

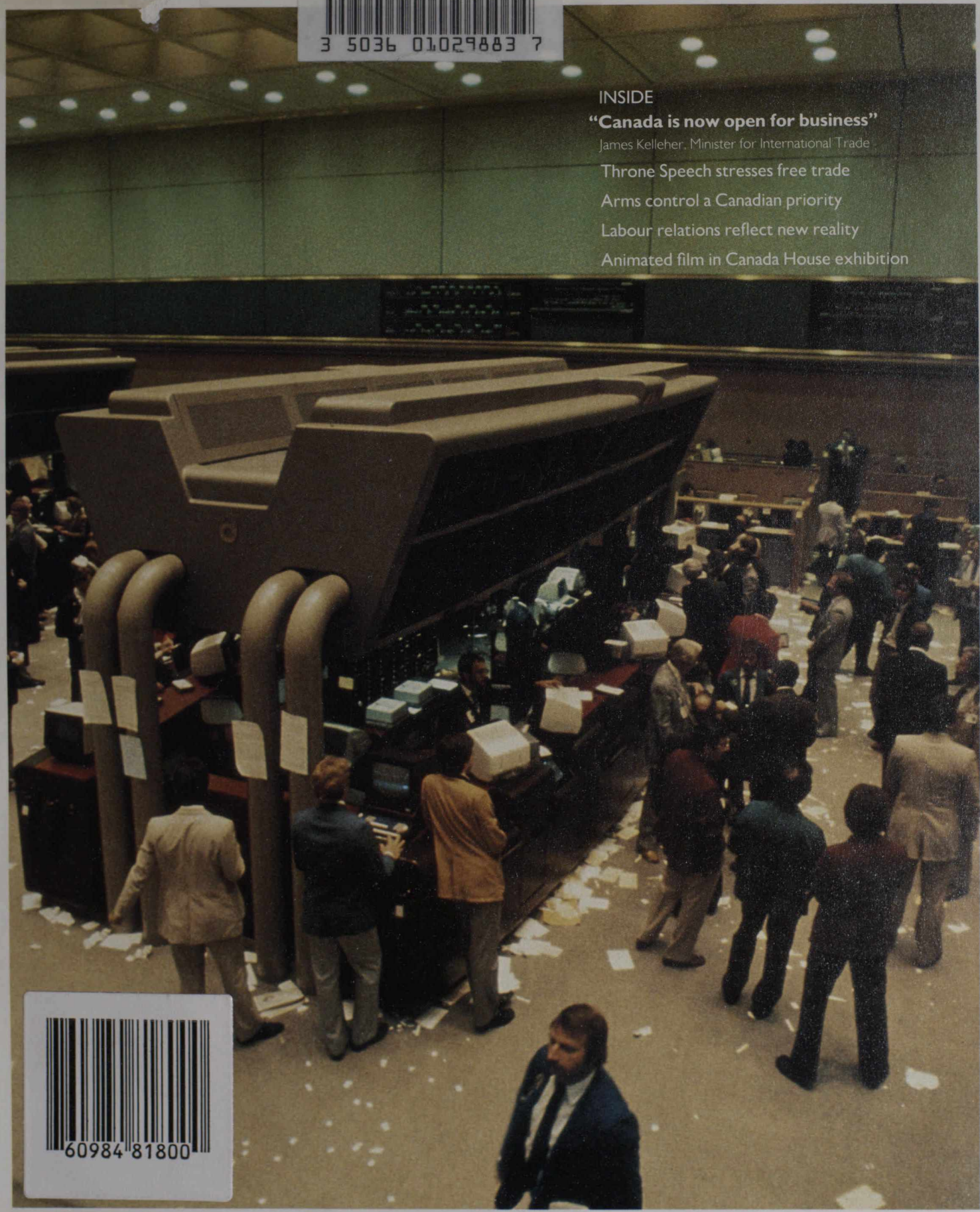
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Editors
Richard Starks
Miriam Murcutt

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*Other Canadian
government offices in the
United Kingdom*
Canadian High Commission
Macdonald House
1 Grosvenor Square
London W1X 0AB
Tel: 01-629 9492

Canadian Consulate-General
Bristol & West House
2 St Philip's Place
Birmingham B3 2QJ
Tel: 021-233 2127

Canadian Consulate-General
Ashley House
195 West George Street
Glasgow G2 2HS
Tel: 041-248 3026

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Editorial

It's three months since the Progressive Conservatives won a landslide victory in the Canadian federal election, and now some clearly defined policies are beginning to emerge and be locked into place.

As the Speech from the Throne opening the 33rd parliament stressed, Canada is moving towards a 'renewed internationalism'.

That means, among other things, a commitment to free trade - not just as a way of helping the developed nations turn their backs permanently on recession, but also as a way of helping the developing nations ease their burden of debt and build up their economic strength.

It also means a renewed commitment to attract foreign investment into Canada, and to show that Canada is a 'reliable and profitable place to do business'.

At the same time, it is a reaffirmation of Canada's role as an active proponent of world peace and nuclear disarmament - what Prime Minister Brian Mulroney calls 'the central issue confronting our generation'.

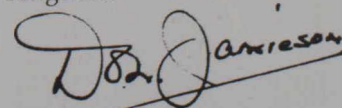
The new government has promised a review of

the Canadian armed forces and of the role they will play in the 1980s and beyond, and it has reiterated its lasting commitment to its allies in NATO.

These topics form the basis of many of the articles in this issue of *Canada Today*. But in addition, we take a look at some of the upcoming events being organised at Canada House - in particular, a major exhibition of animated film that will be presented in the new year.

The exhibition is unusual because it will offer a rare glimpse of an artform that is not widely appreciated or understood. Yet it is an artform that is highly developed both aesthetically and technically.

At the same time, we point out that some recent changes in film policy in Canada are affecting the way that Canadian films are financed - and that could have important repercussions for producers here in the United Kingdom.



Canadian High Commissioner

Canadian Speech from the Throne stresses free trade, world peace

Dept. of External Affairs
Min. des Affaires extérieures
OTTAWA

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Prime minister Brian Mulroney at the opening of Canada's 33rd parliament. Behind him is Governor-General Jeanne Sauvé.

Photo: United Press Canada Ltd

Canada's new government has committed itself to a 'renewed internationalism' that will make it a strong proponent of free trade, an active participant in building what it hopes will be a healthier world economy, and a defender of freedom and world peace.

