although CAL does not replace all forms of training, it is estimated that in the military alone, five per cent to 50 per cent of the millions spent on training could involve computers.

School textbook manufacturers have not been blind to the potential of computer-assisted learning. Much of the impetus for the development of the software side of the business is coming from publishing companies.

Commodity Information is Now On-Line

Agriculture Canada has begun a new computer service to provide commodity information to Canadian agricultural organizations.

Called FARBANK, the service is a time series data base, which was designed primarily to assist market analysts in government offices, trade organizations, producer groups, businesses and other organizations.

FARBANK contains detailed information on prices, production, stocks, consumption, imports and exports for all major grains, livestock, dairy, and poultry and egg products on a regional, national and international basis. It also contains farm income statistics, retail prices and general economic data. The service provides selected weekly, monthly, quarterly and annual data, dating in some cases as far back as 1965. It is available on-line

Mitel is Growing Mightier

THE fast-growing Canadian telecommunications firm, Mitel Corporation is establishing a wholly-owned subsidiary in France.

The company was granted approval by the French government to establish the subsidiary in the Bosges region, where it will employ more than 1,000 people by the end of 1985 in the manufacture of a complete line of Mitel superswitch telephone switching equipment.

Apart from its ultra-modern Ottawa headquarters, Mitel has plants in New York, Vermont, and Florida, in the United States, as well as in Britain and Ireland. Recently, the corporation announced plans to build a \$90-million plant in Wales and a \$20-million facility in Mexico, and to establish three more Canadian manufacturing plants—one costing \$28.6 million in Renfrew, northwest of Ottawa, and two at \$48 million in Bouctouche, north of Moncton, New Brunswick. The latter two are expected to begin operations in 1983 and 1984 and to employ 1,000 people.

Meanwhile, Mitel has been granted approval by the Italian telecommunications authority to market its SX-200 private automatic branch exchange equipment for a ten-year period. The company will begin to market the systems through ETE of Milan. In addition, British Telecom and the British Department of Industry have accepted the SX-200 digital communications system for installation in field trial sites to be selected in Britain during the second half of 1982.

Also, in Britain, the corporation's subsidiary, Mitel Telecom Limited, has won a contract worth a minimum of \$22 million from British Telecom. The one-year contract is for the provision of a stored program, fully electronic, PABX known as the Regent, a version of the Mitel SX-200 superswitch product.

using a computer terminal and a telephone link-up.

The data base was collected from a number of sources, including the federal and provincial governments, the United Nations Food and Agriculture Organization and the International Monetary Fund.

Toward Tidier Trading Systems

THE CANADIAN Organization for the Simplification of Trade Procedures (COSTPRO) has developed a new concept to facilitate the preparation and transmission of trade documents and data between trading partners.

Called TRADEX, for Trade Data Element Exchange, it is the result of an extensive survey of Canadian business practices, a review of international trade documentation, and an analysis of the international requirements for trade data interchange.

The TRADEX device is a programmable word processor, simple to operate and inexpensive since it replaces the functions of the typewriter, electronic calculator, telephone, telex and the postal service for inter-office business transactions.

The device has a forms-creation software package that allows the user to create his own forms quickly, and it incorporates a communications software package that meets the international Open Systems standards for packet-switched or circuit-switched networks. It formats trade document data to the internationally-accepted syntax rules for data transmission. Consequently, forms data and outlines can be interchanged electronically to any required location over any telecommunications network.

One of the three major benefits of using a TRADEX device is that from the moment an order is placed until the invoice is received, there is no repetitive entry of information. Consequently, documentation errors are avoided, information processing and distribution time is reduced, and clerical workload is lessened. These savings are enjoyed by all automated participants to the trade transaction.

Other benefits are that TRADEX's data and document transmission capability eliminates postal delivery delays, therefore, reducing the time taken to submit orders and to effect carriage, and that the device minimizes document delays at shipping and border points.

COSTPRO's TRADEX device will provide substantial time and cost savings to Canada's trading community and its associated trading links by enabling Canadian traders to become more efficient and effective in their document processing and distribution methods.

Doctoring by Disk

A COMPUTERIZED education program developed by the Montreal *Institut de recherches cliniques* (IRCM) has made it possible for people suffering from high blood pressure to obtain answers to questions about their illness without having to see a physician. *The Systeme d'information et de communication* (SIC) will be placed in the waiting rooms of hospitals, where it will be available to patients and to the general public.

The system consists of a micro-computer, a small television screen and a keyboard not unlike those found on some telephones. It is very simple to use and does not require any programming. The answers are obtained simply by composing a number on the keyboard.

The device can answer all kinds of questions on treatment, prevention and medication, and it also asks questions. Questions, answers and the frequency of the questions are recorded automatically, thus giving health specialists information about patient interests and concerns. It was observed during tests at the IRCM that patients would ask the computer questions they were afraid to ask physicians.

At present there is only one disk—on high blood pressure—but the program designers plan to produce others soon. Among the subjects being prepared are diabetes, Parkinson's disease, hyperlipidemias and arteriosclerosis, sex education, as well as health services.

Terminals Streamline Table Service

THE RESTAURANT industry has entered the computer age and a Canadian company has produced what is considered to be the world's first wholly computerized restaurant management system.

In less than a year, sales for Remanco Systems Limited of Toronto reached multi-million dollar levels on an international scale.

The Remanco Restaurant Management System (RMS) identifies the who, what, where, when, how-much and to-whom of every transaction on the floor. Moreover, it provides concise reports, an analysis of inventories with business summaries, and an evaluation of staff performance.

The RMS enables waiters, bartenders, cooks and cashiers to "talk" to one another with greater speed and accuracy, but without leaving their posts. Two-way communications are sustained by RMS terminals and printers located in strategic service and preparation areas.

