

Canada Weekly

Volume 4, No. 11

March 17, 1976



Ottawa, Canada.

- The role of mineral development in a new economic order, 1
- Implantable artificial lung, 3
- Marriages in 1974, 3
- Researchers make gains with anti-cancer drugs, 3
- Canadian wins Sverdrup Gold Medal, 4
- Electronic aids to medical monitoring and measuring, 4
- Toronto bus services switch to control by computer, 4
- Canada an international sports arena, 5
- Olympics 1976 – where to stay, 6
- India agricultural project prizewinner, 6

The role of mineral development in a new economic order

“Minerals can shape a nation’s destiny. Like the strength of the men who mine them, they form the potential strength of its economic future.... They have made us a rich nation,” declared Energy, Mines and Resources Minister Alastair W. Gillespie in a speech in Ottawa to the Mining Association of Canada on February 25. *“The past 30 years,”* Mr. Gillespie continued, *“have been among mankind’s most productive. The objective was to improve living standards. This brought mass-produced consumer goods and the industrial equipment to manufacture them. This created, in turn, a high demand for the basic ingredients those things are made from – namely, minerals.”* The Minister went on to discuss in some detail the critical importance of the mineral industry to the economy of Canada and to describe the peculiar problems it faced and how they were being solved.

About half-way through his address, Mr. Gillespie turned his attention to the role of the mineral industry in contributing to the international economy:

* * * *

Today, minerals are becoming a central issue in international relations. Their trading, their prices, their development, their up-grading, their security of supply, their access to markets are key elements in the movement towards a new economic order. Indeed, one could easily call these times an era of “resource diplomacy”.

New order demanded

In 1974, the Third World demanded a new international economic order. In effect, that manifesto appeals for a revised world economic system to redress the balance of affluence and poverty existing in the world.

In essence, their basic concern is survival. It is the same sort of concern that recently moved our Prime Minister in his recent television appearance to say...: “How long can our conscience ignore the suffering of other human beings? How long will a hungry world tolerate the unthinking and habitual waste of limited food resources? How long can we close our eyes to the international responsibilities imposed upon us by our own wealth and others’ needs?”...

Problems relating to raw materials have literally invaded all international diplomatic meetings. Why have they done so? One of the reasons is the

immense importance of raw materials to a host of countries generally referred to as the Third World or developing countries.

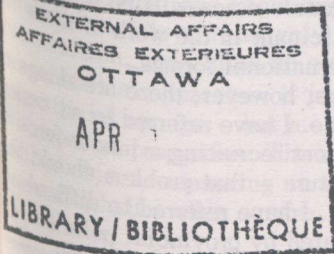
Resources represent about one-third of all exchanges between the developed or industrialized nations. But for developing nations they account for about 80 per cent of all their revenues. So you can imagine what a sharp drop in price or a disastrous crop failure of a bulwark commodity will do to the struggling economy of such a nation.

Government, business both concerned

These concerns were recognized last December by the formation of the CIEC, the Conference on International Economic Co-operation. The CIEC includes eight industrialized countries, including Canada, and 19 developing nations. Members of the CIEC have established four commissions – namely, Energy, Financial Affairs, Development and Raw Materials. Canada is a member of the Energy Commission (we are a net importer) but not of the Raw Materials Commission (we are an exporter).

* * * *

Concerns relating to raw materials have also literally invaded the boardrooms of industry. A few weeks ago, for example, some 500 businessmen



met at a European management seminar in Davos, Switzerland. The priority topics were what the multinational corporation can do "to bridge the North-South chasm in living standards" and how to cope with investment obstacles in many Third World countries.

What can we hope to see emerge from such industry assessments and the CIEC? It's a little too early to say. What they clearly indicate, however, is that, among most industrialized nations today, a new awareness exists that global economic problems must be solved.

One solution may be through reforms in international commodity arrangements.

Agreement at Lomé

The Lomé Convention is perhaps an example of the kind of thing we can expect. This agreement, recently signed between the European Economic Community and 46 African, Caribbean and Pacific developing countries, known as the ACPs, is to my mind a bellwether accord of some significance.