These objectives of Canada's recently elected Progressive Conservative government were spelled out last month in the Speech from the Throne, which opened the first session of Canada's 33rd parliament.

Reading that speech as the representative of the Queen, Canadian Governor General Jeanne Sauvé said 'Canada has a vital stake in the elimination of barriers to trade, commerce and investment on a global basis. In this connection, there is an urgent need for a concerted attack on non-tariff barriers, which have become increasingly insidious and more prevalent.

'Acknowledging that no country, including Canada, is blameless, my government declares its willingness to do its part in a renewed multilateral effort to remove these obstructions in the international marketplace.'

These efforts would not only promote trade and prosperity among the developed nations, but they would also greatly assist the developing nations. Said Mdme Sauvé 'It is striking to observe how much hardship has occurred, how much debt burden has increased, how much economic activity has been held back in developing countries because of world recession, unstable markets and trade barriers.

'A successful attack on these problems will accelerate economic development and social progress in many of these countries. The alleviation of unconscionable human misery will result.'

Review of defence forces

On the subject of defence, the new government announced plans for a major review of the part its armed forces will play in the immediate future.

'My government is convinced,' Mdme Sauvé said, 'that Canada's defence forces urgently require

a new definition of their role, in keeping with present-day conditions. The strategic context in which we defend our own territory and that of our allies has changed considerably since the early 1970s, when the government last carefully considered this matter.'

At the same time, the government assured the military that they would be given the resources they need to do their job; and it reiterated its on-going commitment to NATO.

'My government is determined that Canada will again play its full part in the defence systems of NATO. Only in this way do we earn the right to full consultation and participation in the policies of that alliance.

'From this prudent and responsible position, Canada will work unceasingly with other nations, in every available forum, to halt the spread of nuclear weapons and prevent their development and use.'

Improved market efficiency

On the economic front, the Throne Speech promised steps that would 'reduce the (federal) deficit in an orderly, balanced and fair manner, and to control the growing burden of the public debt.

'That we must deal urgently with the deficit is beyond dispute. If allowed to continue to grow out of control, it will consume our available financial resources, undermine our capacity to respond to new opportunities, put increased pressure on interest rates, and inhibit investment and growth in our economy.'

The Speech also stressed a new commitment to improve the efficiency and flexibility of Canada's capital markets; to promote a more market-orientated economy through changes in competition laws and in the regulatory framework; and to encourage risk-taking, innovation and entrepreneurial initiative. It also promised renewed efforts to stimulate investment, both domestic and foreign.

Said Mdme Sauvé: 'My government is determined to regain Canada's reputation as a reliable and profitable place to do business.'

Container pier, Halifax: Speech from the Throne calls for a "concerted attack on non-tariff barriers" as a way of promoting international trade.



Photo: National Film Board of Canada

Arms control a priority for Canada's foreign policy



Canada to 'enhance its contribution to the Western alliance'.

Last month, former Canadian prime minister, Pierre Trudeau, was awarded the US\$50,000 peace prize that is offered each year by the Albert Einstein Peace Foundation in Washington. Trudeau won the prestigious award for his 1983 peace crusade and for the nuclear suffocation proposals he first outlined to the United Nations in 1978.

The promotion of world peace and the pursuit of nuclear sanity have long been important goals for Canadian foreign policy. Under the new Progressive Conservative government, that emphasis will be maintained.

In one of his first addresses after his election victory, Prime Minister Brian Mulroney reiterated his government's commitment to what he called 'the central issue confronting our generation—the prevention of nuclear war and the need to inaugurate an era of assured peace for all the world.'

'No matter how much we may accomplish here in Canada, I will have failed in my most cherished ambition if, under my leadership, Canada has not helped reduce the threat of war and enhance the promise of peace,' Mulroney said.

'Canada is not a superpower, nor are we neutral in the struggle between freedom and totalitarianism. Canada is a member of the western alliance, and our government is determined to enhance our contribution to that alliance.'

'There can be no let-up in our efforts to reduce the threat of war. No matter how frustrating or

difficult, negotiations must be pursued. The exercise of political will is nowhere more important than on this issue on whose outcome the lives of our children and of humanity depend.'

Address to the UN

This theme was reiterated by Secretary of State for External Affairs Joe Clark in his first official speech at the General Assembly of the United Nations.

Clark told his audience that the pursuit of peace and arms reduction would be 'a constant, consistent, dominant priority of Canadian foreign policy' under the Mulroney government. 'Canada,' he said, 'is determined to continue to play a leading role in the search for peace and disarmament.'

To that end, the new government would seek progress toward a Comprehensive Test Ban Treaty; encourage superpower discussion on outer space weapons; work for the success of next year's Non-Proliferation Treaty Review Conference; continue its financial support of the World Disarmament Campaign; assist in the mutual and balanced reduction of conventional forces in Europe; and press for a workable ban on chemical weapons.

'Canada's influence is limited but real,' Clark told the Assembly. 'We have no corner on moral authority or technical expertise, but we do enjoy a reputation as a people who are serious about peace and skilled at mediation.'



Three ministers responsible for Canada's foreign relations

Three new ministers are responsible for Canada's relations with the rest of the world. Joe Clark, as Secretary of State for External Affairs, is the senior member of the triumvirate, with James Kelleher as International Trade Minister and Monique Vézina as External Relations Minister.

Charles Joseph Clark was born in High River, Alberta, on June 5, 1939. He has a BA in history and an MA in political science from the University of Alberta, as well as an Honorary Doctor of Law from the University of New Brunswick. In 1983, he was made a member of the Alberta Order of Excellence. Clark and his wife, Maureen McTeer, have one daughter.

First elected to the House of Commons in the general election of 1972, Clark was chosen leader of the Progressive Conservative Party on February 22, 1976. He was sworn in as prime minister on June 4, 1979, following the May 22 general election. His government was defeated in the election on February 18, 1980. Clark was succeeded as party leader by Brian Mulroney on June 11, 1983.

James Francis Kelleher, born on October 2, 1930, in Sault Ste Marie, Ontario, is a graduate of Queen's University and Osgoode Law School. Actively involved in many community affairs, a

few of his positions include: director, Ontario Housing Corporation; president, Plummer Memorial Public Hospital in Sault Ste Marie; member, Sault Ste Marie International Bridge Authority; director, Great Lakes Power Limited; and former chairman of the United Way Campaign. He and his wife Marie have two daughters.