Additionally, the manager's office is equipped with a data base console, a

library of floppy disks, and a processor keyboard to "call up" required information.

Up-front, servers use a personalized "access key" to operate a terminal for placing food and beverage orders. Behind-the-scenes, each message reappears on a printer in the appropriate bar or kitchen preparation area. Simultaneously, each entry on the guest's bill is recorded on the cashier's unit and the manager's console. Mistaken, duplicate or lost orders—accidental or otherwise—cannot go undetected.

Each Remanco RMS arrives with a virtual library of application programs. Remanco can easily tailor-fit additional software programs to suit the individual data processing requirements of each restaurant.

The system is not confined to Canadian establishments. It has been installed overseas—in the Commonwealth Holiday Inns' hotels in England, and in Belgium, the Netherlands, and Finland. Remanco has also received orders for the RMS in Miami and Atlanta in the United States. Remanco's future objectives include establishing its presence in another 50 U.S. cities.

ASEAN Market Interests Canadian Companies

SINGAPORE and the other countries of ASEAN have become markets of considerable interest to Canadian computer hardware and software companies. More than 14 Canadian firms have established agencies in Singapore to participate in the expanding market for computer and communications technology in the ASEAN region and several companies have already enjoyed commercial success.

After less than two years in the market, **AES Data Limited** has already sold over 90 word processor systems through its local agent Equatron. (Also, see News Briefs, p.16.)

Mitel Corporation, through its local agent Paterson, Simons and Company, has sold more than 25 of its PABX systems. Among Mitel's customers are Singapore government ministries.

Northern Telecom, one of the world's largest telecommunications firms, expects sales of \$50 million in Asia during 1982, with a significant proportion in ASEAN countries. Northern Telecom has developed a digital PABX system, known as SL-1, based on a software package that caters to the unique requirements of banks, hotels, and government institutions. To date, almost 100 of these systems have been sold in ASEAN.

The Ottawa-based company spends over \$20 million a year on research and

Food and Agriculture

Canada's Agricultural Industry: Quality Output



Northern Telecom's Displayphone.

development of software. One of its recently introduced products is the Displayphone, which allows a combination of voice and data communications.

Systemhouse Limited, of Ottawa, in association with a Malaysian firm has been awarded recently what is believed to be the largest systems consulting and development contract in Malaysia. The multi-million dollar project involves provision of systems for financial management, program and performance budgeting systems (PPBS), hospital supplies inventory, payroll/personnel records and health management systems for nation-wide use by the Malaysian Ministry of Health. The project, won in the face of competition from around the world, is expected to reinforce the company's reputation as a leader in the field of consulting and systems development for hospitals, health care and social services.

Systemhouse is Canada's largest computer systems consulting and software products company, with over 1,100 employees and 22 branch offices throughout North America and a regional office in Malaysia. The company has successfully completed assignments internationally, in North America, Australia, Libya, Hong Kong and India. Also, a number of major computer manufacturers are turning to Systemhouse to develop application packages for their own computer products.

The company specializes in the fields of government systems, information retrieval, office automation, health care, finance and accounting, computer-aided design mapping and graphics systems, and telidon videotex systems. The company provides a full range of services covering all phases of the planning, management, design, development and implementation of information systems and in many cases provides total turn-key solutions incorporating both hardware and software.

A key ingredient of Systemhouse's expansion plans in ASEAN will be the use of joint ventures with local companies, incorporating a high degree of local participation and the transfer of Systemhouse technology into the area.

CANADA is one of the foremost producers and exporters of food in the world. Its vast, fertile lands and advanced levels of technology have enabled agriculture and food processing to become two of the leading industries in the country. Agriculture is the largest of the primary industries, and food processing the largest of the manufacturing industries.

Although Canada has developed from a mainly rural, agricultural country to one that is largely urban and industrial, farming remains an important business; approximately five per cent of the labour force works on farms. In addition, one person in four is employed somewhere in the food-production, -processing and -distribution chain or in enterprises supplying machinery and fertilizer to the food industry or otherwise supporting it.

There are about 325,000 commercial farms that produced farm products worth some \$14 billion per year. The food and beverage industry employs 231,000 people and ships more than \$25 billion worth of products.

Agriculture and food production in Canada are highly specialized and utilize the most modern technology. Over the past 15 years, a trend has become evident towards fewer and larger farms. Mechanization and education are increasing the efficiency of Canada's farms; it has been estimated that the labour of a single farm-worker provides food for about 50 other Canadians.

Most agricultural activity is in the

FOUR THOUSAND trade visitors from throughout the ASEAN region are expected at Singapore's World Trade Centre from May 18-21 for Food and Hotel Asia '82.

Among the 350 exhibitors from 22 countries there will be 22 Canadian companies represented—10 from British Columbia and six from both Alberta and Ontario. The products they will be exhibiting include grains and cereals, oil-based products, canned and dried fruits and nuts, frozen foods, turkeys, canned meats, fish and dairy products, egg powders, soups, pickles, puddings, jams, toppings, honey, syrup, sweets, chocolates, wines and liquor.

southern part of the country, where the longer growing season reduces the high risk of crop failure and the soil is better suited to the production of livestock, grain and crops.

Three-quarters of Canada's farmland lies in the three Prairie Provinces of Manitoba, Saskatchewan and Alberta. Prairie farms average 300 hectares in size, and grain is their main crop. The hot, dry summers favour the production of high-quality hard red spring wheat, which is exported to many other parts of the world. Feed grains such as oats, rye, barley and corn are also grown and there are dairy and livestock operations scattered throughout the region. Cattle-ranching predominates in



At harvest time in the Prairies of western Canada combines mass to reap wheat and other grains, which are an important part of Canada's exports.



