



Bulletin

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CANADA DEVELOPMENT CORPORATION BEFORE PARLIAMENT

A bill providing for the establishment of a large private corporation, the aim of which was stated to be that of helping to "develop and maintain strong Canadian-controlled and Canadian-managed corporations in the private sector," and "to provide greater opportunities for Canadians to invest and participate in the economic development of Canada", was introduced recently in the House of Commons by the Minister of Finance, Mr. E.J. Benson. A recent release from Mr. Benson's office has the following to say about the projected Canadian Development Corporation:

The Corporation will help shape and secure future Canadian development. It will be a large-scale source of capital to create major new enterprise. It will join others in acquiring and rationalizing existing companies where competitiveness may be improved by merger, amalgamation or other corporate arrangements. In helping to bring about these changes it will reduce the risks of an undesirable degree of foreign control of the enterprises concerned. Its activity will involve close relationships with the business and financial community.

The CDC arrives at a time when large international companies are playing an important and ex-

panding role in the economic development of many countries, and when Canadian companies must be able to compete at home and abroad by combining management and technical skills with financial size and strength.

Able and experienced entrepreneurs will direct the Corporation's operations to areas of critical importance in economic development - to high-technology industry, to resource utilization, to northern-oriented companies and to industries where Canada has a special competitive advantage.

The CDC will assume significant equity positions, generally more than \$1 million, with its investments. Whether its investments are made independently or in concert with other corporations, they will aim at ensuring Canadian control. Generally, the CDC will not seek to exercise direct operating control of the corporations in which it invests and they will therefore not normally become CDC subsidiaries.

It is a principal objective to have CDC shares widely held. Shares will be sold to the public in competition with all other investment vehicles, and the bill specifically directs the CDC to invest for profit in the best interest of the shareholders. The CDC will act in the broad area in which the national interest and the profit motive are compatible. The CDC will seek to develop balance and diversity in its holdings....

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RELATIONSHIP WITH GOVERNMENT

The Government will initially hold all the shares issued.

Government purchase or underwriting of CDC shares may not exceed \$250 million, apart from shares or securities received in exchange for the sale of Crown companies to the CDC.

The Government will make available the \$250 million in equity capital to the Corporation during the first three years, limiting its obligation to \$100 million in the first year and \$75 million in each of the next two years.

The Government will also have authority to lend \$100 million to the Corporation.

The Governor-in-Council will be given authority to sell to the CDC at a fair and reasonable price the Government's interests in the following: Polymer Corporation Limited, Eldorado Nuclear Limited, Panarctic Oils Limited and Northern Transportation Company Limited.

In addition, the Minister of Finance may ask the Governor-in-Council for approval to convert Northern Canada Power Commission into a corporation for sale to the CDC.

DIRECTORS

The CDC will have a board of 18 to 21 directors. The Minister of Finance will have the option of voting the Government's shares or appointing annually up to four members of the board. All other directors are to be elected in the normal way by shareholders.

Until Government holdings are reduced to less than 50 per cent of total issued and outstanding voting shares, the Deputy Ministers of Finance and of Industry, Trade and Commerce will also be non-voting members of the board.

All directors must be Canadian citizens and the majority of directors must be residents of Canada.

SHAREHOLDERS

The Corporation will be uniquely Canadian, with its voting shares held only by Canadian citizens and residents of Canada. Non-voting preferred shares may, however, be held by both residents and non-residents unless bylaws stipulate otherwise.

No individual shareholder or group of associated shareholders, with the exception of the Government of Canada, may hold more than 3 per cent of the outstanding shares of the Corporation.

The Corporation will have power to require declarations from shareholders if necessary to determine their citizenship, residence and extent of holdings.

CDC shares will be authorized investments for insurance, loan and trust companies, subject to federal law.

OTHER POWERS

In addition to its broad powers of direct investment and participation in joint action with other Canadian investors, the CDC will be empowered to lend to other companies, guarantee their contracts and assist them in other ways. It will be able to apply to any stock-exchange for listing of its shares and securities. It will be able to operate outside Canada where this is directly necessary to promote development in Canada or Canadian ownership of our resources.

The CDC will not be an agency or Crown corporation responsible to Parliament. It will be a private corporation operating basically within the provisions of the Canada Corporations Act. But because it is created by an act of Parliament, any change in the capital structure, objects and powers of the Corporation passed by the directors and share-

holders will require approval by a resolution passed by both Houses of Parliament.

