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Canada plays an important role in attacking a thorny world resources problem

The following passages are from an article in Geos (Winter 1973 issue), published by the Department of Energy, Mines and Resources, written by the director of that department's Resource Management Branch, Dr. D.G. Crosby, who has represented Canada at several international conferences on offshore resources:

Canada's Offshore is a vast area of great mineral-resource potential. Our continental margin is one of the largest in the world, comprising a total area of almost two million square miles, which is about half as large as Canada's entire land area of 3.85 million square miles. Canada oil and gas permits now cover approximately one million square miles, about half of our total continental margin. These have been issued in areas extending to more than 400 miles off our sea coasts and in water depths ranging to more than 3,500 metres.

By late September, 63 wells had already been drilled on these permits, another four were being drilled off the East Coast, and prospects were good for increased drilling activity not only off the East Coast but elsewhere in the Canadian Offshore, and there are plans as well for the initiation of drilling on artificial islands in the Mackenzie Delta region.

Nowadays, people tend to accept such facts and figures about Canada's Offshore as simply the reflection of ordinary, routine developments — as the result of an inevitable progress of events. Actually, the exercise of Canadian jurisdiction over the seabed resources of a continental margin comprising almost two million square miles is an example of leadership in state practice, a most important factor in the development of international law.

However, the fact that Canada has issued permits covering such extensive offshore areas does not by itself establish and maintain our jurisdictional claims to the seabed resources of these areas. Unilateral action by a state does not in itself create or even necessarily lead to international law.

It is the acceptance of that practice and the adoption of similar practices by other states that lead to customary international law.

International law is, after all, based upon the consent of states, and the fact that this aspect of consent is present not only in treaty or conventional law but as well in the development of customary law through state practice means, of course, that an element of international law is really only as effective as the degree to which it is accepted by the international community. There is, therefore, an essential corollary to the development of international law through state practice, and that is the acquiescence in that practice by other states....

Through the issuance of offshore oil and gas exploration permits covering extensive areas of our submerged continental margin, on the Continental Shelf and on the continental slope beyond, Canada has taken a leading role in the establishment of state practice in this regard. Canada's jurisdictional claims in the Offshore have been established by this issuance of Canada oil and gas permits covering extensive areas of the Continental Shelf and of the slope beyond, as well as by assertions in Parliament, at the United Nations, and in other forums.

Limits of national jurisdiction

The matter of national limits of jurisdiction over seabed resources really came into the open with the introduction of the so-called Maltese Resolution at the United Nations in 1967. This resolution resulted in the establishment of the United Nations Committee on the Seabed in the latter part

of that year. The Maltese proposal called for the United Nations to undertake the "examination of the question of the reservation exclusively for peaceful purposes of the seabed and ocean floor and the subsoil thereof, underlying the high seas beyond the limits of present national jurisdiction, and the use of their resources in the interests of mankind". Thus, attention was focused on the crucial question — what are the "limits of present national jurisdiction" over seabed resources? This issue will culminate at the Law of the Sea Conference at present scheduled for 1973.

Canada's External Affairs Department and this branch have put a great deal of time and effort since 1967 into putting forward to the representatives of other states the Canadian position as regards exercising sovereign rights to explore and exploit seabed resources out to the limit of the submerged continental margin. We have been working in this respect both in the United Nations Seabed Committee and in the General Assembly by means of formal interventions and private discussions, as well as in various other forums.

There have been positive results. For the first few years following the Maltese Resolution of 1967, the implications of the Canadian wide-shelf seabed resources position were not clearly understood by many other states, some of whom may have regarded it as an imperialistic stance. Recently, this situation has changed markedly.