To operate efficiently, owners of large farms need more than powerful equipment. It must also be easy to service. The products of the world's largest manufacturer of four-wheel drive tractors, a Canadian company, are designed to enable farmers to overhaul them in record time in the middle of a field. Replacement of a clutch requires three hours compared with eight to 20 hours in other makes, and transmission servicing requires eight hours rather than the usual 20 to 60 hours. This tractor is equipped with an air-conditioned cab and closed circuit television that allows the operator to see what his equipment is doing in the field.

southern Alberta. Oilseed crops—rape-seed, flax and sunflowers—are becoming increasingly important to the Prairie economy.

The second-largest agricultural region in Canada is situated in the lowland areas of south-eastern Ontario. Its climate is modified by the Great Lakes and St. Lawrence River and is ideal for a variety of agricultural uses. The farms are smaller than in other parts of Canada—usually between 30 and 140 hectares. Farming operations are usually of the dairy, beef, hog and poultry varieties. Corn, mixed grains, winter wheat, oats and barley are grown for livestock feed. There are also cash crops—notably soya-beans,

Soya Sauce Without the Beans

A FOOD scientist at the University of Alberta recently invented a soya sauce made without soya beans. It is produced from canola, formerly known as rapeseed meal, instead of soya-bean meal, tastes exactly the same as and has chemical properties very similar to commercial soya sauce, and could be produced for about 30 cents a litre.

Canadians purchase about \$10-million worth of soya sauces each year. Most canola is used for the production of cooking oil and the meal is fed to animals.

potatoes, flue-cured tobacco, apples, tender fruits and vegetables.

The moderate climate and hilly terrain of the Atlantic agricultural region favour mixed farming. Most of the farms are small, but their soil is generally fertile. Conditions are particularly well-suited to forage crops. Potatoes are a major crop in Prince Edward Island and parts of New Brunswick. Fruit and vegetable cultivation and dairy and poultry operations are common in Nova Scotia.

Extensive Research Activity

Throughout the world, Canadian food products are recognized as being of very high quality. Quality is steadily improved by extensive research activity in government departments, experimental farms, and colleges and by exceptionally high standards of inspection, grading, and health protection for animals and consumers.

The major markets for Canadian food exports have been Japan, the United States, and the European Economic

Community. But almost every country in the world imports some Canadian food, and important new demand is arising among the oil-producing and the developing countries. The favourable exchange rate on the Canadian dollar has attracted new international interest in Canada's food products. Exports of Canadian food products totalled \$8 billion in 1980.

World Leader in Grain Exports

Exports of grains and cereals and their products have been the mainstay of Canadian agricultural exports worldwide. They now exceed \$4.8 billion, with wheat and flour accounting for more than half of this. Twenty per cent of the wheat traded in the world originates in Canada. Canada is known internationally for having the highest-protein wheat and flour in the world. Many years of strong demand for Canadian wheat have pushed the country's handling facilities to capacity. Value of flour exports, meanwhile, more than doubled

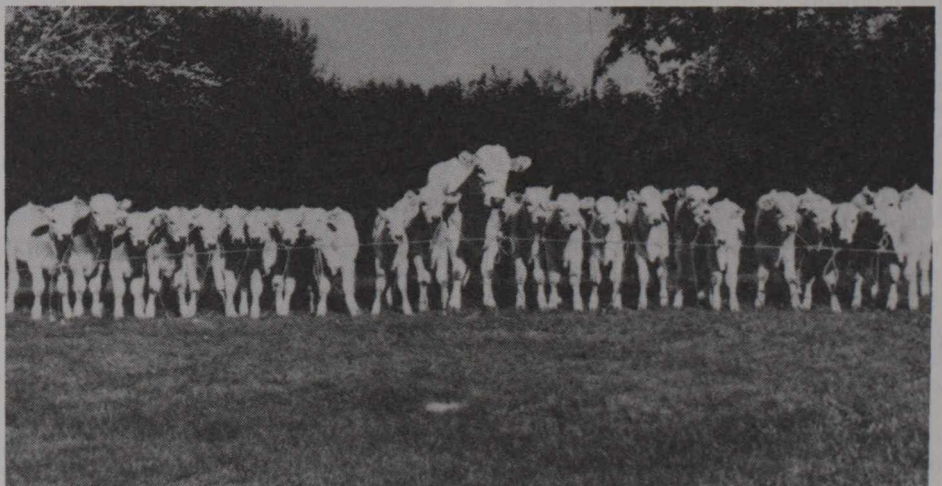
Bovine Transplants for Quality Herds Quickly

FOR NEARLY 40 years one of the world's major producers of quality cattle and semen, Canada now is also a leader in the latest technology for cattle reproduction. This involves the transplant and freezing of bovine embryos from donor cows with superior genetic qualities, which have been artificially bred with semen from a genetically superior bulls.

The advantage of embryo transplants is that they enable cattle breeders to improve dramatically the quality of beef or dairy herds in a relatively short time.

A method of fertilizing eggs outside the female that produced them is a more recent development. In this technique, eggs harvested from a superior cow are fertilized in another animal before they are transferred to a foster mother. Perfection of the technique would enable establishment of frozen egg banks to partner frozen semen banks which have been in use for many years.

Two Canadian livestock firms pioneered the technique of freezing embryos and now store frozen fertilized eggs from select matings, which they make available for transfer to recipients in other countries. The Canadian companies send specialists to countries without the necessary expertise to perform transfer operations, and will also train personnel in the techniques.