REPURCHASE

To make it possible for the Corporation to achieve the maximum possible degree of public ownership of its shares, the CDC can reduce shareholdings of the Government to 10 per cent by repurchasing the Government's shares at not less than the average price paid by the Government for those shares, or, in certain circumstances, at their net asset or "break-up" value. It is expected that the Government will want to show a continued interest in the Corporation and that it will normally keep its holdings of voting shares at a minimum of 10 per cent.

The CDC will also have the power to redeem shares illegally held. These would include voting shares that have come to be held by non-residents and shares that bring individual or group holdings to more than 3 per cent of the outstanding total.

The Corporation is given the further power to buy its own common shares in the market out of surplus funds, when specifically authorized by its board of directors, and subject to any regulations established by Order-in-Council. These transactions must be made public under the "insider trading" terms of the Canada Corporations Act.

For income tax purposes, the funds used by the CDC to redeem or purchase its common shares will not be considered to be a distribution of the profits of the Corporation - that is, as taxable dividends. Consequently persons whose common shares are redeemed or purchased by the CDC will be in the same tax position as if they had sold these shares to a third party.

STUDENT ACTORS

A theatrical company made up entirely of high-school students recently concluded a successful two-week tour of the Ottawa area. The Student Young Company is the product of the youth program section of the National Arts Centre (NAC) in co-operation with several boards of education in the capital region.

Believed to be the first of its kind in Canada, the project was based on a new idea of "activist" teaching in the arts. Students missed three weeks of their regular classes in order to rehearse and perform under professional direction; they then returned to their schools to share the knowledge they had acquired.

Each of the 21 school performances, which lasted for about 50 minutes, was followed by a short question-and-answer period. The response from the student audiences left no doubt that they were more deeply moved by these presentations than they had been in previous years by professional companies. (The schools paid a fee of \$150 for each performance.)

SLEEP LOSS AND OTHER STRESSES STUDIED

Had a sleepless night? How efficient and accurate were you at the controls of your car this morning?

Sleeping, like eating, is a basic need of mankind. As we go about our everyday work, we are continually processing information in terms of its predictability or uncertainty. Your performance as a controller of your car, for example, is dependent on your ability to process the information you receive through your senses and to make the appropriate control actions. If you drive to work, you can predict the journey you will take to a fairly reasonable extent, the traffic you will encounter, the buildings you will pass and the streets you will travel. Generally, all these things are highly predictable and, should you be suffering from lack of sleep, you probably will be able to cope with them.

But occasionally an uncertain or improbable event occurs. Because it is improbable, it happens infrequently, and it is then that you may find yourself in trouble. If a motorist has been deprived of sleep, how will he react, and what length of time will it take for him to react? A motor-car may not travel too far in a tenth of a second and a motorist may be able to take evasive action if he runs into difficulty. But what about the pilot of a jet aircraft travelling at supersonic speeds?

Since man's information-processing capacity is affected by psychological stress induced by such circumstances as loss of sleep, interrupted sleep, alcohol consumption, or fatigue, it is of critical importance to control-systems designers to know the precise nature of this change.

What effect, then, does loss of sleep or any form of stress have on skill performance?

ENGINEERS AND PSYCHOLOGISTS

For the last four years, engineers and psychologists in the Control Systems Laboratory of the Division of Mechanical Engineering of the National Research Council of Canada have been trying to design instruments capable of determining how humans react when performing tasks under stress. This information will be used in the design of control systems that will permit the human operator to give his best performance in the control of the machine he operates.

Why are psychologists involved in this research? Besides being a controller, the human being is also a machine, and psychologists must obtain some knowledge of how that machine works — how the human controls his own behaviour — in order to assist the engineers.