Monique Vézina was born in Rimouski, Quebec, in July, 1935. She has been chairperson and a member of the board of directors of the Fédération des caisses populaires Desjardins du Bas Saint-Laurent for a number of years, as well as secretary and a member of the board of directors of the Confédération des caisses populaires Desjardins du Québec. In addition, she is chairperson of the Gérardin-Vaillancourt Foundation and a member of the board of directors of the Rimouski Chamber of Commerce and Société immobilière du Québec. She has also been very active in the community. She is married with four children.

Altogether, there are 40 ministers in the new Canadian Cabinet, making it the largest in the country's history. Seventeen have had ministerial experience—16 in the government of Joe Clark, and one (Veterans Affairs Minister George Hees) in the government of John Diefenbaker.



Joe Clark, Canada's Secretary of State for external affairs.

Labour relations reflect new economic realities

In the Throne Speech opening the new parliament, the Canadian government reaffirmed its commitment to a market economy both at home and abroad. It also endorsed 'the importance and legitimacy of the trade union movement in Canada' and emphasised the importance of the role that labour will play in the 'consultative process' through which new policies will be formed. It's part of the 'new era of national reconciliation' that the government is building in Canada.

This article looks at the state of the union movement in Canada and how it is living with new economic realities and the harsh bargaining climate brought on by economic restraint.



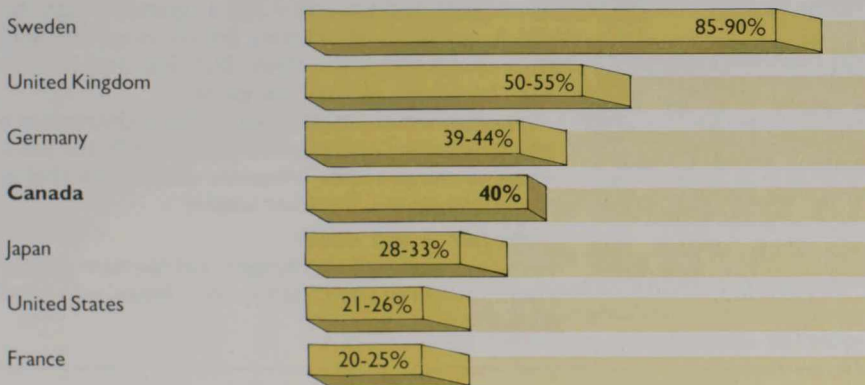
Photo: Ontario House

Modest wage settlements and few work stoppages.

The recent recession saw a steep decline in union membership in many countries around the world, but in Canada the decline was only modest. Now, as the economic climate shows signs of improvement, the Canadian union movement is once again growing in size.

So far this year, there has been a 2½ percent rise in the number of people who belong to Canadian unions. This has taken union membership to record levels, so that about 40 percent of the non-agricultural work force—some 3.65 million people—have now joined a union.

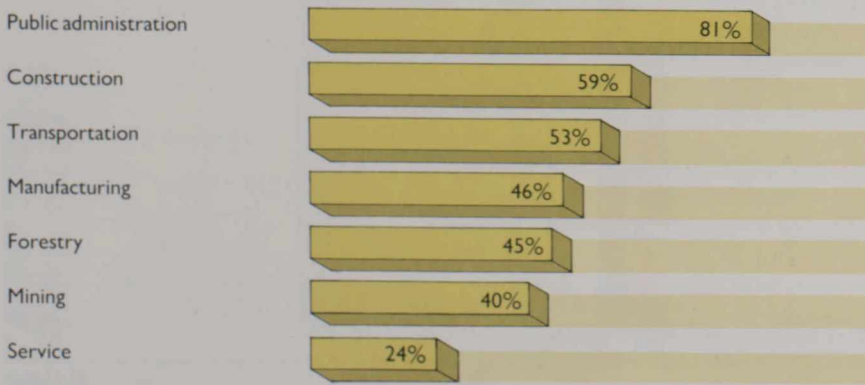
Union membership as a percent of non-agricultural workforce



The recent increase in union membership in Canada is partly due to the success that retail unions have had in organising department-store employees. As an example, a group of workers in the giant Eaton's chain (much to the surprise of the owners) recently voted to form a union in southern Ontario.

This could be a sign of things to come, but for the moment only a fraction (nine percent) of employees in the retail sector are unionised. Also, in spite of an

Degree of unionisation by sector



on-going drive to unionise bank employees, only three percent of the finance sector belongs to a union.

Other major sectors of the economy show much higher degrees of unionisation.

Because labour and management have been sensitive to market and other economic realities, wage settlements have been modest in Canada, and work stoppages have been few.

In the second quarter this year, major collective agreements showed average effective increases of 3.2 percent—the lowest quarterly figure since 1967. When the public sector is excluded, the average drops to 2.8 percent. (These figures are based on 169 agreements. In 44 of these agreements, wages were either frozen or reduced.)

Few contracts affected

As for work stoppages, they affect only about five percent of all negotiated contracts. Also, they result in little lost production or economic dislocation.

In 1981, for example, work stoppages in the private sector involved 952 500 person-days—representing a fraction of one percent of all working time. Furthermore, about 80 percent of this lost time involved just five strikes (three of them in the Canadian Broadcasting Corporation), in which there was no damage done to the economy. Basic services were maintained throughout.

In the few instances where work stoppages have threatened serious economic harm (or have jeopardised international commitments), governments at both the federal and provincial levels have ended the disputes by passing back-to-work legislation.

Two years ago, for example, when there was a lockout involving west coast ports, the federal government legislated an end to the dispute after 16 days. More recently, when employees of the Toronto Transit Commission were contemplating a strike, the provincial government passed legislation outlawing any such work stoppage.

As a rule, though, government intervention in the collective bargaining process has been used as a last resort when all other methods have failed to resolve a dispute. Since 1950, there have been 60 pieces of back-to-work legislation passed in Canada—17 at the federal level and 43 at the provincial level. (Sixteen of the 60 have been in the private sector, with the other 44 being in the public sector.)

Part of the reluctance to intervene comes from the acceptance among Canadians of the right to strike. In a recent survey of public opinion, 56 percent of Canadians thought employees should have the right to strike; 34 percent disagreed (the other 10 percent were undecided).