The convention allows 96 per cent of agreed commodities – mostly edible but including iron ore – to enter the EEC completely free of import duties and quotas. The remaining 4 per cent receive some preferential treatment. On the ACP side, I understand that it was hoped a number of other minerals would be included, but they were not.

As well, the precedent-establishing convention contains an original plan to stabilize certain ACP export earnings against price- and production-level fluctuations.

Today, minerals support our industrial society. Tomorrow, they will also support the societies of the developing nations.

Tomorrow may not be far off.

The Lomé Convention puts into the pockets of the ACP nations over the five-year life of that treaty something like \$4.1 billion. Preferential agreements between other nations and other LDCs will undoubtedly follow. So tomorrow may be closer than we think.

Let's look at another dimension of tomorrow. Like yesterday, it will bring change and multiplied human needs. The signs are indisputable. But tomorrow's needs will be on a scale few of us can even imagine.

We need, therefore, to look at the

problem of growth rationally and fearlessly.

Growth now suspect

Growth has fallen under suspicion. In the minds of many it has become a kind of spook, the haunting cause of some expected or unexpected calamity, a hovering spectre of what may befall us if we continue to devour exponentially – the time when the population crisis, the environmental crisis, the world food crisis, the energy crisis, the raw material crisis all come together and bring about an abrupt collapse.

An increasing number of professionals – scientists, academics, industrialists and others – stand in favour of shifting the emphasis away from the kind of economic growth we know.

What do they mean? Does it have any reference to the mineral outlook?

The authors of *The Limits to Growth*, the first report for the Club of Rome, say that a growth-as-usual stance threatens the survival of mankind.

The authors of the second report for the Club of Rome, *Mankind At The Turning-Point*, do not back away from this stand. Mankind they say, is balanced on the brink of a precipice. But, to avoid the ultimate disaster, they argue that the world must be viewed now as an "integrated world system" – that only in this way will man be able to control and direct healthy growth, so that our planet will experience "a dawn, not a doom; a beginning, not an end".

These are only two among countless studies devoted to "fail-safe" systems for the world of tomorrow.

Much of the present debate seems, however, to lack perception of the human predicament. As I see it, it is not whether we should continue using large quantities of minerals, or anything else. It is whether we have any other choice. And whether, if we have not, we can make proper, equitable and intelligent use of these resources, world wide.

Leaders of the LDCs raise questions about whether the rich nations are not consuming more than their share. The massive amounts of minerals produced globally are used by a small fraction of the world's people. To illustrate: the United States, Japan and Western Europe use three-quarters of the world's copper, half the world's steel,

three-quarters of the world's aluminum and a little over a third of the world's coal. Yet, put together, they comprise less than one-fifth of the world's population.

Even a small increase in the relative shares of the Third World would trigger a major expansion in production.

Closer to home, forecasts made by my department indicate that very considerable investment in exploration and development is going to be needed if we are to meet the forecast growth of world markets.

We shall have to look to foreign capital to help us. I should hope by now that the message is getting through, that foreign capital is welcome, foreign debt securities are preferred to equity; that the foreign direct investor, whether he is coming in for the first time or is already well established, should seek our Canadian equity partners and provide for Canadian equity participation.

In my talks with President Ortoli of the EEC last week, I raised the question of our foreign-investment policy. I believe there is growing understanding and acceptance of this policy in Europe....

Future partly controllable

Let me conclude, then, by saying that the future of the mining industry of Canada will depend on many factors, some quite beyond our own ability to control. These are primarily in the international area, a fast-changing area. But Canada's voice will be heard as a full participant in the work of these new international forums.

At home, however, there are things we can do. I have referred to my concerns about recruiting a labour force in the future – that problem should be solvable. I have referred to difficulties created by provincial policies – not quite so simple – but I hope through discussion and consultation to improve the impact of federal-provincial relations on the industry.

Above all, we must all adjust to a very different kind of future from the one we have experienced over the last 25 years. The 1973 oil crisis changed the old order of things, dramatically and irrevocably. It changed the balance of power between producer and consumer nations. It is changing our habits slowly to a more conservation-oriented society. Your industry will be very much in the centre of these considerations....