In 1966, the late Dr. C.B. Gibbs joined NRC's Control Systems Laboratory to continue work he had

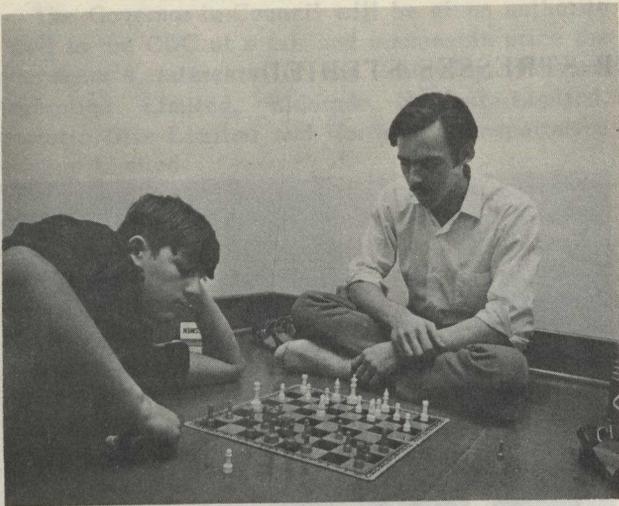


Subject tracks moving light on the stressalyzer as engineers and psychologists in the Control Systems Laboratory record his reaction and movement times.

undertaken during the Second World War on the design of control systems. In order to study movement control (the relation between what you see happening with your eyes and what you feel is happening with your limbs), Dr. Gibbs invented an instrument known as the "stressalyzer". It consists of a steering-wheel that controls the movement of a pointer. Behind the pointer are five positions that can be lit up in turn. The subject's task is to align the pointer with the illuminated position, and to follow the light as it jumps between positions. One feature of the instrument is that the pointer moves the opposite way to the steering-wheel. But its more critical feature lies in the fact that the possibility of predicting the next movement changes from position to position.

"Suppose," says Dr. Leslie Buck, a graduate psychologist from London University, who joined the Control Systems Laboratory in 1967, "that the operator is aligning the pointer with the far-left position. He knows that on the next movement the light will change and he will have to move to the right. Similarly, movement from the far-right position is what is called unequivocally determined."

From the middle position, however, the operator may have to move to the left or the right, each possibility being equally probable — or "equi-probable". From the intermediate position, again, left *versus* right movements are possible in the ratio 1:3. "Thus," says Dr. Buck, "from these positions movements towards the centre of the display are more probable, and movements towards the extremity are improbable."



A wide range of activities was planned to keep subjects awake when they were not being tested - card-playing, chess, watching television, reading, etc.

As the subject tracks the moving light, the probability of the movement he will have to make next varies continuously, and it may be unequivocally determined (that is, completely predictable), probable, equiprobable, or improbable. "This feature of the stressalyzer is a very important one, because we have discovered that the effect stress has upon performance depends on the probability of which way the light moves," Dr. Buck says.

MAN AS MACHINE

What happens when a subject works under stress or adverse conditions? If a machine is made to work under adverse conditions to the point where it develops faults, one can infer how the machine works. Similarly for humans - if they are subjected to stress so that they commit errors, one can infer from the errors what kind of machine they are.

Using sleep-deprivation as the stress, the Control Systems Laboratory tested a dozen paid volunteers, ranging in age from 15 to 18, who remained awake for 48 hours, from Friday morning to Sunday morning. They were tested on the stressalyzer to measure their reaction-time (the time taken to decide which way to move the wheel) and their movement time (the time actually taken in moving it).

Subjects got through the first day without difficulty, but as midnight Friday approached their performance deteriorated. This fact bears out the circadian rhythm effect, according to which performance fluctuates during a 24-hour period, with peak periods and low periods. Body temperature plays a part, reaching a peak in the afternoon and a low point about two in the morning.

During the night, the subjects kept each other awake with the help of their supervisors and were tested at four-hour intervals. The most difficult

period came with sunrise, about five o'clock in the morning. By seven the group had to fight to stay awake, by walking about, washing, talking, etc. They recovered about nine o'clock Saturday morning, and spent the remainder of the day being tested, playing chess, eating, reading and watching television. They were able to remain awake during the second night, but again, the most difficult period was at sunrise. By this time they were completely exhausted and, says Dr. Buck, "some of them later told me they went home and slept the clock around".

A second weekend of testing produced virtually the same results. On both weekends, it took the subjects longer to respond to an improbable situation than a probable one, but the effect of sleep-deprivation, which was to slow down their responses, was most obvious with respect to improbable events.

The performance of many extremely complicated systems - automobiles, aircraft, cranes, bulldozers, complicated industrial machinery, for example - is a function of the characteristics of the human operator combined with those of the mechanical system. Hence the practical aim of this research is the improvement in man-machine control systems. In addition to trying to assist management in industrial plants that employ shift workers who may be subjected to increased sleep-loss, the Laboratory is also attempting to obtain standards like those for materials, physical standards, structural standards, etc.

