

# Canada Weekly

Volume 5, No. 5

February 2, 1977



Ottawa, Canada.

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## Computer a potential powerful servant of the medical profession

*“Despite the obvious need for large and intricate systems to handle information, the potential benefits of the computer in electronically processing health data are still largely unrecognized or misunderstood,” says David Rowe in an article in a recent issue of In Search, the Canadian Communications quarterly.*

Mr. Rowe, an original staff member of the Health Computer Information Bureau, says health professionals often imagine the computer as a “supernatural force that supersedes the compassion and insight of personal health care, rather than as a powerful servant that can handle large amounts of information.” In fact, he says, it decreases the time members of the medical profession must spend handling information and leaves them more time to care for their patients.

*His views follow on the benefits of a fully automated health information system:*

Computers can easily process large quantities of information, but, more important, they can also provide better information. Linking an individual's records together by computer, for instance, permits health workers to correlate events which happen to the same person, and so to recognize cause-and-effect relationships. Ordinary records, on the other hand, treat each event as a discrete entity. Another benefit has been the development of special computer programs for the diagnosis of some diseases; often the computer is able to match or outperform experienced diagnosticians. Of course, it cannot replace intuition and judgment based on the creative processes of human thought.

### Development of system

Before 1974, development of medical information systems in Canada followed the trend set by the United States. Large hospitals or groups of smaller hospitals established computer centres to economize on the costs of administration. Initially these were fiscal systems such as payroll, accounting and stock inventory. Later, studies indicated that integrated or small dedicated computer systems would yield similar benefits in laboratory services once the cost of the equipment had been amortized.

Full-scale hospital information systems were slow in coming and usually

began with patient scheduling-and-admission procedures. Even today, only a few Canadian hospitals have anything like a fully automated hospital information system.

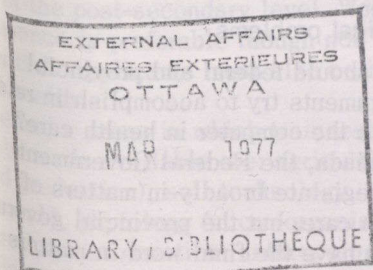
### A clearing house

With the growing interest in medical computers, and increasing requests for government grants to set up such systems, it became evident that some sort of central clearing house was needed to gather and disseminate information about computer applications in the health field.

The idea of such an office came from a National Symposium on Computer Applications in the Health Field, held in Ottawa in 1970. In 1971, a working party established under the Federal-Provincial Advisory Committee on Hospital Insurance and Diagnostic Services studied the idea and recommended its acceptance. National Health and Welfare approved a 15-month pilot program in October 1973 (later extended to fund the project until the end of 1975).

In March 1974, director John R. Walter and a small staff opened the office of the Health Computer Information Bureau at 274 Friel Street, Ottawa.

Sponsored by the Canadian Hospital Association and the Canadian Medical Association, the bureau represents the first attempt in Canada or any country to establish a central office of this



type. Since early 1976, the bureau has been receiving financial support beyond that provided by members' subscriptions through an arrangement between the provinces and the Federal Government.

By the end of 1975, the bureau had published three issues of *Health Computer Applications in Canada*, giving health professionals across the country a picture of what computer applications are being developed and used, and cataloguing more than 900 applications. Let me describe a few of the 490 applications described in detail in the catalogue.

At Toronto's Hospital for Sick Children, Dr. Michael Albisser has developed an artificial endocrine pancreas of great benefit to diabetic patients. By giving insulin according to a computer-projected level of blood sugar, it effectively restores to the diabetic patient the pattern of a healthy pancreas. Knowledge gained from this research will be used in the on-going development of an implantable artificial endocrine pancreas.

#### Other medical applications

At the University of British Columbia, Dr. M.P. Beddoes has developed a talking typewriter, called Spellex 1, to help the blind in typing and reading.

As the blind person types, the system's computer, linked to remote terminals by telephone lines, spells out each word letter by letter. A reading machine is now being developed to scan a line of print and output the letters in spelled speech. Experiments indicate the blind can read at 80 words a minute with this machine, after a short period of getting used to the voice.