Implantable artificial lung

The development has been announced by Dr. Pierre Morin, director of the research department at Laval Hospital, Sainte-Foy, Quebec, of a unique prototype artificial lung, which it may be possible in the near future to substitute permanently for a natural lung. This artificial organ, the first to be designed for actual grafting to the human body, was demonstrated to researchers and doctors during the annual meeting in Quebec City in January of the Royal College of Physicians and Surgeons of Canada.

Assisted by a six-man research team from Laval University, Dr. Morin has been working in this area for about two years. The resulting artificial lung is to be tested over the next 18 months on sheep. Laboratory tests so far carried out have been conclusive, and all that remains is to carry out the animal experimentation that is necessary before the device is tested in a living human body. This final stage of the lung's development may take some time in order to allow for sufficient observation of its long-term behaviour.

Dr. Morin has admitted that the reaction of the human body to this new operation appears to be difficult to predict.

A man-made sponge

Contrary to what one might expect, the artificial lung is of relatively simple construction, containing no electronic or mechanical apparatus; it is, in fact, an artificial sponge – but a sponge with special properties. The cube-shaped object, measuring no more than one-and-a-half inches square, is capa-



Dr. Pierre Morin

ble of separating gases and blood, and also of determining exactly the required mixture of the two substances.

This "sponge" is woven out of a plastic material called "silastic", which consists of capillary tubes. Like the natural lung, silastic has the same properties as a sponge. When the project began, the researchers used other spongy materials, but the lack of ducts made it impossible for the lung to function. It was then that silastic was adopted.

The sponge is made up of superimposed layers of this elastic material, which, under the impulse of the ribs, will act like an accordion.

Adaptability

This artificial organ would be implanted in the rib-cage of a patient who has lost a lung – for example, a person suffering from an industrial respiratory disease such as silicosis or asbestosis, or one with pulmonary emphysema or chronic respiratory insufficiency.

It is still, however, too early to predict the date of the first implant of an artificial lung, Dr. Morin says. Aside from rejection of a foreign body, coagulation of blood inside the artificial lung is the most important problem to be resolved at this point. Basic re-

search in the coming months will be primarily directed towards solving the coagulation problem.

Research on an organ to serve as an integrated artificial lung is at present being carried out by only two groups of researchers – one in the United States and the other at Laval Hospital. In time the two teams will pool the results of their discoveries and perfect an artificial lung that can be implanted in the human body.

Researchers make gains with anti-cancer drugs

Researchers at Hamilton's McMaster University Medical Centre are developing new measuring techniques which will greatly assist more effective anti-cancer drug use.

Dr. Brian L. Hillcoat and Dr. Jack Rosenfeld are analyzing the effects and means of delivering drugs in the bloodstream to cancerous tissue. Their research is aimed at finding out how much of a drug enters the bloodstream, how long it stays there, and how much of a drug concentration in the blood is needed to affect the target tissue.

These questions require solutions to chemical problems and two researchers are developing analytical methods or "essays" capable of determining drugs in the blood at concentrations as low as one nanogram per millilitre – or one part per billion.

Detection of low drug levels is based on such techniques as gas chromatography, mass spectrometry, and electron-capture gas chromatography.

"Ten years ago, the instruments associated with these techniques were not available, and only recently have they become sufficiently rugged for use in routine analytical laboratories in the development of assays for many drugs," said Dr. Hillcoat.

Dr. Rosenfeld noted that some of the assays developed today were not sensitive enough and have required modification.

"This was the situation in the development of an assay for the anti-cancer drug 5-Fluorouracil, for which the assay had a sensitivity of only one part per million. Since physicians, however, at the Henderson Cancer Clinic were using a novel technique for administering the drug, an assay

Marriages in 1974

Preliminary figures show the number of marriages in Canada during 1974 totalled 198,824, a decline for the second successive year from an all-time high of 200,470 in 1972 and from 199,280 in 1973. The rate for 1,000 population declined slightly, to 8.9 in 1974 from 9.0 in 1973 and 9.2 in 1972. All provinces except Saskatchewan, and the Northwest Territories, registered declines in the rates of marriage in 1974 compared to 1973.

capable of measuring to 10 parts per billion was required," he said.