The mother of this family, a Romagnola cow named Perla owned by a Canadian beef farmer, produced all 21 calves as a result of a single non-surgical embryo recovery procedure, which usually results in fewer than five calves. Each embryo was then implanted in another cow for the nine-month incubation period.

in the past five years.

Rapeseed has now surpassed barley as an export item second to wheat, with exports of rapeseed and other oilseeds and their products having reached \$862 million. Its popularity has been greatly enhanced in recent years by a series of technological advances that have dramatically improved the quality of products containing rapeseed oil.

Livestock

Livestock raising is Canada's second-largest agricultural industry next to grains and oilseeds, and meat production is the country's largest food-processing sector. Canada has a long tradition of scientific and technological leadership in the breeding of superior animals and in the production and distribution of quality meats. In 1980, Canada exported 359,000 head of cattle valued at almost \$189 million, 237,500 hogs valued at about \$29.5 million, and fresh and frozen beef, veal, pork, and processed meats and offals valued at \$514 million.

Dairy

Dairy product exports in 1980 amounted to \$152 million. Since Canada produces considerably more milk than is consumed by its own population, a good deal of importance is attached to the export of powdered and evaporated milk and Canada's famous cheddar and variety cheeses. The Canadian dairy industry has been undergoing a period of substantial rationalization, with the construction of large technologically advanced plants intended to achieve the highest international quality and economies of scale in manufacturing, distribution and exports.

Fruits and Vegetables

Raw and processed fruits were exported in 1980 to more than 40 markets for a total value of about \$77 million, with frozen and canned fruit exports exceeding those of raw fruit.

Canada has become a major world producer of frozen and dried potato products. Apart from potatoes and products, fresh and processed vegetable exports amounted to \$95 million in 1980. Vegetables exported mainly in processed forms (frozen, dried or canned) and mainly overseas include corn, beans, peas and asparagus.

Specialty Items

Tobacco exports have increased sharply to about \$82 million. Specialty food items for which Canada has become known around the world include maple products, honey, malt, herbs and spices. Exports of maple products and honey have jumped to \$31 million. Among beverages, Canadian whiskeys are being sold in large and growing quantities



Canada has earned a fine tradition of scientific and technological leadership in the breeding of superior cattle. They are regularly exhibited at international cattle fairs in many cities of the world, which have become showplaces for fine breeding stock. Typical is the prize-winning Canadian-bred Hereford bull on show in Brazil. Canadian animals are in demand by cattle breeders everywhere.

outside Canada, with exports hitting almost \$309 million in 1980; Canadian beers are showing rapid growth of exports, which have reached almost \$90 million; and Canadian wines are beginning to make their appearance as an export item.

World's First in Fish Exports

Canada is bounded by some of the most extensive and prolific seas in the world, and Canadian territorial waters have been a bountiful source of fish for 500 years. In addition, the country contains the largest area of inland fresh

The Maple Gives a Sweet Treasure

THE MAPLE TREE and its world-famous syrup hold a unique place in Canadian history and culture for, apart from some areas of the United States, no other country in the world produces pure maple syrup.

While sugarbush farms are found in Ontario, New Brunswick and Nova Scotia, it is the Province of Quebec that reigns supreme in the production of maple products. Canada claims almost 70 per cent of world maple production, 90 per cent of which comes from Quebec.

Of the 10 varieties of maples in Canada, only two—the sugar and the black maple—produce sap sweet enough to make syrup. The sugar maple is more prevalent in Canada.

The maple tree's sweet treasure was discovered centuries ago by North American Indians. Rich in vitamin C, the sap was more than a tasty treat; it also helped ward off scurvy.

When the first Europeans came to North America, they quickly realized the syrup's value as an inexpensive and accessible substitute for cane sugar. Initially they traded some of their goods with the Indians in exchange for maple syrup; later settlers harvested their own.

The pioneer method of tapping maples involved driving wooden spiles—pegs with a channel cut in the top—into the trunk of the tree. Sap flowed along the channel into pails suspended below. Full pails were emptied into wooden barrels, then taken by horse-drawn sleighs to a clearing where the sap was boiled in huge iron kettles over a fire. Then, as now, it took a lot of sap to make a little syrup—135 to 180 litres of sap makes 4.2 litres of syrup.

Today, maple syrup is a multi-million-dollar business. Gone, in large measure, is the pioneer method of gathering and boiling sap. Large commercial sugarbush farms, with up to 20,000 trees, maintain a network of plastic tubing that carries the sap directly to an evaporator house where large quantities are boiled into syrup by oil or gas heat.

waters in the world.

Based on these natural endowments and on the creation of a network of strategically located plants, Canada is now the world's number one fish exporter, shipping \$1.14 billion worth of products to more than 40 countries.

Canadian herring roe is one of the highest-priced food luxuries in Japan. Salt cod has been shipped to the Caribbean and southern Europe for four

centuries.

Canadian management practices, which are now being applied to the whole of the 200-mile economic zone, are expected to boost exports considerably as scientific conservation methods work to increase fish populations. In the future, Canada is also expected to accomplish a rapid development of some newer market species of fish products.

Agriculture Experts Export Advice

SPECIALIZED knowledge developed over many years is now available worldwide through Canadian agricultural consultants—known as consulting agrologists. While government technical assistance is generally given through federal agencies, there is also a wide spectrum of consulting expertise available through commercial agencies, most of which are members of the Canadian Consulting Agrologists Association (CCAA). Members of this non-profit corporation must meet rigid standards of education, experience, performance, and ability to render independent decisions.

The experience gained from global assignments has established Canadian consulting agrologists as credible sources of advice for countries seeking to make advances in crop, soil and animal science, in farm management, horticulture, agricultural engineering and economics, and in food processing.