Another project described in the catalogue is the formidably named technique of computerized transaxial tomography (CTT) which helps doctors detect brain hemorrhages and assess the condition of patients with head injuries.

Using equipment originally developed in the United States, Dr. M.J. Molot at the Hamilton General Hospital and computer engineer C.J. Thompson at the Montreal Neurological Institute, among others in Canada, have worked to perfect this technique. A narrow beam of X-rays scans the head in a circular fashion, making a series of horizontal cuts. In the course of each cut, 28,000 separate readings are registered by gamma sensitive detectors

instead of the photographic film used in conventional X-rays. The readings, processed by a mini-computer, may be displayed in digital or video form. The result is a picture 100 times more detailed than that provided by a standard X-ray examination.

#### Health data banks

One of the most important roles of computer communications in the health care system is linking individual records and incorporating them into data banks. The availability of fully-linked health data would enable health professionals to obtain the critical and sometimes life-saving information needed for emergency treatment. It would also avoid the great waste of time now spent duplicating identification data, and assist in making full health histories transportable when people move or change doctors.

Technology is already available which can provide — for under \$10, in credit-card size — a personal, portable health file, containing microfilms of health history which can easily be read at any level of health care.

With the health care system in 1975 probably costing somewhere between \$400 and \$500 for the average Canadian, it would seem economical to provide a personal, portable health history to every citizen.

#### Private concerns

The proliferation of computerized health data raises concerns about the control over this type of information. Two dangers are commonly stressed: possible interference with the long-standing confidential relationship between patient and health professional; and potential invasion of privacy, because of the increase in the number of people who might have access to personal health information.

If the health professional-patient relationship in itself is sound and firmly based on trust, it need not be endangered because the doctor or public health nurse uses a computer facility instead of a filing cabinet to store information about patients. It is a simple matter for health professionals to use whatever means are necessary, from programming techniques to security devices, in order to prevent unauthorized access. No record, whether computerized or not, is safe in badly

guarded storage. But at present, far more people suffer from lack of information about their health problems and their treatment (for example, drug reactions) than from improper disclosures of confidential information. With a personal, portable health history, individuals would be aware what information about their health was known to others in the health system, and would be able to exert greater control over it.

#### Who watches the watcher?

A more complex problem is posed by government data centres which, in support of national health insurance, collect data about the health of the individuals. Who will watch the watcher? In this respect, the professionalism of directors and key employees of a growing number of computer centres will play a vital role. As soon as they can achieve an independent professional status under legally binding terms of reference and can function as honest brokers, the privacy-confidentiality issue will be defused.

Building on the relationship of trust between society and health professionals, they will ensure that computer-stored medical information to be transmitted to governments and researchers is accessed only with the knowledge and consent of the patients.

#### Political problems

What should federal and provincial governments try to accomplish in relation to the computer in health care? In Canada, the Federal Government may legislate broadly in matters of health care, but the provincial governments have the final word in matters of application of policy. At present, there is no unified approach to such problems as the duplication of effort and costs, due to similarity of projects; the priority to be given to certain applications; the social impact of project implementation on patients and health care personnel; and the responsibility — fiscal and administrative as well as scientific — for project implementation.

The future of health care computer applications in Canada depends largely upon how quickly the federal and provincial governments begin solving these problems, many of which are politically oriented.

### Mr. Trudeau to meet Mr. Carter

Prime Minister Trudeau has accepted United States President Carter's invitation to visit him in Washington on February 21 and 22. He will be accompanied by Mrs. Trudeau.

Mr. Trudeau said he was very pleased to be able to meet with Mr. Carter. The visit will give the two leaders the opportunity to discuss international issues and bilateral relations.

Some sources report that Mr. Trudeau will address a joint session of the U.S. Congress while he is in Washington, although this has not yet been confirmed. It would be the first time, it is believed, that a Canadian prime minister has addressed the U.S. Congress.