TRAVEL SEMINARS FOR NURSES

Mr. John Munro, Minister of National Health and Welfare, has announced the inauguration of the first of three seminar-type projects for the benefit of leading nurse educators in Canada. Representatives from 22 university schools of nursing have been invited to visit isolated and semi-isolated communities of the North to observe at first hand the programs for health care provided by the Medical Services Branch of his Department.

The first northern travel course, which began on January 18 with a two-day briefing session at the Northern Region office of Medical Services in Edmonton, Alberta, was taken by 11 nurse educators.

The group attended a one-day orientation session at Inuvik in the Northwest Territories before being flown to isolated nursing-stations to participate in the nursing activities of field programs. There they undertook such assignments as conducting medical clinics, assessing the condition of patients, and admitting them to the station, observing confinement; and planning with community health workers. They also met with local health committees or community chiefs and councillors.

This field experience will enable nursing teachers to interpret to their students the needs of Canadians living in the North and to adapt and expand the education of nurses to meet those needs.

GRAINS POLICY PROPOSALS

The Minister responsible for the Canadian Wheat Board, Mr. Otto E. Lang, recently announced that the Federal Government was prepared to increase very substantially its commitment to the Prairie grain industry. This, he said, would be the effect of implementing the policy proposals made public at the end of October last year. Excerpts from the Minister's statement follow:

In the past, the Government's role has been primarily to assist on the production side through the Department of Agriculture and to provide a mechanism for pooling marketing opportunities through the Canadian Wheat Board. The proposals that I have put forward for discussion would extend this commitment to include active Government participation in market development, provision of meaningful and direct information on which farmers can base their decisions on the proper crops to produce each year and substantial participation in a plan which would shield farmers from violent annual fluctuations in cash receipts because of changing marketing conditions.

The programs that have been suggested are designed to help make the business of growing grain a more profitable and reliable one. It must be apparent to all who consider the matter carefully, however, that the main source of the revenues which must maintain the grain farmer is not the Canadian taxpayer but the customer. It is for this reason that the programs are aimed at securing the maximum possible return to farmers from the market-place.

SUBSIDY NOT THE ANSWER

An industry in which the revenues at the best of times are insufficient to maintain the persons employed in the industry with an adequate standard of living would be a sick industry indeed. To maintain such an industry through payment of subsidies from tax revenue would require an overriding social objective to prevent the movement of the people in this industry to other employment. This would, in effect, be the result of implementing suggestions which are made from time to time that the Federal Government provide whatever sums of money would be required to assure that persons engaged in the business of grain farming always received an adequate

net income from farming, regardless of the value to Canada of their production.

I do not believe that the grain industry is or needs to be perpetually poor. I believe, and I think most grain farmers believe, that the Western grain-producer can compete in international markets. I believe that with the marketing efforts that have been and will in the future be made by the Canadian Wheat Board, combined with the strong market-development effort by the Federal Government, revenues from the sales of grain in the future will in many years be sufficient to maintain a strong and viable grain industry.

GRAINS STABILIZATION PLAN

Despite the basic strength of the industry, we must recognize that it is subject almost completely to the vagaries of the international market-place. While receipts in many years will be adequate to maintain the industry, there will undoubtedly be years in the future, as in the past, when the markets will just not be there. It is to deal with these circumstances that I have proposed the Grains Stabilization Plan. The plan does not guarantee that the farmers income will always be adequate, or that the industry will always remain able to support the number of farmers that are in it. What the plan does is to assure that whatever size of grain-farming industry can be supported by the revenues from marketings on the average will be maintained without disruption or hardship through those years that fail to reach the average.

I believe that the competence of the Prairie farmer, the advancements in Canadian agricultural technology and the aggressive marketing system which we will have in the future will permit the grain industry to continue to be viable through revenues from sales in most years. The Grains Stabilization Plan will provide the method by which the Federal Government will pay a very substantial part of the cost of carrying the industry and the farmers who participate in it through those individual years which would otherwise cause hardship to the farmers and their families and serious injury to the strength and viability of the industry in total.

UNEMPLOYMENT INSURANCE CLAIMS

During November 1970, 204,000 claims for unemployment insurance benefit were filed, 61,000 (43 per cent) more than in October, and 38,000 (23 per cent) more than in November 1969.

