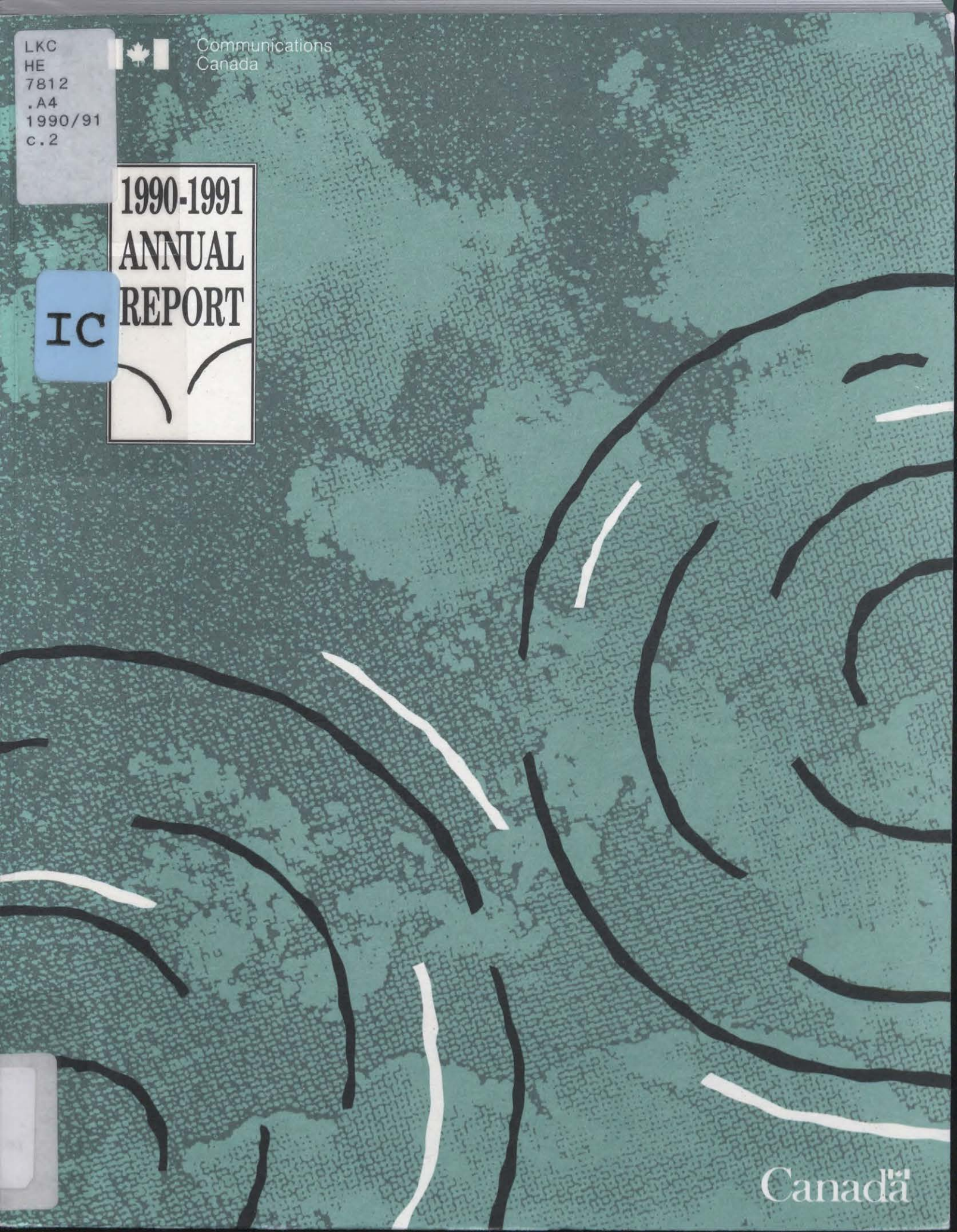
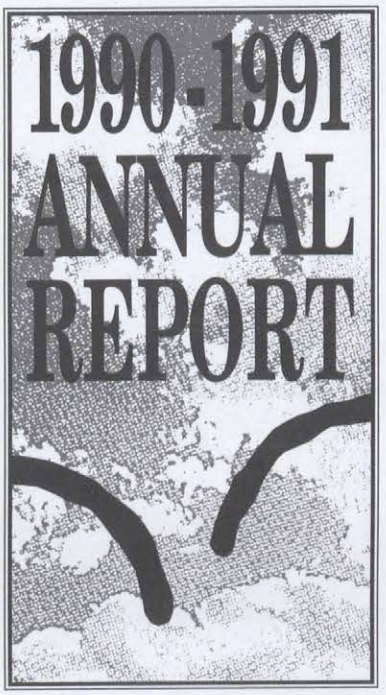
Communications Canada

1990-1991 ANNUAL REPORT



Canada

1990-1991 ANNUAL REPORT



This publication is available upon request in braille, large type, on audio cassette or machine-readable diskette.

Think Recycling!

Cat. No. Col-1991
ISBN 0-662-58723-5

To:

His Excellency the Right Honourable Ramon John Hnatyshyn,
P.C., C.C., C.M.M., C.D., Q.C., Governor General and
Commander-in-Chief of Canada.

Your Excellency:

I have the honour to present the Annual Report of the
Department of Communications for the fiscal year ending
March 31, 1991.

I remain,
Your Excellency's obedient servant,

Perrin Beatty
Minister of Communications

CONTENTS

HIGHLIGHTS

Vision 2000 establishes Regional Advisory Committees.

Government Telecommunications Agency becomes Special Operating Agency.

Technology Transfer Office expands marketing and licensing role.

Contract awarded for construction of MSAT.

1991 *Broadcasting Act* (Bill C-40) receives royal assent.

Sound Recording Development Program renewed.

Cultural Industries Development Fund launched.

National Broadcast Reading Service licensed.

Telecommunications Standards Advisory Council of Canada established.

Public consulted on spectrum policy framework review.

Public consulted on development of local distribution telecommunications networks.

Canada's Archaeology Policy announced.

Status of the Artist bill tabled in House of Commons.

Canadian Arts Consumer Profile conducts national survey of the visual and performing arts.

New Museum Policy takes effect.

Task Force on Military History Museum Collections established.

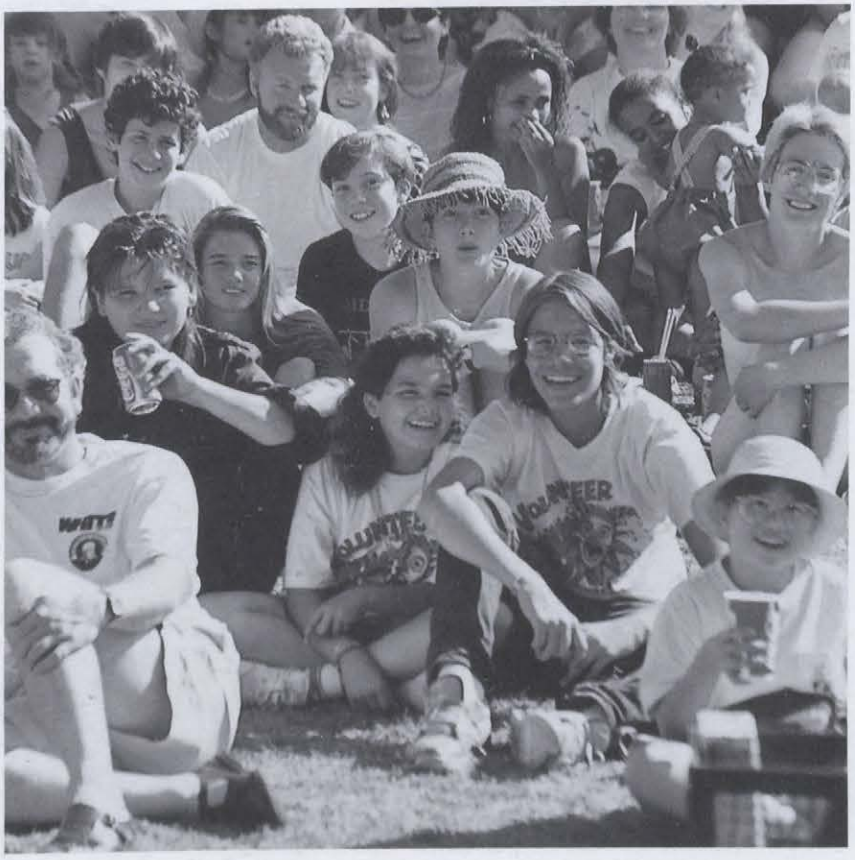
INTRODUCTION

OUR MISSION

Communications Canada's mission is summarized in the phrase *Nation-building: helping Canadians share their ideas, information and dreams*. This reflects the connection between the two domains in which the Department works — the communications systems that link Canadians and the cultural experiences Canadians share.

The Department's primary mission goals are that:

- Canada's communications systems evolve in an orderly manner, at the forefront of global developments, to serve all Canadians at affordable costs; and
- Canadians have the opportunity to choose from a wide selection of Canadian and foreign cultural products and information services.



Audience members enjoy a performance at the Fringe Festival in Edmonton, Alberta. The festival is one of many supported by Communications Canada through the Cultural Initiatives Program. (Photo courtesy Chinook Theatre)

Since 1969, Communications Canada has promoted the development and use of the national communications system, which links Canadians through a variety of conventional and newer technologies such as radio, television, telephone, cable, fibre optics, and satellites. With the increasing power and flexibility of communications technologies — the result of the computerization of communications devices and networks — the national communications system has become the infrastructure of the information society. Consequently, communications policy has a crucial bearing on the achievement of Canada's social and economic goals.

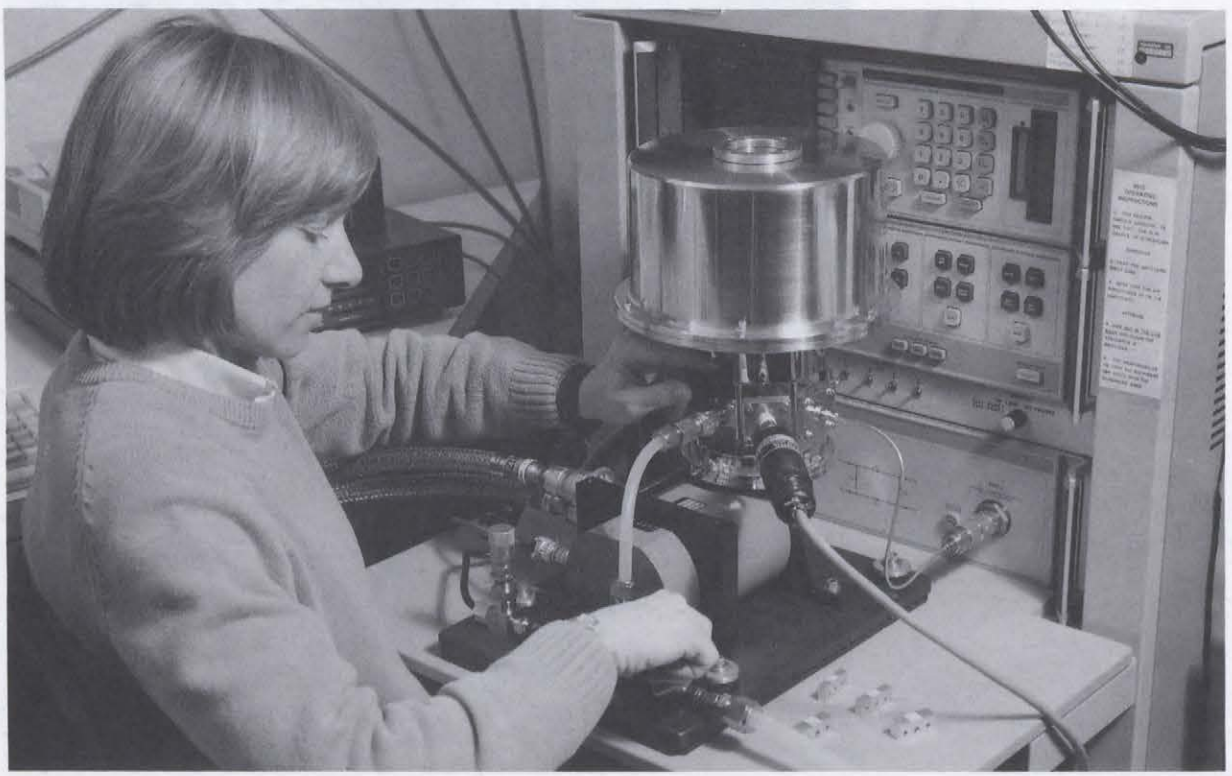
In 1980, the Department's mandate was broadened to include policies and programs affecting the cultural industries, heritage, and support for Canadian creators. The decision to combine responsibilities for communications and culture in a single portfolio recognized that communications media powerfully shape the form and content of cultural expression.

RESPONSIBILITIES OF THE COMMUNICATIONS AND CULTURE PORTFOLIO

The Minister of Communications is responsible to Parliament for enabling legislation for certain Crown corporations, Departmental corporations, regulatory agencies and branches of government. The Minister's portfolio includes:

- the Canadian Radio-television and Telecommunications Commission
- the Canadian Broadcasting Corporation

A technologist at the Communications Research Centre operates gallium arsenide test equipment used in microwave characterisation of high-temperature super-conductive circuits.



- Telefilm Canada
- the National Arts Centre
- the National Film Board of Canada
- the National Museum of Science and Technology (including the National Aviation Museum)
- the Canadian Museum of Nature
- the Canadian Museum of Civilization (including the Canadian War Museum)
- the National Gallery of Canada (including the Canadian Museum of Contemporary Photography)
- the National Archives of Canada
- the National Library of Canada
- the Canadian Cultural Property Export Review Board
- the Canada Council

The portfolio receives advice from the National Library Advisory Board, the National Advisory Committee on Culture Statistics (which also reports to Statistics Canada), and federal-provincial Consultative Committees on Communications.

STATUTES

The Minister of Communications is responsible to Parliament for all or parts of these statutes:

- the *Department of Communications Act*
- the *Telegraphs Act*
- the *Canadian Radio-television and Telecommunications Commission Act*
- the *National Telecommunications Powers and Procedures Act*
- the *Telesat Canada Act*
- the *Radiocommunication Act*
- the *Railway Act*
- the *Broadcasting Act*
- the *Canada Council Act*
- the *Canadian Film Development Corporation Act*
- the *Cultural Property Export and Import Act*
- the *National Arts Centre Act*
- the *National Film Act*
- the *National Library Act*
- the *Museums Act*
- the *National Archives of Canada Act*

***Scott**, Louise (Canadian, 1936).* Girls in the Field, *1978. Pastel on paper, 129.5 by 109.6 cm. Donated to the Beaton Institute, University College of Cape Breton, by Mr. Ruben M. Ambramowsky, under the terms of the* Cultural Property Export and Import Act. *Louise Scott's style, inspired by tapestry, creates a world where modern characters are placed in a medieval-like setting. (Photo courtesy the Beaton Institute © Louise Scott)*

THE PROGRAM APPROACH

The Department's policy, program and operational responsibilities are divided among four regions, led by regional executive directors, and six sectors, headed by assistant deputy ministers. These ten managers and the Deputy Minister comprise the Department's senior management team.

The regions are responsible for front-line delivery of the Department's programs and services. The sectors' responsibilities are as follows:

Research and Spectrum

- conducts research in support of the Department's policy and regulatory responsibilities, both in-house and in partnership with the private sector; manages and regulates the radio frequency spectrum; provides information and communications services to federal departments and agencies, and stimulates Canadian service and manufacturing industries to meet identified user needs.

Communications Policy

- develops policies for the development of the national communications network and the cultural industries.

Arts and Heritage

- develops policies and administers programs that promote the preservation and interpretation of Canada's heritage, foster artistic expression, and advance the social and economic status of Canada's artists.

Quebec

- responsible for all operations in Quebec in the fields of communications and culture, including project management, spectrum management, the Canadian Workplace Automation Research Centre, and administration of national programs delegated to the region.

Corporate Policy

- responsible for strategic planning, co-ordination of regional operations, international relations, information services, legal services, program evaluation and internal audit.

Corporate Management

- supports and advises the Minister and the Department in the exercise of their management responsibilities, including administrative, financial and personnel functions.

POLICY DEVELOPMENT

VISION 2000

Established in 1989, Vision 2000 is a joint industry/government initiative to foster strategic alliances in the development of advanced personal communications technologies and to position Canadian industry in key markets.

During the past year, the Department, through its Vision 2000 program office, supported Vision 2000 working groups in policy development, regulatory review, research and development, and spectrum allocation. This work culminated in a planning document entitled *Framework for the Evolution of Personal Communications in Canada.*

The Department also helped establish Regional Advisory Committees to develop regional strategies for Vision 2000. These committees will seek to involve the private sector, universities and provincial governments in projects and in strategic research and development alliances.

Communications Canada is co-ordinating field trials of public cordless telephones.

A major Vision 2000 demonstration project, the Mobile Vehicle Management System, is under way in Calgary. Collaborating on the project are Pulsearch Navigation Systems, NovAtel and AGT Cellular Ltd., of Alberta, and SaskTel Mobile Communications, of Saskatchewan. The four companies will pool resources to research, develop and demonstrate vehicle-location technology and software using cellular radio overlay techniques.

RELEASE OF LICENSING INFORMATION

The Department published a notice in the *Canada Gazette* seeking public comment on a draft policy to make radio licence information available to the public. The policy recognized that when licensing radio operators to use interference-free frequencies, the Department provides operators access to a scarce and vital public resource, the radio frequency spectrum.

The new policy, refined after analysis of public comment, is that the public may have access to information normally listed on radio licences, as well as technical information needed for electromagnetic compatibility studies. For reasons of security, however, some radio licensees, including, for example, police forces, the armed forces and embassies, are excluded from the provisions of the policy.

INDUSTRY RESEARCH AND DEVELOPMENT POLICY

During 1990-91, the Department prepared an internal discussion paper examining the size and nature of public- and private-sector spending on telecommunications research and development in Canada. The paper also made an international comparison of telecommunications R&D spending.

The paper has prompted the Department to undertake a major telecommunications research and development study during 1991-92. The study will provide the basis for future decisions on industry/university research policy for the Department. Such policy development will be carefully managed in consultation with the private sector.

Negotiations have also started with cellular service providers on a new set of licence conditions for the 1990-95 period, one of them being an R&D commitment.

CULTURAL INDUSTRIES

Cultural Industries Development Strategy

The Department is formulating a Cultural Industries Development Strategy in order to strengthen the Canadian-owned sector of the book-publishing, film and video, and sound-recording industries. The objective is to promote the growth and availability of Canadian cultural products through policies that will: improve the effectiveness of foreign-investment review; provide investment assistance for the development and production of Canadian cultural products; provide marketing and distribution assistance for Canadian cultural products; and establish better protection for copyright owners or their exclusive licensees and exclusive distributors of books, films, videos and sound recordings.

Copyright

Revision of the Act (Phase II)

Revision of Canada's *Copyright Act* will establish a new legal basis for Canada's cultural, creative and information industries. The second phase of amendments will include new rights for creators and exemptions for certain users, including public libraries and educators. It is expected that these amendments will be tabled in the House of Commons in 1992.

Retransmission criteria

In conjunction with the Department of Consumer and Corporate Affairs, Communications Canada is developing criteria for the Copyright Board to consider when setting tariffs for the retransmission of distant broadcast signals.