### Canada-Mexico exchange

The Canada-Mexico Exchange Program for Young Specialists and Technicians is seeking Canadians between 18 and 30 years old, interested in gaining practical career-related experience in Mexico for periods of four to 12 months, starting in late September 1977.

Applicants in Canada must be Canadian citizens, have a good basic knowledge of Spanish and possess a degree from a university or a diploma certificate from an educational institution at the post-secondary level. Work experience is preferable though not essential. Applicants must also be in good health.

The major areas in which traineeships may be made available are: agriculture (seed production), soil technology (research), phytology (micro-organism control), plant genetics; anthropology (social and physiological) archaeology; architecture (urban development, conservation, cultural restoration); astronomy; biochemistry; biology; cardiology (high level research); demography (human geography); ethnology (high level research); journalism (communications science); museology; public finance; research in tropical medicine; social medicine (sociology); and tropical ecology.

The National Council for Science and Technology in Mexico will be responsible for selecting young Mexican specialists and technicians for training in Canada under the bilateral agreement. Canadian companies will be asked to provide training.

### Readership survey results

Almost 1,500 readers returned questionnaire forms in a *Canada Weekly* readership survey out of a circulation of about 11,000 (at time of survey).

The majority of respondents, foreigners or Canadians living or working abroad, are teachers and professors (274). 491 readers cite their major interest as general news of Canada.

A total of 915 readers found the publication interesting, 437 useful in their work, 70 said it was too short, eight thought it was too long and, of the five who found it uninteresting, four still wanted to receive it.

Asked which they preferred, a monthly or weekly publication, 778 readers indicated weekly, and 80 per cent of the 113 who preferred a monthly one stated their desire for a magazine format, longer and more detailed.

Reasons of economy were given in other indications of a monthly preference. (Not all readers answered all questions, which accounts for the discrepancy in numbers.)

In the frequency-of-reading replies, 911 said they read it weekly, 49 read it monthly and 12 said they read it occasionally.

### Recipients

The respondents included (besides educators, referred to above) general administrative personnel (85), missionaries and clergymen (53), journalists (73), radio and television staff (15), medical personnel (43), librarians (28), Canadian Armed Forces (25), scientists, economists, people in international agencies, retired Canadians and others. (Just for the record, Spike Milligan, well-known British comedian is a recipient and, just recently, we had a request for the names of Johnny Carson and Ed McMahon of the United States' "Tonight Show" to be placed on the mailing list.)

Many of the teachers, Canadian and non-Canadian use the publication in class. ("I find *Canada Weekly* invaluable," said one teacher in East Africa.")

### Topics

Among the topics asked for more frequently were: provincial news, politics, sports, education, economy, science, culture, the Canadian North, history,

foreign affairs, arts, Canadian involvement in other countries, medicine, immigration, business, geography, natural resources, Canadian developments, employment, trade, environment, transportation, music, wildlife, bilingualism, books, world affairs and oil.

Subjects specified as missing included religion, short stories, pen-pals, "touring Canada" and a yearly index.

Many recipients stated *Canada Weekly* was their sole source of Canadian news to be found in their part of the world and, as such, was the only link with "home."

Another interesting fact was that it was passed by recipients, after they had read it, to a total of 23,220 others, including one who reprinted it in another publication.

The survey form was attached to the issue dated January 28, 1976 but, because its circulation covers almost every area of the world, some six months elapsed before the questionnaires ceased coming in. An interim report appeared in the issue dated March 10, 1976, before a complete analysis could be completed — a time-consuming task.

Since that time I have published regularly, news in brief, incorporated a page devoted to the arts and have endeavoured to comply with some of the wishes of the majority in selection of content. Missing topics and an index will have to wait, unfortunately, until assistance is obtained.

I reiterate my appreciation of the literally hundreds of complimentary remarks. Constructive criticism and suggestions are always welcome. The time and trouble readers took in answering the questions — some in great detail — was most encouraging, since it was proof of their interest.

The readership survey indicates the value of the publication and your preferences. I will strive for improvement and maintenance of its regularity.