New technique

The research program, which has been supported over the past two years by two \$18,000 IBM Research Fellowship Grants, "has now resulted in a new technique capable of measuring to this degree of resolution," said Dr. Alan C. Frosst, director of the University's Office of Research Services. The technique relies on a combined gas chromatography/mass spectrometry detection method. The results have been reviewed by others in the international scientific community and are scheduled for publication.

Now that the analytical technique for the 5-Fluorouracil anti-cancer drug has been verified, the researchers say that clinical experimentation must be carried out involving studies of the variation of the blood plasma levels with doses, methods of dosing, clinical improvements of the patient and other related factors.

"By relating the various parameters, physicians can then hope to develop a rational procedure for administering the drug," say the researchers.

Dr. Hillcoat and Dr. Rosenfeld say they are progressing in their work towards this critical phase of the research program.

Canadian wins Sverdrup Gold Medal

A Canadian scientist, Dr. Robert W. Stewart, of Victoria, B.C., has won the 1976 Sverdrup Gold Medal of the American Meteorological Society, which is awarded on the advice of an international committee appointed in consultation with the Scripps Institution of Oceanography, La Jolla, California, and the University of Bergen, Norway. Dr. Stewart, Pacific Regional Director-General of Ocean and Aquatic Sciences in the Fisheries and Marine Service of Environment Canada, was chosen "for outstanding leadership in experimental and theoretical research in problems of the air-sea interface, and the adjacent turbulent boundary layers of the atmosphere and ocean".

Last year Dr. Stewart was awarded the Canadian Meteorological Society's Patterson Medal for outstanding achievement in meteorology in Canada.

Electronic aids to medical monitoring and measuring

Two Canadian pocket-sized electronic instruments that monitor and measure drip-feed levels and rates during intravenous feeding or draining of liquids in medical treatment, are now being marketed in Britain. Both are claimed to improve efficiency and provide greater accuracy and safety. In each case it is the first time that electronics has been employed in activity of this kind.

Both instruments are made by Monotonics International, Agincourt, Ontario.

The IVS-1 liquid level sensor device is claimed to introduce a new conception to intravenous level monitoring by providing an accurate means of measuring exactly how much liquid has been drawn from the feeding bottle or plastic container bag. Use of the device frees the nurse from making constant checks, and prevents a "runout" situation in the drip-feed process that is often a critical factor in treatment.

The IVS-1 device is fitted to the feeding bottle by a single-use adhesive tape fitted with light-sensitive electrodes. The tape is fixed in position on the outside of the bottle and forms an elongated "V" shape, onto which the sensor head slots. A wire lead connects directly into the existing patient call system. When the desired liquid level has been reached in the bottle, audio and visual alarms are given both through the device and at the central call station.

The second instrument, the "Drometer", provides a way of instantly measuring the drip-feed rate of liquids. The usual method is for flow rates to be checked manually by the nurse: with the "Drometer" this can be done in two drops, say its makers, by holding its special sensor head against the drip reservoir and pressing a button to give an instant reading on a scale that can be calibrated to measure up to 20-60 drops a minute.

Toronto bus services switch to control by computer

Computerized control for city and urban public transportation, by means of a system claimed to be the most advanced of its type, is being tried out by The Toronto Transit Commission (TTC).

Its advantages will be to eliminate the need for inspectors controlling



Driver demonstrates communications fitted to special bus.

buses and street cars from the street; to control spacing, speed and number of vehicles necessary, and to provide a fast response to emergency calls from drivers reporting accidents and breakdowns.

About 60 TTC buses are now being equipped with electronic equipment, designed by TTC staff in collaboration with outside consultants.

Called Communications and Information System (CIS), the project is based on a centrally-installed computer which together with a lighted map of the city indicates the position of each bus and how full it is. In this way an inspector can control provision of extra buses and call on emergency services in the event of breakdowns. Thus the number of inspectors needed is reduced and the ones retained are employed more effectively.

The project is at an advanced stage of evaluation. Current information being sought includes a before-and-after measurement of effectiveness, cost and operational feasibility for application to the total TTC vehicle fleet. Patent application is also being considered.



Ottawa's Rideau Canal, claimed as the longest skating rink in the world. Some 5½ miles of skating surface is

maintained by the National Capital Commission, which also provides a skate patrol and "warm-up" huts.