Phase-out of the postal subsidy

The Department is managing the phase-out of postal subsidies for Canadian publishers during the next two fiscal years, leading to the introduction of replacement programs in 1993 and 1994. During 1990-91 and

1991-92, the subsidy program will be restructured to accommodate the final cut of $65 million.

In addition, the Department signed a new agreement with Canada Post governing postal rates prior to introduction of the subsidy replacement programs. These programs will provide publishers with $110 million in direct assistance beginning in 1993. As well, for the next three years the Department will provide $2 million annually to help offset postal rate increases for national and regional weekly newspapers. These funds will be administered by Canada Post under policy guidelines established by the Department.

TELECOMMUNICATIONS POLICY

Telecommunications legislation

The Department provided detailed input on the drafting of new telecommunications legislation, now largely ready for tabling in the House of Commons. During the year, exchanges of letters and memorandums of understanding were negotiated and signed between the Department and provincial departments responsible for communications. These agreements provide for consultations between ministers on policy matters and specific issues.

The new legislation will support the three objectives of the telecommunications policy announced in 1987: universal access to basic telephone services at affordable prices; an efficient telecommunications infrastructure; and a thriving marketplace in all regions for telecommunications services and equipment.

The bill will provide for the establishment of regulations governing Canadian ownership within the telecommunications industry, and will empower the Canadian Radio-television Telecommunications Commission (CRTC) to forbear from regulation where competition ensures fair treatment for consumers. The bill will also give the Governor in Council the power to issue policy directions to the CRTC.

A scene from the television series Chambres en ville, *produced by Cléo 24 inc. and Productions Clipimages inc., of Montreal. Appearing in the photo (left to right) are Isabelle Cyr, Gregory Charles and Patricia Paquin. (Photo courtesy Telefilm Canada)*

Communications Canada Minister Marcel Masse (centre) signed an agreement with Heritage Canada in December 1990 confirming the Department's continued support of the Mainstreet Program with a contribution of $3 million over three years. Also signing were Heritage Canada officials Elizabeth Bayer and Jacques Dalibard. Administered by Heritage Canada, a non-profit organization, the Mainstreet Program encourages the renovation of historic buildings in city cores.

Local distribution telecommunications networks

Fifty-seven submissions were made in response to a *Canada Gazette* Notice issued September 2, 1989 concerning development of local broadband communications systems to deliver voice, video and data services to the home. This was a first step in a major policy review, which aims to foster development of advanced local distribution networks in Canada. It will examine standards of service and rate-setting, leading to proposals for a regulatory framework.

Canadian telecommunications standards strategy

Following establishment of its Standards Program Office in 1990, the Department, in conjunction with the Standards Council of Canada, created the Telecommunications Standards Advisory Council of Canada (TSACC).

TSACC provides a national focus for developing and implementing Canadian strategies for telecommunications standards, streamlining the standards process, and promoting an orderly implementation of standards. The council will thereby complement the National Standards System, helping Canada to compete in Europe, Asia, the United States and elsewhere. Membership in TSACC is open to all organizations active in telecommunications standards in Canada.

Policy framework for the privatization of Telesat Canada

The government's policy is to privatize Crown corporations and to sell its holdings in other companies when government ownership is no longer required to achieve public-policy goals. In support of this objective,

the Department continued to advise the Government on the telecommunications aspects of the Government's plan to sell its interests in Telesat Canada, the domestic satellite communications carrier.

Canadian cordless telephone service

By the end of the fiscal year, 20 companies had been authorized to conduct field trials of public cordless telephones in Canada.

Public cordless phones are similar to residential cordless phones, but are lighter and smaller. The portable handsets allow callers to place calls in public locations. Typically, a handset can be used within 200 metres of "telepoints" or base stations located, for example, in shopping malls, subway stations, airports and other high-traffic locations. Businesses are also investigating the technology for use in offices and industrial sites.

Companies participating in the field trials are testing various systems and assessing market potential. The trials are considered an important step towards achieving the personal communications goals of Vision 2000. The Department is co-ordinating the trials and developing licensing policy in preparation for a call for applications for commercial implementation of cordless telephone service in Canada.

Spectrum policy framework

The radio frequency spectrum is a limited natural resource that must be managed to achieve maximum efficiency, technical quality and user access. In the fall of 1990, in its role as manager and regulator of the spectrum, the Department issued a comprehensive discussion paper, *Towards a spectrum policy framework for the twenty-first century.*

The discussion paper invited comments from the public about what Canada must do to ensure that the radio spectrum benefits all Canadians and that the Department can adapt to the challenges of spectrum management.

The Department received and studied 38 public submissions and held 5 public meetings to explain the policy review.

This was the first phase of public consultations on a review of Canada's spectrum policy framework and principles. The review was prompted by steeply growing demand for radio spectrum, caused largely by the new applications of radio technologies, such as cellular telephones, mobile satellite services and advanced broadcast systems.

The review is part of a comprehensive assessment of policies for telecommunications, broadcasting, convergence, research and development, and the new media. Among the issues addressed are: spectrum allocation principles; research and development; and setting priorities for public radiocommunications undertakings.

A set of proposals is being developed to carry out the next phase of public consultation. A spectrum policy framework is expected to be enunciated by the Department in 1992.

Part I of 30-960 MHz review

In 1990, the Department issued spectrum utilization policies for Part I of a review covering a range of radio services, including additional spectrum for cellular systems, cordless phones, air-to-ground services, and safety services. Proposals for the rest of the spectrum are being developed in Part II of the review, and policy directions are to be issued in 1992.

Electronic data interchange

The Assistant Deputy Minister, Quebec, is co-ordinating two projects in electronic data interchange (EDI): the EDI Institute and EDICOM.

The EDI Institute is a joint initiative of the federal departments of Communications, and Industry, Science

and Technology; the Government of Quebec; and the City of Montreal. The Institute's role is to implement a training and information program on electronic data interchange for businesses and institutions in Quebec, and to manage the implementation of an operations framework and studies leading to establishment of an international EDI institute in Montreal.

The aim of the EDICOM project is to implement EDI technology at the Port of Montreal, in order to help the port remain competitive. This project is a joint initiative with the Government of Quebec and the private sector.

BROADCASTING POLICY

1991 *Broadcasting Act* (Bill C-40)

On February 1, 1991, a new *Broadcasting Act* for Canada received royal assent. Proclamation of the Act, Bill C-40, is expected in the spring of 1991. The new Act is a thorough updating of the previous legislation, passed in 1968, but retains the same basic structure. Part I establishes the broadcasting policy for Canada; Part II sets out the mandate and powers of the regulator, the Canadian Radio-television Telecommunications Commission (CRTC); and Part III deals with the Canadian Broadcasting Corporation (CBC). Part IV contains consequential and related amendments.

The broadcasting policy, which outlines the roles and responsibilities of private and public broadcasters, including the CBC, has been updated to reflect societal and technological changes since 1968, as have the related legal definitions. At the same time, the Act has been made "technology neutral," which will facilitate introduction of new technologies.

The CRTC has been given greater regulatory flexibility with, on the one hand, a broader range of enforcement powers and, on the other hand, greater latitude to exempt from regulation. The new Act also provides for decentralization of the CRTC and its decision-making process and gives the Governor in Council the power to issue directions to the CRTC on broad policy matters.

As the national public broadcaster, the CBC remains the cornerstone of Canadian broadcasting policy in the new Act. Its creative, programming and journalistic independence are stated in law for the first time, its management structure has been rationalized, and its financial accountability to Parliament has been clarified.

In sum, the new Act stresses the need for the broadcasting system to provide more and better Canadian programming that reflects all aspects of Canadian society. It will allow for more flexible regulation and facilitate technological development.

Memorandum of Understanding on the Development of French-language Radio and Television

Recognizing the key role of French-language broadcasting within the Canadian broadcasting system, the Ministers of Communications for Canada and Quebec, and Quebec's Minister Responsible for Canadian Intergovernmental Affairs, concluded an agreement in 1986 aimed at jointly guiding and co-ordinating development of French-language radio and television. The Memorandum of Understanding has fostered co-operation between the two governments in promoting the development of French-language broadcasting in Canada.

In 1991, Communications Canada appointed its Assistant Deputy Minister, Quebec, as co-chairperson of the committee co-ordinating the Memorandum of Understanding, in line with the Department's objectives to regionalize its operations and to enhance federal-provincial co-operation.

Descriptive video

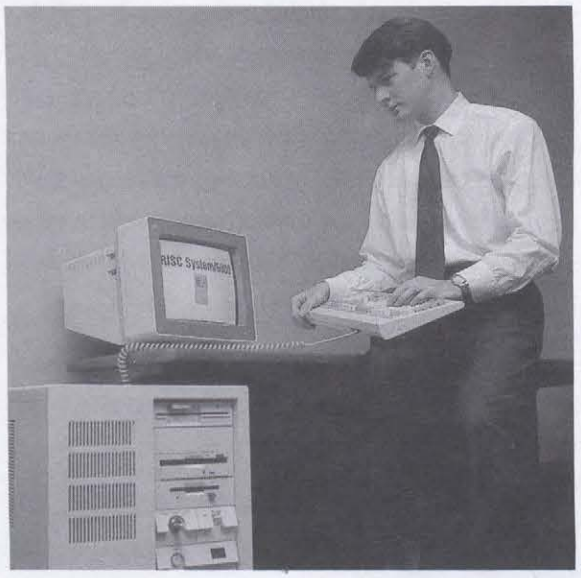
Descriptive video is a new television service that makes programming accessible to the visually impaired by

providing a verbal description of non-auditory action and setting. The service is currently available on the American PBS network. The Government of Canada will undertake research in 1991-92 to determine the most appropriate way to distribute descriptive video services in Canada. Moreover, a government/industry working group has been established to promote development of a descriptive video system compatible with the Canadian broadcasting system.

Television Northern Canada

Television Northern Canada (TVNC) is being established to distribute aboriginal, educational and some CBC North programming to 94 communities throughout Canada's North. The Department is contributing to the installation of the necessary infrastructure in the North to distribute this programming. The network is expected to begin its first year of operation in January 1992.

Jan Rubes (left) and Josh Garbe in the television series Max Glick, *produced by Sunrise Films Limited, Toronto, and Fosterfilm Productions Ltd., Vancouver. (Photo courtesy Telefilm Canada)*



As part of the Vision 2000 initiative, the Government Telecommunications Agency and IBM Canada Ltd. are planning a trial of an OSI-to-TCP/IP gateway service that would allow users of federal government electronic mail (X.400) to communicate with Internet users.

Canadian Broadcasting Corporation

Under the *Broadcasting Act*, the Canadian Broadcasting Corporation (CBC) reports to Parliament through the Minister of Communications. The relationship between the government and the CBC is co-ordinated and managed in the Department's Communications Policy Sector.

Government and regulatory measures

Government and regulatory measures assist the broadcasting industry in meeting the objectives of the Canadian broadcasting system. Several of these measures support the policy objective of increasing Canadians' choice of competitive Canadian-produced programming in all categories.

During 1990-91, a departmental assessment of Section 19.1 of the *Income Tax Act* and regulations concerning the simultaneous substitution of commercial advertising concluded that these measures combine to benefit Canadian stations by increasing revenues by about 10 percent.

The Department also participated, with Telefilm Canada, in developing terms of reference for a comprehensive review of the Canadian Broadcast Program Development Fund, administered by Telefilm Canada.

Appeals of CRTC broadcasting decisions

During 1990-91, the Governor in Council, in accordance with provisions of the *Broadcasting Act*, received petitions concerning two CRTC decisions in which broadcasting licences had been issued by the Commission.

The first case concerned CRTC Decision 90-693, licensing an FM country music station to serve the Toronto area. On October 9, 1990, the Minister of Communications announced that the Governor in Council had upheld the CRTC decision. At the same time, in view of the desire expressed by many Toronto residents for greater musical diversity, the Minister urged the CRTC to hold hearings as soon as possible to allocate the former CKO frequency, which had recently become available on the Toronto FM band.

The second case concerned CRTC Decision 90-1042, issuing a licence for cable television service in Valemount, British Columbia. This decision was also upheld by the Governor in Council.

New technologies

The technology-neutral approach of Canada's new *Broadcasting Act* opens doors for broadcasters to benefit fully from new technologies, such as digital transmission, direct broadcast satellites, and high-definition television. To help co-ordinate these developments, the Department established an industry working group to examine the introduction of new technology to the Canadian broadcasting system, and to propose standards for such technology.

TELEMATICS AND NEW MEDIA

Rapid advances in computer and communications technologies have opened many new possibilities for the creation and distribution of information and cultural products. Increasingly important, both economically and culturally, are telematics, the provision of information services through telecommunications networks; and new media, advanced computer-based audio-visual services.

The Department established the Telematics and New Media Branch (DGNM) in June 1990 to examine the effects of convergence — the amalgamation of telecommunications and broadcasting technologies into shared distribution systems — on communications technologies, the structure of the Canadian communications and cultural industries, and to assess the potential for new information and cultural products and services.

The ultimate objective of this work is to strengthen Canada's industrial and technological capabilities in telematics and the new media through policy and regulatory measures favourable to their growth.

The principal initiatives of DGNM during the 1990-91 fiscal year were:

Canadian courseware strategy

The Branch has undertaken a series of initiatives as part of a comprehensive strategy to strengthen the courseware industry in Canada and to increase the availability of Canadian-produced courseware (computer-based learning material) for educational purposes and for industrial training. The strategy addresses the needs of provincial educators, industry and the public service, as well as the marketing of Canadian courseware. These measures have been developed in collaboration with industry and with the Council of Ministers of Education of Canada. In February 1991, the Council agreed to a departmental proposal to launch a one-year pilot project that would allow provincial educators to experiment with courseware and to determine how best to collaborate with industry in developing new products.

Canadian database promotion initiative

A departmental study, completed in 1990, on the international competitiveness of Canada's database industry revealed lagging demand in Canada for electronic information. Subsequent consultations across Canada led to a national workshop in Winnipeg in November 1990, which discussed a proposal for a Canadian database promotion initiative. The workshop concluded that action was needed to encourage wider use of databases by Canadian business.

To follow up on the Winnipeg workshop, the Department sponsored workshops in Moncton and Vancouver during January and February 1991. These led to a proposal entitled *Support and Promotion for Information Retrieval through Information Technology (SPIRIT)*. The proposal encourages regional database promotion initiatives that can be linked in a national alliance designed to strengthen the Canadian market for electronic information. The Department plans to implement elements of the *SPIRIT* proposal across Canada during 1991-92.

New media strategy

In December 1990, the Telematics and New Media Branch commissioned a study to identify the potential for Canadians to participate in emerging multi-media products and service markets. The study, *An Overview of the Evolution of New Media in Canada*, confirmed that markets will be demand driven, as users find new and imaginative uses for these powerful technologies. Although many of the early uses will emerge in business and public institutions, the benefits need not be limited to large organizations.

The study identifies a wide range of potential users who could adopt new media technologies to enhance creativity or to deliver new or improved services. In 1991-92, the Branch will conduct further market research into factors influencing the development and use of multi-media in Canada, and plans to issue a discussion paper on measures to encourage the evolution of new media in Canada.

ARTS AND HERITAGE

Status of the Artist

The Status of the Artist bill, the first Canadian legislation to recognize artists' contribution to the quality of Canadian life, was tabled in the House of Commons in December 1990.

The draft bill provides for regulations governing professional relations between artists and producers working in fields under federal jurisdiction, such as broadcasting, or in federal institutions, such as the National Arts Centre and the National Film Board of Canada.

The bill would establish two bodies to advise on and administer these regulations. One, the Canadian Artists and Producers Professional Relations Tribunal, would administer regulations governing professional relations between artists and producers. The second, the Canadian Council on the Status of the Artist, will be an independent arm's-length organization advising the Minister of Communications on the socio-economic status of artists in Canada. Various artistic disciplines and different regions of Canada will be represented on the council.

The Status of the Artist bill was developed in response to a December 1989 report by the House of Commons Standing Committee on the Status of the Artist.

Professional training in the arts

In March 1990, the Minister of Communications and the Minister of Employment and Immigration appointed an 11-member Task Force on Professional Training in the Cultural Sector, with a mandate to survey the existing programs, policies and infrastructures for professional training in the cultural sector.

The Task Force is studying issues such as the state of professional training in Canada, problems and solutions, and the role of the Government of Canada in providing assistance for training. The Task Force is also examining the needs of aboriginal Canadians with respect to cultural training.

Design

In May 1990, the Department allocated $251,000 to finance preliminary work for the establishment of the Montreal Design Institute. In making the contribution, the Department was following up on the recommendations of the Consultative Committee on the Development of the Montreal Region (Picard Report) and the Government of Canada's decision to make Montreal an international design centre.

The contribution also recognized the vital role design plays in building a nation's cultural identity and its industrial competitiveness. The institute will promote Canadian research and development, and will

complement Montreal's International Design Centre and its Canadian Centre for Architecture.

The Department also sponsored a three-day strategy/design conference in Montobello, Quebec in December 1990. The event brought together about 90 participants, including designers; representatives of the federal, provincial and municipal governments; manufacturers; and educators.

The conference allowed participants to assess the situation of Canadian design in 1990, to take action to promote Canadian design domestically and internationally, and to form a basis for future policy. Participants noted that design is more than an industrial aesthetic linked to machines and mass production; it is a means by which people can improve their immediate environment. During the conference, the Minister of Communications said there is a need to give Canada a design policy to support the industry and acknowledge its aesthetic and cultural contribution.

Canadian Arts Consumer Profile

In collaboration with the ministries of culture of the 10 provinces and the cities of Montreal, Toronto and Vancouver, the Department commissioned a national survey to help performing and visual arts organizations better understand the market for their products. Through telephone, mail and audience questionnaires, both non-consumers and current arts consumers were surveyed to determine attitudes and purchasing behaviour with regards to the performing and visual arts.

The survey, begun in 1990 and to conclude in August 1991, will furnish information for a database. Once compiled, the database will assist arts organizations market their products more effectively by providing access to extensive data and by helping to develop tools for the preparation of marketing strategies. The Canadian Arts Consumer Profile, to be published in 1992, will contain a demographic and psychographic profile of Canadians who purchase tickets to the performing arts, original works of visual art, and crafts.

Museums Act

The *Museums Act*, Bill C-12, came into force on July 1, 1990. The Act dismantles the National Museums of Canada Corporation and establishes four new, independent Crown corporations: the National Gallery of Canada (including the Canadian Museum of Contemporary Photography); the Canadian Museum of Civilization (including the Canadian War Museum); the Canadian Museum of Nature; and the National Museum of Science and Technology (including the National Aviation Museum). Each operates independently under the management of its own 14-member board.

The Act also provides for the possibility of establishing new affiliated museums to display the museums' collections in Canada's regions.

Museum Policy

A new Canadian Museum Policy, reflected in Bill C-12, took effect in June 1990. Providing an additional $43 million to museums over five years, the policy supports Canadian museums in their pursuit of excellence according to three objectives:

- To foster access by present and future generations of Canadians to their human, natural, artistic and scientific heritage and to enhance their awareness, understanding and enjoyment of the richness of that heritage.
- To encourage the development, management and preservation of significant and representative collections in all regions of Canada.

- To enhance excellence in museum activities in Canada through support to museological research and development and the provision of national services.

The Department supports these objectives by providing financial assistance and technical services to museums through the Museums Assistance Program, the Movable Cultural Property Program, the Cultural Initiatives Program, the Heritage Services Unit, the Canadian Conservation Institute, and the Canadian Heritage Information Network.