*M. K. Sheldon*  
Editor.



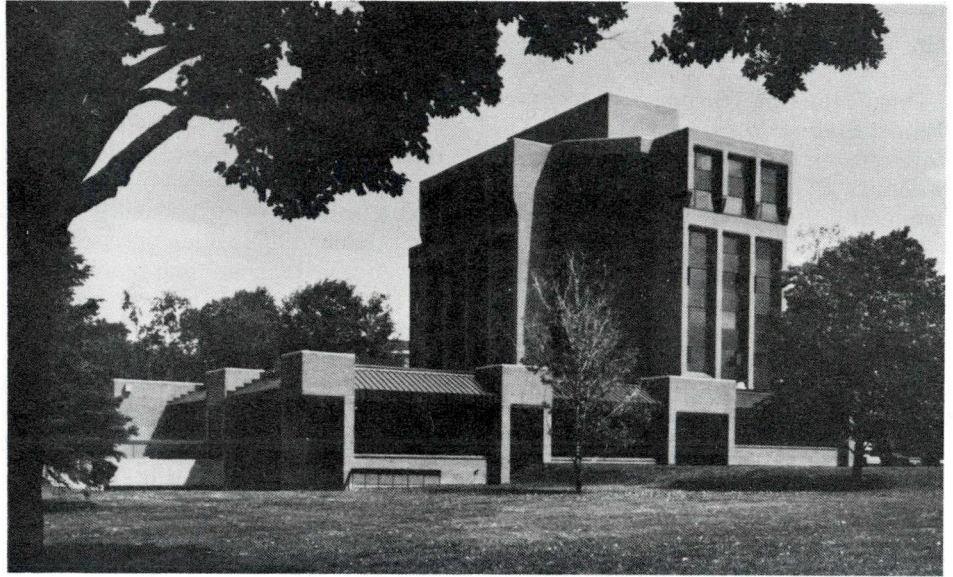
### Police college a national institution

The opening of the Canadian Police College at Ottawa last November, fulfilled a long-time ambition to provide unified training facilities for executive and middle-management police forces across Canada.

The institution, funded by the Federal Government and administered by the Royal Canadian Mounted Police, is national in the sense that courses will suit the needs of all Canadian police forces – RCMP, provincial and municipal – and not, as previously, those specifically of the RCMP.

Courses range from five days to six weeks and cover everything from executive development and motivation of personnel to technical skills in the areas of drug investigation, fingerprint identification, counterfeiting, gambling and instructional methods.

“We are providing a federal leadership role in the areas of training and education, complementing those programs given at the provincial-municipal level,” says Chief Superintendent Roy



Moffatt, Commanding Officer of “N” Division, who has been working towards its development for more than 12 years. We have a federal-provincial advisory committee that ensures the needs of the total police community are met.

“As a result of policemen from all

the different forces being trained together, there is much better rapport among the forces.... Our ambition is to improve individual, as well as organizational, effectiveness, and to establish also some common philosophies and standards of policing across the country.”

### Woman survives after four-hour heart-beat stoppage

A 20-year-old Winnipeg, Manitoba, woman whose heart stopped beating for almost four hours, has survived what is believed to be the longest recorded case of cardiac arrest, reports Canadian Press.

Jean Jawbone, who was found unconscious, coatless on a city street in -36C-degree temperatures, had a body temperature of 26.3C – about 11 degrees below normal. She was taken to the Winnipeg Health Sciences Centre, where Dr. Brian Pickering, a resident physician said her symptoms, no heartbeat, pulse or respiration, pupils dilated, were “incompatible with survival.”

Seven doctors, 19 nurses and several orderlies used external heart massage and manual ventilation. Finally, a rare technique known as peritoneal dialysis – injection of a warm solution into the abdominal cavity – was used. When the body temperature rose, a defibrillator gave the woman’s heart a jolt that established a regular beat.

Dr. Gerald Bristow, director of the centre’s emergency department, said the woman’s case far surpassed that

of 16-year-old Edward Milligan, who was revived there a year ago after being clinically dead for two hours. The boy collapsed and suffered hypothermia – lowered body temperature – during a snowshoe trek.