Capable of tackling almost any size of project anywhere, Canadian consulting agrologists apply advanced management techniques—economic and systems analysis, feasibility and productivity studies, strategic planning, forecasting, operational reviews and marketing—to specific projects for increased efficiency and reduced costs.

Their on-the-farm capabilities cover production, marketing and processing in areas such as field crops, horticulture, animal science and soils. Expertise is also available in insect, disease and pest control in both plant and animal life.

Fish: a Growing Factor in Canada-ASEAN Trade

DESPITE the fact that the ASEAN countries are located in the midst of the most prolific fish bearing waters in the world, imports of fishery products from Canada are a growing component of trade between the region and Canada.

Trade incentives were strengthened with a mission to Singapore in March, 1980, by a group of Canadian fish processors studying both the tastes and the mechanics of the ASEAN market, and a return visit to Canada in November, 1981, by a group of Singapore fish and food importers. Between these events Canadian fish product exporters have been visiting all parts of the ASEAN region to seek out and develop individual business opportunities.

Within ASEAN, Singapore is the largest importer of Canadian fish and fish products, with 1981 imports totalling \$1.30 million.

New techniques for handling, packaging and shipping are allowing the introduction of even more Canadian fish products to the ASEAN countries.

New Shopper Convenience is In the Bag

A COMPANY in Toronto, Canada, has produced the world's first checkout system that automatically makes its own grocery bags and eliminates the need for cashiers to handle them. It took five years to develop the system, called Bag-O-Mat, which speeds up ringing in and packing operations by 20 per cent over conventional paper bags and 40 per cent to 50 per cent over plastic bags.

Each Bag-O-Mat checkout station makes its own sacks out of pre-applied adhesive rolls of kraft paper which are stored under the cash register. Activated by a cashier stepping on a foot pedal, the Bag-O-Mat presents a bag on the counter in two seconds in an open position angled toward the cashier for easy loading. Three bags are always ready for positioning ahead of time. Loaded bags are automatically conveyed to the end of the counter where the shopper picks them up.

The Bag-O-Mat holds approximately 1,800 bags at a time which is enough to last a full day without interruption of service but paper rolls can be replaced, if necessary, in less than 30 seconds.

The new bags are easier to carry



A Bag-O-Mat checkout station.

because they are 25 per cent stronger than ordinary bags and have a square, seamless bottom—the seams are on the sides which are subjected to less pressure.

Another improvement in supermarket service is on the way. The Bag-O-Mat soon will be turning out bags equipped with handles.

Around the Region

Canadian Connections with ASEAN Countries

INDONESIA

Indonesia's Director General of Foreign, Economic, Social and Cultural Relations, Department of Foreign Affairs, Mr. Rusli Noor, and Canada's Ambassador to Indonesia, Mr. W.H. Montgomery, signed a loan agreement for the **South Sumatra coal transport project**. Under the loan agreement, the Government of the Republic of Indonesia and the Government of Canada will co-operate in the improvement and expansion of railroad facilities in southern Sumatra as part of the Bukit Asam coal mining and transportation project.

Through the Canadian International Development Agency (CIDA), Canada will provide a loan of \$45 million to Indonesia for the project. The loan, the largest CIDA has ever extended to Indonesia, will be used to provide 15 diesel locomotives, temporary and permanent communications networks, and related services for the improvement of the railroad systems. It is complementary to a parallel loan agreement signed by the Indonesian government and the Export Development Corporation (EDC) of Canada last October for \$144.7 million, supporting the purchase of railway and port equipment and related engineering services.

The project involves the upgrading of the rail facilities, and the construction and improvement of coal port handling facilities in southern Sumatra. It is being carried out in conjunction with the recently announced World Bank-supported Bukit Asam coal mining project in which the Canadian consulting firms of Canadian Pacific Consulting Services, and MCS (Montreal Engineering and Swan Wooster Ltd.) are providing overall project supervision and management assistance.

The Bukit Asam project will result in the development of a coal mine with an annual output of three million tonnes and the transportation of that coal by rail to a new coal handling terminal at Tarahan in Lampung province. From Tarahan the coal will be shipped to the Suralaya power station now under construction in West Java, where Montreal Engineering is acting as project consultant. Another Canadian firm, Lavalin International, is acting as design consultant to the Marubeni Corporation of Japan, and Babcock and Wilcox of Canada is providing boilers to the power station.

The total estimated value of Canadian involvement to date is over \$129 million.

Canada's participation in upgrading and expanding the railway facilities of southern Sumatra continues the active co-operation that has existed between Indonesia and Canada in the transportation sector over the past ten years. The South Sumatra coal transport project is the largest single project that Canada has funded in Indonesia and will complement other CIDA-supported projects in the transportation field, such as the Banda Aceh-Meulaboh Highway in the special territory of Aceh, the Sulawesi road betterment office in Ujung Pandang, South Sulawesi, and the establishment in Ujung Pandang of Merpati maintenance facilities to service Canadian-supplied Twin Otter aircraft used by Merpati in eastern Indonesia.

*

A highly successful **trade and investment seminar** was held in Indonesia's second largest city, Surabaya, East Java, on February 9. The seminar, which was conducted by Canadian Ambassador W.H. Montgomery and the staff of the Embassy's commercial division, was organized in co-operation with the East Java branch of the Indonesian Chamber of Commerce and Industry (KADIN). Approximately 50 leading businessmen from the East Java area attended the meeting, which was held at the Hyatt Bumi Hotel.

Dr. Moh Zuhdi of the Surabaya office of the Indonesian Investment Promotion Board (BKPM) and Dr. Tjiptono Darmadji, a prominent East Java cardiologist and businessman and a member of KADIN, outlined the trade and investment interests of East Java.