Practicality of Canadian stance

At the March 1971 session, we made an especially concerted effort to explain that Canada is not being over-nationalistic and grasping in its approach to seabed resources, but sensible and practical in taking into account the special interests and responsibilities of coastal states. We explained, for example, that the coastal state is itself the authority with the most intimate knowledge of the problems off its sea-coasts and with the immediate interest in dealing with them (multi-resource development conflicts, anti-pollution and safety measures, etc.) and thus it is the coastal state that is in the best position to exercise controls over the sea-

bed of its adjacent continental margin....

Canada made a proposal at that session designed to help break the deadlock in the committee's work arising from the complex interrelationships between the ultimate definition of the limits of national jurisdiction and the nature of the regime to be developed for the international seabed area....

This Canadian proposal involved: first, the early determination of the limits of the minimum non-contentious area of the seabed through the definition by all coastal states of either their Continental Shelf claims or those limits beyond which they would make no claims; and secondly, the establishment of transitional international machinery for managing this non-contentious seabed area. Thus, coastal states could either define the maximum limits they now claim or, if they preferred, the maximum limits beyond which they would not claim under any circumstances. A third, but not essential, element in the Canadian proposal involved an arrangement whereby the machinery would receive from each coastal state a percentage of the revenues derived from all its offshore areas.

Canadian work bore fruit

Although this proposal itself was not generally accepted, our especially concerted efforts at the March 1971 session on top of our cumulative work over the previous years certainly bore fruit. At the July-August session of that same year 1971, for the first time a good deal of support was expressed by a number of delegations, in addition to the Latins, for a wide juridical shelf. Moreover, on the basis of developments at our latest session, in July-August of this year, 1972, what had been a formative trend a year ago has now become a strong movement within the Seabed Committee.

There seems no doubt that at least many of the delegations now envisage some sort of exclusive-economic-zone approach as being the keystone for reaching agreement on the controversial question of national limits of jurisdiction. The most noteworthy contributions of the past session in this regard were made by Caribbean-area

states, including Mexico and Venezuela, and by African states. In all of these the move was toward the assertion of coastal states' rights. Although expressed in various ways and utilizing a variety of terms, such as "patrimonial sea" and "economic zone", these approaches by other states are closely akin to and would appear to have been influenced by the Canadian wide-shelf approach....

Bell Canada reports ding-dong business

Bell Canada Chairman R.C. Scrivener stated in his company's annual report for 1972 that record levels had been reached during the year in the number of subscribers, in local and long-distance calls, in operating revenues and in share earnings. "A buoyant economy increased demand for services and required greater expenditures than ever before in both operating and capital costs," he said. Earnings per common share amounted to \$4.12.

At year-end, Bell Canada had more than 6,742,000 telephones in service — a net gain of 447,000 during the year. Mr. Scrivener reported that, "because of the mobility of our customers, the company was called upon to install four phones and disconnect three to gain one".

Telephone calls handled by Bell Canada climbed to more than 40 million on the average day, totalling 14.8 billion in the year. Long-distance calls rose to 351 million, an increase of 15.2 per cent, and accounted for 41.3 per cent of 1972 operating revenues.

Some 92,000 telephones were added to the company's network through "bargain month", a marketing program that enabled Bell Canada residence customers to add certain optional telephone services without paying the installation charges.

A highlight of the year, reported Mr. Scrivener, was the inauguration by Bell Canada and other companies of the Trans-Canada Telephone System of a program designed to emphasize computer communications with the object of providing Canadian leadership in this rapidly growing industry.

New Canadian fuel design developed in record time

A new Canadian nuclear-fuel design has been introduced and developed to the commercial production stage within two years – a record time. Some of the new fuel has been in service at the Pickering generating station near Toronto since the spring of 1972.

The new design was developed at the Chalk River nuclear laboratories of Atomic Energy of Canada Limited (AECL). The program resulted from the monitoring of the performance of fuel in the reactor at Douglas Point, Ontario, Canada's prototype nuclear-power reactor, on Lake Huron.