Dr. Bristow, who was the Milligan boy’s physician, said resuscitation procedure he recommended for Miss Jawbone was inspired by medical studies he made in the Milligan case.

He said in an interview the two cases should encourage doctors to continue resuscitation efforts despite clinical signs of death.

Miss Jawbone said in an interview she could recall nothing of the incident except that she had been drinking in a bar the night before.

For nearly two hours the medical team was unsuccessful in raising her body temperature significantly, a necessary procedure before heart movement can be resumed. They covered her with heating blankets and hot towels and poured warm saline solutions through a tube inserted in her mouth to her stomach.

Dr. Bristow then suggested peritoneal dialysis, which was used successfully in Kentucky, U.S.A., in 1968 to revive

a girl who had passed out and become hypothermic after an overdose of barbiturates.

The catheter was used to remove the barbiturates but “quite fortuitously” warmed her body as well, Dr. Bristow said. “There’s been no other case of this recorded since,” he said, “but it occurred to me it might be an effective method of warming her. The necessary equipment is available in most hospitals or can be easily improvised.”

A catheter was inserted into the abdominal cavity and the warm solution injected.

Between hours two and three of the resuscitation process her body temperature went up five degrees and after three-and-a-half hours was high enough to use the defibrillator. Dr. Bristow said all the warming techniques were instrumental in warming her but undoubtedly the peritoneal dialysis contributed the most.

He said Miss Jawbone was thought to have spent between 15 minutes and half-an-hour without oxygen, but showed no signs of brain damage. Her low body temperature slowed her chemical processes and reduced her oxygen requirements.

# News of the arts

## Ballet duo acclaimed in Moscow

Karen Kain and Frank Augustyn, principal dancers with the National Ballet of Canada, recently made a triumphant appearance with the Bolshoi Ballet Company in Moscow.

A capacity audience at the Moscow Bolshoi Theatre gave the duo a nine-minute standing ovation and six curtain calls for their performance in *Giselle* on January 14.

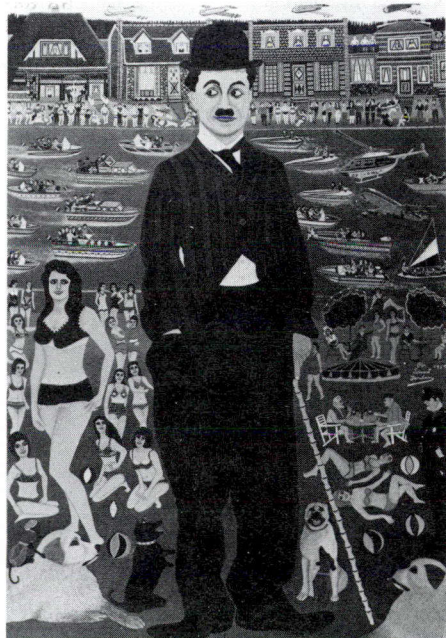
Kain and Augustyn added *Swan Lake* to their repertoire for the rest of the tour of the Soviet Union that took them to Tallin, Vilnius and Kiev.

The two Canadians are the first dancers from a North American ballet company to star with the Bolshoi Ballet in a regularly scheduled performance. The pair won the Pas de Deux award in the Moscow international ballet competition in June 1973, and their return to the U.S.S.R. was widely acclaimed by the Soviet critics.

## Ex-boxer now successful artist

An exhibition by Ernest Gendron, self-taught artist who was once a boxer and wrestler, returned to Canada from France recently and went on display at the Vancouver Art Gallery till the end of January.

His work was shown for the first time



Gendron considers this painting of Charlie Chaplin his masterpiece.

in Europe at the Canadian Cultural Centre in Paris from November 9 to December 12, where his portrait of General de Gaulle was of special interest to French visitors. Six hundred layers of paint – applied with a matchstick and toothpicks – were used to give the famous de Gaulle nose its august relief.