The 480,000 people claiming benefit at the end of November included 81,000 (21 per cent) more than

those who claimed at the end of October, and 131,000 (38 per cent) more than at the end of November 1969.

Benefit payments totalled \$37.6 million in November, \$40.4 million in October and \$27.6 million in November 1969. The average weekly benefit payments for these three months were \$35, \$34.62 and \$33.17 respectively.

STAMP PROGRAM

In a news release issued last September, the Post Office Department outlined the subjects to be commemorated in its 1971 stamp program. To these has been added a special issue to honour Quebec's former Minister of Labour and Immigration, Pierre Laporte, who was assassinated in October. This stamp, commemorating the fiftieth anniversary of the year of Mr. Laporte's birth, will be issued in October 1971.

The dates on which the 1971 special and commemorative stamps will be released are as follows:

February 12 - hundredth anniversary of the birth of Emily Carr;

March 3 - fiftieth anniversary of the discovery of insulin;

March 24 - hundredth anniversary of the birth of Sir Ernest Rutherford;

April 14 - maple leaf in four seasons - spring;

May 7 - hundredth anniversary of the death of Louis Joseph Papineau;

May 7 - two-hundredth anniversary of Samuel Heame's expedition to the Coppermine River;

June 1 - centennial of national census-taking;

June 1 - opening of the new Canadian Broadcasting Corporation International Service transmitters;

June 16 - maple leaf in four seasons - summer;

July 20 - hundredth anniversary of British Columbia's entry into Confederation;

August 18 - hundredth anniversary of the death of Paul Kane;

September 15 - maple leaf in four seasons - autumn;

October 6 - Christmas;

October 20 - fiftieth anniversary of the year of the birth of Pierre Laporte;

November 12 - maple leaf in four seasons - winter.

STUDENT EMPLOYMENT CONFERENCE

The Canadian Council on Social Development, in response to what its director recently termed an "explosive" youth-employment problem, will convene in Ottawa at the end of February a three-day national conference of about 175 individuals and agency representatives to discuss with federal officials the summer employment of students and services for transient young people. The announcement was made by Reuben C. Baetz, executive director of the Council, at the recent biennial conference in Regina, Saskatchewan, of community funds and councils of Canada.

RESULT OF SURVEY

Mr. Baetz told the meeting:

"We have been moved to act as a result of our recent cross-country survey of transient-youth

programs during the past summer and because of the growing number of representations from agencies such as community funds and councils, as well as provincial and municipal government bodies, to convene such a meeting before Federal Government plans have 'gelled' for the coming summer....

"We do not question the prerogative of the Federal Government to make final decisions on the degree and extent of its participation in services to transient youth and student employment opportunities.

"However, we are convinced that prior consultation with an adequate representative group of provincial and municipal officials, non-government bodies and, of course, the youth themselves, will immeasurably strengthen and facilitate implementation of any federal plans."

Mr. Baetz said the Council's survey showed that, though some Canadians were prepared to accept as inevitable some of the shortcomings of the Government's 1970 hostel crash program, it was clear that many would be much less tolerant if future measures were not more fully related to and supportive of local effort.

TANZANIA DEVELOPMENT PLAN

Mr. Mitchell Sharp, Secretary of State for External Affairs, announced recently that Canada would provide \$4 million for the development of agriculture, forestry and electric power in Tanzania. This program of technical and economic assistance will be financed by the Canadian International Development Agency under three agreements signed recently in the East African country.

Tanzania will purchase Canadian equipment and material for its growing power-transmission network through an interest-free \$2-million development loan. Energy demands in Tanzania are rising about 11 per cent annually, and with assistance from the World Bank, Canada and Sweden, the Government plans to spend about \$65 million on power-generation and power-transmission projects in the next four years as part of its program of rural development and economic decentralization.

An inventory of Tanzania's five most important timber-growing areas will be carried out by Canadian consultants during the next three years under a CIDA development loan of \$800,000. This survey is an essential first step toward a forest industry planned to include logging units, sawmills and plywood factories.

Through the third agreement, CIDA will provide technical assistance for five years to help solve some of the most urgent problems limiting cereal production in Tanzania. The field work and research will be carried out by about ten specialists provided by the Canada Department of Agriculture; a foundation will be set up to provide continuing research on crop improvement; and Tanzanians will be trained to assume technical and professional staff positions.