'Canada is now open for business'

The United Kingdom is Canada's third most important trading partner and its second largest source of foreign investment. It is also the first country that James Kelleher, Canada's Minister for International Trade, visited as a member of the new Mulroney government.

While in London last month, Kelleher addressed the Canada-United Kingdom Chamber of Commerce. The following is an edited version of his speech.

BY JAMES KELLEHER

Things are happening very fast now in Ottawa. Parliament opened with a Throne Speech that set down some of our guidelines – national reconciliation, economic renewal and social justice. And that same week, my colleague, Michael Wilson, the Minister of Finance, delivered an economic and fiscal statement that established our priorities and outlined our directions.

Our basic message is this. There is a new team in Canada. We know where we are going, and we have our act together. We intend to change the approach of the Canadian government, and we intend to change the policies of the Canadian government.

Let me set the scene. On September 4, Canadians went to the polls and gave us what must be regarded – and what we regard – as an overwhelming mandate for change. That mandate reflects a pragmatic judgement about Canada's recent economic performance and problems. The Canadian people also saw an economic world that was changing rapidly, and they wanted our country to keep the pace and seize the opportunities for change.

Four challenges set

The new government is prepared to lead this process of renewal. We have set for ourselves four challenges.

The first is to put our own fiscal house in order. Controlling the budget deficit will be our priority this year and in the years to come. Our immediate goal is to reduce the deficit through reductions in expenditures rather than major tax increases. We are already making progress.

Our second major challenge is to redefine the role of government so that it provides a better framework in Canada for growth and job creation, and less of an obstacle to change and innovation. Programmes designed to assist investment should not have the perverse effect of distorting it. Policies and programmes should not send the wrong signals abroad. We must reduce the regulatory burden, not as an end in itself, but to release the creative energies of individuals and companies to experiment, to innovate and to produce better goods and services at lower prices.

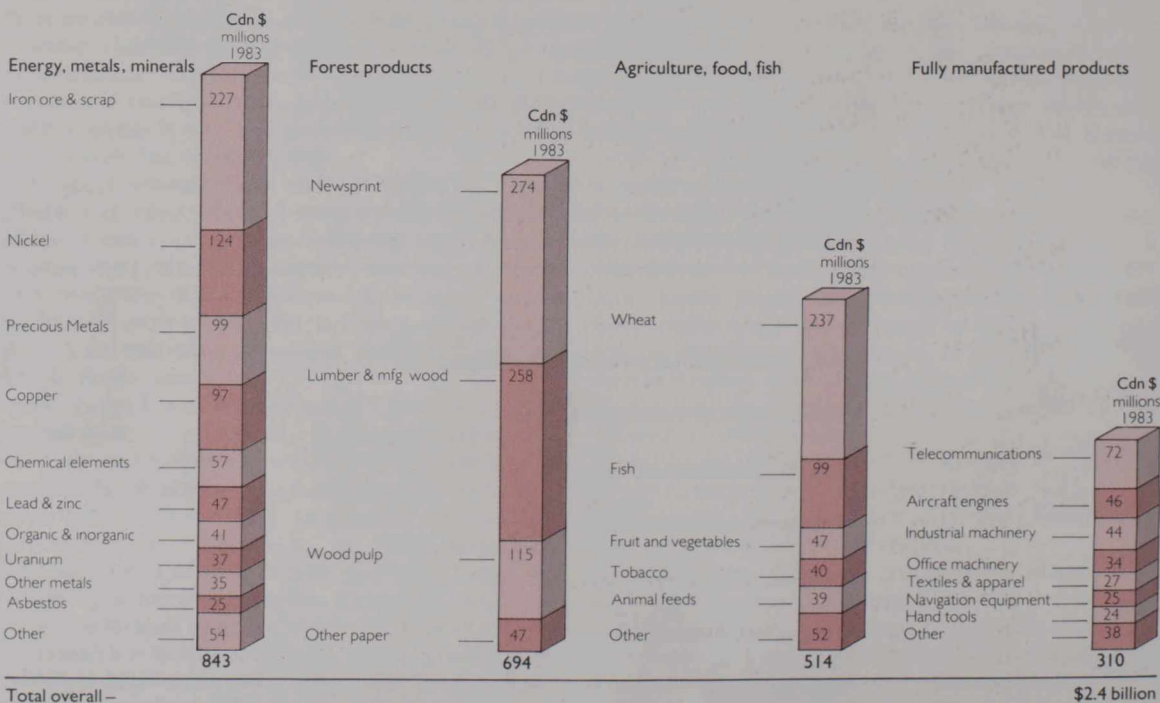
Thus, our third major challenge is to establish a stable policy-framework with proper incentives for investment and growth – not a 'grand design' by which government dictates which industries will grow and which will wither, but clear and reliable rules by which to play the game.

Finally, we must bring about these changes in a way that is fair, open and consistent with the basic sense of compassion, tolerance and justice that is characteristic of Canadian society.

First-class world trader

These are our basic challenges. Let me now go into a bit more detail about two specific areas, trade and investment.

Canadian exports to Britain



Canadian Trade with Britain - 1984



Just as for the United Kingdom, trade is Canada's life-blood. Exports account for almost one-third of our national income. Some two million Canadians work in industries that directly or indirectly depend on exports. Yet our trade performance should be much better. One of the fundamental thrusts of my government will be to refurbish Canada's stature as a first-class world trader.

In addition, the climate for foreign investment in Canada is about to become warmer. We all appreciate that growth depends on investment and that trade and investment are intertwined. Because Canada is an immense country with a relatively small population, much of our investment must come from foreign sources. That is why we appreciate the important role which British investment in our mining, forestry and energy sectors – and in a wide range of manufacturing and service industries – has played in our economic development.

Canada is fundamentally attractive to foreign investors. It is a rich and productive land. It offers an attractive economic climate so that businessmen can expect excellent rates of return from productive enterprise.

My government intends to adopt a more positive stance toward foreign investment. We are going to make changes in the so-called National Energy Programme (NEP). These changes will respond to concerns – from both foreign and domestic investors – about provisions relating to the development of Canada's frontier land, including the 'back-in clause' of the NEP.

In the very near future, we will also propose basic changes in the Foreign Investment Review Agency (FIRA). It will be renamed 'Investment Canada' and will be given a new assignment to seek, encourage and expedite appropriate foreign investment in Canada.

What I am saying, then, is that Canada wishes to become a better place for foreign investors to do business. That is a proposition I hope you will find very hard to refuse.