Task Force on Military History Museum Collections in Canada

In June 1990, in collaboration with the departments of National Defence and Veteran Affairs, Communications Canada established a Task Force to examine the development of military history collections in Canada.

With the aim of making Canada's military heritage more accessible, the Task Force made recommendations concerning the preservation, development, interpretation and display of military history collections, including those of the Canadian War Museum and the Canadian Forces Museum System. It also considered ways to promote co-operation and the shared use of collections among military history museums.

Archaeology

Canada's archaeology policy, announced in May 1990, will help Canada to protect and manage the country's archaeological heritage. A key objective of the policy is to encourage direct and full participation by aboriginal peoples in managing archaeological resources, for example through training programs.

The policy preceded tabling in the House of Commons of proposed legislation in December 1990. A central feature of this proposal was a system of permits to control archaeological excavation on federal land.

The draft legislation also proposed a protected-resources list to define archaeological resources and attendant administrative and enforcement measures.

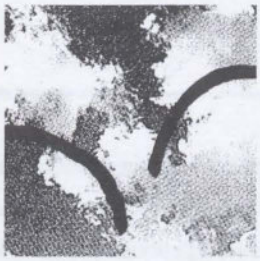
The Department also established an Office for Archaeological Resource Management, with a budget of $9 million over five years. In addition to developing legislative proposals, the Office will support research and feasibility studies, the placement of archaeological collections, and public awareness and information activities.

Heritage strategy

In August 1990, the Department began a project to develop and implement a strategy to improve co-operation among federal departments and agencies active in preserving Canada's heritage. The objective is to enable the government to address the many problems and challenges it faces in safeguarding and developing heritage.

To gain a better understanding of the views of individuals and groups working in the fields of cultural and natural heritage, the Department and Environment Canada organized a national conference, *Heritage in the 1990s*, in Edmonton in October 1990. Participants suggested ways to improve government action in heritage. A report was produced summarizing the main presentations at the conference.

Subsequently, consultations were begun with other government organizations, including Environment Canada, the Department of the Secretary of State of Canada, and Multiculturalism and Citizenship Canada, to articulate a strategy for heritage resources under federal jurisdiction.



CROSS-CANADA SERVICES AND OPERATIONS

SPECTRUM MANAGEMENT

Authorization and spectrum control

In 1990-91, the Department issued approximately 77,000 radio licences, and renewed 816,000 radio station licences.

During the year, the Department also issued approximately 1,500 technical operating certificates for AM, FM and TV broadcasting operations, and assessed 757 new applications for technical acceptability. It also processed 1,100 cable TV applications and issued 1,370 certificates. As well, it analyzed about 1,600 station notifications

An inspection of a ship's radio system in the Port of Quebec.

from the United States' Federal Communications Commission, in accordance with applicable Canada-U.S. agreements, for their effect on Canadian stations.

As a result of a call for applications by the Canadian Radio-television and Telecommunications Commission, 40 applications were received, involving about 700 channels, for multipoint distribution television broadcasting stations.

On July 1, 1990, 10 new AM broadcasting channels became available for use in the 1605-1705 kHz band. In February 1991, the Department concluded an interim working arrangement with the U.S. regarding the use of these channels.

Digital audio broadcasting (DAB) is expected to be the sound broadcasting system of the future. In preparation for a World Administrative Radio Conference in 1992, the Department is studying the spectrum requirements for DAB and developing strategies for its introduction in Canada. The Department, together with the Canadian Broadcasting Corporation and the Canadian Association of Broadcasters, organized demonstrations of a DAB system at four major centres across Canada. These demonstrations proved the feasibility of the technology, sensitized the public and industry to the potential of DAB, and provided an opportunity to obtain data required for planning a practical system.

Studies were initiated to determine the feasibility of providing advanced television (ATV) service in the existing TV bands. These studies be will concluded when the characteristics of proposed ATV systems are determined.

Broadcasting transmitting antennas can radiate high levels of radio frequency energy. Exposure to excessive levels of such energy over long periods can pose a health hazard. The Radiation Protection Bureau of Health and Welfare Canada has therefore set out requirements for the safe installation and use of stationary radio frequency devices. As well, Communications Canada modified its Broadcast Procedures to specify that the holder of a broadcasting certificate is responsible for complying with the Health and Welfare Canada safety requirements.

Delegates and panel members at Teleforum Conference '90, a video teleconference on bandwidth accessibility. The event was part of a field trial by GTA and Carota Communications Inc., of Shediac, New Brunswick, aimed at developing a more cost-effective video teleconferencing service.

In an effort to promote compliance with radio licence regulations, the Department carried out surveys of the private commercial fixed and mobile services, and maritime mobile radio services to determine the level of radio licence compliance. In the private commercial service, the survey revealed a very high national compliance rate for fixed stations and mobile stations. However, the survey found a lower compliance rate for the maritime mobile service. The Department will focus on this area to improve the level of compliance.

Amateur Radio Operator Certificate

During the past decade, the Department and amateur radio operators in Canada determined that the amateur radio operator certificate was outdated in its emphasis on knowledge of equipment construction and proficiency in Morse code. To reflect current amateur radio operations, a new certificate came into effect on October 1, 1990 that stresses proper radio operation and avoidance of interference. Because the majority of amateurs prefer voice and digital operations, Morse code was dropped as a basic requirement for the new certificate.

Environmental Assessment and Review Process

The Federal Court ruled in December 1989 that all federal departments must comply with Environment Canada's Guideline Order on the Environmental Assessment and Review Process (EARP). Accordingly, the Department developed two procedural documents to inform departmental staff and radio licence applicants of the information required for assessment and review of licence applications and to explain how the process is carried out.

Three aspects of radio station installations are considered in the process: the effects of non-ionizing radiation on humans; disturbances to flora and fauna; and socio-economic effects, including land use and antenna structures. The new procedures will be among the first issued under the EARP Guideline Order.

Reforming the Radio Regulations

Following passage and promulgation of the *Radio-communication Act* in October 1989, the Department embarked on a four-year program to reform the Radio Regulations made pursuant to the Act. Among other improvements, the revised regulations will incorporate new powers under the Act and remove outdated sections. Consultation with industry on updating regulatory mechanisms and reducing the regulatory burden will be a key element of this initiative.

Fleet licensing

Operators of fleets equipped with mobile radios will benefit from a new licensing procedure that will drastically reduce the number of licences required and decrease the paper burden.

Currently, each vehicle equipped with a mobile radio must carry a separate licence, and companies with large fleets are burdened with the subsequent administration. Under the new initiative, licences will no longer be needed with most mobile units. Instead, fleet licensees will receive a single licence for each similar type of mobile station. This is expected to reduce the number of licences from 650,000 to 235,000.

Experimental licences for new and enhanced communications systems

The Department authorizes field trials through the issuing of experimental licences. A wide variety of wireless local area networks, cordless telephone systems and other innovative uses of radio were among the systems authorized for trials in 1990-91.

Improved service to clients

The Department continues to seek ways to improve the quality and timeliness of service to its clients.

The following examples are some of the developments that occurred this year.

In a continuing effort to streamline the radio licensing process, the Department's Central Region developed a computer program for Client Electronic Submission of Applications (CESA).

The pilot program allows applicants to prepare radio station licence applications on an IBM-compatible microcomputer, using easy-to-understand software. CESA lets users enter technical and administrative data and send it to the Department. Radio inspectors are then able to process applications and track them without re-entering data or printing a paper copy.

CESA will also provide a database of all the applications submitted, reduce the time required to prepare applications, and speed the issuance of licences.

The Spectrum Management Branch in Quebec developed powerful software called "Sysparc." This software makes it possible to assess precisely the electromagnetic compatibility of radio stations and to manage technical data associated with antenna farms.

Recently patented, Sysparc has a promising future. Several Canadian companies have acquired it to improve management of their antenna sites. Sysparc is now making its debut in the international market.

In the Ontario Region, client service is being improved by streamlining and automating processes and procedures, developing spectrum to accommodate new systems, and consulting with radio users on program delivery.

A review of the Pacific Region's organization led it to streamline management and improve service. For example, the Prince George and Prince Rupert District Offices were amalgamated, with the Prince Rupert office now a field office. As well, the Operations Branch was streamlined to provide a better link between Ottawa and the districts.

Two other initiatives, at a microcomputer level, have been started by the Department. The first assesses the spectrum environment, identifying geographical areas of spectrum congestion and available capacity in different frequency bands with demographic and related data overlaid. The second provides local offices with pictorial displays of radio station locations, including a topographic and street map overlay. Both of these systems are undergoing trials at the Department's regional and district offices.

SENIOR EXECUTIVE NETWORK

Launched in June 1990, the Senior Executive Network (SEN) uses a variety of electronic communications services to achieve faster, more efficient distribution of information formerly mailed or faxed to deputy ministers, assistant deputy ministers and their staffs. The Network is available in 34 federal departments and agencies.

Initial projections of SEN's clientele were exceeded by more than 100 percent. Approximately 575 clients had been accredited by March 31, 1990, compared with a forecast of 275. A market study conducted for SEN in December and January indicated a high level of satisfaction with the service. The Network will be extended to directors general in 1991-92.

GOVERNMENT TELECOMMUNICATIONS AGENCY

GTA becomes a Special Operating Agency

The Government Telecommunications Agency (GTA) plans, develops, and manages common network and enhanced telecommunications services for federal departments and agencies. In November 1990, the Treasury Board approved a departmental submission to convert GTA to a Special Operating Agency (SOA).

Radio inspectors from the Department's Halifax District Office test the emergency radio of a life boat aboard the CCGS Narwhal, *as the first officer looks on.*

The change, retroactive to April 1, 1990, made GTA one of the federal government's first five SOAs — organizations established as service units within departments. GTA's mandate is to act as the focal point for the Government Telecommunications Architect function and for the delivery of common telecommunications services within Canada.

Special Operating Agency status gives GTA more administrative flexibility, allowing it to operate in a more business-like way in responding to its clients needs. As an SOA, GTA operates on cost-recovery, with revolving funds to finance day-to-day operations and occasional appropriations to finance special projects and system improvements.

GTA played a leading role in 1990-91 in the development of a government-wide telecommunications management infrastructure and made important strides in evolving GTA networks and services while realizing significant savings for departments. It also produced its first Annual Report, which discusses the achievements, directions and financial condition of the Agency.

Telecommunications Architect Program

The Telecommunications Architect Program is a key component of the new telecommunications management infrastructure. The Program, guided by client departments through the Telecommunications Advisory Panel, established two working groups: the Core Open Systems Interconnection Ad Hoc Working Group deals with the interconnection and interoperability of departmental systems; and the Government Physical Network Ad Hoc Working Group deals with the topology and network management of the government's physical network.

GTA Business Plan 1991-95

The GTA Business Plan for 1991-95 sets out strategies to fulfil GTA's mandate as a Special Operating Agency. The plan describes GTA's internal environment; analyzes the external telecommunications and information environment and its potential effects on GTA and its clients; assesses GTA's strengths and weaknesses, outlining actions to improve performance; and provides financial forecasts, performance indicators, and regional business plans.

In the Business Plan, GTA undertook to report on its effectiveness by subscribing to an approach for performance reporting established by the Canadian Comprehensive Auditing Foundation. Using this approach, GTA will make effectiveness representations to its external authorities by reporting on a series of performance indicators under 12 specific attributes of effectiveness.

An abridged version of the business plan was produced under the title *Major Orientations 1991-1995* for distribution to a wide audience.

A member of Communications Canada's Sault Ste. Marie District Office staff operates a RoadKIT mobile data terminal, during an MSAT field trial started in September 1990.

Savings

The principal common services provided by GTA are the Local Telephone Services and the Government Intercity Voice Network. The Government Intercity Voice Network handled approximately 64 million network calls in 1990-91, 11 million more than in the previous year.

In concert with the increase (21 percent) in network traffic, there was a 6.5-percent decrease in the cost of provisioning the network facilities, $58 million in 1990-91 compared with $62 million the previous year. At the same time, there were major reductions in the commercial long-distance rates. The net result was a 31-percent saving for the government compared with Direct Distance Dialing rates in 1990-91 for the Government Intercity Voice Network. The Local Telephone Services contributed savings estimated at $37 million, equal to a 23-percent saving for the government.

Reduced costs for the Voice Network were achieved mainly by converting to Digital Channel Services on the prime network routes. New contracts for local services at several locations in the network contributed to additional savings. Two rebates to departments yielded additional savings on the Government Telephone Network of approximately $8.5 million for 1990-91.

To enable GTA to maximize savings from suppliers, the Telecommunications Advisory Panel approved GTA's entering contracts for digital network services based on the maximum commitment ($1 million per month) and contract period (10 years) available from suppliers.

Similarly, GTA has been seeking strategic alliances with organizations sharing common interests to allow it to

take full advantage of opportunities for innovation and savings and to complement in-house capabilities. These initiatives have been positive, yielding benefits for the participants and GTA clients.

GTA shared services

The Government Electronic Messaging and Document Exchange Service (GEMDES), GTA's shared electronic message service, attained a clientele of 8,100 users during 1990-91. The service also added several enhancements: transparent binary file transfer, French-character transmission, document conversion, facsimile delivery, and access to additional messaging and information networks.

The Government Digital Channel Service (GDCS), introduced in February 1991, is a dedicated digital end-to-end network for voice, data, image and integrated applications. It is fully compatible with standard computer and network protocols and architectures, and it supports the entire range of transmission speeds.

An official with the Department's Northern British Columbia District Office provides licensing information to a client in Prince George.

GTA has been converting the Government Intercity Voice Network to all-digital facilities by migrating to this service.

GTA continues to enhance services with features such as the Consolidation Management Service (CMS), a project headed by GTA's Atlantic Region and tested in Vancouver, Calgary, Ottawa, Montreal and Moncton. The service provides electronic entry of service orders, automated inventory, Enhanced Exchange Wide Dial (EEWD)/Centrex III billing reconciliation, and management report capabilities. It speeds service and improves management control of Local Shared Services. CMS should become operational in the fall of 1991.

REGIONAL DEVELOPMENT

Quebec

The Canada-Quebec Subsidiary Agreement on Communications Enterprises Development, which initially had a budget of $40 million ($20 million from the Government of Canada and $20 million from the Government of Quebec), was extended to March 31, 1991, each partner increasing its contribution by $1.8 million. Financial support has been provided for 132 projects, 18 of which received additional funding after the budget was increased.

The Canada-Quebec Subsidiary Agreement on Cultural Infrastructures, initially budgeted at $40 million ($20 million from the Government of Canada and $20 million from the Government of Quebec) was also extended to March 31, 1991 and the budget increased by $16.75 million from each of the two parties.

One of the main initiatives under the program is the expansion of the Montreal Museum of Fine Arts. Other initiatives funded under the increased budget included capital projects for the Pointe-à-Callière, the McCord Museum, le Théâtre du Rideau Vert, and Musée d'art de Joliette.

Moreover, during 1990-91 the Government of Canada allocated an additional $40.8 million for cultural infrastructures in Quebec. Institutions that benefitted from these funds included the Musée d'Archéologie et d'Histoire de Montréal ($1.6 million), the Centre d'art de Chicoutimi ($250,000) and the Musée du Séminaire de Québec ($1.5 million).

Ontario

The $50-million Canada-Ontario Cultural Development Subsidiary Agreement — established jointly with the Government of Ontario in 1984 — proceeded as planned, with all funds allocated. Payments totalling $2.452 million were made in 1990-91, and 15 of the 27 projects were completed. The completed projects included funding for the White Pines Auditorium, Great Lakes Science Centre, Canadian Independent Record Production Association, Cinémathèque Ontario, Canadian Centre for Advanced Film Studies, Owl Centre for Children's Film and Television, Sharon Temple, and the Sault Ste. Marie Museum.

Prince Edward Island

The Canada-Prince Edward Island COOPERATION Agreement on Cultural Development was established to further develop Prince Edward Island's cultural sector. The joint agreement with the Government of Prince Edward Island will contribute to the growth of entrepreneurship, innovation, leadership and a business-like approach to cultural productions and activities.

Worth $3.5 million, the agreement was signed in August 1990 and will end March 31, 1994. Among the projects funded under the agreement in 1990-91 was the new Musée acadien de l'Île-du-Prince-Édouard at Miscouche. The museum received a $367,000 contribution towards the construction of a new facility that will incorporate the latest in museum presentation techniques.

New Brunswick

The Canada-New Brunswick COOPERATION Agreement on Cultural Development was signed in October 1990 to promote the viability and stability of the province's cultural sector, to generate higher incomes and employment, and to promote awareness and expression of the arts and heritage in New Brunswick. Worth $5 million, the agreement with the Government of New Brunswick will end on March 31, 1995.

RESEARCH ACTIVITIES

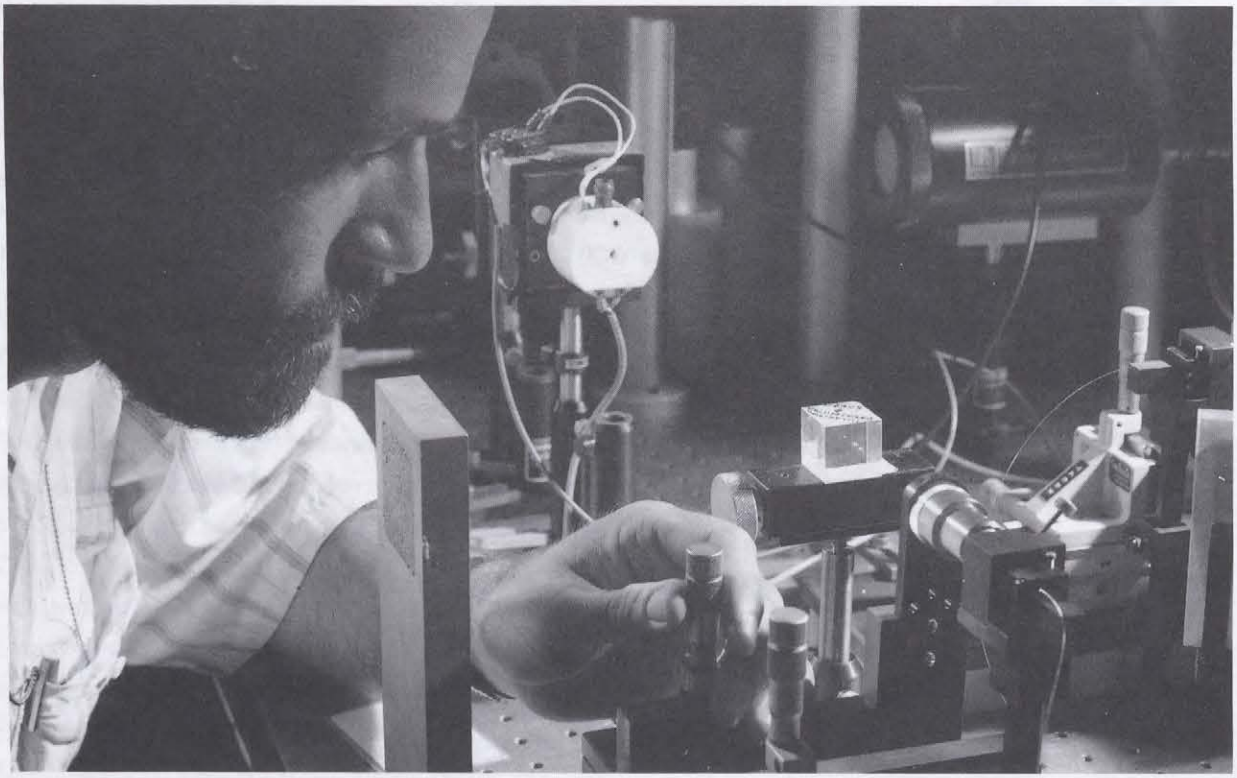
Communications Canada is home to three major research facilities: the Communications Research Centre (CRC) at Shirleys Bay near Ottawa; the Canadian Conservation Institute (CCI) in Ottawa; and the Canadian Workplace Automation Research Centre (CWARC) in Laval, Quebec.