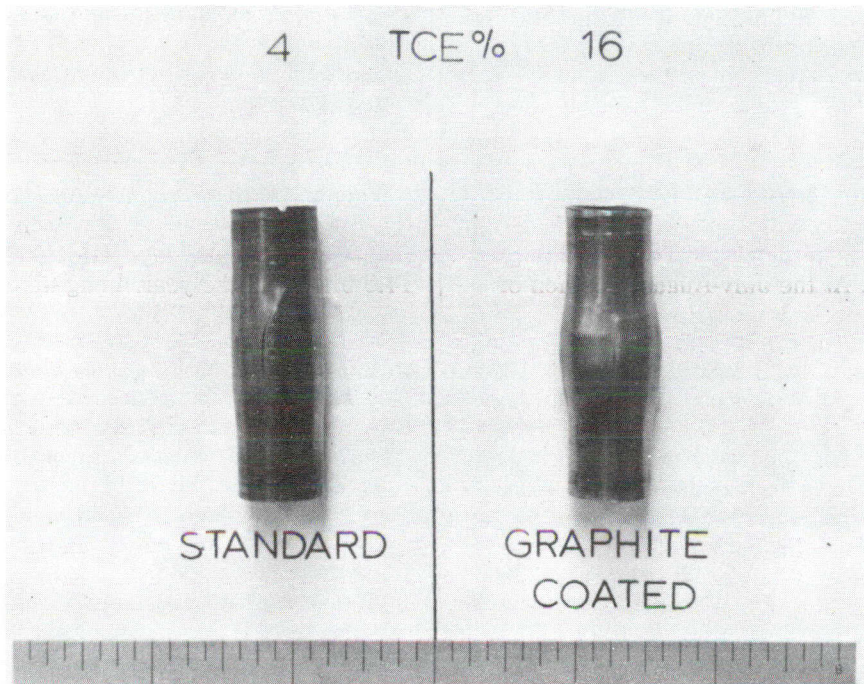
Douglas Point used a fuel common to most of the world's nuclear-power reactors, uranium oxide in zirconium-alloy containers. The rate of fuel failure was low – less than 1 per cent of all bundles loaded. However, a detectable increase in the rate indicated a potential problem that might cause trouble in the future.

Some scientific detective work by fuel specialists, who analyzed the operating history at Douglas Point,

led to tests at Chalk River, where it was demonstrated that the position of fuel bundles in the reactor had an effect – fuel would sometimes fail if its power output were increased after a prolonged period at low power.

A solution to the problem proved simple and inexpensive – introduction of a thin layer of graphite between the uranium oxide and its container. The remedy should be effective in other reactor types where fuel is exposed to a power increase during its lifetime in the reactor.

The normal lapse of time between the introduction and commercial production of new products in complex technologies was cut considerably by co-operation among the participants in the program: Ontario Hydro, the utility; Canadian General Electric Co. Ltd. and Westinghouse Canada Limited, the fuel manufacturers, and AECL, the developer. Within two years of the identification of the problem the improved fuel was in use at Pickering station.



Each of the reactor fuel-sheathing samples (above) was tested to destruction by a simulated fuel-expansion technique. The difference is that the sample on the right has a graphite interlayer between sheath and core.

The figures above the samples tell the story; the total circumferential elongation (TCE) or ductility of the graphite-coated specimen is four times greater.

AECL photo

Parole system needs to be simplified Senate Committee told

Changes are required in the basic structure of Canada's parole system in order to simplify it and increase its flexibility, according to the Canadian Criminology and Corrections Association, an affiliate of the Canadian Council on Social Development.

"Faced with an overlapping jurisdiction and a multiplicity of technical provisions and procedures, the individual caught up in parole, whether as an offender, an official responsible for its application, or a member of the public, often finds himself at a loss," the Association stated in a brief to the Standing Senate Committee on Legal and Constitutional Affairs.

The introduction of a more simplified parole system should be accompanied by an organized program of interpretation and education, said the Association, a national voluntary body of persons interested in promoting the better administration of criminal justice.