Strong commitment to UK market

The policies my government will put in place will provide the environment that will enable Canadian and UK businessmen to get on with doing more


business with each other. They will promote the flow of investment both ways – more joint ventures and two-way technology transfer arrangements; more collaboration on third-country projects, which mean so much to our capital goods industries; and increased co-operation in the many and diverse growing services and finance industries.

I also want to stress that Canadian suppliers have a strong commitment to the UK market. They intend to remain reliable and competitive suppliers of basic industrial materials such as newsprint, iron ore, non-ferrous metals, lumber and plywood, as well as basic foodstuffs such as cereal grains and fish. We hope to continue to have increased opportunities to supply further processed and fully manufactured products, reflecting the strength and international competitiveness of Canada's rich resource base.

But let me also raise one or two questions:

- Is there a need for some re-invigoration of the business relationship between Canada and the UK?
- Have we known each other so well and so long that perhaps we have taken for granted the institutional links that bring together UK and Canadian businessmen?
- Can we not build even further on our complementary strengths?
- Are there new ways of bringing corporate UK and corporate Canada even closer together – ways of supporting the efforts of individual businessmen, and ways of providing public policy advice to the respective governments?

Either way, let me reiterate that Canada is under new management and that it is very competent management – competent, realistic and attuned to the challenges of the world we are all going to be living in for the rest of this century.

Canada is now open for business. 

International Trade Minister James Kelleher: '...adopting a more positive stance toward foreign investment.'



International

Experiencing Canada in Canada and via a new Edinburgh course
Edinburgh University students will have a chance to take part in undergraduate classes in Canada during the academic year 1984-85. The University's Centre for Canadian Studies will take a party across the Atlantic in the Easter vacation – when Canadian universities are still in termtime.

Called 'Experience Canada', the programme will give Edinburgh students a first-hand introduction to the country they are studying. The three-week tour is expected to take in two Canadian campuses. 'Experience Canada' has been made possible by a \$9000 (£5500) gift from Canada's largest telecommunications company, Northern Telecom. The Canadian high-technology giant has pledged to renew the grant for the two following years.

The Director of the Centre for Canadian Studies, Dr Ged Martin, hopes to take at least ten students across the Atlantic – more if additional sponsors can be found. 'They will be selected on the basis of their work in Canadian Studies courses,' Dr Martin explained.

'Those who go to Canada will be expected to share their insights in tutorial discussion with other students.'

Edinburgh is Britain's only University to teach Canadian Studies as a major part of a degree programme and the Canadian Studies course has recently been re-designed to emphasise its multidisciplinary character. 'Experience Canada' adds a new dimension to Edinburgh's national lead in this field.

The sponsorship of 'Experience Canada' is not Northern Telecom's first gesture of support for the Edinburgh Centre. In June, Senior Vice-President, Roy T. Cottier, presented a cheque for \$60 000 in support of the first British-Canadian direct satellite seminar, 'Technology, Innovation and Social Change', held on 26 and 27 October.



Lord Burke Trend (L.), Canadian High Commissioner Don Jamieson and Sir Peter Gadsden (R).

Canada makes donation to Commonwealth Society

Canadian High Commissioner, the Hon. Don Jamieson, presented a \$50 000 cheque on November 16 to the Royal Commonwealth Society. It was Canada's response to an appeal made late last year to the heads of Commonwealth governments by Lord Burke Trend, the Society President. The Canadian donation was one of the largest to be received and will be used to further enhance Canada's close relations with the Commonwealth. Among RCS guests attending the presentation at Canada House were Lord Burke Trend, Sir Peter Gadsden, Chairman of the Society and Sir Michael Scott, Secretary General.

Aid for protection of world environment

Canada will make an initial contribution of \$200 000 to the World Commission on Environment and Development, it was announced recently.

Set up by the United Nations 38th General Assembly, the World Commission on Environment and Development will recommend an agenda for action to protect or enhance the environment, and to increase international environmental awareness and co-operation. The issues addressed by the Commission concern both developed and developing countries, and include acid rain, the management of toxic wastes, deforestation, and the expansion of deserts into previously fertile areas.

Canada is represented by Maurice Strong.

In addition to Canada's contribution, funding will come from the voluntary contributions of other governments, and from private sources.

Trade

Instant market data for trade-fair buyers

Prospective buyers visiting Canadian exhibits at international trade fairs can now obtain up-to-the-minute detailed information on all aspects of the relevant Canadian industry, including essential details about a specific company, at the touch of a selector button.

The new computer terminal installed at national exhibits gives exporters a significant advantage in the quest for new markets.

The terminal, developed by Avcor Info Display Systems of Toronto (a division of Southam Communications Ltd), integrates microcomputer technology with Telidon, the world's most advanced videotex information retrieval system. Each unit consists of a full colour video display, a standard computer keyboard, a high-quality printer and an electronic link to a Telidon terminal.

The interested buyer accesses the stored data through the keyboard, and information flashes on the screen in up to five languages. By pressing another button, the buyer receives instant high-quality print-outs of the text on the screen.

If additional details about a product or source are required, the computer retrieves the information through the Telidon link and prints out the data in letter format minutes later.

Expo 86 pavilion to open next year

A 15-storey-high sphere built over the waters of False Creek in Vancouver will open to the public a full year before Expo 86 opens its gates. The pavilion will give people a glimpse of what's to come at Expo, and just what the transportation and communications theme means.

While the \$20-million 'omni-sphere' contains many shows and exhibit areas, the big draw will be the Omnimax Theatre.

Omnimax is a Canadian motion picture system that uses the largest photographic format ever employed to create an image which is nine times larger than the

35-millimetre commercial movie film.

The Expo 86 Omnimax Theatre, developed by Imax Systems Corporation in Toronto, will be the first in Canada, and the largest screen in the world.

'People will feel they are actually in the picture,' says creative director Ron Woodall. 'They'll find out what it feels like to chatter across a lake in a high speed racing iceboat or roar into a tunnel at the front of a French TGV train at 400 kilometres per hour.'

Omnimax is also the only projector in the world capable of projecting a high-fidelity, full peripheral vision motion picture image on this scale.

Imax has hired award-winning film-maker Michel Brault to direct the Expo Omnimax film, *A Freedom to Move*. Seventeen weeks of shooting are scheduled for locations around the world, from the Arctic to Africa.