Canada an international sports arena

Olympics fever is spreading across Canada! And little wonder – the 1976 Summer Olympics, being held in Montreal and Kingston, are only a short time away. The games, which will attract top-calibre athletes from around the world, have inspired Canadians to even greater participation in sports and recreational activities. More Canadians are jogging, cycling, skiing and, in general, enjoying the fun of fitness. It may well be that no other nation has so wide a variety of participant activities with such a significant number of devotees.

While the Olympics are certainly spurring them on, Canadians have always been sports-minded.

Lacrosse popular

Even before the arrival of Jacques Cartier, the native Indians of the vast country which was to become Canada were playing lacrosse. The game became so popular with the early settlers that, in 1867, lacrosse was declared Canada's official sport.

Also a traditional form of Canadian recreation – and one that today is enjoying an international revival – was cycling. In Canada in the 1870s, especially in the larger centres, a great many people were riding penny-farthing machines in well-organized clubs across the country. Canada's first cycling club was in Montreal, site of the 1976 Summer Olympic Games.

Water sports

Canoeing and rowing – both as ways of life and as sports – have long been part of the Canadian heritage. Often the only mode of transportation over the country's numerous and turbulent inland waterways, the canoe also featured prominently in competitions between teams of *voyageurs* and Indians.

At the turn of the century, regattas attracted as many as 40,000 spectators at boating events held throughout the country. The regatta in St. John's, Newfoundland, is today considered to be the oldest continuously competed sporting event in North America.

With water playing such a vital role

in the country's history, it is hardly surprising that the local craftsmen became expert boat-builders – especially in the Maritime Provinces. This area has had a thriving boat-building industry since the early 1800s. It was here, in Lunenburg, Nova Scotia, that the famous schooner the *Bluenose* was built. It defeated every international rival in racing competitions during the first part of this century.

It was a simple task then, when leisure time gradually became more abundant, for these craftsmen to turn their years of experience in commercial boat-building to the construction of boats for sport and recreational use.

Many of the sports and recreational activities Canadians enjoy today were, in the country's early years, necessary ways of life. For instance, horseback riding, canoeing, hunting, fishing and camping were, for the most part, typical work activities for the early settlers. They did not have the leisure time we enjoy today.

Skating

Unquestionably, Canada's most popular game – at least from the spectator point of view – is ice hockey. This was an organized sport in Canada as early as 1867. The enthusiasm for the game had progressed to such an extent that, in 1893, the Governor General, Lord Stanley, offered the Stanley Cup – since then an annual and highly coveted award – for senior competition.

Pleasure skating is an extremely popular Canadian pastime. Most Canadian children learn to skate before they start school. Artificial ice is available year round in almost all parts of the country and thousands of rinks are flooded by municipal authorities across the land.

A good example of skating's popularity is the Rideau Canal in Ottawa, Canada's capital. In winter this scenic waterway is transformed into a 5½-mile long skating rink. On a good day as many as 10,000 people of all age groups and nationalities put on their blades. Others skate to and from work, while still others use the side area of the canal as a cross-country ski trail!

While many of the sports and recreational activities participated in by Canadians are the natural outgrowth of tradition and heritage, there are many

other equally enjoyable sports that are the result of the influence of other countries.

Canada, in fact, could be called an international sports arena, with its cricket and baseball; lawn bowling, curling and ten-pins; golf, rugby, soccer and football; volleyball and basketball — not to mention such other more adventuresome activities as sky diving, scuba diving, hang gliding, mountain climbing and bob sledding.

Olympics 1976 — where to stay

Hotel construction is booming in Montreal, site of the 1976 Summer Olympic Games. As many as 100,000 visitors a day are expected to be attracted to the city during the Games from July 17 to August 1, as well as athletes and delegates from more than 120 countries.

Canada's largest metropolitan area (2.8 million), already well known as a tourist and convention centre, will have more than 108,000 rooms, apartments or camp-sites ready to accommodate sports lovers from all over the world.

To assure efficient lodging procedures, the Quebec government has created HEQUO 76, an agency that will co-ordinate the accommodation of all visitors to the '76 Games.

HEQUO 76 (short for Hébergement Québec-Olympiques 76) has listed all available lodgings, inspected and classified them and in many cases fixed maximum rates.