The exhibition was shown at the Montreal Museum of Fine Arts when the galleries were reopened last May after a three-year renovation program that cost \$10 million, as well as in Rouyn-Noranda, Saint-Hyacinthe, Vaudreuil in Quebec as well as Toronto.

Gendron has a "particular genius... in rendering the technicoloured dream, the so-called reality as presented by the media", states the Museum poster accompanying the exhibition.

The exhibition, called *Québec télé et compagnie*, is funded by National Museums Canada. Following its presentation in Paris, it already has been booked as far ahead as next December.

## Gendron the man

Gendron was born in 1912 at Saint-Marc-des-Carrières, Portneuf county, Quebec, to settler-parents. After a brief education, he became a lumberjack. To escape poverty, he moved to Montreal and when the Second World War broke out, he joined the Canadian Armed Forces. After demobilization, he used the training he had received as a commando to become a boxer. Then he became a wrestler and an acrobat. He even tried show business and, for a time, performed in cabarets as an actor or a singer. He was, however, unsuccessful and was forced to turn to manual labour, including work as a miner. When he fell seriously ill in 1950, he began to paint.

Gendron's first exhibition was at the Saidye Bronfman Centre, Montreal, in 1974. Three paintings were sold. The same year, *Vie des Arts* published an article on him. In 1975, German television personnel travelled to Montreal to film the man and his work.

The artist, using a matchstick and toothpicks, applies layers of commercial enamel, usually on masonite. His vibrant colours are obtained by superimposing layers of paint. The work consists mainly of portraits of celebrities from photographs – President Kennedy, Pope Pius XII, René Lévesque, John Diefenbaker,

Churchill – even Hitler is included. Other public figures are of Marilyn Monroe shown nude on a river bank separating her from an adoring public; Lise Payette interviewing Prime Minister Trudeau; and the one that Gendron considers to be his masterpiece – Charlie Chaplin – which took him more than a year to complete.

## Library acquires historic titles

The National Library recently added about 1,000 titles of Canadiana to its collection by purchasing part of the library of the Olivier family of Joliette, Quebec.

Réjean Olivier, a librarian of the Collège de l'Assomption, Joliette, spent more than ten years making a ten-volume manuscript inventory of his entire 12,000-volume collection.

Among the more interesting titles are those on Frédéric-Alexandre Baillargé, the versatile Canadian writer, and his family, and those on Université Laval's dispute in Montreal. There is also a fairly exhaustive collection of books written in and on the subject of Joliette and surrounding region since the establishment of that town's printing house.

The highly prized six-volume *Histoire et description de la Nouvelle-France*, by Pierre Charlevoix, published in Paris by Pierre François Giffard in 1744, and Etienne Faillon's *Vie de soeur Bourgeoys*, published in Ville-Marie by the Sisters of the Congregation of Notre-Dame in 1853, are among the publications of historical interest that were acquired. The following are also worthy of note: the *Manuscrits venus de Ste-Hélène d'une manière inconnue*, by Jacob Lullin de Chateaueux (Montreal, 1818), *Papers and See of Kingston* (Brockville, 1856), the leaflet entitled *Comité pour promouvoir le commerce du Bas-Canada et du Haut-Canada*, dated at Montreal, April 30, 1821, and Benjamin Franklin's *Ecrits populaires*, DeBartzch, des presses de l'Echo du pays, 1834. DeBartzch publications are difficult to find nowadays.

## Religion and education

The National Library's collection is now also enriched by many documents on religious affairs in French Canada, namely pastoral letters by bishops such

as Monseigneur Joseph Octave Plessis, covering the period 1806-1820, Monseigneur Panet, dated April 9, 1832 at Quebec City, and Monseigneur Ignace Bourget (1846-1850). These pieces are extremely rare, the oldest being *Soli Deo Gloria*, the pastoral letter of Monseigneur Jean François Hubert, published in Quebec City in 1788.

There is also a great deal of documentation on education in Canada between 1900 and 1950, especially in Quebec and the Laurentian Mountain region.