To be consistent with the interpretation of parole as an intrinsic part of the sentence of the court, the Association said "we consider that the power to change the sentence by discharge from parole before completion of the parole period or to revoke or suspend an order made under the Criminal Code prohibiting any person from operating a motor vehicle should be removed from the National Parole Board".

Other recommendations

"We are also of the opinion that the National Parole Board should be relieved of its present responsibilities under the Criminal Records Act. The board would then be free to concentrate on one function alone – parole."

The Association also recommended that the power to reduce the minimum period the inmate must serve before becoming eligible for parole be transferred to the courts from the National Parole Board.

Other recommendations in the brief include:

That the two responsibilities now carried by the chairman of the National Parole Board – chairing the board and supervising and directing the National Parole Service – be carried out separ-

ately by two individuals.

That responsibility for paroling *all* inmates of provincial prisons be transferred from the federal to the provincial government.

(The Association notes, however, that some of the provinces, particularly the smaller ones, might find it inconvenient to operate a separate parole system. To meet this difficulty, there should be provision for the Federal Government to operate the parole system in any province that prefers not to operate its own.)

That the temporary absence program in the penitentiaries be restricted to its original purpose ("medical or humanitarian reasons" or, within the time allotment authorized "to assist in the rehabilitation of the inmate") and not be used as a substitute for day parole.

That area parole boards be set up to deal with parole in the first instance, with the National Parole Board performing a review and appeal function.

That the consent of the Cabinet no longer be required for paroling murderers, with the National Parole Board assuming the reviewing function in relation to the decision made by an area parole board.

That a person whose parole is revoked for some reason be credited with the time spent successfully on parole.

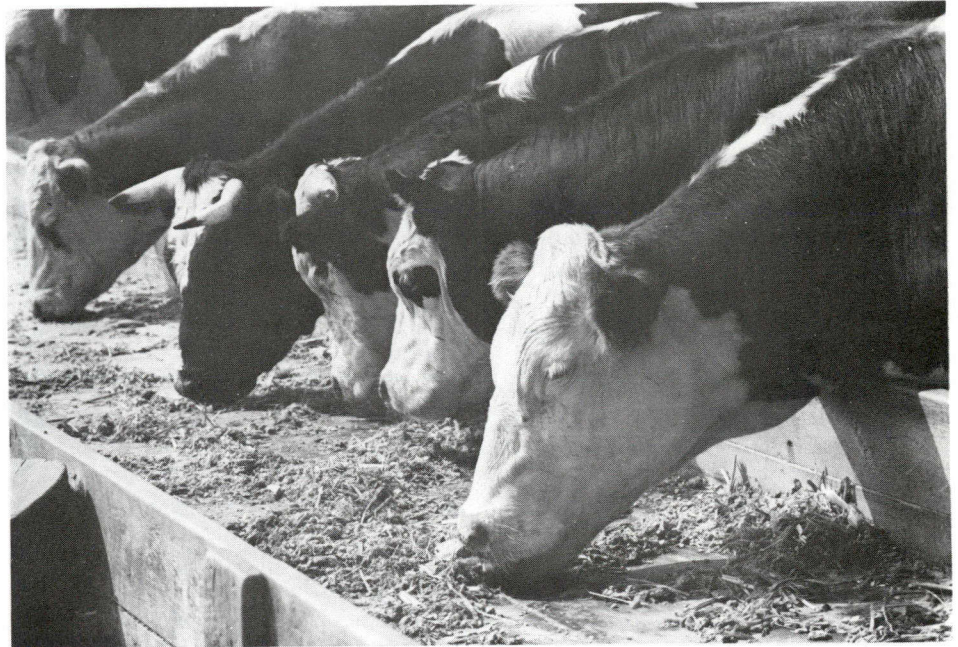
That clear rules of procedure be established for each step in the parole process. These would include provision for a revocation hearing before a person's parole is revoked and a limit on the time a parolee can be held under suspension awaiting a decision (that time now sometimes drags into months).