The wide ranging experience of Canadian exporters was examined in detail and brochures and other information material outlining these capabilities were distributed. The Embassy prepared a special publication in Indonesian which provided information on Canada-East Java trade as well as on other aspects of Canadian relations with Indonesia.

At the conclusion of the seminar there was an opportunity for more detailed discussions with representatives of individual companies and organizations in the East Java area, including P.T. Pal Shipyards, one of the largest in Indonesia; P.T. Eternik Gresik, an asbestos cement manufacturer that purchases large quantities of Canadian asbestos; Petrokimia Gresik, a fertilizer manu-

facturer that purchases sulphur from Canada; P.T. Cement Gresik, a cement manufacturer that purchases kraft paper and refractory brick from Canada; and Lece, a paper producing company that purchases pulp from Canada.

MALAYSIA

Under its **Mission-Administered Fund Program (MAF)** for the fiscal year ending March 31, the Canadian High Commission in Kuala Lumpur once again provided funds totalling \$200,000 for the financing of small projects in Malaysia. The allocation for the 1981/82 fiscal period concentrated on projects in the agricultural, health and rehabilitation sectors, the single largest contribution being towards farm mechanization. Through the provision of three 30 hp-40 hp tractors, farmers in a group planting project in the Kelantan region will be able to undertake the planting of padi twice a year, increase land utilization and, through productivity, increase incomes.

The MAF represents a unique instrument for Canadian missions in several countries to identify and implement innovative developmental projects, having high developmental impact at relatively small funding levels.

Since the commencement of the program in Malaysia in 1970, funds totalling approximately \$628,000 have been disbursed. A major portion of the allocations have been made in the agricultural area, a dominant sector in the Malaysian economy.

*

The **Malaysian Airline System (MAS)** recently signed an agreement with de Havilland Aircraft of Canada Limited for the purchase of two DHC-6 Twin Otter aircraft.

The planes, which cost approximately \$3.75 million, are scheduled to begin operating this month on the Rural Air Services system of Sabah and Sarawak.

*

Representatives of Via le Monde Canada Inc. visited Malaysia at the end of last year to explore the possibilities of producing **documentary films** and were successful in obtaining permission to produce two films—one in Perlis, the other in Negeri Sembilan.

Following the completion of the Malaysian productions in February, 1982, permission was obtained in Brunei to produce a documentary film featuring facets of life in that country.

These documentary films were co-produced with the Canadian Broadcasting Company for presentation on prime television time during 1982. They are

part of a 13-program series started by Via le Monde two years ago in Africa and West Asia. Each film runs for 30 minutes in 16 mm colour, with synchronized sound and a commentary.

*

The Canadian soya-bean trade mission that visited Malaysia from February 25-28 focussed on sales promotion of the white hilum soya-bean variety from the Province of Ontario. It is a specialized species used in the making of quality white hilum adaptable to beancurd and soya-milk markets.

Members of the mission included the Ontario Soya-Bean Growers Marketing Board Chairman Peter Epp, Vice Chairman Bernard Calhoun, Director Allan Ford, Secretary-Manager Otis McGregor; the manager of research and development for the H. J. Heinz Company, Mr. Murray Pennell; and Mr. Michael Loh, export specialist from the Ontario Ministry of Agriculture and Food.

Another member of the group was Dr. Richard Buzzell, a soya-bean breeder who has developed the harosoy, harwood, and harcor varieties that are all widely used in Asian markets.

Malaysia bought about \$2 million worth of whole soya beans from Canada last year.

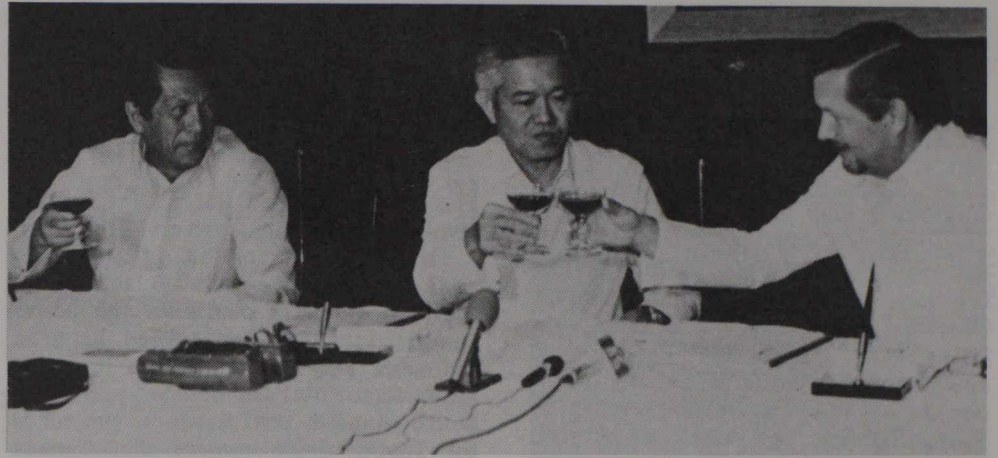
The trade mission also made a successful visit to Singapore, where imports of soya beans from Canada amounted to \$6.3 million in 1981.

PHILIPPINES

Canada again has come to the assistance of co-operatives in the Cagayan Valley upon the signing of a **technical assistance agreement** with the Government of the Philippines. The agreement was signed by Prime Minister Cesar E.A. Virata and Canadian Ambassador Edward Bobinski on March 10, in the presence of Defence Minister Juan Ponce Enrile, Agriculture Minister Arturo Tanco, and Deputy Minister of Agriculture Orlando Sacay.

Under the new agreement, Canada is providing \$500,000 for consultancy services and for the training of technicians engaged in the promotion of *samahang nayons* (*barrio*, i.e. village, associations) and co-operative agri-industrial projects which are at the take-off stage.