Business

New business journal rates Canadian firms

Report on Business 1000, an annual magazine that assesses the performance of Canadian companies, made its debut recently.

The 240-page magazine serves as an authoritative reference for managers and investors, and as an introduction to evaluating corporate performance for newcomers to business analysis.

Articles by business writers highlight sectoral trends, and profile some of Canada's most successful companies and the people who run them.

The comprehensive statistical report on corporate Canada is based on data from the more than 2000 companies listed on Canadian stock exchanges.

Financial statistics, primarily from income statements and balance sheets covering the past five years, have been fed into the data base by financial analysts in the ROB Business Information Service. The service was formed two years ago to establish the data base and enhance the quality of information in the daily report on business carried in *The Globe and Mail*.

While *Report on Business 1000* focuses on the performance of shareholder-owned companies, it also contains selected information on Canada's largest private companies, Crown corporations and foreign controlled banks.

Canadian banks as group most profitable in world

Canadian banks as a group were the most profitable in the world last year, according to a London-based company that regularly rates the world's banks.

IBCA Banking Analysis says that the Canadian banks earned an average real return of 10.6 percent on their equity in 1983. Second came the US banks with a real return of 7.9 percent, followed by Japanese banks at 7.4 percent.

British banks were in fourth place with an average real return of 7.0 percent.

Technology

Water knife cuts through metal, bone

A surgeon performing a delicate operation prepares to cut through a section of bone. Instead of reaching for a saw, he uses what looks like a garden hose and directs a high-pressure jet of water at his target.

A worker in a shoe factory guides leather through a machine, where a pencil-thin jet of water cleanly slices it to the pattern desired.

Scientists at the National Research Council (NRC) in Ottawa are hoping that such events will soon become commonplace.

After working with high-pressure water jets for the past ten years, they have developed cutting methods that work on everything from ice to plastic to fur. An extra-strong blast of water will even bore through rock.

The water-knife or water-laser is based on nothing more sophisticated than the idea that pressure moves objects. Blasted through a tiny opening in a nozzle, the water becomes a narrow, high-powered slice of liquid that cuts through its target.

Already, HDRK Mining Research Corp, a creation of four major Canadian mining companies, is

experimenting with the technique for mining in the Canadian shield.

One of General Electric Co Ltd's plants now has robots cutting out car parts with thin jets of water. And Bata Shoes Ltd of Batawa, Ontario, is studying the feasibility of using high-precision water jets to cut the leather shapes used in shoe manufacturing.

Also, University of Ottawa medical researchers recently tried using water jets to cut through bone. Preliminary studies showed that the normal Stryker saw used in osteotomy – bone surgery – can cause heat damage to the bone through friction. The water does not cause this problem.

New robot eye for simple tasks

A psychology professor at Memorial University in St John's, Newfoundland, has designed an eye for a robot that is less expensive and more efficient than any existing system.

What makes the system different is that it can see like the human eye. In other words, it can recognise shapes at a glance, and does not have to waste time filling in the whole picture.

Robots are already doing some detailed visual jobs better than any human could – for example, inspecting an object for cracks. However, until this new system was developed, there were no low-priced robots that could do simple visual tasks as rapidly or as cheaply as any human could – for example, distinguishing between a connecting rod, say, and a crankcase cover.

Dr Michael Zagorski, who developed the eye, says his system would be limited to locating and recognising objects a human can locate and recognise at a glance.

'This would be useful in applications where the robotic system is being explicitly designed to replace people who have to recognise objects on, say, a well-lit assembly line.'

Existing systems do not have a simple and fast way of describing non-geometric shapes.

'Instead, they describe shape by describing all the points,' Dr Zagorski says, 'so that they have a video display that has a resolution of 1000 by 1000. Then

they describe the shape, if it's black on white, or white on black, by listing 1000 times 1000 points.'

But this is complicated, costly and time-consuming – and unnecessary for simple tasks, Dr Zagorski says. He believes the solution to the problem of defining shape, like the problem of defining colour, is to be found in copying human visual processes.

Psychologists have discovered that the eye has three colour receptors – one for each primary colour. Hence, colour can be defined in three numbers – one each for red, green and blue.

By means of a mathematical model he developed in 1975, Dr Zagorski says he can analyse complex shape images into 20 dimensions. He will not disclose the technique because his patent search is not completed.

Using 20 numbers to calculate an outline would involve well under 1000 multiplications, Dr Zagorski says. This means the shape analysis can be done instantly on a computer.

Medicine

Detecting the cause of muscular dystrophy

An important step forward in the search for a gene that causes the most common and severe form of muscular dystrophy has been made at the Hospital for Sick Children in Toronto.

Researchers have found a way to zero in on the gene, which so far has defied detection despite intense efforts by scientists in many parts of the world. The discovery may provide a better way to determine whether some women who risk having children with the disabling condition are carriers of Duchenne muscular dystrophy, Dr Ronald Worton of the hospital's department of medical genetics says. It may also help detect muscular dystrophy in a foetus.

It is not known how the gene causes muscular dystrophy, but Dr Worton says it is believed the gene instructs a cell how to make a muscle protein. If the gene is not working, that protein is lacking and muscles weaken and shrivel.

The debilitating disease, which causes sufferers to fall frequently

and have difficulty standing and climbing stairs, typically affects boys and often leads to early death.

Computer-linked device pinpoints knee problems

A new diagnostic device, researched and developed in Montreal, is helping physicians to assess knee injuries, many of which are sports-related.

The device, called *Genucom*, incorporates computer-based diagnostics which give the examiner a complete clinical description of the patient's knee disability, during both active and passive knee motions.

The *Genucom* was researched and developed in Montreal by FAR Orthopedics, Inc, a company that specialises in the development of computerised orthopedic equipment.

Culture

International prize honours Glenn Gould

An international Glenn Gould Prize for distinguished contribution to music and communications has been established by the Glenn Gould Memorial Foundation.

The \$50 000 prize, in memory of the late Canadian pianist, will be awarded every three years. The first prize, which also includes a commemorative work to be commissioned from a Canadian artist, will be awarded October 4, 1987, the fifth anniversary of Gould's death.

An international jury to select winners will be chosen jointly by the Canada Council and the Glenn Gould Memorial Foundation.