CRC carries out research and development in communications technologies such as radio, satellites, microelectronic and optical devices and components, and broadcast and video technologies. CWARC specializes in workplace automation and informatics. CCI works to preserve art objects and artifacts, and provides advice on conservation to institutions in Canada and abroad.

COMMUNICATIONS RESEARCH CENTRE

The Communications Research Centre's mandate is to carry out research and development that support the Department's role in formulating and implementing telecommunications and broadcasting policies, regulations and standards. Through partnerships and co-operative activities with the academic and industrial sectors, CRC promotes the development, application and commercialization of innovative communications and information technologies.

Pop music artist Sheree and her group were featured in a live HDTV broadcast to Japan. The event was produced from the Ottawa Congress Centre in June 1990.



In a demonstration of fibre-optic technology, a researcher at the Communications Research Centre performs non-linear studies on optical fibres.

Communications devices and components

Among R&D priorities during 1990-91 were gallium arsenide monolithic microwave integrated circuits (GaAs MMICs), high-speed digital integrated circuits, miniature hybrid microwave integrated circuits (MHMICs), silicon-very-large-scale integration (VLSI), optoelectronic and fibre-optic devices, and radiation and reliability studies. Highlights included:

- Development of fabrication techniques for heterojunction bipolar transistors for incorporation in high-frequency analog circuits and high-speed digital integrated circuits.
- Development of a technique for on-wafer noise measurement in active devices using waveguide tuners in the frequency range 18-26 GHz. This will speed up the evaluation of prototype circuits produced by CRC and industry.
- Development of a novel solid-state travelling wave antenna that incorporates amplifiers using monolithic microwave integrated circuits. The antenna permits adaptive operations to be built into the individual elements. A patent application has been submitted.
- Research on the use of photosensitivity in optical fibres to develop devices to split, filter, polarize, and route lightwave signals in optical communications systems.
- Development, in collaboration with the Alberta Telecommunications Research Centre, of gallium

arsenide photoconductors for incorporation in a 10 x 10 cross-point optoelectronic switch used in high-speed and high-capacity communications systems.

- Design of silicon-very-large-scale integration (VLSI) systolic array processors, fast Fourier transform, and finite impulse response filters for application in satellite digital on-board processors and digital radio subsystems. Under a memorandum of understanding, circuit fabrication was carried out by the Alberta Microelectronics Centre.
- Research on ion-exchanged waveguides in glass fibres, in collaboration with the École polytechnique in Montreal.

Communications technologies

Several satellite radio subsystems have been completed or are nearing completion in CRC labs. Examples include:

- New antenna concepts for a low-cost tracking antenna required for Canada's Mobile Satellite system, MSAT
- Implementation of modulation and coding techniques for power and spectrum-efficient voice communications.
- RF building blocks, such as synthesizers of superior performance, size and cost to those currently available.

These technologies are being readied for extensive experiments and field trials in mid-1991. The results will help determine the MSAT system standard. Some of these technologies developed at CRC have been transferred to Canadian industry, a process likely to increase as manufacturers prepare for the emerging MSAT market.

An improved radio system for the Ontario Air Ambulance service has been developed, with performance far superior to that of the original developed three years ago. These radios are the world's first satellite voice communications systems for small aircraft. Canadian companies are now well positioned to produce

Phased-array antenna components are tested in an anechoic chamber.

and market internationally an airborne satellite communications radio for business aircraft operators.

Activities in advanced satellite communications have included development of Ka-Band (extremely high frequency) and on-board processing (OBP) technology for military and civilian applications. An OBP concept using surface acoustic wave devices is being tested on the European Space Agency's Ka-Band Olympus satellite and on Telesat Canada's Ku-Band satellites.

The CRC developed a unique concept for a compact very low frequency (VLF) transmitting antenna that will provide wider bandwidth, higher radiation frequency, and better ice-melting characteristics than those now used around the world.

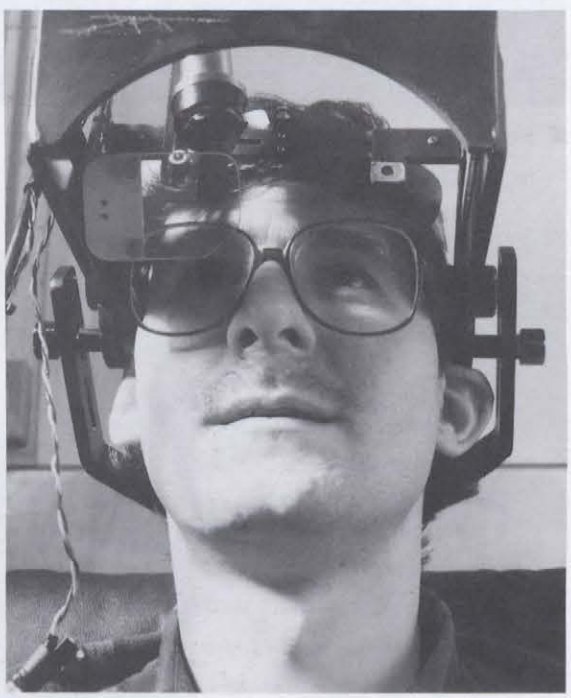
Radio science

The Department conducts fundamental research in radio propagation and the influence of radio propagation phenomena on radio communications. It also develops innovative technology for predicting and enhancing radio communications capabilities. Examples of work conducted over the past year include:

- Development of propagation measurement techniques to obtain land mobile radio channel information with higher fidelity and to conduct research in the higher frequency bands.
- Research into propagation mechanisms that affect communications on land mobile radio channels in urban and mountainous areas, and on indoor radio channels. Based on this work, models were developed for making wideband propagation and digital system performance predictions for indoor radio channels, and land mobile channels in mountainous terrain.
- Preparations for the Olympus propagation experiment, designed to obtain data for developing improved propagation models for the 20/30 GHz commercial and 20/44 GHz military satellite communications bands.
- The monitoring of 420-450 MHz signals received over a 100 km radio path in southern Manitoba to support investigations into diurnal variations in signal strength on such radio paths.
- Participation in international organizations for propagation research and the formulation of recommendations regarding spectrum policy and planning.

Military Communications Program

Communications Canada and CRC's primary client, the Department of National Defence, renewed an agreement



Behavioural research at the Department's Advanced Television Evaluation Lab includes tests to measure the eye movements of television viewers.

Technicians test a UHF antenna installation in Northern Canada.

to continue the Military Communications Program in 1990-91 with $8 million in funding.

Under the cost-recovery program, CRC conducts research and development in satellite and terrestrial communications to meet military requirements for increased capacity and availability, and improved resistance to jamming, interference and interception. Projects during 1990-91 spanned the spectrum, from very low frequency (VLF) studies to improve maritime communications, through ultra high frequency (UHF) and high frequency (HF) radio network development for improved communications in the Arctic, to the development of electronic components and signal processing subsystems to support the extremely high frequency (EHF) satellite program of National Defence. This work combined in-house research and development, contracts with industry and universities, technology transfers to industry, and collaboration with Canada's military allies.

MSAT Program

Significant progress was made during the year toward implementing Canada's first Mobile Satellite (MSAT) system. Telesat Mobile Inc. (TMI) issued a contract to Spar Aerospace Ltd. in December 1990 for a satellite scheduled for delivery in 1994. An identical satellite is being built for American Mobile Satellite Corp. (AMSC) in the U.S. by Hughes Aircraft Co., for which Spar will manufacture the communications payload. TMI and AMSC have signed a $2-million contract with Comsat for functional and interface definitions, and specifications for mobile earth terminals, feeder-link earth stations, network control centres and network operations centres. The Department also worked with TMI in support of TMI business arrangements and spectrum proposals related to MSAT, to be considered at the 1992 World Administrative Radio Conference (WARC). The Department began a pre-launch MSAT Communications Trial Program of voice and data services in a series of marine and land trials with public- and private-sector participants. As part of the trials, CRC

staff provided participants with installations and demonstrations of transportable voice and mobile data equipment, as well as training in use of the equipment. Successful demonstrations of MSAT equipment also took place on an ice island in the Beaufort Sea and at the United Nations' Congress on Crime Prevention in Havana, Cuba, in August 1990.

Spectrum research

The Department initiated and continued several radio propagation research projects in support of spectrum management with funding in the amount of $419,000 from spectrum recoverable funds. Projects included: contract work on interference problems by the Alberta Research Council and the University of British Columbia; further development of complex land mobile and indoor EHF radio channel measurement equipment; and digital elevation models to be used with propagation prediction programs in the design of land mobile radio systems.

Digital audio broadcasting

Digital audio broadcasting (DAB) is a priority for the Department's Broadcast Technologies Branch. During the summer of 1990, field tests and evaluations of a prototype DAB system were carried out in collaboration with the Canadian Broadcasting Corporation and the Canadian Association of Broadcasters in Ottawa, Toronto, Montreal and Vancouver.

In preparation for the field trials, laboratory tests were conducted to verify the system's characteristics. A series of listening tests was also undertaken to evaluate basic audio quality, stereophonic sound quality, monophonic compatibility, and robustness.

DAB matches the sound quality of compact discs, even in cars where reception is often poor. Moreover, DAB uses spectrum more efficiently than conventional radio and requires less power to provide the same coverage. It also promises to be economical because broadcasters in a service area could share the same site, transmitter, tower and antenna facilities.

Advanced video research

In partnership with Canadian industry and government organizations, the Broadcast Technologies Research Branch is collaborating in laboratory and field tests of advanced television (ATV) systems with two U.S. groups, the Advanced Television Test Centre and Cable Television Laboratories.

The Branch's main commitment is to conduct subjective evaluation and assessment. A year-long series of ATV subjective tests are scheduled to begin in July 1991.

To carry out the work, the Department established the Advanced Television Evaluation Laboratory in Kanata, Ontario. Research and pilot tests, including tests of satellite-based ATV systems, have begun at the new lab, the only one of its kind in Canada and among the most advanced in the world.

The Branch also contributed to the development of test procedures and plans, and to the establishment of test priorities. It was also responsible for the content and production of test materials.

In parallel with these initiatives, the Branch continued research to simulate and assess video compression and coding methods to be used by proposed ATV systems. The results will provide a comprehensive knowledge base to help interpret the test data and identify features of individual systems that could contribute to a superior ATV design.

Research institutes

In response to the November 1990 report of the National Advisory Board on Science and Technology, *Revitalizing Science and Technology in the Government of Canada*, concerning management of the federal government's

research and development activities, the Department is considering establishing two research institutes, one for the Communications Research Centre and one for the Canadian Workplace Automation Research Centre. Their objective would be to facilitate science and technology through the adoption of policies that would remove operational and administrative impediments to quality and productivity. Preliminary discussions on this initiative were held with the various advisory boards and the Privy Council Office; further discussions will take place during 1991.

CANADIAN WORKPLACE AUTOMATION RESEARCH CENTRE

Established in 1985, the Canadian Workplace Automation Research Centre (CWARC) is the largest laboratory in Canada specializing in research and development in office automation. Through partnerships and staff exchanges with industry, universities and government, CWARC contributes to development and use of improved and more competitive concepts, methods and products.

The Resource Library of the Canadian Workplace Automation Research Centre at Laval, Quebec.

Technological research

Multi-media systems

CWARC is putting more emphasis on multi-media systems offering integrated applications of voice, video and graphics technologies. The Medialog and Superkiosk projects are among the initiatives in this field.

Medialog, a project in partnership with the ON/Q Corporation, the Cinémathèque québécoise and the Montreal Museum of Fine Arts, is an experimental application of new technologies in the cultural domain that offers new ways to store, manage and distribute information. Medialog users can access and reproduce text, graphics, photographs, sound recordings and video sequences, using laser technology, and audio and video cassettes. The cost of reproducing items is indicated to users before they request it. After a transaction is completed, the system records it and automatically credits the copyright holder.

Superkiosk, a multiple-service telematic kiosk, features personalized card access, high-quality images, interactive video, audiotex, messaging and printing. During the past year, CWARC worked to establish marketing strategies and develop technical solutions for a Superkiosk network.

Computer-assisted translation

The Translator's Workstation (TWS) is an important facet of the research being done by the Computer-Assisted Translation Group established under a memorandum of understanding with the Department of the Secretary of State of Canada.

During the past year, the group devoted its efforts to developing a second version of the workstation that uses Windows 3.0 and incorporates the standardized access software InContext, produced by Educational Software Products.

A researcher tests a multi-media system at the Canadian Workplace Automation Research Centre.

The three-year Cogentex project also began in the past year with the development of the concept for the system in co-operation with Statistics Canada and the Cogentex company. The project is made possible through a grant from the Interdepartmental Artificial Intelligence Research and Development Fund administered by Industry, Science and Technology Canada. It will develop a prototype for automatic generation of bilingual texts for selected reports produced using the CANCIM databases.

Expert systems

Expert systems are another facet of the research done by CWARC. One such project, Amethyst, has expert system modules dedicated to each of the duties of a pay and benefits clerk. This project, which began during 1989-90, continued this year with the integration of Amethyst into the forms management system, MEMO, created by the Integrated Systems Directorate. A video was also produced to describe and explain the project to the general public.

Standardized technologies

Open Systems Interconnection is another CWARC priority. In co-operation with the United Kingdom National Computing Centre and the IDACOM Telecom Division of Hewlett-Packard Inc., CWARC is working to develop an international standard for formal notation of the DAPs (document application profiles) of the ODA (office document architecture) standard. In November 1990, it demonstrated a tool for testing conformance of a DAP with the ODA standard.

Organizational research

Organizational research is a distinctive and important part of work at CWARC. During the year, CWARC carried out several studies, including one on the effect of the new technologies on organizations and jobs in the public and parapublic sectors.

As well, an agreement was reached with federal organizations and the University of Montreal to develop expertise for perfecting an intelligent tutorial system that would help user-trainers to analyze their teaching methods and assess the results.

During the year, CWARC, in co-operation with the Department's Ontario Region, began research for a telework experiment. This project will evaluate the organizational, human and technical effects of distributing the operations of the Regional Office in Toronto to two or three satellite offices. A pilot project is planned for 1992.

Integrated Service of Information Resources

The Integrated Service of Information Resources (ISIR), a CWARC data bank, is the main source of information in Canada on workplace automation. Its 40,000 bibliographical references, previously accessible only through the Department's terminals, are now available to the general public under an agreement with Services documentaires multimédias.

CANADIAN CONSERVATION INSTITUTE

The Canadian Conservation Institute (CCI) is a world leader in its field. Its conservators restore and preserve an enormous range of art objects and other culturally important artifacts. CCI scientists study the behaviour of materials in artifacts in various museum environments, and develop improved methods of conservation. Totem poles and tiny carvings; objects recovered from shipwrecks and archaeological sites; manuscripts and documents; historical costumes and textiles; paintings and sculptures are among the objects treated.

CCI's extensive publications program disseminates information internationally on subjects such as conservation research, techniques and materials.

CCI also advises museums and art galleries throughout Canada. Its conservators regularly visit institutions to lead training seminars and workshops, and they provide intermediate and advanced training at CCI to conservators from across Canada and around the world.

Major CCI projects during 1990-91 included the treatment and installation of a 16th-century ceramic tile stove in the new Koerner Ceramics Gallery at Museum of Anthropology, University of British Columbia. The project team reassembled the stove's many pieces, reproducing missing pieces, and developed a mount for the missing inner core.

Also completed was the treatment of a lead plaque identifying the burial place of the Jesuit missionary Jean de Brébeuf, and the plaque was returned to St. Marie among the Hurons. The documentation of this small plaque benefitted from research on a laser scanner carried out jointly by the National Research Council of Canada and CCI.

Scientists at CCI also completed the Native Materials Project, a comprehensive study of the pigments and binding media used by Canada's native peoples. More than 1,300 samples from collections in seven Canadian museums and five international museums were analyzed. The resulting database will be used to assist museums in documenting the origins and history of the materials.

A conservator (right) and a documentation technologist at the Canadian Conservation Institute take x-rays of La Peinture Mystique, *by 19th-century Canadian artist Napoleon Bourassa. X-rays provide sub-surface details that help determine the best method to repair the damaged work, part of the permanent collection of the Musée du Québec.*

REGIONAL APPLICATION CENTRES

Research conducted or supported by the Department extends to the development of the industry itself. By participating in and promoting research and development partnerships, the Department fosters productive interaction, contributing to the development of new technologies and their transfer for commercial application.

In this context, the Department's financial and other assistance to Regional Application Centres supports research, development and technology transfer within specialized fields. In turn, the centres provide a dynamic research environment that leads to rapid advances in the development of applications and the growth of competitive high-technology industries.

The Department works with and supports six Regional Application Centres: the Canadian Centre for Marine Communications, in St. John's; the Telemedicine and Educational Technology Resources Agency also in St. John's; Canadian Healthcare Telematics Inc. in Winnipeg; the Legal Information Systems and Technologies Foundation, the Centre for Image and Sound Research, and the National Wireless Communications Research Foundation, all in the Vancouver area.

Canadian Centre for Marine Communications

The Canadian Centre for Marine Communications (CCMC) in St. John's, Newfoundland helps its members to develop marine communications products and services and to market them nationally and internationally. Membership is open to any Canadian organization that uses, develops or supplies marine communication products and services.

CCMC focuses on applied research in communications technologies for the fishing, shipping and off-shore resource industries. The Department's Communications Research Centre (CRC) works with CCMC, particularly through the transfer of technologies developed by CRC, and trains CCMC members on various technologies.

Telemedicine and Educational Technology Resources Agency

The Telemedicine and Educational Technology Resources Agency (TETRA) is widely known for its expertise in telemedicine, distance education and training programs.

Based at Memorial University in St. John's, Newfoundland, TETRA tailors its services to the needs of professional associations, businesses, educational institutions, and provincial and federal government departments and agencies.

Canadian Healthcare Telematics Inc.

A non-profit corporation based in Winnipeg, Canadian Healthcare Telematics Inc. (CHTI) works with government, industry, healthcare providers, and universities on projects that test, demonstrate and promote the use of telecommunications and information technology in healthcare. Examples include education for practitioners in rural and remote communities; computer conferences; workshops; and support systems that link rural practitioners with healthcare institutions.

CHTI also assists government research establishments with the transfer of technology to the private sector, and the Department relies on it to implement projects in healthcare and telematics.

Legal Information Systems and Technologies Foundation

The Legal Information Systems and Technologies Foundation (LIST), based in Vancouver at the University of British Columbia, is a non-profit society incorporated to conduct research and development in emerging information technologies for application in the legal system.

The latest LIST project was the development of a computerized information system that gives expert assistance in the application of Canadian and U.S. trade regulations. The project resulted in a commercial product, TradeRef, now being marketed. In addition to a continually updated database and expert assistance, TradeRef provides product classification, generates customs documents, and publishes a trade bulletin.

As well, LIST and the Department's Canadian Workplace Automation Research Centre collaborate in assessing the productivity of information technologies used by the legal profession.