The current grant is in support of the Co-operatives Development Program earlier financed jointly by Canada and the Government of the Philippines. The earlier Canadian assistance comprised a \$6.3-million interest-free loan and a technical assistance grant of half a million dollars.



A toast to the signing of a technical assistance agreement between the governments of Canada and the Philippines by (l-r) the latter's Minister of Defence Juan Ponce Enrile and Prime Minister Cesar E.A. Virata, and Canada's Ambassador E.L. Bobinski.

The Co-operatives Development Program has so far resulted in the establishment, under the Cagayan Valley Development Co-op (CAVADECO), of a modern feedmill, a Grade A abattoir, a rice mill, and a machine shop and motor pool with a fleet of trucks and tractors serving the *samahang nayons* of the region. Additionally, a cassava plant and poultry and pig breeding stations are in the planning stages. The program has also contributed to the establishment of three co-operative rural banks and three area marketing co-operatives.

It is expected that the Co-operative Development Program will help to improve substantially the economy of the Cagayan Valley, with the farmers and their families as the main beneficiaries.

*

To follow up on the successful Canadian **oil and gas industry mission** that participated in the October ASEAN Council on Petroleum (ASCOPE) conference in Manila, the Province of Alberta's Minister of State for Economic Development and International Trade Horst A. Schmid returned to Manila in early February. Minister Schmid called on the Philippines' Energy Minister Geronimo Velasco to discuss possible oil and gas co-operation between Alberta and the Philippines.

*

The Canadian Embassy recently donated \$23,530 to the **Young Men's Christian Association (YMCA)** of the Philippines to assist the organization in its nationwide program of self-help projects aimed at alleviating the plight of underprivileged Filipino youth and communities.

Under the YMCA's theme of "Sharing our best with the least," 14 projects were selected through a national theme-focussed project contest that drew proposals from the YMCA's 29 member associations all over the Philippines.

Canada is jointly financing the project through the Embassy's Mission Administered Fund, which provides modest financial allocations to deserving community and rural development projects.

The projects that will receive assistance are in 14 different areas and include pre-school sharing and learning centers for underprivileged children and the handicapped, vocational training for out-of-school youth and development programs for jail inmates, a fish shelter project, a pedicab assistance program and honeybee production centers. Local YMCA chapters in each area will supervise the projects.

SINGAPORE

Canada's High Commissioner to Singapore, L. Michael Berry, presented a cheque for \$11,400 to the Chairman of the **Singapore Science Centre Board**, Mr. K. C. Tan, on March 26 as contribution toward the establishment of an ecology garden within the Science Centre's grounds. The funds were provided by the Canadian International Development Agency (CIDA) in the interests of furthering the development of science education in developing countries.

The ecology garden, which will be opened officially in December, is expected to cost \$57,000. It will have facilities for outdoor biological studies, and ecological courses will be conducted for teachers and students. The Science Centre's plans include the introduction of fruit trees, common garden plants, a mini-vegetable farm and a mini-animal farm in the ecology garden to facilitate the study of plant and animal specimens mentioned in the school syllabus. The project will also enable teachers and students to have a greater awareness of man's impact on the environment and the urgent need for its conservation.

THAILAND

The **Royal Bank of Canada** opened its new office in Thailand in February. The bank's regional representative, Peter M. Tinson, acted as host for the opening ceremony.

The Royal Bank of Canada, which has assets of \$95.35 billion, is the largest bank in Canada and the fourth largest bank in North America. It offers the full range of international banking facilities. The Royal Bank has a long-standing relationship with Thailand, including significant participation in a recent Kingdom of Thailand loan.

Several senior executives of the Royal Bank came from Canada and Hong Kong for the opening, including Mr. Allan R. Taylor, Executive Vice President for International Banking at the head office in Montreal. Also present were Mr. John N.T. Rednall, Senior Vice President and General Manager for the Asia and Pacific Region and Mr. N. Brewis, Assistant General Manager, both of whom are based in Hong Kong.

*

A Canadian agricultural marketing consultant, Mr. Cecil Werner, completed a study of rice marketing for the Ministry of Agriculture and Co-operatives of the Royal Thai Government in February. Financial resources for the study were provided by the Canadian International Development Agency (CIDA) through its Industrial Co-operation Program, as part of CIDA's on-going program of assistance for Thailand's human resources development.

The study consisted of a review of the existing rice marketing system and made a series of proposals to improve competi-



At the ceremonial opening of the Royal Bank of Canada's new office in Bangkok, the bank's regional representative, Mr. Peter Tinson, offers food to Buddhist monks.

tion and current procedures as a means to stabilize and increase rice prices, thereby maximizing returns to Thai farmers.

A principal recommendation made by Mr. Werner is the establishment of an umbrella national marketing agency for Thailand to develop and administer a comprehensive marketing program for rice. He also recommended a price stabilization program.

On the technical side Mr. Werner, who has considerable experience in grain handling in the Pacific Rim area, recommended the design of reasonably priced storage facilities for paddy to be built and operated on a co-operative basis by farmers themselves. The study also calls for development of management systems, most notably computerized inventory control, to allow for better management of production on a nationwide basis.

To administer and enforce weighing and grading regulations in the interests of both consumers and producers, the report suggests the establishment of a regulatory commission. This organization would be similar to the Canadian Grain Commission, which monitors grain production from the field at harvest to delivery at a ship's hold for export.

*

In early February, a program review team from the **Canadian International Development Agency (CIDA)** completed a study that will form the basis for Canadian aid to Thailand over the next five years.