Environmental facilities construction

A \$77.3-million construction program for fisheries, forestry, oceanographic and environmental research and operational facilities across the country was announced recently by Environment Minister Jack Davis.

The plan was approved recently by the Treasury Board, subject to review of refined costing for each project. Included in the construction program, which will probably take six years, are the following facilities:

(1) *The Great Lakes Forest Research*



Canada Agriculture photo

Rye grain for cattle feed

Indications that rye is at least equal to barley in feeding value for cattle may have special meaning for farmers in the Maritimes, where it is adaptable to the climate. Experiments at the Agriculture Canada Research Station in Charlottetown, Prince Edward Island, have shown that up to 60 per cent rye grain can be used in high-

energy grain rations for steer calves with no change in weight or efficiency of the steers.

Similar results were obtained with dairy cows. Cereal researchers rate autumn rye hardier than winter wheat and they also claim that it is capable of producing more feed value per acre than other cereal grains.

Centre, Sault Ste. Marie, Ontario (\$8.7 million), will house research facilities now in Sault Ste. Marie, including those in temporary accommodations. (completion date, 1975.)

(2) The Pacific Environment Centre, Vancouver, British Columbia (\$31.3 million), will house the regional headquarters for the Atmospheric Environment Service, the Environment Management Service and the Environmental Protection Service. It will also serve as a focal point for other departmental operations on the West Coast. (Estimated completion date, Phase 1, 1976).

(3) The Newfoundland Environment Centre, St. John's Newfoundland (\$10.4 million) – for Fisheries, Forestry and Environmental Protection Services. (Estimated completion date, 1977.)

(4) The Institute for Oceanography, Patricia Bay, B.C. (\$9.8 million) – for the Marine Sciences Branch of Environment Canada. (Estimated completion date, 1977.)

(5) The Bedford Institute for Oceanography, Dartmouth, Nova Scotia (\$9 million) – for an addition to the Institute's marine research facilities. (Estimated completion date, 1977.)

(6) The Maritime Forest Research Centre, Fredericton, New Brunswick (\$8.1 million) – to replace research facilities on the campus of the University of New Brunswick. (Estimated completion date, 1978.)

Expenditure will be repaid

Referring to the Department's total capital program, Mr. Davis said: "We haven't added to our basic plant for some time. Now, with a growing demand for biological information, environmental impact studies and pollution testing from industry, from municipalities and from the provinces, we have to do something. We are building some labs and I am sure they will pay for themselves."

Three alternative approaches to low-income housing

Minister of State for Urban Affairs Ron Basford recently invited the provinces to try a number of new ways of subsidizing housing for low-income families. "The public housing program in Canada has grown to about 20,000 units a year," Mr. Basford stated, "with the result that, during the past four years, more low-income families have been given housing subsidies than during the preceding 20 years."

Acknowledging that the new amendments to the National Housing Act would create additional means of easing housing problems, Mr. Basford nevertheless emphasized the need to take advantage of all opportunities to assist low-income families.

Within this federal initiative, three approaches were suggested by the Minister. Private developers and private lenders build housing to rent at market rates. Such homes cannot be afforded by low-income families. Developers, therefore, may be invited by a province to set aside a number of dwellings for low-income families. Rental supplements will make up the difference between subsidized and market rents, and will be shared by the province and the Federal Government.

A second approach visualizes a number of units in low-rental projects, financed by direct National Housing Act loans through Central Mortgage and Housing Corporation, being set aside for families who would otherwise be accommodated in subsidized public housing. Again, rental supplements will be used, and shared by the province and the Federal Government.

Social mixture

The third plan foresees a "mix" of low and middle-income groups in housing financed under federal-provincial arrangements. Rentals for low-income families would be geared to income, while those for middle-income occupants would range from non-subsidized to market rents. Capital costs and subsidies would be shared 75 per cent by the Federal Government and 25 per cent by the province and municipalities.