Centre for Image and Sound Research

The Centre for Image and Sound Research at Simon Fraser University in Burnaby, British Columbia, researches and develops technology for the cultural and entertainment industries.

Current projects include work on image processing, computer graphics, computer vision and pattern recognition, 3-D animation, computer-based modelling techniques, digital sound synthesis, synchronization systems and interactive laser disc technology.

National Wireless Communications Research Foundation

Established in 1989, the National Wireless Communications Research Foundation works closely with the Department in support of several projects, including Vision 2000 and associated programs.

Wireless communications encompass products and technologies employed in satellite communications, mobile telephones, two-way radio and dispatch systems, and paging/messaging systems.

The Foundation's mandate is to develop Canadian industrial expertise in this intensely competitive field. To this end, the Foundation is involved in innovative research and development projects with industry and academia, and in the accelerated provision and training of high-tech design personnel.

The Foundation is also equipping a small specialized lab to be used by member companies and to provide training in emerging technologies and tools. The lab will facilitate the exchange of ideas between lab users, and assist Foundation researchers in transferring to industry the knowledge and technology developed by the CRC, academia and research centres.

The Foundation is focusing on ventures with potential for commercialization within three years, compared with a typical payback of five years for most R&D ventures.

OPEN SYSTEMS INTERCONNECTION

Open Systems Interconnection (OSI) is an international standard that makes interconnection among computers possible on a global scale. To facilitate the orderly introduction, exploitation and harmonization of OSI in Canada, the Department's Open Systems Interconnection program carries out standardization and research in protocols for communications, conformance-testing methodology and tools, formal description techniques, and protocol implementation.

During 1990-91, the program assisted development of several complementary software tools, based on advanced graphics techniques, for semi-automatic formal specification of communications protocols and of design methods for test suites. These tools will be used to improve test suite production. Selected results will be used by the HP/IDACOM COSTCO test centre, a private-sector corporation established through negotiations with the Department to assist with the introduction of OSI in Canada.

STANDARDS PROGRAM OFFICE

The Standards Program Office (SPO), formed in the fall of 1990, co-ordinates and supports the Department's work in Information Technology and Telecommunications standards. These standards cover a range of technologies, such as high-definition television, electronic banking systems and electronic data exchange.

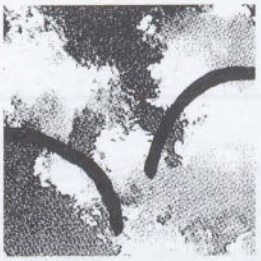
The Office provides analysis, co-ordination and recommendations for the Department's standards activities; information on standards; and support for government, national and international standards. To assist this work, SPO convened four focus groups, covering Electronic Data Interchange (EDI); the Telecommunications Standards Advisory Council of Canada (TSACC); Office Systems; and Laboratory Accreditation, Certification and Testing.

TECHNOLOGY TRANSFER AND PARTNERSHIPS

The role of the Department's Technology Transfer Office (TTO) changed substantially in 1990-91, as it assumed responsibility for protecting, licensing and marketing the Department's intellectual property. These had formerly been the responsibility of Canadian Patents and Development Limited (CPDL), the winding down of which was announced in February 1990.

TTO initiated procedures to manage the inventory of inventions previously assigned to CPDL and subsequent technologies developed by the Department. As well, the Office set up licensing and patenting procedures, including measures to monitor revenues and expenditures, and streamline internal procedures for filing patents. The Office also undertook more active marketing and concluded six licensing agreements.

TTO also supported the Department's research branches in transferring technology, conducting collaborative research, and co-ordinating several memoranda of understanding signed with industry, universities, and the public sector.



SUPPORT PROGRAMS

***Lobchuk**, Bill (Canadian, 1942).* Carol, *1974, Screenprint (2/23), 57.5 by 72.5 cm. Donated to the Mackenzie Art Gallery, University of Regina Collection, under the terms of the* Cultural Property Export and Import Act, *as a gift by the Grand Western Canadian Screen Shop Ltd.* Carol *was printed at the Grand Western Canadian Screen Shop Ltd., the oldest print workshop in western Canada devoted to printing limited edition screen prints. Bill Lobchuk established the print shop in 1968, when it was known as The Screen Shop. (Photo: Don Hall, AV Services, University of Regina © Bill Lobchuk)*

SPACE INDUSTRY DEVELOPMENT PROGRAM

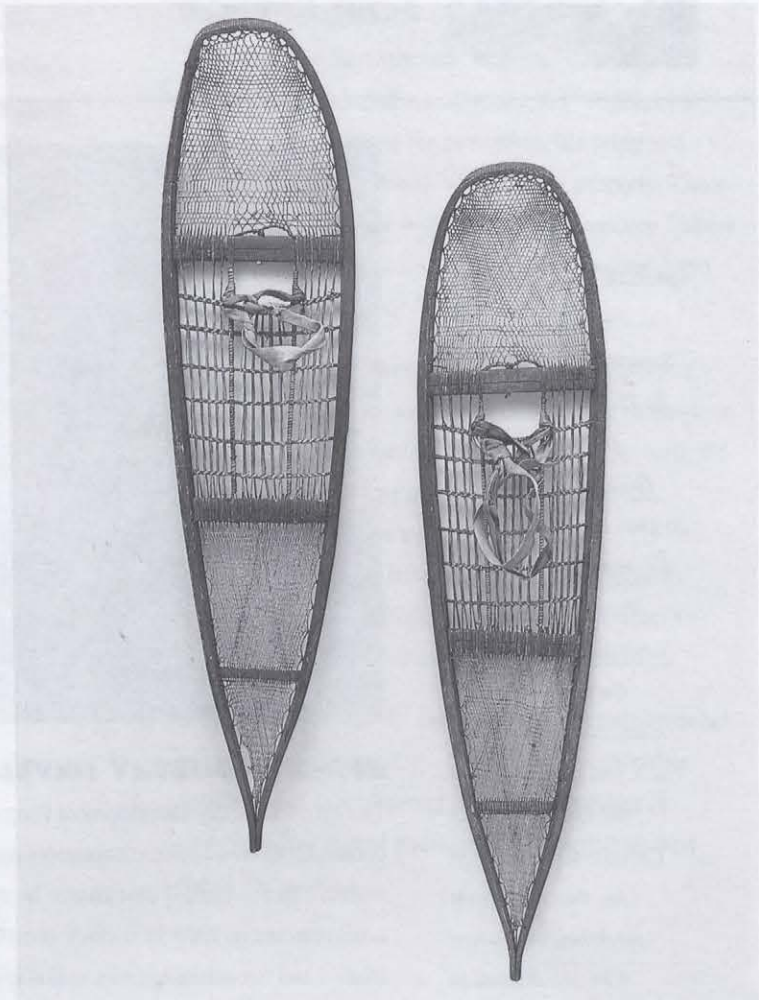
The Space Industry Development Program assists Canadian suppliers of communication satellite components and systems to become commercially viable. The Program is cost-shared between the Department and the suppliers. Its achievements in 1990-91 include completion of the advanced satcom feasibility studies and the beginning of a major system definition phase for the next generation of communication satellites.

A special component of the Program, with a budget of $41 million for the period from 1985-86 to 1990-91, helped Spar Aerospace Ltd. establish itself as a viable Canadian satellite prime contractor. As a result, Spar has become the prime contractor for the Anik E, MSAT and RADARSAT satellites.

Another program component draws on a $8.95-million fund to assist Canadian subcontractors in developing satellite components currently imported by Spar Aerospace.

CULTURAL INDUSTRIES DEVELOPMENT FUND

The Cultural Industries Development Fund was established in July 1990 to provide venture capital to Canadian cultural industries unable to obtain normal bank financing.



Pair of snowshoes, c. 1856. Gutskin, rope, length 88.5 cm. Donated to the McCord Museum of Canadian History, Montreal, under the terms of the Cultural Property Export and Import Act, *by Mr. Julien Gaudet. This pair of red and green snowshoes is from the Gaudet collection of Métis artifacts and was made by members of the Gaudet family between 1856 and 1911 when they lived in Fort Good Hope, Northwest Territories. (Photo courtesy the McCord Museum © McCord Museum)*

The $33-million fund is administered for Communications Canada by the Federal Business Development Bank (FBDB), under the terms of a memorandum of understanding with the Department.

The Fund will help cultural industries overcome obstacles they face in raising venture capital, such as high investment risk and intangible collateral, and provide financing for marketing.

The Department is providing the capital and has established program objectives and criteria. The FBDB is providing expertise in financing and advising small and medium-sized businesses through its network of 78 branches throughout Canada.

Publishing-venture applications will be considered from April 1, 1991, sound recording applications soon thereafter, and following that applications from the Canadian film industry.

CANADIAN AUDIO-VISUAL CERTIFICATION OFFICE

The Government of Canada offers tax incentives in the form of Capital Cost Allowances to investors in qualified Canadian film and videotape productions.

These incentives have played a pivotal role in financing and developing the Canadian film industry. Applying criteria that favour Canadian participation in and control of all aspects of production, the Canadian Audio-Visual Certification Office determines which productions are eligible for the Capital Cost Allowances. During 1990-91, the Office certified 307 productions with budgets totalling $790.5 million.

BOOK PUBLISHING INDUSTRY DEVELOPMENT PROGRAM

The Book Publishing Industry Development Program (BPIDP) supports Canadian publishers in their efforts to improve efficiency and profitability.

During 1990-91, $1.2 million was directed towards projects in marketing, promotion and computerization. Some $3.6 million was disbursed under the Educational Publishing Fund, designed to help Canadian publishers increase their share of the domestic market for textbooks.

On September 8, 1990, Communications Minister Marcel Masse announced the contribution of $72,500 to the Saskatchewan Craft Council towards the purchase and renovation of its new gallery. Mr. Masse (left) converses with Ms. Terry Schwalm and Mr. Winston Quan, executive members of the council, following the announcement. (Photo by Rod Andrews)

The Program's Aid to Industry and Co-operative Projects component supports collaborative initiatives by book publishers to achieve economies of scale or synergies in production, marketing and distribution. Projects receiving assistance this year included a sales-force training project by a group of literary presses, a joint book distribution project on the west coast, and a joint promotion project by Francophone publishers outside Quebec.

The Aid to Professional Associations component of BPIDP supports professional-development seminars and research geared to the needs of the publishing industry. The Export Marketing Assistance component assists publishers in buying and selling rights abroad and in marketing the works of Canadian authors internationally. A total of $2.26 million was disbursed under this component in 1990-91.

An evaluation of the Program was initiated in January 1991, and results are expected in late 1991. In addition, a national survey to update the *1978 Survey of Leisure Habits*: *Book Reading* was conducted jointly with the Department of the Secretary of State of Canada, and Multiculturalism and Citizenship Canada. Seven thousand respondents, representative of the Canadian population, were asked about leisure activities, reading activities, book purchases, use of public libraries, and children's reading habits. When completed, the survey will improve understanding of the reading habits of Canadians as they have evolved since 1978, assisting policy development and the marketing efforts of the publishing industry.

SOUND RECORDING DEVELOPMENT PROGRAM

The Sound Recording Development Program (SRDP), established in April 1986, supports and strengthens the Canadian recording industry by making funds available to Canadian companies, organizations and national trade associations. These funds help cover the costs of producing audio and video musical products and radio programs, marketing and international touring, and business development. The Program disburses approximately $5 million a year, 40 percent allocated to the French-language sector of the industry and 60 percent to the English-language sector.

In order to achieve optimal use of funds, the Department works with the private sector by having the Canadian consortium FACTOR/MUSICACTION/CANADA (FMC) administer part of the Program. As well, the Canada Council is responsible for the specialized music component of the Program.

During 1990-91, SRDP helped raise the international profile of Canada's recording industry by supporting Canadian participation at two major international events, the *Marché international du disque, de la vidéo et de l'édition (MIDEM)* in Cannes, France, and the 11th Annual New Music Seminar (NMS) in New York. As in previous years, SRDP also funded innovative projects prepared especially for these two events, including promotional compact disc (CD) recordings featuring Canadian artists. The CDs were distributed to international recording executives and distributors attending the fairs to draw attention to Canadian talent.

In addition, SRDP funded other promotional and educational projects. These included Country Music Week 1990 held in Toronto, the *Festival international de la chanson de Granby*, the 1990 *Les rencontres Radio-Activité* held in Paris and Montreal, the Alberta Recording Industry Association Workshops and *The Record's* Annual Music Industry Conference held in

Transpositions — A Public Exhibition of Contemporary Photography, *supported by the Department's Cultural Initiatives Program, was mounted along the Skytrain route in Vancouver, in a demonstration of innovative ways to increase the public's access to art.*

***Jackson**, A.Y. (Canadian, 1882-1974).* Untitled *(Fort Franklin, N.W.T.), c. 1928. Pencil on paper, 14.5 by 23 cm. Donated to the Prince of Wales Northern Heritage Centre, Yellowknife, by Dr. Naomi Jackson Groves, under the terms of the* Cultural Property Export and Import Act. *This is part of a rare collection of sketches drawn when Jackson travelled from Alberta to the Northwest Territories. (Photo courtesy the Prince of Wales Northern Heritage Centre © Dr. Naomi Jackson Groves)*

Vancouver. The Program also participated in the *Gala Félix* and the 20th annual Juno Awards.

In November 1990, the Program was established on a permanent basis, with annual funding of $5 million.

NON-THEATRICAL PRODUCTION FUND

The Non-Theatrical Production Fund was established in 1988 with an annual budget of $2 million for five years. The Fund, administered for the Department by Supply and Services Canada, provides leverage financing to Canada's non-theatrical film and video production industry. This industry produces more than 5,000 videos and films annually for use by schools, libraries, business, industry, health and social services, institutions and community groups.

NATIONAL BROADCAST READING SERVICE

In its efforts to improve Canadians' access to broadcasting services, the Department contributed $200,000 in seed money to the National Broadcast Reading Service (NBRS) in 1988 to provide a reading service to Canadians with sight impairments. In subsequent years, the service has received $100,000 annually from the Department to further help establish the service and assist with operations. This commitment will continue until 1992-93.

In 1990, the CRTC licensed NBRS to deliver a package of English-language readings of daily newspapers and periodicals via satellite for cable distribution to the target audience. The CRTC also licensed Quebec-based La Magnétothèque to provide a similar service in French. Relying largely on volunteers, these services offer their audiences a rich, new source of information.

CANADIAN HERITAGE INFORMATION NETWORK

The Canadian Heritage Information Network (CHIN), a program of the Department's Arts and Heritage Sector, helps Canadian museums manage their collections and share information with other museums and cultural agencies.

CHIN also provides access to approximately 122 databases holding 6.5 million records, mostly describing museum collections. Four hundred museums, conservation organizations and other cultural agencies in 22 countries use these databases through telecommunications networks.

A current priority is to expand the Network, by developing regional networks in partnership with provincial organizations, to ensure that all Canadian museums have the opportunity to access CHIN.

Through its technology assessment centre, CHIN plans to establish technical standards to foster development of information management systems for museums. Standards for recording museum information will be developed through its fellowship program. CHIN also plans to encourage more active participation by Network members and to expand the range of information it provides, both to the national and international museum community. For example, during 1990-91 CHIN offered a six-week course on documentation and computerization methods to museum professionals from member countries of the Association of South East Asian Nations.

In addition, CHIN has offered its 18 years of experience in cultural information networks and heritage databases to help develop a worldwide network to facilitate investigations of art thefts. CHIN made the offer after the eighth United Nations' Congress on the Prevention of Crime and the Treatment of Offenders, which resolved to develop an automated network to exchange information on crimes involving movable cultural property.

MOVABLE CULTURAL PROPERTY PROGRAM

The *Cultural Property Export and Import Act* of 1977 protects objects of cultural significance to Canada by regulating their export.

The Department's Movable Cultural Property Program administers the Act. The Program also helps Canadian institutions build their collections: it administers tax incentives for individuals and corporations which donate or sell cultural objects to designated institutions, and it provides grants or loans to repatriate important pieces held outside Canada or to purchase them in Canada when export permits have been denied.

The Canadian Cultural Property Export Review Board met six times during 1990-91 to consider 1,158 applications for certification of cultural property valued at

A group of young people observe a demonstration of weaving skills during the Festival du Voyageur in St. Boniface, Manitoba. (Photo courtesy Festival du Voyageur)

$57.9 million. The Board also heard 17 appeals in cases where export permits had been denied. Thirty-five applications for cultural property grants were approved by the Board, for a total of $1.7 million.

Of particular significance was a painting by Paul Peel, repatriated by the London Regional Art and Historical Museums. The painting was awarded an honourable mention at the Spring Salon in Paris in 1889, making it one of the first Canadian paintings to receive international acclaim. Among other grants, the Cranbrook Railway Museum received assistance to purchase a historic railway artifact, the "Curzon," an observation/buffet/sleeper car built in 1907 for the Soo-Spokane Train Deluxe. A grant to the Confederation Centre Art Gallery and Museum in Charlottetown, P.E.I., enabled it to acquire a sketchbook by Margaret Beazeley. The sketchbook contains views of Prince Edward Island from 1849 to 1855, providing valuable historical and architectural information.

MUSEUMS ASSISTANCE PROGRAM

The Museums Assistance Program (MAP) supports and strengthens Canada's heritage institutions by providing grants, to museums and galleries, assisting them in preserving and exhibiting objects of importance to the country's heritage.

During 1990-91, the Program distributed approximately $12.5 million in grants, including $74,100 to help the Vancouver Maritime Museum produce a travelling exhibition about Spanish exploration of the Pacific Northwest; $67,800 to Calgary's Glenbow Museum toward the cost of mounting an exhibition featuring paintings by Lawren Harris; $68,000 to the Museums Association of Saskatchewan for development of a collection documentation management system for Saskatchewan museums; $180,000 to the Musée des arts et des traditions populaires du Québec in Trois-Rivières for the planning of museum programming; and $197,000 to the Nova Scotia Museum in Halifax to assist with its public programming.

In line with the Department's goal to augment the role of its regional offices, responsibility for delivery of the Program was assigned to them during 1990-91.

INSURANCE PROGRAM FOR TRAVELLING EXHIBITIONS

The Department helps Canadian museums, galleries, archives and libraries to mount travelling exhibitions by subsidizing the costs of insuring the exhibitions in transit and on location. The Program applies only to exhibitions containing works valued at $1 million or more. During 1990-91, 13 exhibitions were insured to a value of $652 million.

CULTURAL INITIATIVES PROGRAM

Since 1984, the Cultural Initiatives Program (CIP) has provided financial support to non-profit Canadian, professional cultural groups. Contributions are intended to help groups:

- develop management skills;
- develop innovative ways of applying communications technologies in their work;
- bring professional performing and visual artists to audiences throughout Canada;
- build a Canadian network of facilities for the performing and visual arts, museums and heritage institutions, and other cultural institutions; and
- support festivals and special events of national character or significance.

In 1990-91, the Program supported 475 projects, with a total of $17,535,719 in contributions.

Contributions under CIP's Management Assistance Component included, for example: Symphony New Brunswick, $40,000; Conseil des métiers d'art du Québec, $225,000; L'Agora de la danse in Montreal, $474,000; Theatre Aquarius in Hamilton, $500,000; Centre culturel franco-manitobain in Winnipeg, $100,000; and the Meewasin Valley Authority in Saskatchewan, $500,000.