### Mineral development in Newfoundland

A federal/provincial agreement representing a second major step towards full development of Newfoundland and Labrador's mineral resources was signed last month in St. John's. It is the thirteenth subsidiary agreement to be concluded between the federal department of Regional Economic Expansion and the province since the Canada/Newfoundland general development Agreement was signed in 1974. It will provide \$12,458,000 over five years for the identification and further development of the province's mineral resources. The Federal Government, will contribute 90 per cent of the agreement costs; the provincial government will contribute the remaining 10 per cent.

The agreement provides funding for three major programs: mineral evaluation, mineral development, and mineral resources management.

The mineral evaluation program consists of surveying and detailed mapping of several regions of the province. Priority will be given to areas with the highest known mineral potential.

The data produced from these surveys will help stimulate greater exploration

by the private sector, and will aid in the selection of target areas for more detailed mapping.

The mineral development program provides for the assessment of mineral deposits on crown land, and evaluation of their development potential. Market studies will be carried out for the province's most promising mineral resources, and where justified, promotion activity will be initiated to interest the mining industry in the commercial prospects of particular mineral deposits.

An information system for the storage and retrieval of mineral resources data

will be developed in co-operation with the technical staff of Energy, Mines and Resources, and four buildings for mineral sample storage will be constructed in strategic areas of the province.

The mineral resources management program will undertake research in the fields of mineral resource planning, land tenure, mineral taxation, and more stimulation of local processing of mineral resources. It is expected to result in government policies which encourage exploration and development while providing maximum social and economic benefits for Newfoundland.

### News briefs

- Canadian Ambassador to the United States J.H. Warren and U.S. Assistant Secretary of State Julius L. Katz, signed on January 26 an agreement between Canada and the U.S. concerning transit pipelines. This agreement, which was initialled by chief negotiators in January, would confirm in both countries a regime of non-interference and non-discrimination for existing and future pipelines carrying oil or natural gas destined for one country in transit across the territory of the other.
- Parliament re-opened on January 24 following a 32-day Christmas break. Among other things, MPs will debate whether their deliberations should be televised.
- Premier Ed Schreyer of Manitoba has suggested that a federal Royal Commission study the storage and disposal of spent nuclear fuel if this were found necessary to help allay public concern. He told a staff seminar at the Atomic Energy of Canada research establishment on January 11 that nuclear generation of electricity appeared an alternative energy source. If this alternative is meeting public resistance in some quarters because of concern or mis-information about potential hazards of this form of energy production, then a Royal Commission approach, with full fact-finding and analysis capability, should be undertaken, he said. "Then we can get on with the job of substituting one mode of energy to replace our grotesque overdependence on oil and natural gas."
- Details of a \$65-million program

expected to result in almost a quarter of a million jobs for Canadian students were announced by Manpower and Immigration Minister Bud Cullen on January 18. By mid-February more than 300 Canada manpower centres for students will be in operation throughout the country to solicit summer job orders from employers and accept registrations by young people. Last summer on a budget of approximately \$24 million, the program placed about 200,000 young people in temporary jobs in the private sector and created 12,160 jobs in the public sector. This year, approximately the same number are expected to be placed in the private sector and some 37,000 students will find jobs with federal projects.

- Housing starts during December were at a seasonally adjusted annual rate of 296,000 for all areas according to preliminary figures issued by Central Mortgage and Housing Corporation. The November rate was 302,800. Actual starts in urban areas in December were 17,140, a decrease of 13 per cent from the 19,758 recorded in December of last year. During the 12 months of 1976 starts totalled 209,244 dwelling units compared to 181,846 a year ago.
- Quebec food scientists have come up with rivals for Switzerland's famed Gruyere and Netherlands' Gouda cheese. The new cheeses, labelled Quebec Gruyere, Quebec Gouda, and Richelieu, were developed by Dr. Marcel Gagnon, director of the Research Centre for Applied Science at the University of Quebec in Montreal. Dr. Gagnon became interested in developing cheese in Quebec because that province has 52 per cent of all the cows in Canada.

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

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*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.*