In summing up, Mr. Basford said: "I am pleased to announce that arrangements have been concluded with the Province of Ontario to use these new approaches in selected Ontario cities. I am also urging all provincial ministers responsible for housing to take advantage of these techniques."

Wildlife scientist wins international award

Leslie M. Tuck, a Canadian Wildlife Service (CWS) biologist, has won the terrestrial wildlife publication award of the Wildlife Society for his monograph on the snipes. Anthony J. Erskine, also a CWS scientist, received an honourable mention in the same category for his study of buffleheads, small diving ducks that nest in trees and breed in British Columbia and Alberta.

Dr. Tuck is the only Canadian scientist to have received the society's publication award twice. The first was given in 1962 for his work on the

murres, also published in the Canadian Wildlife Service monograph series. The monograph on the snipes was chosen from nominations by scientists, submitted mainly from the United States. Dr. Tuck's definitive work is the result of ten years' extensive research on this important game bird found in almost every country.

The Wildlife Society is a leading wildlife management organization with members in 61 countries. Its *Journal of Wildlife Management* is considered among the most authoritative in the world.

Atlantic salmon stocks revive

Atlantic salmon stocks on Canada's Atlantic coast are showing definite signs of recovery after a season closed to commercial fishing.

Assessments of 1972 salmon runs in the major rivers of the Atlantic Provinces, released by Fisheries Minister Jack Davis, show that the numbers of salmon reaching spawning areas of New Brunswick's Miramichi,

Restigouche and Saint John watersheds were two to three times larger than they were in 1971. Commercial fishing in the estuaries of these watersheds, and in the Port aux Basques area of southwestern Newfoundland, was banned last spring because of declines in salmon stocks.

An increase in the proportion of large salmon, fresh from two years at sea, has resulted in spawning-egg deposits four to five times those of 1971, Mr. Davis said. The size of the spawning stock of Atlantic salmon in these rivers in 1972, although still low, has reversed the downward trend over the past decade.

Seminar of Canada-Soviet electrical power group

The first seminar of the Canada-U.S.S.R. Electrical Power Industry Working Group was held last month at the Hydro Quebec Institute of Research (IREQ) at Varennes, Quebec.

Seven Soviet and 35 Canadian experts presented papers on subjects that dealt with the operation of electrical-power systems and design as an aid to developing discussion on mutual problems. The Soviet delegation was headed by K.V. Zuibnov. The Canadians were drawn from electrical utilities, manufacturers, consulting engineering firms and universities.

A similar seminar, at which seven Canadians will present papers, will be held in the U.S.S.R. this month; the theme will be civil and mechanical engineering aspects of the construction of generating stations and transmission-lines in severe climatic conditions.

Visits to electrical-power installations that relate to the topics of the seminar were arranged in each country for the visiting experts.

The working group is one of eight that were formed under the Canada-U.S.S.R. Agreement for Co-operation on the Industrial Application of Science and Technology. Seminars provide a convenient means of co-operation and exchange of technological information. The Minister of Industry, Trade and Commerce, Mr. Alastair Gillespie, is the Canadian chairman of the mixed commission that supervises the activities of these working groups.

Canadian appointed to UNESCO post

J.H. Hodgson, Director of the Earth Physics Branch, Department of Energy, Mines and Resources, has accepted a temporary UNESCO post to Southeast Asia as adviser to the United Nations Development Program in the field of seismology. The mission began on April 1.

During the two-month assignment, Dr. Hodgson will visit Indonesia, Malaysia, the Philippines, Thailand and Hong Kong to gather information on methods of strengthening the regional seismological network in Southeast Asia. The itinerary includes stops in Australia, New Zealand and Japan for consultation with these governments on their participation in the project.

The object is to find effective means to strengthen this area's seismological instruments, an expanded training program, and greater facilities for the consolidation, handling and transmission of data.