The Program supported several festivals and special events across the country, including *Festival de musique baroque* in New Brunswick, $25,000; *Jeux Canada Games* in Prince Edward Island, $185,000; *Quinzaine internationale de théâtre* in Quebec City, $205,000; Canada Dance Festival, $125,000; Winnipeg International Children's Festival, $30,000; Chinook Theatre Society in Alberta, $40,000; and the First Vancouver Theatrespace Society in British Columbia, $41,000.

National service organizations receiving funding from the Program were: The Arts and The Cities, $25,000; ANNPAC (Association of National Non-Profit Artists' Centres) $35,000; The Council for Business and the Arts $25,000; the Canadian Actor's Equity Association, $2,300; and CAPACOA (Canadian Arts Presenters Association/l'Association canadienne des organismes artistiques) $45,000.

The Cultural Initiatives Program and its forerunner, the Special Cultural Initiatives Program, have been in operation for 11 years. During this period, $160 million has been disbursed in direct support of Canada's cultural sector.

HERITAGE SERVICES

In 1990-91, the Department established the Heritage Services Unit by combining the former Preservation Unit and the Exhibition Transportation Services section of the Museums Assistance Program. The Heritage Services Unit assists museums with collection preservation and Facility development. Its goal is to provide greater visibility to the non-financial services of the Department to the heritage community and other government organizations.

During 1990-91, Heritage Services provided facility planning and advice on technical design to 104 organizations. Transportation services assisted 89 institutions by transporting art and artifacts valued at more than $1 billion.

FRENCH-LANGUAGE CENTRES OF EXCELLENCE DEVELOPMENT AND PROMOTION PROGRAM

The French-language Centres of Excellence Development and Promotion Program has two goals: first, to increase Francophone participation in technical, scientific and professional activities; and second, to foster a working environment conducive to the equitable use of French and English. The Program awards research contracts to French-language and bilingual universities to develop centres of excellence that work in areas of interest to the Department. In 1988-89, a new component was added to the Program for the awarding of contracts to bring graduate-level researchers into the Department to work on in-house research projects.

During 1990-91, the Department awarded 13 contracts under the Program, for a total of $316,000.

INTERNATIONAL ACTIVITIES

INTERNATIONAL TELECOMMUNICATION UNION

Preparation for World Administrative Radio Conference

Through the Canadian Preparatory Committee made up of government and private users of radio frequencies, the Department led discussions and advanced Canadian proposals and positions on frequency allocations for the 1992 World Administrative Radio Conference (WARC '92), to be held by the International Telecommunication Union (ITU) in Spain.

Delegates to WARC '92 will reallocate radio spectrum in the 1-3 GHz bands and in bands above 10 GHz. This will allow new services, such as personal communications, to be accommodated on the radio frequency spectrum and provide additional spectrum for existing services.

A CITEL Conference, held under the auspices of the Organization of American States, one of the forums the Department participates in to ensure the advancement of Canada's telecommunications interests within South, Central and North America, and the Caribbean.

In preparation for the conference, the Department carried out extensive technical analysis with industry, to develop Canadian negotiating positions to acquire more spectrum, while minimizing the effects on the investments of existing users, which total $1.8 billion.

Canada published its first draft proposals in January 1991 and Gazetted them for public comment in March. Canada was the first country to submit a comprehensive set of draft proposals for multilateral discussions at WARC '92.

High Level Committee of the ITU

The Department, through its International Relations Branch, chaired the High Level Committee of the International Telecommunication Union, which was established to recommend improvements to the ITU's structure and operations. The Committee achieved a difficult consensus on sweeping changes to the ITU, including changes

to its regulatory and standard-setting functions, its role in assisting developing countries and improvements in its financial, personnel, and information management.

INTERNATIONAL MOBILE SATELLITE CONFERENCE

The Communications Research Centre organized the second International Mobile Satellite Conference (IMSC '90), held June 18-20, 1990 in Ottawa. Five hundred participants from 145 organizations took part, and 125 technical papers were presented at the conference, sponsored jointly with the United States' NASA Jet Propulsion Laboratory.

INTERNATIONAL MARKETING

During 1990-91, the Department's international marketing activities directly assisted Canadian companies in generating $130 million in sales abroad. These sales included a $50-million contract for Bell Canada International with the Government of Morocco, a $20-million contract for SR Telecom with the Government of Tunisia, a $20-million contract for Glenayre with the Government of Saudia Arabia, a $22-million contract for SaskTel with the Government of the Philippines, and a $13-million contract for Canadian Marconi with the Government of Indonesia.

INTER COMM '90

Communications Canada managed the federal government's participation in Inter Comm '90 in Vancouver in November 1990. The event, the first major telecommunications exhibition and congress held in Canada, drew 5,000 delegates.

With Canadian companies accounting for more than half the 160 exhibitors, Inter Comm '90 showcased advances in fibre optics, satellite communications, and cellular telephone systems. The event gave exposure to smaller Canadian companies that might not have been able to participate in a similar conference outside Canada.

Inter Comm '90 was set up by the British Columbia provincial government; private industry; External Affairs and International Trade Canada; Industry, Science and Technology Canada; and Communications Canada.

PRODUCTION OF AN IMAX FILM FOR EXPO '92 IN SEVILLE

As part of Canada's participation at the Seville World Exposition, the Department made a financial contribution and is providing technical support for production of an IMAX film to be shown at Canada's pavilion at Expo '92 in Spain. The Department also secured an agreement with the National Film Board of Canada (NFB) to produce the film. The NFB, in turn, will work with other partners, including Telefilm Canada, to complete financing of the film.

Toronto-based IMAX is a world leader in cinema technology, renowned for its revolutionary projection system and giant-screen theatres. The IMAX film to premiere at Expo '92 will use a new projection system developed by the company.

TV5

TV5 is a French-language television network in which Canada, Quebec, France, Switzerland and Belgium participate. The network provides a showcase for Canadian programs and artists, and offers Canadian viewers access to the programming of the European participants. It thus serves as a tool for multilateral co-operation and communication between French-speaking peoples.

TV5 has two components: TV5 Europe, created in 1984, in which Canada and Quebec have participated since 1986; and TV5 Quebec-Canada, created in 1988. A.A.Satellimages-TV5 is responsible for TV5 Europe. The Consortium de Télévision Québec-Canada (CTQC) is the licensee for TV5 Quebec-Canada and is responsible for supplying the Canadian and Quebec

programming that makes up one ninth of the TV5 Europe program schedule.

In May 1990, the advisory committee on TV5 published a report with recommendations on the programming and structure of TV5 Quebec-Canada, and on mechanisms to enhance the Canadian presence on TV5 Europe.

Also in May, representatives of Belgium, France, Switzerland, Canada and Quebec established the Conference of Ministers responsible for TV5. This body will define TV5's overall direction, set government funding levels, define geographical development priorities and rule on the admission of new member countries or governments. The five governments also agreed to set up a single Co-operation Council to replace the separate councils that now exist for TV5 Europe and TV5 Quebec-Canada.

Extending the reach of TV5, particularly to Eastern Europe, Africa and the United States, is currently a priority for the network.

RETRANSMISSION OF RADIO-CANADA'S *LE TÉLÉJOURNAL* IN EUROPE

Radio-Canada's newscast, *Le Téléjournal,* began airing on the French FR3 public television network in October 1990. About 56 million French people have access to the daily newscasts on FR3, allowing Canada to make the general public in France more aware of Canadian concerns. The Canadian newscast serves as the counterpart to daily rebroadcasts in Canada of news from France's TF1 and A2 networks over the facilities of TV5 (Quebec-Canada).

The Quebec-Canada television consortium responsible for Canadian participation in TV5 also began exploring distribution of *Le Téléjournal* and other Canadian newscasts elsewhere in Europe and to Africa.

FILM AND TELEVISION CO-PRODUCTION AGREEMENTS

Canada has signed 22 bilateral film and television co-production agreements over the last 20 years. In today's economic climate, official co-productions are increasingly popular as a means to co-finance film production and acquire access to the larger international marketplace. The Department negotiates co-production agreements on behalf of the Government of Canada and Telefilm Canada administers them.

During 1990-91, Communications Canada signed bilateral film and television co-production agreements with Australia, Hong Kong, Mexico; a Protocol of Amendment with Great Britain; amendments to the New Zealand Agreement; and a mini-treaty with France to encourage more French-language co-production. In a related marketing initiative, the Department also contributed financially to a project to promote and publicize Canadian productions in the Soviet Union, including the presentation of Canadian-made films in Moscow's Horizon movie theatre.

The film La Demoiselle Sauvage, *directed by Lea Pool, is a Canada-Switzerland co-production starring Patricia Tulasne and Matthias Habich. (Photo courtesy Telefilm Canada)*

CANADA-FRANCE MUSEOLOGY AGREEMENT

In November 1990, Canada concluded an agreement with France for co-operation and exchanges in the museum field. The intent of the agreement is to strengthen cultural relations and make Canadian culture, museums, collections and expertise better known abroad.

A framework for projects in museology and archaeology, the agreement will encourage exchanges of exhibitions, specialists and trainees, thus promoting the work of the two countries and the sharing of information concerning conservation, restoration and research.

The agreement reflects Canada's new museum policy and complements other agreements between France and Canada in the audio-visual field.

URUGUAY ROUND OF GATT NEGOTIATIONS

The Department's participation in the Uruguay round of negotiations on the General Agreement on Tariffs and Trade (GATT) included chairing the negotiating group on telecommunications services. Before the round was suspended in December 1990, an agreement had been largely reached at GATT that would safeguard Canada's cultural industries and promote the export of Canadian telecommunications equipment and services. Both these goals remain key Canadian objectives in international trade negotiations.

EUROPEAN MISSION ON DISTANCE LEARNING AND COMPUTER-BASED TRAINING

The Department assumed the lead in organizing a major mission in which Canadian institutions and private firms explored possibilities for collaboration with European firms in developing learning technologies. This involved wide-ranging discussions with officials responsible for the European Community's DELTA program (Developing European Learning through Technological Advance). A highlight of the consultations was the Department's participation in the major planning session of the DELTA participants in February 1991. This led to substantial European interest in the proposed Canadian mission, planned for June 1991, which will encompass meetings with companies and institutions in five European countries.

ICOM 1992

The International Council of Museums (ICOM) will hold its 26th conference in Quebec City in September 1992. This is only the second time the triennial event will have taken place in North America. Nearly 2,000 people are expected to attend. As well, participants and the general public will be invited to the *Salon international des musées* (international museums showcase), to be held from September 22 to 27, 1992, at the Centre municipal des Congrès de Québec. The Department will contribute to the conference and the showcase both financially and through the loan of departmental staff.

U.S./CANADA RADIO LIAISON

Because border communities must share radio spectrum, the Canadian and U.S. governments have long co-ordinated their spectrum management activities. The Department liaises with appropriate agencies in the United States, such as the Federal Communications Commission (FCC) and the National Telecommunications and Information Agency (NTIA).

In 1990, the Department concluded two sharing agreements with the FCC for frequency bands in the 800-MHz range. These bands were recently made available in Canada for public safety services and other land mobile services. The Department and the FCC also reviewed policies relating to transborder satellite services, and prepared for a round of senior level telecommunications discussions during the first quarter of 1991-92.

MANAGING THE DEPARTMENT

PUBLIC SERVICE 2000

The Department has played a strong leadership role in Public Service 2000 — the government's policy for renewal of the Public Service of Canada. The Deputy Minister chaired the Task Force on the Management Category and several assistant deputy minister s were members of other task forces.

During 1990-91, the Department launched several PS 2000 initiatives to improve service to the public, reduce red tape, and manage more effectively. These included:

- the restructuring of the Department to enhance the responsibilities of the Regional Executive Directors and to prepare for delegation of service programs to the Regions;
- a decision to implement a Single Operating Budget on April 1, 1992, a year before this will become the practice throughout the public service;
- appointment of a senior manager at headquarters and co-ordinators in each Regional Office to develop PS 2000 action plans; and
- an emphasis on better internal communications.

Open communications with the unions concerning PS 2000 has also been emphasized through the Department's Labour Management Committees at Headquarters and the Regions.

A conference on the theme "Women at DOC — Today and Tomorrow," one of many initiatives intended to encourage employees' participation in shaping the future of Communications Canada.

Managers participate in a group discussion during the Department's annual Strategic Planning Session.

USE OF TECHNOLOGY TO IMPROVE EFFICIENCY

The Department's expanding local area networks (LANs) are augmenting the power and effectiveness of the personal computers now used by two thirds of its employees.

By March 31, 1991, 1,700 personal computers were connected to 160 LANs throughout the Department. Many of these were linked into wide area networks (WANs) that allow users to communicate with other sectors and regions. Network users can access shared databases to update files, look up information without disturbing the work of others, exchange files electronically and communicate via electronic mail.

The Department launched a videoconferencing pilot project in August 1990 to promote more effective communications between senior managers at Headquarters and in the Regions, while reducing travel costs.

Videoconferencing is expected to become increasingly common in the public service as equipment and facilities improve and users become more familiar with the technology and its advantages.

REDUCING PAPER BURDEN

In keeping with the work plan set out in the Department's Mission statement, *Challenge for Change*, senior management established the Committee to Reduce Excessive Bureaucracy. The committee's mandate is to review, simplify and improve bureaucratic procedures. The objective is the elimination of duplicate, obsolete or unnecessary information requests.

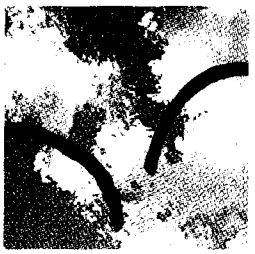
In turn, the committee, represented by all sectors and regions, organized working groups to examine forms and procedures for finance, planning, and security and travel. Future groups are planned for human resources, administration, and regional office operations.

STRATEGIC PLANNING

During 1990-91, the Department undertook a series of workshops and seminars aimed at managing change by establishing a shared understanding of the challenges and opportunities for the Department and building a consensus on strategies to address them.

The 1990-91 series of workshops and seminars dealt with the globalization of communications and culture, the emergence of new media, communications and culture in the twenty-first century, and managing the future through creativity and innovations. These events were followed in September 1990 with the Key Issues Forum for Senior Managers, which discussed the issues arising from the workshops. This, in turn, was followed by the annual Strategic Planning Session.

In February 1991, a second series of workshops was announced under the theme *Managing Change: An Agenda for Strategic Thinking*. Again the series will continue through the spring and summer and culminate in the September 1991 Strategic Planning Session.

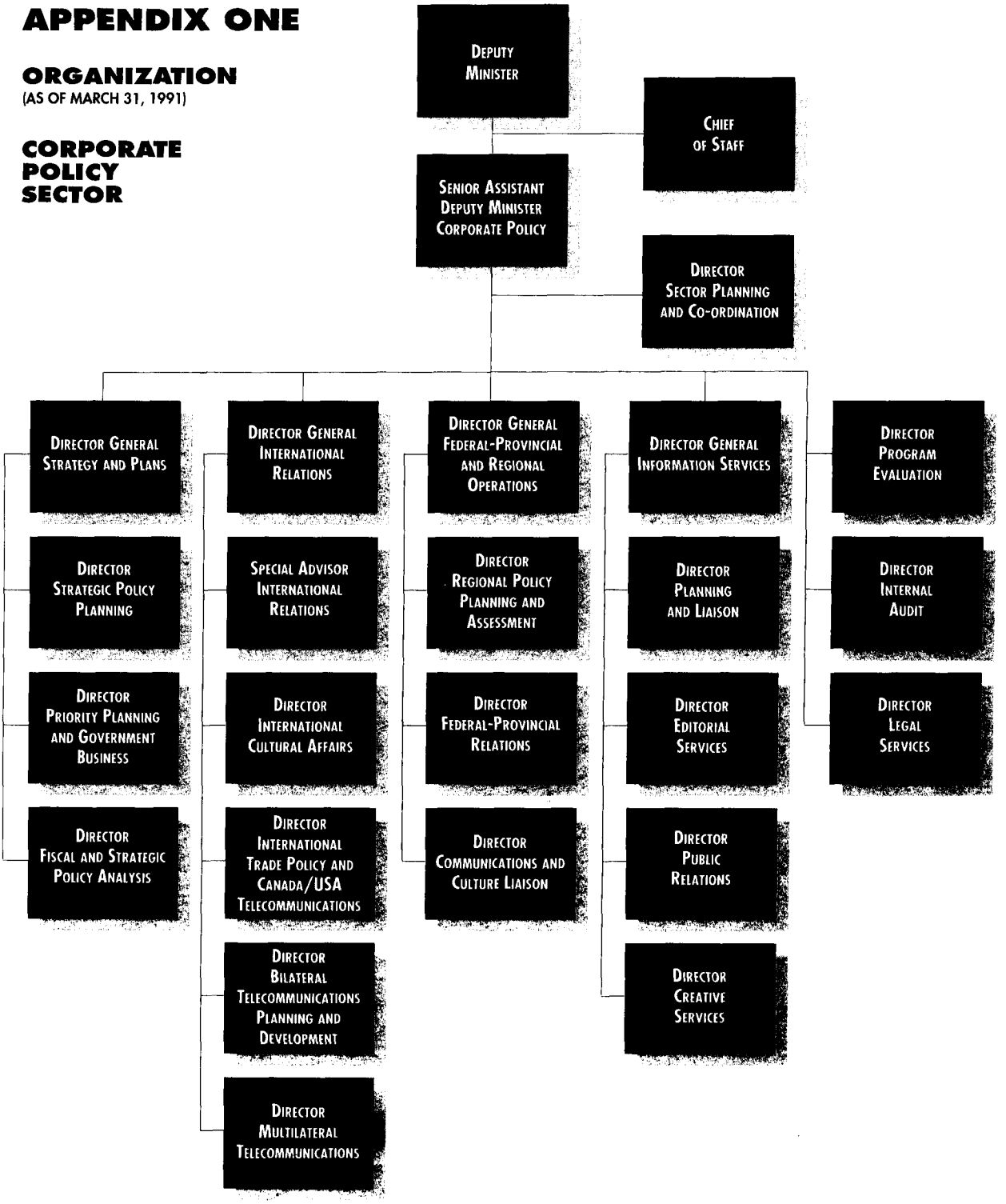


APPENDICES

APPENDIX ONE

ORGANIZATION
(AS OF MARCH 31, 1991)