Available lodging has been divided into seven categories depending on taste and budget. Categories are: hotels-motels, students' residences and institutions, tourist rooms, rooms in private houses, youth hostels, com-

plete dwellings and apartments, and camp-sites.

Depending on their means, visitors may pay as little as \$1 a day in a youth hostel or enjoy the luxury of a \$64-a-day hotel room.

Daily rates for a double room vary from \$8 to \$10 in the modest category, \$8 to \$17 in fairly comfortable, \$13 to \$25 in comfortable, \$15 to \$37 in more comfortable, \$16 to \$42 in very comfortable and \$29 to \$64 in exceptional.

In students' residences and institutions, priority will be given to groups. They offer dormitory-type accommodation with access to basic conveniences.

Tourist rooms are in professional establishments such as boarding-houses. Some have private bathrooms.

Youth hostels are for visitors for whom luxury is not a high priority. Bedding is not supplied.

Dwellings and apartments are units which have been built for rent during the Olympics. They are fully-equipped and ideal for families.

All tent and trailer campgrounds provide sanitation facilities and many offer electricity and water connections.

New hotels

In 1975, Montreal added 1,306 first-class hotel rooms to its already impressive list and many more are expected in the first six months of 1976.

Recently-completed hotels include: Auberge Richelieu (300 rooms), Holiday Inn Place Dupuis (360 rooms), Holiday Inn Pointe Claire (312 rooms) and the Sheraton St-Laurent (130 rooms). Montreal Airport Hilton has added 174 rooms.

Three important projects are under way and are expected to be completed in time for the Games.

The Hôtel Méridien, the first hotel of the Air France chain to be built in North America, is slated to open in April with 616 rooms.

It will be part of the extensive Place Desjardins office-shopping complex, with direct access to the subway.

Hôtel La Cité, to open its 500 rooms in June, is centrally located and forms part of another office-shopping complex.

Le Quatre Saisons (320 rooms), completed in February, is part of the Inn on the Park-Four Seasons group.

Other hotels include the Château

Champlain, Bonaventure, Queen Elizabeth, Ritz Carlton.

For further information please contact the Canadian Government Office of Tourism, 150 Kent Street, Ottawa, Ontario K1A 0H6, or HEQUO 76, 201 Crémazie Street East, Montreal, Quebec H2M 1L2, Canada

India agricultural project prizewinner

The director of Agriculture Canada's largest research station has been granted the highest public service merit award.

Dr. J.E. Andrews, of the Lethbridge, Alberta, station, was recognized for his "outstanding service" during the Indo-Canadian Drylands Agricultural Research Project, a development assistance program to India sponsored by Agriculture Canada and the Canadian International Development Agency (CIDA).

The presentation to Dr. Andrews of a \$2,500 cheque and a merit certificate was made in Ottawa on February 20 by Agriculture Minister Eugene Whelan.

The award, recommended for Dr. Andrews by both CIDA and Agriculture Canada, recognizes his seven years' work on the \$2-million program. He assumed the leadership in 1969, establishing a co-ordinating centre and a research network using existing knowledge and developing new scientific research into dryland agriculture.

Aim of the project is to produce food in the vast dryland area of India, where four-fifths of the nation's farmers work.

"Dr. Andrews devoted himself to building, implementing and administering the project in an exemplary manner," the Agriculture Minister said. "This is evident by the success of the project and the way in which it has met its objectives with a now firmly established dryland research network and the recognition given it by both Indian and international agriculture experts."

Studies undertaken as part of the project have centred on seeding, cropping, moisture and soil conservation, tillage practices, fertilizers, weed control, pesticides. Some cropping techniques resulted in spectacular results, such as increasing production by 150 per cent.

Canada Weekly is published by the Information Division, Department of External Affairs, Ottawa, K1A 0G2.

Material may be freely reprinted. A credit would be appreciated. Photo sources, if not shown, will be provided on request to (Mrs.) Miki Sheldon, Editor.

Cette publication existe également en français sous le titre Hebdo Canada.

Algunos números de esta publicación aparecen también en español bajo el título Noticiario de Canadá.

Ähnliche Ausgaben dieses Informationsblatts erscheinen auch in deutscher Sprache unter dem Titel Profil Kanada.