Sport whaling ban

Canada has banned the killing of beluga whales for sport. In a joint statement recently, Environment Minister Jack Davis and Indian and Northern Affairs Minister Jean Chrétien announced that no licences would be issued for sport whaling this summer in Hudson Bay, or elsewhere in Canada. "This decision is due to continuing concern about the so-called 'sports' aspect of this activity and the hunting methods used," the Ministers said. "Amateur hunters, using harpoon and rifle, can inflict needless suffering. Moreover, those who are familiar with the habits of beluga whales advise that this hunt can scarcely be called a sport, since it is like 'shooting fish in a barrel'. The mammals have no opportunity to

escape, and show no inclination to try to do so."

Belugas are members of the dolphin family. They average 12 feet in length and weigh 1,000 pounds. The white-skinned mammals are found in the Arctic, mainly in Hudson Bay, and in the Gulf of St. Lawrence.

Licences to allow sport hunting of belugas were first issued in 1965 as an offshoot of a commercial whaling venture at Churchill, Manitoba. Sport catches were low, reaching a peak of 16 in 1968. No sport catches have been made since the closing of the Churchill plant in 1969.

Officials of the federal Departments of the Environment and Indian and Northern Affairs are still investigating possible means of utilizing the white whale resources as an income source for northern residents.

Air-traffic control simulation centre

A project that will eventually cost \$4,367,000, for the acquisition of a Canadian air-traffic control simulation centre has been initiated by a \$399,795-contract award for the installation of a central computer complex.

The contract, awarded to Digital Equipment of Canada Ltd., Ottawa, is one of the many that will be awarded over the next two years to hardware manufacturers and Canadian consultants. It will result in the development and acquisition of a simulation centre that will supply Canada with a progressive research and development facility unsurpassed it is claimed, elsewhere in the world.

Further contracts for display subsystems and communications equipment will be announced shortly, and completion of the simulation centre is expected next year, with "refinements" to be added on a continuing basis thereafter.

The Centre, which will be located in the Ottawa area, will consist of computers and complex electronic equipment, and will provide a sophisticated facility for conducting research into problems facing air-traffic controllers. It will also be used to train new controllers.

It is designed to provide a realistic environment in which to examine and

test specific traffic-control organizations and situations, produce digital radar output for research and controller training and provide a controlled environment for the evaluation of equipment.

Three similar facilities exist in the United States, Britain and France, and an examination of the possibilities of selling this type of system to other countries is under way.

Final hockey standings

National Hockey League

East	P	W	L	T	Pts
Montreal	78	52	10	16	120
Boston	78	51	22	5	107
NY Rangers	78	47	23	8	102
Buffalo	78	37	27	14	88
Detroit	78	37	29	12	86
Toronto	78	27	41	10	64
Vancouver	78	22	47	9	53
NY Islanders	78	12	60	6	30

West

Chicago	78	42	27	9	93
Philadelphia	78	37	30	11	85
Minnesota	78	37	30	11	85
St. Louis	78	32	34	12	76
Pittsburgh	78	32	37	9	73
Los Angeles	78	31	36	11	73
Atlanta	78	25	38	15	65
California	78	16	46	16	48

Stanley Cup playoffs, April 4

Montreal 2, Buffalo 1
 NY Rangers 6, Boston 2
 Chicago 7, St. Louis 1
 Minnesota 3, Philadelphia 0

World Hockey Association

East

New England	78	46	30	2	94
Cleveland	78	43	32	3	89
Philadelphia	78	38	40	0	76
Ottawa	78	35	39	4	74
Quebec	78	33	40	5	71
New York	78	33	43	2	68

West

Winnipeg	78	43	31	4	90
Houston	78	39	35	4	82
Los Angeles	78	37	35	6	80
Minnesota	78	38	37	3	79
Alberta	78	38	37	3	79
Chicago	78	26	50	2	54

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