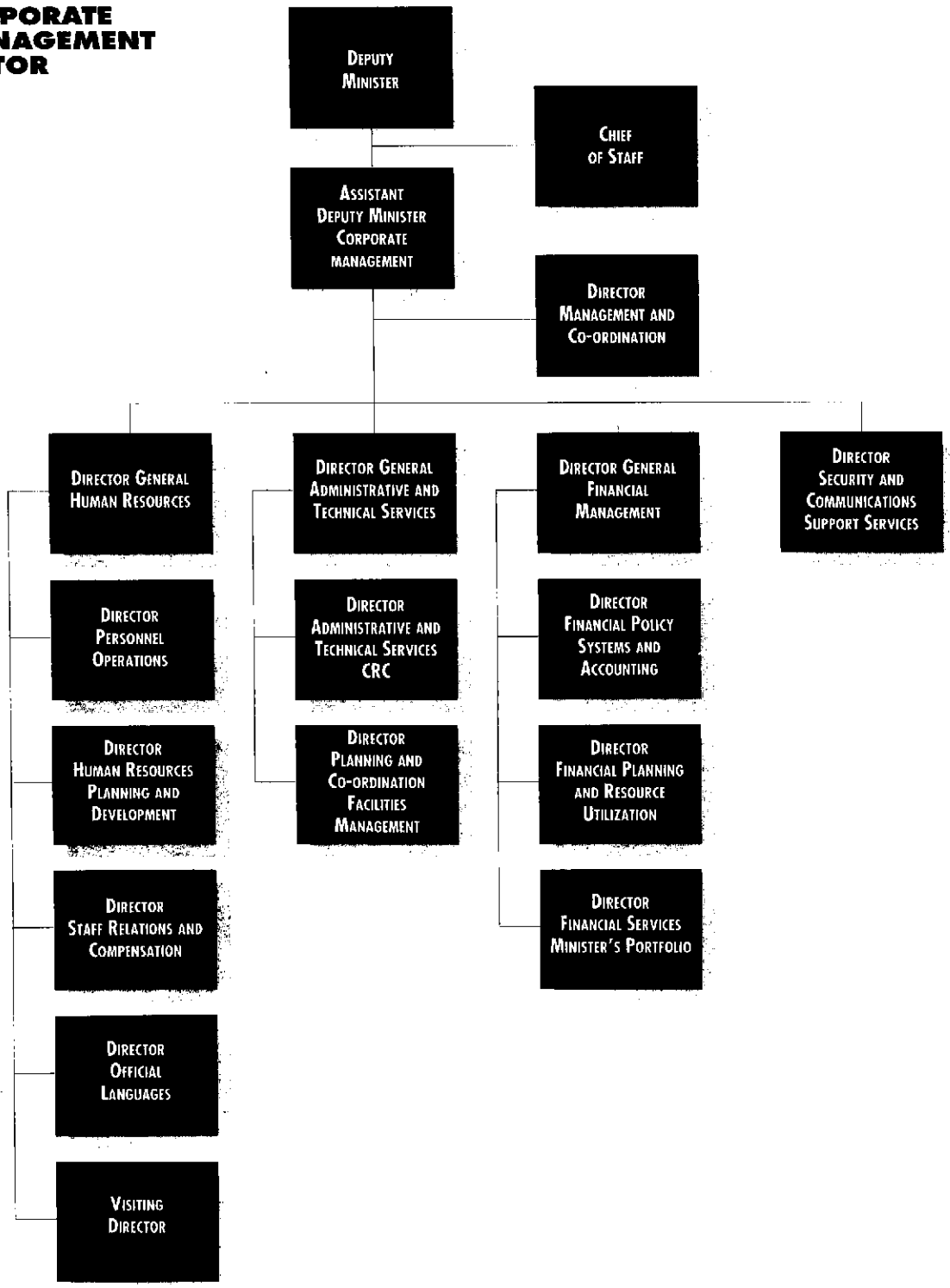
CORPORATE POLICY SECTOR



APPENDIX ONE

ORGANIZATION

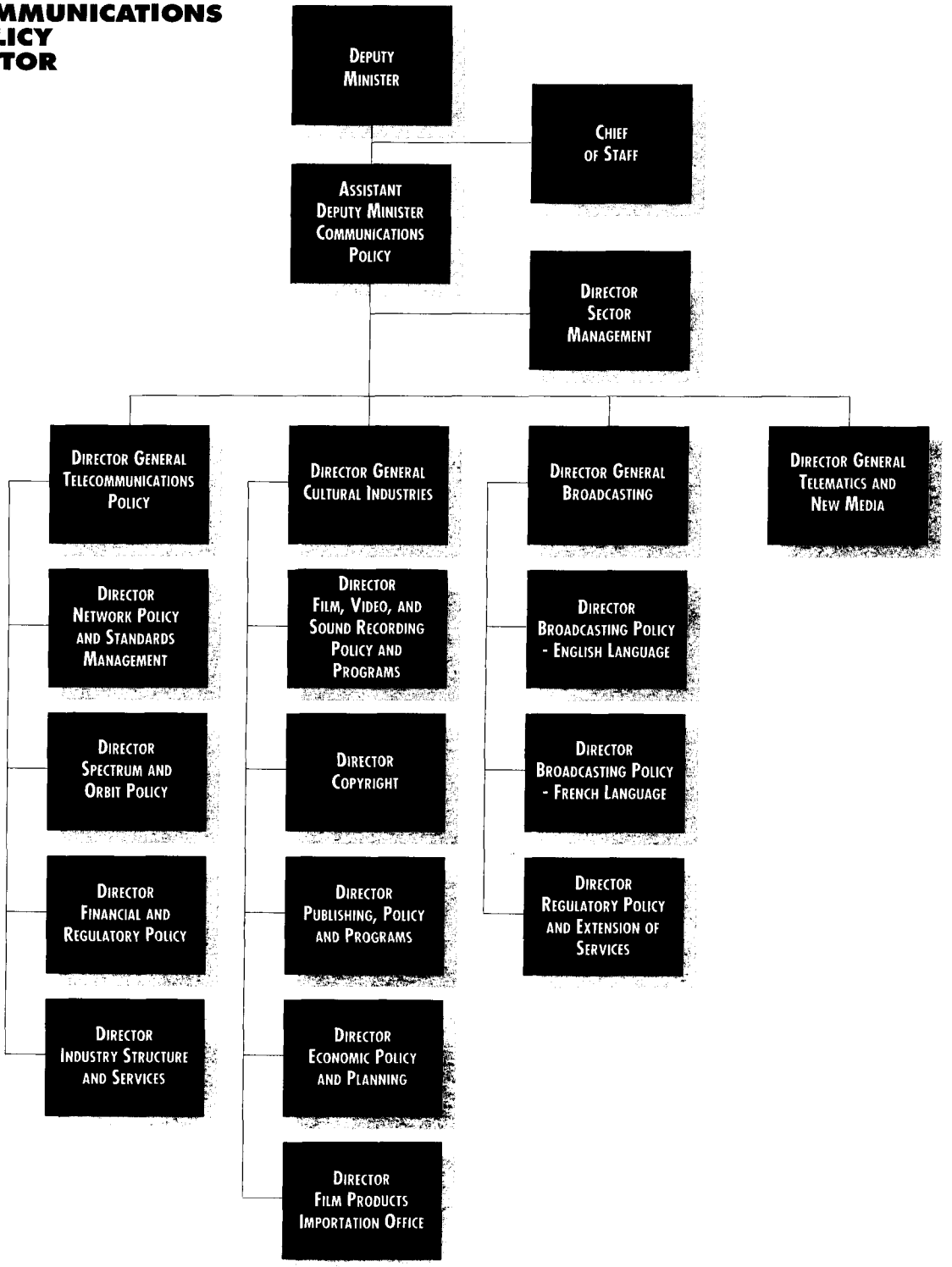
CORPORATE MANAGEMENT SECTOR



APPENDIX ONE

ORGANIZATION

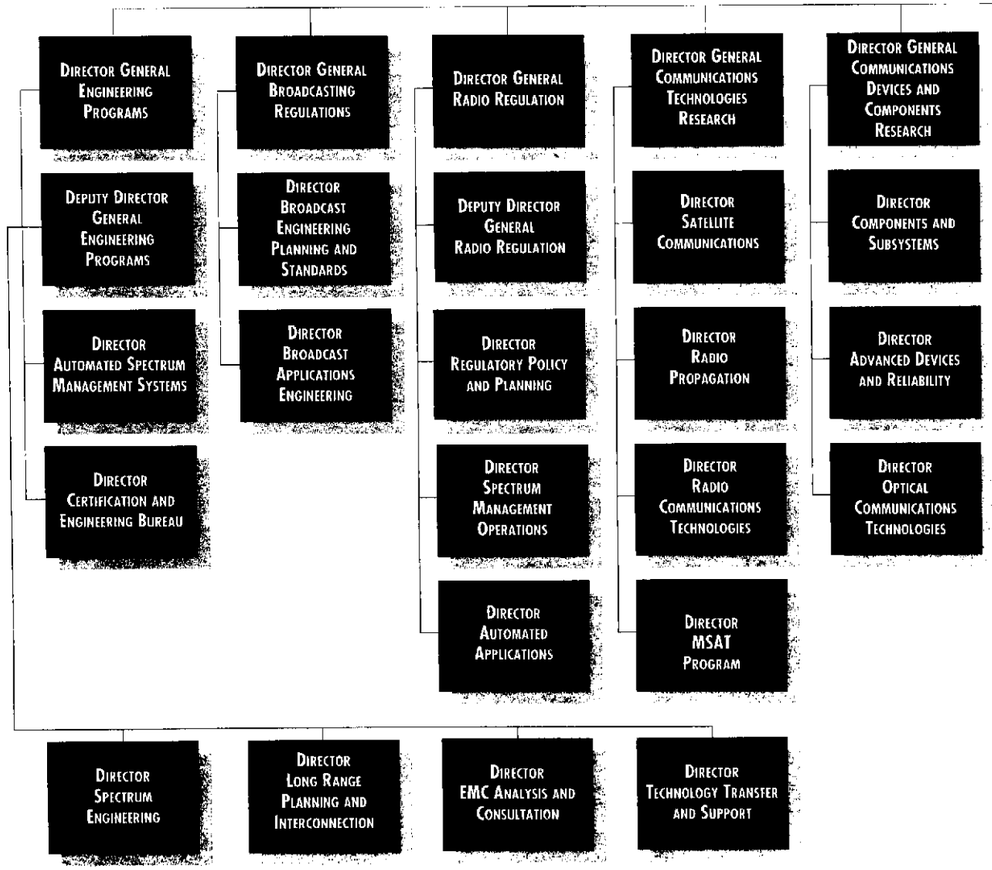
COMMUNICATIONS POLICY SECTOR

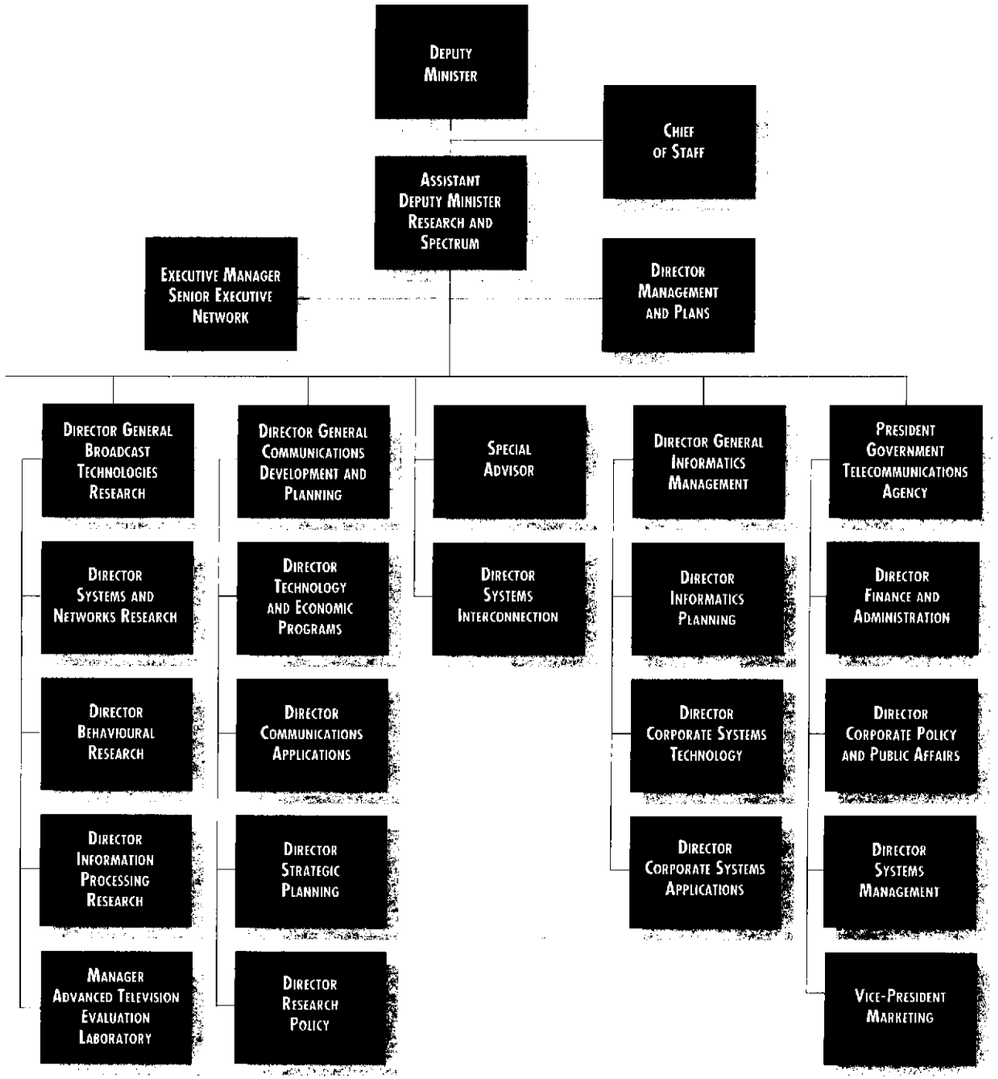


APPENDIX ONE

ORGANIZATION

RESEARCH AND SPECTRUM SECTOR

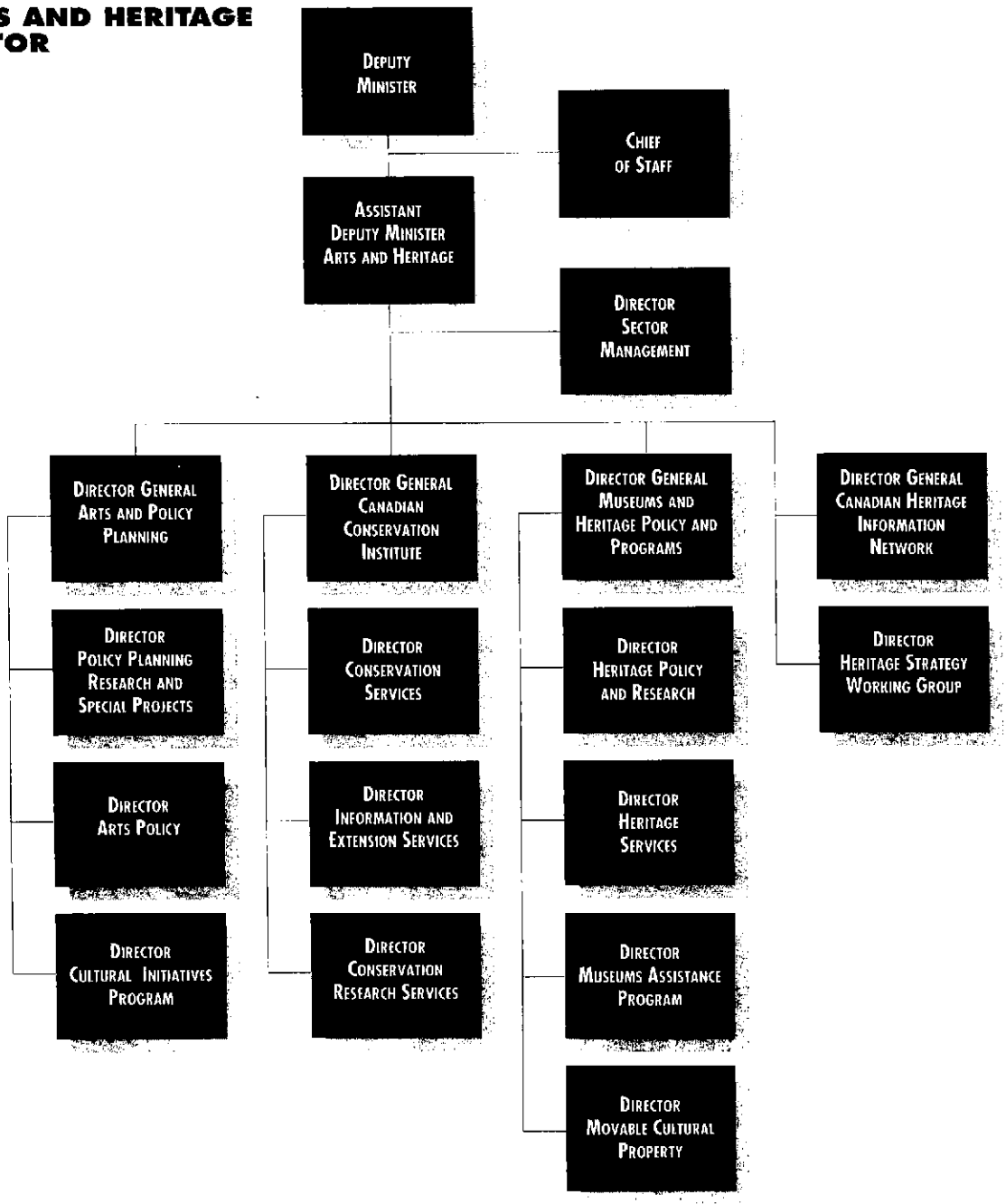




APPENDIX ONE

ORGANIZATION

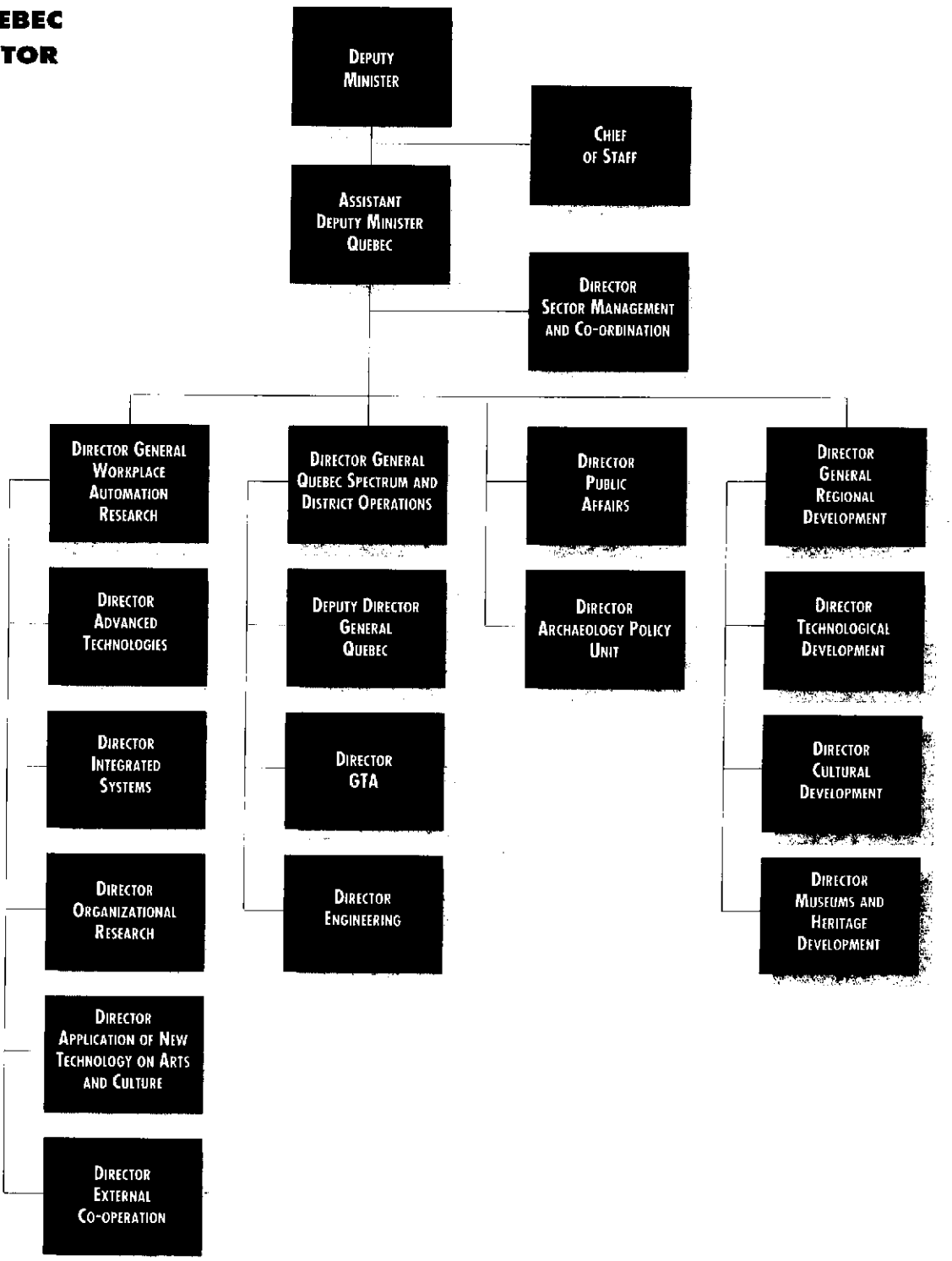
ARTS AND HERITAGE SECTOR



APPENDIX ONE

ORGANIZATION

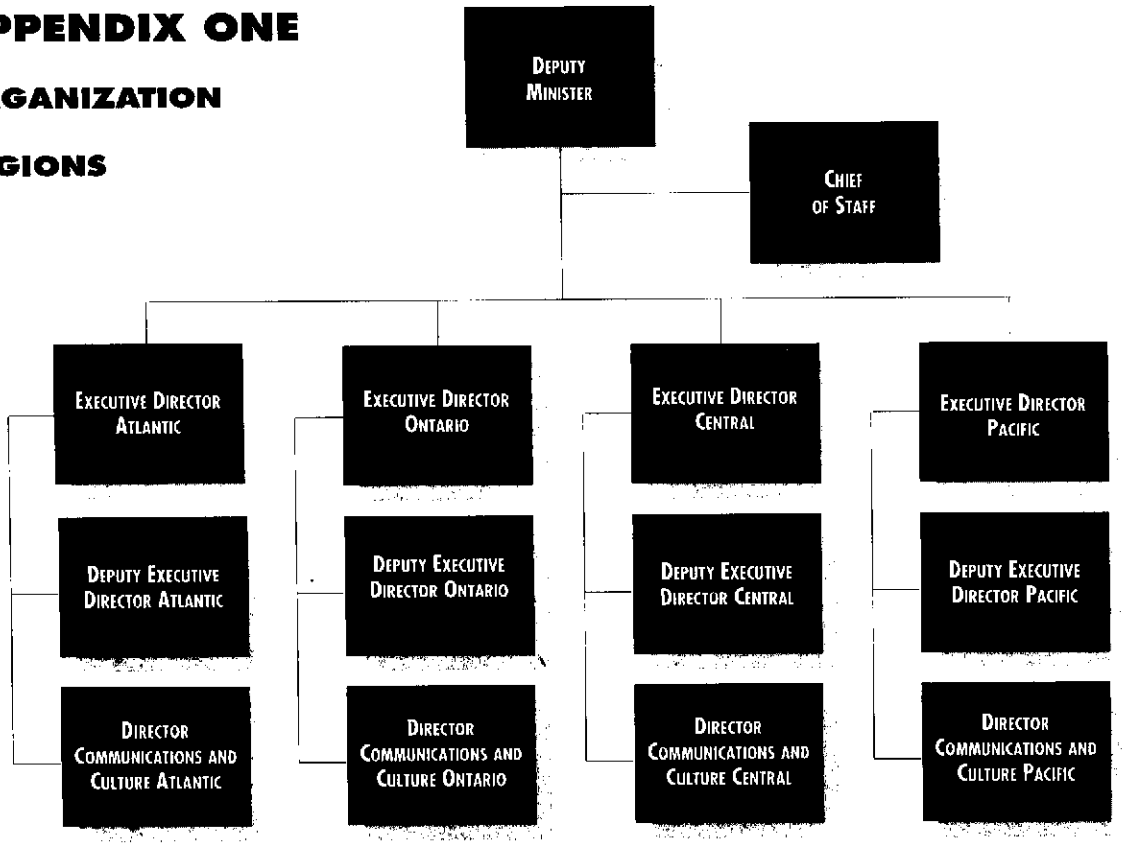
QUEBEC SECTOR



APPENDIX ONE

ORGANIZATION

REGIONS



APPENDIX TWO

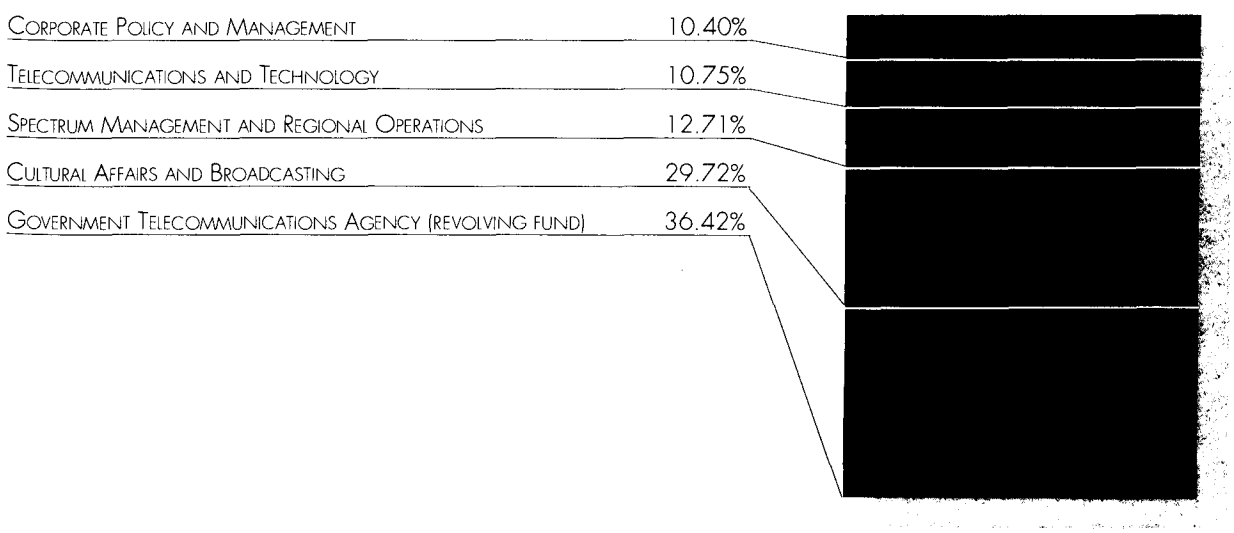
EXPENDITURES BY ACTIVITY 1990-1991

IN THOUSANDS OF DOLLARS

COMMUNICATIONS AND CULTURE PROGRAM	GROSS EXPENDITURES	REVENUE CREDITED TO THE VOTE	NET EXPENDITURES
Corporate Policy and Management	60,944	2,400	58,544
Cultural Affairs and Broadcasting	174,239	1,283	172,956
Government Telecommunications Agency (Revolving Fund)	213,496	213,439	57
Spectrum Management and Regional Operations	74,488	665	73,823
Telecommunications and Technology	63,070	4,409	58,661
Total	**586,237**	**222,196**	**364,241**

APPENDIX THREE

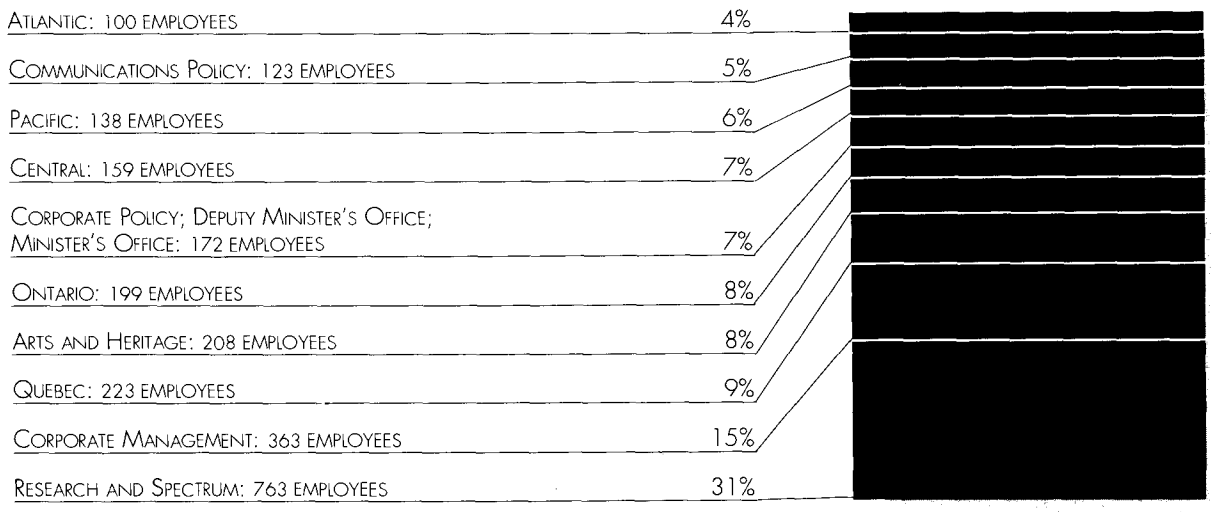
GROSS EXPENDITURES BY ACTIVITY 1990-1991



APPENDIX FOUR

DISTRIBUTION OF EMPLOYEES BY SECTOR

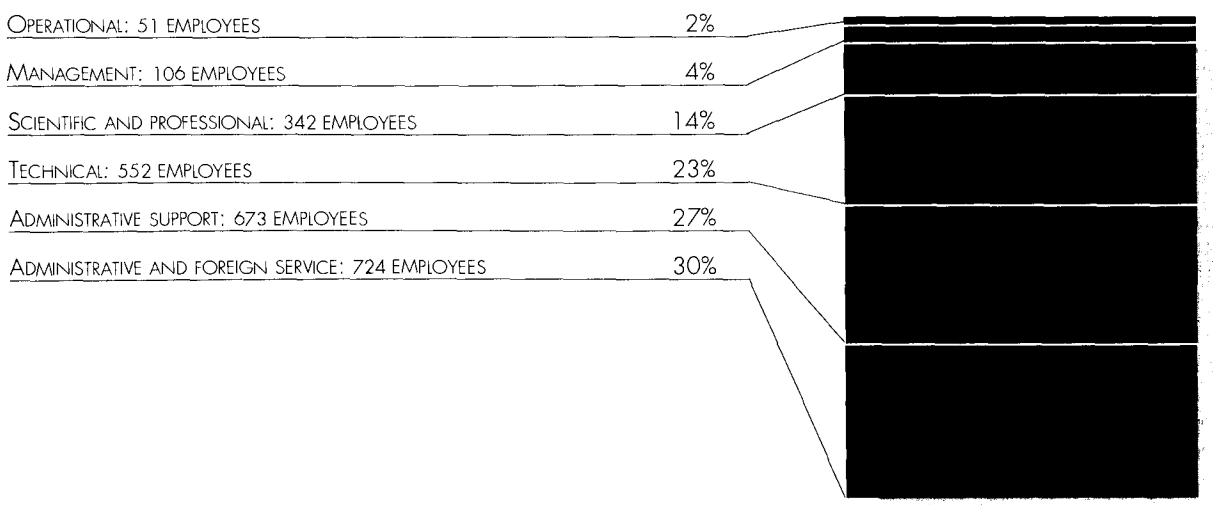
AS OF MARCH 31,1991



APPENDIX FIVE

DISTRIBUTION OF EMPLOYEES BY EMPLOYMENT CATEGORY

AS OF MARCH 31,1991

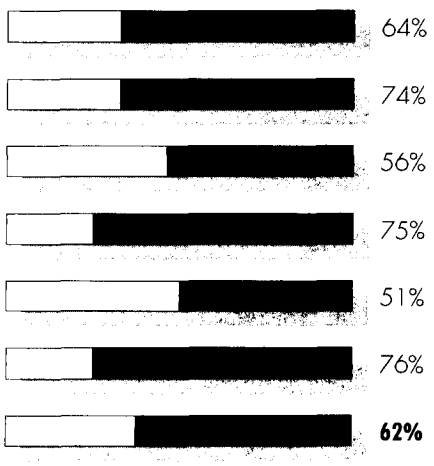


APPENDIX SIX

DISTRIBUTION OF EMPLOYEES BY EMPLOYMENT CATEGORY AND BY FIRST OFFICIAL LANGUAGE

AS OF MARCH 31,1991

	FRENCH	ENGLISH
MANAGEMENT: 106 EMPLOYEES	36%	64%
SCIENTIFIC AND PROFESSIONAL: 342 EMPLOYEES	26%	74%
ADMINISTRATIVE AND FOREIGN SERVICE: 724 EMPLOYEES	44%	56%
TECHNICAL: 552 EMPLOYEES	25%	75%
ADMINISTRATIVE SUPPORT: 673 EMPLOYEES	49%	51%
OPERATIONAL: 51 EMPLOYEES	24%	76%
TOTAL : 2,448 EMPLOYEES	**38%**	**62%**

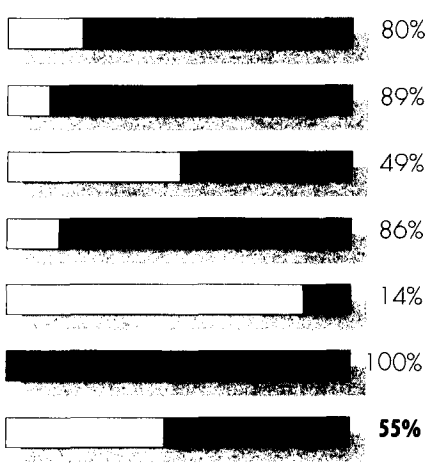


APPENDIX SEVEN

DISTRIBUTION OF EMPLOYEES BY EMPLOYMENT CATEGORY AND SEX

AS OF MARCH 31,1991

	WOMEN	MEN
MANAGEMENT: 106 EMPLOYEES	20%	80%
SCIENTIFIC AND PROFESSIONAL: 342 EMPLOYEES	11%	89%
ADMINISTRATIVE AND FOREIGN SERVICE: 724 EMPLOYEES	51%	49%
TECHNICAL: 552 EMPLOYEES	14%	86%
ADMINISTRATIVE SUPPORT: 673 EMPLOYEES	86%	14%
OPERATIONAL: 51 EMPLOYEES	0%	100%
TOTAL : 2,448 EMPLOYEES	**45%**	**55%**



APPENDIX EIGHT

ADDRESSES

Communications Canada Headquarters
300 Slater Street, Ottawa, Ontario, K1A 0C8

RESEARCH FACILITIES

Communications Research Centre
3701 Carling Avenue
P.O. Box 11490, Station H
Ottawa, Ont.
K2H 8S2

Canadian Workplace Automation Research Centre
1575 Chomedey Blvd.
Laval, Que.
H7V 2X2

Canadian Conservation Institute
1030 Innes Road
Ottawa, Ont.
K1A 0C8

REGIONAL AND DISTRICT OFFICES

Atlantic Region

Regional Office

Communications Canada
Terminal Plaza Building
7th Floor
1222 Main Street
P.O. Box 5090
Moncton, N.B.
E1C 8R2

District Offices

New Brunswick

Communications Canada
Customs Building
Room 337
189 Prince William Street