Glenn Gould

People

Canadian wins Leeds competition

Jon Kimura Parker from Vancouver has won the 1984

Leeds International Pianoforte Competition. The competition, one of the most important of any in the world of music, has already assured him an international career. Since his win, he has given a recital and a concerto performance in London, and is now moving on to other engagements around the world.



Photo: Harrison Parrott Ltd

Jon Kimura Parker

Parker, 24, took the first prize before millions of television viewers in a performance that was broadcast live on September 22. A review in *The Times* of London referring to the ovation he received, said: 'His Brahms First Concerto was the first performance (in the competition) to elicit audience response, which broke quite spontaneously into the music's last echoes, and came from feet as well as hands.'

Fourth place in the competition went to another Canadian, Louis Lortie from Montreal, who ten days previously had won the Busoni Piano Competition in Bolzano, Italy. Of his Leeds competition performance, the *Daily Telegraph* said: 'He brought an understanding of how to think through a work in its entirety from a thoughtful viewpoint.' The newspaper also predicted that Lortie would 'have a substantial career'.

Parker and Lortie are the first Canadians to reach the finals of the Leeds competition. They were chosen from among the 101 international competitors who were selected for the first round.

Duo take first place in Munich competition

Desmond Hoebig and Andrew Tunis of Ottawa have won first prize at the Munich International Competition in the division devoted to cello and piano ensembles. The two musicians were among ten finalists in a competition that drew 52 entrants from around the world.

In the final round of the competition, the duo performed

sonatas by Franck, Tcherepnin and Beethoven and were awarded the prize unanimously. First prize of 17 000DM (about \$7 400 or £4 500) is frequently withheld when members of the jury feel that a high enough standard has not been established by the competition.

Desmond Hoebig, 22, will join the Montreal Symphony Orchestra this coming season as associate principal cellist. Andrew Tunis is already a member of the teaching staff of the music department at the University of Ottawa.

John Neville named director of Stratford

John Neville has been named artistic director of the Stratford Festival. His appointment is effective November 1, 1985, but he will become artistic director-designate on January 1.

Born in London, England, 59 year-old John Neville has been a major presence in Canadian theatre since his arrival in the country in 1972. Starting as artistic director of the Citadel Theatre in Edmonton in 1973, he then assumed the same post at Halifax's Neptune Theatre five years later. In Stratford, he hopes to extend the repertoire of the festival playbills and to make financial retrenchments. He succeeds John Hirsch in Stratford.

Ontario to choose new premier

Next month will see a leadership convention in Ontario, as provincial Conservatives meet to elect a new leader and a new premier. The convention follows the announcement in October that William Davis, premier for the last 13 years, has decided to step down.

Davis, a cabinet minister for 22 years yet still only 55, led his party to victory in four consecutive provincial elections. When he hands over the leadership to his successor, he will also be handing over a party that shows little sign of losing its appeal with Ontario voters.

The Conservatives have been in power in the province since 1943.

Stephen Lewis appointed United Nations ambassador

Stephen Lewis, who was leader of the socialist New Democratic Party in Ontario for eight years in the 1970s, has been appointed Canadian ambassador to the United Nations.

External Affairs Minister Joe Clark, who announced the appointment, also said that Douglas Roche, a Conservative with 12 years in the House of Commons, has been named ambassador for disarmament.

Clark said that the appointments 'indicate the determination of the whole government to ensure that Canada maintains a contemporary and moderate role in international affairs'.

Prime Minister Brian Mulroney, in answer to a question, said that selecting the former NDP leader rather than a fellow Conservative for the UN post was part of an effort to add 'a bipartisan thrust' to Canada's foreign policy.

Physicist awarded Killam Prize

Dr Werner Israel, of the University of Alberta, has received the 1984 Izaak Walton Killam Memorial Prize, worth \$50 000, in recognition of his outstanding contributions to the theory of general relativity and its applications in theoretical physics and astrophysics.

Dr Israel's researches into general relativity and gravitation have been internationally acclaimed as landmarks in theoretical physics. He is best known for his proof of the uniqueness of static black holes and his contributions to the concept of the event horizon.

Dr Israel's work on relativistic shock waves and continuity equations is also well known, as are his studies of relativistic kinetic theory, in which he has investigated the thermodynamics of black holes and the theory of spinning objects.

He also has done important research into gravitational collapse, the thermodynamics of non-stationary processes, relativistic thermodynamics, and the theory of polarization.

At present he is studying non-equilibrium statistical mechanics in general relativity.

NRC scientists honoured by NASA

Four National Research Council (NRC) scientists have been cited by the US National Aeronautics and Space Administration (NASA) for their work in mapping the electrical currents in space.

Ronald Burrows, Don Wallis, Margaret Wilson and Terry Hughes of the NRC's Herzberg Institute for Astrophysics formally received NASA's Group Achievement Award at a recent ceremony.

The four scientists analysed data gathered by MAGSAT, a satellite launched in November, 1979, to study the Earth's crust and electric currents in the ionosphere and magnetosphere.

NASA said the MAGSAT data helped scientists to provide accurate measurements, 20 times better than anything done before, of the Earth's magnetic field.

Canadiana

Canadian pub opens in London

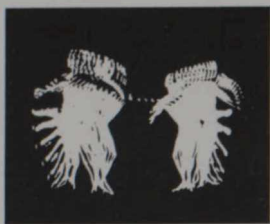
One of Canada's major breweries has just opened Britain's first Canadian pub in Maiden Lane.

Molson Breweries Ltd is hoping the 'Maple Leaf' will attract customers with its Molson's on draught, pine interior and Montreal smoked meat sandwiches. There are hockey sticks on the walls and copies of *The Globe and Mail* in the washroom.

The cool and fizzy Canadian beer, which is brewed in Montreal and shipped to London, is completely different from the traditional English beer, but Molson says there is still a big market for the Canadian product.

The manager of the pub, who has been serving Canadian beer for a few months, admits the English customer is reluctant to try the North American brew. 'They've been very cagey about it, but once they've tried it, they're very pleasantly surprised.'

Exhibition of animated film to be held at Canada House



Dancers in Norman McLaren's *Pas de Deux*.

Photo: NFB

The new year will see an unusual event at Canada House, when the audio-visual department plays host to an Animated Film Exhibition.

The exhibition, prepared by the National Film Board of Canada (NFB), will be a rare and valuable collection of original artwork from some 40 NFB animated films. Its appeal is that it will give visitors a glimpse of the hidden art of animation – multi-layered cutouts that create an illusion of depth; and figures that have been painstakingly drawn as many as 20 times to capture a single fleeting gesture or expression.