Led by Senior Vice-President Bill McWhinney, the team met with many Thai government and industry officials including Deputy Prime Minister Thanat Khoman and Foreign Minister Siddhi Savetsila. Extensive discussions were held with the National Economic and Social Development Board in an effort to coordinate Canadian participation with the



The Singapore Science Centre's Board Chairman K.C. Tan (1) accepts a cheque to support the creation of an ecology garden from Canada's High Commissioner L. Michael Berry.

current fifth Five Year Plan of the Royal Thai Government.

The team recommended to the Canadian Government that emphasis be placed on industrial development and alleviation of rural poverty; that, within the industrial sector, assistance from Canada be focussed on mineral exploration and exploitation, energy development, and the promotion of trade and investment; and that the primary mechanism employed be the development of human resources and formation of institutions which will aid Thailand's continued growth.

It is proposed that Canada's contribution to the alleviation of rural poverty be concentrated in Northeastern Thailand on programs implemented in co-operation with the Royal Thai Government to improve the quality of life and social development through the use of

community participation and self-help projects.

Implementation of the aid program will commence shortly with an initial expenditure of up to \$10 million per year.

*

As part of its contribution to the celebration of the bicentennial of the founding of Bangkok and the Chakri Dynasty, Canada has agreed to assist in the establishment of a **Canadian studies program** at Chulalongkorn University.

Canadian Ambassador Fred Bild, presented a cheque to the Minister of University Affairs and Rector of Chulalongkorn University, Dr. Kasem Suwanagul, to initiate the program.

The objectives of the program will be to promote academic research and writing on Canada and Canada-Thai relations;

to purchase Canadian books and scholarly publications; to translate important Canadian publications into the Thai language; to organize conferences and seminars; and to stimulate academic exchanges between Thai and Canadian universities.

In addition to developing closer bilateral ties between Canada and Thailand in the academic field, the program will also give special attention to promoting research into relations between developing and developed countries in the context of the North-South dialogue, as well as the study of problems of the Third World.

The program will be established under the auspices of the Office of the Rector of Chulalongkorn University. The Interim Director of the program will be Dr. Wiwat Mungkandi, Professor of Political Science at the university.

News Briefs

The Canadian International Development Agency (CIDA) is providing a \$2,375 million cash grant to four international organizations for humanitarian relief in Thailand.

The four international agencies are: the United Nations Children's Fund, (\$300,000); the United Nations High Commissioner for Refugees, (\$800,000); the International Committee of the Red Cross, (\$375,000); and the World Food Program, (\$900,000).

Canada's contribution will be aimed specifically at the plight of refugees inside Thailand and on the Kampuchean border as well as Thai nationals displaced by the influx of refugees.

The grant brings Canada's official humanitarian relief for Kampuchean refugees in Thailand to a total of \$22 million.

Bombardier Incorporated of Montreal has received a \$27.8 million order from the Pakistan government to rebuild and upgrade 42 diesel electric locomotives. Shipments of the first rebuilt kits will start within a year and will continue for about 18 months.

As well, the company recently received a \$17.5 million order from the Iraq Republic Railway Organization for the manufacture and supply of spare parts to be used in the maintenance of Bombardier-built diesel electric locomotives in service in that country.

Two of the CANDU nuclear reactors operating in the Canadian Province of Ontario led the world in performance in 1981, with capacity factors of 96.4 per cent and 91.2 per cent. Another four units belonging to Ontario Hydro were

among the 10 best performing nuclear plants. They had capacity factors ranging from 88.5 per cent to 89 per cent. The remaining two units were among the top 20 in the non-communist world. In 1981 Ontario's 8.6 million people used 42 million megawatt hours of nuclear power.

AES Data of Montreal, one of Canada's foremost producers of word processing equipment, has just signed an agency agreement with the Jakarta firm PT Saptayasa Utama to market their products in Indonesia. AES Data is now actively marketing its AES PLUS, C 20, and ALPHA PLUS systems in 52 countries around the world.

Toronto's Litton Systems Canada Limited has won an additional \$60 million contract to supply LN-35 Inertial Navigation Systems to the United States, Department of Defense.

Arranged by the Canadian Commercial Corporation (CCC), the contract was won under the U.S./Canada Defence Production Sharing Arrangement, and brings the value of the original contract awarded to Litton Canada last March to more than \$110 million.

The CCC contracts with foreign governments and international agencies on behalf of Canadian suppliers of goods and services. Last year CCC achieved sales of over \$400 million, involving 500 Canadian companies and more than 50 foreign buyers.

Canada's federal government has signed contracts expected to be worth \$64 million to supply canola oil to Algeria from plants in Alberta, Saskatchewan and Manitoba. The contracts signed through the federal government's export supply

centre are the first in a series that will run until December, 1982 and will result in \$140 million in export business to Algeria, a new customer for Canadian canola oil.

For further information on material contained in this publication please contact the nearest Canadian diplomatic mission.

Thailand:

Canadian Embassy, Boonmitr Bldg.,
138 Silom Road, Bangkok 5.
Tel. 234-1561,-8.

Indonesia:

Canadian Embassy, Wisma Metropolitan, Jl. Jendral Sudirman, Jakarta.
Tel. 584031,-9.

Malaysia:

Canadian High Commission, American International Assurance Bldg.,
Ampang Road, Kuala Lumpur.
Tel. 89722,-3,-4.

Philippines:

Canadian Embassy, Cilebes Bldg.,
6780 Ayala Ave., Makati, Metro
Manila. Tel. 87-78-46.

Singapore:

Canadian High Commission, Faber House, 230 Orchard Road, Singapore
0923. Tel. 737-1322.

CANADA-AS
Canadian High
Commission
with the co-
operation of
diplomatic missions
may be freely
distributed and
be appreciated