Saint John, N.B.
E2L 4S6

Nova Scotia

Communications Canada
9th Floor, Willow Tree Tower
6009 Quinpool Road
Halifax, N.S.
B3K 5J7

Prince Edward Island

Communications Canada
Dominion Building
3rd Floor
97 Queen Street
Charlottetown, P.E.I.
C1A 4A9

Newfoundland

Communications Canada
Building 302, 2nd Floor
Pleasantville
P.O. Box 9277, Stn. B
St. John's, Nfld
A1A 2X9

Quebec Region

Regional Office

Communications Canada
3rd Floor, Suite 306
715 Peel Street
Montreal, Que.
H3C 4S2

District Offices

Communications Canada
1141 de l'Eglise Street
5th Floor
Ste-Foy, Que.
G1V 3W5

Communications Canada
Place des Congrès
Suite 600
2665 King Street West
Sherbrooke, Que.
J1L 1C1

Communications Canada
Complexe Guy-Favreau
200 René Lévesque
Boulevard West
East Tower, 12th Floor
Montreal, Que.
H2Z 1X4

Communications Canada
942 Chabanel Street, #1
Chicoutimi, Que.
G7H 5W2

Communications Canada
Room 222
975 St-Joseph Boulevard
Hull, Quebec
J8Z 1T3

Ontario Region

Regional Office

Communications Canada
9th Floor
55 St. Clair Avenue East
Toronto, Ont.
M4T 1M2

District Offices

Communications Canada
5th Floor
30 Duke Street West
Kitchener, Ont.
N2H 3W5

Communications Canada
9th Floor
55 St.Clair Avenue East
Toronto, Ont.
M4T 1M2

Communications Canada
Trebla Building
Room 100B
473 Albert Street
Ottawa, Ont.
K1R 5B4

Communications Canada
Room 210
135 James Street South
Hamilton, Ont.
L8P 2Z6

Communications Canada
Government of Canada Building
Room 1112
451 Talbot Street
London, Ont.
N6A 5C9

Communications Canada
3rd Floor, Suite 2
280 Pinnacle Street
Belleville, Ont.
K8N 5A5

Communications Canada
Station Tower
421 Bay Street
Sault Ste. Marie, Ont.
P6A 5N3

Central Region

Regional Office

Communications Canada
Room 200
386 Broadway Avenue
Winnipeg, Man.
R3C 3Y9

District Offices

Manitoba

Communications Canada
Room 200
386 Broadway Avenue
Winnipeg, Man.
R3C 3Y9

Saskatchewan

Communications Canada
Room 1150
606 Spadina Cresent East
Saskatoon, Sask.
S7K 3H1

Communications Canada
Room 1020
2002 Victoria Avenue
Regina, Sask.
S4P 0R7

Alberta

Communications Canada
Suite 1610
9700 Jasper Avenue
Edmonton, Alta.
T5J 4C3

Communications Canada
Room 820
220-4 Avenue S.E.
Calgary, Alta.
T2G 4X3

Communications Canada
8th Floor
Room 9909-102 Street
Grande Prairie, Alta.
T8V 2V4

Northwest Territories

Communications Canada
10th Floor
Precambrian Building
P.O. Box 2700
Yellowknife, N.W.T.
X1A 2R1

Pacific Region

Regional Office

Communications Canada
Suite 1700
800 Burrard Street
Vancouver, B.C.
V6Z 2J7

District Offices

British Columbia

Communications Canada
Room 224
816 Government Street
Victoria, B.C.
V8Y 1W9

Communications Canada
Federal Building
Room 304
471 Queensway Avenue
Kelowna, B.C.
V1Y 6S5

Communications Canada
Suite 1700
800 Burrard Street
Vancouver, B.C.
V6Z 2J7

Communications Canada
515-280 Victoria Street
Prince George, B.C.
V2L 4X3

Communications Canada
Federal Building
Room 203
101-10th Avenue South
Cranbrook, B.C.
V1C 2N1

Yukon

Communications Canada
Polaris Building
Room 201
4133 4th Avenue
Whitehorse, Y.T.
Y1A 1H8