In addition, there will be screenings of some rare and often experimental animated films, as well as explanatory talks and lectures from professionals in the field.

Art form being ignored

What makes the exhibition unusual is the fact that animated film is an art form that is not widely studied or understood. There's little public awareness of the diverse – and sometimes astonishing – ways in which an image is made to move in close imitation of real life.

To a large extent, that's because a lot of people view animated film as being synonymous with cartoons – with children's entertainment – and that means many of the technical and aesthetic advances have gone unnoticed.

Also, mainstream film culture tends to revolve around the full-length feature, and in that milieu the animated 'short' can easily be treated as little more than a filler.

Reputation for high standards

To aficionados, that attitude is close to being sacrilegious – especially in the area of documentary and/or experimental animated films. That is an area that is particularly Canadian, since Canadian animators have long enjoyed international acclaim for their high standards of documentaries and for their willingness to experiment with new approaches.

Scene from the animated film *After life – Après la vie*.



Photo: National Film Board of Canada

Changes in film policy could help UK producers

Canadian government support for film production has a long history, and this year it has taken another step forward in a series of developments that should appeal to producers within the United Kingdom.

Public money in Canada has been set aside for film financing since before the 1920s – either through Motion Picture Bureaux or through direct financing of specific projects.

In 1939, the National Film Board of Canada (NFB) was established, and in its 45-year history has produced some 5000 films. Then, in 1968, the Canadian Film Development Corporation (CFDC) was set up. It is another film-funding body, but with a slightly different emphasis: it is designed to stimulate feature-length films of a commercial nature.

Now, the CFDC has been transformed into Telefilm Canada, which has a mandate to provide funds for the production of quality films and television programmes for Canadian audiences. To carry out that mandate, Telefilm Canada has been put in charge of administering the Broadcast Fund – worth \$250 million (£156 million) over a five-year period.

What makes Telefilm Canada of interest to UK and other non-Canadian producers is the prospect of working on co-productions. Also, Telefilm Canada's mandate has already been extended to give it a more international outlook, and to that end it will soon be setting up offices in London.

In the meantime, enquiries about Telefilm Canada's activities – and its new mandate – will be handled by Canada House's audio-visual department.

In large part, that reputation is due to the NFB and its best-known animator, Norman McLaren. McLaren worked for the NFB for more than 40 years (retiring last year). Early on in his career, he pioneered a technique of camera-less, frame-less animation in which he drew or scratched images directly onto a celluloid strip. Later, in the 1950s, he experimented with another new technique, pixillation, which he used in what is probably his most famous film, *Neighbours*.

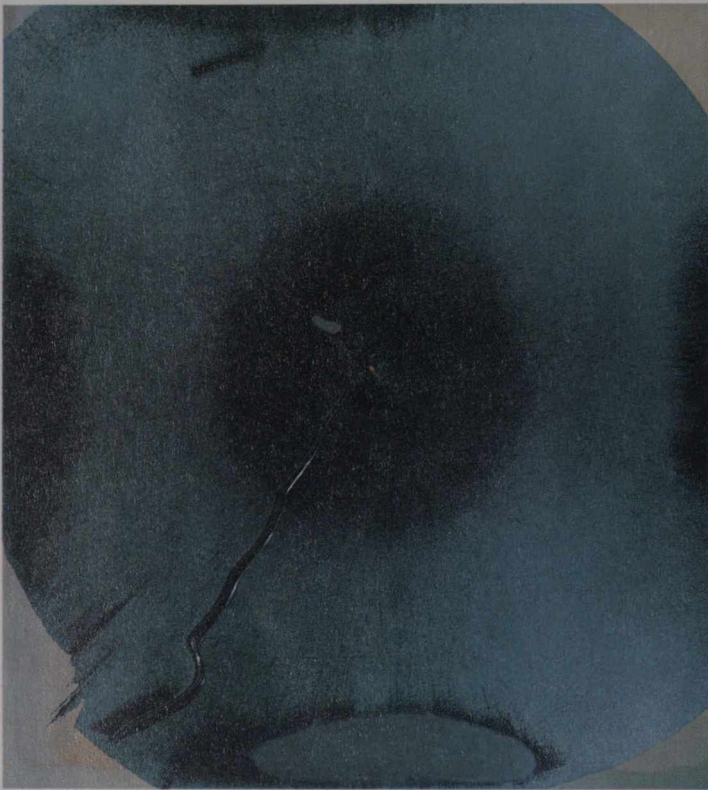
More recently, McLaren's passion for dance and harmony has drawn him towards increasingly more complex techniques, which involve optical manipulation of the kind he used in *Pas de Deux* and *Narcissus*.

Tribute to McLaren

It's partly in tribute to McLaren's work that the exhibition at Canada House will open with a selection of his films – plus a showing of some rarely seen films made by McLaren's colleague and mentor, Len Lye.

The exhibition opens at Canada House early in the new year. It will then tour Edinburgh, Bristol and Birmingham. Full details of times, dates and venues are available from Canada House, Trafalgar Square (see inside front cover for address and telephone number).

Four artists exhibit at Canada House



*Proverbs, 1982,
acrylic on canvas,
188 x 170 cms
by Joseph Drapell.*

Four Canadian artists will be showing some of their work in an exhibition at Canada House, to be held from February 13 to April 2, 1985.

The four artists – Joseph Drapell, Harold Feist, Douglas Haynes and Leopold Plotek – produce large, bold and dramatic canvases. They are confident artists whose work has been bought by collectors as well as appreciated by gallery visitors.

The artists' background demonstrates something of the cultural mix in Canada, and it underlines the close ties that exist between Canadian culture and that of Europe and the United States.

Joseph Drapell was born in Czechoslovakia, studied in the US and now lives in Canada. Harold Feist was born in Texas, studied in the US, came to Canada and is now a Canadian citizen. Douglas Haynes was born in Regina, Saskatchewan, and has stayed in the west of Canada. Leopold Plotek was born and brought up in the USSR and Poland, and emigrated to Canada in 1960. He now lives in Montreal.



*Cadomin, 1984,
acrylic on canvas,
174 x 72 cms
by Douglas Haynes*

Front Cover

*Floor of the new Toronto
Stock Exchange*

Photo: Toronto Stock Exchange